RCA VICTOR service data

VOLUME VI 1950

RADIO RECEIVERS PHONOGRAPHS TELEVISION

RADIOCORPORATIONOFAMERICARCA Victor DivisionHarrison, N. J., U. S. A.

RCAVICTOR SERVICE DATA



TELEVISION RECEIVERS RADIO RECEIVERS PHONOGRAPHS

This volume is a compilation of Service Data previously issued for the year 1950 with the latest changes and corrections.

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PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION HARRISON, N. J., U. S. A.

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YOU CASH IN ON RCA'S REPUTATION

When you display the RCA emblem in your window or within your shop, you gain immediate recognition from your customers. They recognize RCA as "World leader in radio... first in television."

2

YOU'RE POSITIVE OF RCA'S QUALITY AND ACCURACY

When you service an RCA Victor home instrument with RCA tubes or components, you're *sure* that they're right. They are identical twins of the tubes and parts originally used, and may have actually been manufactured at the same time. All the engineered quality and high standards of the original parts are exactly duplicated, electrically and mechanically.

3 YOU BUILD A LOCAL NAME AS AN RCA SERVICE DEALER

RCA cartons in your shop identify you in your neighborhood as a source for genuine RCA tubes and components, and for genuine RCA Victor replacement parts. Customers will count on you to return their RCA Victor instruments to their *original* high performance standards.

4 YOU PROTECT YOUR REPUTATION

When something goes wrong with a set you service, your customer places the blame squarely with you, not the distributor or the manufacturer of the "almost as good" part you installed. Every call-back means lost time and money, and a dissatisfied customer rarely returns. You *protect* your reputation when you use genuine RCA quality parts. You make more than a sale . . . you win a customer, who will learn to depend upon you for all his service needs.

5 YOU ARE ENABLED TO SERVICE ANY RCA VICTOR SET

RCA stocks over 40,000 different parts. The majority of replacement parts for RCA Victor instruments are maintained in stock for at least 10 years. Thus, you're sure of obtaining genuine RCA parts to fit RCA Victor instruments.

3 YOU ORDER RCA PARTS WITH SPEED AND EASE

Your RCA distributor carries an adequate supply of RCA parts, or he can obtain them promptly from RCA's conveniently located warehouses. Factory availability means that you can repair RCA Victor Instruments old and new, with a minimum of effort, and with the assurance that original performance standards will be duplicated.

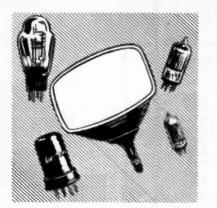
7 RCA LEADS THE WAY... IN RESEARCH AND PERFORMANCE

At RCA's famed laboratories in Princeton, N. J., intensive research and analysis result in continuous technical advances in electronics. The benefits of the advances are passed along to you in new and improved products.



For The Complete Line of RCA Products

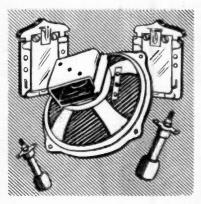
You Lead The Way With RCA



AND KINESCOPES

RCA Electron Tubes and Kinescopes are produced under superior quality controls . . . tested and re-tested before they are released. The RCA brand on any tube is your assurance that it is the exact twin of the tube used in the original RCA Victor instrument.

The RCA brand has top consumer preference. Point out the RCA emblem and you quickly gain the confidence and acceptance of your trade. Today, more than ever before, dependable quality is a primary requirement for electron tubes in every application-television, AM, FM, communications and industry. Identify yourself with the leader in the field ... RCA.

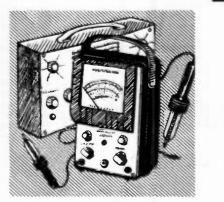


AND SERVICE PARTS

RCA electronic components are scientifically designed and ruggedly constructed to meet your replacement needs. Each component is the result of RCA's pioneering work in the field of electronics, and is built to actual set-tested designs. Developed by famed electronic engineers, RCA components and service parts are designed specifically to work with the tubes and circuits used in the top electronic instruments in the field. You can always depend upon RCA parts, engineered by America's leading manufacturer of electronic components—RCA.

... IN BATTERIES

RCA provides a complete line of highest quality dry batteries – radioengineered for extra hours of dependable service. RCA is "The *Radio Battery* for the *Radio Trade.*" You're sure of an adequate supply when you need it, because RCA production is geared to coincide with peak seasonal demands. RCA Batteries cover 99% of radio battery demand. The standard flashlight dry cell is sealed-in-steel, to keep it fresh on your shelves, virtually leakproof and moisture-proof. Every cell is aged and individually tested. Exacting laboratory tests prove that RCA Batteries exceed the average of competitive brands. For long life and peak performance, insist upon RCA batteries.



... IN TEST EQUIPMENT

More than anything else, the test equipment in the serviceman's shop is the key to his future and his reputation. Any compromise with quality can mean the difference between accurate, dependable analysis, and constant call backs with consequent loss of time, money, and reputation. Test equipment provides the serviceman with a standard upon which he bases all his decisions. That's why the quality of his test equipment must be superior.

RCA Test Equipment is the standard of dependability used in the manufacture of all RCA Victor Home Instruments, where quality and accuracy are the keynote. The RCA equipment you use to test a receiver is very often the very same equipment used to manufacture that receiver. That's why you can depend upon RCA test equipment.

Accurate, dependable, versatile, economical, attractive ... these are the qualities that make RCA Test Equipment the best your money can buy.

See Your Local RCA Distributor



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RC-1001	10X
RC-1001A	
RC-1001B	12X, 12X2 10X (2nd Prod.) 12AX, 12AX2, 35X,
RC-1001B	IVA (2nd Prod.)
RC-1001C	Radiola 516, 517,
	Radiola 516, 517, 522
RC-1001D	
RC-1001E	
10.1001E	Radiola 526, 527
RC-1002	
RC-1002A	
RC-1003	1X, 1X2, 25X
FC-1003A	1AX. 1AX2
	Radiola 510 (2nd
	Prod.), 511 (2nd Prod.)
	Prod.)
RC-1003C	
RC-1003D	Radiola 510 (3rd
	Prod.), 520
RC-1004A	25BT2
	25BK, 25BT3
RC-1004D	Radiola B-52
RC-1004E	
RC-1004F	24BT1. 24BT2
RC-1004H	Radiola B-50
RC-1011	15X (2nd Prod.), 36X
	(2nd Prod.) 56X.
	(2nd Prod.) 56X, 56X2, 56X3, Ra-
	diala 611 610 610
RC-1011A	
	diola 61-1, 61-2, 61-3
	2nd Prod.
RC-1011B	2nd Prod. 56X, 56X2, 56X3, Ra- diola 61-1, 61-2, 61-3
	diola 61-1, 61-2, 61-3
RC-1013	3rd Prod.
RC-1014	2684
PC 1014	
NO-1017A	Prod.)
RC-1014B	26X4
RC-1017	5511 55411
RC-1017A	55U, 55AU 65U, 65AU, 65U-1,
	Radiola 62-1
RC-1017B	
RC-1020	25BP (2nd Prod.)
RC-1020B	Radiola P-5 (2nd
	Prod.)
RC-1022	
RC-1022A	12X (2nd Prod.), 35X
	(2nd Prod.),Radiola
:	522 (2nd Prod.)
RC-1023	56X5, Radiola 61-5
RC-1023A RC-1023B	
RG-1023B	56X10, Radiola 61-10, Postone (PX) 61-10
RC.1023C	, Radiola 61-10 2nd
	David
RC-1034	
	65X9, Radiola 61-8,
	61-9
RC-1035	. QU72, QU72A
RC-1037	64F1, 64F2
RC-1037A	
RC-1037B	6571 6570
RC-1038	. 66X1, 66X2 . 66X3, 66X7, 66X8,
10-1030A	66X9
BC-1040	
RC-1040	66BX (3V4 output)
RC-1040B	66BX (Selenium rect.)
HC-1040C	SRX6 SRX65
RC-1040D	8BX6 2nd Prod.
RC-1044	8BX6 2nd Prod. Q103, Q103A, Q103-2,
	Q103A-2
RC-1044A	Q103X, Q103AX,
RC.1045	Q103X-2, Q103AX-2 65BR9, Radiola
	RASERO
RC-1046	66X12
RC-1046 RC-1046A	66X11
RC-1046B	. 66X13

INDEX TO CHASSIS NO'S (Continued)

RADIO CHASSIS (Cont.)

Chassis No.	Model	Chassis No.	Model	Chassis No.	Model
	(11 2nd Prod.		8X681, 8X682		9X571
RC-1046D 66)	(12 2nd Prod.	RC-1063A	Radiola 75ZU	RC-1079A	9X572
RC-1046E 66)	(13 2nd Prod.	RC-1063B	Radiola -75ZU 2nd	RC-1079B	9X561
RC-1047 54E	35		Prod.	RC-1079C	9X562
	(11, 75X12	RC-1064	65X1, 65X2, Radiola	RC-1079D 9	9W51
	(11, 75X12 2nd		61-8, 61-9 2nd Prod.,	RC-1079E	X571 2nd Prod.
	Prod., 75X14, 75X15		8X53		X572 2nd Prod.
	(11 3rd Prod.,	RC-1065	8X541, 8X544, 8X545		9X641
	5X14 2nd Prod.		8X542, 8X546, 8X547	RC-1080A	X642
	5X16, 75X17,	RC-1065B	8X541, 8X544, 8X545	RC-1082	BX6
	5X18, 75X19		2rid Prod.	RC-1082A	BX6 2nd Prod.
	21, 5Q22, 5Q27	RC-1065C	8X542, 8X546, 8X547		W78. A78
	21, 50222, 5027 21 2nd Prod.		2nd Prod.		9X651
		RC-1065F	8X541, 8X544, 8X545		X652
	117 v.)	NO-1005F	3rd Prod.		A55
	21 2nd Prod.	RC-1065H	8X542, 8X546, 8X547		BX55
	234 v.)	NC-1005H	3rd Prod.	RC-1088A	
	21 (117 v.)	RC-1065J	8X541 4th Prod.	RC-1088B	BX55 2nd Prod.
RC-1053D Q5			8X542, 8X547 4th		BX57 2nd Prod.
RC-1054		RC-1005K	Prod.	DC 1000D	X551
RC-1054A					X552
RC-1054B6Q		RC-1065L	8X541 5th Prod		
RC-1054C 6Q		RC-1065M	8X542, 8X547 5th		2T81, 6T84 Radio
RC-1054D6Q			Prod.		Chassis
RC-1054E 5Q			8X521		5T86, 6T87, 9T89,
	U3Y		8X522		Radio Chassis
RC-1055	51 (PM)	RC-1067			T143, Radio Chassis
RC-1055C		RC-1067A	QP63		2nd Prod.
RC-1055D	51X				A-82
RC-1057A	J	RC-1069	8B41		A-91
RC-1057B 9Y	7	RC-1069A			45-W-9
	diola 76ZX11.	RC-1069B			A-101, A-108
	6ZX12	RC-1069C	8B46		15-W-10
	diola 76ZX11.	RC-1070	8X71, 8X72		A-101, A-108 2nd Prod
	6ZX12 2nd Prod.	RC-1070A	X711		15-W-10 2nd Prod.
	K5, 8BX54, 8BX55	RC-1071	4QB3		3-411
	K5, 8BX54, 8BX55	RC-1071A	4QB3X	RC-1098AI	
	nd Prod.	RC-1072	5QA5	RC-1100	
RC-1059B 9B		RC-1077	9Y51	RC-1100A	
	X5 2nd Prod.	RC-1077A		RC-1101	QB421
	71, 8R74, 8R75	RC-1077B	01/544		
	72. 8R76				
	a, witre				
		-			

AUDIO AMP. AND POWER UNITS

RA.79 9EY31, 9EY32 R8-77 R-98 RS-79 CV-9 Electrifier RS-83.1 PSU-8A RS-83.2 PSU-8B RS-83.3 PSU-8C RS-83.4.1 PSU-10A RS-83A.2 PSU-10C RS-83A.3 PSU-10C RS-83C CV-110 Electrifier RS-83E TRK-9, TRK-12, TRK-90, TRK-120 Radio Power Unit RS-85 PSU-8E RS-86 R-89	R8-94AOSC-22R8-95CV-111ElectrifierR8-95CV-40ElectrifierR8-102AU-44Power UnitR8-102BU-46Power UnitR8-102DU-45Power UnitR8-102DU-45Power UnitR8-102DU-45Power UnitR8-102DU-45Power UnitR8-102DU-45Power UnitR8-112QU5Power UnitR8-111CV-112ElectrifierR8-112QU8Power UnitR8-112QU8Power UnitR8-114AVHR-307Power UnitR8-115QB13, 6V. PowerUnitD0.465D0.0000Unit	RS-123B 648PV Audio Amp. & Power Supply RS-123C 741PCS, 8PC841, 9PC41 Audio Amp. & Power Supply RS-123D 8V151 Audio Amp. & Power Supply RS-123D 8V151 Audio Amp. & Power Supply RS-126 66E, 66ED, 66E-1 RS-127 63E, 63EM RS-130A 4QV8C Power Unit RS-132A 9EY3, 9EY3M, 9EY35, 9EY36, 45-EY RS-132A 9EY35, 9EY36, 45-EY RS-132C QEY3 RS-132F 45-EY, 45-EY-1 RS-132H 45-EY-3 PC 124 45-EY 2
R\$-85 PSU-8E	RS-115	RS-132F 45-EY, 45-EY-1
R8-86	Unit	RS-136
R8-89 CV-9X Electrifier R8-89A TRK-5 Radio Power	RS-115B QB9 Power Unit RS-119 R-56 RS-123 612V1, 612V3, 612V4,	RS-136A 45-EY-3 RS-136C 45-EY-3 RS-138A 45-EY-2
Unit RS-89B U-42 Power Unit	711V1, 711V2, 711V3	R8-138H 45-EY-2
RS-90 VA-21 RS-91A O-50	Audio Amp. & Pow- er Supply	RS-1000 CV-42 Electrifier RS-1001 CV-45 Electrifier
R8-91B R-60 R8-92 M-70 Power Unit	RS-123A641TV, 648PTK, 8TV41 Audio Amp. & Pow- er Supply	

INDEX TO CHASSIS NO'S (Continued)

TELEVISION CHASSIS

Chassis No.	Model	Chassis No.	Model	Chassis No.	Model
КС-3	Т-5	KCS-26A-1 72	21TCS	KCS-47 6	T53. 6T54
KC-3A TI	RK-5 TV Chassis	KCS-26A-2 72	21TCS (50 cv.)		T53, 6T54
КС-3В Т	T-5 (50 cv.)		30TV1. 730TV2 TV		T64, 6T65, 6T71.
	RK-5 (50 cy.) TV		Chassis		6T74, 6T75, 6T76
	Chassis		30TV1, 730TV2 (50	KCS-47AT 6	T64. 6T65. 6T71.
	RK-12 TV Tuner		cy.) TV Chassis		6T74, 6T75, 6T76
	RK-9 TV Tuner		T241, 8T243, 8T244,	KCS-48 6	T84, 6T86, 6T87
	RK-12 (50 cy.) TV		9T240		T84. 6T86. 6T87
	Tuner	KCS-28A 9	Γ240		T57
	RK-9 (50 cy.) TV		TC240		T57
	Tuner		T246		
	RK-120 TV Tuner		T270, 9T270		T77, 9T79
	RK-90 TV Tuner	- 1 11 T T T			T77, 9T79
			TC270, 8TC271		T89
	RK-120 (50 cy.) TV		TC272, 9TC275	KCS-60T9	T89
	Tuner		TV321, 8TV323,		
			9TW333 TV Chassis	KK-7	FRK-12 TV Power
	OTS		1000, 9TW390		Unit
KCS-20B63			TV Chassis	KK-7A 1	FRK-9 TV Power
	ЮТS (50 су.)		TR29		Unit
	ЮТСЅ (50 су.)	KCS-32A8		KK-7D 1	TRK-12 (50 cy.) TV
KCS-20J81			TR29		Power Unit
	ГЅЗО (50 су.)		Т К 29	KK-7E 1	FRK-9 (50 cy.) TV
KCS-2162	21TS	KCS-33A8"			Power Unit
KCS-24 64	8PTK TV R-F/I-F	KC8-34	TC247, 9TC249	KK-7F 1	TRK-120 TV Power
	Chassis	KCS-34B T	C124, TC125, TC127,		Unit
KCS-24A	18PV TV R-F/I-F		9TC245, 9TC247,	KK-7J -	TRK-90 TV Power
	Chassis		9TC249		Unit
KCS-24B 74	1PCS. 8PCS41		120, T121	КК-7Н 1	TRK-120 (50 cy.) TV
	R-F/I-F Chassis		100, 97246		Power Unit
KCS-24C 8F	PC841, 9PC41	KCS-38C 9			Fower onic
	R-F/I-F Chassis	KCS-40 T	164	KRS-20 6	48PTK. 648PV
	PC41 R-F/I-F		C165. TC166. TC167.		Horiz, Defl. Chassi
	Chassis		TC168	KRS-20A 7	41PCS, 8PCS41
KCS-25A 64	ITV TV Chassis		T72	RN0-20A	Horiz, Defl. Chassis
	1TV (50 cy.) TV	KCS-41 9		KRS-20B 8	PCS41, 9PC41
	Chassis	KCS-41A T	A129	KN9-200	Horiz. Defl. Chassis
	TV41 TV Chassis		A128	KRS-21 6	48PTK. 648PV TV
	FV41 (50 cy.) TV	KCS-43 T		NR9-21	Power Supply
	Chassis	KCS-45 2	T51	KRS-21A	
	21TS	KCS-45A 2		NN9-21A	741PCS, 8PCS41, 9PC41, TV Power
	21 TS (50 cy.)	KCS-46 2	T81		
					Supply

MODEL vs. RECORD CHANGER (1943 to 1950)

Model Record Changer	Model Record Changer	Model Record Changer	Model Record Changer
Model Record Changer A55 RP 168 & 960282-1 A78 RP 168 & 960282-1 A-82 RP 168 or RP 190-2 & 960282-4 or -5 RP 168 or RP 190-2 & 960282-4 or -5 RP 168 or RP 190-2 & 960282-4 or -5 RP 168 or RP 190-2 & 960282-4 or -5 RP 168 or RP 190-2 & 960282-4 or -5	Model Record Changer 6T84	9789 RP 168 or RP 190-2 & 960284-1 or -2 97W309 RP 168 & RP 178 9TW333 RP 168 & RP 178 9TW330 RP 168 & RP 178 9W333 RP 168 & RP 177B 9W51 RP 168 & RP 177B 9W51 RP 168 & RP 177B 9W101 RP 168 & RP 178 9W102 RP 168 9W103 RP 168 & RP 178 9W105 RP 168 & RP 178 9W106 RP 168 & RP 178 9Y7 RP 168 9Y51 RP 168 9Y51 RP 168 9Y51 RP 168 9Y51 RP 168 45-EY RP 168	55U, 55AU 960015 58V, 58AV 960001-1 59V1, 59AV1 960001-2 Rad. 62-1 960260-2 65U, 65AU 960260-2 65U, 65AU 960260-2 67V1, 67AV1 960260-2 87V1, 67AV1 960260-2 67V1, 67AV1 960260-1 Rad. 75ZU RP 178 or 960276 77V
TA169RP 168 & 960285-1	9EY35RP 168	45-EY-3 RP 190-1 or RP 190-3	710V2RP 177 or RP 177A 730TV1RP 177 or RP 177A
2T81RP 168 or RP 190-2 & 960282-4 or -5	9EY35URP 168 9EY36RP 168	45-EY-15RP 168 45-JRP 168	730TV2 RP 177 or RP 177A
4QV8CRP 168 & 960282-2	9EY36URP 168	45-J-2	711V1960001-5 711V2960001-5
6QU3	9JY	45-J-3RP 193	711V3
6QU3YRP 169 6QV3RP 178-3	9QV5RP 168 & 960282-2	45-W-9	
V& VO		45-W-10	

SUPPLEMENTARY INFORMATION (RADIOS AND RECORD PLAYERS)

RP-168 Series and RP-190 Series Record Changers

Pickup Cartridges:

The following is a listing of pickup cartridges used in RP-168 and RP-190 Series 45 r.p.m. record changers.

RMP 128-1 Stock No. 74067

Crystal pickup—replaceable sapphire stylus Stock No. 74068—''Normal range''.

RMP 128-2 Stock No. 74625

Crystal pickup—replaceable sapphire stylus Stock No. 74818—''wide range''.

RMP 128-4 Stock No. 75575

Crystal pickup—replaceable sapphire stylus Stock No. 75770—"wide range".

RMP 128-5 Special Order

Crystal pickup—replaceable osmium stylus (special order) — "normal range". Use RMP 128-1 for replacement.

RMP 136-1 Stock No. 75476

Crystal pickup—fixed osmium stylus—''normal range''. Use RMP 128-1 for replacement.

Stock No. 74666

Variable reluctance pickup—replaceable diamond stylus Stock No. 74622. Not directly interchangeable with any other pickup. Used on Model CP-5203.

Stock No. 74984

Ceramic pickup—"normal range"—replaceable osmium stylus Stock No. 74985. Used on Models QJY and QEY3. (RP-168 Series only).

Stock No. 76297

Ceramic pickup—"normal range"—replaceable osmium stylus Stock No. 74985. Used on Models QIY2, QEY4 and QEY5. Counterbalance spring must be changed to Stock No. 74060 when center mounting holes are used.

Stock No. S-5578

Ceramic pickup—"normal range"—fixed osmium stylus. Used on Models 9QV5 and 4QV8C. Not directly interchangeable with any other pickup.

"Wide Range" vs "Normal Range": The "normal range" pickups have a greater output in the middle audio frequencies. The "wide range" pickups are more "flat" and have a greater output in the high audio frequencies. All of the above pickup cartridges are directly interchangeable except as noted.

Use of Variable Reluctance Pickups:

The most common difficulty encountered in attempting the substitution of variable reluctance pickups in place of crystal pickups is excessive hum.

This hum is primarily due to induction from the magnetic field of the drive motor. A crystal pickup is unaffected by this magnetic field. The output of variable reluctance pickups, being much lower than crystal pickups, must be provided with greater amplification (usually with a pre-amplifier) to obtain the equivalent output from the speaker. The hum is also amplified.

Shielding must be provided and can be accomplished by either of two methods.

- Shielding of the motor with a metal box preferably of .020" steel. An inner box of non-magnetic metal will provide additional shielding. NOTE: When such a box shield is added, it will also raise the impedance of the motor and reduce its torque. To overcome this difficulty, it will be necessary to raise the voltage applied to the motor. The power consumption of the motor should be measured before and after adding such a box shield.
- Addition of a steel plate approx. "" thick between the mechanism and the motorboard.

There are several other matters which must be given attention.

- 1. In most all applications, a pre-amplifier must be used to provide amplification and equalization. A variable reluctance pickup is lower in output and impedance than a crystal pickup.
- 2. The pickup arm must be changed to accommodate the difference in mounting centers.

The counterbalance spring must provide the correct stylus force (approx. 5 grams).

One version of the RP-168 record changer was manufactured using a variable reluctance pickup and a shielded motor. Replacement parts are listed in RP-168 Series Service Data.

RP 168 Series Record Changer

Polarized Motor:

On some instruments the connection of the power leads of the motor should not be reversed. The leads are color coded and reversed leads may introduce objectionable hum. The record changer mechanisms using this motor are labeled RP 168B-6 or RP 168D-2 and are used with Models 45-EY and 45-EY-1.

Replacement motors (Stock No. 74071) may not be color coded and in such cases it will be necessary to determine the correct connection by trial.

Models 9X561, 9X562, 9X571, 9X572

Substitute Speakers:

Several speakers have been used as a substitute for the originally listed speakers for the above models. Each speaker requires a different replacement cone as listed below.

Speaker No.	Cone No.	Speaker No.	Cone No.
92586-2W	74758	92586-4W	75759
92586-4F	75999	92586-5W	75024

Complete 92586-2 speaker available as Stock No. 74679. Complete 92586-4 speaker available as Stock No. 74664. Complete 92586-5 speaker available as Stock No. 76393.

45EY-3 (RS-136C)

Service Data:

Late production of Model 45-EY-3 uses chassis stamped RS-136C. This chassis is identical to chassis RS-136Å except for the speaker. In RS-136C the speaker is rim mounted and in RS-136Å it is pot mounted.

Replacement Parts:

Stock No. RS-136C Identical to RS-136A except:

76408 Bracket—Speaker mounting brackets complete with screws (1 set)

SPEAKER ASSEMBLY

922258-5

76407 Speaker—4" x 6" PM speaker complete with cone and voice coil

X551, X552 (RC 1089B, RC 1089C)

Change in Volume Control:

The volume control used in initial production was 500,000 ohms. This has been changed to a 1 megohm control.

Change in Parts List:

CHASSIS ASSEMBLIES

75985 Control—Volume control (1 megohm) and power switch (R5, S1)

MISCELLANEOUS

Delete: 74340 Nut-

Add:

Add:

72765 Nut-Speed nut to attach foot (4 req'd)

TELEVISION SUPPLEMENTARY INFORMATION

MODELS T100, T120, TC124, TC125, TC127, TA128, TA129 DEFLECTION CHANGES

Two Types of Yokes:

Current production of 10 and 12 inch television receivers are employing two different types of deflection yokes. One yoke is the older type which had an iron wire wrap core. The new type yoke has a powdered iron core. The two yokes are easily identified in that the older iron wire wrap yoke has a cardboard outer housing, while the new powdered iron yoke has a moulded bakelite housing.

The two yokes are not directly interchangeable for while the iron wire wrap yoke will work in the circuit designed for the powdered iron core yoke, the powdered iron yoke should not be employed in the circuit designed for the iron wire voke unless suitable circuit modifications are made.

In order to reduce to a minimum, the amount of field confusion, the replacement parts department will stock only the iron wire wrap yokes so that field modifications of older sets will not be necessary when replacing yokes. In receivers employing the "ELECTRONIC MAGNIFIER"

deflection circuit, R181 was 470K for the iron wire wrap yokes. This value has been changed to 220K as a compromise value for both types of yokes. Early T100 and T120 receivers with straight deflection

systems employed a 1 meg resistor for R181 when the iron wire wrap yoke was used. Later some were built using a 150K resistor which gave more width and high voltage with the wire wrap yoke. When the powdered iron yoke is employed, R181 should not be less than 470K (which gives greatest width) nor higher than 1 meg. (which gives the best linearity). A 470K resistor is now being used in production as a com-promise which is suitable for either type yoke.

Vertical Non-Linearity:

T120 receivers employing the powdered iron core yokes have another modification necessary to prevent poor vertical linearity, this showed up as cramping at the bottom of the picture. The non-linearity was corrected by raising the vertical oscillator plate voltage by changes in the B boost filter as shown in Figure 1. This change also prevents the formation of an extremely bright spot on the screen immediately after the set is turned off. If C146B develops excessive leakage it will cause the picture to be cramped at the bottom.

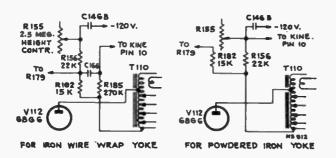


Figure 1-B Filter Connections

Raster Ringing:

In most cases, the iron wire wrap yoke type 201D3 will be supplied under stock numbers 71420 and 74262. In the 201D3 yoke, the 56 mmf. capacitor across a portion of the horizontal deflection coil is connected across yoke terminals 1 and 2. Before installing the yoke, check the schematic of the receiver in which the yoke is to be installed. Some models require that the capacitor be between terminals 1 and 2, and other models specify between terminals 2 and 3. In the latter case, the capacitor must be reconnected. Failure to connect the capacitor properly will result in bad raster ringing. Except for the connection of the capacitor, the type 201D3 is an exact duplicate of the iron wire wrap yokes used in production.

It excessive raster ringing occurs on the left side of the picture of current 10" and 12" receivers, and the yoke

capacitor is correctly connected, and the circuit appears otherwise normal, then remove the yoke red lead from terminal 4 of T110 and reconnect it to terminal 5. This reduces the ring at the possible slight expense of linearity. This modification is applicable to regular and electronic magnifier deflection systems.

If raster ringing occurs near the center or right side of the raster it may be caused by mis-adjustment of the Linearity Control Coil. Proper coil adjustment is best made by turning the core counter-clockwise all the way and then clockwise until the ring just moves off the right side of the picture. Normally the core stud is just about flush with the outside of the chassis. This adjustment is applicable to both the regular deflection system and to the electronic magnifier systems.

On receivers with electronic magnifier deflection system, if the raster rings on the left side with the picture in the normal size, it may help to change the RC network (C178, R188) in parallel with the series width coil from 10K and 330 mmf to 5K and 470 mmf.

Poor Vertical Sync:

Reports from the field show that in a few cases this has been

Reports from the field show that in a few cases this has been caused by Capacitor C-136 (cathode by-pass V-108). In some cases this capacitor had broken loose from ground. Some vertical oscillator transformers marked 274011 with too high a "Q" caused a white condition at the top of the picture and possible instability of sync. The cure was to lower the transformer "Q" by connecting a 1 meg. resistor across the green and yellow transformer leads.

Unstable Horizontal Sync. (Wavy Picture)

It has been reported from the field, that in a few cases this is caused by the wrong values of C-135, R-144 and R-217.

Part	Correct Value
C-135	.01 mfd.
R-144	4700 ohm
R-217	2700 ohm

ALIGNMENT HINT FOR R-F UNITS

During alignment of the r-f unit, it is often advantageous to have a sweep width of 15 mc. or more when adjusting the high channels. This permits seeing the entire skirts of the curve and makes it easier to see the effects of the various adjustments. When using RCA type WR59A sweep generator, additional sweep width may be obtained by removing the sweep case back and shorting out resistors R14 and R16. After this, the front panel sweep width control still operates as before, except that more sweep width is available on the

high channels. The WR59A should be turned ON and OFF by means of the front panel control. If the sweep was turned off by disconnecting the power plug or by means of a bench master switch, but the sweep power switch was left on and in the maximum sweep width position, then the sweep modulator may overshoot and hit stationary parts when the power is reapplied.

KRK-8 R-F UNIT ALIGNMENT

It is suggested that the F-M trap adjustment (L203) be adjusted to minimum inductance (slug out) so that the effects of this trap, which is capable of being tuned to Channels 5 or 6, will not adversely affect the response of these channels during alignment.

USE OF WR39A & WR39B TELEVISION CALIBRATORS

In some instances it may be difficult to hear the heterodyne beat between the variable oscillator and the crystal standard in subject instruments, particularly at the high frequencies.

If the audio system of the receiver under test is in good condition, it is suggested that an audio lead can be run from the head phone jack of the calibrator to the "high" side of the volume control of the television receiver, thus utilizing the additional audio amplification available in the TV chassis.

PRODUCTION CHANGES IN KRK5 AND KRK7 R-F UNITS

In some units a 1.5 mmf. capacitor has been added in parallel with C22 since that capacitor was running on the low capacity side of its tolerance and causing the high pass input filter to cut off at too high a frequency, thus putting a tilt in the channel 2 r-f response.

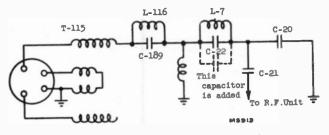


Figure 2-R-F Unit High Pass Input Filter

In some units, the capacitor C20 (18 mmf. ceramic) has been replaced by a small trimmer (7-35 mmf.) as shown in Figure 3. This capacitor was set at the factory at 18 mmf. and should not be adjusted in the field. If it is ever necessary to replace the trimmer, use the fixed ceramic capacitor specified in the replacement parts list.

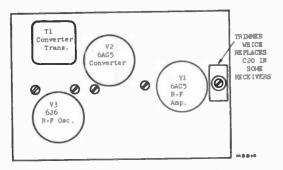


Figure 3-Top View of R-F Unit

BARKHAUSEN OSCILLATION

The usual effects of Barkhausen oscillation make themselves evident by producing one or more dark, sharply defined vertical lines on the left side of the picture or raster. These lines vary in width and/or intensity from one channel to another and from one brightness level to another. They are usually more apparent on the higher frequency channels and at low brightness settings. In the worst cases, these oscillations tend to upset horizontal synchronization. In the mild cases, they usually annoy the customer more than they do the set.

The only tube in the set that could cause this interference is the 6BG6G since it is the only one that has a positive grid to plate potential at any time. The critical voltages are reached just about the time the tube calls for deflection of the beam to the right hand side of the raster. This happens when the spot is about one third the way across horizontally. Following are a few solutions to the problem:

- 1. Change the drive control setting.
- Replace the 6BG6G with another. (The tube being replaced will probably operate satisfactorily in some other chassis.)
- 3. Change antenna or antenna lead-in placement.

The first method is critical with respect to line voltage and should be adjusted to give satisfactory operation on all available channels at any line voltage encountered.

The installations using either a built-in antenna or an indoor antenna are often subject to an undue amount of pickup because of their location. The lead-in, if draped near the high voltage compartment can also cause trouble. The solution for this type of trouble is obvious.

If a severe case of Barkhausen oscillation is encountered, and all normal methods have been unsuccessful in eliminating this trouble, a last resort which is usually successful is the installation of an ion trap magnet of any type over the 6BG6 tube. The position of this magnet should be adjusted to eliminate the oscillation.

BROADCAST INTERFERENCE IN KRK5 AND KRK7 R-F UNITS

In some cases where a television receiver is in operation on a weak signal but near a strong AM station, interference has been experienced. To cure, insert a 100 mmf. capacitor between the high side of T115 and L116, as shown in Figure 4.

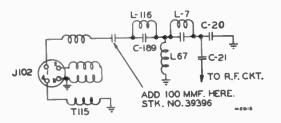


Figure 4-Partial Schematic of R-F Unit

In severe cases of BC interference, it is recommended that a coil such as L80 in KRK-2 r-f units be inserted from terminal #1 of J102 to ground.

DETENT BACKLASH— TV R-F UNITS

This particular trouble is easily recognized, and is generally more pronounced on the high frequency channels than on the lower frequency channels. If the fine tuning control requires different positions of adjustment when the detent is switched clockwise to a channel when compared to switching counterclockwise to the same channel, there is backlash between the detent shaft and the oscillator switch rotor.

In severe cases, this play can result in oscillator drift due to rotor movement. In order to make the detent shaft fit the oscillator switch rotor more accurately, it is convenient to apply any quick-drying cement to the detent shaft, building it up. In unusual cases, more than one coat may be necessary. If too much thickness is built up, it may be sanded or filed to the required thickness.

MODEL KRK-8 AND KRK-8B R-F TUNERS

The KRK-8 tuner is used in $12\frac{1}{2}$ " TV models, and the KRK-8B tuner is used in 16" and 19" models. The only difference between these two units is the front shield plate and the four insulating washers used in mounting this plate.

These four insulating washers are very important for satisfactory performance of this tuner. A resonant circuit exists between the R-F tuner chassis and the outer shield box. The frequency of this resonance is controlled in design by the use of insulating washers of different thicknesses. In the KRK-8 tuner, these four washers are round—Stock #73466. In the KRK-8B tuner, the washers are hex shaped—Stock #75607.

If the R-F tuner is removed for service, the correct washers must be used when the unit is reinstalled.

HORIZONTAL OSCILLATOR RADIATION

Investigation of a number of horizontal oscillation radiation complaints has indicated that almost all of the radiation is from the power lines associated with the television receiver.

The simplest method for reducing or eliminating this objectionable interference is the installation of a good quality ac line filter on the TV set (such as Tobe Filterette, Type 1176). It is very important that a good ground connection be employed with a filter of this type.

TELEVISION PROTECTION FEATURE

Underwriters' laboratories have insisted that additional protection be provided in television receivers by adding a 100,000 ohm resistor from one side of the 110 volt a-c line to the chassis. This will parallel one of the capacitors presently connected from each side of the a-c line to the chassis.

On installations incorporating the neon lamp type lightning arrestor, the addition of this resistor may be sufficient to cause one of the neon lamps to glow. Of course, this would result in a loss of signal. If this occurs, it is merely necessary to reverse the power plug. The customer should be so instructed in order to avoid replacement of the line plug in its incorrect position.

TELEVISION INTERFERENCE, CAUSES & RECOMMENDED CURES

Type Of Interference	Character Of Interference	Cause	Suggested Remedies
FM	Diagonal bars or herringbone crosshatch in pix. FM sound in television sound.	F M station on image of low channel television station. F M signal overloading r-f unit creating harmonic in receiver which falls on highband television channel Second harmonic of F M transmitter falling on a high band television channel	Adjust FM trap to attenuate FM signal. Also use stub at the receiver cut for the fundamental of the FM station. Vary orientation of television antenna to reduce FM pickup. Second harmonic radiation must be suppressed at transmitter. Orient television antenna to reduce harmonic pickup.
Adjacent Channel Interference	Undesired Station causing blanking out of desired station or causing wind- shield wiper effect.	Inadequate receiver selectivity. Attempting to receive stations beyond their service area.	Align the receiver with special attention to the adjacent channel traps. Install additional adjacent channel traps. Use antenna with good front to back ratio, if applicable, or orient antenna to minimize adjacent channel pickup.
Co-channel Interference	Horizontal bars moving up and down through pix. In some cases the sound may be garbled.	Two stations operating on same channel. Customer located so as to receive signals from both stations.	Use antenna with good front to back ratio on that part- icular channel if stations are in opposite directions. Orient antenna for best results. "Venetian Blind" condition largely corrected by off-set carrier operation of stations.
Amateur	Cross hatch, horizontal or diagonal bars in picture. In instances of extreme inter- ference pix may be reversed (negative) or pix may be blocked out with no vis- ible beat pattern. Sound in television sound	Pickup of fundamental, harmonic or parasitic frequencies from amateur transmitter. Overload of television r-f unit, from fundamental of amateur transmitter.	If 28 mc interference is picked up in i-f then shield i-f's. If 28 mc interference "leaks" through KRK2 r-f unit, readjust adjacent channel sound trap to reject 28 mc interference. Install a good high pass filter as close to receiver input as possible (directly on head end unit) with short ground connection. With KRK8, avoid use of 72 ohm co-ax transmission line. If interference is definitely due to harmonics or parasitics, arrange with Amateur for reduction of spurious signals -e.g., Frequency multiply in low power stages, shield transmitter, and install low pass filter in transmitter antenna transmission line.
Interchannel	Diagonal bars in picture or undesired pix super-imposed on picture	Double conversion or oscillator harmonic conversions	Adjust FM trap Install stub cut to interfering frequency. Orient antenna to reduce interference.
Diathermy R-F Heating Equipment	Herringbone pattern on pix, also appears as heavy black horizontal bars across picture	Pickup of fundamental, harmonic or parasitic radiations from diathermy equipment.	Same approaches as for radio amateur interference Have owner employ reliable technician to eliminate harmonic or spurious radiations.
Ignition	Horizontal streak across pix - Noise in sound - Possible loss of sync.	Mostly due to weak signal being received from television station.	Use outside antenna to get good signal. Locate antenna away from streets or sources of interference. Use co-ax or twin-ex transmission line.
Horizontal Oscillator Radiation	Causes heterdyne whistle in AM Broadcast radio receiver	Harmonics of 15KC horizontal osc. of television receiver beating with broadcast band signals.	Try to secure stronger signal from radio station, by better radio antenna. Separate television and radio sets by as much distance as possible. Use interference filter on power line at television chassis. Put earth ground on chassis. Shield television chassis.
Sound & Pix I-F Harmonics In Picture	Herringbone pattern on pix if caused by sound i-f harmonics or bars if caused by picture i-f har- monics	Harmonics of sound or picture i-f's getting back into r-f unit.	Lead dress around sound and pix i-f's critical. Defective by pass capacitors. Use outdoor antenna. Keep lead-in away from last i-f stages. Shift i-f frequencies slightly. See RCA Television Supplement No.2.

MODELS T164, TC165, TC166, TC167, TC168

Insufficient Width:

A. INSUFFICIENT WIDTH, KEYSTONE RASTER, ARCING, ETC.

Generally, this condition is caused by the dress of the leads to terminals 1 and 3 of the horizontal yoke. Shorting of these leads to turns of the horizontal yoke winding will account for a small horizontal raster, and the voltage difference between the turns will account for the arcing.

In cases of insufficient width on these models, the following changes which were made during production, should be checked:

- 1. Remove R167, 5600 ohm, 1 watt resistor, which is in parallel with L111, the horizontal linearity coil.
- 2. Install a 4.7 mmi. high voltage capacitor (RCA Part #75646) from Terminal #2 of T110 to +250 volt. This connection should be made at junction of fuse F101 and red lead on terminal board in H.V. compartment. The leads of this capacitor must be protected for their entire length by spaghetti and should be dressed away from the high voltage transformer, the 6BG6 tube, and the back cover of the H.V. compartment.

B. NO HORIZONTAL DEFLECTION

In some cases the leads of the horizontal section will make contact with the vertical section of the yoke. Under this condition there will be no horizontal deflection.

There is also a possibility that the saran, or insulating material, between sections will break down resulting in arcing and no horizontal deflection.

Since the majority of yoke defects are improper lead dress, the repair can often be effected in the field. The following is a logical approach:

Remove the yoke plug from the chassis and make a resistance check to possibly determine the defective section or sections:

NORMAL READINGS AT PLUG P106

Pin 4 to Pin 8—Measures approximately 40 ohms Pin 1 to Pin 2—Measures approximately 3 ohms

Pin 1 to Pin 8—Measures infinity Pin 4 to Pin 2—Measures infinity

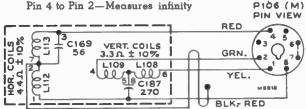


Figure 5-Yoke Connections to P106

If low resistance readings can be changed by squeezing the bakelite cap of the yoke, this is an indication that lead dress is at fault.

To clear a short, use a long probe and change the lead dress until the resistance readings are normal. Check the lead dress on yoke terminals 1 and 3 first.

If the resistance check is normal and the yoke is still defective, then connect the yoke plug, but do not insert the kine. Turn the receiver on and visually note the location of the arc. Once the location of the improper lead dress is determined, clear as before until the arcing condition does not exist. This type of trouble is of course not indicated by a resistance test, but is apparent only by the arcing condition due to the proximity of the wires.

The majority of failures are due to lead dress as pointed out above, however, one should not overlook the possibility of defective yoke capacitors and improperly soldered connections.

Production Change:

To correct a condition of grid blocking due to high frequency oscillations in the audio circuit of some chassis, the following changes were made early during the production of these receivers.

- C202, C181, and the blue wire are to be removed from pin 6 of V120 socket and relocated on the vacant lug on the terminal board on the chassis side apron.
- 2. The other end of C181 is to be removed from pin 2 of V120 socket and connected to the center lug on the above mentioned terminal board.
- 3. C186 was changed from its former connection at C170-B to tie instead at pin 4 of V120 socket.

To reduce regenerative tendencies of the video amplifier at minimum setting of the contrast control:

1. R220 was changed in value from 12,000 ohms to 10,000 ohms.

"Kinky Raster"

Some of the KCS40, KCS40A chassis used in the above models produce non-linear raster edges, caused by capacity coupling of 60 and 120 cycle harmonic components that appear on these edges due to the order of the windings in the power transformer.

Non-linear edges on the raster edge can be corrected by adding a .002 mf. 1600 volt oil-filled capacitor (Stk. #73817) connected from terminal 6 (red and green lead) of V115 socket to chassis ground. Production is now adding this capacitor to compensate for this condition.

All chassis having this capacitor added will be marked by red paint on the top of the power transformer.

All power transformers marked with a yellow spot on the top will not require this modification.

The schematic for these models will show this capacitor dotted in place, but with no symbol assigned.

Extension Cables:

The yoke, focus coil and kinescope are fastened to the cabinet in the T154 series receivers and not to the chassis as in all previous models.

When the chassis is removed from the cabinet for service, it will be necessary to "unplug" the yoke and focus coil. With either of these two components out of the circuit, the receiver cannot be operated because of the +B disconnect incorporated in each plug.

In order to operate the receiver, removed from the chassis, it will be necessary to use extension cables to connect the yoke and focus coil.

If it is necessary to have the audio system of the receiver connected and operating during servicing, it will also be necessary to use an extension cable to connect the speaker. In the above models the output transformer is mounted on the speaker frame, and if the speaker is disconnected, the lead supplying +B to the audio output tubes is broken, making the audio amplifier inactive.

Figure 6 describes how these extension cables can be made, also stock numbers of plugs and connectors used.

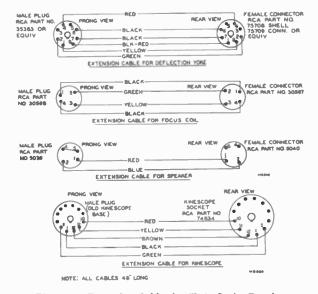


Figure 6-Extension Cables for T164 Series Receivers

60 CYCLE BUZZ IN SOUND OF TELEVISION RECEIVERS

This interference appeared on 8T270, 9T270, 9T246, T121 and 9TC245 series receivers when operated in strong signal areas.

There are several modifications which will cure this difficulty. These modifications have been made in production on T100, T120, TC124, T164, TA128, TA129 and TA169 series .receivers. These modifications are listed below.

RECEIVERS USING ALL 6AG5 TUBES IN PICTURE I-F:

1. Replace 6ÅG5 tube in first picture i-f with others until one is found to cure condition.

(6AG5 tubes which have an abnormally sharp grid cut-off characteristic will cause a buzz in sound. A tube removed for this trouble is not necessarily defective, but can be used in either the 2nd or 4th picture i-f where fixed bias is applied.)

- 2. Ground test connection in r-f unit (R-13, 100K).
- 3. Check all filter capacitors in the AGC circuit for wrong connections and also see that they are in good working condition

I-F HARMONIC INTERFERENCE

This interference has appeared in a number of television receivers. The following discussion applies specifically to Models T100, T120 and T164 and in general to other models using KRK5 series or KRK7 R-F units which may have differing component identification.

Although all the affected receivers employ KRK5 or KRK7 R-F units, the interference is not the fault of the R-F unit.

Sound I-F Interference :

In some instances harmonics created in the sound i-f find their way back into the receiver input circuits and create interference. The sound i-f third harmonic falls into channel 3. the fourth harmonic falls into channel 6, the ninth harmonic falls into channel 9 and the tenth harmonic falls into channel 13. These may be identified by removing the second sound i-f tube to see if the interference disappears. If it does, then the harmonics are created in the sound i-f stage or in the discriminator. The following information may be helpful in eliminating or reducing such interference.

The ground wire running from pin #2 of the second i-f socket, which runs approximately an inch and a half to a lance towards the rear of the chassis, should be dressed away from pin #1 of this socket, and as far as possible towards Terminal B of T112. This will cause the wire to run a curve rather than a straight line and may require a slight lengthening of the ground lead.

Carefully check the i-f and discriminator transformer shield cans and wiring. The shield cans should be tight in place and well grounded to the chassis. In order to insure a good ground of these shield cans, it may be desirable to place some solder on the chassis where the can contacts the chassis so that the can may be pulled into the solder when clamped in place.

Carefully check the lead dress in the discriminator stage, particularly the leads connected to the discriminator transformer, making sure that they conform to all lead dress information contained in the service notes for the instrument involved.

Make sure that all by-pass capacitor leads in the sound i-f system are as short as possible and that the capacitor itself is dressed close to the chassis.

Make certain that the antenna lead-in from the terminal board on the rear of the cabinet to the r-f tuner input is dressed away from the chassis so as not to cause any unbalanced condition to the receiver input.

The normal discriminator wiring is from pin #1 of the 6AL5 to the tube socket shield, then to pin #6 and from pin #6 to ground. Disconnect the wire from ground to pin #6 and ground pin #1 separately with as short a lead as possible.

In some instruments now in production, a zinc discriminator shield can is being used. This can is soldered directly to the chassis.

Picture I-F Interference:

In some instances harmonics created in the picture i-f find their way back into the receiver input circuits and create

RECEIVERS USING 6BA6 TUBES IN 1ST & 3RD PICTURE I-F:

- 1. Change 3rd picture i-f tube bias. Disconnect R110-L117 and Cl13 from their present tie point (junction R135 and C190) and reconnect them to the adjacent tie point of the junction of C197 and R136.
 - NOTE: A greater AGC control of the r-f stage and 1st picture i-f amplifier is obtained by this change. This change was made in production of the 1949 models and also is used in the current models. In fringe areas, a slight reduction in sound may be encountered with this bias change. However, picture sensitivity will not be affected. In order to improve sound and if no buzz is encoun-
- tered the bias can be changed to the original point. 2. Ground test connection (R13, 100K) in r-f unit.
- 3. Change R136 from 6800 ohms to 10K.
- 4. Check all filter capacitors in AGC circuit for correct connection and also to see if they are in good working condition.

interference in the picture. The interference takes the form of a beat pattern which varies with fine tuning adjustment. In general, the more sensitive the receiver, the more susceptible it is to this sort of interference.

With the 21.25 mc. sound i-f and 25.75 mc. pix i-f system currently in use, the third pix i-f harmonic falls into channel 5 and the eighth pix i-f harmonic falls into channel 12. If such interference is experienced, it may be reduced by the following steps:

Check the antenna transformer T115, also L67. Check the antenna transmission line for continuity. If any of the above are defective, the interference may be severe.

Shield the fourth picture i-f and video amplifier tubes. Dress the antenna lead from the r-f unit to the cabinet terminal board as far from the chassis as possible.

The wire leading from LlO2 and TlO6 to Rl20 must lie tight on the chassis.

The 10 mmf. pix detector by-pass capacitor should be wired between terminal C of T106 and pin 7 of the V105 socket with the shortest possible lead lengths and should be dressed down close to the chassis and away from other wiring.

The peaking coil, L103, should lie not over $\frac{1}{4}$ inch off the chassis with the shortest possible leads and should be dressed away from other wiring.

The 1500 mmf. by-pass capacitor C193 which goes from plus B to ground at the end of R118 must be in good condition. The filters on the r-f unit bias and plus B supplies (C132,

R112, C192, R214, etc.) must be in good condition.

A few receivers have been found to suffer harmonic interference due to a peculiar fault in the 1500 mmf. bypass capacitors. These capacitors check normal at all frequencies up to 150 mc. but exhibit a higher resistance above this point. Therefore, these capc itors will work satisfactorily in i-f positions but show up efective when used to by-pass high frequencies such as are found in the r-f unit or harmonics of the sound and picture i-f's. Therefore, in such cases it would be wise to check C7, C9, C13, C17, C18, C19, C125, C132, C176, C177, and C192.

A weak 12AU7 (V106) may aggravate the harmonic inter-ference by causing a reduction of AGC voltage.

In general, it is easier from a design standpoint to eliminate low order sound harmonics from the sound circuit than harmonics of higher order from the r-f channels, such as the tenth, etc., since bypass capacitors and ground returns are more effective at the lower frequencies. Likewise, it is more difficult to bypass picture i-f harmonics than sound i-f harmonics, since the impedance of the picture circuits is relatively low compared to that of the sound circuits.

Receivers using BUILT-IN antennas, or having the transmission line draped around the cabinet, are more susceptible to this type of interference. During the installation of a television receiver, this type of interference can be reduced by obtaining as strong a signal from the antenna as possible, and adjusting the AGC control to supply a lower peak voltage to the detector. Thus a higher ratio between TV signal and the i-f harmonic is obtained.

TELEVISION SUPPLEMENTARY INFORMATION

As a last resort, the receiver may be aligned to different i-f frequencies. This has the effect of pushing the interference into other channels. The attached chart shows 5 different i-f frequencies and the interferences that might be encountered in each. Harmonics that fall more than 0.5 mc. below the picture carrier should not cause interference and hence are not listed.

RECEIVER I-F FREQUENCY	MAY HAVE INTERFERENCE ON CHANNEL	CAUSED BY	POSITION OF HARMONIC WITH RELATION TO STATION PIX CARRIER
20.75 mc Sound 1-f 25.25 mc Pix i-f 19.25 mc Adj. Chan. P.x 26.75 mc Adj. Chan. Snd.	Channel 7 Channel 11 Channel 3 Channel 6 Channel 9 Channel 12	7th Pix i-f harmonic 8th Pix i-f harmonic 3rd Sound i-f harmonic 4th Sound i-f harmonic 9th Sound i-f harmonic 10th Sound i-f harmonic	1.5 mc above 2.75 mc above 1.0 mc above .25 mc below .50 mc below 2.25 mc above
21.25 mc Sound i-f 25.75 mc Pix i-f 19.75 mc Adj. Chan. Pix 27.25 mc Adj. Chan. Snd.	Channel 5 Channel 12 Channel 3 Channel 6 Channel 13	3rd Pix i-f harmonic 8th Pix i-f harmonic 3rd Sound i-f harmonic 4th Sound i-f harmonic 10th Sound i-f harmonic	0 mc. .75 mc above 2.5 mc above 1.75 mc above 1.25 mc above
21.75 mc Sound 1-f 26.25 mc Pix i-f 20.25 mc Adj. Chan. Pix 27.75 mc Adj. Chan. Snd.	Channel 5 Channel 8 Channel 6 Channel 10	3rd Pix i-f harmonic 7th Pix i-f harmonic 4th Sound i-f harmonic 9th Sound i-f harmonic	1.5 mc above 2.5 mc above 3.75 mc above 2.5 mc above
21.9 mc Sound i-f 26.4 mc Pix i-f 20.4 mc Adj. Chan. Pix 27.9 mc Adj. Chan. Snd.	Channel 5 Channel 13 Channel 7	3rd Pix i-f harmonic 8th Pix i-f harmonic 8th Sound i-f harmonic	1.9 mc above .05 mc below .05 mc below
22.1 mc Sound i-f 26.6 mc Pix i-f 20.6 mc Adj. Chan. Pix 28.1 mc Adj. Chan. Snd.	Channel 5 Channel 13 Channel 7 Channel 11	3rd Pix i-f harmonic 8th Pix 1-f harmonic 8th Sound i-f harmonic 9th Sound i-f harmonic	2.25 mc above 1.5 mc above 1.5 mc above .25 mc below

CO-AX TO BALANCED LINE MATCHING NETWORK

In some locations it may be necessary to use 72 ohm co-ax transmission line between antenna and receiver because of reflection or interference pick-up. Current line receivers are provided with a 72 ohm co-ax input in addition to the usual 300 ohm input. Early receivers employing KRK-2 series r-f units are provided only with 300 ohm balanced input. To connect the co-ax to these early receivers, construct a network as shown in Figure 7. The matching section should be one electrical half wave-length long for the picture carrier of the weakest signal received.

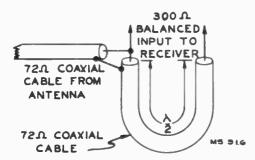


Figure 7—Co-Ax to Balanced Line Matching Network

MODELS TA169 AND S1000

Hum On Phono Operation:

Several of the above instruments have been found to have excessive hum when using the 960285 record changer (78/331/3 r.p.m.) and require the following modifications of the record changer.

Add a jumper of .016 tinned bus wire 1%" long from terminal of black pickup lead to pickup mounting screw. The silver colored terminal pin of pickup is ground on "low" side and should be connected to the black lead and jumper. The black lead terminal must be removed from the pickup during the soldering to avoid damaging the pickup by excess heat.

CORONA INTERFERENCE— 19" MODELS

An interference pattern consisting of narrow vertical bars at the left-hand side of the raster, may be the result of internal corona, or arcing, within the 4.7 mmfd. capacitor (C198) located in the plate circuit of the horizontal sweep output tube.

This interference may be mistaken for Barkhausen oscillation, but none of the normal Barkhausen preventive methods such as adjusting the drive, placing a magnet over the 6BG6, etc., will be effective in eliminating the interference,

If such a condition is encountered, the capacitor should be replaced. $\hfill \label{eq:condition}$

T101 DEFECTIVE IN MODELS T120, T121, TC124, TC125, TC127

In some cases, in the above listed receivers, it was found difficult to obtain proper response from Tl and TlOl during alignment. The difficulties are usually caused by reversed slugs in TlOl The trap (top) slug should be between $\frac{1}{2}$ to l' in length (depending on the vendor) and the input (bottom) slug should be about $\frac{1}{2}$ ' long. On some sets the two slugs might have been switched around which will not permit sufficient adjustment on the over-coupled tuning. Both slugs may be removed for examination from the top of the transformer. The short slug should be put in first in re-assembly.

SUBSTITUTE 12" P.M. SPEAKERS

Television instruments have used 12" P.M. speakers supplied by several vendors. The speaker cones are not interchangeable. The following is a listing of 12" P.M. speakers and their associated replacement cones which have been used in 1950 television instruments.

Speaker No.	Cone No.	Speaker No.	Cone No.
92569-5K	75642	92569-9W	74901
92569-5W	74901	92569-10B	75875
92569-6W	74901	92569-10W	74901
92569-7B	75875	92569-11B	75875
92569-7K	75642	92569-11K	75642
92569-7W	74901	92569-11R	76121
92569-8W	74901	92569-11W	74901
92569-9 B	75875	92569-12W	75682

TELEVISION SUPPLEMENTARY INFORMATION

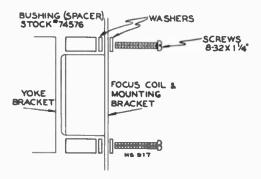
MODELS T120, TC124, TC125, TC127

Picture Corner Shadows:

If it is impossible to remove kinescope shadows by the prescribed method (see service notes) of adjusting the focus coil and ion trap magnet, then make the following test:-

- 1. Remove the two focus coil mounting screws (8-32 x 36") and reverse the focus coil and temporarily replace it in a position adjacent to the deflection yoke as shown in Figure 10.
- 2. Install the ion trap magnet and kinescope tube socket in a normal manner.
- 3. With the receiver turned on, adjust the ion trap magnet for the brightest raster on the screen.
- Position the focus coil physically, and determine if the focus coil in the reversed position corrects the shadow condition. A slight readjustment of the ion trap magnet may be necessary.

If the above test indicates that the focus coil in a reversed position is the desired position, then the following mounting modification is recommended. See Figure 8 below for details.



MATERIAL LIST

Quan.	Description
2	Spacer—Insulating bushing, Stock No. 74576
2	Screw-#8-32 x 1¾"
2	Washer—¾" O.D., 1/16" thick, hole to clear #8-32 screw



EM-PM FOCUS COIL TROUBLES

In some cases, trouble has been experienced with EM-PM focus coils. These difficulties show up as inability to reach focus with the focus control.

If everything is operating properly, the overall focus and focus regulation is much better with the new coil than with the straight EM type. The troubles with the PM-EM coil can be summarized as

being one or more of the following:-

Incorrect placement of the coil on the kine' neck.
 Too much PM.

Too little PM.

4. Polarity of the EM winding reversed in color code and/or hookup.

The normal placement of the coil is with the front plane of the coil approximately one quarter of an inch behind the back cover of the yoke. Moving the coil back on the kine' will, in effect, be the same as reducing the total flux of the coil. Some cases of too much PM can be thus corrected. In a few such cases, the correct focus was obtained at the sacrifice of loading spring tension. It is suggested that washers be used to bush up the springs if they are too loose when the correct focus is obtained. Under no circumstances should the EM portion of the coil be reversed to compensate for too much PM. Doing this will eventually run the PM down to zero and make the coil useless along with producing a service call every week or so.

(It may appear that an "aiding" flux might gradually increase the PM flux. Such is not the case because the PM material is magnetized to a greater density than the EM portion).

- Polarity may be checked by the following method: 1. Get as good a focus as possible with the coil up against the yoke. Note the voltage across the EM winding.
- Move the coil as far to the rear as possible and turn the focus control so that Condition 2 approximates Condition 1 in appearance. Note the voltage across the EM winding. The voltage across the EM winding should be higher in Condition 2 than in Condition 1.
- (The effects of magnetism are minimized as the coil is moved to the rear so that more magnetism must be supplied.

If Condition 2 reading is lower, or if no satisfactory comparison can be obtained by adjustment, then the EM winding

reversed and should be reconnected in the proper way. A tag should be attached to the set to indicate a change if the color code is incorrect so that some future serviceman knows what has been done.

If position and polarity have been checked and it is discovered that there is too little PM, the entire coil must be replaced. The 6BG6 supply should not be reconnected to add to the focus current because it overloads the coil and the shunt potentiometer.

On some sets it will be found that by shorting the 10 ohm resistor, enough control is obtained. This should not be done since the focus potentiometer would be overloaded if the arm is set near the short circuit end. Moving the coil toward the rear will solve a problem of this type and still permit good focus with the 10 ohm resistor in the circuit.

2T51, 2T60, 2T81

THE FOLLOWING CHANGES ARE SUGGESTED IN THE EVENT ANY OF THE LISTED SERVICE PROBLEMS ARE ENCOUNTERED IN THE ABOVE MODELS:

- 1. Noise in Sound-(Fringe Areas)
 - a. Add .01 mfd. capacitor (Stock #73960) in shunt with C190 with leads as short as possible.
 - b. Add .0015 mfd. capacitor C199 (Stock #73598) from connection point of R192 on TV-Phono switch to ground. (Models 2T51 and 2T60 only.)
 - c. Properly align sound I.F. and discriminator circuits.
 - d. Thoroughly check 1500 mmf. "plug-in type" capacitors for open and leakage. (A number of these capacitors have been found in this condition and contribute to weak and noisy sound.)
 - e. Check 6AU6 second sound I-F tube. Some of these tubes have been found to have remote cut-off characteristics and cause insufficient limiting in this circuit.
- 2. Picture Bending (Top of Picture)
 - a. Change cathode resistor R136 of DC restorer tube to 560K.
 - NOTE: This should only be done in strong signal areas where bending of the top of picture usually occurs. Changing this resistor in weak signal areas may decrease the noise immunity of the restorer circuit.

3. Picture Bending (Bottom of Picture)

- a. Change third picture I-F plate load resistor R115 from 3900 to 1800 ohms.
- b. Change fourth picture I-F plate load resistor R119 from 8200 to 18K ohms. Shunt this resistor with a 36 muh. peaking coil Stock #75299. It is important that this stock number coil be used because of its distributed capacity. Do not use any other 36 muh. coil.
- c. Retune the fourth picture I.F. (T104) to 22.5 mcs. Retune the fifth picture I.F. (L103) to 24.25 mcs.
 - NOTE: It is important that I.F.'s be "peak" aligned so these two circuits will be tuned to the exact new frequencies before the overall I.F./R.F. response is "touched up" to obtain a good response curve.

4. Overload of Receiver on Strong Signals

Several cases have been reported where L102 has been installed in reverse position. Wiring this I-F coil correctly has eliminated the trouble.





Radio-Phonograph Combination

MODEL A55

Chassis No. RC-1087

-- Mfr. No. 274 --

SERVICE DATA

- 1950 No. 10 -

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

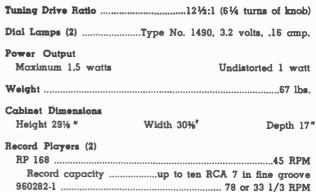
aning Range	Tu
ntermediate Frequency	Int
ube Complement	Tu
I) RCA 12SA7Converter	(1)
2) RCA 12BA6	(2)
3) RCA 12SQ7DetAVCA.F. Amp.	(3)
4) RCA 50L6GTOutput	(4)
5) RCA 35Z5GT	(5)
ower Supply Rating115 volts, 60 cycles, 50 watts	Po

0.0

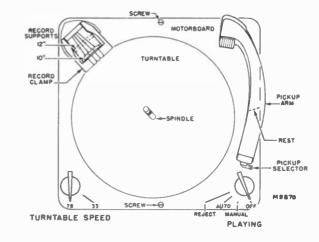
PHE3

Loudspeaker

Туре	92586	-2				. 8	in.	P.M.
Voice	coil	impedance	3.2	ohms	at	400	C	r cl es

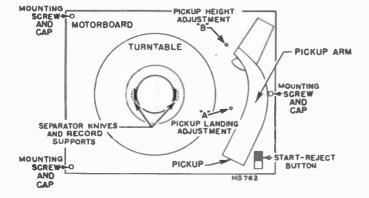


Record capacityup to ten 12 in. or twelve 10 in.



Top View-78/33¹/₃ R.P.M. Record Changer

REFER TO 960282 SERVICE DATA FOR INFORMATION ON 78/33¹/₃ R.P.M. RECORD CHANGER



Top View-45 R.P.M. Record Changer

REFER TO RP 168 SERIES SERVICE DATA FOR INFORMATION ON 45 R.P.M. RECORD CHANGER

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A85

Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Signal Generator.—For all alignment operations, connect the low side of the signal generator to the receiver chassis and keep the output as low-as possible to avoid AVC action.

It may be desirable to use an isolation transformer (117v./ 117v.) for the receiver if the signal generator is also a.c. operated.

Steps	Connect high side of sig. gen. to—	Adjust sig. gen. to—	Turn radio dial to—	Adjust for max. output—	
1	Converter grid (pin #8 of 12SA7)	455 kg	Quiet point	T2 top & bottom 2nd I.F.	
2	thru a .1 mf. capacitor	400 EC	near 1600 kc	T1 top & bottom 1st I.F.	
3	Repeat Steps 1 and 2 using alternate loading*				
4	Chart mire almost	1620 kc	Gang fully open	C6 (osc.)	
5	Short wire placed near loop for radiated signal	1400 kc	1400 kc signal	C3 (ant.)	
6		600 kc	600 kc signal	L 2 (osc.) (rock gang)	
7	Repeat Steps 4, 5 and 6				

 Alternate loading involves the use of a 22,000 ohm resistor to load the plate winding while the grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 22,000 ohm resistor after T2 and T1 have been aligned.

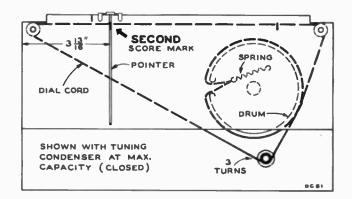
NOTE: If "alternate loading" is not used during I-F alignment, it may result in non-symmetrical response. This is due to the characteristics of the I-F transformers used in this chassis.

Dial Pointer Position

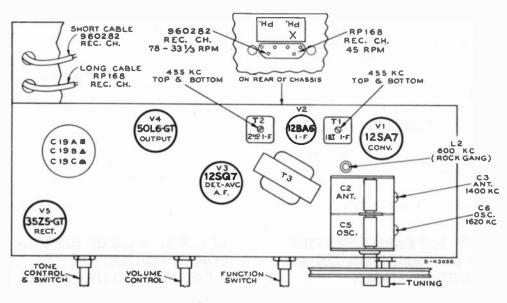
With the tuning condenser fully meshed, set the dial pointer to the SECOND score mark from the left hand edge of the dial back plate.

Lead Dress

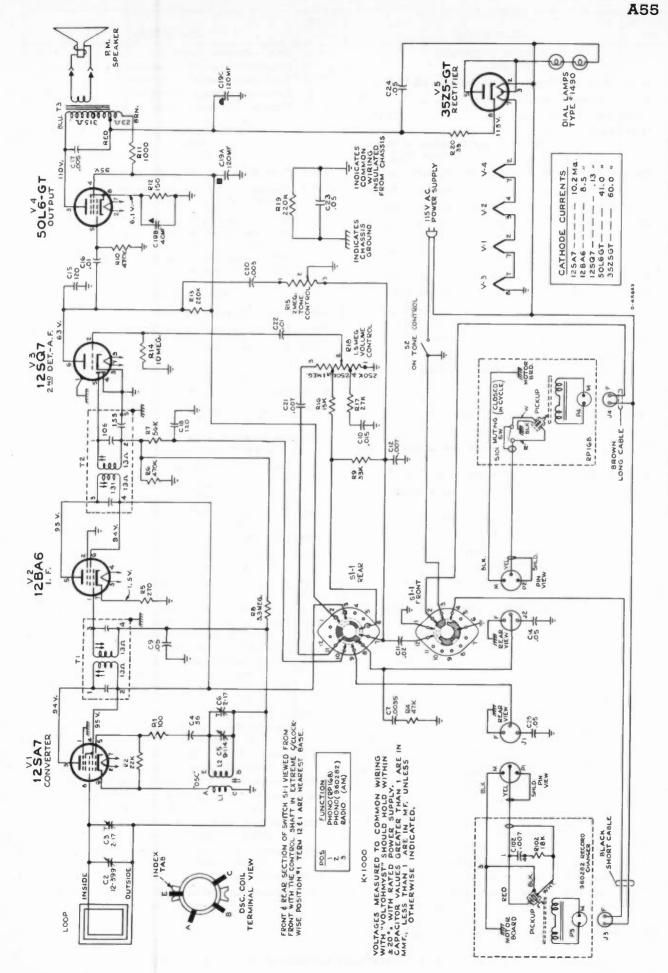
- Dress all heater leads down to chassis and as far as possible from all audio grid and plate winding.
- 2. Dress power cord to side apron and away from tone control.
- 3. Dress capacitor C22 down to chassis and keep leads as short as possible.
- 4. Dress pilot light leads and phono. power cables to side apron and away from tone control.
- Dress phono. A.C. leads on function switch away from all other terminals and run leads directly through to front apron.
- 6. Dress output transformer leads down to chassis.
- 7. Dress C20 away from chassis and wire with as short leads as possible.
- 8. Dress excess loop leads away from tubes and clear of gang condenser.
- 9. Dress lead from tone control to S-1 terminal #7 along chassis base and front apron.



Dial-Indicator and Drive Mechanism



Tube and Trimmer Locations



SCHEMATIC DIAGRAM

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A55

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Replacement Parts

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	74762	Switch-Function switch
	RC 1087	74918	Transformer—First I.F. transformer
74763	Capacitor—Variable tuning capacitor, C2, C3, C5, C6	73037	Transformer—Second I.F. transformer
71924	Capacitor—Ceramic, 56 mmfC4	33726	Washer-"C" washer for tuning knob shaft
39630	Capacitor—Mica, 120 mmfC15, C18		
74678	Capacitor—Electrolytic, comprising 2 sections of 120 mid., 150 volts and 1 section of 40 mid., 25 volts		SPEAKER ASSEMBLIES 92586-2 RL 105C2
70603	Capacitor—Tubular, paper, .003 mid., 400 voltsC20	74758	Cone—Cone and voice coil assembly
70604	Capacitor-Tubular, paper, .0035 mid., 400 voltsC7	74679	Speaker—8" P.M. speaker complete with cone and
73920	Capacitor—Tubular, paper, .005 mid., 400 voltsC17		voice coil
70608	Capacitor—Tubular, paper, .007 mid., 400 volts C12, C21 Capacitor—Tubular, paper, .01 mid., 400 volts,		NOTE:—If stamping on speaker in instrument does not agree with above speaker number, order replace- ment parts by referring to model number of instru-
70572	C16, C22 Capacitor—Tubular, paper, .015 mid., 400 voltsC10		ment, number stamped on speaker and full descrip- tion of part required.
70611	Capacitor—Tubular, paper, .02 mid., 400 voltsCl1		MISCELLANEOUS
73553	Capacitor—Tubular, paper, .05 mid., 400 volts,	74205	
	C9, C14, C23, C24, C25	74205	Bezel—Dial bezel less dial Capacitor—Tubular, paper, .007 mid., 400 voltsC102
73935	Clip—Mounting clip for I.F. transformer	74298	Clamp—Dial clamp (2 reg'd)
74448	Coil—Oscillator coilL1, L2		
30868	Connector—2 contact female connector for motor cable	X3115	Cloth—Grille cloth for mahogany or walnut instruments
71596	Control-Volume controlR18	X3116 74192	Cloth—Grille cloth for ock instruments
74761	Control—Tone control and power switchR15, S2	/4152	Connector—3 contact male connector for pickup cables
71457 †72953	Cord—Power cord and plug Cord—Drive cord (approx. 48" overall length	74581	Cover—Mounting screw cover—use with #74582 screw (3 req'd)
74020	required.)	71910	Decal—Trade mark decal
74838	Grommet—Power cord strain relief (1 set) Grommet—Rubbur grommet to mount tuning	74771	Decal—Control panel function decal for mahogany or walnut instruments
74765	capacitor. Indicator—Station selector indicator	74772	
71116	Lamp—Dial lamp—Type #1490	74769	
74766	Loop—Antenna loop assembly	74206	
72776	Pin—Contact pin for speaker lead		record changer
75047	Plate—Dial back plate complete with two (2) pulleys less dial	74931	Knob—Tuning control, volume control or tone control and power switch knob—maroon—for mahogany
18469	Plate—Bakelite mounting plate for electrolytic		or walnut instruments
74767	capacitor Receptacle—Dual phono input receptacle	72824	Knob—Tuning control, volume control, function switch or tone control and power switch knob— brown—for oak instruments
74768	Resistor—Wire wound, 33 ohms, 1 wattR20 Resistors—Fixed, composition:— 100 ohms, ±20%, ½ wattR1	74934	
	150 ohms, ±10%, ½ wattR12 270 ohms, ±10%, ½ wattR5	74208	
	1000 ohms, ±10%, 1 wattR11 15,000 ohms, ±10%, ½ wattR16 22,000 ohms, ±10%, ½ wattR2	74770	
	27,000 ohms, ±10%, ½ watt	74582	18,000 ohms, ±10%, ½ wattR102
	47,000 ohms, ±10%, ½ watt		mount RP168 record changer (3 req'd)
	220,000 ohms, ±10%, ½ wattR13, R19 470,000 ohms, ±10%, ½ wattR6, R10	74269	
	3.3 megohm, ±20%, ½ watt		changer—upper—L.H(2 req'd)
74764		74421	Spring—Conical spring to mount RP168 record changer—upper—R.H.—(1 req'd)
73117	• • • • • • • • • • • • • • • • • • • •	74423	
74014		30900	
74038	Spring—Drive cord tension spring	75040	
	1	11	1

[†]Stock No. 72953 is a reel containing 250 feet of cord.



Specifications

Tuning Ranges
Standard Broadcast (AM) 540-1,600 kc.
Frequency Modulation (FM) 88-108 mc.
Intermediate FrequencyAM—455 kc., FM—10.7 mc.
Tube Complement
(1) 6J6 Mixer and Oscillator
(2) 6BA6 I. F. Amplifier
(3) 6AU6 Driver
(4) 6AL5 Ratio Detector
(5) 6AV6 AM Det.—AVC—A. F. Amp.
(6) 6V6GT Output
(7) 6X5GT Rectifier
Power Supply Rating 115 volts, 60 cycles, 70 watts
Loudspeaker
Type 92569-912 in. P.M.
Voice coil impedance at 400 cycles
Tuning Drive Ratio
Pilot Lamps (3)Type No. 51, 6-8 volts, 0.2 amp.
Power Output
Maximum
Undistorted
Cabinet Dimensions
Height 32" Width 301/2" Depth 171/4"

Antennas:

This receiver has built-in antennas for standard broadcast (AM) and frequency modulation (FM) reception.

Under average conditions the (FM) antenna will provide satisfactory reception. However, provision is made for the use of external antennas if desired—connect as indicated below:

FM Antenna: Connect the transmission line from an external FM dipole antenna to "FM" and "G" terminals. Remove the internal FM antenna wire from terminal "FM."



AM-FM Radio Receiver

MODEL A78

Chassis No. RC-1084A — Mfr. No. 274 —

SERVICE DATA

- 1950 No. 4-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Record Player (2)

960282	-1						7	8, 33½	3 RPM	
For	inform	ation	on 45	RPM	changer	refer	to	RCA	Victor	
RP168	Series	Servi	ce Dat	ά						

For information on 78, 33¹/₂ RPM changer refer to RCA Victor 960282-1 Series Service Data.

Circuit Description

The chassis used in these receivers have a 6J6 tube (V1) (twin triode), one section of which is used as mixer and the other section as oscillator. The FM antenna coil and the FM oscillator coil are placed in such position as to provide coupling between them. A section of the AM oscillator coil is connected in series with the mixer grid input when the range switch is in AM position.

Dual I-F transformers are used, each transformer containing both AM and FM windings. The I-F amplifier is V2 (6BA6).

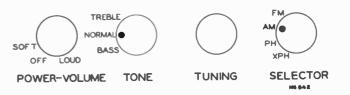
The range switch has four functions:

- (1) Selection of AM, FM ranges or Phono.
- (2) Selection of AVC supply voltages to be applied to the controlled tubes. Simple AVC is applied to the grids of V1 and V2 on AM. Delayed AVC is used on FM and is applied only to the grid of V2.
- (3) Controls application of B+ voltage to the plate circuits of V1 (disconnected for PHONO operation).
- (4) Controls audio input to volume control.

The driver V3 (6AU6) and ratio detector V4 (6AL5) circuits are similar to those used in other RCA Victor AM-FM receivers.

The audio voltage controlled by the volume control is amplified by V5 (6AV6) and V6 (6V6GT).

The rectifier V7 is type 6X5GT.



6

Alignment Procedure

CORRECT ALIGNMENT OF THE FM BAND REQUIRES THAT THE AM BAND BE ALIGNED FIRST

Alignment Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter across the speaker voice coil.

The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure α -v-c voltage.

When audio output is being measured the volume control should be turned to maximum.

Signal Generator:

For all alignment operations connect the low side of the signal generator to the receiver chassis. The output should be adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to avoid a_vv-c action.

Oscilloscope Alignment:

The FM I. F. alignment may be checked using a sweep generator and an oscilloscope. Shunt terminals B and C of T4 with a 1200 ohm resistor. Connect the high side of the oscilloscope to term. C of T4 in series with a diode probe. Apply the output of the sweep generator (10.7 mc with ± 250 kc sweep) to pin No. 1 of V2 (6BAS) in series with .01 mf., low side of the oscilloscope and sweep generator to chassis. This will show the response of T3.

To check the combined response of T2 and T3; connect the sweep generator to the antenna terminal board—high side to "FM" term. in series with 300 ohms and low side to "G" terminal. Oscilloscope connections as previously connected.

To check the ratio detector response; remove the 1200 ohm resistor previously used, connect the high side of the oscilloscope direct to term. No. 9 of S1, low side to chassis. Apply the output of the sweep generator to pin No. 1 of V3 (6AU6) in series with .01 mf. Note: It is difficult to observe marker signals in this step—center frequency and sweep width should be previously observed.

Critical Lead Dress

- 1. Short leads on C7.
- 2. Dress R27 away from switch and Pin 5 of V1.
- Ground lead on Pin 2 of V2 & V3 should be down against chassis. Its length is critical.
- 4. A.V.C. lead from R26 to switch should be dressed against chassis and on front apron side of output transformer.
- C43 should have short leads and color code end of capacitor should go to coil. Capacitor is to be cemented down with polystyrene cement the same time L2 is.
- 6. High side loop lead should be dressed away from tubes.
- Lead from Pin 2 and V1 to terminal A of first dual I.F. transformer should be dressed against chassis.
- Wire C40 directly between gang condenser and Pin 1 of V1.
- 9. Keep all the F.M. leads as short as possible.
- 10. Dress lead from Pin 5 of V2 to terminal A of T3 down against chassis.
- 11. Dress resistor R15 near chassis base.
- 12. Dress all A.C. leads away from volume control.
- 13. Run lead from F.M. Terminal on the antenna terminal board to L2 tap around the can of T2 and away from V2.
- 14. The taps on L1 & L2 are critical.
- 15. The lead from R32 to terminal 10 of S1 should be dressed away from the output transformer, T5.
- 16. Dress C25 and C26 against chassis with the shortest lead length possible..
- Coupling between pins 5 & 6 of VI, and the components attached, should be kept to a minimum.
- Coupling between L1 & L2 should be adjusted to give the proper oscillator injection voltage to the mixer grid.

AM Alignment

RANGE SWITCH IN BC POSITION

Steps	Connect high side of sig. gen. to	Sig. gen. output	Turn radio dial to—	Adjust for peak output		
1	C3 in series	Quiet point		AM windings.† T3 bottom core (sec.). T3 top core (pri.).		
2	with .01 mfd.	455 kc. at la freq. a	at low freq. end.	AM windings.† T2 top core (sec.). T2 bottom core (pri.).		
3	"A" terminal of terminal board at rear	1400 kc.	1400 kc.	C13 osc. C4 ant.		
4	of chassis in series with 220 mmf.	600 kc.	600 kc.	L4 osc. (Rock gang.)		
5 Repeat Steps 3 and 4.						

† Use alternate loading.

Alternate loading involves the use of a 47,000 ohm resistor to load the AM plate winding while the AM grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 47,000 ohm resistor after T3 and T2 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

FM Alignment

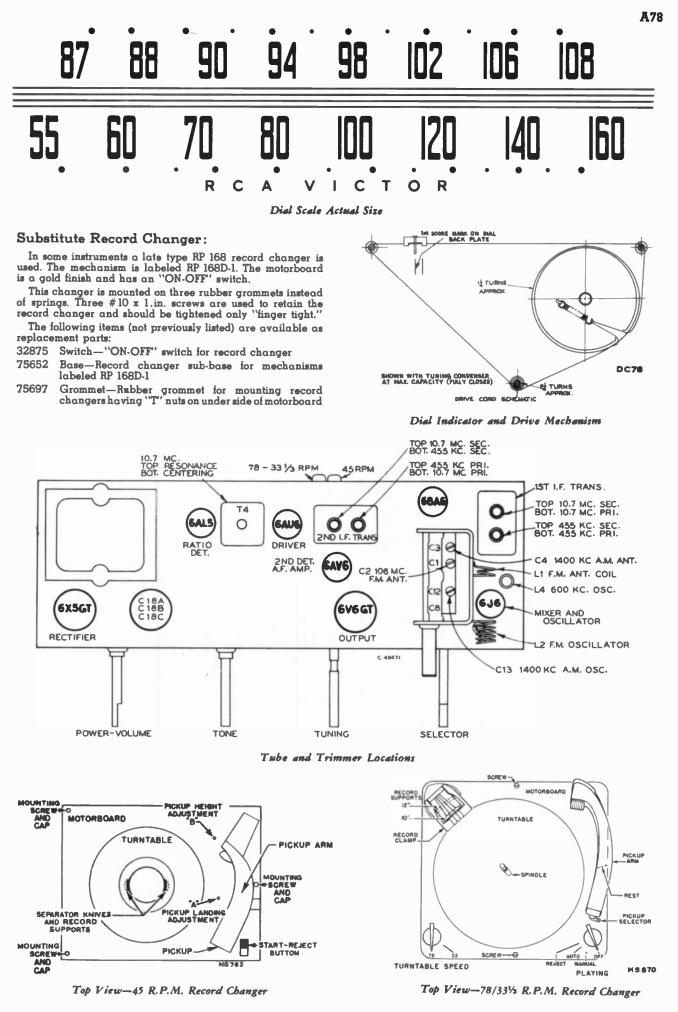
RANGE SWITCH IN FM POSITION—VOLUME CONTROL MAXIMUM

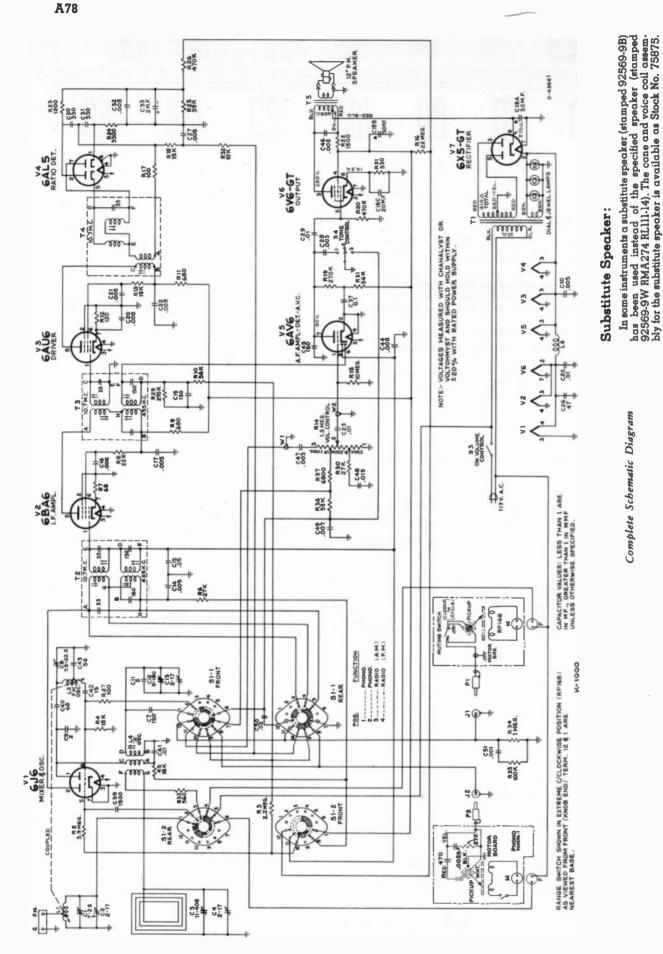
Steps	Connect high side of sig. gen. to	Sig. gen. output	Turn radio dial to	Adjust for peak output			
1	Connect the d-c probe of a VoltOhmyst to the negative lead of the 2 mid. capacitor C33 and the common lead to chassis. Turn gang condenser to max. capacity (fully meshed).						
2	Pin 1 of 6AU6 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles AM (Approx. .05 volt).		T4 top core for max. d-c voltage across C33. T4 bottom core for min. audio output.*			
3		during th alignment. m	Max. cz- pacity (fully meshed)	FM windings. T3 top core (sec.). T3 bottom core (pri.).			
4	FM ant. term in series with a 300 ohm resistor. (Remove ant.			FM windings. ^{††} T2 top core (sec.). T2 bottom core (pri.).			
5	'FM" term.)	106 mc.	106 mc.	L2 osc.** C2 ant. Set C2 at max. capacity while adjusting L2.			
6		90 mc.	90 mc.	Ll ant.** (Rock gang.)			
7 Repeat Steps 5 and 6 until further adjustment does not improve calibration.							

• Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.

tt Align T3 and T2 by means of alternate loading as explained under AM alignment. Use a 580 ohm resistor instead of a 47,000 ohm resistor and load the FM windings.

^{**} L1 and L2 are adjustable by increasing or decreasing the spacing between turns.





Voltage Chart

Phono

..W.J.,

"¥"

No.

Pin

Type

94 94 0.88

185 110 0.75 -1.6

00h-

Plate Screen Cathode Grid

-2.5 -8.7

Plate Grid Grid

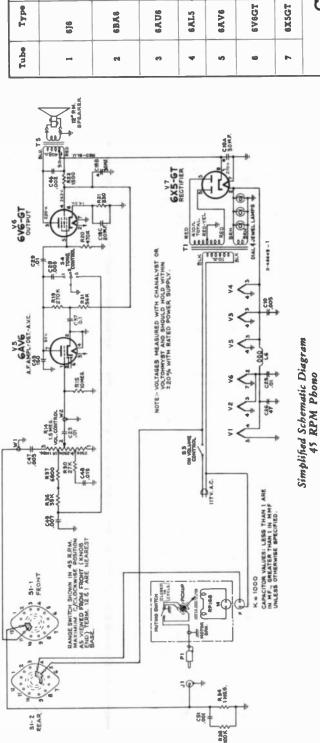
180 130 1.1

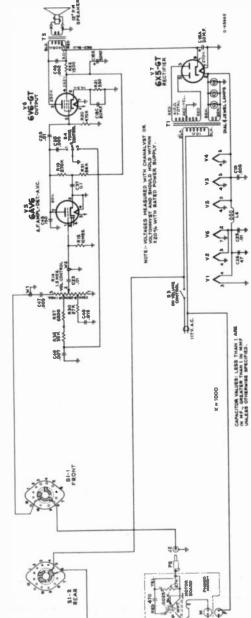
184 132 1.1

000

Plate Screen Cathode

1





270		1		1		0.55	44.5	45	Voltages and currents measured with tuning condenser closed and no signal input should hold within $\pm 20\%$ with rated line voltage.
250	MA)	-	13	13.5		0.3	27.6	62.2	1g conder 0% with
250	ents ()	8.6	12	13.5		0.3	28.2	63	with tunir vithin ±2
	Curr	7	7	٢	162	64	60	-	ieasured id hold v
Cathode	Cathode Currents (MA)								currents m aput shou
6X5GT	Ŭ	6]6	6BA6	6AU6	8ALS	6AV6	6V6GT	6XSGT	jes and signal
2		1	6	n	-	ŝ	9	2	Voltag and no voltage.

250 263 14.5

242 190 9.5

243 193 9.7

() **T ()**

Plate Screen Cathode

8

14.8

4. 0.8

N -

Plate Grid

Note: Plate voltage removed from 636 mixer and oscillator tube during "Phono" operation.

The simplified schematic diagrams for 9W78 in RCA Victor Bound Volume V also apply to Model A78. Model A78 is identical to Model 9W78 except Model A78 has a 78/33½ r.p.m. record changer instead of 78 r.p.m.

Simplified Schematic Diagram 3346, 78 RPM Phono

A78

9

Replacement Parts

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	31251	Socket—Tube socket, octal, wafer, for V6 and V7
	RC1084A	31364 74038	Socket—Lamp socket Spring—Drive cord tension spring
73893	Board—"F. M." terminal board	74202	Support—Polystyrene coil support complete with bracket
/ 3005	Capacitor—Variable tuning capacitor (C1, C2, C3, C4, C8, C12, C13)	73891 74913	Sw tch—Tcne control switch (S4) Switch—Selector switch (S1)
73866	Capacitor—Ceramic, 2 mmf. (C9)	73415	TransformerOutput transformer (T5)
93056	Capacitor—Ceramic, 5 mmf. (C11)	73743 70127	Transformer—Ratio detector transformer (T4) Transformer—Power transformer 117v/60c (T1)
39044	Capacitor—Ceramic, 15 mmf. (C42)	73745	Transformer—First I. F. transformer—dual (T2)
73372	Capacitor—Electrolytic comprising 1 section of 30 mfd., 350 volts, 1 section of 30 mfd., 300 volts and 1 section	74019	Transformer—Second I. F. transformer—dual (T3) Washer—"C" washer for tuning shaft
	of 20 mfd., 25 volts (C18A, C18B, C18C)	73333	Washer—Insulating washer (extruded) for mounting
39042	Capacitor—Ceramic, 47 mmf. (C26)	73332	output transformer (2 required) Washer—Insulating washer (flat) for mounting output
73867	Capacitor—Ceramic, 56 mmf. (C43)		transformer (2 required)
48125	Capacitor—Ceramic, 68 mmf. (C40) Capacitor—Ceramic, 150 mmf. (C7, C19, C45)		SPEAKER ASSEMBLY
39640	Capacitor—Mica, 330 mmi. (C30, C31)		92569-9 RMA 274
73748	Capacitor—Ceramic, 1500 mmf. (C39)	13867	RL 111—14 Cap—Dust cap
73473	Capaciter—Ceramic, 5,000 mmf. (C44, C10)	74901	Cone and voice coil assembly
73747	Capacitor-Electrolytic, 2mfd., 50 volts (C33)	74974	Speaker—12" P. M. speaker (3.16 oz.) complete with
71927	Capacitor—Tubular, paper, .001 mfd., 400 volts (C51) Capacitor—Tubular, paper, .002 mfd., 400 volts (C46)		cone and voice coil (3.2 ohms) NOTE: If stamping on speaker does not agree with
72573	Capacitor—Tubular, paper, .003 mfd., 400 volts (C28, C47)		above number, order replacement parts by referring to
71926	Capacitor-Tubular, paper, .005 mfd., 200 volts (C20, C27, C32)	1	model number of instrument, number stamped on speaker and full description of part required.
71553	Capacitor—Tubular, paper, .005 mfd., 400 volts (C14, C16,		MISCELLANEOUS
70608	C17, C21, C22) Capacitor—Tubular, paper, .007 mfd., 400 volts (C49)	72555	
71923	Capacitor—Tubular, paper, .007 mid., 200 volts (C49) Capacitor—Tubular, paper, .01 mid., 200 volts (C23, C25)	74205	
71925	Capacitor-Tubular, paper, .01 mfd., 400 volts (C29, C41)	74579	
72120	Capacitor—Tubular, paper, .015 mfd., 200 volts (C48)		drawer for mahogany or walnut instruments (2 re-
71928	Capacitor—Tubular, paper, .02 mid., 200 volts (C50)	74580	quired) Bumper—Rubber bumper (white) for 45 RPM changer
72596	Capacitor-Tubular, paper, .05 mfd., 200 volts (C15)		drawer for oak instruments
73744	Capacitor—Tubular, paper, 0.1 mfd., 400 volts (C37) Coil—Oscillator coil—A. M. (L4)	75041	Button—Plug button for shipping bolt holes in 33/78 RPM changer (2 required)
71942	Coil—Filament choke coil (L6)	72437	Cable-Shielded pickup cable complete with pin plug
73918	Coil—Antenna coil—F. M. (L1)	74296	for 45 RPM changer Cable—Shielded pickup cable complete with pin plug
73916	Coil—Oscillator coil—F. M. (L2)		for 33/78 RPM changer
30868 70342	Connector-2 contact female connector for motor cable	13103 39644	
72953	Control—Volume control and power switch (B14, S3) Cord—Drive cord (approx. 48" overall)	33044	changer)
74839	Fastener—Push fastener to mount R. F. shelf (4 required)	70602	Capacitor—Tubular, paper, .0025 mfd. (on 78, 33-1/3 RPM record changer), 400 volts
16058	Grommet—Rubber grommet to mount R. F. shelf (4 re- quired)	71892	Catch—Bullet catch and strike for doors (2 required)
73895	Indicator—Station selector indicator	74298 X3046	
11765	Lamp-Dial lamp-Mazda 51	X 3047	Cloth—Grille cloth for oak instruments
74297	Plate—Dial back plate complete with 2 pulleys less dial Receptacle—Phono input socket—dual	30868	Connector—2 contact female connector for 33/78 RPM changer motor extension cable
52436	Resistor—Wire wound, 1500 ohms, 4 watts (R22)	30870	
	Resistor—Fixed, composition:— 68 ohms, ±10%, 1/2 watt (R7)	74581	
	100 ohms, ±10%, 1/2 watt (R17, R27)	74273	Decal—Trade mark decal (Victrola)
	120 ohms, ±10%, ½ watt (R12)	71768	
	330 ohms, ±10%, 1 watt (R21)	1	instruments
	560 ohms, ±10%, ½ watt (R33) 680 ohms, ±20%, ½ watt (R9, R11)	74916	
	1200 ohms, ±5%, 1/2 watt (R23)	74838	
	3300 ohms, ±5%, ½ watt (R24)	74206	
	6800 ohms, ±10%, ½ watt (R37)	74308	(4 required) Hinge—Cabinet door hinges (1 set)
	10,000 ohms, ±10%, ½ watt (R32)	74931	Knob-Volume control or tuning control knob-maroon-
	15,000 ohms, ±10%, ½ watt (R13, R18)	74934	for mahogany or walnut instruments Knob—Tone control switch or selector switch knob—
	18,000 ohms, ±10%, ½ watt (R4) 18,000 ohms, ±10%, 1 watt (R5)		maroon—for mahogany or walnut instruments
	22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R8)	72824	
	27,000 ohms, ±10%, ½ watt (R6, R30)	74730	
	33,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R36)	74208	
	39,000 ohms, ±10%, ½ watt (R25)	74914	Pull-Door pull Resistor-Fixed, composition, 27,000 ohms (on 78, 33-1/3
	56.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R31) 56.000 ohms, $\pm 10\%$, 1 watt (R10)	74500	RPM record changer) ±10%, ½ watt
	100,000 ohms, ±10%, ½ watt (R35)	74582	RPM changer (3 required)
	270,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R19, R29)	74113	
	470,000 ohms. ±10%. ½ watt (R20, R26) 1 megohm. ±10%. ½ watt (R34)	74835	
	2.2 megohms, ±20%, ½ watt (R3)	30900	Spring—Retaining spring for knobs
	3.9 megohms, ±10%, ½ watt (R2)	74421	Spring—Conical spring for mounting 45 RPM changer— upper—R.H. (1 required)
	10 megohms, ±20%, ½ watt (R15) 22 megohms, ±20%, ½ watt (R16)	74422	
73894 72516	Shaft—Tuning shaft	74423	
72516	Socket—Tube socket, 7 contact, miniature, for V4 and V5 Socket—Tube socket, 7 contact, miniature, for V1, V2,	75040	Spring—Conical spring to mount 33/78 RPM changer (4 required)
	and V3	72936	Stop-Door stop

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Tuning Range. .540-1600 kc Intermediate Frequency .455 kc Tube Complement
1. RCA-6BA6
Dial Lamps (2) Type No. 51, 6-8 volts, 0.2 amps.
Jewel Lamp
Tuning Drive Ratio
Power Supply Rating 115 volts, 60 cycles, 105 watts
Loudspeaker (92569-9) Size and type
Power Output Undistorted
Power Output Maximum
Cabinet Dimensions Height 32% in. Width 30½ in. Depth 19½ in.
Record Changer (RP168) or (RP190-2)
Turntable Speed .45 r.p.m. Record Capacityup to 10 RCA 7-in. fine groove records Pickup Crystal (medium output)
Record Changer (960282-4) or (960282-5) Turntable Speed

FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-168 SERIES SERVICE DATA OR RP-190 SERIES SERVICE DATA FOR 45 R.P.M. AND MODEL 960282 SERVICE DATA FOR 78/33¹/₃ R.P.M.





AM Radio-Phonograph Combination

MODEL A-82 Chassis No. RC 1094

SERVICE DATA

- 1950 No. 21 -

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Misalignment of the ball bearings in the carriage slides may cause the roll-out to have excessive drag. If this condition should exist exert a slight additional force in sliding the roll-out to its limit. This should automatically correct the condition.

Either roll-out is limited in travel by a stop pin at the back end of each slide. To remove roll-out carriage first remove the retaining spring and then the stop pins. Removing the connecting cable permits the roll-out to slide out from the front of the cabinet.

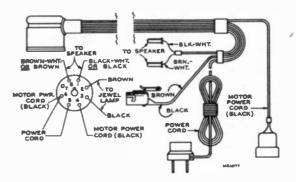


Fig. 1-Connecting Cable Diagram

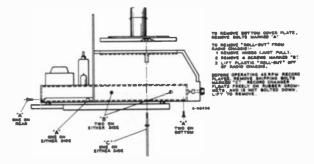


Fig. 2-Roll-out Assembly

Note: It is not necessary to remove the "roll-out" from the radio chassis when aligning the set. Having the "roll-out" fast to the chassis keeps the dial scale in place for dial calibration reference. Simply remove bottom cover as shown in Figure 2. 12

A-82

CRITICAL LEAD DRESS

- Dress all A.C. leads at function switch away from audio terminals.
- 2. Dress phono and A.M. audio leads to function switch away from A.C. leads.
- 3. Dress all A.C. leads at volume control away from audio leads.
- 4. Dress R16 down next to chassis.
- 5. Dress R14 away from A.C. terminals on V.C.
- 6. Dress lead from top of V.C. to S1 front, terminal 7 down to chassis along front apron.
- 7. Dress C17 down to chassis and away from components to Pin 1 of V4.

Socket Voltages

Voltages measured with Chanalyst or VoltOhmyst and should hold within $\pm\,20\%$ with rated line voltage. Tuning condenser closed—no signal input Volume Control Min.

			Vo	ltage
Tube	Termin		Phono	A.M.
V1 6BA6 R.F. Amp.	Plate Screen Cathode Grid	5 6 7 1		212 100 1.23 28
V2 6BE6 Converter	Plate Screen Grid Cathode	5 6 7 2		238 88 25 -7.2
V3 6BA6 I.F. Amp.	Plate Screen Cathode Grid	5 6 7 1		238 125 4.2 28
V4 6AV6 Det. A.F. Amp.	Plate Grid	7 1	105 9	96 93
V5 6C4 Inverter	Plate l Grid Cathode	-5 6 7	122 -18.9 -12.2	99 -18.5 -13
V6 6V6GT Output	Plate Screen Grid Cathode	3 4 5 8	299 292 -18.9 -18.9	305 238 -18.5 -18.4
V7 6V6GT Output	Plate Screen Grid Cathode	3 4 5 8	299 292 -18.9 -18.9	305 238 -18.5 -18.4
V8 5Y3GT Rectifier	Cathode	8	309	310
Total Current V8			69 ma.	66 ma.

Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Signal Generator.—For all alignment operations, connect the low side of the signal generator to the receiver chassis and keep the output as low as possible to avoid AVC action.

Dial Pointer Ädjustment.—Rotate tuning condenser until the plates are fully closed. Ädjust indicator pointer to the score mark at the left hand end of the dial.

_						
Steps	Connect the high side of the test oscillator to—	Tune test-osc. to	Turn radio dial to—	Adjust the fol- lowing for maximum output		
1	Converter grid in series with a .01 mfd. cap. to Pin #7 of V2	455 kc	Min. cap.	Top and bottom of Tl and T2		
2		1620 kc	1620 kc	OSC-C1-2T		
3	Short piece of wire placed	1400 kc	1400 kc	RF C1-1T ANT C1-3T		
4	near loop for radiated signal	600 kc	600 ka	OSC coil L3 RF coil L2 Adj. simultane- ously while rock- ing gang		
5		Repeat steps 2, 3 and 4 for greatest sensitivity				

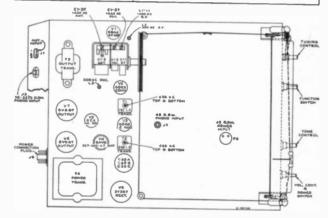


Fig. 3-Chassis Top View

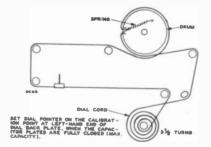
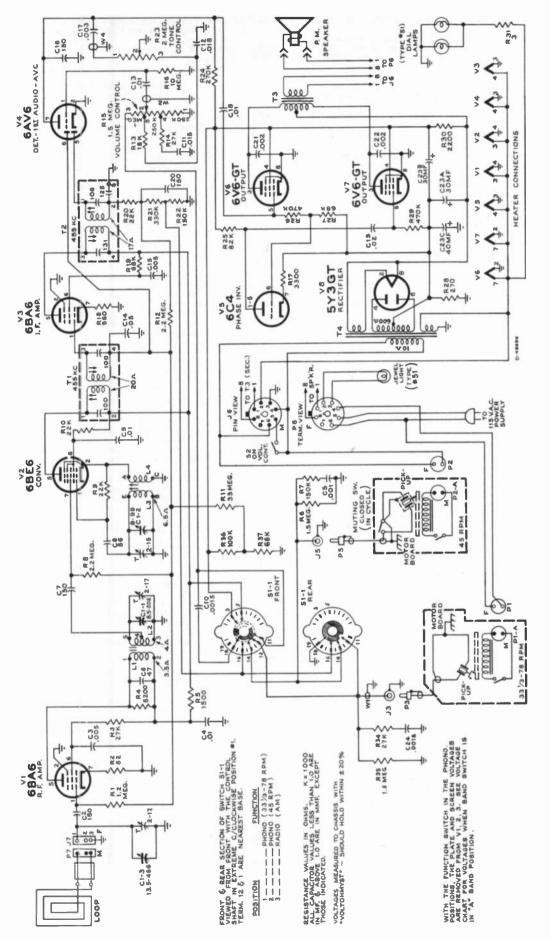


Fig. 4-Dial Drive

REPLACEMENT PARTS

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
80041	Chassis Assemblies RC 1094	73803	Capacitor—Tubular, paper, .002 mid., 1000 volts (C21, C22)
75541 75595	Bracket—Pulley bracket complete with drive cord pulley	70603	volts (C27, C22) Capacitor—Tubular, paper, .003 mfd., 400 volts (C17)
39042	Capacitor—Variable tuning capacitor, complete with drive drum (Cl-1, Cl-2, Cl-3) Capacitor—Ceramic, 47 mmf. (C6)	73920	Capacitor—Tubular, paper, .005 mfd., 400 volts (C3, C15)
39632	Capacitor—Ceramic, 56 mmf. (C8) Capacitor—Mica, 150 mmf. (C2, C7, C16, C20)	73561	Capacitor-Tubular, paper, .01 mfd., 400 volts (C4, C9, C13, C18)
13801	Capacitor—Tubular, paper, .001 mfd., 400 volts (C5)	73797	Capacitor—Tubular, paper, .015 mfd., 400 volts (C11)
[Capacitor—Tubular, paper, .0015 mfd., 600 volts (C10)	58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd., 400 volts (C12)
73851	Capacitor—Tubular, paper, oil impregnated, .0018 mtd., 1600 volts (C24)	73562	Capacitor—Tubular, paper, .02 mfd., 400 volts (C19)

Continued on page 14.



Substitute Speaker:

A substitute speaker (stamped 92569-9B) has been used in some instruments; it requires a different speaker cone than the one listed in A-82 Service Data. Speaker 92569-9B uses Stock No. 75875 cone. Speaker 92569-9W uses Stock No. 74901 cone.

Fig. 5-Schematic Diagram

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REPLACEMENT PARTS (continued) T

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
73553	Capacitor-Tubular, paper, .05 mfd., 400 volts (Cl4)	75683	Frame—Moulded frame (light brown) for mount- ing radio chassis and 45 RPM changer for oak
72052	Capacitor-Electrolytic comprising 1 section of 30 mfd., 450 volts, 1 section of 30 mfd., 350 volts and 1 section of 40 mfd., 25 volts (C23Å, C23B, C23C)	75551 75555	instruments Handle—Metal pullout handle for mounting frame Screw—#8-32 x %" cross recessed pan head machine screw to mount radio chassis (4 req'd)
73935	Clip—Mounting clip for i-f transformer		
75627 75596	Clip—Clip for main cable—on rear of chassis Coil—R-F coil complete with adjusting screws (L1, L2)		SPEAKER ASSEMBLY 92569-9 RMA 274 RL 11114
73516	Coil—Oscillator coil complete with adjustable core (L3, L4)	13867 74901	Cap—Dust cap Cone—Cone and voice coil assembly
35787 75542	Connector—Single contact female connector for 33½/78 RPM changer input (J5) Connector—8 contact male connector for power	74974	Speaker-12" P.M. speaker complete with cone and voice coil (3.2 ohms)
75543	input cable (J6) Connector 2 contact ismale connector for 45		NOTE: If stamping on speaker does not agree with above number, order replacement parts by referring to model number of instrument,
74879	RPM motor cable (P2) Connector—2 contact (polarized) female con-		number stamped on speaker and full descrip- tion of part required.
33742	nector for antenna leads (J7) Connector—Single contact female connector for AS BD observations (J2)	78706	MISCELLANEOUS
75537	45 RPM changer input (J3) Control—Volume control and power switch (R15, S2)	75706 75898	Antenna — Antenna loop complete less cable Back — Back cover — marcon — for 33%/78 RPM
75538 72953	Control—Tone control (R23) Cord—Drive cord (approx. 60" over-all length	75899	changer compartment for mahogany or walnut instruments (assembled to rollout) Back—Back cover—light brown—for 33½/78
75547	required) Grommet-Rubber grommet to mount slides to		RPM changer compartment for oak instruments (assembled to rollout)
75548	bottom—rear (2 req'd) Grommet—Rubber grommet to mount slides to bottom—front (2 req'd)	75900	Back—Back cover—marcon—for radio—45 RPM changer compartment for mahogany or walnut instruments (assembled to rollout)
11765 75544	Lamp—Dial lamp—Masda #51 Nut—Rivnut to fasten screw for mounting chassis	75901	Back—Back cover—light brown—for radio—45 RPM changer compartment for oak instruments
75535	(4 req'd) Plate—Dial back plate complete with three (3) pulleys	75694	(assembled to rollout) Bracket—Stop bracket less rubber bumper for rollout compartments
18469	Plate-Bakelite mounting plate for electrolytic capacitor	71599 75696	Bracket—Pilot lamp bracket Bumper—Rubber bumper for rollout compartment
75536 72602	Pointer—Station selector pointer Pulley—Drive cord pulley	74296	stop bracket
72323 73637	Resistor—Wire wound, 3 ohms, ½ watt (R31) Resistor—Wire wound, 2200 ohms, 5 watts (R30)	72437	Cable—Shielded pickup cable complete with pin plug for 33%/78 RPM changer (P3) Cable—Shielded pickup cable complete with pin
	Resistor—Fixed, composition:— 82 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R2) 270 ohms, $\pm 10\%$, $\frac{2}{2}$ watts (R28) 560 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R18) 1500 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R17) 8200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R17) 8200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13) 22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13) 22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R19, R20) 22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R10) 27,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13) 27,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13)	13103 71892	plug for instruments using RP190-2 changer Cap—Pilot lamp cap Catch—Bullet catch and strike for cabinet doors
	1500 ohms, ±10%, ½ watt (R13) 1500 ohms, ±20%, ½ watt (R5) 3300 ohms, ±5%, ½ watt (R17)	X3144 X3093	Cloth—Grille cloth for mahogany or walnut instruments Cloth—Grille cloth for oak instruments
	8200 ohms, ±10%, ½ watt (R4) 18,000 ohms, ±10%, ½ watt (R13) 22,000 ohms, ±10%, ½ watt (R13)	74882	Connector—2 contact (polarized) male connector for antenna loop cable (P7)
	22,000 ohms, ±10%, ½ watt (RJ) 27,000 ohms, ±10%, ½ watts (RI0)	75709 30868	Connector—8 contact ismale connector for main cable less shell (P6) Connector—2 contact female connector for
	27,000 ohms, ±10%, l watt (R3) 68,000 ohms, ±10%, ½ watt (R19, R27, R37)	75474	33%/78 RPM changer motor cable (P1) Connector—Single contact male connector for
L	82,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R25) 100,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R36) 150,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R37, B22)	30870	speaker (2 req'd) Connector—2 contact male connector for motor
	270,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R24) 330,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R24)	71984 74273	leads for instruments using RP190-2 changer Decal—Trade mark decal (RCA Victor)
	470,000 ohms, ±10%, 1/2 watt (R26, R29)	74838	Decal—Trade mark decal (Victrola) Grommet—Power cord strain relief (1 set)
	27,000 ohms, ±10%, ½ watt (R14, R34) 27,000 ohms, ±10%, 1 watt (R3) 68,000 ohms, ±10%, ½ watt (R19, R27, R37) 82,000 ohms, ±10%, ½ watt (R25) 100,000 ohms, ±10%, ½ watt (R36) 150,000 ohms, ±10%, ¼ watt (R24) 330,000 ohms, ±10%, ¼ watt (R25) 2.2 megohm, ±10%, ¼ watt (R16, R35) 2.2 megohm, ±20%, ¼ watt (R1, R8, R12) 10 megohm, ±20%, ¼ watt (R16) 33 megohm, ±20%, ¼ watt (R16) 33 megohm, ±20%, ¼ watt (R16) 33 megohm, ±20%, ¼ watt (R16)	37396 75697	Grommet—Rubber grommet for speaker mounting Grommet—Rubber grommet to mount 45 RPM
75540	33 megohm, ±20%, ½ watt (RII) Shaft—Tuning knob shaft	75551	changer Handle—Metal pullout handle for 33½/78 RPM changer compartment
73584 75546	Shield—Tube shield Slide—Slide mechanism complete for radio chas-	74308 75712	Hinge—Cabinet door hinge (1 set) Knob—Tuning control, tone control or volume
31251	sis bottom Socket—Tube socket, octal, wafer		control and power switch knob—maroon—for mahogany or walnut instruments
73117 31364	Socket—Tube socket, 7 pin, miniature Socket—Dial lamp socket	75713	Knob—Tuning control, tone control or volume control and power switch knob—tan—for oal
74038 75597 75486	Spring—Drive cord spring Switch—Function switch (S1-1) Transformer—First I-F transformer complete with	75714	Knob-Function switch knob-maroon-for ma-
75487	adjustable cores (Tl) Transformer—Second I-F transformer complete	75715	hogany or walnut instruments Knob—Function switch knob—tan—for oak in- struments
73636	with adjustable cores (T2) Transformer—Output transformer (T3)	11765 73634	Lamp—Pilot lamp—Mazda #51 Nut—Speed nut for speaker mounting screws
75566 33726	Transformer—Power transformer 117 volts, 60 cycle (T4) Washer—''C'' washer for tuning knob shaft	74276 75907	Pull—Door pull Screw—#10-32 x 51/4" cross recessed round head (special shipping screws) screw to mount 45
		74113	RPM changer Screw—#8-32 x 1" trimit head screw for door pull
	RADIO ROLLOUT CARRIAGE	75708 75546	Shell—Shell for 8 contact female connector Slide—Slide mechanism complete for 33½/78
75598	Decal—Function decal for controls		RPM changer mounting frame
75550 75549	Dial—Polystyrene dial scale Frame—Moulded frame (marcon) for mounting	31364 74734	Socket—Pilot lamp socket and load
	radio chassis and 45 RPM changer for mahog-	75902	Spring—Retaining spring for knobs Spring—Suspension spring for main cable
	any and walnut instruments	72936	Stop—Cabinet door stop

†Stock No. 72953 is a reel containing 250 feet of cord.

A-82





AM-FM Radio-Phonograph Combination

MODEL A-91

Chassis No. RC 1095 Record Changers 960284 (78/33 1/3 r.p.m.) RP 168 or RP 190-2 (45 r.p.m.)

SERVICE DATA

- 1950 No. 20 -

PREPARED BY RCA SERVICE CO., INC.

FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Power Supply Rating115 volts, 60 cycles, 110 watts

(Radio) Undistorted 8 wattsMaximum 9 watts (Phono.) Undistorted 10 wattsMaximum 11 watts

Specifications

Loudspeaker (92569-12W)

Power Output

Tuning Range

FOR 78/3314 R.P.M.

Standard Broadcast (AM) 540-1,600 k	۲C.
Frequency Modulation (FM)	ıc.
Intermediate FrequenciesAM-455 kc., FM-10.7 m	IC.

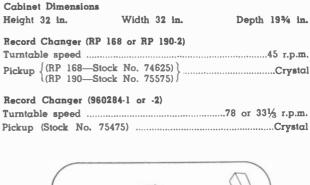
FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-168 SERIES SERVICE DATA OR RP-190 SERIES SERVICE

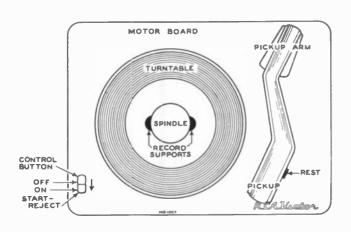
DATA FOR 45 R.P.M. AND MODEL 960284 SERVICE DATA

Tube Complement

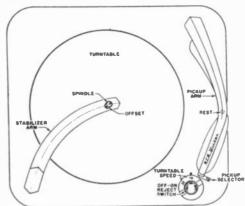
(1)	RCĀ	6J6Mixer and	Oscillator
(2)	RCA	6BA6	Amplifier
(3)	RCA	6AU6	Driver
(4)	RCA	6AL5Ratic	Detector
(5)	RCA	6AV6AM DetAVC-A-F	Amplifier
(6)	RCA	£C4	Ph. Inv.
(7)	RCA	6V6GT	Output
		6V6GT	-
(9)	RCA	5Y3GT	Rectifier

Jewel LampType No. 51, 6-8 volts, 0.2 amp.





Top View-RP190 Record Changer



Top View-960284 Record Changer



Dial Lamps (2)Type No. 51, 6-8 volts, 0.2 amp.

Tuning Drive Ratio10:1 (5 turns of knob)

Alignment Procedure

CORRECT ALIGNMENT OF THE FM BAND REQUIRES THAT THE AM BAND BE ALIGNED FIRST

Alignment Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter across the speaker voice coil.

The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure a-v-c voltage.

When audio output is being measured the volume control should be turned to maximum.

Signal Generator:

For all alignment operations connect the low side of the signal generator to the receiver chassis. The output should be adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to avoid a-v-c action.

Circuit Description

This instrument has a nine-tube (including rectifier) chassis which is very similar to those used in other RCA Victor radiophonograph combinations designed for AM-FM reception.

- The selector switch has five functions:
- (1) Selection of tuning range.
- (2) Selection and distribution of a.v.c. voltages.
- (3) Application of B+ voltage to tubes V1, V2, and V3. In "Phono 78/33" and "Phono 45" positions the B+ voltage
- is removed from tubes V1, V2 and $\overrightarrow{V3}$.
- (4) Selection of audio input applied to the volume control.
- (5) Change in output tube bias.
- In Radio positions R6 is in parallel with R42.
- This receiver has built-in antennas for standard broadcast (AM) and frequency modulation (FM) reception.
- Provision is made for the use of external antennas if desired.

Critical Lead Dress

Note: The leads listed may not be critical in all receivers. However, by dressing the leads as specified, unusual difficulties will be minimized.

- 1. The 2.2 meg mixer grid resistor (R10) should have a minimum practicable amount of lead extending on the grid end.
- 2. The first A.M. and first F.M. I.F. plate leads should be dressed away from the range switch wafer.
- 3. The ground strap between the R.F. shelf and the main chassis should be well soldered and kept as short as practicable.
- Årrange wiring to prevent the filament wire between the mixer (6J6) and 1st I.F. (6BÅ6) tubes from passing near either the mixer grid, or the Å.V.C. wiring.
- 5. Dress filament wires away from all audio coupling condensers.
- Dress A.C. power switch wires away from the audio coupling condenser (C20) which is wired to the volume control.
- 7. Dress the mixer grid coupling condenser (C7) away from the lugs on the front range switch wafer.
- The 1st I.F. tube A.V.C. by-pass condenser (C16) should ground at the same point as the cathode neutralizing loop.
- 9. The driver tube plate and screen by-pass condensers (C27, C28) should ground at the same point as the neutralizing loop.
- The mixer plate by-pass condenser (C15) should ground as close to the R.F. shelf ground strap as practicable.
- The shielded audio leads connecting to the front function switch wafer should have a minimum of exposed lead on the function switch end.

AM Alignment

FUNCTION SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output		
1	Stator of Cl-4 in series with .01 mf.	455 kc.	Quist point at low freq. end.	† Bottom (sec.) & top (pri.) cores of T4 † Top (sec.) & bottom (pri.) cores of T2		
2	AM ant. terminal in series with 200 mmf.	1620 kc.	Extreme high freq. end.	C1-2 trimmer (osc.)		
3		1400 kc.	l400 kc. signal	Cl-4 trimmer (ant.)		
4		600 kc.	600 kc. signal	L5 (osc.) Rock Gang		
5	Repeat steps 2, 3 and 4					

† First peak T2 and T4 then starting with T4, use alternate laading. Connect a 47,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 47,000-ohm resistor while the plate winding is being peaked.

FM Alignment

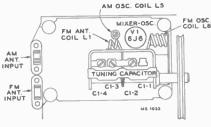
FUNCTION SWITCH IN FM POSITION—VOLUME CONTROL MAXIMUM

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output			
1	Connect the d-c probe of a VoltOhmyst to the negative lead of the 2 mfd. capacitor C40 and the common lead to chassis. Adjust sig. gen. output to provide approx3 v. indication during alignment						
2	Pin #1 of 6 AU6 (V3)	10.7 mc. AM		Top of driver trans. T5 for max. d.c. voltage			
3	in series with .01 mf.	modulated		t Bottom of driver trans. T5 for min. audio output			
4	Repeat steps	2 and 3					
5		10.7 mc.	low frequency end	* Top (sec.) and bottom (pri.) cores of T3 * Top (sec.) and bottom (pri.), cores of T1			
6		90 mc.	90 mc.	** L8 (osc.)			
7		106 mc.	106 mc.	C1-3 trimmer (ant.)			
8		90 mc.	90 mc. signal	** Ll (ant.) Rock Gang			
9	Repeat steps	7 and 8					

† Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.

* Align T3 and T1 by means of alternate loading as explained under ÅM alignment. Use a 680 ohm resistor instead of a 47,000 ohm resistor and load the FM windings.

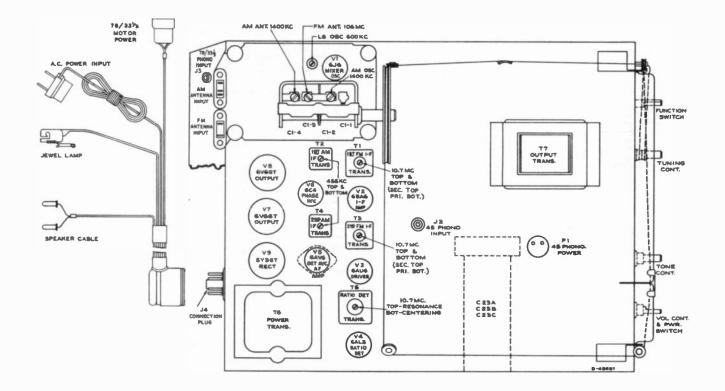
** Ll and L8 are adjustable by increasing or decreasing the spacing between turns.



F. M. Coil Locations

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TUBE AND TRIMMER LOCATIONS-VOLTAGE DATA

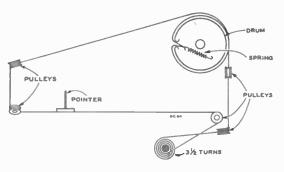


Tube and Trimmer Locations

Socket Voltages

Voltages measured to chassis with VoltOhmyst with no signal input and should hold within $\pm 10\%$ with 117-volt power supply.

			Voltage		
Tube	Termina	1	Phono	A.M.	F.M.
V1 6J6	Plate	2		58	53
Mixer and	Grid	5	_	-1.5	-1.3
Oscillator	Plate	1	—	35	29
	Grid	6	_	-2.2	-2.0
V2 6BA6	Plate	5		197	193
I.F. Amp.	Screen	6	—	112	104
	Cathode	7	_	0.67	0.77
	Grid	1	-	-1.2	-0,35
V3 6AU6	Plate	5	_	193	189
Driver	Screen	6		125	123
	Cathode	7	—	1.1	1.1
V4 6AL5 Ratio Det.		-			-
V5 6AV6	Plate	7	112	95	95
A.F. Amp.	Grid	1	-0.7	-0.7	-0.7
	Plate	1-5	125	90	90
V6 6C4	Cathode	7	-12.2	-11	-11
Ph. Inv.	Grid	6	-19.2	-15.6	-15.6
V7 6V6GT	Plate	3	305	295	295
OT	Screen	- 4	299	214	212
V8 Output	Grid	5	-19.2	-15.4	-15.4
V9 5Y3GT Rectifier	Filament	2	314	301	301



Dial Cord and Drive Assembly

Cathode Currents (Ma.)

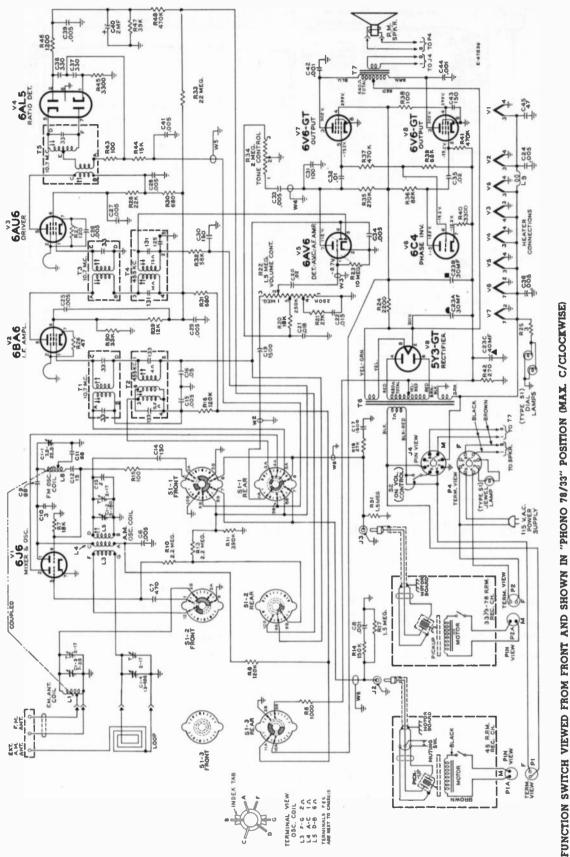
Tube	Terminal	Phono	A.M.	F.M.
V1 6J6	7	_	2.8	2.8
V2 6BĀ6	7	_	16.6	16.5
V3 6AU6	7	_	9.4	9.3
V4 6AL5	1 & 5			
V5 6AV6	2	0.8	0.5	0.5
V6 6C4	7	2.2	1.5	1,5
V7 6V6GT	8	35.6	18.6	18.5
V8 6V6GT	8	35.6	18.6	18.5
V9 5Y3GT	2	74.2	72.5	71.7

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17







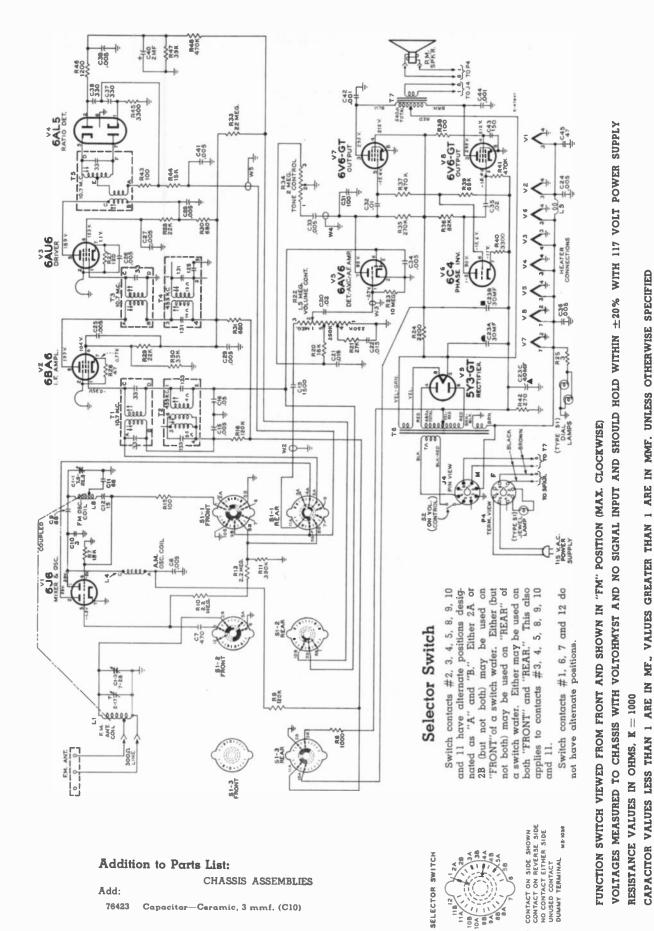
VOLTAGES MEASURED TO CHASSIS WITH VOLTOHMYST AND NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±20% WITH 117 VOLT POWER SUPPLY RESISTANCE VALUES IN OHMS, $\mathbf{X} = 1000$

CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED

Complete Schematic Diagram

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SIMPLIFIED SCHEMATIC DIAGRAM-"FM"

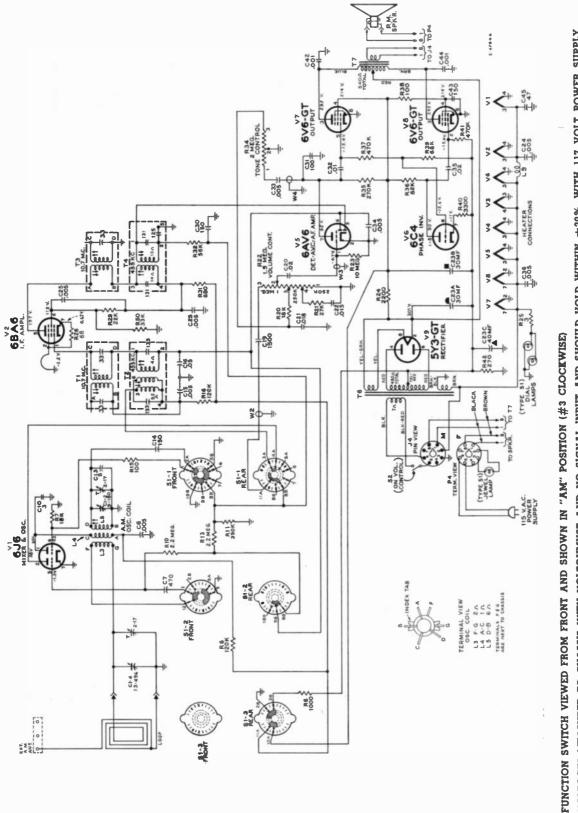


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Simplified Schematic Diagram-"FM"

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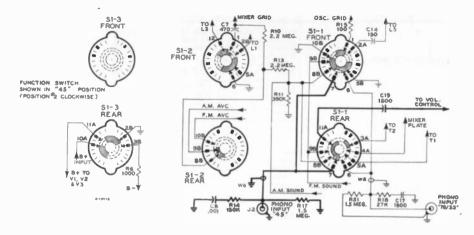


VOLTAGES MEASURED TO CHASSIS WITH VOLTOHMYST AND NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±20% WITH 117 VOLT POWER SUPPLY RESISTANCE VALUES IN OHMS, $\mathbf{X} = 1000$

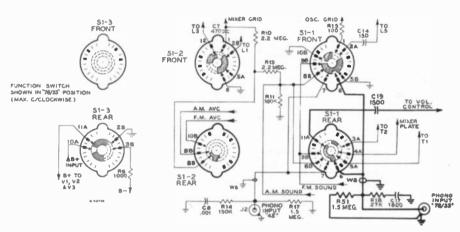
CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED

A-91

SIMPLIFIED SCHEMATIC DIAGRAM-"AM"



Switch Position Schematic Diagram—"Phono 45"



In "45" and "78/33" position the B+ supply voltage is disconnected in S1-3 which renders the mixer-oscillator, L.F. amplifier and driver tubes inoperative.

The bias resistor R6 (in parallel with R42 in AM and FM positions) is also disconnected in S1-3.

This results in higher grid, plate and screen voltages on the output tubes.

Switch Position Schematic Diagram—"Phono 78/33"

Record Changer Mounting

Each record changer is mounted in a roll-out carriage. The changer mechanisms are mounted on rubber grommets (45 r.p.m.) or springs (78/33 r.p.m.) and should be free floating.

Two shipping screws hold the 45 r.p.m. changer to its roll-out carriage. They are accessible from the under-side of the carriage and should be REMOVED at time of installation.

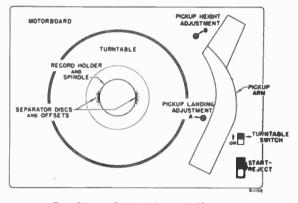
Two shipping screws hold the 78/33 r.p.m. changer to its roll-out carriage. They are accessible after the turntable is lifted off and should be LOOSENED at time of installation.

Roll-out Carriage Removal

Each roll-out carriage has two stop pins, (one at the back end of each slide) held in place by a retaining spring. To remove roll-out carriage, it is first necessary to pull the retaining springs out of the slides with a pair of long nose pliers, the stop pins are then easily removed. The roll-out carriage may then be removed from the front of the cabinet after disconnecting its connecting cables.

Roll-out Carriage Travel

The roll-out carriages have a normal movement limitation of approximately 10 inches. If a carriage does not have this amount of movement, it may be due to an obstruction or from slippage or creeping of the balls of the slide mechanism. Travel restriction due to slippage or creeping of balls in the slide mechanism can be corrected by exerting slichtly greater pull until the normal travel limitation is reached. The carriage should then operate to its full travel with normal pull.



Top View-RP 168 Record Changer

Adjustments

1. PICKUP LANDING—Turn screw "A" slightly to right (clockwise) if landing is on music grooves, or to left if too near edge of record.

2. PICKUP HEIGHT—Turn screw "B" slightly to right (clockwise) if for change cycle pickup does not lift up from as many as ten records on turntable, or to left if when lifting, pickup hits records on spindle. Correct height is 34" from turntable to pickup point at maximum.

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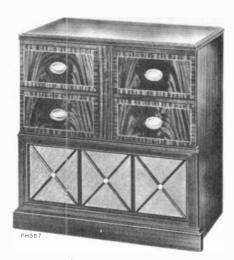
A-91

Replacement Parts

NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	75600	Switch-Function switch (S1-1, S1-2, S1-3)
ļ	RC 1095	75557	Transformer—Output transformer (T7) Transformer—Radio detector transformer (T5)
75599	Capacitor—Variable tuning capacitor complete with drive drum (Cl-1, Cl-2, Cl-3, Cl-4)	75558	Transformer-Radio detector transformer (T5) Transformer-First I-F transformer (A-M) complete with adjustable cores (T2) Transformer-Scond I-F transformer (A-M) complete with
75613	Capacitor—Ceramic, 5 mmf. (C13)		adjustable cores (T4) Transformer—First I-F transformer (F-M) complete with
39044 75609	Capacitor—Ceramic, 15 mmf. (C12) Capacitor—Ceramic, 47 mmf. (C45)	75559	adjustable cores (T1)
75612 75437	Capacitor—Ceramic, 68 mmf. (C9, C11) Capacitor—Ceramic, 100 mmf. (C31)	75560	Transformer—Second I-F transformer (F-M) complete wit adjustable cores (T3)
75614 39640	Capacitor-Ceramic, 150 mmf. (C14, C30, C43)	75566	Transformer—Power transformer, 117 volt, 60 cycle (T6) Washer—''C'' washer for tuning knob shaft
39644	Capacitor—Mica, 330 mmf. (C37, C38) Capacitor—Mica, 470 mmf. (C7)		RADIO ROLLOUT CARRIAGE
75610 74850	Capacitor—Ceramic, 1500 mmf. (C19) Capacitor—Ceramic, 1800 mmf. (C17)	75601	Decal—Function decal for controis
73473	Capacitor—Ceramic, 5000 mmf. (C6, C15, C24, C25, C27, C28, C29, C34, C36)	75572	Dial—Polystyrene dial scale Frame—Moulded frame (marcon) for mounting radi
73801 70642	Capacitor-Tubular, paper, .001 mid. 400 volta (C8)		chassis and 45 RPM record changer—for mahogany of walnut instruments
71926	Capacitor—Tubular, paper, .001 mtd, 1000 volts (C42, C44) Capacitor—Tubular, paper, .005 mtd, 200 volts (C26, C39,	75683	Frame—Moulded frame (light brown) for mounting radi
73920	Č41) Capacitor—Tubular, paper, .005 mfd, 400 volts (C33)		chassis and 45 RPM record changer—for oak instru- ments
71925 58476	Capacitor—Tubular, paper, 01 mid, 400 volts (C32)' Capacitor—Tubular, paper, 01 impregnated, 018 mid, 400 volts (C21)	75551 75555	Handle—Metal pullout handle for mounting frame Screw—#8-32 x 3/4" cross recessed pan head machin screw to mount radio chassis (4 reg(d)
72120	Capacitor-Tubular, paper, 015 mtd 200 volte (C22)		SPEAKER ASSEMBLY
73553	Capacitor—Tubular, paper, .02 mid, 400 volts (C20, C35) Capacitor—Tubular, paper, .05 mid, 400 volts (C16)		Stamped 92569-12W
73747 72052	Capacitor-Electrolytic, 2 mfd, 500 volts (C40) Capacitor-Electrolytic, comprising 1 section of 30 mfd,		RMA 274
	aby volts, I section of 30 mid. 350 volts and I section	13867	RL 111-A1 Cap—Dust cap
73935	of 40 mid, 25 volts (C23A, C23B, C23C) Clip-Mounting clip for A-M, I-F transformers	75682	Cone-Cone and voice coil assembly (3.2 ohms) Speaker-12" P.M. speaker complete with cone and voi
75627	Clip—Clip for main cable—on rear of chassis Coil—Oscillator coil (A.M.) complete with adjustable		coil (3.2 chms) NOTE: If stamping on speaker does not agree with abo
75617	Screws Coil—Antenna coil—F-M (L1)		number, order replacement parts by referring to mod
71942 74817	Coil—Filament choke coil (L9)		number of instrument, number stamped on speaker as full description of part required.
35787	Coil—Oscillator coil—F.M (L8) Connector—Single contact female connector for pickup		MISCELLANEOUS
74879	Connector—2 contact female connector for antenna leade	71864	Antenna—F-M antenna Antenna—Antenna loop complete less cable
75542	Connector—8 contact male connector for power input cable (14)	75898	Back—Back cover—marcon—for 33¼/78 RPM reco
75543	Connector_2 contact female connector for 45 ppps weter	25000	changer compartment—for mahogany or walnut inst ments (assembled to rollout)
70342 75538	cable (P1) Control—Volume control and power switch (R22, S2) Control—Tone control (R34)	75899	Back—Back cover—light brown—for 33½/78 RPM reco changer compartment—for oak instruments (assembl
†72953		75900	to rollout) Back—Back cover—Marcon—for radio—45 RPM reco
75564	shaft		changer compartment—for mahogany or walnut inst ments (assembled to rollout)
75556 74839	Cover—Insulating cover for electrolytic capacitor #72052 Fastener—Push fastener for mounting R-F shelf (4 re-	75901	Back—Back cover—light brown—for radio—45 RPM reco
16058			changer compartment—for oak instruments (assembl to rollout)
	Grommet—Rubber grommet for mounting R-F shelf (4 req'd)	73680	Board''A-F-N" terminal board BracketStep bracket less rubber bumper for reco
75547	Grommet—Rubber grommet to mount slide mechanism to bottom—rear (2 reg'd)	71599	changer rollouts Bracket—Pilot lamp bracket
75548	Grommet—Rubber grommet to mount slide mechanism to bottom—front (2 reg'd)	75696	Bumper-Rubber bumper for record changer rollout st bracket
11765 75544	Lamp—Dial lamp—Mazda #51 Nut—Rivnut to fasten screw for mounting chassis (4	74296	Cable—Shielded pickup cable complete with pin plu for 33½/78 RPM record changer
18469		72437	Cable—Shielded pickup cable complete with pin plug i
75535	Plate—Bakelite mounting plate for electrolytic capacitor #72052	13103	
75536	Plate—Dial back plate complete with three (3) pulleys Pointer—Station selector pointer	71892 X3093	
72602 72323	Pulley—Drive cord pulley Resistor—Wire wound, 3 ohms, ½ watt (R25)	X3189 74882	Cloth-Grille cloth for mahogany or walnut instrument
73637	Newslator wire wound, 2200 onms, 5 watts (R24)	11	tenna loop cable
	Resistor—Fixed, composition:— 47 ohms, $\pm 10\%$, $1/2$ watt (R26) 100 ohms, $\pm 10\%$, $1/2$ watt (R15, R38, R43) 120 ohms, $\pm 10\%$, $1/2$ watt (R17) 270 ohms, $\pm 5\%$, $1/2$ watt (R27) 680 ohms, $\pm 23\%$, $1/2$ watt (R30) 680 ohms, $\pm 20\%$, $1/2$ watt (R30) 680 ohms, $\pm 20\%$, $1/2$ watt (R31) 1000 ohms, $\pm 10\%$, $1/2$ watt (R46) 1200 ohms, $\pm 5\%$, $1/2$ watt (R47) 12,000 ohms, $\pm 10\%$, $1/2$ watt (R48)	74752	Connector—2 contact male connector for FM anten: cable
	100 chms, $\pm 10\%$, $\frac{1}{2}$ watt (R15, R38, R43) 120 chms, $\pm 10\%$, $\frac{1}{2}$ watt (R27)	75709	Connector—8 contact female connector for main cable Connector—Single contact male connector for speaker
	270 ohms, ±5%, 2 watts (R42) 680 ohms, ±20%, ½ watt (R30)	30868	req'd) Connector-2 contact female connector for 331/2/78 Ri
	680 ohms, ±20%, 1 watt (R31) 1000 ohms, ±10%, 1/2 watt (R6)		record changer motor leads
	1200 ohms, ±5%, 1/2 watt (R46)	74273	Decal-Trade mark decal (RCA Victor)
	12,000 ohms, $\pm 10\%$, 1 watt (R23) 15,000 ohms, $\pm 10\%$, 1 watt (R23)	74838	Grommet—Power cord strain relief (1 set) Grommet—Rubber grommet for mounting speaker
	13,000 ohms, ±10%, ½ watt (R44) 18,000 ohms, ±10%, ½ watt (R7, R20)	75697	Grommet-Rubber grommet for mounting 45 RPM reco
	22,000 ohms, ±10%, ½ watt (R28) 27,000 ohms, ±10%, ½ watt (R28)	75551	Handle-Metal pullout handle for 331/2/78 RPM rect
	33,000 ohms, ±10%, 1/2 watt (R50)	74308	changer compartment Hinge—Cabinet door hinge (1 set)
	56,000 ohms, ±10%, ½ watt (R32)	75712	Knob—Tuning control, tone control or volume cont and power switch knob—maroon—for mahogany
	82,000 ohms, ±10%, ½ watt (R39) 82,000 ohms, ±10%, ½ watt (R36)	75713	walnut instruments
	12.000 ohms, ±10%, ½ wott (R40, r45) 15.000 ohms, ±10%, ¼ wott (R29) 15.000 ohms, ±10%, ¼ wott (R7, R20) 22.000 ohms, ±10%, ¼ wott (R7, R20) 23.000 ohms, ±10%, ¼ wott (R28) 33.000 ohms, ±10%, ¼ wott (R47) 56.000 ohms, ±10%, ¼ wott (R47) 56.000 ohms, ±10%, ¼ wott (R47) 56.000 ohms, ±10%, ¼ wott (R39) 82.000 ohms, ±10%, ¼ wott (R39) 120.000 ohms, ±10%, ¼ wott (R38) 120.000 ohms, ±10%, ¼ wott (R18, R16) 150.000 ohms, ±10%, ¼ wott (R14) 270.000 ohms, ±10%, ¼ wott (R14) 270.000 ohms, ±10%, ¼ wott (R11) 470.000 ohms, ±10%, ¼ wott (R17, R41, R48) 1.5 megohm, ±20%, ¼ wott (R17, R51) 2.2 megohm, ±20%, ¼ wott (R23) 10 megohm, ±20%, ¼ wott (R33) 39.000 ohms, ±10%, ¼ wott (R33) 39.000 ohms, ±10%, ¼ wott (R33) 30.000 ohms, ±10%, ¼ wott (R33) 30.000 ohms, ±20%, ½ wott (R33) 30.0000 ohms, ±20%, ½ wott (R33) 30.0000 ohms, ±20%, ½ wott (R33) 30.0000 ohms, ±20%, ½ wott (R	11 .	and power switch knob—for oak instruments
	270,000 ohms, ±10%, ½ watt (R35)	75714	walnut instruments
	$470,000$ ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R11)	75715	
	1.5 megohm, ±10%, ½ watt (R17, R51) 2.2 megohm, ±20%, ½ watt (R10, R13)	75917	Nail—Rosette head nail for grille (3 req'd)
	10 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, 16 watt (R23)		ing screw
75540	Shaft-Extension shaft for function switch	73634 75916	Pull-Door pull
73584	Shield-Tube shield for V5	75907	Screw-#10-32 x 51/4" cross recessed round head spec
75546	Slide-Slide mechanism complete for andia sharets have	75883	screw for mounting 45 RPM frame Screw—#10-24 x 21/4" round head machine screw
31251	Socket-Tube socket, 7 pin, ministure	74279	
31251 73117 74179	Socket Tube socket 7 1	11 76700	Shell—Shell for 8 contact female connector #75709
73117 74179 31364	Socket-Dial lamp socket	75708	
73117 74179 31364 75563	Spring-Retaining spring for function switch extension	75546	Slide—Slide mechanism for 331/3/78 RPM record mov ing frame
73117 74179 31364	Spring-Retaining spring for function switch extension		Slide—Slide mechanism for 33¼/78 RPM record mot ing frame Socket—Pilot lamp socket and lead Spring—Retaining spring for knobs

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

* Stock No. 72953 is a reel containing 250 feet of cord.



FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-190 SERIES SERVICE DATA FOR 45 R.P.M. AND MODEL 960282 SERVICE DATA FOR 78/331½ R.P.M.



AM-FM Radio-Phonograph Combination

MODEL A-101

Chassis No. RC 1096 Record Changers 960282-4 or 5 (78/33 1/3 r. p. m.) and RP 190-2 (45 r.p.m.)

SERVICE DATA __ 1950 No. 31 __

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

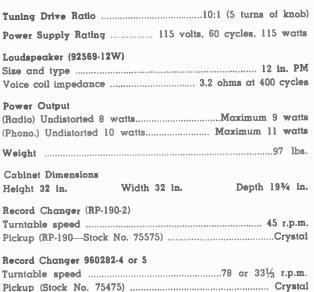
Tuning Range

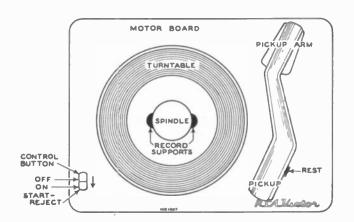
Standard Broadcast (AM)	540-1,600	kc.
Frequency Modulation (FM)	88-108	mc.
Intermediate Frequencies AM-455 kc.,	FM—10.7	mc.

Tube Complement

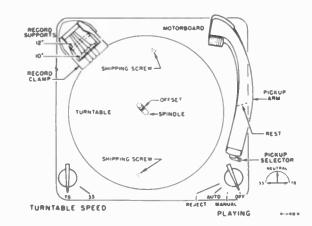
(1) RCA	6CB6
(2) RCA	6J6 Mixer and Oscillator
(3) RCA	6BA6I-F Amplifier
(4) RCA	6AU6 Driver
(5) RCA	6AL5 Ratio Detector
(6) RCA	6AV6 AM DetAVCA-F Amplifier
(7) RCA	6C4 Ph. Inv.
(8) RCA	6V6GTOutput
(9) RCA	6V6GTOutput
(10) RCA	5Y3GT Rectifier

Dial Lamps (2).....Type No. 51, 6-8 volts. 0.2 amp. Jewel LampType No. 51, 6-8 volts. 0.2 amp.





Top View-RP-190 Record Changer



Top View-960282 Record Changer

The early production of Model A-101 used 960282-4 or -5 record changer. Late production uses 960284-1 or -2 record changer.

LATE PRODUCTION USES CHASSIS NO. RC-1096B. SEE PAGE 31 FOR DETAILS.

Alignment Procedure CORRECT ALIGNMENT OF THE FM BAND REQUIRES THAT THE AM BAND BE **ALIGNED FIRST**

Alignment Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter across the speaker voice coil.

The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure a-v-c voltage.

When audio output is being measured the volume control should be turned to maximum.

Signal Generator:

For all alignment operations connect the low side of the signal generator to the receiver chassis. The output should be adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to avoid a.v.c action.

Circuit Description

This instrument has a ten-tube (including rectifier) chassis which is very similar to those used in other RCA Victor radiophonograph combinations designed for AM-FM reception.

- The selector switch has five functions:
- (1) Selection of tuning range.
- (2) Selection and distribution of a.v.c. voltages.
- (3) Application of B+ voltage to tubes.
- In "Phono 78/33" and "Phono 45" positions the B+ voltage is removed from tubes V1, V2, V3 and V4.
- (4) Selection of audio input applied to the volume control.
- (5) Change in output tube bias.
 - In Radio positions R6 is in parallel with R42.

This receiver has built-in antennas for standard broadcast (AM) and frequency modulation (FM) reception.

Provision is made for the use of external antennas if desired.

Critical Lead Dress

Note: The leads listed may not be critical in all receivers. However, by dressing the leads as specified, unusual difficulties will be minimized.

- 1. The 2.2 meg mixer grid resistor (R10) should have a minimum practicable amount of lead extending on the grid end.
- 2. The first A.M. and first F.M. I.F. plate leads should be dressed away from the range switch wafer.
- 3. The ground strap between the R.F. shelf and the main chassis should be well soldered and kept as short as practicable.
- 4. Arrange wiring to prevent the filament wire between the mixer (6J6) and 1st I.F. (6BA6) tubes from passing near either the mixer grid, or the A.V.C. wiring.
- 5. Dress filament wires away from all audio coupling condensers.
- 6. Dress A.C. power switch wires away from the audio coupling condenser (C20) which is wired to the volume control.
- 7. Dress the mixer grid coupling condenser (C7) away from the lugs on the front range switch wafer.
- 8. The 1st J.F. tube A.V.C. by-pass condenser (C16) should ground at the same point as the cathode neutralizing loop.
- 9. The driver tube plate and screen by-pass condensers (C27, C28) should ground at the same point as the neutralizing loop.
- 10. The mixer plate by-pass condenser (C15) should ground as close to the R.F. shelf ground strap as practicable.
- 11. The shielded audio leads connecting to the front function switch water should have a minimum of exposed lead on the function switch end.

AM Alignment

FUNCTION SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output
1	Stator of C1-4	455 KC	Quiet point at low freq. end.	 Bottom (sec.) top (pri.) cores of T4 Top (sec.) & bottom (pri.) cores of T2
2		1620 KC	Extreme high frequency end.	C1-2 trimmer (osc.)
3	AM ant. terminal thru 200 mmf.	1400 KC	1400 KC Signal	Cl-4 trimmer (r. f.) Cl-5 trimmer (ant.)
4		600 KC	600 KC Signal	t L5 (osc.) L7 (r. f.)
5	Repeat steps 2.	3 and 4	A	

[†] First peak T2 and T4 then starting with T4, use alternate loading. Connect a 47,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 47,000-ohm resistor while the plate winding is being peaked.

i With a 10,000-ohm resistor shunted across Cl-4, peak the oscil-lator core L5, simultaneously "rocking" the gang condenser for maximum output. Then, remove the 10,000-ohm shunt resistor and peak L7 for maximum output.

FM Alignment

FUNCTION SWITCH IN FM POSITION-VOLUME CONTROL MAXIMUM

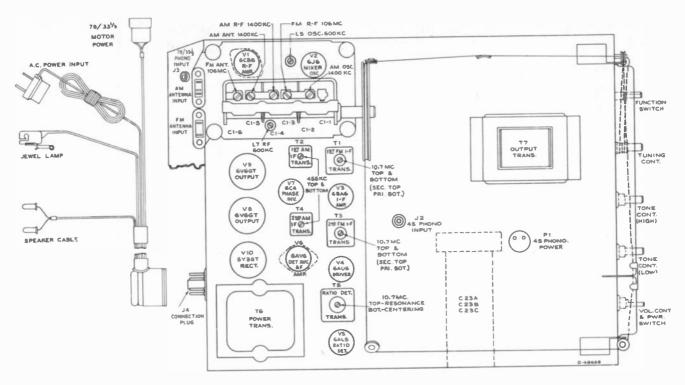
Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output
1	Connect the d-c probe of a VoltOhmyst to the negative lead of the 2 mid. capacitor C40 and the common lead to chassis. Adjust sig. gen. output to provide approx. —3 v. indication during alignment.			
2	Pin #1 of 6AU6 (V4) in series	10.7 mc AM modulated		Top of driver trans. T5 for max. d-c voltage
3	with .01 mf.			† Bottom of driver trans. T5 for min. audio output
4	Repeat steps 2 and 3			
5	Thru 470 ohms to Cl-3. Con- nect gnd. end of cable close to V2 cathode ground on r-f shelf	10.7 mc	88 mc	* Top (sec.) & bottom (prl.) cores of T3 * Top (sec.) & bottom (prl.) cores of T3
6		90 mc	90 mc	L8 (osc.)
7	To FM antenna terminals thru 120 ohms in each side of line	106 mc	106 mc Signal	C1-6 trimmer (ant.) and C1-3 trimmer (r. f.)
8		90 mc	90 mc Signal	L1 (ant.) and L2 (r. f.)
9	Repeat steps	6, 7 and 8		
10	Connect a sweep generator to the antenna terminals thru 120 ohms in each side of line. Connect an oscilloscope to junction of R44 and C41 to check response and linearity of FM band. Peak to peak separation should not be less than 190 kg			

than 180 kc.

t Two or more points may be found which lower the audio out-put. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point. * Use a 680 ohm resistor to load the plate winding while the grid winding of the same trans. is being peaked. Then the grid winding is loaded with the 680 ohm resistor while the plate winding is being peaked. When windings are loaded, it is nec-ersary to increase the 10.7 mc input to maintain the —3 volts in-direction. dication.

L8, L1 and L2 are adjustable by increasing or decreasing the pacing between turns. Oscillator signal tracks above signal frespacing between turns. quency.

TUBE AND TRIMMER LOCATIONS—VOLTAGE DATA



Tube and Trimmer Locations

F. M. Coil

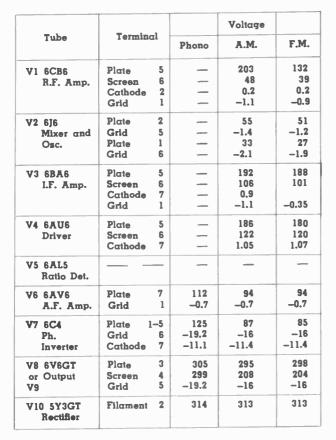
Locations

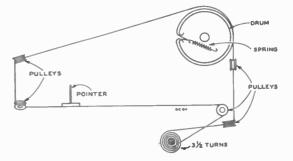
Socket Voltages

Voltages measured with Chanalyst or VoltOhmyst and should hold within $\pm 20\%$ with rated line voltage. Tuning condenser closed—no signal input.

COIL LZ COIL LS	
COIL LI	COIL LE
	1
FM ANT. INPUT L7 MS 1032	
AM R.F. COIL	Щ

AM OSC





EM B.E.

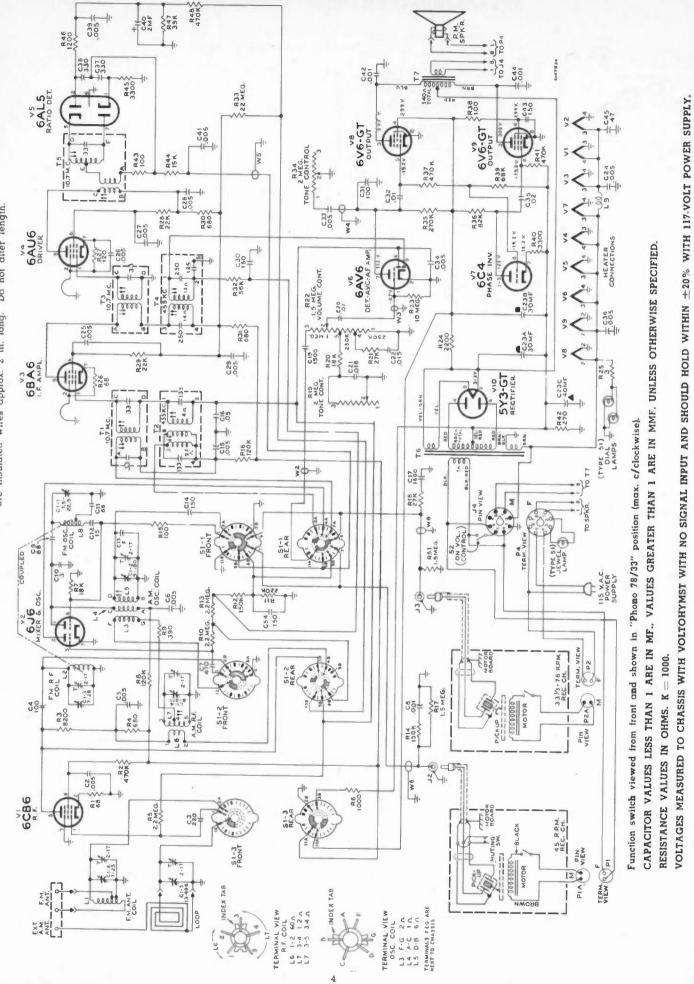
Dial Cord and Drive Assembly

Cathode Currents (Ma.)

Tube	Terminal	Phono	A.M.	F.M.
V1 6CB6	2	_	3	3
V2 6]6	7	_	2.6	2.6
V3 6BA6	7	_	13.2	14.7
V4 6AU6	7		9.3	9
V5 6AL5	1 & 5			
V6 6AV6	2	0.8	0.5	0.5
V7 6C4	7	2.2	1.5	1.5
V8 6V6GT	8	35.6	17.8	17.7
V9 6V6GT	8	35.6	17.8	17.7
10 5Y3GT	2	74.2	73.6	74.2



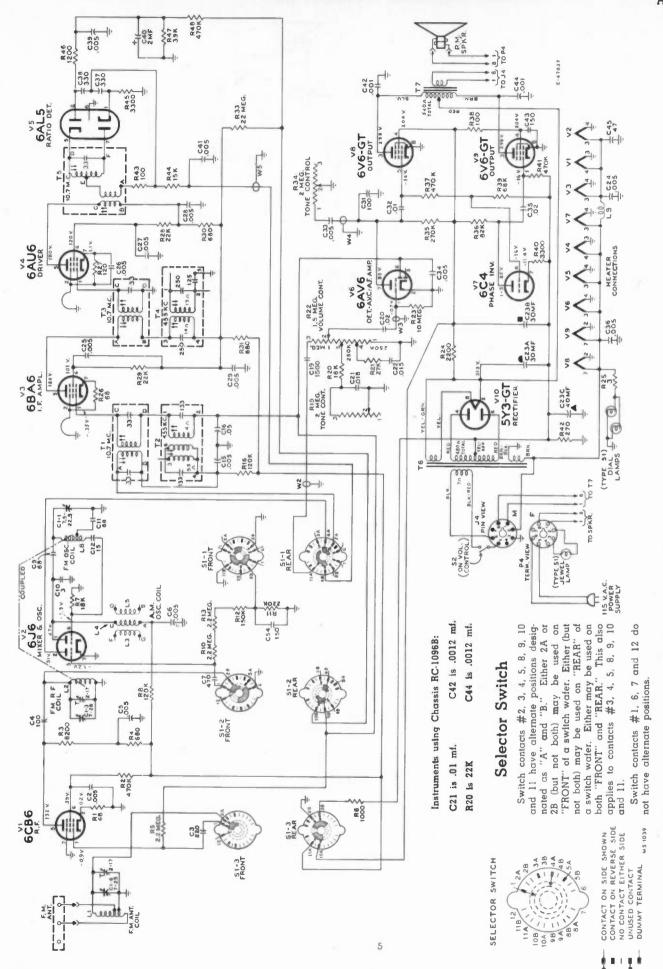
COMPLETE SCHEMATIC DIAGRAM



Complete Schematic Diagram

The cathode neutralizing loops of V3 (6BA6) and V4 (6AU6) are insulated wires approx. 2 in. long. Do not alter length.

SIMPLIFIED SCHEMATIC DIAGRAM_"FM"



A-101

27

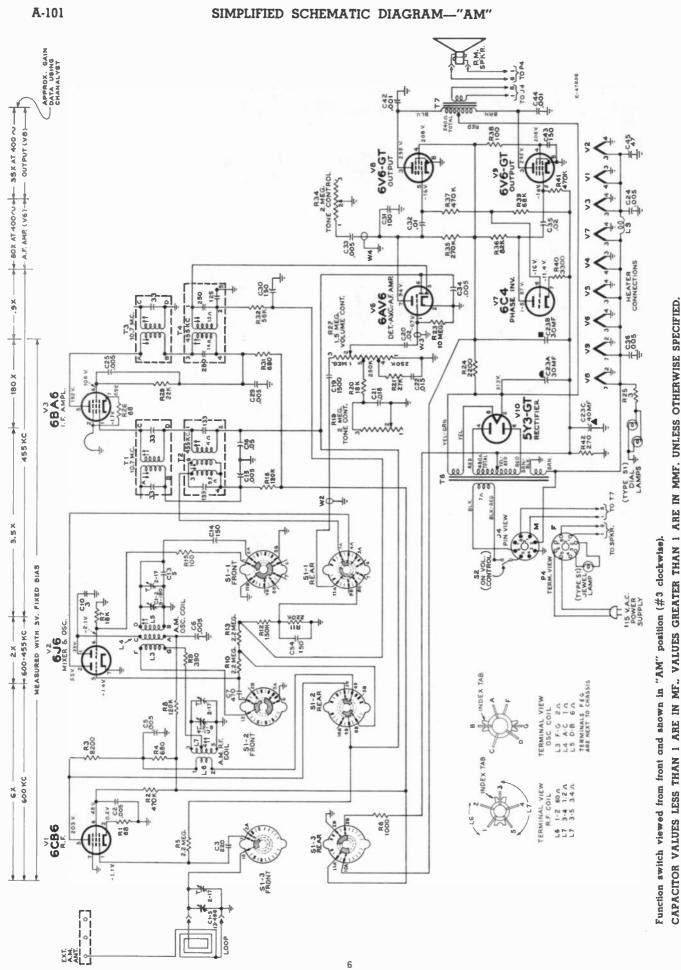
Simplified Schematic Diagram-"FM"

VOLTAGES MEASURED TO CHASSIS WITH VOLTOHYMST WITH NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±20% WITH 117-VOLT POWER SUPPLY.

CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED.

Function switch viewed from front and shown in "FM" position (max. clockwise).

RESISTANCE VALUES IN OHMS. K = 1000.

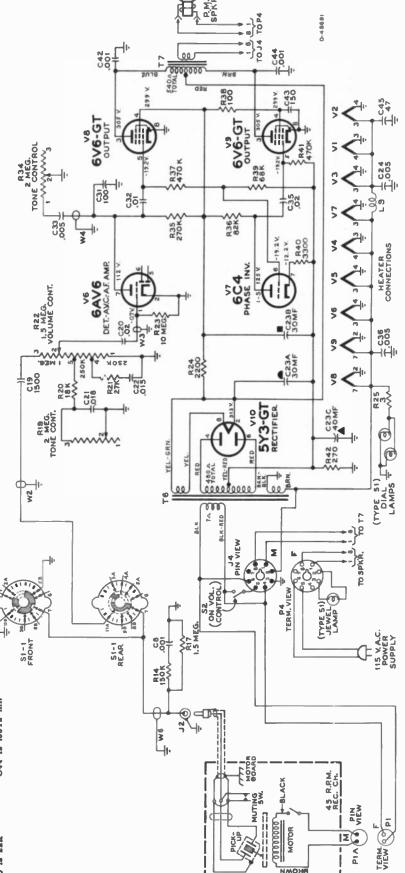


RESISTANCE VALUES IN OHMS. K = 1000.

VOLTAGES MEASURED TO CHASSIS WITH VOLTOHYMST WITH NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±20% WITH 117-VOLT POWER SUPPLY.

Simplified Schematic Diagram-"AM"

Instruments using Chassis RC-1096B: C21 is .01 mf. C42 is .0012 mf. R20 is 22K C44 is .0012 mf.



7

Note:

When the function switch is in "Phono 45" or "Phono 78/33" position the B+ supply voltage to tubes VI, V2, V3 and V4 is disconnected at switch section SI-3 rear. This results in higher plate and screen voltages on V6, V7, V8 and V9.

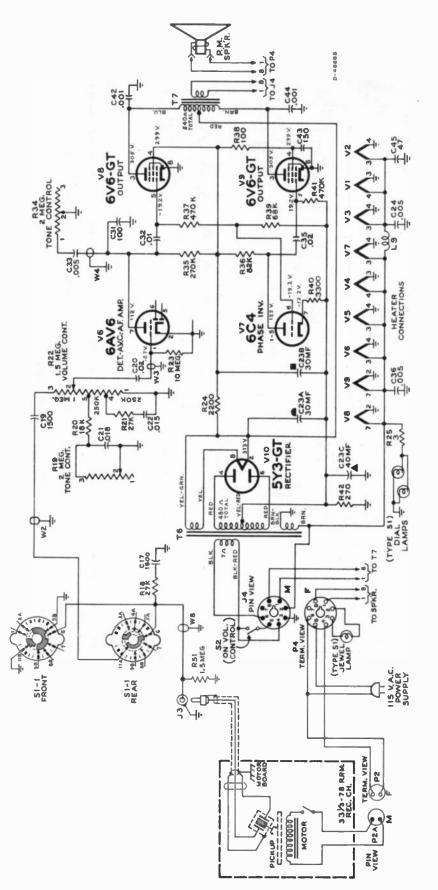
The bias resistor R6 (in parallel with R42 in AM and FM positions) is also disconnected at S1-3 rear. This results in higher grid bias voltage on V8 and V9.

FUNCTION SWITCH VIEWED FROM FRONT AND SHOWN IN "PHONO 45" POSITION (#2 CLOCKWISE).

CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES IN OHMS. K = 1000.

Voltages measured to chassis with voltohymst with no signal input and should hold within $\pm 20\%$ with 117-volt power supply.

Simplified Schematic Diagram-"Phono 45"



Note:

When the function switch is in "Phono 45" or "Phono 78/33" position the B+ supply voltage to tubes VI, V2. V3 and V4 is disconnected at switch section S1-3 rear. This results in higher plate and screen voltages on V6. V7. V8 and V9.

The bics resistor R6 (in parallel with R42 in AM and FM positions) is also disconnected at S1-3 rear. This results in higher grid bics voltage on V8 and V9.

CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED. FUNCTION SWITCH VIEWED FROM FRONT AND SHOWN IN "PHONO 78/33" POSITION (MAX. C/CLOCKWISE).

RESISTANCE VALUES IN OHMS. K = 1000.

VOLTAGES MEASURED TO CHASSIS WITH VOLTOHYMST WITH NO SIGNAL INPUT AND SHOULD HOLD WITHIN $\pm 20\%$ WITH 117-VOLT POWER SUPPLY.

Simplified Schematic Diagram-"Phono 78/33"

Record Changer Mounting

Each record changer is mounted in a roll-out carriage. The changer mechanisms are mounted on rubber grommets (45 r.p.m.) or springs (78/33 r.p.m.) and should be free floating. Two shipping screws hold the 45 r.p.m. changer to its roll-out carriage. They are accessible from the under-side of the car-

riage and should be REMOVED at time of installation.

Two shipping screws hold the 78/33 r.p.m. changer to its roll-out carriage. They are accessible after the turntable is lifted off and should be LOOSENED at time of installation.

Roll-out Carriage Removal

Each roll-out carriage has two stop pins, (one at the back end of each slide) held in place by retaining spring. To remove roll-out carriage, it is first necessary to pull the retaining springs out of the slides with a pair of long nose pliers, the stop pins are then easily removed. The roll-out carriage may then be removed from the front of the cabinet after disconnecting its connecting cables.

Roll-out Carriage Travel

The roll-out carriages have a normal movement limitation of approximately 10 inches. If they do not have this amount of movement, it may be due to an obstruction or from slippage or creeping of the balls of the slide mechanism. Travel restriction due to slippage or creeping of balls in the slide mechanism can be corrected by exerting slightly greater pull until the normal travel limitation is reached. The carriage should then operate to its full travel with normal pull.

Ā-101, Ā-108 (RC-1096B) 45-W-10 (RC-1096C)

Service Data:

Chassis stamped RC-1096B and RC-1096C are the same as chassis stamped RC-1096 and RC-1096A respectively except for the value of C21, R20 in volume control circuit and C42, C44 in output tubes plate circuit.

	RC-1096	RC-1096A	RC-1096B & C
C21	.018	.015	.010 mf.
R20	18K	18K	22K ohms
C42	.001	.001	.0012 mf.
C44	.001	.001	.0012 mf.

Substitute Speaker:

Speakers stamped 971494-2 have been used as a substitute for speakers stamped 92569-12, but only with chassis stamped RC-1096B (A-101 and A-108) or RC-1096C (45-W-10). Speakers stamped 92569-12 can be used with any of the above chassis (RC-1096, -A, -B, or -C).

Addition to Parts List:

CHASSIS ASSEMBLIES

Add:

76423 Capacitor-Ceramic, 3 mmf. (C10)

Replacement Parts

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1096	75542	Connector—8 contact male connector for power input cable (J4)
75567	Capacitor—Variable tuning capacitor complete with drive drum (Cl-1, Cl-2, Cl-3, Cl-4, Cl-5, Cl-6)	75543	cable (P1)
		74879	
75613	Capacitor—Ceramic, 5 mmf. (C13)	75537	
39396	Capacitor—Ceramic, 100 mmf. (C4)	75561	
75609	Capacitor—Ceramic, 47 mmf. (C45)	75562	
75612	Capacitor-Ceramic, 68 mmf. (C9, C11)	+72953	
39396	Capacitor—Ceramic, 100 mmf. (C4)	75564	Coupling-Spring coupling for function switch extension
75437	Capacitor—Ceramic, 100 mmf. (C31)	75556	Cover—Insulating cover for electrolytic capacitor #72052
75614	Capacitor—Ceramic, 150 mmf. (C14, C30, C43, C54)	74839	
75611	Capacitor—Ceramic, 220 mmf. (C3)	16058	Grommet-Rubber grommet for mounting R.F. shelf (4
39640	CapacitorMica, 330 mmf. (C37, C38)		req'd)
39644	Capacitor—Mica, 470 mmf. (C7)	75547	
75610			bottom—rear (2 req'd)
74850	p	75548	Grommet—Rubber grommet to mount slide mechanism to bottom—front (2 reg'd)
73473	Capacitor—Ceramic, 5000 mmf. (C2, C5, C6, C15, C24, C25, C27, C29, C29, C34, C36)	11765	
73801	Capacitor—Tubular, paper, .001 mfd, 400 volts (C8)	75544	Nut-Rivnut to fasten screw for mounting chassis (4
70642	Capacitor—Tubular, paper, .001 mfd, 1000 volts (C42, C44)	1	req'd)
71926	Capacitor-Tubular, paper, .005 mfd, 200 volts (C26, C39, C41)	18469	Plate—Bakelite mounting plate for electrolytic capacitor #72052
73920	Capacitor—Tubular, paper, .005 mfd, 400 volts (C33)	75535	
71925	Capacitor—Tubular, paper, .01 mfd, 400 volts (C32)	75536	PointerStation selector indicator
72120	Capacitor—Tubular, paper, .015 mfd, 200 volts (C22)	72602	
58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd, 400	72323	
	volts (C21)	73637	Resistor—Wire wound, 2200 ohms, 5 watts (R24)
74010	- provide the property too mind, too tomo (ooo) ooo)	1	Resistor—Fixed, composition:—
73553	Capacitor—Tubular, paper, .05 mfd, 400 volts (C16)		68 ohms, ±10%, 1/2 watt, (R1, R26)
73747	Capacitor—Electrolytic 2 mfd, 50 volts (C40)	1	100 ohms, ±10%, 1/2 watt (R15, R38, R43)
72052	Capacitor—Electrolytic comprising 1 section of 30 mfd, 450 volts, 1 section of 30 mfd, 350 volts and 1 section		120 ohms, ±10%, ½ watt (R27) 270 ohms, ±5%, 2 watts (R42)
	of 40 mfd, 25 volts (C23A, C23B, C23C)		390 ohms, $\pm 10\%$, $\frac{1}{2}$ watte (R42)
73935	Clip-Mounting clip for A-M, I-F transformers		$680 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R3)}$
75627	Clip—Clip for main cable—on rear of chassis		680 ohms, ±20%, 1/2 watt (R30, R31)
75569	Coil—Oscillator coil (A-M) complete with adjustable core		1000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R6)
75570	(L3, L4, L5) Coil—R.F. coil complete with adjustable core (L6, L7)		1200 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R46)
71942	Coil—Filament choke coil (L9)		3300 ohms, ±5%, ½ watt (R40, R45)
75615	Coil—Antenna coil—F·M (L1)		8200 ohms, $\pm 10\%$, 1 watt (R3)
74815	Coil—R.F. coil—F-M (L2)		15,000 ohms, ±10%, ½ watt (R44)
74817	Coil—Oscillator coil—F-M (L8)		18,000 ohms, ±10%, 1/2 watt (R7, R20)
35787	Connector-Single contact female connector for phono		22,000 ohms, ±10%, 1/2 watt (R28, R29)
	cables (J2, J3)		27,000 ohms, ±10%, 1/2 watt (R18, R21)

† Stock No. 72953 is a reel containing 250 feet of cord.

Replacement Parts—Concluded

39,000 ohms, ±5%, ½ watt (R47)MISCELLANEOUS56,000 ohms, ±10%, ½ watt (R39)7186468,000 ohms, ±10%, ½ watt (R39)7570582,000 ohms, ±10%, ½ watt (R36)75705120,000 ohms, ±10%, ½ watt (R12, R14)7570520,000 ohms, ±10%, ½ watt (R11)75806270,000 ohms, ±20%, ½ watt (R12, R14)75907270,000 ohms, ±10%, ½ watt (R17, R51)759072.2 megohm, ±20%, ½ watt (R5, R10, R13)7590710 megohm, ±20%, ½ watt (R5, R10, R13)7590810 megohm, ±20%, ½ watt (R33)758402 megohm, ±20%, ½ watt (R33)7584075540 Shaft-Tuning knob shaft7589675546 Shield-Tube socket, 7 pin, miniature tubes colket, 7 pin, miniature shaft7581375543 Spring-Retaining spring for function switch shaft7581375544 Spring-Drive cord spring that pite with mounting bracket7681675555 Spring-Retaining spring for function switch shaft7243775556 Spring-Retaining spring for function switch shaft7243775556 Spring-Retaining spring for function switch shaft7243775553 Spring-Drive cord spring pite with mounting bracket7243775557 Transformer-Ouput transformer (T7) 737437374875562 Switch-Function switch (S1-1, S1-2, S1-3)7475275557 Transformer-Cuput transformer (T5)7559	
56,000 ohms, ±10%, ½ watt (R32)71864Antenna—F.M antenna68,000 ohms, ±10%, ½ watt (R36)75705Antenna—Antenna loop complete less cable82,000 ohms, ±10%, ½ watt (R36)75898Back-Back cover—moreon-for 33½/8 RPM changer compartment—for mahogany or walm ments (assembled to rollout)150,000 ohms, ±10%, ½ watt (R12, R14)75901Back-Back cover—moreon-for adio_45 RI changer compartment—for adio_45 RI adio_45 RI backet—Stop backet (R33)75540Shaft—Tuning knob shaft73680Board—''AF.M'' terminal board changer recod changer75541Side—Slide mechanism complete for radio chassis bottom shaft75691Button—Rosette button for speaker grille Cable—Shielded pickup cable complete with for 33¼/78 RPM record changer731364Socket—Tube socket, 7 pin, miniature resord changer74237Cap—Pilot lamp cap731364Socket—Dial lamp socket71891Suttom—Rosetse button for speaker grille cable—Shiel	
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82.000 ohms, ±10%, ½ watt (R36)75898Back-Back cover-marcon-for 33¼/78 RPM changer compartment-for mahogany or walm ments (assembled to rollout)220.000 ohms, ±10%, ½ watt (R12, R14)75901220.000 ohms, ±10%, ½ watt (R13)75901470.000 ohms, ±10%, ½ watt (R17, R51)Back-Back cover-marcon-for radio-45 RP changer compartment-for ack instruments (assembled to rollout)2.2 megohm, ±20%, ½ watt (R17, R51)Back-Back cover-marcon-for radio-45 RP changer compartment-for ack instruments (assembled to rollout)2.2 megohm, ±20%, ½ watt (R33)7590075540 Shaft-Tuning knob shaft7594075545 Shaft-Extension shaft for function switch7589475546 Slied-Tube socket, ottal, wafer7591973117 Socket-Tube socket, 7 pin, miniature7243773118 Socket-Tube socket, 7 pin, miniature72437731364 Socket-Dial lamp socket71992731364 Socket-Dial lamp socket71992731364 Socket-Dial sopport-Polystyrene support for F-M oscillator coil complete with mounting bracket748274847 Support-Polystyrene support (S1-1, S1-2, S1-3)7452275557 Transformer-Ouput transformer (T7)7570975557 Transformer-Ouput transformer (T7)75709	
 120,000 ohms, ±10%, ½ watt (R8, R16) 150,000 ohms, ±10%, ½ watt (R12, R14) 220,000 ohms, ±10%, ½ watt (R13) 270,000 ohms, ±10%, ½ watt (R35) 470,000 ohms, ±10%, ½ watt (R2, R37, R41, R48) 1.5 megohm, ±10%, ½ watt (R17, R51) 2.2 megohm, ±20%, ½ watt (R23) 2.2 megohm, ±20%, ½ watt (R33) 2.3 faft—Tuning knob shaft 75540 Shaft—Tube socket, 7 pin, miniature 75545 Spring—Retaining spring for function switch 7117 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. 31364 Socket—Tube socket, 7 pin, miniature for 6CB6 and 6]6 tubes only. <l< td=""><td>I record</td></l<>	I record
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 1.5 megohm, ±10%, ½ watt (R17, R51) 2.2 megohm, ±20%, ½ watt (R5, R10, R13) 10 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, ½ watt (R33) 75540 75545 75545 75546 75546 75546 75546 75546 75546 75546 75546 75546 75547 75674 75674 75674 75674 75674 75674 75675 75675 75676 75676 75677 76602 75670 75670	
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75557 Transformer—Ouput transformer (T7) 75709 Connector—8 contact female connector for me	tenna ter-
	tin caple
7558 Transformer—First I-F transformer (A-M) complete with adjustable cores (T2) 30868 Connector—2 contact female connector for 339 record changer motor cable (P2)	3/78 RPM
73037 Transformer—Second I-F transformer (A-M) complete with adjustable cores (T4) 75474 Connector—Single contact male connector for cable (2 req'd)	speaker
75559 Transformer—First I-F transformer (F-M) complete with 71984 Decal—Trade mark decal (RCA Victor)	
adjustable cores (T1) 74273 Decal—Trade mark decal (Victrola)	
75560 Transformer-Second I-F transformer (F-M) complete with 74838 Grommet-Power cord strain relief (1 set)	
adjustable cores (T3) 75566 Transformer—Power transformer, 117 volts, 60 cycle (T6) 75566 Cransformer—Rubber grommet for mounting	
33726 Washer-"C" washer for tuning knob shaft changer	
RADIO ROLLOUT CARRIAGE changer mounting frame	W ISCOLD
75003 Decal-runction decal for controls	e control
735/2 Dial-Polystyrene dial scale and power switch knob-marcon-for mah	ogany or
75571 Frame—Moulded frame (maroon) for mounting radio walnut instruments	
chassis and 45 RPM record changer—for mahogany 75713 Knob—Tuning control, tone control or volum or walnut instruments	
75684 Frame-Moulded frame (light brown) for mounting radio abarais and 45 BBW accel abarace for molting radio 75714 Knob-Function switch knob-maroon-for math	
75551 Handle Metal pullout handle for mounting frame	
75555 Screw—#8-32 x %" cross recessed pan head machine	IBII UIIIGIIIS
screw to mount radio chassis (4 req'd)	
75917 Nail—Rosette headnail for grille (3 required)	
SPEAKER ASSEMBLY 73634 Nut—Speed nut for speaker mounting screw	
Stamped 92569—12W RMA 274 RL 111-A1 74279 Screw_#8.22 x 76" trimit head error for door	
/42/3 Screw - #0-32 x 78 think hedd screw for door	-
13867 Cap-Dust cap 75708 Shell-Shell for 8 contact female connector #75	
75682 Cone—Cone and voice coil assembly (3.2 ohms) 75546 Slide—Slide mechanism for 33½/78 RPM record mounting frame 75681 Specker—12" P.M. speaker complete with cone and voice 75546 Slide—Slide mechanism for 33½/78 RPM record mounting frame	
coil (3.2 ohms) 31354 Socket—Pilot lamp socket and lead	
NOTE:—If stamping on speaker does not agree with above number, order replacement parts by referring to	
model number of instrument, number is tamped on speaker 75902 Spring-Suspension spring for main cable	
and full description of part required. 72936 Stop—Cabinet door stop	

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS.





Hata

Antennas

This receiver has built-in antenna for standard broadcast (AM) and frequency modulation (FM) reception.

Provision is made for the use of an external antenna for FM reception if desired. To use external FM antenna — remove the built-in FM antenna lead from the "FM" terminals of the antenna terminal board. Connect the transmission line of an external FM dipole antenna to these two "FM" terminals.

FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-168 SERIES SERVICE DATA FOR 45 R.P.M. AND MODEL 960285-1 SERVICE DATA for 78/33¹/₃ R.P.M.

Tuning Range

Standard Broadcast (AM)	540-1,600 kc.
Frequency Modulation (FM)	. 88-108 mc.
Intermediate Frequencies AM-455 kc., F	M-10.7 mc.

Tube Complement

(1) RCA 6BJ6. R-F Amplifier (2) RCA 6J6. Mixer and Oscillator (3) RCA 6BA6. I-F Amplifier (4) RCA 6AU6. Driver (5) RCA 6AL5 Ratio Detector (6) RCA 6AV6. AM Det.—AVC—A-F Amplifier (7) RCA 6AV6. Ph. Inv. (8) RCA 6V6GT. Output (9) RCA 6V6GT. Output
(10) RCA 6X5GT Rectifier
Dial Lamps (2)
Power Supply Rating 115 volts, 60 cycles, 90 watts
Loudspeaker (92569-6W) Size and type
Power Output (Radio) Undistorted 5 watts Maximum 6.4 watts (Phono.) Undistorted 8 watts
Cabinet Dimensions Height 31½ in. Width 39¾ in. Depth 17½ in.

AM-FM Radio-Phonograph Combination

MODEL A106

Chassis No. RC-622 - Mfg. No. 274 -

SERVICE DATA

— 1950 No. 5 —

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Record Changer (RP-168)

				45 r.p.m.
Record co	pacity	 Up to 1	0 RCA	7-in. fine groove records
Pickup .		 		Crystal (medium output)

Record Changer (960285-1)

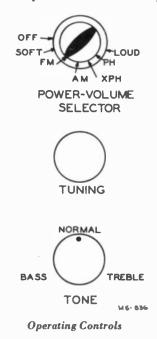
Turntab	le spe	ed	 			78/331	/3 r.p.m.
Record	capaci	ity	 Twelve	10-in., te	ən 12-in.	or ten	intermix
Pickup			 				Crystal

Circuit Description

This instrument has a ten-tube (including rectifier) chassis which is very similar to those used in other RCA Victor radiophonograph combinations designed for AM-FM reception.

The selector switch has five functions:

- (1) Selection of tuning range.
- (2) Selection and distribution of a.v.c. voltages.
- (3) Application of B+ voltage to tubes V1, V2, V3 and V4.
- (4) Selection of audio input applied to the volume control.
- (5) Application of a.c. power to the record changer motors.



A106

CRITICAL LEAD DRESS

Note: The leads listed may not be critical in all receivers. However, by dressing the leads as specified, unusual difficulties will be minimized.

- 1. The plate lead of the second IF transformer should be dressed down against the chassis to obtain max. capacity between the lead and chassis. This lead is specified to be two inches long.
- 2. The "A" band RF transformer plate, and grid leads should be dressed so as to minimize coupling to the RF amplifier grid circuit, and kept close to chassis when possible.
- 3. The 2.2 meg. grid resistors connecting to the RF and mixer grids should have a minimum practicable amount of lead extending on the grid end. The leads should be cut off short on the grid end and long on the A.V.C. end.
- 4. The unshielded plate lead from the function switch to the 1st IF transformer should be dressed away from the switch wafer audio lugs as much as possible.
- 5. The ground strap between the RF shelf and chassis should be well soldered and kept as short as practicable. FM instability may be caused by having this ground strap too long, particularly when no input is connected to the FM antenna terminal.
- 6. The lead from the 2nd IF to the grid of the 6BA6 1st IF amplifier should be kept short, and dressed against the chassis as much as practicable.
- 7. The lead from the 2nd IF to the AM detector diode should be dressed to minimize coupling to the 6AV6 1st AF grid and kept close to chassis.
- 8. Leads from the volume control taps should be kept clear of all filament and output plate wires as in the wiring sample.
- 9. The loop cable when connected to the AM sec. gang stator should be dressed to have minimum capacity coupling to the stator lug on the RF section of gang condenser.
- 10. The oscillator coupling condenser C10 should be dressed to have minimum capacity to the mixer grid, Pin No. 5 on V2.
- 11. The shielding on the shielded lead from the volume control to the function switch should have the minimum practicable exposed wire at the function switch end.

Alignment Procedure CORRECT ALIGNMENT OF THE FM BAND **REQUIRES THAT THE AM BAND BE ALIGNED FIRST**

Alignment Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter across the speaker voice coil.

The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure a-v-c voltage.

When audio output is being measured the volume control should be turned to maximum.

Signal Generator:

For all alignment operations connect the low side of the signal generator to the receiver chassis. The output should be adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to avoid a-v-c action.

Oscilloscope Alignment:

The FM I-F alignment may be checked using a sweep gen-erator and an oscilloscope. Shunt terminals B and C of T4 with a 1200 ohm resistor. Connect the high side of an oscillo-scope to terminal C of T4 in series with a diode probe. Apply the output of the sweep generator (10.7 mc. with ± 250 kc. sweep) to pin No. 1 of V3 (6BA6) in series with .01 mf. Low side of the oscilloscope and sweep generator to chassis. This will show the response of T3.

To check the combined response of T2 and T3: connect the sweep generator to the FM antenna terminals (remove FM antenna lead) in series with 300 ohms. Note: One FM terminal is grounded—it may be necessary to reverse the sweep generator connections. Oscilloscope connections remain as connected.

To check the ratio detector response: connect the high side of the oscilloscope direct to terminal No. 9 of Sl, low side to chassis. Apply the output of the sweep generator to pin No. 1 of V4 (6AU6) in series with .01 mf. Driver plate circuit connected for normal operation (1200 ohm resistor removed). Note: It is difficult to observe marker signals in this step-center frequency and sweep width should be previously observed.

AM Alignment RANGE SWITCH IN BC POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin No. 5 of V2	455 kc.	Quiet point at low	AM windings.† T3 bottom core (sec.). T3 top core (pri.).
2	in series with .01 mid.	100 AC.	freq. end.	AM windings.† T2 top core (sec.). T2 bottom core (pri.).
3		1400 kc.	1400 kc.	C1-2T (osc.). C1-5T (ant.). C1-4T (ri.).
4	Short wire placed near loop for radiated	600 kc.	600 kc.	L8 (osc.) with 10,000 ohms resistor from RF stator to gnd. (rocking gang)
5	signal			L5 (RF) with the 10,000 ohms removed.
6	Repeat steps 3, tivity is obtain		until no impr	ovement in sensi-

t Use alternate loading. Alternate loading involves the use of a 47,000 ohm resistor to load the AM plate winding while the AM grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 47,000 ohm resistor after T3 and T2 have been aligned. Oscillator frequency is above signal frequency on both AM and FM

FM.

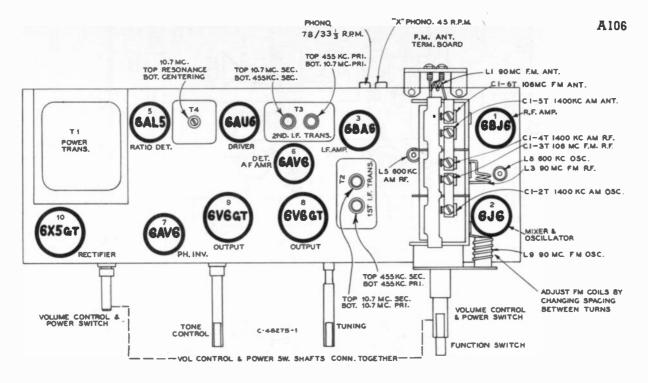
FM Alignment RANGE SWITCH IN FM POSITION-VOLUME

CONTROL MAXIMUM

Steps	Connect high side of sig.	Sig. gen. output	Turn radio dial to	Adjust for				
1	lead of the to chassis. T	to- Output of the common lead assis. Turn gang condenser to max. capacity (fully d). Volume Control max.						
2	Die 1 of MA	10.7 mc. modulated 30% 400 cycles AM (Approx. .05 volt).		T4 top core for max. d-c voltage across C42. T4 bottom core for min. audio output.*				
3	Pin 1 of V4 6AU6 in series with 470 ohm resistor.	10.7 mc. Ādjust to provide about 4 volts indi-	Max. ca- pacity (fully meshed).	FM windings.†† T3 top core (sec.). T3 bottom core (pri.).				
4		cation on VoltOhmyst during alignment.		FM windings.†† T2 top core (sec.). T2 bottom core (pri.).				
5	High and low side of signal	90 mc.	90 mc.‡	L9 (osc.).**				
6	gen. through two 120 ohm resistors.	en. through wo 120 ohm 106 mc.		C1-6T (ant.). C1-3T (rf.).				
7	To ant. terminals.	90 mc.	90 mc.	L1 (ant.).** L3 (rf.).**				
8	Repeat steps is obtained.	6 and 7 until	no improven	nent in sensitivity				

Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.
† Align T3 and T2 by means of alternate loading as explained under AM alignment. Use a 680 ohm resistor instead of a 47,000 ohm resistor and load the FM windings.
* L1, L3 and L9 are adjustable by increasing or decreasing the spacing between turns.
‡ Bliget dial pointer has been set accurately on activation point.

After dial pointer has been set accurately on calibration point r "A" band (see dial indicator and drive drawing) tune receiver 90 mc. on FM using dial scale as reference or use dial scale for "/ drawing on page 8.

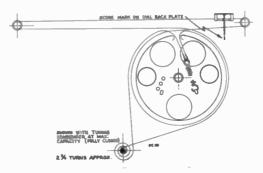


Tube and Trimmer Locations

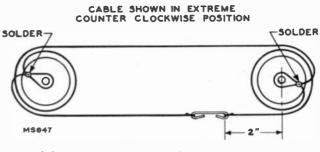
Socket Voltages

Voltages measured with Chanalyst or VoltOhmyst and should hold within $\pm 20\%$ with rated line voltage. Tuning condenser closed—no signal input.

	Tube Tuelal		Voltage			
Tube	Terminal		Phono	A.M.	F.M.	
V1 6BJ6 R.F. Amp.	Plate Screen	5 6	-	185 120	110 100	
	Cathode Grid	2 1		0.8 0.0	0.8 0.6	
V2 6J6 Mixer and Osc.	Plate Grid Plate Grid	1 6 2 5	-1.07 	73 2 56 5.4	80 -3.4 56 -3.6	
V3 6BA6 I.F. Amp.	Plate Screen Cathode Grid	5 6 7 1		180 115 0.9 -1.1	178 111 0.9 75	
V4 6AU6 Driver	Plate Screen Cathode	5 6 7		174 125 0.9	175 175 0.9	
V5 6AL5 Ratio Det.		—		-		
V6 6AV6 A.F. Amp.	Plate Grid	7 1	97 72	85 75	80 0.75	
V7 6AV6 Inverter	Plate Grid Cathode	7 1 2	140 -18.7 -18	110 -17.8 -17	110 -17.3 -16.6	
V8 6V6GT Output	Plate Screen Grid	3 4 5	262 262 -18	270 190 17	270 190 -16	
V9 6V6GT Output	Plate Screen Grid	3 4 5	262 262 -18	270 190 -17	270 190 -16	
V10 6X5GT Rectifier	Cathode	8	271	275	275	



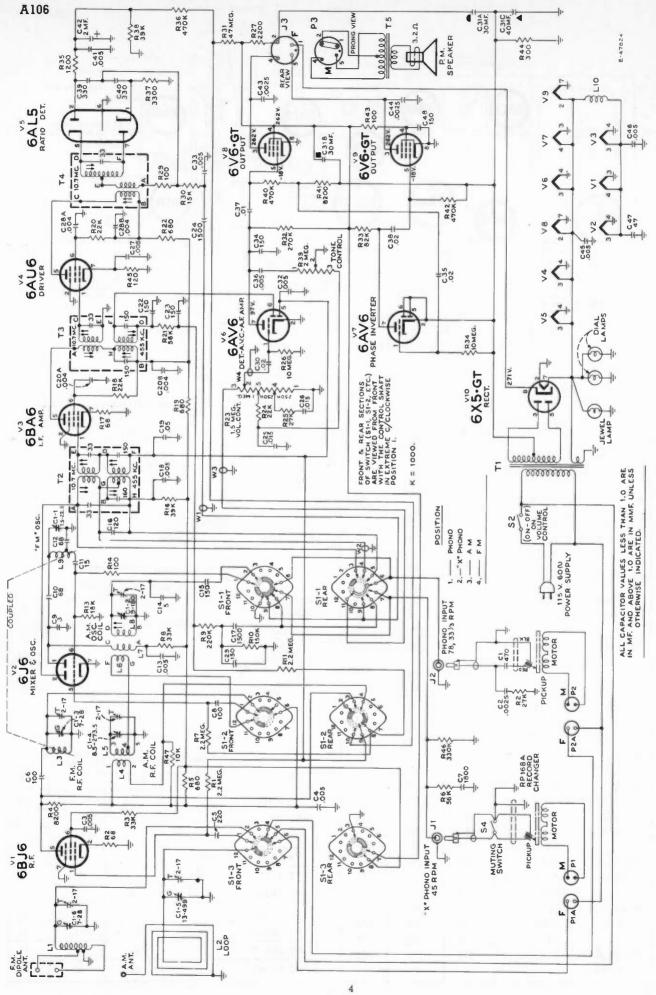
Dial Indicator and Drive Mechanism



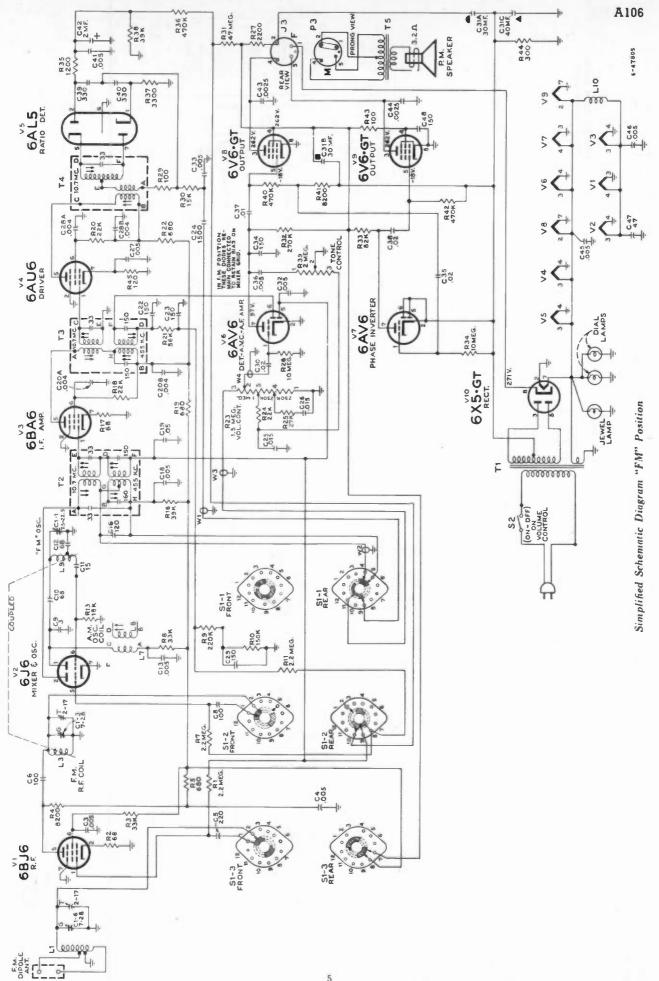
Volume Control Drive Mechanism

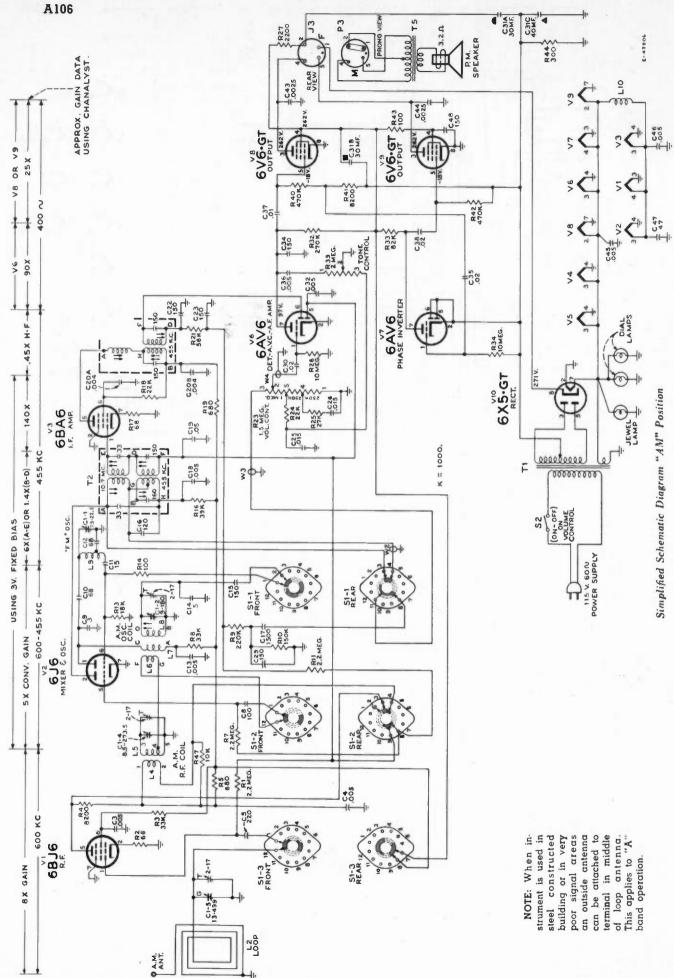
Cathode	Currents	(MA)
---------	----------	------

Tube	Terminal	Phono	A.M.	F.M.
V1 6BJ6	2		11.1	11.4
V2 6J6	7	_	6.8	6.6
V3 6BA6	7	_	13.1	13.7
V4 6AU6	7		8.2	8.1
V5 6AL5	1 & 5			-
V6 6ÅV6	2	0.68	.44	.43
V7 6AV6	2	1.7	1.4	1.35
V8 6V6GT	8	33	11.2	11
V9 6V6GT	8	33	11	11
V10 6X5GT	8	66	63	63



Complete Schematic Diagram









Dial Scale (Actual Size)

The dial scale drawing shown is a full size reproduction. It can be used as a reference in alignment procedure.

SHIPPING SCREWS

The radio chassis of these instruments is secured to the cabinet with shipping screws (painted red) which, together with spacing strips, should be **REMOVED** at the time of installation.

The record changers are each mounted with three screws which should be LOOSENED at the time of installation.

On the RP-168 record changer decorative caps cover the mounting screws. Remove the caps for access to the screws.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES		•74841	Coil—R.F. coil — A.M. — complete with adjustable
	RC 622			core and stud (L4, L5)
	110 022		*74815	Coil—R.F. coil—F.M. (L3)
•74848	Board—"F.M." terminal board		*74816	Coil—Antenna coil—F.M. (L1)
.74641	Cable—Flexible cable to operate volume control		*73817	Coil—Oscillator coil—F.M. (L9)
•74849	Capacitor—Variable tuning capacitor (C1-1, 1-2, 1-3,		71942	Coil—Filament choke coil (L10)
	1-4, 1-5, 1-6)		5040	Connector—4 contact female connector for speaker
73747	Capacitor—Electrolytic, 2 mmf., 50 volts (C42)			cable (P3)
*74733	Capacitor—Ceramic, 3 mmí. (C9)		30868	Connector-2 contact female connector for motor
93056	Capacitor-Ceramic, 5 mmf. (C14)			cables (P2A)
39044	Capacitor-Ceramic, 15 mmf. (C11)		*74837	Control—Tone control (R39)
39042	Capacitor-Ceramic, 47 mmf. (C47)		74639	Control-Volume control and power switch (R23, S2)
33379	Capacitor—Ceramic, 68 mmf. (C10, C12)		72953	Cord—Drive cord (approx. 58" overall length)
39396	Capacitor-Ceramic, 100 mmf. (C6, C8)		*74839	Fastener—Push fastener to hold R.F. shelf assembly
71614	Capacitor—Ceramic, 120 mmf. (C16)			(4 required)
44704	CapacitorCeramic, 150 mmf. (C15, C22, C23, C34,		*74838 16058	Grommet—Power cord strain relief grommet (1 set)
	C48)		10020	Grommet—Rubber grommet for mounting R.F. shelf assembly (4 required)
48125	Capacitor—Ceramic, 150 mmf. (C29)		72069	Grommet—Rubber grommet for rear mounting feet
71920	Capacitor—Ceramic, 220 mmf. (C5)		/2005	(2 required)
39640	Capacitor—Mica, 330 mmf. (C39, C40)		•73895	Indicator—Station selector indicator
74093	Capacitor—Ceramic, 1,500 mmf. (C17, C24)		74645	Nut—8-32 hex retainer nut between R.F. shelf and
*74850 74009	Capacitor-Ceramic, 1,800 mmf. (C7)	1	/1010	volume control knob
/4009	Capacitor—Ceramic, dual, 4,000 mmf. (C20A, C20B, C28A, C28B)		74297	Plate—Dial back plate complete with two (2) drive
73473	Capacitor—Ceramic, 5,000 mmf. (C3, C4, C13, C18,		/140/	cord pulleys less dial
/34/3	C32, C46)		18469	Plate—Bakelite mounting plate for electrolytic
72052	Capacitor—Electrolytic, comprising 1 section of 30		74640	Pulley—Pulley and hub assembly for volume control
/2032	mfd, 450 volts, 1 section of 30 mfd, 350 volts and		33514	Receptacle—Phono input receptacle
	l section of 40 mfd, 25 volts (C31A, C31B, C31C)		73637	Resistor-Wire wound, 2,200 ohms, 5 watt (R27)
71926	Capacitor—Tubular, paper, .005 mfd, 200 volts (C27,			Resistor—Fixed, composition:
	C33, C41, C45)			68 ohms. + 10%, 1/2 watt (R2, R17)
71553	Capacitor—Tubular, paper, .005 mfd, 400 volts (C36)			100 ohms. ±5%, ½ watt (R29)
70644	Capacitor—Tubular, paper, .0025 mfd, 1,000 volts			100 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R14, R43)
	(C43, C44)			120 ohms, ±10%, ½ watt (R45)
71925	Capacitor—Tubular, paper, .01 mfd, 400 volts (C37)			300 ohms, ±5%, 2 watt (R44)
71928	Capacitor—Tubular, paper, .02 mfd, 200 volts (C30,			680 ohms, ±10%, ½ watt (R19)
	Č35)			680 ohms, ±20%, ½ watt (R5, R22)
73638	Capacitor—Tubular, paper, .02 mfd, 400 volts (C38)			1,200 ohms, ±5%, ½ watt (R35)
73553	Capacitor—Tubular, paper, .05 mfd, 400 volts (C19)			3,300 ohms, ±5%, ½ watt (R37)
72120	Capacitor—Tubular, paper, .015 mfd, 200 volts (C25,			8,200 ohms, ±10%, ½ watt (R41)
	C26)			8,200 ohms, $\pm 10\%$, 1 watt (R4)
73744	Coil—Oscillator coil—A.M. (L6, L7, L8)			10,000 ohms. ±10%. ½ watt (R47)

REPLACEMENT PARTS — Continued

18,000 22,000 27,000 33,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 220,000 270,000 330,000 470,000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 313151 Socket—T 74847 Suport— complei	DESCRIPTION	STOCK No.	DESCRIPTION
18,000 22,000 27,000 33,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 220,000 270,000 330,000 470,000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 330,000 47,0000 220,000 270,000 313151 Socket—T 74847 Suport— complei	0 ohms, ±10%, ½ watt (R30)	71892	Catch—Bullet catch and strike for doors (3 required)
22,000 d 27,000 d 33,000 d 39,000 d 39,000 d 39,000 d 39,000 d 56,000 d 82,000 d 150,000 d 220,000 d 270,000 d 330,000 d 470,000 d 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Sheid—T 74646 Sleeve—S control 74179 Socket—T 31364 Socket—I 74847 Support—complet 74848 Spring—I 74847 Support—complet 74840 Switch—S 73743 Transform 74019 Transform 73601 Transform 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 7453 Speaker— voice c	0 ohms, ±10%, ½ watt (R13)	73897	Clamp-Dial clamp (2 required)
33,000 d 39,000 d 56,000 d 82,000 d 150,000 d 220,000 d 270,000 d 330,000 d 470,000 d 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Shaft—Tu 73894 Sheid—T 74646 Sleeve—S control 74179 Socket—T V3, V4 731251 Socket—T 31364 Socket—L 74847 Support—complet 74840 Switch—S 73743 Transform 73743 Transform 73601 Transform 74801 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74801 Speaker— voice c 73636 Transform NOTE: does not replacement instrument descriptio 74844	0 ohms, ±10%, ½ watt (R18, R20, R24)	X3057	Cloth-Grille cloth for mahogany or walnut instru-
39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 39,000 32,000 220,000 270,000 330,000 470,000 220,000 270,000 330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73584 Shield—T V3, V4 73117 Socket—T 31251 Socket—T 31364 Socket—T 74847 Support— complet *74847 73743 Transform 73601 Transform 74019 Transform 74011 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker— voice c ************************************	0 ohms, ±10%, ½ watt (R25)		ments
39,000 of 56,000 of 82,000 220,000 270,000 330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73584 73894 Shaft—Tu 73584 73894 Shaft—Tu 73584 73894 Sheld—T 74646 Sleeve—S control Socket—T V3, V4 73117 Socket—T V3, V4 731251 Socket—T Socket—T V3, V4 74317 Socket—T Complet 74840 Switch—S 73743 73601 Transform Tansform (T1) 33726 Washer— 13867 Cap—Dus Connector 74901 Cone—Co So39 5039 Connector 74753 Speaker— voice c 73636 Transform (T1) 33726 Bezel—Dis 74844 Antenna descriptio 74844 Antenna descriptio 74844 Antenna guig fo 71105 Cable—Si	$0 \text{ ohms, } \pm 10\%, \frac{1}{2} \text{ watt (R3, R8)}$	X1649	Cloth—Grille cloth for blonde instruments
56,000 82,000 82,000 82,000 150,000 220,000 270,000 330,000 470,000 222,000 270,000 330,000 470,000 222,000 270,000 230,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 7364 Sheeve—S control 74179 Socket—T V3, V4 73117 Socket—T 31364 Socket—T 74847 Support— complet * 74847 Support— complet * 74840 Switch—S 73743 Transform 74019 Transform 74801 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Specker—	0 ohms, ±5%, ½ watt (R38) 0 ohms, ±10%, 1 watt (R16)	30868	Connector—2 contact female connector for motor cables
82,000 150,000 150,000 220,000 270,000 330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Shaft—Tu 73894 Shield—T 73894 Shield—T 7384 Shield—T 7384 Shield—T 73125 Socket—T 31364 Socket—T 74847 Support—complet 74840 Switch—S 73743 Transform 73601 Transform 73601 Transform 74801 Socker—L 74801 Switch—S 74019 Transform 73601 Transform 74019 Transform 74901 Cone—Co 5039 Connector 73636 Transform 74753 Speaker— voice c 73636 74844 Antenna 74205 Bezel—Di	$0 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R16)$	30870	Connector—2 contact male connector for motor
150,000 220,000 270,000 330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Shaft—Tu 73894 Sheld—T 73894 Shield—T 73894 Shield—T 73894 Shield—T 73894 Shield—T 73894 Shield—T 731251 Socket—T 31364 Socket—T 74847 Support—complet *74840 Switch—S 73743 Transform 74019 Transform 74019 Transform 74019 Transform 74901 Cone—Co 5039 Connector 74636 Transform NOTE: does not replacema	$0 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R33)}$		cables
270,000 330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Shaft—Tu 73894 Shield—T 74646 Sleeve—S control 74179 Socket—T 31364 Socket—T 31364 Socket—T 74847 Support—complet 74840 Switch—S 73743 Transform 73601 Transform 74019 Transform 74901 Cone—Co 5039 Connector 73636 Transform NOTE: does not replacematinstrumen descriptio 74844 Antenna 74205 Bezel—Di 7105 Cable—Si plug fo <	00 ohms, ±10%, ½ watt (R10)	74581	Cover-Mounting screw cover for 45 RPM changer
330,000 470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73894 Shield—T 73894 Shield—T 74646 Sleeve—S control 74179 Socket—T 31364 Socket—T 31364 Socket—T 74847 Support—complet 74840 Switch—S 73743 Transform 73601 Transform 74840 Switch—S 73601 Transform 74901 Cone—Co 5039 Connector 74901 Speaker— voice c 73636 Transform NOTE: does not replacematinstrumen descriptio 74844 Antenna- 74295 <	00 ohms, ±10%, ½ watt (R9)		(3 required)
470,000 2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73584 Shield—T 73584 Shield—T 74646 Sleeve—S control V3, V4 73117 Socket—T 31251 Socket—T 31364 Socket—T 74038 Spring—E 74847 Support—complet 74840 Switch—S 73743 Transform 73601 Transform 73745 Transform 74019 Transform 73601 Transform 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker— voice c Transform 73636 Transform NOTE: does not does not replacematinstrumen dsescriptio P 74844 Antenna – 74205 Bezel—Di 7105 Cable—Si<	00 ohms, ±10%, ½ watt (R32)	74853	Decal—Control function decal for mahogany or wal- nut instruments
2.2 meg 10 meg 47 meg 73894 Shaft—Tu 73584 74646 Sleeve—S control 74179 Socket—T V3, V4 73117 Socket—T 31251 Socket—T 74038 Spring—E 74847 Support— complet 74840 Switch—S 73743 Transform Transform (T1) 33726 Washer— 13867 Cap—Dus Cone_Co 5039 74901 Cone_Co 5039 5039 Connector replacemator instrumen descriptio 74844 Antenna descriptio 74844 Antenna descriptio 74844 Antenna descriptio 74844 Antenna descriptio	00 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R46)	74854	Decal—Control function decal for blonde instruments
10 meg 47 meg 73894 Shaft—Tu 7384 Shield—T 73584 Shield—T 74646 Sleeve—S control 74179 Socket—T V3, V4 73117 Socket—T 31251 Socket—T 31364 Socket—T 74847 Support—complet 74848 Switch—S 73743 Transform 73601 Transform 74800 Switch—S 73743 Transform 73601 Transform 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker— voice c Transform 73636 Transform NOTE: does not does not replaces not replaced—Di Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo<	00 ohms, ±10%, ½ watt (R36, R40, R42) legohm, ±20%, ½ watt (R1, R7, R11)	74273	Decal-Trade mark decal (Victrola)
47 meg 73894 Shaft—Tu 7384 Shield—T 73584 Shield—T 74646 Sleeve—S control Socket—T 74179 Socket—T 731251 Socket—T 31364 Socket—T 74038 Spring—D 74847 Support—complet 74840 Switch—S 73743 Transform 73745 Transform 73601 Transform 74801 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker—voice c 73636 Transform NOTE: does not replaced Antenna- 74844 Antenna- 74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105	eqohm, $\pm 20\%$, $\frac{1}{2}$ watt (R26, R34)	71984	Decal—Trade mark decal (RCA Victor)
73894 Shaft—Tu 73894 Shield—T 73584 Shield—T 74646 Sleeve—S control Socket—T 74179 Socket—T 731251 Socket—T 31364 Socket—T 74038 Spring—D *74847 Support— complet *74847 731251 Socket—L 74038 Spring—D *74847 Support— complet *74847 73743 Transform 73601 Transform 74019 Transform 74010 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker— voice c Transform NOTE: does not replaced NOTE: does not replaced—Di 71599 Bracket—Di 74844 Antenna 74205 Bezel—Di <td>egohm, $\pm 20\%$, $\frac{1}{2}$ watt (R31)</td> <td>74842</td> <td>Dial—Glass dial scale</td>	egohm, $\pm 20\%$, $\frac{1}{2}$ watt (R31)	74842	Dial—Glass dial scale
74646 Sleeve — S 74646 Sleeve — S control 74179 Socket — T V3, V4 73117 Socket — T 31251 Socket — T 31364 Socket — T 74038 Spring — L *74847 Support — complet *74840 Switch — S 73743 Transform 73745 Transform 73601 Transform 73601 Transform 74901 Cone — Co 5039 Connector 74901 Cone — Co 5039 Connector 74753 Speaker — voice c 73636 Transform NOTE: does not replacemd does not replacemd motionstrumen descriptio 74844 Antenna – descriptio 74844 74205 Bezel — Di 71599 Bracket — Di 74296 Cable — Si plug fo 71105	Tuning knob shaft	74851	Grille—Metal grille
control 74179 Socket—T 73117 Socket—T 31251 Socket—T 31364 Socket—T 74038 Spring—L *74847 Support— complet *74847 Support— complet *74840 Switch—S 73743 Transform 73601 Transform 73601 Transform 74901 Cone—Co 5039 Connector 74901 Cone—Co 5039 Connector 74753 Speaker— voice c 73636 74753 Speaker— voice c 73636 74844 Antenna- descriptio 105 74844 Antenna- 74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105	-Tube shield for Vl	11889	Grommet—Rubber grommet for front apron of
74179 Socket—T 7317 Socket—T 31251 Socket—T 31364 Socket—T 74038 Spring—L *74847 Support—complet *74840 Switch—S *74840 Switch—S *74840 Switch—S *74840 Switch—S *74840 Switch—S *74841 Transform *73743 Transform *73601 Transform *74019 Transform *74019 Transform *74901 Cone—Co \$5039 Connector *74901 Cone—Co \$5039 Connector *7453 Speaker— voice c Transform *7453 Speaker— voice c Transform ************************************	-Sleeve and pulley assembly for volume		chassis
V3, V4 73117 Socket—T 31251 Socket—T 31364 Socket—L 74038 Spring—L *74847 Support— complet *74840 Switch—S *74840 Switch—S *74840 Switch—S *74840 Switch—S *74743 Transform *7361 Transform *73601 Transform *74901 Cone—Co 5039 Connector *7453 Speaker— voice c 73636 *74753 Speaker— voice c 73636 *74844 Antenna- *0000 Bezel—Di *74844 Antenna- *74205 Bezel—Di *74296 Cable—Si *74296 Cable—Si		74838	Grommet—Power cord strain relief grommet (1 set)
73117 Socket—T 31251 Socket—T 31364 Socket—L 74038 Spring—L *74847 Support—complet *74847 Support—complet *74847 Support—complet *74840 Switch—S 73743 Transform 73745 Transform 73601 Transform 73601 Transform 73601 Transform 73601 Transform 73601 Transform 74901 Cone—Co 5039 Connector 74753 Speaker— voice c Transform NOTE: does not does not replacematinstrumen descriptio Bezel—Di 71599 Bracket—Si 74296 Cable—Si plug fo 71105	-Tube socket, 7 pin, miniature for V1, V2,	36610	Hinge—Door hinge (1 set) for radio compartment or R.H. record storage compartment
31251 Socket—T 31364 Socket—L 74038 Spring—L *74847 Support—complet *74840 Switch—S *74840 Switch—S *74840 Switch—S *73743 Transform *73745 Transform *74019 Transform *73601 Transform *73601 Transform *7491 Cone—Co 5039 Connector *7453 Speaker— voice c Transform *7453 Speaker— voice c Transform *74753 Speaker— voice c Transform *7453 Speaker— voice c Transform *74844 Antenna - *0000 Bezel—Di *74844 Antenna - *74205 Bezel—Di *7105 Cable—Si *1005 Cable—Si	-Tube socket, 7 pin, miniature for V5, V6, V7	36817	Hinge—Door hinge (1 set) for L.H. record storage
31364Socket—L74038Spring—L74847Support— complet74840Switch—S73743Transform73745Transform73601Transform (T1)33726Washer—13867Cap—Dus74901Cone—Co5039Connector74753Speaker— voice cc73636Transform constorm74753Speaker— voice cc73636Transform constorm74753Speaker— voice cc73636Transform replacement instrumen descriptio74844Antenna - Bezel—Di71599Bracket— sche—Si plug fo71105Cable—Si	-Tube socket, octal, wafer for V8, V9, V10	00017	compartment
 74038 Spring—L 74847 Support—complet 74840 Switch—S 73743 Transform 73745 Transform 74019 Transform 73601 Transform 7103 33726 Washer— 13867 Cap—Dus 74901 Cone—Ca 5039 Connector 74753 Speaker—voice c 73636 Transform NOTE: does not replacement replacement 	-Lamp socket	71821	Knob — Tuning control knob — maroon — for ma-
 *74847 Support—complet *74840 Switch—S 73743 Transform 73745 Transform 74019 Transform 73601 Transform (T1) 33726 Washer— ************************************	-Drive cord spring		hogany or walnut instruments
 *74840 Switch—S 73743 Transform 73745 Transform 73745 Transform 73601 Transform 73601 Transform (T1) 33726 Washer— 13867 Cap—Dus 74901 Cone—Co 5039 Connector 74753 Speaker— voice c 73636 Transform NOTE: does not replacement replacement replacement replacement 74844 Antenna 74205 Bezel—Dia 74296 Cable—Si plug fo 71105 Cable—Si 	-Polystyrene support for F.M. oscillator coil	72824	Knob—Tuning control or tone control knob—brown
 73743 Transform 73745 Transform 73601 Transform 73601 Transform 73601 Transform (T1) 33726 Washer— 13867 Cap—Dus 74901 Cone—Ca 5039 Connector 74753 Speaker— voice c 73636 Transform NOTE: does not replacemation not replacemation replacemation 74844 Antenna- descriptio 74844 Antenna- descriptio 74844 Antenna- descriptio 74844 Antenna- descriptio 74844 Cable—Si plug fo 71105 Cable—Si 	lete with mounting bracket	71822	—for blonde instruments Knob—Tone control knob—maroon—for mahogany
 73745 Transform 74019 Transform 73601 Transform (T1) 33726 Washer— 13867 Cap—Dus 74901 Cone—Ca 5039 Connector 74753 Speaker— voice ca 73636 Transform NOTE: does not replacemation not replacemation not replacemation replacemation 74844 Antenna - does not replacemation replacemation 74844 Antenna - does calle 74205 Bezel—Dia 74296 Cable—Si plug fo 71105 Cable—Si 	-Selector switch (S1)	/1022	or walnut instruments
74019Transform (T1)73601Transform (T1)33726Washer-13867Cap-Dus Cone-Ca74901Cone-Ca5039Connector74753Speaker- voice ca73636Transform NOTE: does not replacement instrumen descriptio74844Antenna- Bezel-Di74844Antenna- descriptio74844Antenna- descriptio74844Antenna- descriptio74844Antenna- descriptio74205Bezel-Di71599Bracket- stacket-Si plug fo71105Cable-Si	rmer—Ratio detector transformer (T4)	73995	Knob-Volume control knob-brown-for blonde in-
73601Transform (T1)33726Washer13867CapDus74901ConeCo5039Connector74753Speaker voice cc73636Transform NOTE: does not replacemed instrumen descriptio74844Antenna - BezelDi74844Antenna - Bezel-Di74844Antenna - Bezel-Di74205Bezel-Di71599Bracket Sigling fo71105Cable-Sigling fo	rmer—First I.F. transformer—dual (T2)		struments
(T1) 33726 Washer- 13867 Cap-Dus 74901 Cone-Co 5039 Connector 74753 Speaker- voice c 73636 Transform NOTE: does not replacemde instrumen descriptio 74844 Antenna- 74205 Bezel-Di 71599 Bracket- 74296 Cable-Si plug fo 71105 Cable-Si	rmer—Second I.F. transformer—dual (T3)	73994	Knob Volume control knob maroon for ma-
 33726 Washer— 13867 Cap—Dus 74901 Cone—Co 5039 Connector yoice c 73636 Transform NOTE: does not replacement replacement descriptio 74844 Antenna - 74205 Bezel—Di 74296 Cable—Si plug fo 71105 Cable—Si	rmer—Power transformer—117 volt, 60 cycle	73230	hogany or walnut instruments Knob — Selector switch knob — maroon — for ma-
13867 Cap-Dus 74901 Cone-Co 5039 Connector 74753 Speaker- voice c 73636 Transform NOTE: does not replacemen instrumen descriptio 74844 Antenna- 74205 Bezel-Di 71599 Bracket- 74296 Cable-Si plug fo 71105 Cable-Si			hogany or walnut instruments
74901ConeCone5039Connector74753Speakervoice c73636TransformNOTE:does notreplacemdeinstrumendescriptio74844Antenna74205Bezel71599Bracket74296CableSingly fo71105Cable	2	73231	Knob - Selector switch knob - brown - for blonde
74901ConeCone5039Connector74753Speakervoice c73636TransformNOTE:does notreplacemdeinstrumendescriptio74844Antenna74205Bezel9Bracket74296Cable9Jug fo71105Cable	SPEAKER ASSEMBLIES	11765	instruments
74901ConeCone5039Connector74753Speakervoice c73636TransformNOTE:does notreplacemdeinstrumendescriptio74844Antenna74205Bezel9Bracket74296Cable2105Cable5plug fo71105Cable	92569-6W	74843	Lamp—Dial or pilot lamp—Mazda 51 Loop—Antenna loop complete
74901ConeCone5039Connector74753Speakervoice c73636TransformNOTE:does notreplacemdeinstrumendescriptio74844Antenna74205Bezel9Bracket74296Cable2105Cable5plug fo71105Cable	RL111-13	74208	Nut—Tee nut to mount 45 RPM changer (3 required)
74901ConeCone5039Connector74753Speakervoice c73636TransformNOTE:does notreplacemdeinstrumendescriptio74844Antenna74205Bezel9Bracket74296Cable2105Cable5plug fo71105Cable	RMA 274	74852	Pull-Door pull for record changer drawers or radio
5039Connector74753Speaker— voice c73636TransformNOTE: does not replacement instrumen descriptio74844Antenna - descriptio74844Antenna - descriptio74805Bezel—Di Bracket— plug fo71105Cable—Si plug fo	ust cap		compartment (5 required)
 74753 Speaker—voice cc 73636 Transform NOTE: does not replacement description 74844 Antenna description 74205 Bezel—Dit 71599 Bracket—Si plug fo 71105 Cable—Si 	Cone and voice coil assembly	74451	Pull—Door pull for record storage compartments
 voice c 73636 Transform NOTE: does not replacement instrument description 74844 Antenna - 74205 Bezel - Dit 71296 Cable - State - Sta	tor-4 contact male connector for speaker		Resistor—Fixed, composition, 27,000 ohms (on 78, 33!; RPM record changer), ±10%, ½ watt
 73636 Transform NOTE: does not replacement instrument description 74844 Antenna 74205 Bezel—Dit 71599 Bracket—Si 74296 Cable—Si plug fo 71105 Cable—Si 	r—12" P.M. speaker complete with cone and coil less plug and transformer	74582	Screw—No. 8-32 x 134" special head screw to
74844 Antenna 74205 Bezel-Di 74296 Cable-Si plug fo 71105 Cable-Si	rmer—Output transformer		mount 45 RPM changer (3 required)
does not replacement instrument description 74844 Antenna - 74205 Bezel-Di 71599 Bracket- 74296 Cable-Si plug fo 71105 Cable-Si		74279	Screw—No. 8-32 x 7's" trimit head screw for pull
74844 Antenna 74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	E: If stamping on speaker in instruments of agree with above speaker number, order	74269	No. 74451 Screw—No. 8-32 x 34" trimit head screw for pull
74844 Antenna 74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	ment parts by referring to model number of	/4203	No. 74852
74844 Antenna 74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	ent, number stamped on speaker and full	74835	SlideSlide mechanism for 45 RPM changer drawer
74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	lion of part required.	74736	Slide—Slide mechanism for 33/78 RPM changer
74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	MICCELLANEOUS	20000	drawer
74205 Bezel—Di 71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	MISCELLANEOUS	30900	Spring—Retaining spring for knobs No. 71821, 71822 and 71824
71599 Bracket— 74296 Cable—Si plug fo 71105 Cable—Si	a F.M. antenna	72845	Spring-Retaining spring for knobs No. 73994 and
74296 Cable—S plug fo 71105 Cable—S	Dial scale bezel less dial		73995
plug fo 71105 Cable—Si	—Pilot lamp bracket -Shielded pickup cable complete with pin	74421	Spring—Conical spring to mount 45 RPM changer
71105 Cable-S	for 33/78 RPM changer	74422	
	-Shielded, pickup cable complete with pin	/ 1444	-upper—L.H. (2 required)
plug io	for 45 RPM changer	74423	Spring—Conical spring to mount 45 RPM changer
	Pilot lamp cap		-lower (3 required)
	tor—Mica, 470 mmf. (on 78/33½ RPM record	72936	Stop—Door stop for record storage compartments
70602 Capacitor	ger) tor—Tubular, paper, .0025 mfd (on 78/33½)	75146	(2 required) Washer—"C" washer to mount 33/78 RPM changer
	record changer), 400 volts	/3140	(2 required).

A106

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-168 SERIES SERVICE DATA OR RP-190 SERIES SERV-ICE DATA FOR 45 R.P.M. AND MODEL 960284 SERVICE DATA FOR 78/33¹/₃ R.P.M.

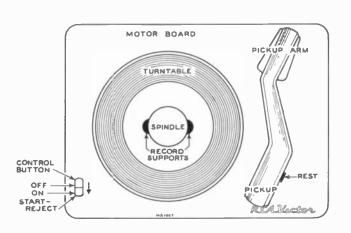
Tuning Range

Standard Broadcast (AM) 540-1,600	kc.
Frequency Modulation (FM)	mc.
Intermediate Frequencies AM-455 kc., FM-10.7	mc.

Tube Complement

(1) RCA 6CB6 R-F Amplifier
(2) RCA 6J6 Mixer and Oscillator
(3) RCA 6BA6 I-F Amplifier
(4) RCA 6AU6 Driver
(5) FCA 6AL5 Ratio Detector
(6) RCA 6AV6 AM DetAVC-A-F Amplifier
(7) RCA 6C4 Ph. Inv.
(8) RCA 6V6GT Output
(9) RCA 6V6GT Output
(10) RCA 5Y3GT Rectifier
Dial Lamps (2)Type No. 51, 6-8 volts, 0.2 amp.

Dial Lamps (2).....Type No. 51, 6-8 volts, 0.2 amp. Jewel LampType No. 51, 6-8 volts, 0.2 amp.



Top View-RP-190 Record Changer



AM-FM Radio-Phonograph Combination

MODEL A-108

Chassis No. RC 1096 Record Changers 960284 (78/33 1/3 r.p.m.) RP 168 or RP 190-2 (45 r.p.m.)

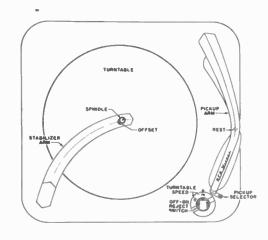
SERVICE DATA

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tuning Drive Ratio
Power Supply Rating 115 volts, 60 cycles, 115 watts
Loudspeaker (92569-12W) Size and type
Power Output (Radio) Undistorted 8 wattsMaximum 9 watts (Phono.) Undistorted 10 watts Maximum 11 watts
Weight
Cabinet Dimensions Height 32½ in. Width 34½ in. Depth 19¾ in.
Record Changer (RP-168 or RP-190-2) Turntable speed
Record Changer 960284-1 or -2) Turntable speed

Turntable speed78 or 33½ r.p.m. Pickup (Stock No. 75475)Crystal



Top View-960284 Record Changer

REFER TO MODEL A-101 ON PAGE 23 FOR FURTHER INFORMATION. THE CHASSIS AND SPEAKER ARE IDENTICAL FOR BOTH MODELS.

Replacement Parts

STOCK NO.	DESCRIPTION		STOCE NO.	DESCRIPTION
	MISCELLANEOUS		75474	Connector—Single contact male connector for speaker cable (2 reg'd)
71864	Antenna—F-M antenna		71894	Decal—Trade mark decal (RCA Victor)
75705	Antenna—Antenna loop complete less cable		74273	Decal—Trade mark decal (Victrola)
75898	Back—Back cover—marcon—for 331/3/78 RPM record		74838	Grommet—Power cord strain relief (1 set)
	changer compartment—for mahogany or walnut instru- ments (assembled to rollout)		37396	Grommet—Rubber grommet for mounting speaker
75899	Back-Back cover-light brown-for 331/5/78 RPM record changer compariment-for oak instruments (assembled		75697	Grommet—Rubber grommet for mounting 45 RPM changer
75903	to rollout) Back-Back cover-marcon-for radio-45 RPM record		75551	Handle—Metal pullout handle for 33½/78 RPM record changer mounting frame
73803	changer compartment—for mahogany or walnut instru-		74308	Hinge—Cabinet door hinge (1 set)
	ments (assembled to rollout)		75712	Knob—Tuning control, tone control or volume control
75904	Back-Back cover-light brown-for radio-45 RPM record			and power switch knob—marcon—for mahogany or walnut instruments
	changer compartment—for oak instruments (assembled to rollout)		75713	
73680	Board—"A—F-M" terminal board		75714	
75694	Bracket—Stop bracket (less rubber bumper) for rollouts		/0/14	walnut instruments
71599	Bracket—Pilot lamp bracket		75715	Knob—Function switch knob—tan—for oak instruments
75696	Bumper-Rubber bumper for record changer rollout stop bracket		11765	Lamp—Pilot lamp—Mazda #51
75919	Button—Rosette button for speaker grille		75884	Nut—Speed nut for 331/3/78 RPM record changer mount- ing screw
74296	Cable—Shielded pickup cable complete with pin plug for 331/5/78 RPM record changer		73634	Nut-Speed nut for speaker mounting screw
72437	Cable—Shielded pickup cable complete with pin plug for		75438	Pull—Door pull for upper part of door
1	45 RPM record changer		75918	Pull-Door pull for center of door
13103			75907	Screw—#10-32 x 51/4" cross recessed round head special screw to mount 45 RPM record changer
71892			75883	Screw— $\pm 10-24 \times \frac{1}{2}$ " round head machine screw for
X3144			/3003	mounting 331/2/78 RPM record changer
X3089			75626	
74882	Connector—2 contact (polarized) male connector for an- tenna loop cable	ļ	75708	Shell-Shell for 8 contact female connector #75709
74752	Connector-2 contact male connector for FM antenna ter- minal board cable		75546	Slide—Slide mechanism for 33½/78 RPM record changer mounting frame
75709			31354	Socket—Pilot lamp socket and lead
	(less shell) (P4)		74734	Spring—Retaining spring for knobs
30868	Connector-2 contact female connector for 331/3/78 RPM		75902	
	record changer motor cable (P2)		72936	Stop-Cabinet door stop

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS.

REFER TO MODEL A-101 ON PAGE 23 FOR FURTHER INFORMATION. THE CHASSIS AND SPEAKER ARE IDENTICAL FOR BOTH MODELS.



RCAVICTOR

Battery Operated Personal Receiver

MODEL B-411

Chassis No. RC-1098 or RC-1098A

SERVICE DATA

- 1950 No. 24 -

PREPARED BY RCA SERVICE CO., INC. FOR

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tuning Range	Batteries Required : Type of Battery Consumption (Intermittent Service)
Tube complement:	"A"-1.5 volt RCA VS 036 or VS 001 } 0.25 amp. 7 to 10 hrs.
2. RCA 1U4I.F. Amplifier	"B" -67.5 volts RCĀ VS 016 8.45 ma. 40 to 60 hrs.
3. RCA 1U5	Power Output: Undistorted
Loudspeaker Size and type	Maximum 0.10 watt Dimensions (over-all) 51/21" x 71/21" x 21/21" Weight (with batteries) slightly under 3 lbs.

Production Changes:

There are three types of case assemblies in use (two types are stocked) using two types of case backs (one type is stocked). SEE PAGE 4 FOR EXPLANATION OF CASE ASSEMBLY DIFFERENCES.

Two chassis have been used; RC-1098 has all individual resistors and capacitors, RC-1098A has two "Printed Circuit" units which replace ten individual resistors and capacitors.

Replacement Parts

STOCK	DESCRIPTION	STOCK	DESCRIPTION
No.	DESCRIPTION	No.	
No. 75778 75783 73153 75784 75785 73960 73964 72792 73961 71928 73961 71928 73961 71928 75781 75782 75781 75774 75778 75779 76321 75776 76321	DESCRIPTION CHASSIS ASSEMBLIES RC 1098, RC 1088A Antenna-Ferrite rod antenna (L1) Capacitor-Variable tuning capacitor (Cl-1, Cl-2) Capacitor-Ceramic, 4 mmf. (C3) Capacitor-Ceramic, 56 mmf. (C9, C1) Capacitor-Ceramic, 82 mmf. (C9, C1) Capacitor-Ceramic, 82 mmf. (C9, C1) Capacitor-Ceramic, 82 mmf. (C9, C1) Capacitor-Electrolytic, 10 mfd., 200 volts (Cl3) Capacitor-Tubular, paper, .002 mfd., 200 volts (Cl3) Capacitor-Tubular, paper, .002 mfd., 200 volts (Cl3) Capacitor-Tubular, paper, .002 mfd., 200 volts (C3) Capacitor-Tubular, paper, .02 mfd., 400 volts (C6) Capacitor-Tubular, paper, .03 mfd., 400 volts (C8) Capacitor-Tubular, paper, .03 mfd., 400 volts (C8) Capacitor-Tubular, paper, .03 mfd., 400 volts (C8) Capacitor-Tubular, paper, .05 mfd., 400 volts (C8) Control-Volume control and power switch (R6, 81) Grommet-Rubber grommet for antenna rod Knob-Volume control knob-less set screw (late type- has "ON" indication) Lead-"B" battery lead complete with connector Plate-Four element "Printed Circuit" plate stamped 942680-1 (diode filter unit C7, C9, R4, R5) Plate-Six slement "Printed Circuit" plate stamped 942689-1 (audio coupling unit C10, C12, R2, R7, R8, R10	No. 70527 75780 75775 75776 75777 75777 76373 76373 76373 76347 76320 75647 76649 75649 75788	 15,000 ohms, ± 10%, ½ watt (R2) 47,000 ohms, ± 20%, ½ watt (R5) 100,000 ohms, ± 20%, ½ watt (R4) 1 megohm, ± 20%, ½ watt (R4) 3.3 megohm, ± 20%, ½ watt (R4, R10) 4.7 megohm, ± 20%, ½ watt (R4, R7) 10 megohm, ± 20%, ½ watt (R8) Screw-#6-32 x 3/16" socket head set screw for volume control knob Socket-Tube socket, 7 pin, miniature Transformer-First I-F transformer (T2) Transformer-Second I-F transformer (T3) SPEAKER ASSEMBLY 92523-4 Speaker-2" x 3" P.M. speaker complete with cone and voice coil MISCELLANEOUS BackCase back CaseCase assembly (front and back) complete with metal side trim, metal grille and emblem-less handle and links (early type-does not have "ON" indication opening) Case-Case assembly (front and back) complete with metal side trim, metal grille and emblem-less handle and links (latetype has "ON" indication opening) Case-Carying handle Knob-Dial knob less spring clip
	Resistor-Fixed, composition:- 390 ohms, ±10%, ½ watt (R11)	·75650 75801	Link—Carrying handle link Screen—Crinoline screen (black) for case front
	1000 ohms, ± 20%, ½ watt (R12)	74734	Spring-Spring clip for dial knob

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



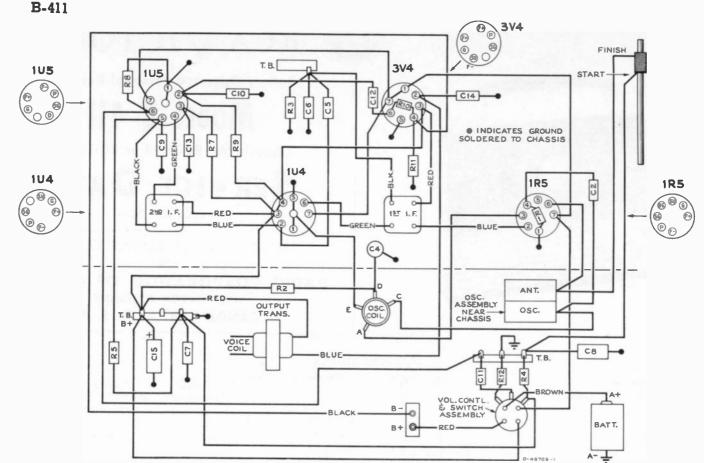
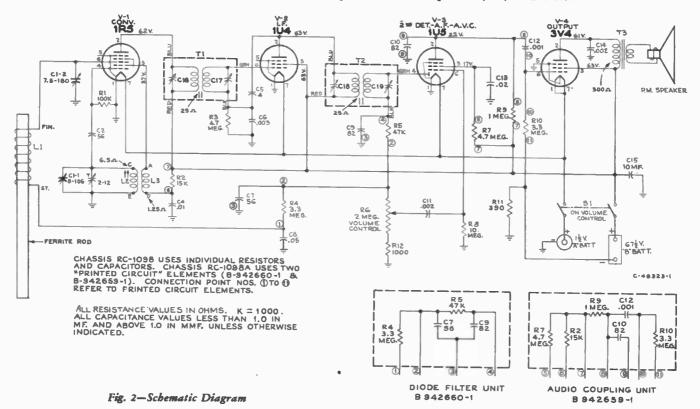


Fig. 1-Connection Diagram

In late production chassis:

"Printed Circuit" unit stamped 942659-1 replaces individual parts C10, C12, R2, R7, R9 and R10. "Printed Circuit" unit stamped 942660-1 replaces individual parts C7, C9, R4 and R5.



2

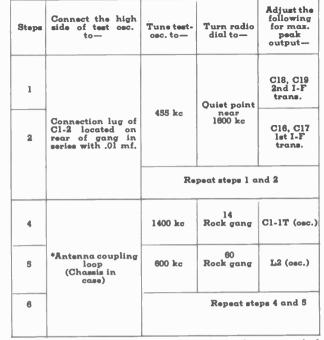
Output Meter.-Connect meter from No. 2 terminal of V4 (plate of 3V4) to ground. Turn volume control to maximum position.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Note:-The inductance of the antenna coil is adjusted by sliding the coil along the Ferrite rod. This ant. coil is supplied pre-adjusted and cemented to rod. This makes further adjustment unnecessary. However when replacing ant. assembly make certain that the coil end of the rod extends two inches beyond the tube shelf.

CRITICAL LEAD DRESS

- 1. Dress all I-F transformer leads down to base and push any excess lead back in can.
- Black lead from 1st I-F should lay down against top of tube shelf with capacitor C6 over it.
- Dress neutralizing capacitor C5 direct and above chassis 3. base, avoid lead length.
- 4. Dress blue lead from volume control and green lead from terminal board near volume control down to base and under gang frame diagonally to termination.
- 5. Dress blue lead from output transformer under clamp on back of gang condenser and direct to terminal 2 of V4.
- 6. Adjust Ferrite antenna so that coil end of rod extends two inches beyond tube shelf.
- 7. Dress all bare wires, pigtail leads and non-insulated components to prevent shorts.



*Steps 4 and 5 require a coupling loop from the signal generator to feed a signal into the receiver ant, coil. This loop should be loosely coupled to the receiver antenna coil so as not to disturb the receiver ant, coil inductance.

B+

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Fig. 4—Terminal Strip

HIGH SIDE OF OUTPUT

TO LUG ON REAR OF

TO HIGH SIDE OF

то

C7

TERM. #3 OF 104

MS 1029

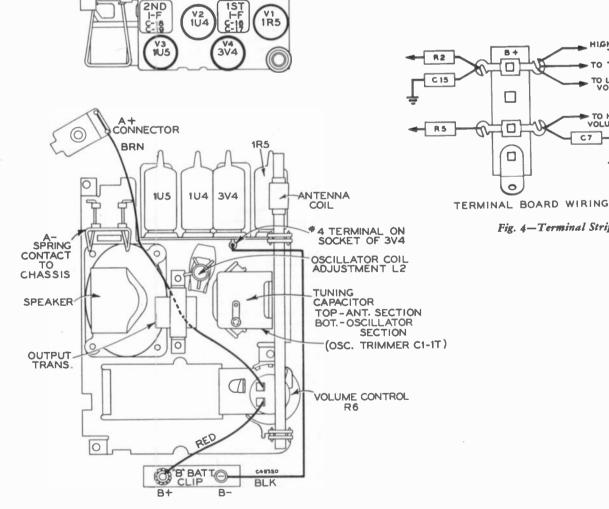
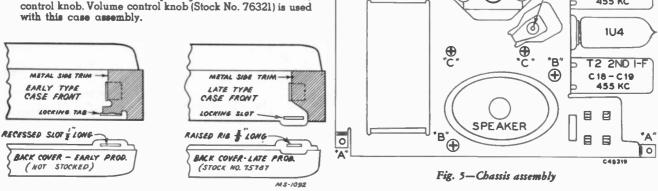


Fig. 3—Tube and Trimmer Locations

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CHANGES IN CASE ASSEMBLIES:

- 1. The original back (not stocked) had slots in the bottom edge which engaged with extension tabs of the metal trim of the case front.
- 2. Late production backs (Stock No. 75787) have molded lips on the bottom edge which fit into slots of the case front. When installing this back on early type case fronts, it will be necessary to break off the locking tabs on each side of the original trim strip.
- 3. The latest production of case assemblies (Stock No. 76320) have an "ON" indication opening in front of the volume control knob. Volume control knob (Stock No. 76321) is used with this case assembly.



REPLACEMENT OF COMPONENT PARTS

- I. To Remove Back Cover
 - a. Depress top of case midway between the handle supports, until the top end of the back separates from the main case.
 - b. Full the back cover back and up, thereby unhooking the retaining lugs in the bottom of the main case.

II. To Replace Batteries

- a. Remove back cover.
- b. Remove either or both "A" and "B" batteries as may be neces-sary. The "B" battery snap fasteners can best be removed by inserting a screwdriver under the snap fastener strip and prying upward.
- c. The "A" battery can easily be removed by pulling back on the spring wire and lifting out.
- III. To Remove Main Case
 - a. Remove front dial. (Just Pull).
 - b. Remove back cover.
 - c. Remove the three screws "A".
 - d. Remove "A+" clip (Squeeze and lift out of slot in case).
 - Grasp the assembly by the speaker housing and pull the bottom end of the chassis outward then down so the Volume Control knob clears the case.
- IV. To Replace Front Metal Grille
 - a. Remove front dial.
 - b. Remove back cover.
 - Remove chassis.
 - d. Bend small tabs inside case and separate metal strips from cabinet.

 - Bend small tabe inside case and separate grille from cabinet. Insert new grille and bend tabe. Note:—A black non-metallic screen is placed between the grille and the cabinet.
- V. To Remove Handle
 - Remove handle by separating the square spring wire clips on each end of handle and lift out.
- VI. To Remove Tubes
 - There is very little room in the cabinet so it is suggested the chassis be removed from the cabinet to replace tubes. a. Remove front dial.
 - b. Remove back cover.
 - c. Remove chassis
 - d. Remove tubes.

VII. To Remove Speaker

- a. Remove front dial.
- b. Remove back cover.
- c. Remove chassis from cabinet.
- d. Unsolder voice coil leads.
- e Remove two screws "B" and lift speaker out.
- VIII. To Remove Output Transformer
 - a. Remove front dial.
 - b. Remove back cover.
 - c. Remove chassis from cabinet. d. Unsolder leads.

 - e. Remove two screws "C" and lift transformer out.

IX. To Remove Volume Control

a. Remove front dial.

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- b. Remove back cover.
- c. Remove chassis from cabinet
- d. Unsolder leads.
- Loosen Allen Set screw on Volume Control knob and remove knob. (Just Pull).
- f. Bend tabs holding Volume Control to chassis and lift the Volume Control out.

X. To Remove Tuning Capacitor

- a. Bemove front dial.
- b. Remove back cover.
- c. Remove chassis from cabinet.
- d. Unsolder leads to tuning capacitor.
- e. Remove three screws "D" holding capacitor and lift out.
- **II.** To Remove Oscillator Coil
 - a. Remove front dial.
 - b. Remove back cover.
 - c. Remove chassis
 - d. Unsolder leads to coil.
 - e. Remove coil by unsnapping mounting clips from angle bracket.
- XII. To Remove First I-F Transformer
 - a. Remove front dial.
 - b. Remove back cover.
 - c. Remove chasels.
 - Remove the mounting screws of both speaker and output trans-former and move the speaker and transformer as found neces-sary for access to 1st I-F transformer leads. **d**.
 - Unsolder four leads from transformer.
 - 1. Blue lead from #2 terminal (Plate of 1R5 tube).
 - 2. Red lead from #3 terminal (Screen grid of 3V4 tube).
 - 3. Green lead from #6 terminal (Control grid of 1U4 tube).
 - 4. Black lead from lug on small terminal board on top of tube shelf.
 - Bend one mounting lug and unsolder the other lug from the chassis and lift the transformer out. ٤.
- XIII. To Remove 2nd I-F Transformer
 - a. Remove front dial.
 - b. Remove back cover.
 - c. Remove chassis.
 - d. Remove the mounting bolts of both speaker and output trans-former and move the speaker and transformer as found neces-sary for access to 2nd I-F transformer leads.
 - 1. Blue lead from #2 terminal (Plate of 1U4 tube).

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- 2. Red lead from #3 terminal (Screen grid of 1U4 tube).
- 3. Green lead from #4 terminal (Diode of 1U5 tube).
- 4. Black lead from #5 terminal (Dummy terminal of 1U5 tube). Unsolder the tabs from the chassis and lift the transformer out.

VOLUME CONTROL OSCILLATOR COIL TABS TUNING CAPACITOR SHAF T ъ Ά È 'D' 1**R**5 0 Ð TI IST I-F 'D D \bigcirc C16-C17 • $(\mathbf{\mathbf{\oplus}})$ 455 KC

ALLEN SET SCREW

B-411





AC-DC-Battery Portable Receiver

MODEL BX6

Chassis No. RC-1082, RC-1082A

SERVICE DATA

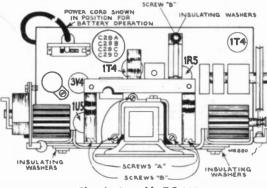
- 1950 No. 6-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

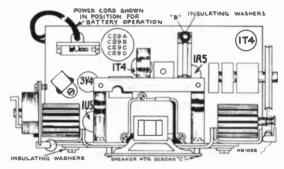
Tuning R	ange	
Intermedi	ate Frequency	
Power Sup	pply Rating	
Power Line	Operation	
115 volts, d	. c. or 50 to 60 cycles a. c.	
-	or	
* *	eratedusin	-
(Average b	attery life—125 hrs. interm	littent service)
Battery cur	rent	A'' 50 ma., "B'' 13 ma.
Tube Com	plement	
(1) RCA IT	4	
(2) RCA 1R	5	Converter
(3) RCA 1T	4	I.FAmplifier
(4) RCA 1U	5	nd Det.—AVC—lst A.F.
(5) RCA 3V	4	Output

ere 1

A selenium rectifier is used for "B" supply



Chassis Assembly RC1082



Chassis Assembly RC1082A

	Specifica	tions
- - - -	1 000 1	127

Weight (Approx.) Without battery7 lbs.	With battery10½ lbs.
	RS1082)4 in. P.M. S1082A)4 in. P.M.
Voice coil impedance	
Cabinet Dimensions Height10 in. Width	13 in. Depth5½ in.
	from the chassis with the set connected to the power line.

nected to the po Damage to tubes may result.

2. When cleaning the aluminum portion of the case use soap and water or cleaning fluid. Do not use abrasive cleansers.

To Remove Chassis:

- 1. Loosen battery clamps, pull out battery and disconnect battery plug.
- 2. Unsolder the two loop antenna leads.
- 3. Remove the two large screws (under handle) in the top of the case (do not loosen small screws).
- 4. Lay receiver on table with face down.
- 5. Remove the two screws holding chassis to case sides.
- 6. The chassis may now be lifted from the case.

To Remove Speaker RC1082:

- 1. Remove chassis from case as described above.
- 2. Unsolder output transformer leads from speaker.
- 3. Un-hook dial cord tension spring.
- 4. Remove the two screws "B" holding dial bracket to chassis support bracket.
- 5. Remove the four screws holding dial bracket to chassis base.
- 6. Tilt dial bracket forward and remove three screws "A" holding speaker bracket to chassis base.

To Remove Speaker RC1082A:

- 1. Remove chassis from case as described above.
- 2. Unsolder output transformer leads from speaker.
- 3. Remove screws "C" and lift speaker out.

Insulating Washers:

The mounting bracket and dial frame are insulated from the chassis with insulating washers. This serves to insulate the case from the chassis. In servicing make certain that these washers are in place and properly positioned.

BX6

MOUNTING 0.021

Link Support Assembly

To Replace Top Cover:

Assemble handle to cover and case front but do not tighten screws (small). Replace and tighten chassis mounting screws (large). Tighten the screws holding handle to top cover and case front.

To Remove Back of Cabinet on Instrument Using Chassis RS1082A:

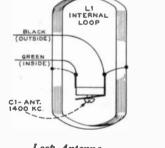
- 1. Remove top cover.
- 2. Bend out tabs on back cover.
- 3. Pull out hinge pins which extend into cabinet sides.

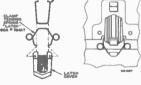
Power Line Operation:

A power cord is stored in the fiber tube which is clamped above the chassis inside the cabinet. To open the cabinet, push the wire latch on the bottom of the case to the right, and lift the back cover up and off. Then pull the power cord plug out of the socket on the top of the chassis as shown, and take out and unroll the power cord. A slot in the bottom of the cabinet allows the closing of the cabinet with the power cord passing through. Replace the back cover with the cord extending through the slot and insert the plug into a convenient electrical outlet.

When returning to battery operation, be sure to replace the power plug in its socket inside the case with the cord stored in the fiber tube.

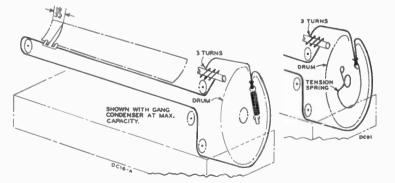
NOTE: If reception is not obtained on DC, reverse plug in outlet receptocle. This may also reduce hum on AC operation.





Loop Antenna

Cabinet Latch Assembly (New Cabinet Back)



Dial-Indicator and Drive Mechanism

Alignment Procedure

Output Meter Alignment-If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator—For all alignment operations, connect the low side of the test oscillator to the receiver chassis and keep the oscillator output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on AC operation an isolation transformer (117v./117v.) may be necessary for the receiver if the test oscillator is also AC operated.

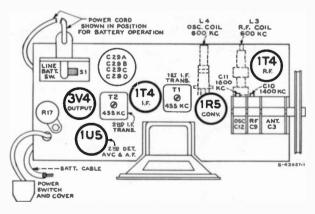
Calibration Scale—The calibrated dial scale is attached to the chassis. It can be used directly as a reference for alignment

With the gang at full mesh set the dial pointer so that the pointer is $\frac{1}{4}$ to the left of the 55 calibration on the dial scale.

Step	Connect High Side of Sig. Gen. to—	Sig. Gen. Output	Dial Pointer Setting	Adjust for Max. Output	
1	Pin #6 of 1T4 I.F. Amplifier thru .005 mf.	455 kc	Quiet 55 kc point	2nd I.F. Trans. T2 Top & Bottom	
2	Pin #6 of 1R5 Converter thru .005 mf.		near 1600 kc	lst I.F. Trans. Tl Top & Bottom	
3	Replace bottom cover. Install chassis in case, connect loop and battery. Place "Dummy"* back cover on case.				
4		1600 kc	1600 kc	Cll (osc.)	
5	Short wire placed	1400 kc	1400 kc	Cl0 (r. f.) Cl (loop)	
6	near loop for radiated signal	600 kc	600 kc	L4 (osc.) L3 (r. f.) Älternately while rocking gang	
7	Repeat steps 4, 5, and 6				

Alignment Tabulation

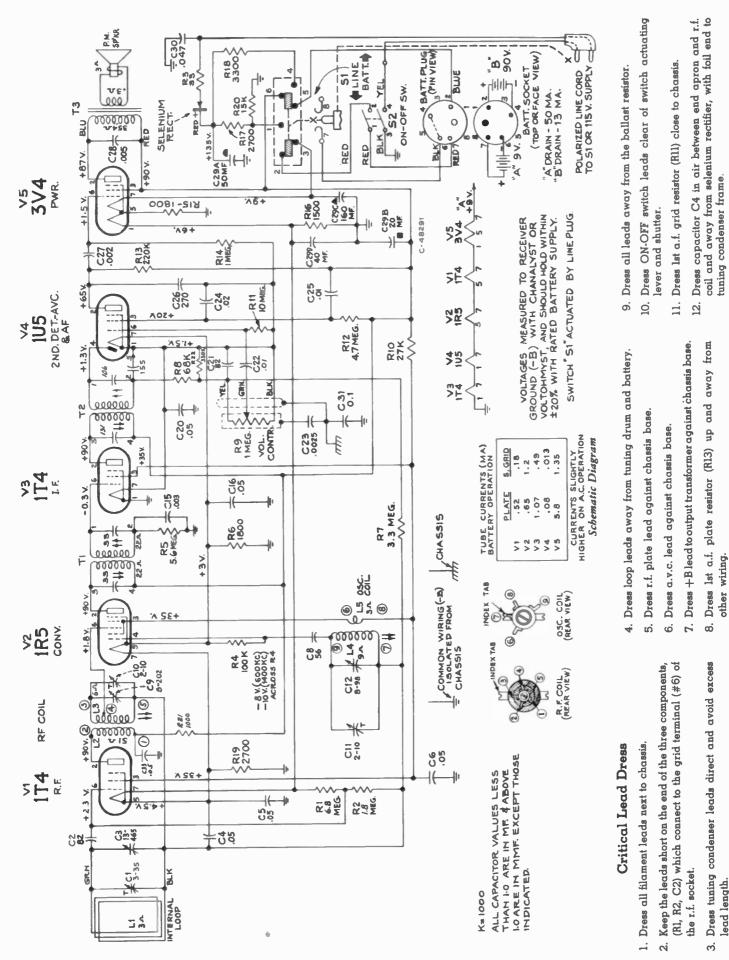
* A "dummy" back cover is one having holes provided to permit alignment with the cover in place. The battery and back cover affect loop alignment. The battery should be in place. If a ''dummy'' back cover is not available, an improvised cover should be made of sheet aluminum. It should not make contact with any metal portion of the case or chassis.



Tube and Trimmer Locations

NOTE:

The new semicircular dial cord tension spring shown at left is used on chassis RC1082A. However, this new spring can also be used on Chasnia RC1082.



Replacement Parts

STOCK		STOCK	
No.	DESCRIPTION	No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC1082, RC1082A	73129 73037	Transformer—First I. F. transformer T1 (L6, L7, C13, C14 Transformer—Second I.F. transformer T2 (L8, L9, C17 C18, C19
71044	ing lever less switch	71047 73332	Transformer—Output transformer
71056 74995	Bracket—Drive cord pulley bracket complete with pulley (volume control side) Bracket—Drive cord pulley bracket complete with		holder bracket (1 req'd) or dial support to chassi (4 req'd)
74991	two (2) pulleys Capacitor—Variable tuning capacitor complete with	73333	Washer—Insulating washer (extruded) for mountin base holder bracket (l reg'd) or dial support t
71924	drumČl, Č3, C9, C10, C11, C12 Capacitor—Ceramic, 56 mmf	71081	chassis (4 req'd) Washer—Spring washer to fasten removable driv cord pulley
71514 73922 73113	Capacitor—Ceramic, 82 mmf. Capacitor—Ceramic, 270 mmf. Capacitor—Electrolytic comprising 1 section of 50		SPEAKER ASSEMBLY 971495-2 FOR RC1082A
	mfd., 150 volts, 1 section of 20 mfd., 150 volts, 1 sec- tion of 160 mfd., 25 volts, and 1 section of 40 mfd., 25 volts	71059	92577-3W FOR RC1082 Gasket—Speaker gasket (black tubing)
73803	Capacitor—Tubular, paper, .002 mfd., 400 volts.C27	76402	Speaker—4" P. M. speaker complete with cone an voice coil (3.2 ohms) for RC1082A
73599 70603 73920	Capacitor—Tubular, paper, .0025 mfd., 400 volts.C23 Capacitor—Tubular, paper, .003 mfd., 400 volts.C15 Capacitor—Tubular, paper, .005 mfd., 400 volts.C28	73123	Speaker—4" P.M. speaker complete with cone an voice coil for RC1080
73561	Capacitor-Tubular, paper, .01 mfd., 400 volts 	71070	MISCELLANEOUS
73562 75071	Capacitor—Tubular, paper, .02 mfd., 400 volts C24 Capacitor—Tubular, moulded paper, .047 mfd., 400	71079 71074 76411	Antenna—Antenna loopI Arm—Shutter arm lever Back—Case back (for RC1082A)
73553	volts	74999 71073 71070	Back—Case back (for RC1082) Bracket—Bearing bracket for shutter arm lever Bracket—Mounting bracket for #71069 adjustabl
73551 73935	Capacitor—Tubular, paper, 0.1 mfd., 400 voltsC31 Clip—Mounting clip for I.F. transformers		capacitor
73114	Coil—Oscillator coil complete with adjustable core L4, L5	71069 76399	Capacitor—Adjustable trimmer, 3-35 mmf. Case—Case front complete with insulating stri emblem and moulded supports (for RC1082A)
74992 71041	Coil—R.F. coil complete with adjustable screw. L2, L3 Connector—5 contact male connector for battery cable	75006	Case—Case front complete with insulating strip as support feet—less shutter (for RC1082)
71057 †72953 70022	Control—Volume control. R9 Cord—Drive cord (approx. 38" overall length required)	75001 75005	Clip—Clip to hold battery Clip—''C'' clip (threaded) for battery holder cl
74998	Cord—Power cord and plug Dial—Dial scale and window assembly	76412	(2 reg'd) Clip—''C'' clip—part of case front—to secure ca
74838 72283	Grommet—Power cord strain relief (1 set) Grommet—Rubber grommet to mount tuning capaci- tor (3 required)	75009	sides (for RC1082A) Clip—Clip to hold chassis to case (end plate (2 req'd)
71031	Holder—Power cord holder (fiber tube) Knob—Volume control knob (roller type) or tuning control knob (roller type)	76414 75010	Clip—''C'' clip used with chassis mounting clip 7500 Clip—''C'' clip and screw for holding case togeth
18469 73111	Plate—Bakelite mounting plate for electrolytic Pointer—Station selector pointer	76416	(two at top, two at bottom) Clip—Wire clip (hinge spring) for latch cover (f
72602	Pulley—Drive cord pulley (removable)	75013	RC1082A) Clip—Spring clip with tab for fastening case front
74322	Rectifier—Selenium rectifier Resistor—Wire wound, 33 ohms, fuse typeR3	71080	case sides Clip—Case side spring clip
74319	Resistor—Wire wound, 2700 ohms, 7 wattsR17 Resistor—Fixed, composition:		Cover—Tenite latch cover (for RC1082A)
503210	$1000 \text{ ohme} \pm 10\% \text{ k} \text{ watt}$ B21	76418	Emblem—"RCA Victor" emblem Foot—Case foot and battery support (tenite) (f
503215 503218	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75008	RC1082A) Foot—Case foot and battery support (for RC1082
503227 513233		75016	Handle—Carrying handle
504315	$15,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$ R20 $27,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt}$ R10 $68,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$ R8 $100,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$ R4 $220,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$ R4 $200,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$ R13 $330,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt}$ R22 $1000,000 \text{ ohms}, \frac{1}{2}0\%, \frac{1}{2} \text{ watt}$ R13 $1000,000 \text{ ohms}, \frac{1}{2}0\%, \frac{1}{2} \text{ watt}$ R22 $1000,000 \text{ ohms}, \frac{1}{2}0\%, \frac{1}{2} \text{ watt}$ R23	75018	Latch—Spring latch for back cover (RC1082) Link—Carrying handle link (2 reg'd)
503327 504368	$27,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt}$	75003	Nut—Speed nut for carrying handle mounting scre
504308	$100.000 \text{ ohms} + 20\%$, $\frac{1}{2}$ watt	76413	(2 req'd) Pin—Case back hinge pin (for RC 1082A)
504422	220,000 ohms, ±20%, ½ watt	75015	Pin—Pivot pin for case shutter
503433	$330,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt}$	75000	Plate-Case top plate
504510 503518	l megohm, ±20%, 1/2 watt. R14 l.8 megohm, ±10%, 1/2 watt. R2 3.3 megohm, ±10%, 1/2 watt. R2	75017	Plate-Mounting plate for carrying handle (2 req
503518	3.3 megohm, ±10%, ½ watt R7	71066	Screw—#8-32 x 5/6' cross recessed binder head scre to hold chassis to top plate (2 req'd)
504547	4.7 megohm, ±20%, ½ watt	75002	Screw $-$ #4 x $\%''$ cross recessed self-tapping rous
503556 503568	4.7 megohm, ±20%, ½ watt. R12 5.6 megohm, ±10%, ½ watt. R5 6.8 megohm, ±10%, ½ watt. R1 10 megohm, ±20%, ½ watt. R1	75014	head screw to fasten carrying handle (2 req'
504610	$10 \text{ megohm}, \pm 20\%, \frac{1}{2} \text{ watt}$	13014	Screw—#4 x 1/4" pan head tapping screw for sprin clip 75013 or capacitor bracket
73122	Shaft—Iuning knob shaft	75012	Side—Case side only—less pivot pin
74996	Shield—End shield for dial—L.H. Shield—End shield for dial—R.H.	71072	Spring—Case shutter compression spring Spring—Latch mechanism tension spring (for R
73117	Socket—Tube socket, 7 pin, miniature	10411	log2A)
76400	Spacer—Metal spacer and screw to mount speaker	71071	Shutter—Case shutter
76368	(1 set) (For use with speaker 971495-2) Spring—Dial cord spring (Semi-circular type)	75007	Strip—Case front insulating strip complete with late plate (for RC1082)
30900 71039	Spring—Retaining spring for knob Switch—"Line-Battery" change switch	75008	Support—Moulded support foot for case (2 req' (for RC1082)

†Stock No. 72953 is a reel containing 250 feet of cord.

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APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Specifications

-
Tuning Range540-1600 kc.Intermediate Frequency455 kc.
Tube Complement Converter (1) RCA 1R5 Converter (2) RCA 1T4 I. F. Amplifier (3) RCA 1U5 DetA.V.CA. F. Amp. (4) RCA 3V4 Output A selenium rectifier is used
Power Supply Rating Power Line Operation 115 volts, d. c. or 50 to 60 cycles a. c. 18 watts or
Battery Operated VS 050 Battery (Average life—100 hrs. intermittent service)
Loudspeaker (92577-3 or 971495-2) Size and type 4 in. P.M. dynamic Voice coil impedance 3.2 ohms at 400 cycles
Tuning Drive Ratio
Power Output Undistorted—170 milliwatts Maximum—350 milliwatts (Output is slightly lower on battery operation)
Cabinet DimensionsHeight 81/4 in.Width 103/4 in.Depth 5 in.
Weight (Approx.)5 lb. less battery8 lb. 2 oz. with battery
AC-DC Operation

A power cord is stored inside the cabinet. To open the cabinet, pull backwards on the top of the cabinet back. It is secured by means of two spring clips and catches on the inside of the cabinet. Remove the plug of the power cord from its socket on the chassis and insert the plug into a convenient electrical power outlet. A notch in the right side of the cabinet allows the back to be closed with the cord passing through.

- Notes: 1. Maximum performance is obtained with the battery in place. Receiver sensitivity will be lowered if the battery is not in place during AC-DC operation since the battery affects the loop inductance.
 - 2. If reception is not obtained on DC, reverse plug in power outlet. On AC operation, reversal of the plug may reduce hum.

Battery Operation

Replace the power cord plug in the socket provided on the back of the chassis. Coil up the power cord and place it alongside of the battery. Make certain that it will not interfere with the tuning condenser.

Note: Make certain that the plug is fully inserted (base of plug touching chassis) to assure proper operation of the Batt-Line switch.





AC-DC-Battery Portable Receiver

MODEL BX55

Chassis No. RC-1088, RC-1088B

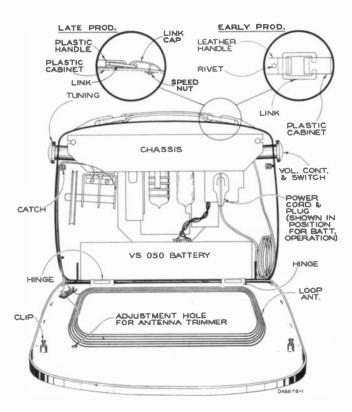
SERVICE DATA

- 1950 No. 7-

PREPARED BY RCA SERVICE CO., INC.

FOR

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.



To Remove Carrying Handle

Early Type:

- 1. Remove rivets from handle (if present).
- 2. Turn link and slip out of handle and cabinet.

Late Type:

- 1. Remove speed nuts holding carrying handle link caps.
- 2. Remove link caps.
- 3. Turn link and slip out of handle and cabinet.

Cabinet Back and Hinges

The cabinet back and hinges may be readily detached from the cabinet. See back page for detailed instructions on their removal.

BX55

Alignment Procedure

Signal Generator.—For all alignment operations, connect the low side of the signal generator to the receiver chassis and keep the output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on a. c. operation an isolation transformer (117v./117v.) may be necessary for the receiver if the signal generator is also a. c. operated.

Note: Battery must be in place for ant. alignment (step 6).

Dial Pointer Position.—With the tuning condenser fully meshed the center of the dial pointer should be in line with the score mark on the chassis.

Step	Connect high side of signal generator to—	Signal generator output	Dial pointer setting	Adjust for maximum output—		
1	Disconnect loop—remove chassis—remove bottom plate, connect a 10,000 ohm resistor from Cl-1 stator terminal to tuning condenser frame.					
2	Grid of 1T4 (pin No. 6) thru .01 mf. capacitor		Quiet point	T2 (top) 2nd. I-F trans.		
3	Stator term. of C1-1 thru .01 mf. capacitor	455 kc	near 1600 kc	Tl (top & bottom) lst. I-F trans.		
4	Remove the 10,000 ohm resistor. Replace bottom cover and install chassis in cabinet. Re-connect loop.					
5	Short wire placed near	1620 kc	Tuning condenser fully open	C1-2 trimmer (osc.)		
6	receiver (for radiated signal)	1300 kc	1300 kc signal	†Cl-l trimmer (ant.)		

Alignment Tabulation

†With back closed. Trimmer is accessible thru hole in back.

NOTE

The magnetite cores of T2 and T1 may not have visible adjusting screws. The cores have screwdriver slots to permit adjustment (use non-metallic screwdriver).

Critical Lead Dress

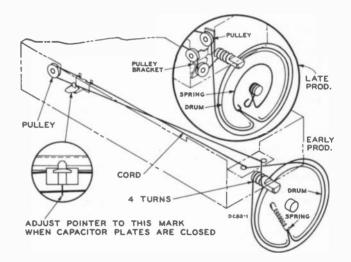
- 1. Dress antenna loop leads away from adjusting screws on tuning condenser.
- 2. Dress all capacitors against chassis base.
- 3. Dress oscillator coil away from chassis and bottom cover.
- 4. Dress output transformer primary leads against chassis.
- 5. Dress all leads and components away from selenium rectifier.
- 6. Dress loop antenna leads into recesses provided in the side of the cabinet. Leave slack at hinged edge of cabinet.

Note: This instrument is designed to be operated with a battery in position inside the cabinet. Reception will be below normal unless the battery is in its normal location.

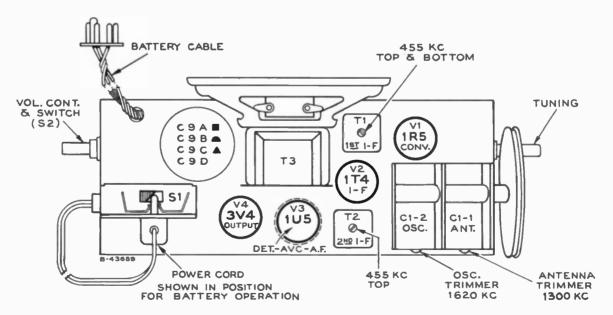
The position of the battery pack affects the loop inductance. Therefore, when the battery is removed, the loop inductance will change (increase) and the sensitivity will be slightly worse because of improper electrical tracking of the loop circuit with the heterodyne oscillator of the receiver.

CAUTION .--

Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.

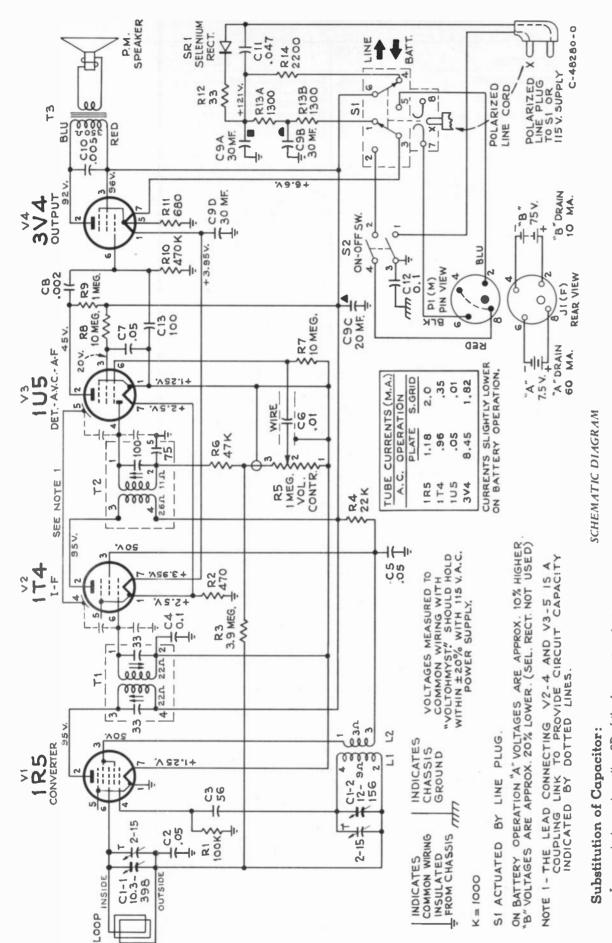


Dial Indicator and Drive Mechanism



Tube and Trimmer Locations

BX55



In some instruments section 9D of the four section electrolytic capacitor C9A, C9B, C9C, C9D is not used. A separate 30 mf. capacitor is used instead. This was done because the electrolytic capacitors supplied by certain vendors had common coupling between sections which resulted in excessive hum.

Please note that the separate 30 mf. capacitor is used in place of and not in parallel with the 30 mf. section of the multiple capacitor.

The replacement parts stock of the four section capacitor (Stock No. 74774) has been found to be satisfactory and substitution of section C9D should not be necessary.

Lead Dress:

Capacitor Cl1 (.047 mf.) must be dressed away from the metal chassis and in such position that inserting the chassis into the case will not change its position.

The side of CI1 which may short to chassis is the side which connects directly to the selenium rectifier. If this side contacts the chassis it will place the chassis at power line potential.

Replacement Parts

STOCK		STOCK	
No.	DESCRIPTION	No.	DESCRIPTION
	CHASSIS ASSEMBLIES	76368	Spring—Drive cord tension spring—semi-circular type
	RC 1088, RC 1088B	71039 73129	Switch—"Line-Battery" change switch
76404	Bracket—Drive cord pulley bracket including two	74775	Transformer—Second I.F. transformer
74778	pulleys (for RC-1088B)	74779	Transformer—Output transformer
39622	Capacitor—Variable tuning capacitor	00120	_
39628	Capacitor—mica, 100 mmf	74165	SPEAKER ASSEMBLIES Speaker—4'' P.M. speaker (92577-3) complete with
74774	Capacitor—Electrolytic, comprising 2 sections of 30 mfd., 150 volts, 1 section of 20 mfd., 150 volts and	74105	cone and voice coil—for RC-1088
	l section of 30 mfd., 25 volts. C9Å, C9B, C9C, C9D	76402	Speaker-4" P.M. speaker (971495-2) complete with
72315	Capacitor—Tubular, paper, .002 mfd., 200 voltsC8 Capacitor—Tubular, paper, .005 mfd., 400 volts.C10	76401	cone and voice coil—for RC-1088B Spacer—Spacers (2) and screws (2) to mount
73561	Capacitor-Tubular, paper, .01 mfd., 400 voltsC6		971495-2 speaker on RC-1088 (not required for
75071	Capacitor-Tubular, moulded paper, .047 mfd., 400		RC-1088B) MISCELLANEOUS
73553	volts	75048	Back—Cabinet back complete with loop
70617	C5, C7	74787 Y2220	Board—Terminal board—2 contact
10017	Capacitor—Tubular, paper, 0.1 mfd., 400 voltsC4, Cl2	12220	Case—Cabinet front—less back, emblem, handle and dial—early type without holes for mounting link caps.
73935	Clip-Mounting clip for I.F. transformer	¥2327	Case—Cabinet front—less back, emblem, handle and
73275	Coil—Oscillator coil Ll, L2 Connector—5 contact male connector for battery	76282	dial—late type with holes for mounting link caps. Cap—Carrying handle link cap (2 required)
72126	cablePl	74339	Catch—Cabinet back catch (part of cabinet front)
73125	Control—Volume control and power switchR5, S2 Cord—Power cord and plug	74734	Clip—Spring clip for knob Clip—Striking clip for catch (part of cabinet back)
†72953	Cord—Drive cord (approx. 40'' overall length req'd)		(2 required)
72283	Grommet—Rubber grommet to mount tuning capaci- tor (3 required)	74784	Dial—Metal dial scale Emblem—''RCA Victor'' emblem
74838	Grommet—Power cord strain relief grommet (1 set)	74785	Handle—Carrying handle (early type—leather)
74776	Indicator—Station selector indicator Plate—Mounting plate for electrolytic capacitor	76280	Handle—Carrying handle (late type—plastic) Hinge—Cabinet hinge (2 required)
72602	Pulley-Drive cord pulley	74666	Knob—Tuning or volume control and power switch
74322	Rectifier—Selenium rectifier	74786	knob Link—Link for carrying handle—15%" length (early
74777	Resistor—Voltage divider, dual, 1300 ohms, 3.5		type) (2 required)
	watts	76281	Link—Link for carrying handle—1 ¹ / ₁₆ " length (late type) (2 required)
	480.1 10007-14 11 80	74789	Loop—Antenna loop winding
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	74788	Nut—Speed nut to mount terminal board Nut—Speed nut to fasten dial, decorative plate and
	22,000 ohms, ±20%, ½ watt R4		carrying handle link caps (6 required—2 for each
	47,000 ohms, ±20%, ½ watt	76279	purpose) Plate—Reinforcing plate for mounting chassis in
	470,000 ohms, ±20%, ½ watt. R10		cabinet (2 required)
		75448	Rivet—Bevel pointed rivet for early type leather handle (2 required)
	3.9 megohm, ±10%, ½ watt R3 10 megohm, ±20%, ½ watt R7, R8	75435	Screen—Crinoline screen for speaker grille
74773	Shaft—Tuning knob shaft for RC-1088 Shaft—Tuning knob shaft for RC-1088B	74783	Plate—Decorative plate (satin finish) for cabinet (above dial)
73103	Shield—Tube shield for 1U5 tube	74301	Screw-No. 8-32 x 36" pan head cross recessed
73117	Socket—Tube socket, miniature Spring—Drive cord tension spring—coil type	74791	screw for chassis mounting (2 required) Screw—No. 4 x 5/16'' pan head cross recessed screw
		11151	to fasten catch to cabinet front
10. 1	N 70000		

†Stock No. 72953 is a reel which contains 250 ft. of cord.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

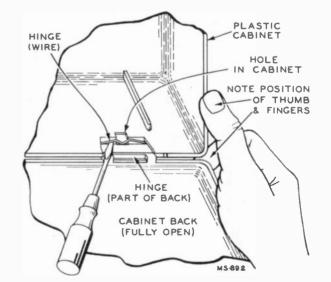
To Remove Cabinet Back

Disconnect the loop antenna leads. With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull the back straight to the rear using both hands.

To Remove Hinges

Remove back from cabinet as described above. Spread the hinge apart to remove it from the cabinet back.

Removal of Cabinet Back



BX55



Specifications

E 40 1600 1

Tuning Range 540-1600 kc. Intermediate Frequency 455 kc.
Tube Complement Converter (1) RCA 1R5 Converter (2) RCA 1U4 I. F. Amplifier (3) RCA 1U5 Det.—A.V.C.—A. F. Amp. (4) RCA 3V4 Output A selenium rectifier is used
Power Supply Rating

Power Line Operation 115 volts, d. c. or 50 to 60 cycles a. c
OT
Battery Operated
Loudspeaker (92577-3 or 971495-2) Size and type
Tuning Drive Ratio8:1 (4 turns of knob)
Power Output

Undistorted—170 milliwatts Maximum—350 milliwatts (Output is slightly lower on battery operation)

Cabinet Dimensions Height 81/4 in. Width 103/4 in. Depth 5 in.

Weight (Äpprox.) 5 lb. less battery	8	lЬ.	2	oz.	with	battery

AC-DC Operation

A power cord is stored inside the cabinet. To open the cabinet, pull backwards on the top of the cabinet back. It is secured by means of two spring clips and catches on the inside of the cabinet. Remove the plug of the power cord from its socket on the chassis and insert the plug into a convenient electrical power outlet. A notch in the right side of the cabinet allows the back to be closed with the cord passing through.

- Notes: 1. Maximum performance is obtained with the battery in place. Receiver sensitivity will be lowered if the battery is not in place during AC-DC operation since the battery affects the loop inductance.
 - 2. If reception is not obtained on DC, reverse plug in power outlet. On AC operation, reversal of the plug may reduce hum.

Battery Operation

Replace the power cord plug in the socket provided on the back of the chassis. Coil up the power cord and place it along-side of the battery. Make certain that it will not interfere with the tuning condenser.

Note: Make certain that the plug is fully inserted (base of plug touching chassis) to assure proper operation of the Batt-Line switch.

AC-DC-Battery Portable Receiver

MODEL BX57

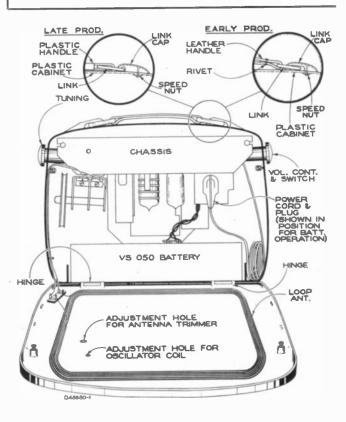
Chassis No. RC-1088A, RC-1088C

SERVICE DATA

- 1950 No. 11-

PREPARED BY RCA SERVICE CO., INC. FOR **RADIO CORPORATION OF AMERICA**

RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.



To Remove Carrying Handle

Early Type:

- Remove rivets from handle (if present).
 Turn link and slip out of handle and cabinet.

Late Type:

- 1. Remove speed nuts holding carrying handle link caps.
- 2. Remove link caps.
- 3. Turn link and slip out of handle and cabinet.

Cabinet Back and Hinges

The cabinet back and hinges may be readily detached from the cabinet. See back page for detailed instructions on their removal.

BX57

Alignment Procedure

Signal Generator—For all alignment operations, connect the low side of the signal generator to the receiver chassis and keep the output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on a. c. operation an isolation transformer (117v./117v.) may be necessary for the receiver if the signal generator is also a. c. operated.

Note: Battery must be in place for ant. alignment (step 6).

Dial Pointer Position.—With the tuning condenser fully meshed the center of the dial pointer should be in line with the score mark on the chassis.

Step	Connect high side of signal generator to—	Signal generator output	Dial pointer setting	Ādjust for maximum output—			
1	plate, connect a	remove chassis — remove bottom a 10,000 ohm resistor from C1-1 o tuning condenser frame.					
2	Grid of 1U4 (pin No. 6) thru .01 mf. capacitor	455 kc	Quiet point	T2 (top & bottom) 2nd. I-F trans.			
3	Stator term. of C1-1 thru .01 mf. capacitor	400 KC	near 1600 kc	Tl (top & bottom) lst. I-F trans.			
4	Remove the 10,000 ohm resistor. Replace bottom cover and install chassis in cabinet. Re-connect loop.						
5	Short wire placed near	1620 kc	Tuning condenser fully open	C1-2 trimmer (osc.)			
6	receiver (for radiated signal)	1400 kc	1400 kc signal	C1-1 trimmer (ant.)			
7		600 kc	600 kc signal	†L1 (osc.) rock gang			
8	Repeat steps 5 and 6.						

Alignment Tabulation

With back closed. Trimmer is accessible thru hole in back.

NOTE:

The magnetite cores of T2 and T1 may not have visible adjusting screws. The cores have screwdriver slots to permit adjustment (use non-metallic screwdriver).

Critical Lead Dress

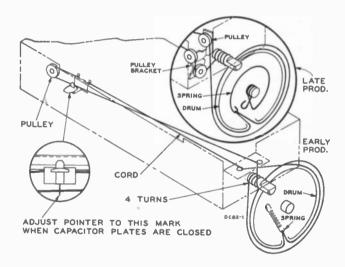
- Dress antenna loop leads away from adjusting screws on tuning condenser.
- 2. Dress all capacitors against chassis base.
- 3. Dress oscillator coil away from chassis and bottom cover.
- 4. Dress output transformer primary leads against chassis.
- 5. Dress all leads and components away from selenium rectifier.
- Dress the 4 mmf. capacitor (C15) down against the .003 mf. capacitor (C14).
- Capacitor C15 must be connected to the plate terminal of the 1U4 socket with as short lead as possible.
- 8. Dress loop antenna leads into recesses provided in the side of the cabinet. Leave slack at hinged edge of cabinet.

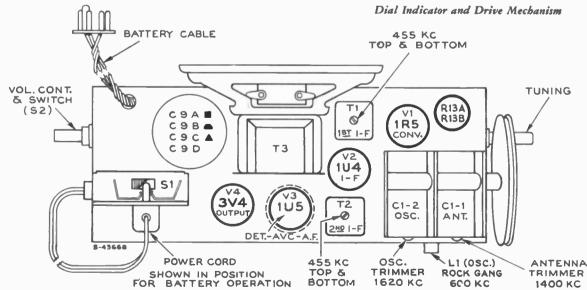
Note: This instrument is designed to be operated with a battery in position inside the cabinet. Reception will be below normal unless the battery is in its normal location.

The position of the battery pack affects the loop inductance. Therefore, when the battery is removed, the loop inductance will change (increase) and the sensitivity will be slightly worse because of improper electrical tracking of the loop circuit with the heterodyne oscillator of the receiver.

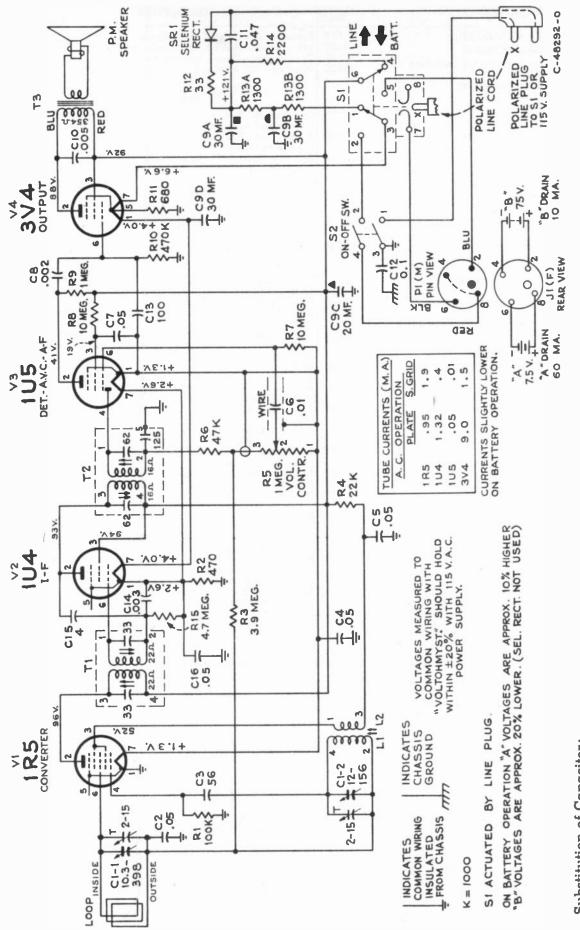
CAUTION .--

Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.





Tube and Trimmer Locations



Substitution of Capacitor:

lytic capacitor C9Å, C9B, C9C, C9D is not used. A separate 30 mf. capacitor is used instead. This was done because the electrolytic capacitors supplied by certain vendors had com-In some instruments section 9D of the four section electromon coupling between sections which resulted in excessive hum.

Please note that the separate 30 mf. capacitor is used in place of and not in parallel with the 30 mf. section of the multiple capacitor.

The replacement parts stock of the four section capacitor (Stock No. 74774) has been found to be satisfactory and sub-stitution of section C9D should not be necessary.

SCHEMATIC DIAGRAM

Lead Dress:

Capacitor Cll (.047 mf.) must be dressed away from the metal chassis and in such position that inserting the chassis into the case will not change its position.

The side of Cll which may short to chassis is the side which connects directly to the selenium rectifier. If this side contacts the chassis it will place the chassis at power line potential.

57

58

Replacement Parts

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES	73129	Transformer—First I.F. transformer
	RC-1088A, RC-1088C	73130	Transformer-Second I.F. transformer
76404	Bracket—Drive cord pulley bracket including two	71047	Transformer—Output transformer
10404	pulleys (for RC-1088C)	33726	Washer—"C" washer for tuning knob shaft
75149	Capacitor—Variable tuning capacitorCl-1, Cl-2		
73153	Capacitor—Ceramic, 4 mmf		SPEAKER ASSEMBLIES 92577-3
39622	Capacitor—Mica, 56 mmfC3	74165	
39628	Capacitor-Mica, 100 mmf	14100	Speaker—4" P.M. speaker (92577-3) complete with cone and voice coil—for RC-1088Å
74774	Capacitor—Electrolytic, comprising 2 sections of 30 mfd., 150 volts, 1 section of 20 mfd., 150 volts and	76402	Speaker—4" P.M. speaker (971495-2) complete with
	l section of 30 mid., 25 volts, C9A, C9B, C9C, C9D		cone and voice coil—for RC-1088C
72315	Capacitor-Tubular, paper, .002 mfd., 200 voltsC8	76401	Spacer—Spacers(2) and screws(2) to mount 971495-2
73961	Capacitor—Tubular, paper, .003 mfd., 200 volts. Cl4		speaker on RC-1088Å (not required for RC-1088C)
73920	Capacitor—Tubular, paper, .005 mfd., 400 volts. Cl0		MISCELLANEOUS
73561	Capacitor-Tubular, paper, .01 mfd., 400 voltsC6	75000	
75071	Capacitor—Tubular, moulded paper, .047 mfd., 400	75080	Back—Cabinet back complete with loop Board—Terminal board—2 contact
73553	volts	¥2227	Cabinet—Cabinet front including corners and link
10000	C4, C5, C7, C16		caps—less dial and plate
70617	Capacitor—Tubular, paper, 0.1 mfd., 400 voltsCl2	75156	Cap—Carrying handle link cap (2 required)—early
73935	Clip—Mounting clip for I.F. transformer		type with wide slot for link
74405	Coil—Oscillator coilLl, L2	76405	Cap-Carrying handle link cap (2 required)—late
73275	Connector—5 contact male connector for battery cable	74339	type with narrow slot for links Catch—Cabinet back catch (part of cabinet front)
73125	Control—Volume control and power switchR5, S2	74734	Clip—Spring clip for knob
70022	Cord-Power cord and plug	74792	Clip—Striking clip for catch (part of cabinet back)
†72953	Cord—Drive cord (approx. 40" overall length req'd)		(2 required)
72283	Grommet—Rubber grommet to mount tuning capacitor	75153	Cover-Cabinet corner cover-L.H.
74838	Grommet—Power cord strain relief grommet (1 set)	75154	Cover-Cabinet corner cover-R.H.
74776 18469	Indicator—Station selector indicator Plate—Mounting plate for electrolytic capacitor	75157	Dial—Metal dial scale and bezel Emblem—"RCA Victor" emblem
72602	Pulley—Drive cord pulley	75150	Handle—Carrying handle (early type—leather)
74322	Rectifier — Selenium rectifier	76280	Handle—Carrying handle (late type—plastic)
73237	Resistor—Wire wound (fuse type) 33 ohmsR12	74790	Hinge—Cabinet hinge (2 required)
76006	Resistor-Wire wound, 2600 ohms tapped at 1300	74781	Knob—Tuning or volume control and power switch
	ohms 6 watts	75151	knob Link—Link for carrying handle—1%" length (early
	Resistors—Fixed, composition:- 470 ohms + 200% 1/2 wott B2	19191	type) (2 required)
	680 ohms, +20%, 1/2 watt	76281	Link—Link for carrying handle— $1\frac{3}{6}$ length (late
	2200 ohms, ± 10%, ½ watt		type) (2 required)
	22,000 ohms, ±20%, ½ watt	75152	Loop—Antenna loop winding
	Arrow and the second secon	74788	Nut-Speed nut to mount terminal board
	$470000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt}$	13203	Nut—Speed nut to fasten dial, corner covers, decora- tive plate or link caps
	1 megohm, +20%, 1/2 watt	74783	Plate—Decorative plate (satin finish) for cabinet
	3.9 megohm, ±10%, ½ watt		(above dial)
	4.7 megohm, ±20%, ½ watt	76279	Plate—Reinforcing plate for mounting chassis in cabi-
74000	1 megohm, ±20%, ½ watt	75440	net (2 required)
74773 76403	Shaft—Tuning knob shaft for RC-1088A Shaft—Tuning knob shaft for RC-1088C	75448	Rivet—Bevel pointed rivet for early type leather handle (2 required)
73103	Shield—Tube shield for 1U5 tube	75435	Screen—Crinoline screen for speaker grille
73117	Socket-Tube socket, miniature	74301	Screw-No. 8-32 x 3/8" pan head cross recessed
74038	Spring—Drive cord tension spring—coil type		screw for chassis mounting (2 required)
76368	Spring—Drive cord tension spring—semi-circular type	74791	Screw-No. 4 x 5%" pan head cross recessed
71039	Switch—"Line-Battery" change switchSl		screw to fasten catch to cabinet front.

†Stock No. 72953 is a reel which contains 250 ft. of cord.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

Change in Resistor:

The 2600 ohm 6 watt resistor (R13) now being used in Model BX57 is of improved design. The original resistor was a ceramic type and the type now being used is a flat armored type. When the new type is used to replace the original type, it is necessary to drill a .120" diameter hole in the front apron of the chassis to accommodate a self-tapping screw for mounting purposes.

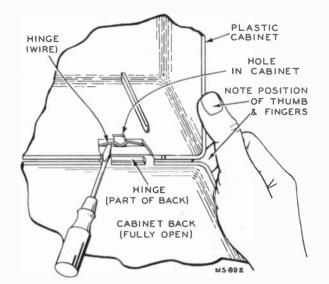
To Remove Cabinet Back

Disconnect the loop antenna leads. With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull the back straight to the rear using both hands.

To Remove Hinges

Remove back from cabinet as described above. Spread the hinge apart to remove it from the cabinet back.

Removal of Cabinet Back





X551 Maroon RCA



AC-DC Radio Receiver

MODELS X551, X552

Chassis No. RC-1089B RC-1089C

SERVICE DATA

— 1950 No. 15 —

PREPARED BY RCA SERVICE CO., INC.

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tuning Range	
Intermediate Frequency	
Tube Complement	
(1) RCA 12BE6	Converter
(2) RCA 12BA6	I-F Amplifier
(3) RCA 12AV6.	
(4) RCA 50L6GT	Output
(5) RCA 35W4	Rectifier

X552

Ivory

Power Supply Rating

Dial Lamps (2)
Power Output Undistorted 1.25 watts Maximum 1.5 watts
Loudspeaker (92577-1 or 92577-7) Size and type
Cabinet Dimensions Height85%'' Width121/4'' Depth6''
Weight

Replacement Parts

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1089B—Model X551 RC 1089C—Model X552	73584 73117 70827 74697	Shield—Tube shield Socket—Tube socket, 7 pin, miniature Socket—Tube socket, octal Socket—Pilot lamp socket
75481	Back—Back cover and loop assembly (maroon) (Model X551)	75486	Transformer—First 1-F transformer complete with adjustable cores T1
75604	Back—Back cover and loop assembly (ivory) (Model X552)	75487	Transformer—Second I-F transformer complete with adjustable cores T2
75658 75484	Bracket—Lamp bracket Capacitor—Variable tuning capacitor	75488	Transformer—Output transformer
39624 39632	Capacitor—Mica, 68 mmf. C2 Capacitor—Mica, 150 mmf. C12		SPEAKER ASSEMBLIES 92577-1 or 92577-7
39642 73500	Capacitor-Mica, 390 mmf. C6 Capacitor-Electrolytic comprising 1 section of	74165	Speaker—4" P.M. speaker complete with cone and voice coil
	50 mfd., 150 volts and 1 section of 30 mfd., 150 volts		MISCELLANEOUS
73920 73562 70613 73553	Capacitor-Tubular, paper, .005 mfd., 400 volts. C4, C7 Capacitor-Tubular, paper, .02 mfd., 400 voltsC5 Capacitor-Tubular, paper, .03 mfd., 400 voltsC8 Capacitor-Tubular, paper, .05 mfd., 400 voltsC3	¥2231	Cabinet—Plastic cabinet—maroon—complete with grille screen, dial markings, top and bottom decorative strips, feet and "Phono" decal (Model XS51)
73551 73935 75485	Capacitor—Tubular, paper, 0.1 mfd., 400 volts	¥2261	Cabinet—Plastic cabinet—ivory—complete with grille screen, dial markings, top and bottom decorative strips, feet and "Phono" decal (Model X552)
75482	Connector-Phono input connector less mounting bracket J1	75659 75492	Cap—Pilot lamp cap Decal—''Phono'' decal
75483	Control-Volume control and power switch	74782	Emblem-"RCA Victor" emblem
70392	Cord-Power cord and plug	75495	Foot—Cabinet foot—(2 req'd) Knob—Tuning control knob—maroon—
72283	Grommet-Rubber grommet for variable tuning capacitor (3 reg'd)		(Model X551)
74838	Grommet-Power cord strain relief grommets	75494	Knob—Volume control and power switch knob— maroon (Model X551)
	(1 set) Resistor—Fixed, composition:	75605	Knob—Volume control and power switch knob— ivory (Model X552)
	47 ohms, ± 20%, ½ watt R13	75606	Knob-Tuning control knob-ivory- (Model X552)
	100 ohms, ± 20%, ½ watt R3 150 ohms, ± 20%, ½ watt R9	31480	Lamp-Pilot lamp-Mazda 47
	1200 ohms, ± 10%, 1 watt R10 22,000 ohms, ± 20%, 1/2 watt R1	74336	Nut-Spring nut to attach top decorative strip to cabinet (2 req'd) or bottom decorative strip to cabinet (1 req'd)
	47,000 ohms, ± 20%, ½ watt R12	74340	Nut-Speed nut to attach foot
	220,000 ohms, ± 20%, ½ watt R7	75489	Screen-Grille screen
	470,000 ohms, ± 20%, ½ watt. R8	74734	Spring-Retaining spring for knob
	1 megohm, ± 20%, ½ watt	75490	Strip—Decorative strip (gold) for cabinet top Strip—Decorative strip (gold) for cabinet
	3.3 megohm, ± 20%, ½ watt	(3431	front bottom

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

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Alignment Procedure

Test-Oscillator—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

On a.c. operation an isolation transformer (115 v./115 v.) may be necessary for the receiver if the test oscillator is also a.c. operated.

Lead Dress

- 1. Dress all capacitors down against chassis.
- Connect outside foil of all capacitors as indicated in schematic diagram.
- 3. Locate C9 in its mounting clip so that it butts against chassis
- 4. Dress power cord leads away from Rll.

Attachment of Record Player

The audio output cable of the record player should be terminated with a pin plug.

Plug the cable into the receptacle which is accessible through the side of the cabinet.

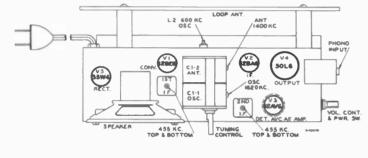
Insertion of the cable plug into the receptacle removes radio signal from the volume control. The record player cable must be removed from the receptacle to permit radio operation.

Steps	Connect the high side of test-oscillator to	Tune test-osc. to	Turn radio dial to—	Adjust the following for max. output	
1	12BA6 I-F grid through .01 mfd. capacitor	455 kc	Quiet-point 1600 kc	T2 (top and bottom) 2nd I-F trans.	
2	Stator of C1-2 through .01 mfd.	435 KC	end of dial	Ti (top and bottom) 1st I-F trans.	
3		1620 kc	Min. cap.	osc. trimmer	
4	Short wire	1400 kc	1400 kc signal	ant. trimmer	
5	placed near loop to radiate signal	600 kc	600 kc signal	L2 (osc.) Rock gang	
6		Repeat s	teps 3, 4 and 5		

POWER SUPPLY POLARITY.—For operation on d.c., the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c., reversal of the plug may reduce hum.

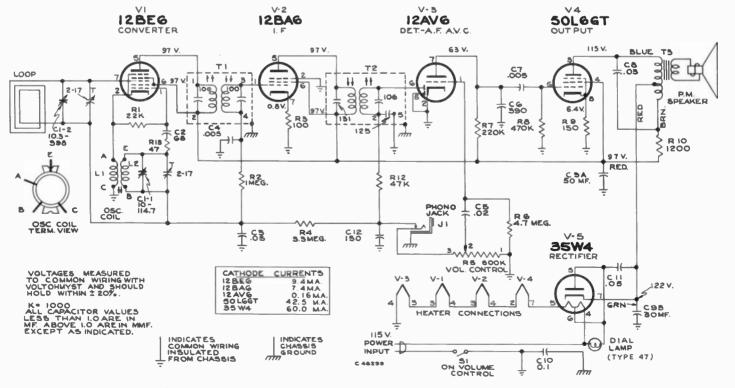
Change in Schematic Diagram:

Resistor R4 (3.3 meg. a.v.c. filter), previously connected to the junction of Rl2 (47K) and the phono jack (J1), is now connected to the junction of Rl2 and terminal #2 of the 2nd I-F transformer. The revised connection is illustrated below.



Tube and Trimmer Locations

 Image: Solution of the second seco



Change in Volume Control:

The volume control used in initial production was 500,000 ohms. This has been changed to a 1 megohm control.

Schematic Circuit Diagram





AM-FM Radio Receiver

MODEL X711

Chassis No. RC-1070A

SERVICE DATA

—1950 No. 17—

PREPARED BY RCA SERVICE CO., INC.

FOR

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION

CAMDEN, N. J., U. S. A.

Specifications

Tuning Ranges

Standard I	Broadcast	(AM)			540	-1,600	kc.
Frequency	Modulatio	on (Fl	M)	•••••	8	8-108	mc.

Intermediate Frequencies AM-455 kc., FM-10.7 mc.

Tube Complement

(1) RCA 19J6Mixer and Os	cillator
(2) RCA 6BJ6 I. F. An	nplifier
(3) RCA 12AU6	 Driver
(4) RCA 12AL5Ratio D	
(5) RCA 6AQ6 AM DetA. F	. Amp.
(6) RCA 35C5	Output
(7) RCA 35W4 R	ectifier

Power Supply:

This instrument will operate on 115 volts d.c. or 50 to 60 cycles a.c.

If the receiver does not operate on d.c., reverse the power cord. On a.c., reversal of the cord may reduce hum or improve FM reception.

Antennas:

These receivers have built-in antennas for standard broadcast (AM) and frequency modulation (FM) reception.

Under average conditions these antennas will provide satisfactory reception—however provision is made for the use of an external antenna for FM reception if desired.

- To use external FM antenna:
- 1. Remove the wire from under the No. 2 terminal screw of the antenna terminal board. The bare end of this wire should be taped to prevent contact with the antenna terminal screws.
- 2. Connect the transmission line from an external FM dipole antenna to the No. 1 and No. 2 terminals of the antenna terminal board.
- To use built-in FM antenna:
- The wire extending thru the back of the cabinet must be connected to No. 2 terminal of the antenna terminal board.
- 2. The power cord should be fully extended and must not be coiled or hanked up.
- Reversal of the line cord plug may improve reception.
 DO NOT USE EXTERNAL GROUND.

Type 92572-4W
Tuning Drive Ratio 111/2:1 (5% turns of knob)
Power Supply Rating 115 volts d.c. or 50 to 60 cycles a.c
Power Output Maximum
Cabinet Dimensions Height8% in. Width12% in. Depth7%16 in.

CAUTION:

Loudspeaker

THE CHASSIS IS CONNECTED TO ONE SIDE OF THE POWER SUPPLY. Use caution to prevent contact with pipes, radiators, etc., when servicing with chassis removed from cabinet.

Control Knobs:

DO NOT ATTEMPT TO REMOVE THE CONTROL KNOBS FROM THE CABINET. The knobs have spring retainers on the inside of the cabinet to prevent their removal. The retainers are accessible only after the chassis has been removed from the cabinet.

Removal of Chassis:

- Remove the four screws at the corners of the back cover pull back cover off carefully—the power cord plug and socket at the bottom right-hand corner will pull apart but the antenna leads remain connected.
- 2. Unhook the dial cord from the pointer.
- Remove the four screws which hold the chassis to the cabinet (two at sides of chassis base and two on dial cord pulley brackets above the chassis base).
- 4. Pull the chassis to the rear—the knobs will be retained with the cabinet.

If removal of the chassis is not necessary when servicing, the back cover may be placed on the supports molded into the upper part of the cabinet.



X711

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Alignment Procedure

CORRECT ALIGNMENT OF THE FM BAND REQUIRES THAT THE AM BAND BE ALIGNED FIRST

Output Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter across the speaker voice coil.

The RCA VoltOhymst can also be used as an AM alignment indicator, either to measure audio output or to measure a-v-c voltage.

When audio output is being measured the volume control should be turned to maximum.

Signal Generator:

For all alignment operations except as stated in the tabulation connect the low side of the signal generator to the receiver chassis. The output should be adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to avoid a-v-c action.

CAUTION:

The chassis is connected to one side of the power supply. On a.c operation it is recommended that an isolation transformer (115 v./115 v.) be used for the receiver when servicing.

Oscilloscope Alignment:

The FM I. F. alignment may be checked using a sweep generator and an oscilloscope. Shunt terminals B and C of T3 with a 1,200 ohm resistor. Connect the high side of the oscilloscope to terminal C of T3 in series with a diode probe. Apply the output of the sweep generator (10.7 mc with ± 250 kc. sweep) to pin No. 1 of V2 (6BJ6) in series with .01 mf. Low side of the oscilloscope and sweep generator to chassis. This will show the response of T2.

To check the combined response of Tl and T2; connect the sweep generator to the antenna terminal board—high side to No. 2 terminal in series with 300 chms and low side to No. 1 terminal. Oscilloscope connections as previously connected.

To check the ratio detector response; connect the high side of the oscilloscope direct to terminal No. 5 of S1-1 rear, low side to chassis, apply the output of the sweep generator to pin No. 1 of V3 (12AU6) in series with .01 mf. Driver plate circuit connected for normal operation (1200 ohm resistor removed). Note: It is difficult to observe marker signals in this step—center frequency and sweep width should be previously observed.

Alignment Indicator:

The dial and dial back plate are not attached to the chassis. During alignment a substitute frequency indication must be used. We suggest attaching a paper clip to the dial drive cord so that its movement may be measured—refer to the "Dial Scale" illustration on page 5.

CRITICAL LEAD DRESS

- All connections in the mixer-oscillator circuit are extremely critical both in regard to lead length and lead dress. Do not disturb unless necessary—make careful notation before servicing if it becomes necessary to disturb this wiring.
- The ground lead from pin No. 2 of V3 (12AU6 Driver) is critical in length and must be dressed down against chassis.
- Dress audio coupling capacitor C23 away from output transformer.
- 4. Dress diode filter unit away from alignment hole in T-2.
- 5. Dress grid lead of V3 (pin 1 of 12AU6) against chassis apron.
- 6. Dress plate lead of V1 (pin No. 2 of 19J6) against chassis.
- Dress loop antenna leads so as to prevent contact with external antenna terminal board.
- All ground connections to chassis should be restored to the original places of connection if disturbed.
- 9. Dress capacitor C13 down close to range switch so as to clear the projection on the bottom of the cabinet.
- 10. The FM ant. and osc. coils must be cemented to the coil support to prevent microphonic howl on FM. Amphenol No. 912 cement is recommended for this purpose. Amphenol No. 916 solvent is recommended as solvent if it becomes necessary to loosen the windings.

AM Alignment

RANGE SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to	Sig. gen. output	Turn radio dial to	Adjust for peak output
1	AM ant. section (C3)	AFF be	Quiet point	AM windings.† T2 bottom core (sec.). T2 top core (pri.).
2	of tuning cond. in series with .01 mfd.		at low freq. end.	AM windings.† Tl top core (sec.). Tl bottom core (pri.).
3	Short wire	1620 kc.	Extreme high frequency end.	Cl2 osc.
4	loop antenna for radiated	1400 kc.	1400 kc.	C4 ant.
5	signal.	600 kc.	600 kc.	L4 osc. (Rock gang.)
6	Repeat Steps	3, 4 and	5.	D

†Use alternate loading.

Alternate loading involves the use of a 10,000 chm resistor to load the AM plate winding while the AM grid winding of the SAME TRANSFORMER is being pecked. Then the grid winding is loaded with the resistor while the plate winding is pecked. Only one winding is loaded at any one time. Remove the 10,000 chm resistor after T2 and T1 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

FM Alignment

RANGE SWITCH IN FM POSITION-VOLUME CONTROL MAXIMUM

Steps	Connect high side of sig. gen. to	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	lead of the 2 i	míd, capacito st sig, gen, c	r C32 and the utput to prov	to the negative common lead to de approx.—3 v.
2	Pin 1 of 12AUS in series with .01 mfd.			T3 top core for max. d-c voltage across C32. T3 bottom core for min. audio output.*
3	No. 2 ant. term in	10.7 mc. modulated 30% 400 cycles AM.	(fully	FM Windings.†† T2 top core (sec.). T2 bottom core (pri.).
4	series with a 300 ohm resistor. Connect low side to No. 1 terminal. (Remove ant. lead from No. 2 term.)			FM Windings.† Tl top core (sec.). Tl bottom core (pri.).
5		106 mc.	106 mc.	Ll osc.** Cl5 ant.
6		90 mc.	90 mc.	L5 ant.** (Rock gang.)
7	Repeat Steps improve calibr		il further adju	astment does not

• Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.

++ Align T2 and T1 by means of alternate loading as explained under AM alignment. Use a 680 chm resistor instead of a 10,000 ohm resistor and load the FM windings.

•• Ll and L5 are adjustable by increasing or decreasing the spacing between turns.

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X711

X711

66

Replacement Parts

Stock No.

73978

74179 73117

75790

74014

74038

73979

73980

75789

73745

73974

73743

73976

33726

75791

73332

73900

75793

75797

Y2275 75795

74782

75794

75885 31480

72765

73989

73991

73992

14270

6

			Replacen
DRIV	CORD DRUM	Stock No.	DESCRIPTION
Q PI	ALLEY TENSION		CHASSIS ASSEMBLIES RC 1070A
	SHAFT SPRING	73973	Capacitor—Variable tuning capacitor (C3, C4, C7, C11, C12, C14 C15) Capacitor—Ceramic, 2 mmf. (C5)
	WN WITH TUNING 22 TURNS DENSER AT MAX.	39044 73867	Capacitor—Ceramic, 15 mmf. (C9) Capacitor—Ceramic, 56 mmf. (C9)
CAF	ACITY (FULLY CLOSED)	73499 75612 39628	Capacitor—Ceramic, 56 mmf. (C25, C37) Capacitor—Ceramic, 68 mmf. (C6) Capacitor—Mica, 100 mmf. (C20)
	Dial Indicator and Drive Mechanism	44202 75792 39640	Capacitor—Ceramic, 150 mmf. (C13) Capacitor—Ceramic, 330 mmf. (C10) Capacitor—Mica, 330 mmf. (C16, C27, C28)
	SOFT AM	71501 74009	Capacitor—Ceramic, 1500 mmf. (C2) Capacitor—Ceramic, dual 4000 mmf. (C19A, C19B,
	OFF LOUD RANGE SW. POWER-VOLUME TUNING RANGE	73473 73747	C24A, C24B, C34A, C34B) Capacitor—Ceramic, 5000 mmf. (C1, C18, C31) Capacitor—Electrolytic, 2 mfd, 50 volts (C32)
	Controls Ant. and Osc. Coil Locations (Side View)	73975	Capacitor—Electrolytic, comprising 1 section of 80 mfd, 150 volts, 1 section of 40 mfd, 150 volts and 1 sec- tion of 20 mfd, 25 volts (C35A, C35B, C35C)
	POINTER POSITION - TUNING CONDENSER MAX. CAPACITY (CLOSED)	73186 73750 71926	Capacitor—Tubular, paper, .001 mid, 400 volts (C26) Capacitor—Tubular, paper, .002 mid, 200 volts (C29) Capacitor—Tubular, paper, .005 mid, 200 volts (C22)
FM	88 90 92 96 100 104 108 FM	71923 74010 73553 73551	Capacitor—Tubular, paper, .01 mid, 200 volts (C23, C36, C38) Capacitor—Tubular, paper, .02 mid, 400 volts (C33) Capacitor—Tubular, paper, .05 mid, 400 volts (C17, C30) Capacitor—Tubular, paper, 0.1 mid, 400 volts (C21)
AM	55° 60° 70° 80° 100° 120° 140° 160° am	73744 74012 74013	Coil—Oscillator coil—A-M (L2, L3, L4) Coil—Oscillator coil—F-M (L1) Coil—Antenna coil—F-M (L5)
	RCAVICTOR	73981	Coil—Line choke coil (#18 gauge solid wire, ½2" plastic insulation, standard hook-up wire, 10 turns, close wind) (L6, L7) Connector—2 contact male connector for power input
	Dial Scale	38406 †72953 74011	Control—Volume control and power switch (R9, S2) Cord—Drive cord (approx. 50" overall length required) Filter—Diode filter comprising 2 sections of 200 mmf.
	The dial scale drawing shown is a full size reproduction. It can be used as a reference in alignment procedure.	72283	and l section of 47,000 ohms (DF-1) Grommet—Rubber grommet for mounting tuning ca- pacitor (4 req'd)
1	$\frac{1}{2}$		Resistors—Fixed, composition:— 82 ohms, ±10%, ½ watt (R5) 100 ohms, ±5%, ½ watt (R15)
			100 ohms, ±20%, ½ watt (R3) 180 ohms, ±10%, ½ watt (R21) 330 ohms, ±10%, ½ watt (R11)
			680 ohms, ±20%, ½ watt (R6, R12) 1000 ohms, ±10%, 1 watt (R22)
	TOP 10.7 MC. SEC. BOT. 455 KC. SEC. ANT. PHONO		1200 ohms, ±5%, ½ watt (R16) 3300 ohms, ±5%, ½ watt (R17) 18,000 ohms, ±10%, ½ watt (R2, R7, R8, R28)
10.7	MC. TOP RESONANCE BOTTOM CENTERING TOP 455 KC. PRI. BOT. 10.7 MC. PRI. C15 106 MC. FM ANT.	+ Stauk	39,000 ohms, ±5%, ½ watt (R23)
_		+ Stock	No. 72953 is a reel containing 250 feet of cord. APPLY TO YOUR RCA DISTRIBUTOR
	(12AL5) T3 DRIVER T2 BOT. 1.F. L.F. T1 TOP 10.7 MC. SEC. BOT. 10.7 MC. PRI.		
	RATIO DET. BET. & 6AQ6 C 35 A		
	(35W4) C 35 B (35W4) C 11 C 12 1400 KC. AM OSC.		
	RECT. (35C5) C7 (19J6)		
	C-48308 MIXER & OSC.		
	OL. CONT. I-OFF SW.		

Tube and Trimmer Locations (Top View)

PULLEY ()

DESCRIPTION 39,000 ohms, ±10%, ½ watt (R18, R27) 680,000 ohms, ±20%, ½ watt (R14) 820,000 ohms, ±10%, ½ watt (R20) 1 megohm, ±20%, ½ watt (R10, R25) 2.2 megohm, $\pm 20\%$, $\frac{1}{2}$ watt (R16, R25) 3.9 megohm, $\pm 10\%$, $\frac{1}{2}$ watt (R1) 10 megohm, ±20%, ½ watt (R13) 22 megohm, ±20%, ½ watt (R19) Shaft—Tuning knob shaft Socket-Tube socket, 7 pin, miniature for V1 Socket—Tube socket, 7 pin, miniature for V2, V3, V4, V5, V6, V7 Socket—Phono input socket and terminal board as-sembly (11) Socket-Dial lamp socket Spring-Drive cord spring Support—Dial drive cord pulley support complete with two (2) pulleys—L. H. Support-Dial drive cord pulley support complete with pulley-R. H. Switch—Range switch (SI-1) Transformer—First I-F transformer—dual (TI) Transformer—Second I-F transformer—dual (T2) Transformer—Ratio detector transformer (T3) Transformer—Output transformer (T4) Washer-"C" washer for tuning knob shaft Washer—Insulating washer (shoulder type) for mount-ing phono input socket and terminal board assembly (2 req'd) Washer-Insulating washer (flat) for mounting phono input socket and terminal board assembly (2 req'd) SPEAKER ASSEMBLIES 92572-4 Speaker—5" speaker complete with cone and voice coil MISCELLANEOUS Back—Cabinet back complete with power cord, con-nector and loop

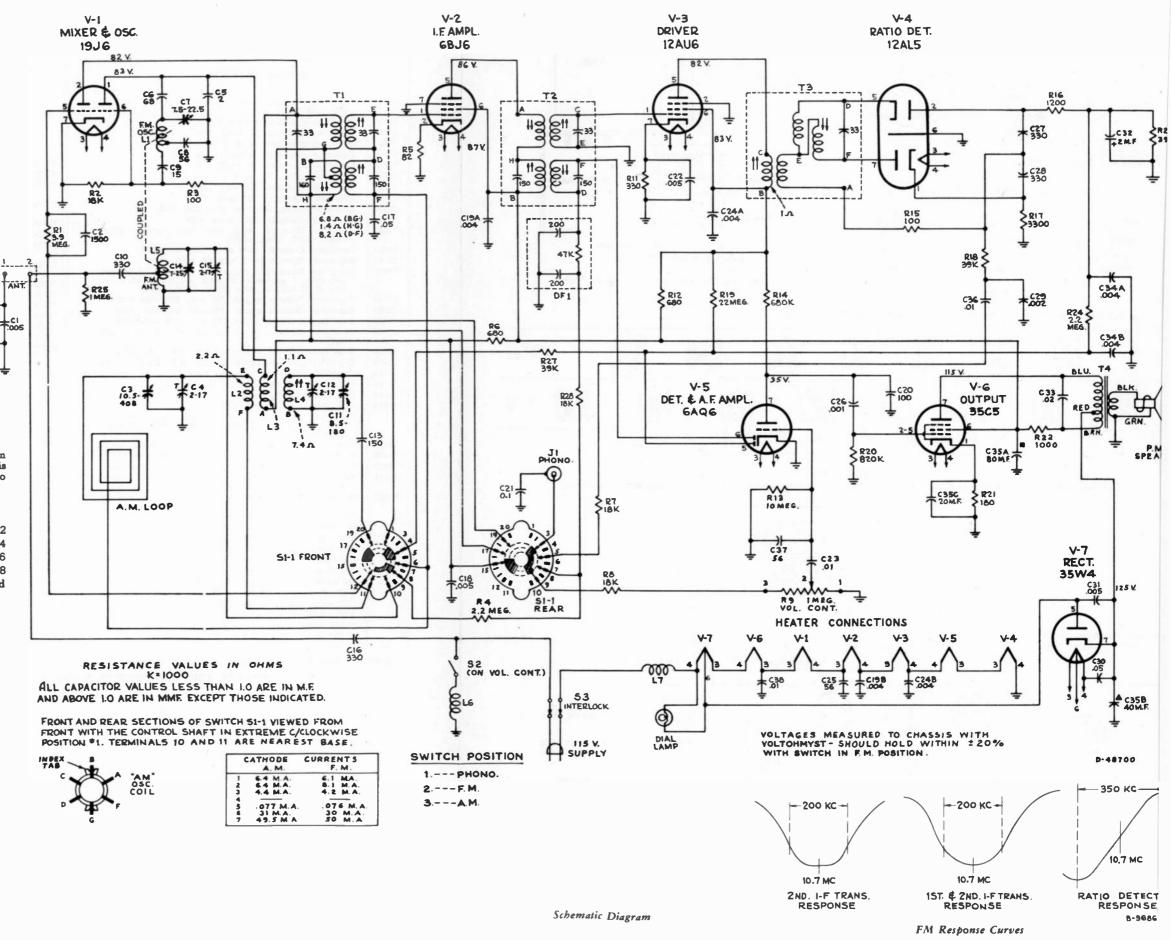
Bezel—Cabinet bezel and grille cloth assembly less "RCA Victor" emblem Cabinet-Maroon plastic cabinet Dial-Polystyrene dial scale Emblem-"RCA Victor" emblem Knob—Range switch knob—marcon Knob-Tuning control or volume control knob-maroon Lamp—Dial lamp—Mazda #47 Nut-Speed nut for mounting dial Plate—Dial back plate Pointer-Station selector pointer Retainer-Knob retainer (knob to cabinet)

Spring-Retaining spring for knobs (knob to shaft)

ISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

63 X711

64 X711



4

Change in Range Switch:

The initial production used a range switch as shown in X711 Service Data. Later production will use a switch that is slightly different. They are interchangeable and involve no change in replacement parts.

Wiring changes are as follows: FRONT SECTION *Term. #4 to Term. #5

Term. #6 to Term. #7

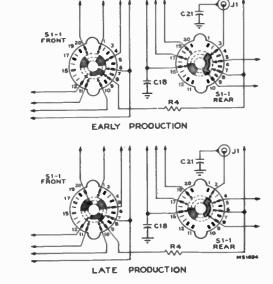
Term. #8 to Term. #9

REAR SECTION Term. #3 to Term. #2

Term. #5 to Term. #4 Term. #7 to Term. #6 Term. #9 to Term. #8

RIO

*(The lead which was connected to Term. #4 is now connected to Term. #5, etc.)



Range Switch Connections-X711 .





Radio Phonograph Combination

MODEL 9Y510

Chassis No. RC 1077A

Record Changer RP 190-1

SERVICE DATA

- 1950 No. 18 -

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

 Tuning Range
 .540-1600 kc

 Intermediate Frequency
 .455 kc

 Tube Complement
 .

 1. RCA-12BE6
 .Converter

 2. RCA-12BA6
 .I-F Amplifier

 3. RCA-12AV6
 .Det., AVC., A-F Amplifier

 4. RCA-SOL6GT
 .Output

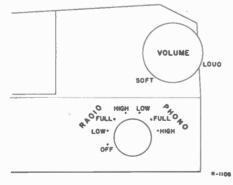
 5. RCA-35W4
 .Rectifier

 Power Supply Rating
 .115 volts, 60 cycles a.c., 60 watts

 Dial Lamps (2)
 .Mazda type 1490, 3.2 volts, 0.16 amp.

ACA TU

Loudspeaker (92585-1)



Controls-End View

Service Hints

The tubes and the dial lamps are accessible by removing the panel-in the front of the record changer compartment.

The chassis metal mounting plate should be flush against the front of the cabinet.

The position of the speaker is adjustable. When correctly positioned, it should set firmly against the front of the cabinet but with no undue strain on the speaker.

Power Output		
Undistorted		1 watt
Maximum		
Cabinet Dimensions Height 7¾″	Width 12%"	Depth 14¼"
Tuning Drive Ratio		(3¾ turns of knob)
Record Changer (RP	190-1)	
Turntable speed		
Records used	RC	A—7 in. fine groove
Record capacity		12 records
Pickup (Stock No. 754	76) Crys	stal (medium output)

FOR RECORD CHANGER SERVICE INFORMATION - REFER TO RP 190 SERIES SERVICE DATA

Chassis No. RC-1077C

Service Data:

Late production of Model 9Y510 uses chassis stamped RC-1077C. This chassis is identical to chassis stamped RC-1077A except for the following:

Speaker stamped 92585-3 is used instead of 92585-1. This speaker is rim mounted instead of pot mounted.

The tuning condenser shaft extends approx. $\frac{3}{2}$ beyond the drive cord pulley instead of $\frac{1}{4}$. This permits the use of a new type of drive cord tension spring.

Replacement Parts:

and voice coil

5	Stock No.	CHASSIS ASSEMBLY RC-1077C
		Same as RC-1077A except:
7	6393	Bracket—Speaker mounting brackets and screws (1 set)
		If tuning condenser is replaced, use condenser and drive cord spring same as for RC-1077A
7	6368	Spring—Drive cord tension spring SPEAKER ASSEMBLY 92585-3
7	76394	Speaker—5" x 7" PM speaker complete with cone

Alignment Procedure

Output Meter—Connect meter across speaker voice coil. Turn volume control to maximum.

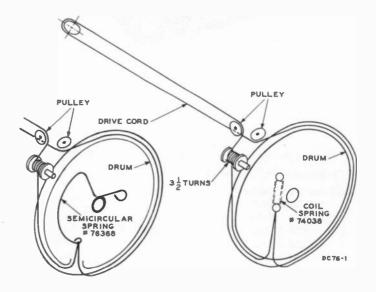
Test Oscillator—Connect low side of test oscillator to common wiring in series with a .l mf. capacitor. If the test oscillator is a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the test oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Dial Pointer Adjustment—Rotate tuning condenser until the plates are fully open. Adjust indicator pointer to 1630 kc (extreme high frequency end of the scale).

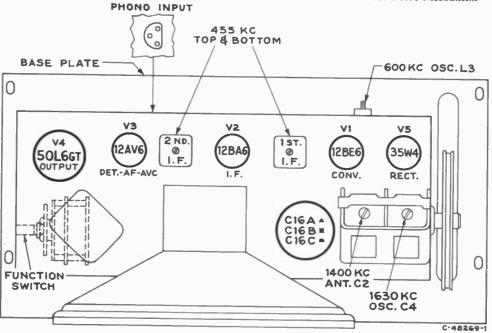
			1	
Steps	Connect the high side of test to—	Tune test-osc. to—	Turn radio dial to—	Adjust the fol- lowing for max. output
1	I.F. grid, in series with .1 mfd.		Quiet point	Pri. & Sec. 2nd I.F. transformer
2	Converter grid in series with .1 mfd.		1,600 kc end of dial	Pri. & Sec. lst I.F. transformer
	NOTE - ANTER	NNA LOOP	AND RECORD	CHANGED
	MUST BE IN	CABINET F	OR THE FOLI	LOWING
3	MUST BE IN	1,630 kc	Extreme R. H. end (gang open)	1,630 KC trimmer (osc.)
3	MUST BE IN Short wire placed near loop for radiated	CABINET F	OR THE FOLI Extreme R. H. end	LOWING
3 4 5	MUST BE IN (Short wire placed near loop for	1,630 kc	OR THE FOLI Extreme R. H. end (gang open)	1,630 KC trimmer (oec.)

LEAD DRESS

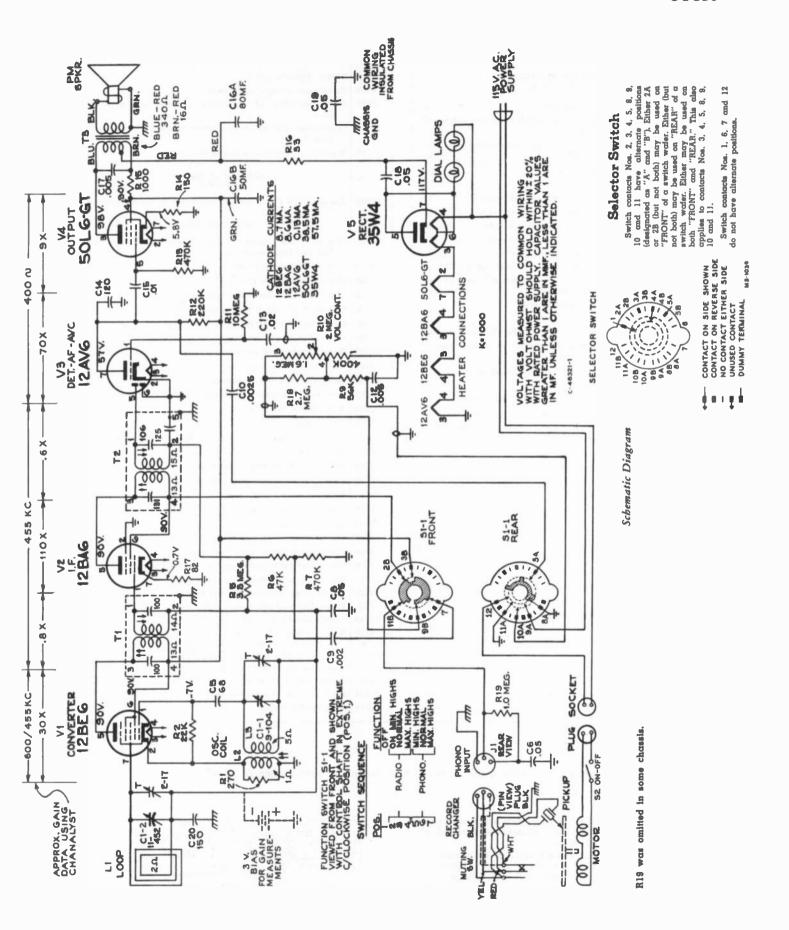
- 1. Dress all heater leads and pilot light leads down to chassis and as far as possible from all audio grid and plate wiring.
- Dress all exposed leads away from each other and away from chassis to prevent short circuits.
- 3. Dress lead from R.F. section of gang to VI pin 7 direct but away from chassis base to reduce capacity, also away from fuse resistor.
- Dress lead from oscillator section of gang to oscillator coil direct but away from chassis base to reduce capacity.
- 5. Connect capacitor C20 with short leads between gang frame and mounting bracket.
- 6. Dress output transformer leads down to base.
- 7. Dress loop antenna leads away from gang plates and tubes.
- 8. Dress 33 ohm limiting resistor away from chassis.



Dial Drive Mechanism



Tube and Trimmer Locations



Replacement Parts

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	75910	Switch—Function switch.
	RC 1077A	74654	Transformer—Output transformer
75909	Antenna—Antenna loop assemblyLl	75486	Transformer—First I.F. transformer complete with adjustable
74705	Bracket—Drive cord pulley bracket (R.H.) complete with two (2)		cores
	pulleys less long bracket.	75487	Transformer—Second I.F. transformer complete with adjustable
74704	Capacitor—Variable tuning capacitor—less bracket Cl-1, Cl-2		cores
39624	Capacitor—Mica, 68 mmf	33726	Washer—``C'' washer for tuning knob shaft
39630	Capacitor—Mica, 120 mmf		
39632	Capacitor—Mica, 150 mmf		SPEAKER ASSEMBLIES 92585-1
73803	Capacitor-Tubular, paper, .002 mfd, 400 volts	74706	Speaker—5'' x 7'' P.M. speaker complete with cone and voice coil
73599	Capacitor-Tubular, paper, .0025 mfd, 400 volts		opedael o x 1 1.1.1. speciel complete with cone did voice con
73920	Capacitor-Tubular, paper, .005 mfd, 400 volts		MISCELLANEOUS
73561	Capacitor-Tubular, paper, .01 mfd., 200 volts	¥2292	Cabinet—Plastic cabinet—marcon—less lid, lid support, metal
73562	Capacitor-Tubular, paper, .02 mfd., 400 volts		grille and hinge assemblies
73553	Capacitor—Tubular, paper, .05 mfd., 400 volts, C6, C8, C18, C19	74713	Clamp-Dial clamp (2 req'd)
75911	Capacitor—Electrolytic comprising 1 section of 80 mfd., 150 volts	73508	Clip—Spring clip for knob #74710
	and 1 section of 50 mfd, 150 volts	75912	Clip—Spring clip for radio compartment back panel
73935	Clip—Mounting clip for I.F. transformer	30870	Connector-2 contact male connector for motor cable
74448	Coil—Oscillator coilL2	74192	Connector—3 contact male connector for phono cable
36422	Connector—3 contact female connector for phono input cable,Jl	74682	Decal-Function switch decal
30868	Connector-2 contact female connector for motor cable, P3	74273	Decal—Trade mark decal (Victrola)
74702	Control-Volume control	74722	Dial-Polystyrene dial scale
† 7295 3	Cord—Drive cord (approx. 49" over-all length required)	74782	Emblem — "RCA Victor" emblem
70392	Cord—Power cord and plug		
74454	Gasket—Rubber gasket between speaker and cabinet	33317	Fastener—Push fastener for antenna loop mounting bracket
74838	Grommet—Strain relief grommet (1 set)	72894	Foot-Rubber foot (4 req'd)
72283	Grommet—Rubber grommet to mount tuning capacitor	74707	Grille—Metal grille
72602	Pulley—Drive cord pulley	75697	Grommet—Rubber grommet for mounting record changer
72313	Resistor—Fuse type, 33 ohms	75915	Hinge—Cabinet lid hinge (2 req'd)
	Resistor-Fixed, composition:	74709	Indicator—Station selector indicator
	82 ohas, ± 10%, ½ watt	74710	Knob—Volume control or tuning knob
	150 ohms, ± 10%, ½ watt	74711	Knob-Function switch knob
	270 ohms, ±10%, ½ watt	71116	Lamp—Dial lamp—Type 1490
	1000 chms, ±10%, 1 watt	75914	Lid—Cabinet lid only
	22,000 ohms, ± 20%, ½ watt	74717	Mask—End mask for dial (2 req'd)
	47,000 ohms, ± 20%, ½ watt	74708	Motif—Decorative motif for front of cabinet
	56,000 ohms, ±10%, ½ watt	74788	Nut—Speed nut for radio compartment back panel clips
	220,000 ohms, ± 20%, ½ watt	72765	Nut—Speed nut to fasten decorative motif
	470,000 ohms, ± 20%, ½ watt	74715	Panel—Radio compartment back panel
	2.7 megohms, ± 10%, ½ watt	74721	Plate—Dial back plate—less dial
	3.3 megohms, ± 20%, ½ watt	73728	Screen-Ventilation screen
74701	10 megohms, ± 20%, ½ watt	74716	Screw—#6-32 x $^{1}\!$
73584 70827	Shield—Tube shield for 12AV6 Socket—Tube socket, octal, wafer	75913	Screw-#10-32 x ¾'' cross recessed round head machine screw for mounting record changer
73117	Socket-Tube socket, 7 pin, miniature	14270	Spring—Retaining spring for knob #74711
72998	Socket—Dial lamp socket and lead	71824	Stud—Cabinet lid hinge stud and screw (2 req'd)

† Stock No. 72953 is a reel containing 250 feet of cord.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS.

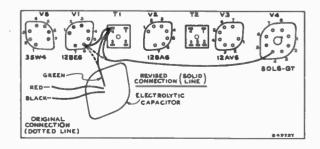
Change in Wiring:

Failure of operation at the low frequency end was experienced on some chassis when the instrument was turned off and subsequently turned on again.

Engineering has determined the trouble to be caused by high frequency oscillation of the mixer stage resulting in a blocking action due to an increase in A.V.C. voltage.

The following wiring change was made to eliminate the problem:

The electrolytic capacitor green lead and the red wire from pin 4 of 50L6 tube socket were changed from pin 6 of the 12BE6 (mixer) tube socket to pin 4 of the first I.F. transformer. This change did not alter the circuit but merely changed the connection points of the leads as illustrated below.







Pited

THE CHASSIS USED IN MODEL 9Y511 DIFFERS FROM MODEL 9Y510 ONLY IN THE LOOP ANTENNA. REFER TO MODEL 9Y510 FOR FURTHER INFORMATION. **Radio Phonograph combination**

MODEL 9Y511

Chassis No. RC 1077B Record Changer RP 168K-4

SERVICE DATA

-1950 No. 27-

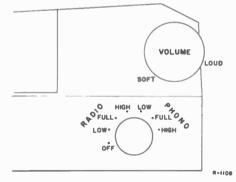
PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tuning Range	40-1600 kc
Intermediate Frequency	455 kc
Tube Complement	
1. RCA-12BE6	Converter
2. RCA-12BA6I-I	F Amplifier
3. RCA-12AV6Det., AVC., A-I	F Amplifier
4. RCA-50L6GT	Output
5. RCA-35W4	-

Power Supply Rating....115 volts, 60 cycles a.c., 60 watts

Dial Lamps (2).....Mazda type 1490, 3.2 volts, 0.16 amp. Loudspeaker (92585-1)





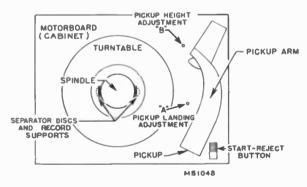
Care of Stylus

The record changer stylus is protected by a permanent metal guard. LINT MÄY COLLECT TO CLOG THE OPENING IN THE GUARD AT THE STYLUS POINT AND CAUSE POOR RECORD REPRODUCTION. This may require occasional cleaning of the guard opening—clean by carefully brushing with a small soft brush.

Power Output		
Undistorted		l watt
Maximum		
Cabinet Dimensions Height 7¾"	Width 12%"	Depth 14¼''
Tuning Drive Ratio		(3¾ turns of knob)
Record Changer (RP]	68K-4)	
Turntable speed		
Records used	RC.	A-7 in. fine groove
Record capacity		Up to 10 records

FOR RECORD CHANGER SERVICE INFORMATION - REFER TO RP 168 SERVICE DATA

Pickup (Stock No. 74068) Crystal (medium output)



Record Changer-Top View

Service Hints

The tubes and the dial lamps are accessible by removing the panel in the front of the record changer compartment.

The chassis metal mounting plate should be flush against the front of the cabinet.

The position of the speaker is adjustable. When correctly positioned, it should set firmly against the front of the cabinet but with no undue strain on the speaker.

Replacement Parts T

-

STOCK NO.	DESCRIPTION		STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES		74654	Transformér—Output transformer
	RC 1077B		75486	Transformer—First I.F. transformer complete with adjustable
74703	Antenna — Antenna loop assembly			cores
74705	Bracket—Drive cord pulley bracket (R.H.) complete with two (2)		75487	Transformer—Second I.F. transformer complete with adjustable
	pulleys less long bracket.			cores
74704	Capacitor—Variable tuning capacitor—less bracket		33726	Washer—"C" washer for tuning knob shaft
39624	Capacitor—Mica, 68 mmf			
39630	Capacitor—Mica, 120 mmf			SPEAKER ASSEMBLIES
39632	Capacitor—Mica, 150 mmf			92585-1
73803	Capacitor—Tubular, paper, .002 mfd, 400 volts		74706	Speaker—5" x 7" P.M. speaker complete with cone and voice coi
73599	Capacitor—Tubular, paper, .0025 mfd, 400 volts			
73920	Capacitor—Tubular, paper, .005 mfd, 400 voltsC12, C17			MISCELLANEOUS
73561	Capacitor—Tubular, paper, .01 mfd., 200 volts		¥2137	Cabinet—Plastic cabinet—marcon—less lid, lid support, meta
73562	Capacitor—Tubular, paper, .02 mfd., 400 volts			grille and hinge assemblies
73553	Capacitor—Tubular, paper, .05 mfd., 400 volts, C6, C8, C18, C19		74713	Clamp—Dial clamp (2 req'd)
75911	Capacitor—Electrolytic comprising 1 section of 80 mfd., 150 volts		73508	Clip—Spring clip for knob #74710
	and 1 section of 50 mid, 150 volts		74719	Clip—Spring clip for radio compartment back panel
73935	Clip—Mounting clip for I.F. transformer		74192	Connector—3 contact male connector for phono cable
74448	Coil-Oscillator coil		74682	Decal—Function switch decal
36422	Connector—3 contact female connector for phono input cable,Jl		74273	Decal—Trade mark decal (Victrola)
30868	Connector-2 contact female connector for motor cable, P3		74722	Dial-Polystyrene dial scale
74702	Control-Volume control		74782	Emblem-"RCA Victor" emblem
†72953	Cord—Drive cord (approx. 49'' over-all length required)		72894	Foot—Rubber foot (4 req'd)
70392	Cord—Power cord and plug	1	74707	Grille—Metal grille
74454	Gasket—Rubber gasket between speaker and cabinet		72692	Hinge-Cabinet lid hinge (2 reg'd)
74838	Grommet—Strain relief grommet (1 set)		74709	Indicator—Station selector indicator
ſ	Grommet—Rubber grommet to mount tuning capacitor		74710	
I	Pulley-Drive cord pulley	- 1		Knob-Volume control or tuning knob
I	Resistor-Fuse type, 33 ohms		74210	Knob—"Start-Reject" Knob
	Resistor-Fixed, composition:		74711	Knob—Function switch knob
	82 ohms, ±10%, ½ watt		71116	Lamp—Dial lamp—Type 1490
	150 ohms, ±10%, ½ wattR14		74940	Lever—"Start-Reject" actuating lever
I	270 ohms, ±10%, ½ watt		74720	Lid—Cabinet lid only
	1000 ohms, ± 10%, 1 wattB15		74717	Mask—End mask for dial (2 req'd)
	22,000 ohms, ± 20%, ½ watt		74708	Motif—Decorative motif for front of cabinet
	47,000 ohms, ± 20%, ½ watt		74623	Mounting—One set of hardware consisting of 3 rubber grommets, 3 flat washers, and 3 eyelets to mount record changer
	220,000 ohms, ± 20%, ½ watt		74212	Nut—Speed nut for reject knob
	470,000 ohms, ±20%, ½ watt		74788	Nut—Speed nut for "Start-Rejet" actuating lever
	1.0 megohm, ± 10%, ½ watt		72765	Nut—Speed nut to fasten motif (1 rsq'd) or to fasten dial (2 req'd)
	2.7 megohms, ±10%, ½ watt		74715	Panel—Radio compartment back panel
	3.3 megohms, ± 20%, ½ watt		74721	Plate—Dial back plate—less dial
	10 megohms, ±20%, ½ watt		73728	Screen-Ventilation screen
	Shaft—Tuning knob shaft and pulley		74716	Screw-#6-32 x 1/4" cross recessed oval head machine screw
	Shield-Tube shield for 12AV6			for radio compartment back panel (3 req'd)
	Socket—Tube socket, octal, wafer		76000	Screw—#6-32 x ¼" special head screw to mount hinges
	Socket-Tube socket, 7 pin, miniature		74718	Spring—Return spring for "Start-Reject" actuating lever
72998	Socket—Dial lamp socket and lead		14270	Spring—Retaining spring for knob #74711
			71004	
	Spring—Drive cord spring Switch—Function switch		71824	Stud—Cabinet lid hinge stud and screw (2 req'd) Support—Lid support

† Stock No. 72953 is a reel containing 250 feet of cord.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS.



45-EY Two-tone pickup arm

45-EY-1 Maroon pickup arm



45-EY-15

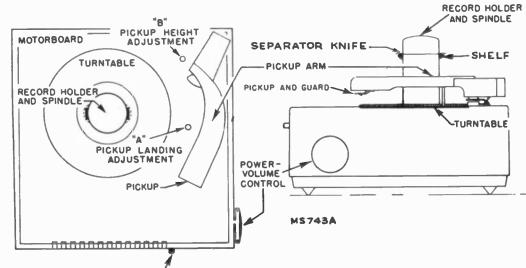
Model 45-EY uses Chassis No. RS-132. RS-132-A or RS-132-F. Model 45-EY-1 uses Chassis No. RS-132-F. Model 45-EY-15 uses Chassis No. RS-132-H.

Power Supply Rating

Undistorted 1.0 watt Maximum 1.25 watts

Record Changer

Turntable speed	45 r.p.m.
Records used RCA 7 in.	fine groove
Record capacity up to	
PickupCrystal (med	lium output)
Stock No. 74067 used with RS-132, RS-132-F	or RS-132-H.
Stock No. 74625 used with RS-132-A.	



Pickup Height Adjustment "B"

During cycle the pickup arm must rise high enough to clear a stack of ten records on the turntable, but not high enough to cause the top of the arm to touch records resting on the record supports.

If pickup does not clear a stack of ten records—turn screw "B" slightly clockwise. If pickup arm touches records on record supports—turn screw "B" slightly counterclockwise.

Tube Complement

1.	RCA	12AV6 Amplifier
2.	RCA	50C5 (in RS-132 or RS-132-Å) Output
	RCA	50B5 (in RS-132-F or RS-132-H) Output
3.	RCA	35W4Rectifier

Loudspeaker (92577-6W)

Size and type					4 ii	n. P.M.
Voice coil imp	edance	3.2	ohms	at	400	cycles

Dimensions (overall)

Height, 7% " Width, 918 " Depth, 9%"

REJECT BUTTON

The pickup point should land half-way between the outer

If the pickup lands inside the starting grooves—turn screw

"A" slightly clockwise. If pickup lands outside the starting grooves—turn screw "A" slightly counterclockwise.

Pickup Landing Adjustment "A"

edge of the record and the first music groove.

......OutputOutputRectifier

Specifications

Automatic Record Player

Models 45-EY, 45-EY-1, 45-EY-15

Chassis Nos. RS-132, RS-132A, RS-132F, RS-132H

SERVICE DATA

PREPARED BY RCA SERVICE CO., INC.

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

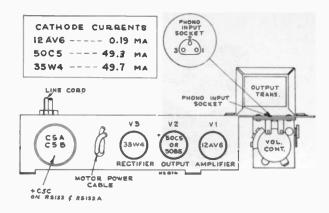
FOR RECORD CHANGER SERVICE INFORMA-TION—REFER TO RP-168 SERIES SERVICE DATA.

45-EY, 45-EY-1, 45-EY-15

Amplifier Chassis

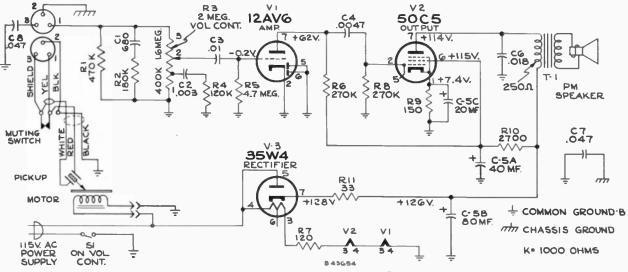
Three different amplifier chassis have been used in Model 45-EY.

Chassis No. RS-132 and RS-132-A use a 50C5 output tube. Chassis No. RS-132-F uses a 50B5 output tube. Crystal pickup Stock No. 74067 is used in instruments having chassis RS-132 or RS-132-F. Crystal pickup Stock No. 74625 is used in instruments having chassis RS-132-A.

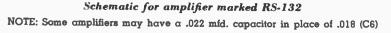


REPLACEMENT PARTS (For instruments having amp. chassis marked RS-132)

			· · ·
STO No		STOCK No.	DESCRIPTION
-	AMPLIFIER ASSEMBLIES RS-132	73117	
		36422	Socket-3 contact socket for phono input cable
	48 Capacitor—Mica, 680 mmf. (C1) 20 Capacitor—Moulded paper, .0047 mfd., 400 volts (C4)	72535	Transformer—Output transformer (T1)
73			SPEAKER ASSEMBLIES
71			92577-6W-RL 108B4
	76 Capacitor—Moulded paper, .018 mfd., 400 volts (C6)		
73	- period period period and the term (ee)	74165	Speaker—4" P.M. speaker complete with cone and voice coil
72			MISCELLANEOUS
	mfd., 150 volts; 1 section of 40 mfd., 150 volts; and 1 section of 20 mfd., 25 volts (C5A, C5B, C5C)	74135	Baffle—Speaker baffle
74	33 Control—Volume control and power switch (R3, S1)	74793	Bottom-Cabinet bottom cover
28	51 Cover—Insulating cover for electrolytic capacitor	74137	Bracket—Mounting bracket for reject button and
73	for the second sec		shaft
	cord	74136	Bracket—Speaker mounting bracket
	91 Insulator—Phono input socket insulator 68 Plug—2 contact female plug for motor cable	74138	Button—Reject button and shaft
1	68 Plug—2 contact female plug for motor cable 37 Resistor—Wire wound, 33 ohms, 150 ma. (R11)	Y2226	Cabinet—Plastic cabinet less bottom cover
	 Resistor—Wife wound, 120 ohms, 5 watts (R7) Resistor—Fixed, composition, 150 ohms ±10%, ½ 	74190	Cable—Shielded pickup cable complete with 3 prong male plug
	watt (R9)	74193	Clamp—Spring clamp for reject button and shaft
	Resistor—Fixed, composition, 2700 ohms \pm 10%, $\frac{1}{2}$	74782	Emblem—"RCA Victor" emblem
	watt (R10)	74623	Hardware—Set of mounting parts consisting of 3
	Resistor—Fixed, composition, 120,000 ohms $\pm 10\%$,		flat washers, 3 spacers and 3 rubber grommets
	$\frac{1}{2}$ watt (R4) Resistor—Fixed, composition, 180,000 ohms $\pm 10\%$,		to mount record changer
	$\frac{1}{2}$ watt (R2)	74666	Knob—Power switch knob
	Resistor—Fixed, composition, 270,000 ohms $\pm 10\%$,	74192	
	1/2 watt (R6, R8)		Plug—3 prong male plug for pickup cable
	Resistor—Fixed, composition, 470,000 ohms $\pm 10\%$,	74734	Spring-Retaining spring for knob
	1/2 watt (R1)	74139	Spring—Reject button and shaft return spring (.203" dia. x 1½"—21" turns)
	Resistor—Fixed, composition, 4.7 megohms ±20%, ½ watt (R5)	0015	
	72 Wall (N3)	2917	Washer—"C" washer for reject button and shaft



VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST" SHOULD HOLD WITHIN \$ 20%

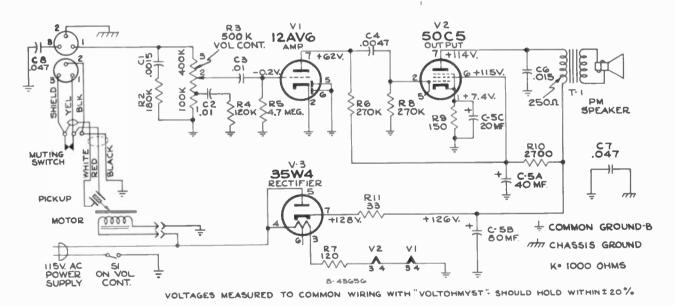


45-EY, 45-EY-1, 45-EY-15

REPLACEMENT PARTS (For instruments having amp. chassis marked RS-132-Å)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	AMPLIFIER ASSEMBLIES RS-132-A		SPEAKER ASSEMBLIES 92577-6W
72281	Capacitor—Electrolytic comprising 1 section of 80 mid., 150 volts; 1 section of 40 mid., 150 volts; and 1 section of 20 mid., 25 volts	74165	Speaker—4" P.M. speaker complete with cone and voice coil
71934 73920	Capacitor—Tubular, paper, .0015 mfd., 600 volts (C1) Capacitor—Tubular, paper, oil impregnated, .0047		MISCELLANEOUS
71923	mid., 600 volts (C4) Capacitor—Tubular, paper, .01 mid., 200 volts (C2,	74135	Baffle—Speaker baffle
/1525	C3)	74793	Bottom—Cabinet bottom cover
73797	Capacitor-Tubular, paper, .015 mfd., 600 volts (C6)	74136	Bracket—Speaker mounting bracket
73553	Capacitor—Tubular, paper, oil impregnated, .047 mid., 400 volts (C7, C8)	74137	Bracket—Mounting bracket for reject button and shaft
30868	Connector-2 contact female connector for motor	74138	Button—Reject button and shaft
36422	cable Connector—3 contact female connector for phono	¥2226	Cabinet—Plastic cabinet less bottom cover
	cable Control—Volume control and power switch	74190	Cable—Shielded pickup cable complete with 3 con- tact male plug
28451 73693	Cover—Insulating cover for electrolytic Grommet—Power cord strain relief grommet	74193	Clamp—Spring clamp for reject button and shaft
28452	· · · · · · · · · · · · · · · · · · ·	74192	
73237		74782	
72314	Resistor—Fixed, composition:— 150 ohms, ±10%, ½ watt (R9) 2700 ohms, ±10%, ½ watt (R10)	74623	Hardware—Set of mounting parts consisting of 3 flat washers, 3 eyelets and 3 rubber grommets to mount changer
	27,000 ohms, ±10%, ½ watt (R4) 180,000 ohms, ±10%, ½ watt (R2)	74666	Knob-Power switch knob
	270,000 ohms, ±10%, ½ watt (R6, R8)	74734	Spring—Retaining spring for knob
80115	4.7 megohm, ±20%, ½ watt (R5)	74139	Spring—Reject button and shaft return spring
73117 72535	Socket—Tube socket Transformer—Output transformer	2917	

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Schematic for amplifier marked RS-132A

Addition to Parts List: AMPLIFIER ASSEMBLIES RS 132A

38412 Control-Volume control and power switch (R3, S1)

To Remove Chassis

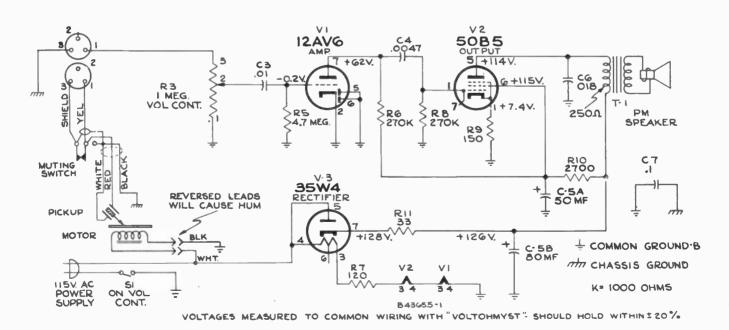
Remove the four screws at the corners of the bottom cover, separate the motor power plug and socket and remove the pickup cable from its socket on the amplifier chassis.

Elongated holes permit the speaker position to be adjusted. If the speaker should be replaced or its mounting bracket loosened, the speaker mounting bracket screws should not be tightened until after the bottom cover is assembled to the cabinet.

REPLACEMENT PARTS (For instruments having amp. chassis marked RS-132-F)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	AMPLIFIER ASSEMBLIES RS-132-F, RS-132-H		SPEAKER ASSEMBLIES 92577-6
73520	Capacitor—Electrolytic comprising 1 section of 80 mfd., 150 volts and 1 section of 50 mfd., 150 volts (C5Å, C5B)	74165	Speaker—4" P.M. speaker complete with cone and voice coil MISCELLANEOUS
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 600 volts (C4)	74135	Baffle—Speaker baffle Bottom—Cabinet bottom cover for 45-EY and 45-EY-1
71923	Capacitor—Tubular, paper, .01 mfd., 200 volts (C3)	74793	Bottom—Cabinet bottom cover for 45-E1 and 45-E1-1
58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd., 400 volts (C6)	74136	Bracket—Mounting bracket for reject button and
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts (C7)	74138	shaft Button—Reject button and shaft
36422	Connector—3 contact female connector for phono cable (J1)	¥2226	Cabinet—Plastic cabinet less bottom cover for 45-EY and 45-EY-l
30868	Connector—2 contact female connector for motor cable (J2)	¥2295	Cabinet—Plastic cabinet less bottom cover for 45-EY-15
74101	Control—Volume control and power switch (R3, S1)	74193	Clamp—Spring clamp for reject button and shaft
70392	Cord—Power cord and plug for 45-EY-15	74192	Connector—3 contact male connector for pickup cable
28451	Cover—Insulating cover for electrolytic	74782	Emblem — "RCA Victor" emblem
73693	Grommet—Power cord strain relief grommet (1 set)	74623	Hardware—Set of mounting parts consisting of 3
28452	Plate—Mounting plate for electrolytic		flat washers, 3 eyelets and 3 rubber grommets
73237 72314	Resistor—Fuse type, 33 ohms (R11)	74666	to mount changer Knob—Volume control and power switch knob for
12314	Resistor—Wire wound, 120 ohms, 5 watts (R7) Resistor—Fixed, composition:—	14000	45-EY and 45-EY-1
	150 ohms, ±10%, ½ watt (R9)	74667	Knob—Volume control and power switch knob for 45-EY-15
	2700 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R10) 270,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R6, R8)	30868	Plug—Two contact female connector for motor cable
	4.7 megohm, ±20%, ½ watt (R5)	74734	Spring—Retaining spring for knob
73117	Socket-Tube socket	74139	Spring—Reject button and shaft return spring
72535	Transformer—Output transformer (Tl)	2917	Washer—''C'' washer for reject button and shaft

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Schematic Diagram-Chassis No. RS 132 F and RS 132 H





FOR RECORD CHANGER SERVICE INFORMA-TION - REFER TO RP-190 SERIES SERVICE DATA.

RCAVICTOR

Automatic Record Player

MODEL 45-EY-2

Chassis Nos. RS-138A, RS-138 H

ΔΤΔ SERVICE D — 1950 No. 33 —

PREPARED BY RCA SERVICE CO., INC.

FOR

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tube Complement

1.	RCA	12AV6	Amplifier
2.	RCA	50B5	Power amp. (Output)
З.	RCA	35W4	

Loudspeaker (922258-4)

Power Supply Rating

Power Output

Dimensions (over-all) Depth, 8%" Width, 10%" Height, 8%"

Record Changer RP-190-1

 Turntable speed
 45 r.p.m.

 Records used
 RCA-Type 7-inch fine groove

 Record capacity
 12 records

 Pickup, Crystal (medium output)
 Stock No. 75476

45-EY-2 (RS-138H)

Service Data:

Late production of Model 45-EY-2 uses chassis stamped RS-138H. This chassis is identical to chassis stamped RS-138A except for the speaker. In RS-138H the speaker is rim mounted and in RS-138A it is pot mounted.

Replacement Parts:

Stock	CHASSIS ASSEMBLY RS-138H
No.	Identical to RS-138A except:
76406	Bracket—Speaker mounting brackets complete with screws (1 set)
	WILL BCIEWS (1 Sel)
	SPEAKER ASSEMBLY
	000050 5

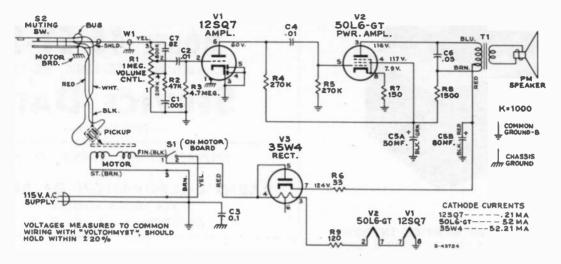
922258-5 76407 Speaker-4" x 6" PM speaker complete with cone and voice coil

REPLACEMENT PARTS

STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION
	AMPLIFIER ASSEMBLIES		73117	Socket—Tube socket, 7 pin, miniature
	RS 138A		70827	Socket—Tube socket, octal, wafer
			75939	Transformer—Output transformer
76202	Baiile—Speaker baiile and grille cloth			
39626	Capacitor-Mica, 82 mmf	C7		SPEAKER ASSEMBLIES
75980	Capacitor-Electrolytic comprising 1 section of 50	OF LOCE		922258-4
73920 73561	mid, 150 volts, and 1 section of 80 mid, 150 volts Capacitor—Tubular, paper, .005 mid, 400 volts Capacitor—Tubular, paper, .01 mid, 400 volts		75979	Speaker—4" x 6" P.M. speaker complete with cone and voice coil
70613	Capacitor-Tubular, paper, .03 mid, 400 volts			MISCELLANEOUS
73551	Capacitor-Tubular, paper, 0.1 mid, 400 volts		¥2325	Cabinet—Plastic cabinet—marcon—less bottom
76201	Control-Volume control.	nı	14345	COVEL
70392	Cord-Power cord and plug		76203	Cover-Bottom cover for cabinet-burgundy-com-
74838	Grommet—Power cord strain relief (1 set)		10203	plete with feet
73693	Grommet—Output transformer leads strain relief	R6	75697	Grommet — Rubber grommet to mount changer
73237	Resistor-Wire wound, 33 ohms, fuse type	R9	13091	mechanism (3 req'd)
72314	Resistor—Wire wound, 120 ohms, 5 watts	ца	74666	Knob-Volume control knob
	Resistor-Fixed, composition:	R7	76204	Screw - #10-32 x 1/6" round head machine screw to
	150 ohms, ± 10%, ½ watt		10204	mount changer mechanism (3 req'd)
	1500 ohms, ± 10%, ½ watt		76205	Screw-#6-32 x %s" hex washer head machine
	47,000 ohms, ± 10%, ½ watt		10205	screw for securing bottom cover (4 req'd)
	270,000 ohms, ± 10%, ½ watt		74734	Spring-Spring clip for volume control knob
	4.7 megohm, ±20%, ½ watt	R3	14134	obima-obima cub ior torang correct men

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

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Schematic Diagram



Tube Locations

Pickup Height Adjustment

Adjust knurled nut (A) until the distance (during change cycle) between the top of the turntable and the stylus point is approximately 1%".

Pickup Landing Adjustment

Adjust the screw driver landing adjustment stud "B" so the stylus lands 2%" \pm $\frac{1}{4}$ " from the side of the center post.

Tripping Adjustment

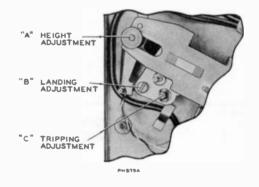
Adjust the eccentric tripping stud (C) until the mechanism trips when the stylus is 1¹⁹/₂₅" from the side of the center post.

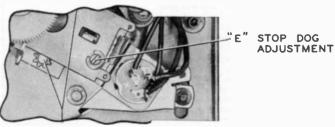
Stop Dog Adjustment

Turn the eccentric screw (E) until the record drops to the turntable without striking the pickup arm.

Critical Lead Dress

- 1. Dress all leads away from R6 and R9
- 2. Dress electrolytic capacitor away from R6 and R9
- 3. Dress filament leads down to chassis
- 4. Solder braid of W-1 such that it acts as a strain relief





PH5798



FOR RECORD CHANGER SERVICE INFORMA-TION - REFER TO RP-190 SERIES SERVICE DATA.

Specifications

The instrument incorporating amplifier RS-136 uses

Crystal RCA Stock No. 75476 Motor (special) 85 volt RCA Stock No. 75937

Tube Complement for RS-136

														. Amplifier
2. RC/	25L6-GT	 				 	*	•	 • •		•		•	Output

The instrument incorporating amplifier RS-136A uses

Crystal RCA Stock No. 75476 Motor 115 volt RCA Stock No. 75760

Tube Complement for RS-136A

1. H	RCA	12SQ7														. A	Implifier	1
2. F	RCA	50L6-GT								 							Output	ŀ.,
3. I	RCA	35Z5-GT										*					Rectifier	

Loudspeaker (922258-4)

 RCAVICTOR

Automatic Record Player

MODEL 45-EY-3

Chassis No. RS-136, RS-136A

SERVICE DATA

- 1950 No. 25 -

PREPARED BY RCA SERVICE CO., INC.

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Power Supply Rating

Power Output

Undistorted......1.25 watts Maximum.....1.77 watts

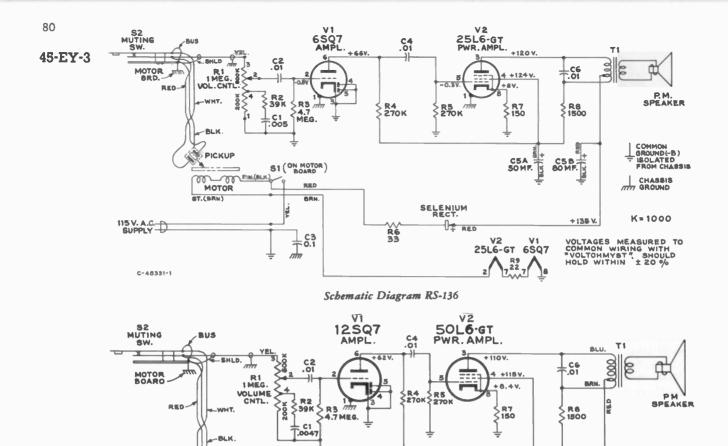
Dimensions (over-all) Height, 7%" Width, 11%" D

Height, 7%" Width, 11½" Depth, 12%"

REPLACEMENT PARTS

STOCK		STOCI	
No.	DESCRIPTION	No.	DESCRIPTION
	AMPLIFTER ASSEMBLIES	75948	Catch—Cabinet catch mechanism complete less striker plate
	RS-136, RS-136A	75954	Cover—Plastic bottom cover—marcon—for cabinet
75942	Baifle-Speaker baifle board and screen	74273	Decal—Trademark decal (Victrola)
75980	Capacitor-Electrolytic comprising 1 section of 80 mfd., 150	74782	Emblem-"RCA Victor" emblem
	volts and 1 section of 50 mid., 150 volts (C5A, C5B)	75697	Grommet-Rubber grommet to mount record changer (3 req'd)
73920	Capucitor — Tubnlar, paper, .0047 mfd., 400 volts used in RS-136A, replacement in RS-136 also (C1)	75956	Handle—Carrying handle—upper section only
73561	Capacitor-Tubalar, paper, .01 mfd., 400 volts (C2, C4, C6)	75957	Handle—Carrying handle—bottom section only
73551	Capacitor-Tubular, paper, 0.1 mfd., 400 volts (C3)	75955	Hinge—Cabinet lid hinge (2 req'd)
38407	Control-Volume control (RI)	75945	Knob-Volume control knob-marcon
70392	Cord—Power cord and plug	75953	Lid—Plastic lid—marcon—for cabinet less "Victrola" decal
75476	Crystal—Cartridge complete with stylus for RP-190-1 & 3]	and hinges
75941	Grommet—Rubber grommet for motor and pickup leads	75958	Link—Carrying handle link (2 req'd)
74838	Grommet-Power cord strain relief (1 set)	75760	Motor-117 volts, 60 cycles for RP-190-1
75940	Rectifier-Selenium rectifier	75937	Motor-85 volts, 60 cycles for RP-190-3
33378	Resistor-Wire wound, 22 ohms, 2 watts used in RS-136 (R9)	74788	Nut—Speed nut to fasten ventilating screen (2 req'd)
	Resistor—Wire wound, 120 ohms, 5 watts used in RS-136A only	75944	Plate—Mounting plate for carrying handle (2 reg'd)
	(R9)	75949	Plate—Striker plate for catch mechanism
73237	Resistor—Wire wound, 33 ohms, fuse type (R6) Resistor—Fired, composition:— 150 ohms ± 100% 14 wort (R7)	75913	Screw—#10-32 x ¾'' round head machine screw to mount record changer (3 req'd)
	Hamilot File, Compositor 150 ohms, ±10%, ½ wott (R7) 1500 ohms, ±10%, ½ wott (R2) 39,000 ohms, ±10%, ½ wott (R2) 270,000 ohms, ±10%, ½ wott (R4, R5) 4.7 megohm, ±20%, ½ wott (R3)	75951	Screw—#4-40 x ¼'' flat head machine screw to fasten catch mechanism (2 req'd) or striker plate (2 req'd) or hinge (4 req'd)
		75952	Screw—#6-32 x ¾6" round head machine screw for lid support (4 req'd)
70827		75959	Screw #4 x 7/16" cross-recessed filister head screw to assembly
75939	Transformer—Output transformer (Tl)		carrying handle (4 req'd)
	SPEAKER ASSEMBLIES	75950	Spacer—Metal spacer to mount record changer (3 req'd)
	922258-4	14270	Spring—Retaining spring for volume control knob
75979	Speaker—4" x 6" P.M. speaker complete with cone and voice coil	75946	Spring—Pickup arm hold-down spring
	MISCELLANEOUS	75978	Stud—Tapped stud for handle mounting plate for screw
		75943	Support—Cabinet lid support
75926	Case—Plastic case—marcon—complete with "RCA Victor" emblem less bottom cover, lid, "Victorla" decal, hinges, catch mechanism and striker plate	75947	Support—Plastic support—marcon—for lid support and power cord (located on inside of cabinet)

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



SI (ON MOTOR)

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R6

Pickup Height Adjustment

115 V.A.C.

Adjust knurled nut (A) until the distance (during change cycle) between the top of the turntable and the stylus point is approximately 1%".

PICKUP

MOTOR

00

VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST", SHOULD HOLD WITHIN ±20 %

FIN. (BL

Pickup Landing Adjustment

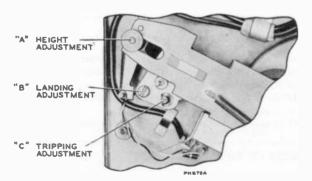
Adjust the screw driver landing adjustment stud "B" so the stylus lands $2\%'' \pm \frac{1}{64}$ " from the side of the center post.

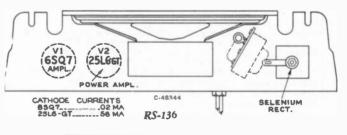
Tripping Adjustment

Adjust the eccentric tripping stud (C) until the mechanism trips when the stylus is $1^{19}/3^{2''}$ from the side of the center post.

Stop Dog Ädjustment

Turn the eccentric screw (E) until the record drops to the turntable without striking the pickup arm.





V2 V1 50L6-GT 125Q7

CSA 50 MF

125 \

R9 120

V3

3525-GT

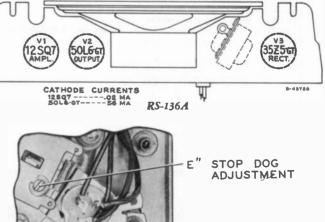
C-48552

COMMON GROUND-8

CHASSIS GROUND

K= 1000

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PH5798



Specifications

Record Changer (RP-168)

Power Supply Rating

115	volts,	60 cycles	A.C.	 15	watts
	-				

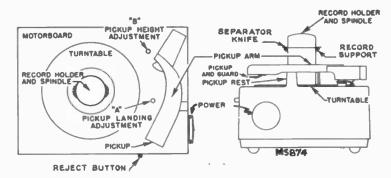
Dimensions (overall) Height 65%" Width 91%" Depth 67%"

Record Separator

In the out of cycle position the record separator knives or discs are normally concealed inside the center post. During service, the position of the star wheel on the underside of the record changer may be accidentally shifted; this may cause the separator knives to be extended when they should be concealed.

If the separator knives are thus extended—turn the power on so that the turntable is revolving, gently press fingers against the extended knives until they disappear inside the center post—DO THIS ONLY WHILE MECHANISM IS OUT OF CYCLE.

Note: This holds true only to mechanisms having the circular, rotating knives.



Top and Side Views

FOR RECORD CHANGER SERVICE INFORMA-TION—REFER TO RP-168 SERIES SERVICE DATA.

Pickup Landing Adjustment "A"

The pickup point should land half-way between the outer edge of the record and the first music groove.

If the pickup lands inside the starting grooves—turn screw "A" slightly clockwise. If pickup lands outside the starting grooves—turn screw "A" slightly counterclockwise.

Pickup Height Adjustment "B"

During cycle the pickup arm must rise high enough to clear α stack of eight records on the turntable, but not high enough to cause the top of the arm to touch records resting on the record supports.

If pickup does not clear a stack of eight records—turn screw "B" slightly clockwise. If pickup arm touches records on record supports—turn screw "B" slightly counterclockwise.



Record Changer Attachment

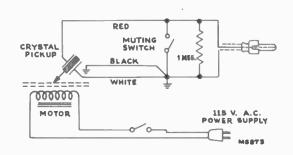
MODEL 45J

Mfr. No. 274

SERVICE DATA

— 1950 No. 8 —

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.



Schematic Diagram

Record Changer Mounting

The cabinet is used as the motorboard of the record changer. The record changer is attached with three screws and bushings. THE PICKUP ARM MUST BE REMOVED BEFORE THE RECORD CHANGER CAN BE REMOVED—REFER TO RP-168 SERIES SERVICE DATA.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION
	MISCELLANEOUS
74097	Bottom-Cabinet bottom cover
74189	Bushing—Shoulder bushing to mount mechanism in cabinet (3 required)
74098	Button—Reject button
Y2151	Cabinet—Plastic cabinet less bottom cover
74296	Cable—Shielded pickup cable complete with pin plug
74674	Emblem—"RCA Victor" emblem
31051	Foot-Rubber foot (4 required)
73490	KnobPower switch knob
	Resistor—Fixed, composition: 1 megohm, ±10%, ½ watt
14270	Spring—Retaining spring for knob
74871	Switch—Power switch

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF RE-PLACEMENT PARTS.

RCA Radios with Phono Jack

Plug male connector on the end of the "Phono" lead into the female connector on the receiver chassis. If set is provided with a phono switch, push or turn the "Phono" switch to "Phono" position, and operate the Record Changer Attachment according to instructions. If no switch is provided, use an external switch such as RCA Type No. 240X1, connecting it according to instructions for radios without a phono jack.

Radio-Phonograph Combinations

Most radio-phonograph combinations use resistors and/or capacitors for tone compensation in the phono input circuit.

Where unsatisfactory reproduction is obtained with Model 45J connected into the phono jack of such instruments, we suggest that Model 45J be connected as indicated for radios which do not have a phono jack. These compensation resistors and/or capacitors may also be removed from the chassis and connected on the existing record changer. This will permit record changer switching with the use of an RCA Type No. 202Wl Record Player Selector Switch,

RCA Type No. 202W1 Record Player Selector

This selector switch may be used for combined operation of two record players through one phono input jack. A choice of two types of input jacks and output cable plugs are provided.

Radios Without Phono Jack

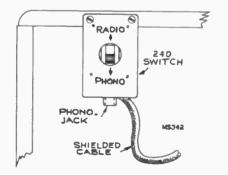
Methods of connecting the Record Changer Attachment to various types of audio systems are given in the accompanying text and illustrations. The data given requires that an RCA Type No. 240X1 (Formerly Stock No. 240) Radio-Phono switch be used for switching from radio to phonograph, as desired. For ease in connecting the "phono" lead to the switch, the male plug on the end of the lead matches the phono jack on the switch.

In general, the Record Changer Attachment must be used with radio receivers having at least two stages of high-gain audio amplification. The output of the Record Changer Attachment should be connected to the input of the first audio tube, and at the same time the output of the radio receiver portion of the chassis should be shorted or opened, to prevent radio signals being heard while the Record Changer Attachment is in operation.

Installation of Switch

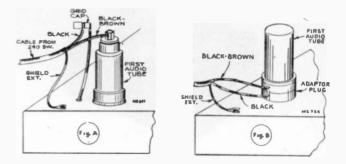
Fasten the bracket to the cabinet in such a position that the switch may be easily reached. For wooden cabinets, a suggested place is the upper rear edge of the cabinet. If the radio has a plastic cabinet, the bracket may be fastened to the chassis by self-tapping screws or soldering. In the case of a.c.-d.c sets, the bracket should not be fastened to the chassis. In such cases, a wooden block may be fastened to the chassis and the bracket screwed to the wooden block, care being exercised that there is no metallic path from the bracket to the chassis.

Connect the braided shield extension to the radio chassis by either soldering or placing the spade lug under a mounting screw.



On a.c.-d.c. sets it is necessary to isolate the cable shield from the chassis. This is best done by connecting the shield to the chassis through a .25 mid. 300-volt condenser. Care should be taken that the shield braiding and switch bracket do not come in contact with the chassis.

If the common-negative wiring in the a.c.-d.c. set is isolated from the set chassis, connect the cable shield, through a .25 mfd. capacitor, to the common-negative wiring, and not to the chassis.



Note:

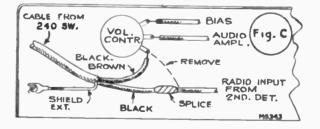
If attachment is connected to a radio set as shown in Fig. A & B, it will be necessary to substitute a volume control in place of the 1 meg. fixed resistor in Model 45] since few sets have a volume control following the first audio tube. Stock No. 74101 control (1 meg.) and switch is recommended.

For radio receivers in which the 1st-audio tube has a top grid cap—see Fig. A:

- 1. Disconnect the grid lead from the first audio tube.
- 2. Connect the cap on the black lead to the clip on the grid lead, as shown above.
- Connect the clip on the black-brown lead to the grid cap at the top of the lst-audio tube, bending the terminal if necessary to proper size for a metal tube cap.
- Insert the plug on the end of the record player lead into the jack on the bracket.
- Secure or position the connection cable assembly so that the cap and clip terminals are well separated from each other and other metal parts.

For radio receivers in which the lst-audio tube is type 6SQ7. 6SR7. 12SQ7 or 12SR7—see Fig. B:

- 1. Use adaptor plug RCA Stock No. 37798.
- 2. Remove the lst-audio tube.
- Solder the switch leads to the adaptor plug terminals black to bottom lug—black-brown to top lug.
- 4. Tape terminals to prevent short circuits when installed in set.
- 5. Insert the adaptor into the 1st-audio tube socket.
- 6. Insert the 1st-audio tube into the adaptor.
- 7. Insert the plug on the end of the record player lead into the jack on the bracket.



For other radio receivers in which the 1st-audio tube does not have a grid cap: connection to volume control input—see Fig. C.

- 1. Unsolder the lead from the volume control lug indicated in Fig. C. It is usually necessary to remove the chassis from the cabinet to do this.
- Solder the black-brown lead (remove clip) to the lug disconnected in Step 1.
- 3. Solder the black lead (remove plug) to the lead disconnected in Step 1. Tape the joint to prevent short circuits.
- Insert the plug on the end of the record player lead into the jack on the bracket.

45J



SPECIFICATIONS

Record Changer (RP190-1)

Turntable speed.		
Records used		groove-7 in.
Record capacity		12 records
Pickup (Stock No.	75476)Crystal (n	nedium output)
	4	

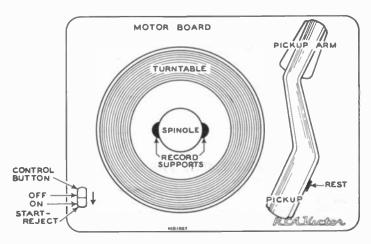
Power Supply Rating

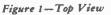
115 volts, 60 cyc	les A.	.C	5 watts
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Depth 71/2"

Dimensions (overall) Height 7¹/₄" Width 10¹/₂"

FOR RECORD CHANGER SERVICE IN-FORMATION—REFER TO RP-190 SERIES SERVICE DATA.





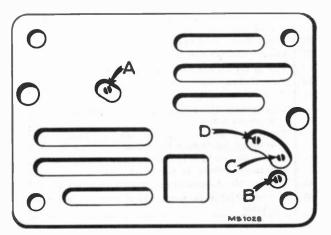


Figure 2-Bottom View





Record Changer Attachment

MODEL 45-J-2 SERVICE DATA

- 1950 No. 16 -

PREPARED BY RCA SERVICE CO., INC.

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION

CAMDEN, N. J., U. S. A.

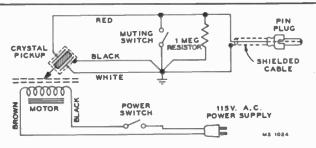


Figure 3—Schematic Diagram

ADJUSTMENTS

Adjustments may readily be made with a screw driver according to the following instructions (see Figure 2).

Record Dropping—If record does not drop automatically, turn screw "A" counterclockwise slightly, but not more than $\frac{1}{4}$ turn.

Pickup Height—If pickup lifts too high so as to strike records on spindle, turn screw "B" counterclockwise. If it fails to lift after playing last record, turn clockwise. (Pickup point should be approximately 1½" above turntable at maximum height during change cycle.)

Landing—If pickup lands too far in on record, turn screw "C" counterclockwise. If it fails to land in far enough on record, turn clockwise.

Tripping—If pickup lifts before reaching final record groove, turn screw "D" counterclockwise slightly. If pickup fails to lift, turn clockwise slightly.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION				
¥2272	Cabinet—Plastic cabinet—marcon				
74296	Cable—Shielded pickup cable complete with pin plug				
70392	Cord—Power cord and plug				
31051	Foot—Rubber foot (4 required)				
	Resistor—Fixed, composition; 1 megohm, ±10%, ½ watt				

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS.

REFER TO MODEL 45J ON PAGE 82 FOR CONNECTION INSTRUCTIONS.



FOR RECORD CHANGER SERVICE INFORMA-TION—REFER TO RP193-1 SERIES SERVICE DATA.

SPECIFICATIONS

Record Changer (RP193-1)

Turntable speed
Records used RCA Type fine groove7 in.
Record capacity 12 records
Pickup-RCA Stock No. 76257Crystal

Power Supply Rating

115 volts, 60	cycles	A.C	. 15 watts
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Dimensions (overall)

Height 6%"

Width 9%"

Depth 7"

ADJUSTMENTS

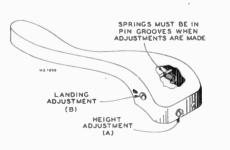
PICKUP LAND ADJUSTMENT

Loosen screw marked ("B") and slide the mounting bracket forward to move the landing point away from the centerpost, and back to move the landing point inward.

NOTE: Before making the adjustment, make certain the safety springs are in the pin grooves.

PICKUP ARM HEIGHT

Loosen the screw marked ("A") on back of the pickup arm and adjust so the pickup will clear a stack of twelve records. Raising the screw in the elongated hole raises the pickup arm. lowering the screw lowers the pickup arm.





Record Changer Attachment MODEL 45-J-3

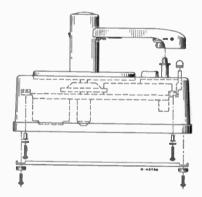
SERVICE DATA

-1950 No. 30-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Record Changer Mounting

The top part of the cabinet becomes the motor board in this instrument, so in order to remove the record changer assembly from the cabinet, it is first necessary to remove the control knob, pickup arm, bottom cover, then the three screws and bushing holding the sub-panel. The entire mechanism can then be lifted out through the bottom of the cabinet,



REPLACEMENT PARTS

STOCK No.	DESCRIPTION		
	MISCELLANEOUS		
	Model 45-J-3		
¥2326	Cabinet—Plastic cabinet complete with "RCA Victor" emblem		
74296	Cable—Shielded pickup cable complete with pin plug		
70392	Cord—Power cord and plug		
76252	Cover-Cabinet bottom cover		
76257	Pickup crystal complete including stylus		
76253	Foot-Rubber foot		
76251	Knob-Reject knob		
	Lockwasher—No. 8 lockwasher—internal teeth—for mounting screw		
	Screw-No. 8-32 x 3/4" binder head machine screw to mount mechanism in cabinet		
	Screw—No. 8-32 x 7/16" binder head machine screw to mount cabinet bottom cover		
76249	Spacer—Metal spacer to mount mechanism in cabinet		
76250	Washer—Flat metal washer to mount mechanism in cabinet		

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF RE-PLACEMENT PARTS.

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REFER TO MODEL 45J ON PAGE 82 FOR CONNECTION INSTRUCTIONS.





FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP 190 SERIES SERVICE DATA. RCAVICTOR

AM-FM Radio-Phonograph Combination

MODEL 45-W-9

Chassis No. RC 1095A Record Changer RP 190-2

SERVICE DATA

-1950 No. 22-

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Specifications

Tuning Range

Standard Broadcast (AM) 540-1,600 kc.			
Frequency Modulation (FM)			
Intermediate Frequencies AM-455 kc., FM-10.7 mc.			

Tube Complement

(1) RCA 6J6 Mixer and Oscillator
(2) RCA 6BA6 I-F Amplifier
(3) RCA 6AU6 Driver
(4) RCA 6AL5 Ratio Detector
(5) RCA 6AV6 AM DetAVC-A-F Amplifier
(6) RCA 6C4 Ph. Inv.
(7) RCA 6V6GT Output
(8) RCA 6V6GT Output
(9) RCA 5Y3GT Rectifier
Dial Lamps (2) Type No. 51, 6-8 volts, 0.2 amp.
Jewel Lamp Type No. 51, 6-8 volts, 0.2 amp.

Circuit Description

This instrument has a nine-tube (including rectifier) chassis which is very similar to those used in other RCA Victor radiophonograph combinations designed for AM-FM reception.

The selector switch has five functions:

- (1) Selection of tuning range.
- (2) Selection and distribution of a.v.c. voltages.
- (3) Application of B+ voltage to tubes V1. V2 and V3.

In "Phono" and "Aux." positions, the B+ voltage is removed from tubes V1, V2 and V3.

- (4) Selection of audio input applied to the volume control.
- (5) Change in output tube bias.

In "Radio" positions, R6 is in parallel with R42.

This receiver has built-in antennas for standard broadcast (AM) and frequency modulation (FM) reception. Provision is made for the use of external antennas if desired. Tuning Drive Ratio..... 10:1 (5 turns of knob)

Power Supply Rating...... 115 volts, 60 cycles, 95 watts

Loudspeaker (92569-12W)

Size and type	12 in. PM
Voice coil impedance	400 cycles

Power Output

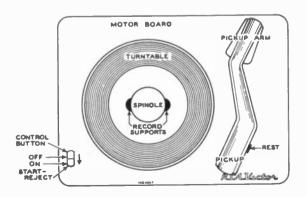
(Radio) Undistorted 8 watts..... Maximum 9 watts (Phono) Undistorted 10 watts..... Maximum 11 watts

Cabinet Dimensions

Height 32 in.	Width 29 ¹ / ₄ in.	Depth 19¾ in.
Weight		90 lbs.

Record Changer (RP 190-2)

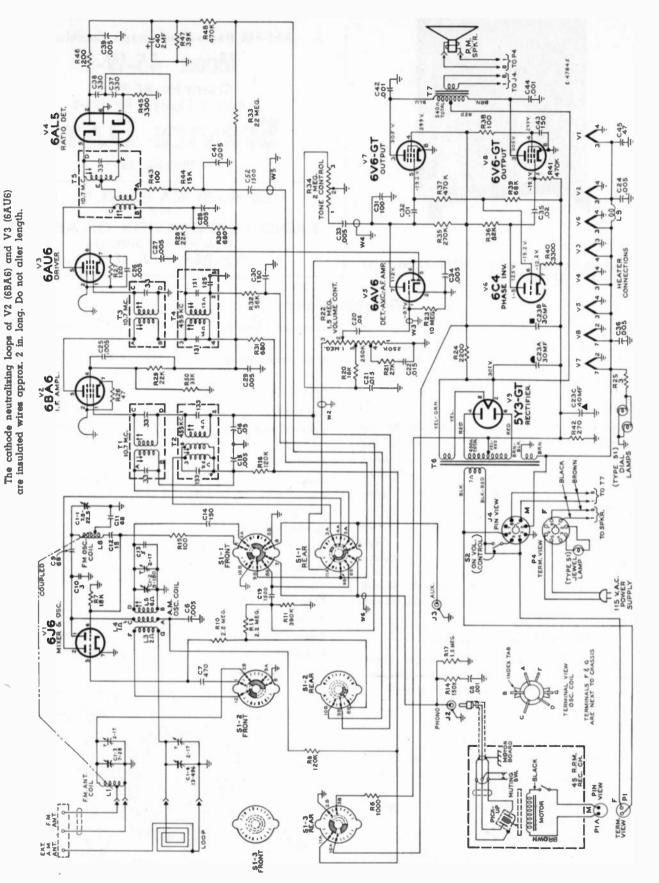
Turntable speed 45 r.p.m.
Record capacity 12 RCA 7-in. fine groove records
Pickup (Stock No. 75575) Crystal (medium output)



Top View-RP 190 Record Changer

Complete Schematic Diagram

CAPACITOR VALUES LESS THAN I ARE IN MF.. VALUES GREATER THAN I ARE IN MMF. UNLESS OTHERWISE SPECIFIED. RESISTANCE VALUES IN OHMS. K = 1000. VOLTAGES MEASURED TO CHASSIS WITH VOLTOHMYST AND NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±10% WITH 117 VOLT POWER SUPPLY. FUNCTION SWITCH VIEWED FROM FRONT AND SHOWN IN "AUX" POSITION (MAX. COUNTERCLOCKWISE).



COMPLETE SCHEMATIC DIAGRAM

45-W-9

MODEL 45-W-9 vs. MODEL A-91

The chassis of Model 45-W-9 is very similar to the chassis used in Model A-91. Refer to Model A-91 on page 15 for further information.

Differences

Model A-91 has two resistors and a capacitor (R18, R51, C17) for 78/33-1/3 record player tone compensation. These are not used in Model 45-W-9. The "AUX" jack (J3) of Model 45-W-9 corresponds to the "78/33-1/3 Phono" jack of Model A-91.

Capacitor C19 is located in a different part of the circuit but serves the same purpose (isolation of AVC voltage from vol. control).

Capacitor C52 (FM sound circuit) is used in Model 45-W-9 only.

Addition to Parts List:

CHASSIS ASSEMBLIES

Add:

76423 Capacitor-Ceramic, 3 mmf. (C10)

REPLACEMENT PARTS

STOCK STOCK DESCRIPTION DESCRIPTION No. No. CHASSIS ASSEMBLIES Clip-Mounting clip for A-M I-F transformers 73935 RC 1095A Coil-Oscillator coil (A·M) complete with adjustable 75569 Capacitor-Variable tuning capacitor (C1-1, C1-2, core (L3, L4, L5) 75599 C1-3, C1-4) Coil-Filament choke coil (L9) 71942 Coil-Oscillator coil--F·M (L8) 74817 Capacitor—Ceramic, 5 mmf. (C13) 75613 Coil-Antenna coil-F-M (L1) 75617 Capacitor-Ceramic, 15 mmf. (C12) 39044 35787 Connector-Single contact female connector for pick-Capacitor -- Ceramic, 47 mmf. (C45) 75609 up cables (J2, J3) Capacitor-Ceramic, 68 mmf. (C9, C11) 75612 Connector-8 contact male connector for power in-75542 Capacitor-Ceramic, 100 mmf. (C31) 75437 put cable (J4) Capacitor-Ceramic, 150 mmf. (C14, C30, C43) 75614 75543 Connector-2 contact female connector for record Capacitor-Mica, 330 mmf. (C37, C38) 39640 changer motor cable (P1) Capacitor-Mica, 470 mmf. (C7) 39644 Connector-2 contact female connector for antenna 74879 Capacitor-Ceramic, 1,500 mmf. (C19, C52) 75610 leads Capacitor-Ceramic, 5,000 mmf. (C6, C15, C24, C25, 73473 Control-Volume control and power switch (R22, S2) 75537 C27, C28, C29, C34, C36) Control-Tone control (R34) Capacitor-Tubular, paper, .001 mfd, 400 volts (C8) 75538 73801 Cord-Drive cord (approximately 66" overall length Capacitor-Tubular, paper, .001 mfd, 1,000 volts +72953 70642 required) (C42, C44) Coupling-Spring coupling for function switch ex-75564 Capacitor-Tubular, paper, .005 mfd, 200 volts (C26, 72490 tension shaft Č39, C41) Cover-Insulating cover for electrolytic capacitor No. 75556 Capacitor-Tubular, paper, .005 mfd, 400 volts (C33) 73920 72052 Capacitor-Tubular, paper, .01 mfd, 400 volts (C32) 71925 Fastener-Push fastener for mounting R.F. shelf (4 74839 Capacitor-Tubular, paper, .015 mfd, 200 volts (C21, 72120 required) C22) Grommet-Rubber grommet for mounting R.F. shelf 16058 71928 Capacitor-Tubular, paper, .02 mfd, 100 volts (C20) Capacitor-Tubular, paper, .02 mfd, 400 volts (C35) (4 required) 73638 Grommet-Rubber grommet to mount slide mecha-75547 Capacitor-Tubular, paper, .05 mfd, 200 volts (C16) 73553 nism to bottom-rear (2 required) Capacitor--Electrolytic, 2 mfd. 50 volts (C40) 73747 Grommet-Rubber grommet to mount slide mecha-Capacitor-Electrolytic, comprising 1 section of 30 75548 72052 nism to bottom-front (2 required) mfd, 450 volts, 1 section of 30 mfd, 350 volts, and 11765 Lamp-Dial lamp-Mazda No. 51 1 section of 40 mfd, 25 volts (C23A, C23B, C23C)

In "Aux" and "Phono" positions the B+ supply voltage is disconnected in S1-3 which renders the mixer-oscillator. I.F. amplifier and driver tubes inoperative.

Record Changer Mounting

Two shipping screws hold the 45 r.p.m. changer to its roll-out carriage. They are accessible from the underside of the carriage and should be RE-MOVED at time of installation.

The record changer is mounted with rubber grommets in the carriage and should be free floating.

Roll-out Carriage Removal

The roll-out carriage has two stop pins (one at the back end of each slide), held in place by a retaining spring. To remove roll-out carriage, it is first necessary to pull the retaining springs out of the slides with a pair of long nose pliers, the stop pins are then easily removed. The roll-out carriage may fhen be removed from the front of the cabinet after disconnecting its connecting cables.

Roll-out Carriage Travel

The radio-45 r.p.m. carriage has a normal movement limitation of approximately 10 in. If the carriage does not have this amount of movement, it may be due to an obstruction or from slippage or creeping of the balls of the slide mechanism. Travel restriction due to slippage or creeping of balls in the slide mechanism can be corrected by exerting slightly greater pull until the normal travel limitation is reached. The carriage should then operate to its full travel with normal pull.

45-W-9

+Stock No. 72953 is a reel containing 250 feet of cord.

45-W-9

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REPLACEMENT PARTS — Continued

No. Description Description 7544 Nu-Birmu to faste seve for mounting chasts (4 required) 7563 7663 7554 Nu-Birmu to faste seve for mounting chasts (4 required) 7563 7663 7555 Pointer-Storion selector pointer pointer-Mire wound, 3 ohma, 19 wort (R20) 7553 7553 7553 72620 Pulater-Mire wound, 3 ohma, 19 wort (R20) 7553 7553 7553 7553 7553 7553 7554 75533 <th>STOCK</th> <th></th> <th>STOCK</th> <th>DECOUDTION</th>	STOCK		STOCK	DECOUDTION
(4 required) reduc chassis and 45 RPM record change—for output (1469 Pice B-ackelite counting plate for electry fut con- pactor Mo. 2203. (7) Pice B-ackelite counting plate for electry plate (17) Pice B-ackelite counting (17) <t< th=""><th></th><th>DESCRIPTION</th><th>No.</th><th>DESCRIPTION</th></t<>		DESCRIPTION	No.	DESCRIPTION
 Jacchier M. 2020; Jack Standing Langel Complete with three (1) pullay. Jack Standing Langel Comparison of the co		(4 required)	75683	radio chassis and 45 RPM record changer—for oak
 PosterStreet of polity: PosterDrive cord pulley ResisterWire wound, 3 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 3 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound (R25) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R24) ResisterWire wound, 2 chma, 5 wate (R27) ResisterWire wound, 2 chma, 2 chma,		pacitor No. 72052 Plate—Dial back plate complete with three (3)		Handle—Metal pullout handle for mounting frame Screw—No. 8-32 x 5/8" cross recessed pan head
 <i>Access Process and Section Process and Sectin Process and Section Process and Section Proces</i>	72602	Pointer—Station selector pointer Pulley—Drive cord pulley		SPEAKER ASSEMBLY
100 chms. ± 10%, 19 worth (R15, R38, R43) 75681 Specker-12" P.M. specker complete with cone and voice coil (2.3 ohms) 120 ohms. ± 20%, 19 worth (R42) worth (R41) Work (R42) 110 ohms. ± 10%, 19 worth (R45) Work (R40, R45) 3.300 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 12,000 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 22,000 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 3.300 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 3.300 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 3.300 ohms. ± 10%, 19 worth (R42) Work (R40, R45) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) 3.300 ohms. ± 10%, 19 worth (R42) Work (R42) <t< td=""><td></td><td>Resistor—Wire wound, 2,200 ohms, 5 watts (R24) Resistor—Fixed, composition:</td><td></td><td>RL 111-A1 CapDust cap</td></t<>		Resistor—Wire wound, 2,200 ohms, 5 watts (R24) Resistor—Fixed, composition:		RL 111-A1 CapDust cap
1.000 ohms. ±10%, ½ wuti (R46) 3.300 ohms. ±10%, ½ wuti (R40) 15.000 ohms. ±10%, ½ wuti (R40) 15.000 ohms. ±10%, ½ wuti (R40) 25.000 ohms. ±10%, ½ wuti (R41) 25.000 ohms. ±10%, ½ wuti (R41) 270.000 ohms. ±10%, ½ wuti (R42) 270.000 ohms. ±10%,		100 ohms, ±10%, ½ watt (R15, R38, R43) 120 ohms, ±10%, ½ watt (R27) 270 ohms, ±5%, 2 watts (R42)		Speaker—12" P.M. speaker complete with cone and voice coil (3.2 chms) NOTE: If stamping on speaker does not agree with above number, order replacement parts by re-
12.000 ohms. ± 10%. 1/w worth (R44) 71864 AntennoKneman Antenna Hop complete, less cable 18.000 ohms. ± 10%. 1/w worth (R28) Antenno		1,000 ohms, ±10%, ½ watt (R6) 1,200 ohms, ±5%, ½ watt (R46)		stamped on speaker and full description of part required.
15.000 ohms. ± 10%. ¹ / ₂ widt (R ³ , 7200) 7500 16.000 ohms. ± 10%. ¹ / ₂ widt (R ³ , 7200) 7500 22.000 ohms. ± 10%. ¹ / ₂ widt (R ³ , 7200) 7500 33.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 65.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 62.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 720.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 721.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 722.000 ohms. ± 10%. ¹ / ₂ widt (R ³) 7500 7300 7500 7500 7310 7500 7500 7310 75000 <td< td=""><td></td><td>12,000 ohms, ±10%, 1 watt (R29)</td><td>71864</td><td></td></td<>		12,000 ohms, ±10%, 1 watt (R29)	71864	
27.000 ohms. ± 10%. /z wortt (R21) 33.000 ohms. ± 10%. /z wortt (R23) 66.000 ohms. ± 10%. /z wortt (R24) 62.000 ohms. ± 10%. /z wortt (R24) 62.000 ohms. ± 10%. /z wortt (R24) 120.000 ohms. ± 10%. /z wortt (R26) 120.000 ohms. ± 10%. /z wortt (R27) 121.000 ohms. ± 10%. /z wortt (R27) 122.000 ohms. ± 10%. /z wortt (R27) 122.000 ohms. ± 10%. /z wortt (R27) 122.000 ohms. ± 10%. /z wortt (R27) 123.000 ohms. ± 10%. /z wortt (R27) 124.000 brows. ± 10%. /z wortt (R27) 125.000 ohms. ± 10%. /z wortt (R27) 126.000 ohms. ± 10%. /z wortt (R27) 127.000 ohms. ± 10%. /z wortt (R27) 128.000 obcket. Tube socket. or join miniture for 60 75546 121.000 obcke		18,000 ohms, ±10%, ½ watt (R7, R20)	75705	Antenna—Antenna loop complete, less cable Back—Back cover—maroon—for radio-phono com-
55.000 ohms. ± 10%. ½ wortt (R39) 2.000 ohms. ± 10%. ½ wortt (R39) 82.000 ohms. ± 10%. ½ wortt (R38, R16) 75640 120.000 ohms. ± 10%. ½ wortt (R17, R41, R49) 776641 130.000 ohms. ± 10%. ½ wortt (R17, R41, R49) 776641 1.5 megohm. ± 10%. ½ wortt (R10, R13) 776641 1.5 megohm. ± 10%. ½ wortt (R10, R13) 776641 1.5 megohm. ± 20%. ½ wortt (R10, R13) 776641 1.5 megohm. ± 20%. ½ wortt (R10, R13) 776641 1.6 mesohm. ± 20%. ½ wortt (R10, R13) 776641 75546 Shoft—Tuning knob shoft 75546 Shoft—Tuning knob shoft 75546 Shoft—Tuning knob shoft 75546 Shoft—Tuning knob shoft 75547 Shoft—Tuning knob shoft 75548 Shoft—Tuning knob shoft 75549 Shoft—Tuning knob shoft 75540 Shoft—Tuning knob shoft 75541 Shoft—Tuning knob shoft 75542 Shoft—Tuning knob shoft 75543 Shoft—Tuning knob shoft 75550 Smign—Drive cord spring 75544 Shoft—Tuning knob shoft 75555 Smign—Drive cord spring 75556 Swith—		27,000 ohms, ±10%, ½ watt (R21) 33,000 ohms, ±10%, ½ watt (R50)	75901	(assembled to rollout) Back—Back cover—light brown—for radio-phono
120.000 ohms. ± 10%, ½ watt (R14) 270.000 ohms. ± 10%, ½ watt (R15) 3000 ohms. ± 10%, ½ watt (R17) 270.000 ohms. ± 10%, ½ watt (R17) 3000 ohms. ± 10%, ½ watt (R17) 1.5 megohm. ± 20%, ½ watt (R17) 22 megohm. ± 20%, ½ watt (R13) 2.2 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.2 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.2 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.3 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.3 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.3 megohm. ± 20%, ½ watt (R13) 23 megohm. ± 20%, ½ watt (R13) 2.3 megohm. ± 20%, ½ watt (R13) 24 megohm. ± 20%, ½ watt (R13) 2.4 megohm. ± 20%, ½ watt (R13) 24 megohm. ± 20%, ½ watt (R13) 2.5 ocketTube socket, 7 pin, miniture 7540 5 ocketTube socket, 7 pin, miniture for 66 tube only 75709 71136 SocketTube socket, 7 pin, miniture for 616 tube only 75709 73605 Spring-Dive cord spring 7544 73737 Transformer-Ariatio detector transformer (T3) 75713 73737 Transformer-Ariatio detector transformer (T3) 75713 75555 Transformer-Finst 1F transforme		56.000 ohms, ±10%, ½ watt (R32) 68.000 ohms, ±10%, ½ watt (R39)	73680	rollout) Board—''A-F-M'' terminal board
270.000 ohms. ±10%, ½ watt (R17) 470.000 ohms. ±10%, ½ watt (R17) 12.2 megohm. ±20%, ½ watt (R17) 2.2 megohm. ±20%, ½ watt (R13) 2.2 megohm. ±20%, ½ watt (R13)		120,000 ohms, \pm 10%, ½ watt (R8, R16) 150,000 ohms, \pm 10%, ½ watt (R14)		phono compartment rollout
1.5 megohm. ±10%, ½ watt (R17) 22 megohm. ±20%, ½ watt (R13) 10 megohm. ±20%, ½ watt (R33) 7384 75540 Shaft—Tuning knob shaft 7384 75555 Shaft—Tube solet for function switch 7384 73843 Shaft—Tube solet for function switch 7384 73845 Shaft—Tube socket, ottal, wafer 7370 73117 Socket-Tube socket, 7 pin, miniature for 6j6 tube only 7370 73135 Socket-Tube socket, 7 pin, miniature for 6j6 tube only 7370 73136 Socket-Tube socket, 7 pin, miniature for 6j6 tube only 7370 73135 Socket-Tube socket, 7 pin, miniature for 6j6 tube only 7370 73136 Socket-Tube socket, 7 pin, miniature for 6j6 tube only 75474 73137 Socket-Dial lamp socket 7117 74437 Support-Polystyrene support for F-M oscillator coil complete with mounting tracket 75670 75550 Transformer-First I-F transformer (F-M) complete with adjustable cores (T2) 77483 75556 Transformer-First I-F transformer (F-M) complete with adjustable cores (T3) 77571 75556 Transformer-Second I-F transformer (F-M) complete with adjustable cores (T3) 77571 75556 Tren		390,000 chms, ±10%, ½ watt (R11) 470,000 chms, ±10%, ½ watt (R37, R41, R48)	75696	Bumper—Rubber bumper for rollout stop bracket Cable—Shielded pickup cable complete with pin
10 megohm. ±20%, ½ watt (R23) 22 megohm. ±20%, ½ watt (R33)75540Shaft—Luning knob shaft75540Shaft—Luning knob shaft75541Shaft—Extension shaft for function switch Shield—Tube socket of pin, miniature tootom75545Silde—Silde mechanism complete for radio chassis bottom71826Socket—Tube socket, 7 pin, miniature only71827Socket—Tube socket, 7 pin, miniature only71828Socket—Tube socket, 7 pin, miniature only71829Socket—Tube socket, 7 pin, miniature only71824Socket—Tube socket, 7 pin, miniature only71824Socket—Tube socket, 7 pin, miniature 				Cap—Pilot lamp cap
75856Shadt—Extension shaft for function switch 73884AddigAddig73884Shield—Tube shield for V5Silde—Silde mechanism complete for radio chassis bottomAddigConnector—2 contact male connector for TM an- tenna terminal board cable73184Socket—Tube socket, 7 pin, miniature onlySocket—Tube socket, 7 pin, miniature for 6j6 tube only747374173Socket—Tube socket, 7 pin, miniature for 6j6 tube only75670Connector—2 contact male connector for main cable (less shell) (P4)74038Spring—Retaining spring for function switch exten- sion shaft75670Connector—2 contact male connector for motor cable (P1A)74038Spring—Drive cord spring Transformer—Cutput transformer (T5) Transformer—Ratio detector transformer (A-M) complete with adjustable cores (T1)7586075550Transformer—First LF transformer (A-M) complete with adjustable cores (T2)7571275550Transformer—Second LF transformer (F-M) complete with adjustable cores (T1)7571375550Transformer—Power transformer, 117 volts, 60 cycle (T6)7571475895Decal—Function decal for controls7589575895Decal—Function decal for controls7570975895Decal—Function decal for controls75709 </td <td>855.40</td> <td>10 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, ½ watt (R33)</td> <td></td> <td>Cloth—Grille cloth for mahogany or walnut instru-</td>	855.40	10 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, ½ watt (R33)		Cloth—Grille cloth for mahogany or walnut instru-
75346 Side mechanism complete for radio chassis bottom 31251 Socket-Tube socket, ordi, wafer 73117 Socket-Tube socket, 7 pin, miniature 73117 Socket-Dial lamp socket 73136 Socket-Dial lamp socket 73137 Socket-Dolsytyrene support for FM oscillator coil complete with mounting bracket 74038 Spring-Drive cord spring 74038 Spring-Drive cord spring 74038 Support-Polystyrene support for FM oscillator coil complete with mounting bracket 75560 Switch-Function switch (Si-1, Si-2, Si-3) 773743 Transformer-Oityut transformer (T7) 73737 Transformer-First I-F transformer (A-M) complete with adjustable cores (T2) 73037 Transformer-First I-F transformer (F-M) complete with adjustable cores (T1) 75556 Transformer-Power transformer (F-M) complete with adjustable cores (T1) 75556 Transformer-Power transformer (F-M) complete with adjustable cores (T2) 75556 Transformer-Power transformer (F-M) complete with adjustable cores (T3) 75556 RADIO ROLLOUT CARRIAGE 75895 Decal-Function decal for controls 75895 Decal-Function decal for controls 75895 Decal-Funol decal frame (maronon	75565 73584	Shaft—Extension shaft for function switch Shield—Tube shield for V5		Connector-2 contact (polarized) male connector for
73117SocketTube socket. 7 pin, miniature only75/09ConnectorB condct female connector for main conhectorB condct female connector for main speaker (2 required)73184SocketDial lamp socket Spring-Retaining spring for function switch exten- sion shaft75/09ConnectorB condct female connector for main speaker (2 required)74047SupportDylstyrene support for F-M oscillator coil complete with mounting bracket30870ConnectorB condct female connector for motor cable speaker (2 required)75600Switch-Function switch (S1-1, S1-2, S1-3) TransformerRito detector transformer (T7) 		bottom	74752	Connector—2 contact male connector for FM an- tenna terminal board cable
onlyspeaker (2 required)731364Socket—Dial lamp socket75563Spring—Retaining spring for function switch exten- sion shaft74038Spring—Drive cord spring74047Support—Polystyrene support for F-M oscillator coil complete with mounting bracket75600Switch—Function switch (S1.1, S1.2, S1.3)75557Transformer—Output transformer (T7)73733Transformer—Output transformer (T5)75559Transformer—First I-F transformer (A-M) complete with adjustable cores (T2)73037Transformer—Second I-F transformer (F-M) complete 	73117	SocketTube socket, 7 pin, miniature		cable (less shell) (P4)
sion shaft74038Spring — Drive cord spring74038Spring — Drive cord spring71984Decal — Trade mark decal (RCA Victor)74847Support — Polystyrene support for F-M oscillator coil complete with mounting bracket71984Decal — Trade mark decal (Victora)75600Switch — Function switch (S1-1, S1-2, S1-3)77687Grommet — Rubber grommet to mount record changer73743Transformer — Output transformer (T7)75597Grommet — Rubber grommet to mount record changer73037Transformer — First I-F transformer (A-M) complete with adjustable cores (T2)75512Transformer — First I-F transformer (F-M) complete with adjustable cores (T1)7571375560Transformer — Fower transformer (F-M) complete with adjustable cores (T1)75714Knob — Tuning control, tone control or volume control and power switch knob — tan — for oak instruments75566Transformer — Power transformer, 117 volts, 60 cycle (T6)117651176575895Decal — Function decal for controls736047363475895Decal — Function decal for controls7570875895Decal — Function decal f		Socket—Dial lamp socket		speaker (2 required)
74847Support—Polystyrene support for F-M oscillator coil complete with mounting bracket37396Grommet—Rubber grommet for mounting speaker Grommet—Rubber grommet for mounting speaker Grommet—Power cod strain relief (1 set)75500Switch—Function switch (SI-1, SI-2, SI-3) Transformer—Cutput transformer (T7) Transformer—Ratio detector transformer (A-M) complete with adjustable cores (T2)74308Grommet—Rubber grommet for mounting speaker Grommet—Rubber grommet to mount record changer Hinge—Cabinet door hinge (1 set)73037Transformer—First I-F transformer (A-M) complete with adjustable cores (T4)75713Knob—Tuning control, tone control or volume control and power switch knob—tan—for oak instruments Knob—Function switch knob—tan—for oak instruments75560Transformer—Power transformer, I17 volts, 60 cycle (T6)75714Knob—Function switch knob—tan—for oak instru- ments75895Decal—Function decal for controls 75572DialPolystyrene dial scale7570875895Decal—Function decal for controls chassis and 45 RPM record changer—for mac7580275802Spring—Suspension spring for main cable		sion shaft		Decal—Trade mark decal (RCA Victor)
75600Switch—Function switch (S1-1, S1-2, S1-3)7433Grommet—Fower cord strain relief (1 set)75557Transformer—Output transformer (T7)75697Grommet—Rubber grommet to mount record changer73037Transformer—First I.F transformer (A-M) complete with adjustable cores (T2)75519Knob—Tuning control, tone control or volume control and power switch knob—maroon—for mahogany or walnut instruments75559Transformer—First I.F transformer (F-M) complete with adjustable cores (T1)757147571375560Transformer—First I.F transformer (F-M) complete with adjustable cores (T3)757147571475566Transformer—Power transformer, 117 volts, 60 cycle (T6)757157363475895Decal—Function decal for controls75920512075895Decal—Function decal for controls75920512175895Decal—Function decal for controls75920512075895Decal—Function decal for controls75920512075895Decal—Function decal for controls75920511075895Decal—Function decal for controls75920511075895Decal—Function decal for controls7592075895Decal—Function decal for controls7592075895Decal—Function decal for controls759275895Decal—Function decal for controls7592075895Decal—Function decal for controls7592075895Decal—Function decal for controls7592075895Decal—Function decal for controls759207	74847		37396	Grommet—Rubber grommet for mounting speaker
73374Hunstormer-Output transformer (17)73743Transformer-Output transformer (17)73743Transformer-Ratio detector transformer (A-M) complete with adjustable cores (T2)73037Transformer-Second I-F transformer (A-M) complete with adjustable cores (T4)75559Transformer-Second I-F transformer (F-M) complete with adjustable cores (T1)75560Transformer-Second I-F transformer (F-M) complete with adjustable cores (T3)75566Transformer-Power transformer, 117 volts, 60 cycle (T6)75895Decal-Function decal for controls75895Decal-Function decal for controls75895Decal-Function decal for controls75895Decal-Polystyrene dial scale75549Frame-Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer-for ma-		Switch—Function switch (S1-1, S1-2, S1-3)		
75558TransformerFirst I-F transformer (A-M) complete with adjustable cores (T2)75712KnobIuning control, tone control or volume control and power switch knob-maroon-for mahogany or walnut instruments73037Transformer-Second I-F transformer (A-M) complete with adjustable cores (T4)75713KnobTuning control, tone control or volume control and power switch knob-maroon-for mahogany or walnut instruments75559Transformer-First I-F transformer (F-M) complete with adjustable cores (T3)75714KnobFunction switch knob-maroon-for mahog- and power switch knob-tan-for oak instruments75560Transformer-Power transformer (F-M) complete with adjustable cores (T3)75715KnobFunction switch knob-tan-for oak instru- ments75561Transformer-Power transformer, 117 volts, 60 cycle (T6)11765Lamp-Pilot lamp-Mazda No. 5133726Washer''C'' washer for tuning knob shaft75907Screw-No. 10-32 x 5¼'' cross recessed round head screw (special) to mount rollout frame75895Decal-Function decal for controls pialPolystyrene dial scale75708Shell-Shell for 8 contact connector No. 7570975549Frame-Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer-for ma- for main cable75902Spring-Suspension spring for main cable			74308	
 75037 Industormer—Second I-F transformer (A-M) complete with adjustable cores (T4) 75559 Transformer—First I-F transformer (F-M) complete with adjustable cores (T1) 75560 Transformer—Second I-F transformer (F-M) complete with adjustable cores (T3) 75566 Transformer—Power transformer, 117 volts, 60 cycle (T6) 33726 Washer—"C" washer for tuning knob shaft 75895 Decal—Function decal for controls 75895 Decal—Function decal for controls 75895 Decal—Function decal for controls 75549 Frame—Moulded frame (marcon) for mounting radio chassis and 45 RPM record changer—for ma- 	75558	Transformer—First I-F transformer (A-M) complete with adjustable cores (T2)	75712	and power switch knob-maroon-for mahogany
 with adjustable cores (T1) Transformer—Second I-F transformer (F-M) complete with adjustable cores (T3) Transformer—Power transformer, 117 volts, 60 cycle (T6) 33726 Washer—"C" washer for tuning knob shaft RADIO ROLLOUT CARRIAGE 75895 Decal—Function decal for controls Dial—Polystyrene dial scale Frame—Moulded frame (marcon) for mounting radio chassis and 45 RPM record changer—for ma- Y5714 Knob—Function switch knob—marcon—for mahog- any or walnut instruments Knob—Function switch knob—tan—for oak instru- ments Y5715 Knob—Function switch knob—tan—for oak instru- ments Y5716 Knob—Function switch knob—tan—for oak instru- ments Y5718 Knob—Function switch knob—tan—for oak instru- ments Y5714 Knob—Function switch knob—tan—for oak instru- ments Y5715 Lamp—Pilot lamp—Mazda No. 51 Nut—Speed nut for speaker mounting screws Y5907 Screw—No. 10-32 x 5¹/₄" cross recessed round head screw (special) to mount rollout frame Y5708 Shell—Shell for 8 contact connector No. 75709 Spring—Retaining spring for knobs Y4734 Spring—Suspension spring for main cable 		with adjustable cores (T4)		Knob—Tuning control, tone control or volume control and power switch knob—tan—for oak instruments
 with adjustable cores (T3) Transformer—Power transformer, 117 volts, 60 cycle (T6) 33726 Washer—"C" washer for tuning knob shaft RADIO ROLLOUT CARRIAGE 75895 Decal—Function decal for controls 75895 Decal—Function decal for controls 75772 Dial—Polystyrene dial scale Frame—Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer—for ma- 75715 Khob—runction switch khob—tan—for odk instru- ments 11765 Lamp—Pilot lamp—Mazda No. 51 Nut—Speed nut for speaker mounting screws Pull—Door pull 75907 Screw—No. 10-32 x 5¼" cross recessed round head screw (special) to mount rollout frame Screw—No. 10-24 x 1" trimit head screw for door pull Socket—Pilot lamp socket and lead 74734 Spring—Retaining spring for knobs Spring—Suspension spring for main cable 		with adjustable cores (T1)		any or walnut instruments
33726 (1b) Washer—"C" washer for tuning knob shaft 73634 75908 Nut—Speed nut for speaker mounting screws Pull—Door pull RADIO ROLLOUT CARRIAGE 73634 Nut—Speed nut for speaker mounting screws RADIO ROLLOUT CARRIAGE 75907 Screw—No. 10-32 x 5¼" cross recessed round head screw (special) to mount rollout frame 75895 Decal—Function decal for controls 75708 Shell—Shell for 8 contact connector No. 75709 75572 DialPolystyrene dial scale 75708 Shell—Shell for 8 contact and lead 75549 Frame—Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer—for ma- 75902 Spring—Suspension spring for main cable		with adjustable cores (T3) Transformer—Power transformer, 117 volts, 60 cycle		ments
RADIO ROLLOUT CARRIAGE 75920 Screw—No. 10-24 x 1" trimit head screw for door pull 75895 Decal—Function decal for controls 75708 Shell—Shell for 8 contact connector No. 75709 75572 Dial—Polystyrene dial scale 31364 Socket—Pilot lamp socket and lead 75549 Frame—Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer—for ma- 75902 Spring—Retaining spring for knobs	33726		73634 75908	Nut—Speed nut for speaker mounting screws Pull—Door pull Screw—No. 10-32 x 5 ¹ /4" cross recessed round head
75895 Decal—Function decal for controls 75708 Shell—Shell for 8 contact connector No. 75709 75572 Dial—Polystyrene dial scale 31364 Socket—Pilot lamp socket and lead 75549 Frame—Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer—for ma 75902 Spring—Suspension spring for main cable		RADIO ROLLOUT CARRIAGE	75920	Screw-No. 10-24 x 1" trimit head screw for door
75549 Frame—Moulded frame (maroon) for mounting radio chassis and 45 RPM record changer—for ma 74734 Spring—Retaining spring for knobs 75902 Spring—Suspension spring for main cable	1			Shell-Shell for 8 contact connector No. 75709
I nogany or wainut instruments I / 72336 Stop—Cabinet door stop		Frame—Moulded frame (maroon) for mounting radio	74734	Spring—Retaining spring for knobs

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



FOR RECORD CHANGER SERVICE INFORMATION REFER TO RP-190 SERIES SERVICE DATA.



AM-FM Radio-Phonograph Combination

MODEL 45-W-10

Chassis No. RC 1096A

Record Changer RP 190-2 (45 r.p.m.)

SERVICE DATA

PREPARED BY RCA SERVICE CO., INC.

FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

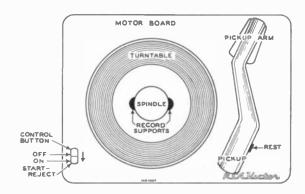
Specifications

Tuning Range

Standard Broadcast (AM)	540-1,600	kc.
Frequency Modulation (FM)	88-108	mc.
Intermediate Frequencies AM-455 kc.,	FM—10.7	mc,

Tube Complement

(1) RCA	6CB6 R-F Amplifier
(2) RCA	6J6 Mixer and Oscillator
(3) RCA	6BA6 I-F Amplifier
(4) RCA	6AU6 Driver
(5) RCA	6AL5 Ratio Detector
(6) RCA	6AV6 AM DetAVC-A-F Amplifier
(7) RCĂ	6C4 Ph. Inv.
(8) RCA	6V6GTOutput
(9) RCA	6V6GTOutput
(10) RCA	5Y3GTRectifier



Top View-RP-190 Record Changer

Dial Lamps (2)Type No. 51, 6-8 volts, 0.2 amp. Jewel LampType No. 51, 6-8 volts, 0.2 amp.
Tuning Drive Ratio
Power Supply Rating 115 volts, 60 cycles, 115 watts
Loudspeaker (92569-12W) Size and type
Power Output (Radio) Undistorted 8 wattsMaximum 9 watts (Phono.) Undistorted 10 watts Maximum 11 watts
Weight
Cabinet Dimensions Height 32 in. Width 29¼ in. Depth 19¾ in.
Record Changer (RP-190-2)
Turntable speed

A-101, A-108 (RC-1096B) 45-W-10 (RC-1096C)

Service Data:

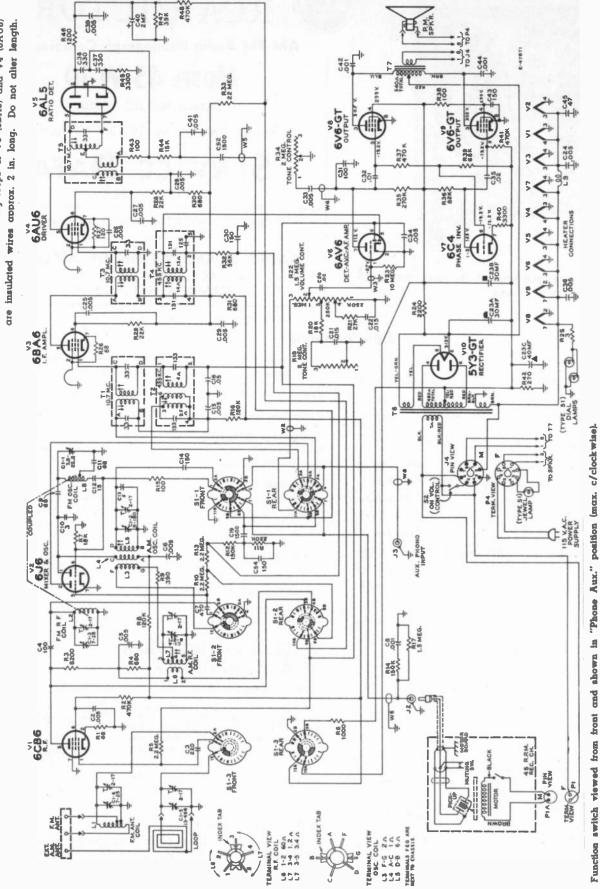
Chassis stamped RC-1096B and RC-1096C are the same as chassis stamped RC-1096 and RC-1096A respectively except for the value of C21, R20 in volume control circuit and C42, C44 in output tubes plate circuit.

		Press on other	
	RC-1096	RC-1096A	RC-1096B & C
C21	.018	.015	.010 mf.
R20	18K	18K	22K ohms
C42	.001	.001	.0012 mf.
C44	.001	.001	.0012 mf.

Substitute Speaker:

Speakers stamped 971494-2 have been used as a substitute for speakers stamped 92569-12, but only with chassis stamped RC-1096B (A-101 and A-108) or RC-1096C (45-W-10). Speakers stamped 92569-12 can be used with any of the above chassis (RC-1096, -A, -B, or -C).

COMPLETE SCHEMATIC DIAGRAM



ion switch viewed from front and shown in "Phone Aux." position (max. c/clockwise). Amount statistics from party is not by but withing your prime from a not by but is but the from the state of the

CAPACITOR VALUES LESS THAN 1 ARE IN MF., VALUES GREATER THAN 1 ARE IN MMF. UNLESS OTHERWISE SPECIFIED. RESISTANCE VALUES IN OHMS. $\mathbf{K} = 1000$. VOLTAGES MEASURED TO CHASSIS WITH VOLTOHMYST WITH NO SIGNAL INPUT AND SHOULD HOLD WITHIN $\pm 20\%$ WITH 117-VOLT POWER SUPPLY.

Complete Schematic Diagram

The cathode neutralizing loops of V3 (6BA6) and V4 (6AU6)

45-W-10

Record Changer Mounting

Each record changer is mounted in a roll-out carriage. The changer mechanisms are mounted on rubber grommets and should be free floating.

Two shipping screws hold the 45 r.p.m. changer to its roll-out carriage. They are accessible from the under-side of the carriage and should be REMOVED at time of installation.

Roll-out Carriage Removal

Each roll-out carriage has two stop pins, (one at the back end of each slide) held in place by a retaining spring. To remove roll-out carriage, it is first necessary to pull the retaining springs out of the slides with a pair of long nose pliers, the stop pins are then easily removed. The roll-out carriage may then be removed from the front of the cabinet after disconnecting its connecting cables.

Roll-out Carriage Travel

The roll-out carriages have a normal movement limitation of approximately 10 inches. If a carriage does not have this amount of movement, it may be due to an obstruction or from slippage or creeping of the balls of the slide mechanism. Travel restriction due to slippage or creeping of balls in the slide mechanism can be corrected by exerting slichtly greater pull until the normal travel limitation is reached. The carriage should then operate to its full travel with normal pull.

Addition to Puris List:

CHASSIS ASSEMBLIES

Add:

76423 Capacitar-Ceramic, 3 mmf. (C10)

MODEL 45-W-10 vs. MODEL A-101

The chassis of Model 45-W-10 is very similar to the chassis used in Model Ā-101. Refer to Model Ā-101 on page 23 for further information.

Differences

Model A-101 has two resistors and a capacitor (R18, R51, C17) for 78/33-1/3 record player tone compensation. These are not used in Model 45-W-10. The "AUX" jack (J3) of Model 45-W-10 corresponds to the "78/33-1/3 Phono" jack of Model A-101.

Capacitor C19 is located in a different part of the circuit but serves the same purpose (isolation of AVC voltages from vol. control).

Capacitor C52 (FM sound circuit) is used in Model 45-W-10 only.

CHASSIS ASSEMBLIES RC1096A74838Fastener—Push fastener for mounting R. Grommet—Rubber grommet for mounting reg'd)75567Capacitor—Variable tuning capacitor (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6)75547Grommet—Rubber grommet to mount al reg'd)75613Capacitor—Ceramic, 5 mmf. (C13)75548Grommet—Rubber grommet to mount al reg'd)75614Capacitor—Ceramic, 150 mmf. (C4)1176575614Capacitor—Ceramic, 150 mmf. (C3)1176575614Capacitor—Ceramic, 150 mmf. (C3)1176575614Capacitor—Ceramic, 150 mmf. (C3)7553575614Capacitor—Ceramic, 220 mmf. (C3)1176575615Capacitor—Ceramic, 150 mmf. (C3)7553675614Capacitor—Ceramic, 230 mmf. (C3)7260275615Capacitor—Mica, 470 mmf. (C7)7260275847Capacitor—Ceramic, 5000 mmf. (C19, C52)75847Capacitor—Ceramic, 5000 mmf. (C19, C52)738473Capacitor—Electrolytic, 2 mid, 50 volts (C40)73252Capacitor—Electrolytic, 2 mid, 50 volts (C40)73253Capacitor—Electrolytic, 2 mid, 50 volts (C40)73254Capacitor—Electrolytic, 2 mid, 50 volts (C40)73255Capacitor—Electrolytic, 2 mid, 50 volts (C40)73255Capacitor—Electrolytic, 2 mid, 50 volts (C40)73255Capacitor—Electrolytic, 2 mid, 50 volts (C40)73255Capacitor—Elect	ing R.F. shelf (4 slides to bottom— slides to bottom— unting chassis (4 solytic three (3) pulleys tt (R25)
 75567 Capacitor—Variable tuning capacitor (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6) 75613 Capacitor—Ceramic, 5 mmf. (C13) 75699 Capacitor—Ceramic, 15 mmf. (C12) 75699 Capacitor—Ceramic, 68 mmf. (C2, C11) 75612 Capacitor—Ceramic, 100 mmf. (C4) 75614 Capacitor—Ceramic, 100 mmf. (C4) 75614 Capacitor—Ceramic, 100 mmf. (C4) 75614 Capacitor—Ceramic, 100 mmf. (C3) 75614 Capacitor—Ceramic, 220 mmf. (C3) 75614 Capacitor—Ceramic, 150 mmf. (C1, C30, C43, C54) 75614 Capacitor—Ceramic, 150 mmf. (C1, C30, C43, C54) 75616 Capacitor—Ceramic, 1500 mmf. (C3) 75617 Capacitor—Ceramic, 1500 mmf. (C3) 75618 Capacitor—Ceramic, 1500 mmf. (C3) 75619 Capacitor—Ceramic, 1500 mmf. (C3) 75610 Capacitor—Ceramic, 5000 mmf. (C2, C5, C6, C15, C24, C25, C27, C28, C29, C34, C36) 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73647 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73657 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73667 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73687 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73687 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73697 Resistor—Firade Componition— 6	ulides to bottom
75813 Capacitor—Ceramic, 15 mmi. (C13) 38044 Capacitor—Ceramic, 100 mmi. (C4) 75812 Capacitor—Ceramic, 100 mmi. (C4) 75813 Capacitor—Ceramic, 100 mmi. (C4) 75814 Capacitor—Ceramic, 100 mmi. (C3) 75814 Capacitor—Ceramic, 100 mmi. (C3) 75814 Capacitor—Ceramic, 100 mmi. (C3) 75814 Capacitor—Ceramic, 220 mmi. (C3) 75816 Capacitor—Ceramic, 230 mmi. (C3) 75817 Capacitor—Ceramic, 150 mmi. (C3) 75818 Capacitor—Ceramic, 150 mmi. (C3) 75819 Capacitor—Ceramic, 220 mmi. (C3) 75810 Capacitor—Ceramic, 5000 mmi. (C2, C5, C6, C15, C24, C25, C27, C28, C29, C34, C36) 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73477 Capacitor—Electrolytic, 2 mid, 50 volts (C40)	unting chassis (4 olytic three (3) pulleys at (R25)
75609Capacitor—Ceramic, 47 mmi. (C45)11755Intro-Mattal (C45)75612Capacitor—Ceramic, 88 mmi. (C6, C11)reg'd)39396Capacitor—Ceramic, 100 mmi. (C4)reg'd)75614Capacitor—Ceramic, 100 mmi. (C4)reg'd)75614Capacitor—Ceramic, 150 mmi. (C31)reg'd)75614Capacitor—Ceramic, 220 mmi. (C3)reg'd)39644Capacitor—Ceramic, 150 mmi. (C3)r553639640Capacitor—Ceramic, 150 mmi. (C3)r553639640Capacitor—Ceramic, 1500 mmi. (C3)r7263239644Capacitor—Ceramic, 5000 mmi. (C3)r7263275610Capacitor—Ceramic, 5000 mmi. (C2, C5, C6, C15, C24, C25, C27, C28, C29, C34, C36)r367473747Capacitor—Electrolytic, 2 mid, 50 volts (C40)r30 mid.73747Capacitor—Electrolytic, comprising 1 section of 30 mid.r30 mid.	olytic three (3) pulleys tt (R25)
75437 Capacitor—Ceramic, 100 mmf. (C31) 75614 Capacitor—Ceramic, 150 mmf. (C31) 75615 75614 Capacitor—Ceramic, 220 mmf. (C3) 75617 75618 Pinter—Dial back plate to restore with the formation of the complete with the formatis and the complete with the complete with the formation of the co	three (3) pulleys tt (R25)
39640 Capacitor—Mica, 330 mmf. (C37, C38) 72602 Fullsy—Dive Graphingy 39644 Capacitor—Mica, 470 mmf. (C7) 72323 Resistor—Wire wound, 3 ohms, ½ watt 75610 Capacitor—Ceramic, 1500 mmf. (C19, C52) 73473 Capacitor—Ceramic, 5000 mmf. (C2, C5, C6, C15, C24, 73637 Resistor—Wire wound, 2200 ohms, 5 wat 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73640 100 ohms, ±10%, ½ watt (R1, R26) 72052 Capacitor—Electrolytic, comprising 1 section of 30 mfd. 120 ohms, ±10%, ½ watt (R127)	
75610 Capacitor—Ceramic, 1500 mmf. (C19, C52) 73637 Resistor—Wire wound, 2200 ohms, 5 wa 73473 Capacitor—Ceramic, 5000 mmf. (C2, C5, C6, C15, C24, C25, C27, C28, C29, C34, C36) 73637 Resistor—Fixed, composition:— 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 73637 Resistor—Fixed, composition:— 73747 Capacitor—Electrolytic, 2 mid, 50 volts (C40) 100 ohms, ±10%, ½ watt (R15, R39, R3) 72052 Capacitor—Electrolytic, comprising 1 section of 30 mfd. 120 ohms, ±10%, ½ watt (R15, R39, R3)	
72052 Capacitor—Electrolytic, comprising 1 section of 30 mfd. 120 ohms, ±10%, ½ watt (R27)	
450 volts, 1 section of 30 mfd, 350 volts, and 1 section of 40 mfd, 25 volts (C23A, C23B, C23C) 390 ohms, ±10%, ½ watts (R9)	(1
73801 Capacitor—Tubular, paper, .001 mfd, 400 volts (C8) 680 ohms, ±10%, ½ watt (R4) 70802 Capacitor—Tubular, paper, .001 mfd, 1000 volts (C4, C44) 680 ohms, ±20%, ½ watt (R30, R31) 73820 Capacitor—Tubular, paper, .005 mfd, 400 volts (C26, 1200 ohms, ±5%, ½ watt (R46) 1000 ohms, ±10%, ½ watt (R46)	
C33, C39, C41) 3300 onms, 25%, 92 wdt (R40, R45)	
73581 Capacitor—Tubular, paper, .01 mfd, 400 volts (C32) 8200 ohms, ±10%, 1 watt (R3) 73797 Capacitor—Tubular, paper, .015 mfd, 400 volts (C21, C22) 15,000 ohms, ±10%, ½ watt (R44) 71928 Capacitor—Tubular, paper, .02 mfd, 200 volts (C20) 18,000 ohms, ±10%, ½ watt (R44)	
73562 Capacitor—Tubular, paper, .02 mid, 400 volts (C35) 22,000 ohms, ±10%, ½ watt (R28, R29) 73553 Capacitor—Tubular, paper, .05 mid, 400 volts (C16) 27,000 ohms, ±10%, ½ watt (R21)	
73935 Clip—Mounting clip for A-M, I-F transformers 39,000 ohms, ±5%, ½ watt (R47) 75569 Coll—Oscillator coll—A.M.—complete with adjustable screws (L3, L4, L5) 56,000 ohms, ±10%, ½ watt (R32)	
75570 Coil—R.F. coil—A.M.—complete with adjustable core (L6, L7) 120,000 ohms, ±10%, ½ watt (R36) 120,000 ohms, ±10%, ½ watt (R36)	
71942 Coil—Filament choke coil (L9) 150,000 ohms, ±10%, ½ watt (R12, R14) 75615 Coil—Antenna coil—F-M (L1) 220,000 ohms, ±20%, ½ watt (R11) 74815 Coil—Antenna coil—F-M (L2) 270,000 ohms, ±10%, ½ watt (R13)	>
74817 Coil—Oscillator coil—F.M (L9) 35787 Connector—Single contact female connector for phono 1.5 megohin, ±10%, ½ watt (R17)	
cables (J2, J3) 2.2 megohm, ±20%, ½ watt (R5, R10, R) 75542 Connector—8 contact male connector for power input cable (J4) 10 megohm, ±20%, ½ watt (R33)	(13)
75543 Connector—2 contact female connector for 45 RPM motor cable (Pl) 75543 Shaft—Tuning knob shaft 75565 Shaft—Extension shaft for function switc	
74879 Connector—2 contact female connector for antenna leads 73584 Shield—Tube shield 75537 Control—Volume control and power switch (R22, S2) 75546 Slide—Slide mechanism complete for radii 75581 Control—Tone control—L.F. (R19) 31251 Sockst—Tube socket, octal, wafer	lio chassis bottom
75582 Control—Tone control—H.F. (R34) 73117 Socket—Tube socket, 7 pin, miniature 172953 Cord—Drive cord (approx. 66" overall) 74179 Socket—Tube socket, 7 pin, miniature for 75584 Coupling—Spring coupling for function switch extension 31364 Socket—Dial lamp socket	
shaft Spring-Retaining spring for function 75556 Cover-Insulating cover for electrolytic 75563 Spring-Retaining spring for function	SWITCH EXTENSION

Replacement Parts

* Stock No. 72953 is a reel containing 250 feet of cord.

45-W-10

Replacement Parts—Concluded

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
74038	Spring—Drive cord spring		MISCELLANEOUS
74847	Support-Polystyrene support for F-M oscillator coil	71864	Antenna—F-M antenna
	complete with mounting bracket	75705	Antenna—Antenna loop complete less cable
75602	Switch—Function switch (S1)	75900	Back-Back cover-marcon-for radio-phono compart-
75557	Transformer—Output transformer (T7)		ment for mahogany or walnut instruments (assembled
75566	Transformer—Power transformer, 117 volts/60 cycle (T6)	75901	to rollout) Back—Back cover—light brown—for radio-phono com-
75558	Transformer—Ratio detector transformer (T5) Transformer—First I-F transformer (A.M.) complete with	100001	partment for oak instruments (assembled to rollout)
/3336	adjustable screws (T2)	73680	Board—"A-F.M." terminal board
73037	Transformer—Second I-F transformer (A.M.) complete	75694	Bracket-Stop bracket less rubber bumper for radio
	with adjustable screws (T4)	71599	phono compartment rollout Bracket—Pilot lamp bracket
75559	Transformer—First I-F transformer (F.M.) complete with	75696	Bumper-Rubber bumper for rollout stop bracket
	adjustable screws (T1)	72437	Cable-Shielded pickup cable complete with pin plug
75560	Transformer—Second I-F transformer (F.M.) complete	13103	Cap—Pilot lamp cap
	with adjustable screws (T3)	71892 X3144	Catch—Bullet catch and strike for cabinet doors Cloth—Grille cloth for mahogany or walnut instruments
33726	Washer—"C" washer for tuning knob shaft	X3089	Cloth—Grille cloth for oak instruments
		74882	Connector-2 contact (polarized) male connector for A-M
		75709	antenna loop cable
	ROLLOUT MECHANISM	13/09	Connector—8 contact female connector less shell for main cable
76206	Decal-Control function decal	75474	Connector—Single contact male connector for speaker
75572	Dial-Folystyrene dial scale		(2 req'd)
76161	Frame-Moulded frame-marcon-for mounting radio	74752	Connector—2 contact male connector for FM antenna terminal board cable
	chassis and 45 RPM changer for mahogany or walnut	30870	Connector—2 contact male connector for AC power cable
1	instruments		for 45 RPM changer
76162	Frame—Moulded frame—light brown—for mounting radio	71984	Decal—Trade mark decal (RCA Victor) Decal—Trade mark decal (Victrola)
	chassis and 45 RPM changer for oak instruments	37396	Grommet-Rubber grommet for mounting speaker
76165	Handle-Metal pullout handle for mounting frame	74838	Grommet-Power cord strain relief (1 set)
75555	Screw—#8-32 x 5/2" cross recessed pan head screw to mount radio chassis (4 reg'd)	75697	Grommet—Rubber grommet for mounting record changer
	monut iddio cudisms (4 iad d)	74308	(3 req'd) HingeCabinet door hinge (1 set)
		75714	Knob—Function switch knob—marcon—for mahogany or
	SPEAKER ASSEMBLIES		walnut instruments
	glever vggmdfifg	75715 75712	Knob—Function switch knob—tan—for oak instruments Knob—Tuning control, tone control or volume control
	92569-12W		and power switch knob—maroon—for mahogany or
	RL 111A1	75713	walnut instruments
13867	Cap—Dust cap	/3/13	Knob—Tuning control, tone control or volume control and power switch knob—tan—for oak instruments
75682	Cone—Cone complete with voice coil (3.2 ohms)	11765	Lamp—Pilot lamp—Mazda #51
75681	Speaker-12" P.M. speaker complete with cone and voice	73634	Nut-Speed nut for speaker mounting screws
	coil (3.2 ohms)	75908 75920	Pull—Door pull Screw—#10-24 x 1" trimit head screw for door pull
		75708	Shell—Shell for 8 contact female connector #75709
	NOTE:-If stamping on speaker in instrument does not	31364	Socket—Pilot lamp socket
	agree with above speaker number, order replacement parts by referring to model number of instrument, number	74734	Spring—Retaining spring for knobs
	stamped on speaker and full description of part required.	75902 72936	Spring—Suspension spring for main cable Stop—Cabinet door stop
	sumber of the mar and the manthemat of hart tailman.		

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

Two Types of Door Pulls:

Two different types of door pulls (fastened with different screws) have been used on this instrument. The parts list should be changed as indicated below.

Stock No.

MISCELLANEOUS

- 75980 Pull-Door pull (basket weave design)
- 75918 Pull-Door pull (leaf design)
- 75920 Screw -- #10-24 x 1" 'trimit head screw for door pull #75908
- 75626 Screw-#8-32 x 11/4" trimit head screw for door pull #75918





RP-168 Series

45 R.P.M. Automatic Record Changer

Mfr. No. 274

SERVICE DATA -1949 No. 5-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

SPECIFICATIONS

Turntable speed
Records used RCA seven-inch fine groove
Record capacity Up to 10 records
Pickup force
Stylus tip radius
Type of pickup. Ceramic, crystal or variable reluctance (magnetic)
Power supply 105-125 volts, 60 cycle, a.c.
(May be converted for use on 50 cycle power supply.)

CAUTION

- 1. Avoid handling the pickup arm when the mechanism is in cvcle.
- 2. Do not use force to release a jam.
- 3. Do not try to remove the records on the turntable if the turntable is stopped in cycle.
- 4. Do not try to operate the mechanism if the separator knives protrude from the center post when the mechanism is out of cycle.

During service, the position of the star wheel on the underside of the record changer may be accidently shifted; this may cause the separator knives to be extended when they should be concealed.

If the separator knives are thus extended — turn the power on so that the turntable is revolving, push the "start-reject" knob and allow the mechanism to complete a change cycle. If the knives continue to be extended — while the turntable is still revolving, gently press fingers against the extended knives until they disappear inside the center post - DO THIS ONLY WHILE MECHANISM IS OUT OF CYCLE.

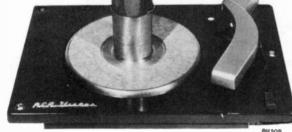
LUBRICATION

A light machine oil (SAE No. 10) should be used to oil the bearings of the drive motor.

On all bearing surfaces, excepting the motor bearings, Houghton STA-PUT No. 320, or equivalent, should be used. On all other sliding surfaces, STA-PUT No. 512, or equivalent, is recommended. STA-PUT can be purchased from E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia, Pa.

(Do not oil or grease record separator shelves.)

It is important that the drive motor spindle and the rubber tire on the idler wheel be kept clean and free from oil or grease, dirt, or any foreign material at all times. Carbon tetrachloride or naphtha is satisfactory for cleaning these parts.



TYPE AND MODEL IDENTIFICATION

The record changer mechanism may be used either with or without a metal motorboard. When a metal motorboard is not used, the instrument cabinet serves as the motorboard.

Two major changes have been made since the start of production. One change is the type of pickup arm rest, the original design used a visible rest on the motorboard or instrument cabinet which has been replaced by a rest on the sub-base. The other major change is in the record separators, the original type used rotating gear type of separators which were replaced by a push-out type of separators.

Many other changes have been made and there are differences in the color and finish of some parts when used with certain instruments. These changes did not necessarily involve a change in the identification applied to the bottom of the mechanism sub-base.

Five different pickups are in use: Two (2) crystal pickups, one (1) magnetic pickup and two (2) ceramic pickups. A listing of pickup vs. instrument model is given on page 14.

BECAUSE OF THE DIFFERENCES MENTIONED ABOVE, THE LABEL OR STAMPING ON THE SUB-BASE DOES NOT PROVIDE SUFFICIENT IDENTIFICATION FOR ORDERING REPLACEMENT PARTS.

Replacement parts should be ordered only by stock number. Refer to the illustrations and parts listings for identification.

The RP 168 Series record changer is used in the following instrument models :

> **RECORD PLAYER ATTACHMENTS** 9JY, CP-5203, 45J, QJY

RECORD PLAYERS (without radio) 9EY3, 9EY31, 9EY32, 9EY35, 9EY36, 45EY, QEY3, 45EY1, 45EY15

RADIO-PHONOGRAPH COMBINATIONS 9QV5, 9W51, 9W78, 9W101, 9W102, 9W103, 9W105, 9W106, 9Y7, 9Y51, A55, A78, A106, A82, A91, A108, 9Y511, 4QV8C, 6QU3Y

RADIO-PHONOGRAPH-TELEVISION COMBINATIONS 9TW309, 9TW333, 9TW390, TA128, TA129, TA169, S1000 2T81, 6T84, 6T86, 6T87, 9T89

AUTOMATIC OPERATION

- 1. Place a stack of records over the center post, with the desired selections upward, the last record to be played on top.
- 2. Apply power to drive motor.
- 3. Push the "start-reject" knob to "start" and let go. The mechanism will automatically play in sequence one side of each record stacked on the separator shelves.
- 4. To reject a record being played push the "start-reject" knob.
- 5. At conclusion of playing and as the last record is being repeated, lift the pickup arm and place on its rest. Turn off the power to the drive motor.
- 6. Remove the stack of records by lifting them straight up.

RP-168 Series

CYCLE OF OPERATION

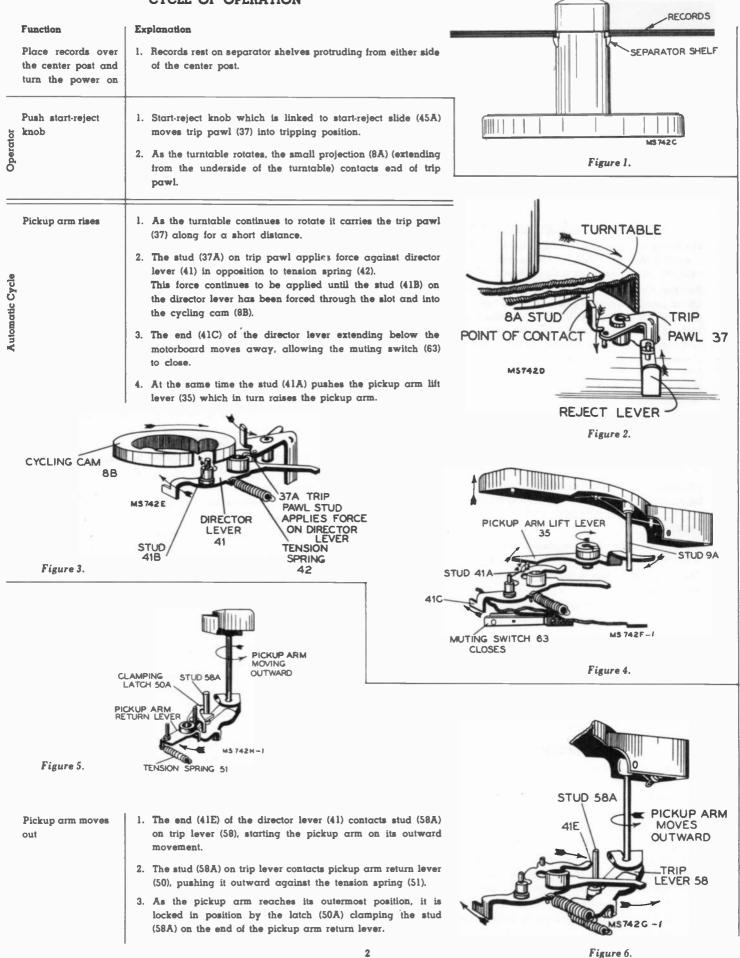
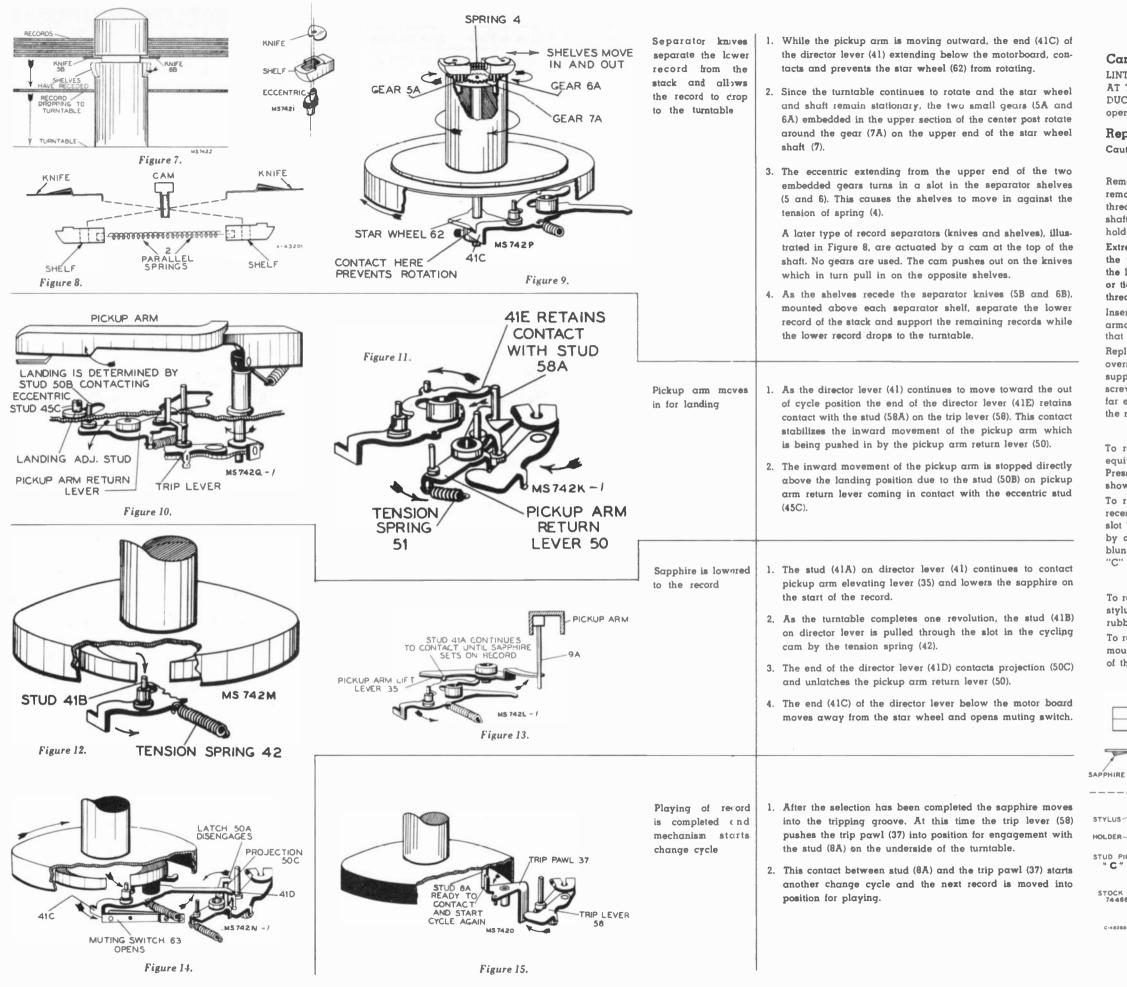


Figure 6.



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SERVICE HINTS

Care of Pickup

LINT MAY COLLECT TO CLOG THE OPENING IN THE GUARD AT THE STYLUS POINT AND CAUSE POOR RECORD REPRO-DUCTION. This may require occasional cleaning of the guard opening—clean by carefully brushing with a small soft brush.

Replacement of Stylus

Caution: Never bend the stylus support wire.

CRYSTAL PICKUPS (Stock Nos. 74067 and 74625)

Remove the two screws holding sapphire guard in place and remove the guard. Remove the small nut and washer on the threaded shaft of the sapphire holder and gently push the shaft through the hole in the armature shaft until the sapphire holder assembly comes free.

Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal. Take hold of the lower end of the shaft with a pair of pliers while loosening or tightening the nut, being very careful so as not to strip the threads or break the crystal.

Insert threaded shaft of replacement sapphire holder through armature shaft and replace the washer and nut. Make sure that the sapphire is in the correct position.

Replace the sapphire guard, positioning it by means of the oversize screw slots. Make certain that the sapphire and its supporting wire are centered in the guard. Tighten the guard screws. Before using, check to see that the sapphire projects far enough beyond the guard so that the guard will not touch the record. If necessary, bend the guard a little.

VARIABLE RELUCTANCE PICKUP (Stock No. 74466)

To remove the stylus assembly, insert a bent paper clip or equivalent tool into the stylus stud pin socket at point "A." Press the assembly out from the cartridge with the tool as shown by the arrow in the illustration below.

To replace the stylus assembly, insert the stud pin into the recess "A," with the locating tab positioned above the locating slot "B" between the two pole pieces. Press assembly in firmly by applying pressure upon the stud pin at point "C" with a blunt tool. Care must be taken to press assembly only at point "C" so as not to damage or distort the stylus arm.

CERAMIC PICKUP (Stock No. 74984)

To remove stylus, insert the point of a knife blade between the stylus wire and the case. The stylus may be pried out of its rubber mounting with a twisting motion of the knife blade.

To replace stylus, push end of stylus wire down into its rubber mounting. Be certain that the stylus is centered in the groove of the pickup case.

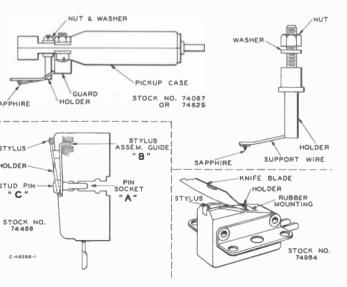
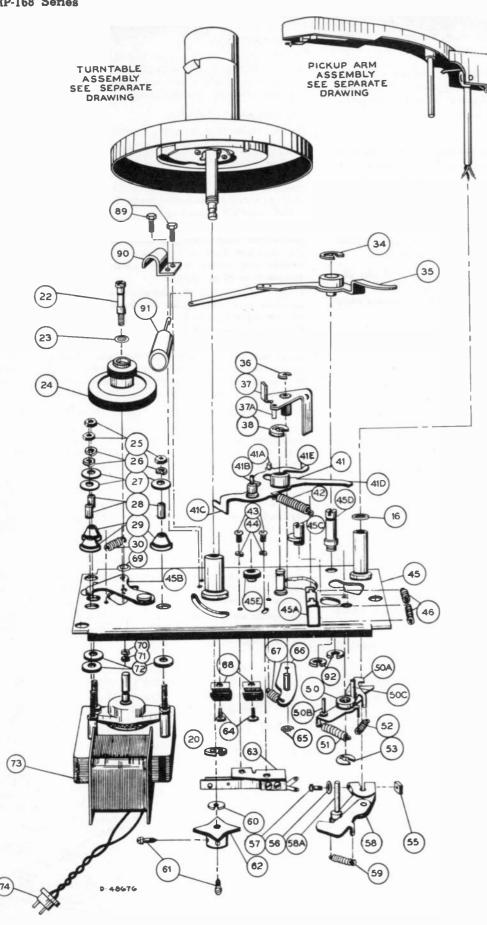
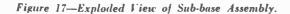


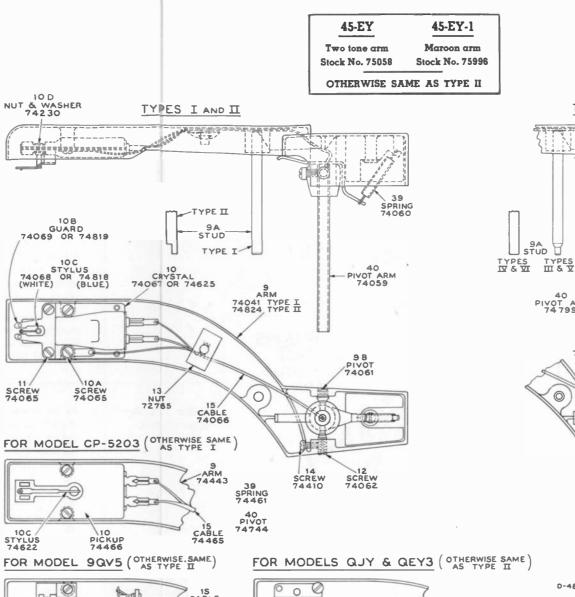
Figure 16—Stylus Replacement.

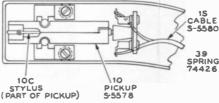
RP-168 Series











SUB-BASE ASSEMBLIES

Type I

Sub-base Stock No. 74070. Has staked studs for spring anchors and one-piece reject lever. Stamped or la-belled RP168-1 or RP168-3.

Type II

Same as Type I, except it uses a two-piece reject lever. Use Stock No. 74743 Sub-base (Type III) for replacement.

Type III

Sub-base Stock No. 74743. Same as Type II, except that it has pickup arm rest on sub-base (when motor-board rest is used, the sub-base rest is to be deformed).

Type IV

Sub-base Stock No. 74468. It uses an a.c. input con-nector and audio output jack mounted on a separate bracket. Labelled RP168-2 and used only with Model CP-5203.

Type V

Sub-base Stock No. 74856. Has turned up lances for spring anchors. Idler wheel mounting plate (458— Stock No. 74814) is removable. It is labelled RP168-1, RP168B-1, etc. It has pickup arm rest on sub-base (when motorboard rest is used, the sub-base rest is to be deformed) to be deformed).

10 A SCREW 74986 10 PICKUP 74984

Type VI

1

0

10C

STYLUS 74985

Stock No. 74803. Similar to Type V, but it does not bear any "RP168" identification. It has pickup arm rest on sub-base. Idler wheel mounting plate (45B) is secured to the sub-base with a shoulder rivet.

Type VII

Same as Type VI, except it does not have pickup arm rest on sub-base. Use Stock No. 74803 (Type VI) for replacement (the pickup arm rest is to be deformed).

Type VIII

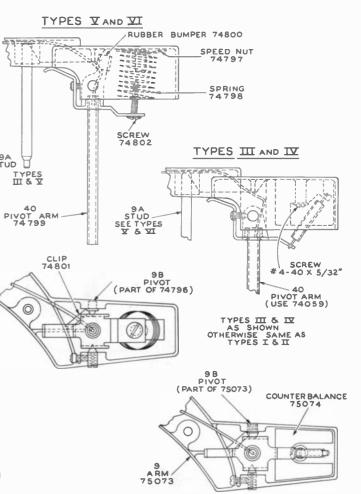
Sub-base Stock No. 75652. Has cut-out for clearance of "On-Off" motorboard switch. Labeled RP168D-1 or RP168D-2. Otherwise same as Type V.

NOTE: Types VI and VII

Late production of these types have the idler wheel mounting stud (22) staked to its mounting plate. The idler wheel retainer (horseshoe washer) is Stock No. 75081

NOTE

Two different main levers (director lever) are used, depending upon which turntable assembly is used. Lever (41). Stock No. 74076 has a long end (41C) and is used with Turntables Types I and II. Lever (41). Stock No. 74857 has a short end and is used with Turntable Type III.



D-48659

Figure 18-Pickup Arm Assemblies.

PICKUP ARM ASSEMBLIES (LESS PICKUP) Type I

Arm Stock No. 74041. Stamped 970488. Pickup arm stud (9A) is full diameter for entire length (do not use where pickup arm rest is on sub-base). Lead counter-balance is riveted to arm.

Arm Stock No. 74443. For Model CP-5203 only. Black finish, otherwise similar to No. 74041.

Type II

Arm Stock No. 74824. Same as No. 74041 except that stud (9Å) has a flat on one side at bottom end. Can be used with either type of pickup rest.

Arm Stock No. 75058. For Model 45EY only. Two-tone finish, otherwise same as No. 74824.

Arm Stock No. 75996. For Model 45-EY-1 only. Maroon finish, otherwise same as No. 74824.

Type III Arm stock No. 75073. Stamped 3R1. Similar to No. 74824 except that a different pivot (9B) is used and the lead counter-balance is fastened to the arm with a screw. Stud (9A) is of smaller diameter at bottom end. Can be used with either type of pickup rest. Use only with No. 74059 pivot arm.

Type IV

Same as Type III except that stud (9A) is of full diam-eter for entire length. Use No. 75073 for replacement. Type V

Arm Stock No. 74796. Stamped 3R1. Similar to Type III except that a different pivot (9B) is used and the lead counter-balance is not used. A 5/2" O.D. counter-bal-ance spring is used. Can be used with either type of pickup rest. Use only with No. 74799 pivot arm. Type VI

Same as Type V except that stud (9Å) is of full diam-eter for entire length. Use No. 74796 for replacement.

REPLACEMENT PARTS

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STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	
74256	16	SUB-BASE ASSEMBLIES Washer—Vellutex washer (pivot arm shaft bearing	74078	68
	17-19	washer) Washer—Washer for turntable bearing		70
72349 72688 74079	18 20 22	Bearing—Turntable thrust bearing Washer—"C" washer—turntable assembly retainer Stud—Idler wheel mounting stud—for Sub-base Types	74071	71
4078	23	I, II, III, IV, early VI, and early VII Washer—Dampening washer for idler wheel—top Wheel—Idler wheel for all except Model CP-5203		
4077 4470 4858	24 24	Wheel-Idler wheel for Model CP-2203 Hardware-Motor mounting hardware consisting of: Three hex nuts	74624	73
	25 26 27	Three lockwashers Three flat washers	74469	73
74089	28 29 30	Three spacers Three grommets Spring—Idler wheel tension spring (.195'' O.D. x .593''	30870 73158	74
35969 74073	34 35	-14 turns) Washer—"C" washer to retain pickup arm lift lever Lever—Pickup arm lift lever for mechanisms without		89
74757	35	dashpot Lever—Pickup arm lift lever for mechanisms with	74859 74428 74431	90 91 92
	35	dashpot Lever—Two piece pickup arm lift lever (use No. 74073		
4805	-	or No. 74757 for replacement) Spring—Tension spring for two piece pickup arm lift lever (170" O.D. x 34")	74041	
3726 4072 4453	36 37	Washer-'C' washer to retain trip pawl Pawl-Trip pawl Washer-Bearing washer between trip pawl (Ill. No.	74443	9
5969	38	37) and trip pawl lever (Ill. No. 66) Washer—"C" Washer to retain main lever	74824	9
4076 4857	41	Lever—Main lever (director lever) for use with turn- tables having rotating gear record separators Lever—Main lever (director lever) for use with turn-		
4084	42	tables having push-out record separators Spring—Main lever spring (.195" O.D. x .800"—271/4	75058	9
	43	turns) Screw—Screw to mount muting switch (No. 6-32 or No. 6 self tapping)	75073	9
	44	Washer—No. 6 lockwasher used with Item 43 (No. 6-32 screw)	74796	9
4070	45	Base-Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—Type I without pickup rest	75996	
4743	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—Type III with pickup rest	74061	6
4468	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—less No. 74473 bracket—Type IV—for RP-	74067	10
4473		lever—less No. /44/3 bracket—lype IV—lor RP- 168-2—used only on Model CP-5203 Bracket—Metal bracket with power input connector	74625	10
4856	45	and audio output jack—RP168-2 only Base—Sub-base assembly complete with all staked	74466	10
		and riveted parts—less idler lever and reject lever —Type V—with pickup rest	74984	10
4803	45	Base Sub-base assembly complete with all staked and riveted parts, including idler lever—less reject lever—Type VI—with pickup rest	*S-5578	10
5652	45	Base—Sub-base assembly complete with all staked and riveted parts—for mechanisms labeled RP 168D-1 or RP 168D-2 (same as Type V except hav-	74065	10
4860	45A-1	ing cut-out for clearance of motorboard switch) Lever—Reject lever—bottom section — for sub-base	74464	
4861	45A-2	Types V, VI, and VII Lever—Reject lever—top section—for sub-base Types	74986	10
4814	45B	V, VI, and VII PlateIdler wheel mounting plate and stud—for sub- base Type V	74065	
4870	45B-1	Retainer—(dler wheel retainer (spring sleeve) for use with No. 74814 plate (45B)	74818	10
5081	45B-1	Retainer—Idler wheel retainer (horseshoe washer) for use with sub-base Types VI and VII (late produc-	74622	10
74804	45B-2	tion) WasherIdler wheel bearing washer (½" O.D. x .185" I.D. x .032" thick) for sub-base Types VI and	74985	1
74430	45C	VII (late production) Stud—Eccentric stud for landing adjustment	74230	10
74429	45D 45E	StudEccentric stud for height adjustment Washer—Felt washer (1/2" O.D. x 1/4" I.D. x 3/16"	74065	
74086	46	thick) Spring-Reject lever spring (.203" O.D. x 13/16"-3434 turns) for sub-base having one piece reject lever-	74062	
74427	46	l required Spring-Reject lever spring (.203" O.D. x .531"-13 turns) for sub-bases having two piece reject lever-	74801	
74074	50	2 required Lever—Return lever (includes spring Ill. No. 51)	74066	1
74085	51 52	Spring—Return lever actuating spring (.195" O.D. x 29/32"—371/2 turns) Spring—Return lever latch spring (.180" O.D. x .535"—	74465	1
	54	21½ turns)	*S-5580	
	55 56	Washer (III. No. 58) to pivot Washer (III. No. 58) to pivot	74060	3
74099 74426	57 58 59	Lever—Trip lever (includes Items 54, 55, 56, 57 and 59) Spring—Trip lever spring (.171" O.D. x .595"—30	74426	3
33726 74083	60 61	turns) Washer—''C'' washer for star wheel shaft Screw—No. 6-32 x .281'' cone point set screw for star	74461	3
74081	62	wheel (2 required) WheelStar wheel	74798 74797	3
74088 33726	63 64 65	Switch—Muting switch Screw—No. 8 x 1/4" self tapping screw Washer"C" washer to retain trip pawl lever	75074	
74245	66	Lever—Trip pawl lever		1

No.	ILL. No.	DESCRIPTION
	68	Clamp-Cable clamp
74078	69 70	Washer—Dampening washer for idler wheel (bottom) Washer—No. 4 lockwasher for idler mounting stud (111. No. 22)
	71	Nut-No. 4-40 hex nut for idler wheel mounting stud (Ill. No. 22)
74071	72 73	Washer—Part of No. 74132—see Ill. No. 27 Motor—Il5 volt, 60 cycle motor complete with con- nector—shaded pole type. Not suitable for 50 cycle
74624	73	conversion Motor—115 volt, 60 cycle motor complete with con- nector and No. 73158 spring sleeve (for 50 cycle
/4469	73	conversion), shaded pole type Motor—115 volt, 60 cycle motor complete with con- nector and 5 mf. capacitor—for RP 168-2 only
74621 30870	74	Capacitor—Motor capacitor [5 m], for No. 7445 motor Connector—Two prong male plug (connector) for mo- tor cable
/3158	-	Spring—Spring sleeve to convert motors No, 74624 to 50 cycle operation
4859	89 90	Screw—No. 8 x ¼′′ self tapping screw Clamp—To mount dash-pot
74428 74431	91 92	Dash-pot—Pneumatic dash-pot complete with plunger Washer—"C" washer for mounting adjustment studs No. 74429 (III. No. 45D) and No. 74430 (III. No. 45C)
		PICKUP ARM ASSEMBLIES
74041	9	Arm—Pickup shell and stud—with pivot (9B) and lead counter-balance—Type I for use with rest on motor- board
74443	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—for Model CP-5203 only— black finish
74824	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—Type II for use with rest on sub-base
75058	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—for Model 45LY only—two- tone finish
5073	9	Arm—Pickup arm shell and stud—with pivot (9B)— less lead counter-balance—Type III—for use with either type of pickup rest
4796	9	Arm—Pickup shell and stud—with pivot (9B)—less balance spring—Type V—for use with either type of pickup rest
75996	9	Arm-Pickup arm shell and stud—with pivot (9B) and lead counterbalance-Type III-for use with rest on sub-base-for Model 45-EY-1-Maroon finish
4061	9B	Pivot—Pickup arm pivot—for use with arms No. 74041, No. 74443, No. 74824, and No. 75058 only (arms stamped 970488)
4067	10	Pickup—Crystal pickup cartridge complete including sapphire and guard—RMP 128-1
4625	10	Pickup—Crystal pickup cartridge complete including sapphire and guard—RMP 128-2
74466	10	Pickup—Magnetic pickup cartridge complete with stylus—for Model CP-5203 only
74984	10	Pickup—Ceramic pickup cartridge complete with stylus—for Models QIY and QEY3
-5578	10	Pickup—Ceramic pickup cartridge complete with styrus—for Model 9QV5 Screw—No. 2-56 x 3/16" fillister head screw to mount
74065 74464	10A 10A	ceramic pickup
74986	10A	Screw-No. 2-56 x 1/4" fillister head screw to mount No. 74466 pickup (Model CP-5203)
74069	10B	pickup (Models QIY and QEY3)
74819 74068	10B 10C	Screw—No. 2-36 x /4 ⁻ fillister head screw to mount No. 74466 pickup (Model CP-5203) Screw—No. 2-56 x 3/16" screw for mounting No. 74984 pickup (Models QIY and QEY3) Guard—Stylus guard for No. 74667 pickup (RMP 128-1) Guard—Stylus guard for No. 74625 pickup (RMP 128-2) Sapphire—Sapphire and holder (WHITE) for No. 74067 pickup (RMP 128-1)
74818	10C	pickup (RMP 128-1) Sapphire—Sapphire and holder (BLUE) for No. 74625 pickup (RMP 128-2)
4622	10C	Stylus—Diamond stylus and holder for No. 74466 pick- up (Model CP-5203)
74985	10C	Stylus—Stylus and holder for No. 74984 pickup (Mod- els QJY and QEY3)
74230	10D	Washer and Nut-to mount No. 74068 or No. 74818 stylus
74065	11	Screw—No. 2-56 x 3/16" fillister head screw to mount stylus guard on No. 74067 or No. 74625 pickups
74062	12	Screw—No. 8-32 x 13/32" cone point pivot adjusting screw
72765 74801	13 -	Nut-Speed nut to hold pickup arm cable Clip-Spring clip to hold pickup arm cable (used only on pickup arm Type V and VI-No. 74796) Screw-No. 4-40 x 3/16" fillister head screw to lock pivot screw No. 74062
74410	14	pivot screw No. 74062
74066	15	Cable—3-wire twisted pickup arm cable complete with connectors
74465	15	Cable—Shielded pickup arm cable complete with con- nectors—Model CP-5203 only Cable Shielded pickup arm cable complete with con-
-5580	15	Cable—Shielded pickup arm cable complete with con- nectors—Model 9QV5 only
74060	39	SpringCounter-balance spring (.171" O.D. x .695"- 43 turns) for Pickup Arm Types I, II, III and IV when using No. 74667, No. 74625 or No. 74984 pick- ups (meet model)
74426	39	ups (most models) Spring—Counter-balance spring (.171" O.D. x .595"— 30 turns) for Model 9QV5 only
74461	39	Spring-Counter balance enring (185" OD x 695"-
74798	39	2934 turns) for Model CP-5203 only Spring—Counter-balance spring (5%" O.D.—11 turns) for Pickup Arm Types V and VI (Stock No. 74796)
74797	-	Nut-Speed nut to hold No. 74798 spring in Pickup Arm Types V ond VI
75074	-	Weight—Lead counter-balance weight for Pickup Arm Types III and IV
	-	Screw-No. 4-40 round head screw to hold No. 75074 weight to No. 75073 Arm

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REPLACEMENT PARTS—Continued

STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	ILL. No.	DESCRIPTION
74059	40	Arm—Pivot arm and shaft for use with all pickup arms having lead counter-balance except Model CP-5203		31	Screw—No. 4-40 x 3%" fillister head screw (for use with cam, Ill. No. 33)—two required for Turntable Type I
74744 74799	40 40	Arm—Pivot arm and shaft for Model CP-5203 only Arm—Pivot arm and shaft for use with Pickup Arm		32	Washer—No. 4 lockwasher—for use with cam (III. No. 33)—two required for Turntable Type I
74802	-	Types V and VI Screw—No. 4 x 9/16" oval head counter-balance ad- justing screw for use with No. 74799 pivot arm	74231	33	Cam—Follower cam for Turntable Type I MOTORBOARD ASSEMBLIES
74800	-	Bumper-Rubber bumper for No. 74799 pivot arm	74623		Hardware—To mount sub-base to plastic cabinet of Models 9EY3, 9EY35, 9EY36, 9Y51, 45EY and QEY3
74090	1	TURNTABLE ASSEMBLIES Nose—Spindle nose—RED (early type—thin wall) for		47	or sub-base to motorboard of Models 9EY31 and 9EY32, consisting of: Three (3) grommets)
74620	1	Turntable Type I Nose—Spindle nose—RED (late type—thick wall) for		48	Three (3) spacers
74863	1	Turntable Type I or II NoseSpindle nose-RED-for Turntable Type III		49	Screw—No. 8-32 x 34" — for Models 9EY3, 9EY35, 9EY36, 9Y51, 45EY and QEY3
74472		Nose-Spindle nose-BLACK-for Turntable Type I Nose-Spindle nose-BLACK-for Turntable Type III Series Spindle nose-BLACK for Turntable Type III		49 49	Screw-No. 8-32 x 1/2" for 9JY, 45J and QJY Screw-No. 8-32 x 3/g" for instruments using spring
74091	2	Spring—Spindle nose spring — formed — for spindle nose No. 74090, No. 74620, or No. 74472 Spring—Spindle nose spring—formed wire—for spin-	74209	75	mounting of motorboard CoverMounting screw cover (threaded type-3 re- quired)-use with No. 74424 screw (Ill. No. 76)
	3	dle nose No. 74863 or No. 74795 Screw—No. 6-32 round head machine screw for spin-	74581	75	Cover—Mounting screw cover (plug-in type—3 re- guired)—use with No. 74582 screw (III. No. 76)
74095	4	dle nose spring No. 74091 Spring—Separator shelf return spring (.180'' O.D. x	74424	76	Screw—No. 8-32 x 13/4" special screw (with tapped hole) for mounting record changer (3 required)—use
74866	4	1 1/16"—10 turns) for Turntable Types I and II Spring—Separator shelf return spring (.118" O.D. x 34"—16 turns)—two required—for Turntable Type III	74582	76	with No. 74209 cover (III. No. 75) Screw-No. 8-32 x 134" special screw (non-tapped hole) for mounting record changer (3 required) use with No. 74581 cover (III. No. 75)
74096	5-6	Separator—Separator knife, shelf and gear assembly for Turntable Types I and II	75057	76	Screw-No. 8 x 7/8" oval head wood screw for mount- ing record changer (3 required)—for Models 9EY31
74865 74864	5-6 5B 6B	Shelf—Separator shelf for Turntable Type III Separator—Separator knife for Turntable Type III	73549	77	and 9EY32 Emblem—"RCA Victor" emblem—metal Emblem—"RCA Victor" emblem—plastic
74092	7	Shaft—Star wheel shaft and gear assembly for Turn- table Types I and II	74674 74422	77 78	Spring—Conical spring for mounting record changer —upper L.H. side (2 required)
74867	7	Shaft—Star wheel shaft with cam for Turntable Type III	74423	79	Spring—Conical spring for mounting record changer —bottom (3 required)
33726 74042	8	Washer—''C'' washer for top of No. 74867 shaft Turntable—Turntable with TAN MARBLEIZED mat— Type I—use No. 74090 RED nose (thin wall)	74208 74184	80 81	Nut—Tee nut for mounting record changer (3 required) Motorboard — Motorboard complete with welded brackets and stud—less rest and operating parts—
75065	8	Turnitable—Turnitable with TAN MARBLEIZED mat- Type I—use No. 74620 RED nose (thick wall)			9EY31 and 9EY32
74445	8	Turnicale—Turnicale with TAN MARBLEIZED mat— Type III—use No. 74863 RED nose Turnicale—Turnicale with BLACK mat—Type I—use	74444	81	Motorboard — Motorboard complete with welded brackets and stud—less operating parts—for Model CP-5203
75145	8	No. 74472 BLACK nose TurntableTurntable with RED mat-Type Iuse No.	75076	81	Motorboard — Motorboard complete with welded brackets and stud—less rest and operating parts—
75059	8	74472 BLACK nose Turntable—Turntable with RED mat—Type III—use	74987	81 †	for Models 9EY31 and 9EY32 Motorboard — Motorboard complete with welded
75997	8	No. 74795 BLACK nose Turntable—Turntable with MAROON mat—Type III— use No. 74863 RED nose	74185	82	brackets and stud-less operating parts-for all models without motorboard rest Rest - Pickup arm rest - marcon - for all models
75998	8C 8C	Nat—Turntable mat—MAROON Mat—Turntable mat—TAN MARBLEIZED	74446	82	(where required) except CP-5203, 9EY31 and 9EY32 Rest—Pickup arm rest—black—used on Model CP-
74471	8C 8C	Mat-Turntable matBLACK Mat-Turntable matBLACK	75077	82	S203 only Rest—Pickup arm rest and latch—for Models 9EY31
	21	Screw—No. 6-32 x 13/4" fillister head screw (holds	74210	83	and 9EY32 Knob—Reject control knob—marcon
74868	21	nose to spindle) two required for Turntable Type I Screw-No. 6-32 x 15%" fillister head screw (holds nose to spindle) two required for Turntable Types	74467 74421	83 84	Knob—Reject control knob—black Spring—Conical spring for mounting record changer
74869	21A	II and III Washer—No. 6 flat washer (for use under No. 74868 screw—two required for Turntable Types II and III	74212	85 86	-upper R.H. side (1 required) Nut-Speed nut for reject control knob Screw-No. 6 self-tapping screw
	 		33726	87	Screw—No. 6 self-tapping screw Washer—"C" washer for mounting reject lever actu- ating lever
upon	which	ent main levers (director lever) are used, depending turntable assembly is used. Lever (41) Stock No. 74076 end (41C) and is used with Turntables Type I and II.	74211 74474	88 _	Lever-Reject lever actuating lever Switch-"'ON-OFF" switch-used on Model CP-5203 only

has a long end (41C) and is used with Turntables Type I and II. Lever (41) Stock No. 74857 has a short end and is used with Turntable Assembly Type III.

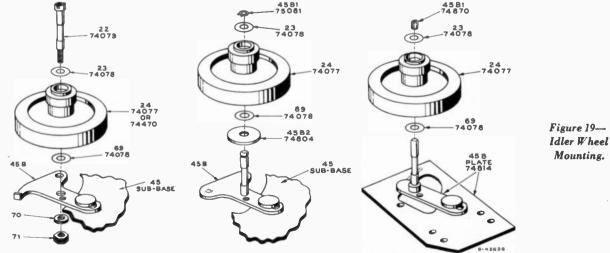
APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

32875

only Switch-

Items listed but without Stock Nos. are not stock items.

* Stock Nos. S-5578 and S-5580 are for use in instruments manufactured for RCA International Division and are not stocked by distributors in the U.S.A.



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† Maroon finish. Does not have provision for mounting "ON-OFF" switch. The gold finish motorboard having provision for mounting "ON-OFF" switch is not stocked.

only witch—"ON-OFF" switch—used on Models A-82, A-91, A-108, 2-T-81, 6-T-84, 6-T-86, 6-T-87 and 9-T-89

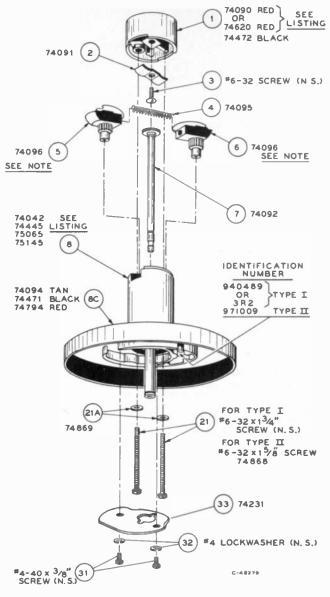




Figure 20 - Turntable Assemblies, Types I and II.

Main Lever vs Record Separators:

Two different main levers (director lever) are used depending upon the type of record separators being used.

Stock No. 74076 lever is used only with the rotating gear type of record separators. The end (41C) that engages the star wheel is long.

Stock No. 74857 lever is used only with the push-out type of record separators. The end (41C) that engages the star wheel is short.

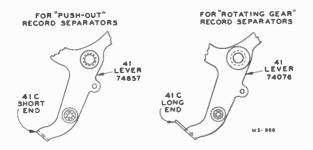
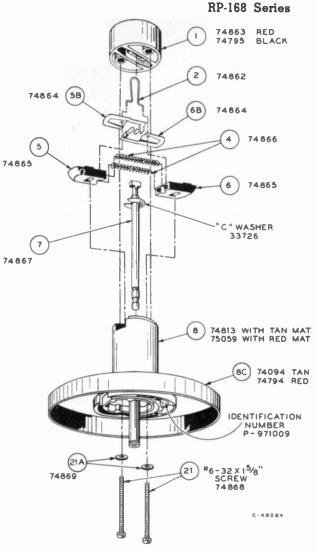


Figure 22-Main Lever.



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NOTE: Use care in dis-assembly to prevent loss of springs. Remove screws—lift nose slightly—hold both separator knives down against shelves—then remove nose.

Figure 21—Turntable Assemblies, Type III.

TURNTABLE ASSEMBLIES

Type I

- Turntable Stock No. 74042. Stamped 940489 or 3R2. Has TAN MARBLEIZED mat and uses rotating gear type of record separators. Use No. 74090 spindle nose—RED (thin wall)
- Turntable Stock No. 75065. Same as No. 74042, except for diameter at top of spindle. Use No. 74620 spindle nose-- RED (thick wall)
- Turntable Stock No. 75145. Same as No. 75065, except that it has a RED mat. Use No. 74472 spindle nose —BLACK
- Turntable Stock No. 74445. Same as No. 75065, except for finish and BLACK mat. Used only on Model CP-5203. Use No. 74472 spindle nose (BLACK)

Type II

Stamped 971009. Follower cam (33) is a part of the turntable casting. Otherwise, similar to No. 75065. Use No. 75065 turntable, and No. 74231 cam for replacement

Type III

- Stock No. 74813. Stamped 971009. Has TAN MARBLE-IZED mat and uses push-out type of record separators. Use No. 74863 spindle nose—RED. Although this turntable bears the same stamping as Type II, it does not have the shafts required for mounting the rotating gear type of separators
- Stock No. 75059. Same as No. 74813, except that a RED mat is used. Use No. 74795 spindle nose-BLACK

NOTE: Main Lever (41)

Stock No. 74076 lever (with long end 41C) is used in conjunction with rotating gear type of record separators. Stock No. 74857 lever (with short end 41C) is used in conjunction with push-out type of record separators

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RP-168 Series

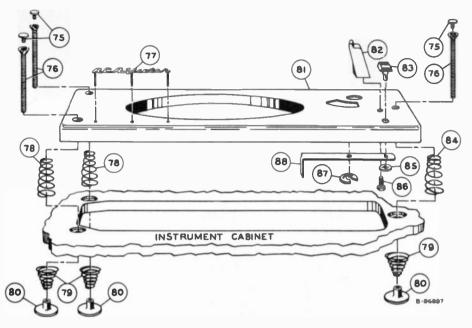


Figure 23 Motorboard Assemblies.

CHANGES—SERVICE HINTS (Continued from Page 4)

Pickup Arm Rest:

Two different types of pickup arm rest are in use. The original type was visible on the motorboard. The type presently in use is a metal projection on the sub-base.

The correct grouping of parts must be used, refer to descriptive text on page 6. The two types are illustrated below.

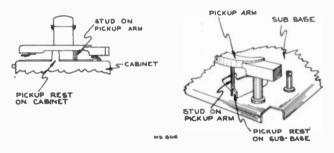
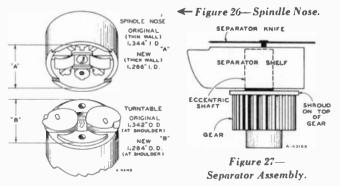


Figure 24—Pickup Arm Rest.

Spindle Nose and Turntable (Type I):

The wall thickness of the spindle nose (III. No. 1) has been increased and the machined shoulder at the top of the turntable decreased accordingly. Thick wall spindle nose will not fit on early type turntable. The new type red spindle nose (thick wall) is available as Stock No. 74620.

NOTE: The screws (Ill. No. 21) which hold the spindle nose to the turntable should not be tightened too tight. The spindle nose can be distorted and cause records to bind.



Sub-base Mounting:

The sub-base is attached directly to metal motorboards and to the cabinets of Models 9JY, QJY and 45J with three screws and three washers. No grommets or spacers are used except with Models 9EY31 and 9EY32.

On all other instruments, the sub-base is cushion mounted to the plastic cabinet with rubber grommets, metal spacers, screws and washers. The mounting is illustrated below.

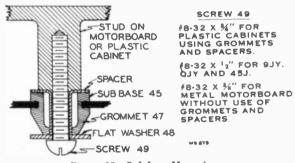


Figure 25—Sub-base Mounting.

Separator Assemblies (Rotating Gear Type):

A flat has been added to the separator gears eccentric shafts. This flat permits the shelf (III. Nos. 5 and 6) to stay out until the nose of the blade (III. Nos. 5B and 6B) is approximately half-way out. Then the shelf retracts fast. This faster action minimizes unequal dropping of records.

The two types of separator assemblies (Stock No. 74096, Ill. Nos. 5 and 6) are NOT INTERCHANGEABLE. In addition the early type has been grouped according to mold number (at bottom of spring hole) and installed in pairs.

Group	Group	Group
Mold Number	Mold Number	Mold Number
1, 3, 5	9, 10	0, 8

Assemblies of one group should not be mixed with assemblies of another group or unequal dropping of records may occur? If a matched pair is not available, first check timing of separator knives then the dropping of records; it may be necessary to file the edge of the shelf which released the record last.

The late type (having a flat on the eccentric shaft) do not need to be grouped, but an early assembly should not be used in conjunction with a late assembly (use two early or two late assemblies). The late type may be identified by its having a shroud at the top of the gear (see Figure 27).

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CHANGES-SERVICE HINTS (Continued)

Three thrust washers (Ill. Nos. 17 and 19) are now being used in mounting the turntable. This is done because it was found that the top edge of some idler wheels would contact a nonmachined surface on the underside of the turntable and cause noise similar to that caused by a rough idler wheel.

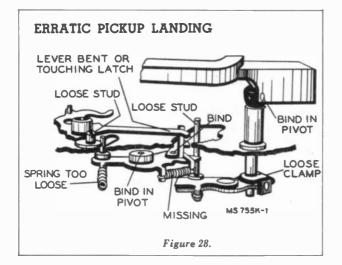
Jamming:

On early RP-168-1 mechanisms it was sometimes possible to jam the mechanism by maintaining pressure on the reject button during cycle. If such jamming should occur check the following:

- 1. The tip radius of the reject lever (Ill. No. 45Å) should be $\frac{V_{16} \sigma_{\ell}^{\prime}}{2}$
- The edges of the trip pawl (III. No. 37) should have a slightly rounded edge (.010" radius).

Present production uses a two piece spring loaded reject lever (Ill. No. 45Å) which eliminates the possibility of jamming caused by pressure on the reject button.

Jamming can also be caused by incorrect positioning of the director lever (main lever) (Ill. No. 41) in relation to the star wheel (Ill. No. 62). See Figure 35.



WOW (Speed Variation)

Intermittent Non-Tripping:

The trip lever spring (Ill. No. 59) has been increased in tension to provide better tripping action. The new spring has 30 turns and is available as Stock No. 74426.

To reduce friction a washer has been added between the trip pawl (Ill. No. 37) and the trip pawl lever (Ill. No. 66). It is available as Stock No. 74453.

Eccentric Adjustment Studs:

In early production the eccentric landing (Ill. No. 45C) and height (Ill. No. 45D) adjustment studs were staked to the subbase assembly. They are now secured to the sub-base assembly with "C" washers. The landing adjustment stud (Ill. No. 45C) is available as Stock No. 74430. The height adjustment stud (Ill. No. 45D) as Stock No. 74429 and the "C" washer (Ill. No. 92) as Stock No. 74431.

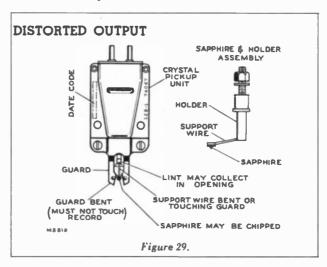
Pneumatic Dashpot

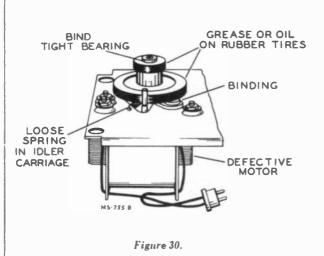
A pneumatic dashpot (Stock No. 74428) has been added to improve pickup arm landing. The dashpot case is clamped to the base sub-assembly and the plunger is attached to the long end of the tone arm lift lever (Ill. No. 35) (Stock No. 74757).

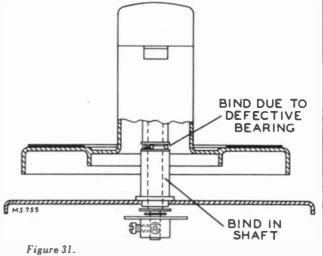
Polarized Motor:

On some instruments the connection of the power leads of the motor should not be reversed. The leads are color coded and reversed leads may introduce objectionable hum. The record changer mechanisms using this motor are labeled RP 168B-6 or RP 168D-2 and are used with Models 45-EY and 45-EY-1.

Replacement motors (Stock No. 74071) may not be color coded and in such cases it will be necessary to determine the correct connection by irial.







RP-168 Series

ADJUSTMENTS

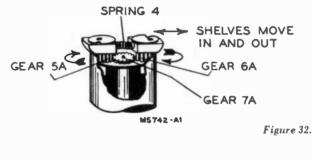
Adjustment Sequence:

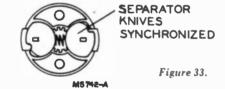
- Synchronize separator shelf (Ill. No. 5) and separator knife (Ill. No. 5B) action (necessary only on rotating gear type of record separators).
- 2. Adjust position of star wheel (Ill. No. 62).
- Adjust position of director lever (main lever) (Ill. No. 41) in relation to the star wheel by bending if necessary.
- Adjust tone arm pivot screw (Ill. No. 12) for minimum side play without binding.
- 5. Adjust sapphire height above motorboard.
- 6. Adjust tripping position.
- 7. Adjust landing position.
- 8. Adjust pickup arm height during cycle.
- Adjust position of muting switch so that contacts are open ¹/₃₂" during playing and are closed during cycle.

Separator Synchronization:

The following applies only to the rotating gear type of record separators:

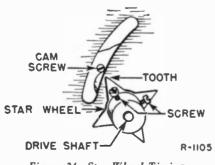
 Make certain the two embedded gears (5 and 6) are meshed with gear (7Å) on the upper end of the star wheel shaft so the action of the separator knives is synchronized.

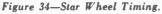




Star Wheel Position:

- Turn the star wheel so that the separator knives are in the position indicated in Figure 33 for rotating gear type of separators or fully retracted for push-out separators.
- 2. Loosen the two set screws (61) sufficiently to permit the star wheel to rotate without disturbing the shaft (7).
- Rotate the star wheel points directly to a cam screw or nose screw (visible through slot) as shown in Figure 34.
- 4. Tighten the two set screws (61) and rotate the mechanism through a complete cycle to check operation. The separator knives must rotate 360° to the starting position as indicated in Figure 33.





Director Lever Position:

Push reject lever and rotate the turntable slowly by hand until the end (41C) of the director lever moves in to its limit of travel so when the star wheel is rotated it contacts by the amount indicated in Figure 35 for lever with long end. For lever with short end, the star wheel should first contact the end (41C) approximately 1 16-inch from the front or leading edge of the lever.

If the end of the director lever (main lever) is too close to the star wheel, it will jam. If too far away, it will cause erratic record dropping. If in doubt and unable to measure, move the end toward the star wheel until most of the play is removed when the star wheel is moved back and forth at this setting. With the push-out record separators and the lever with short end, there will be considerable play but the tension of the separator springs holds the star wheel against the lever.

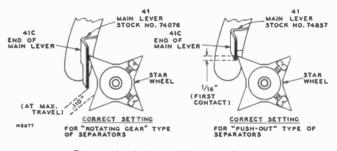


Figure 35 Setting of Director Lever.

Pivot Screw Adjustment:

Loosen the pivot locking screw (14) and adjust the pivot screw (12) for minimum side play without causing binding.

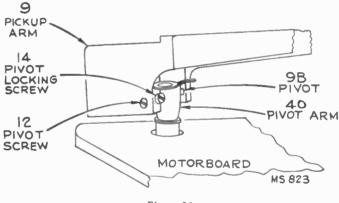
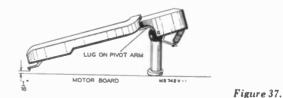


Figure 36.

Sapphire Height Adjustment (Out of Cycle):

Bend the lug on the pivot arm (40) so that the sapphire point is approximately $\frac{1}{16''}$ above the motorboard.



Tripping Adjustment:

- Assemble the pickup arm and trip lever assemblies as shown in Figure 38. Leave the clamping screw (57) loose enough to permit horizontal movement of the trip lever on the shaft. (Allow approximately .010 inch vertical end play.)
- Turn the eccentric landing adjustment stud (45C) to determine the inward and outward limit of adjustment, then turn it to a setting half-way between the limits.

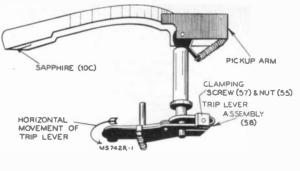


Figure 38.

- 3. Tripping should occur when the sapphire reaches a position $19_{32}^{\prime\prime}$ from the near side of the turntable spindle. This position is adjusted by holding the trip lever and moving the pickup arm inward or outward to obtain the specified position.
- 4. A convenient way of measuring this distance is to make a mark on the back side of a stroboscope disc 1%:2" from the inner edge, place the disc on the turntable, with the turntable revolving, hold the disc stationary and move the pickup arm very slowly in towards the turntable spindle.
- After this position has been obtained, tighten the clamping screw (57) and recheck the tripping position and vertical end play.

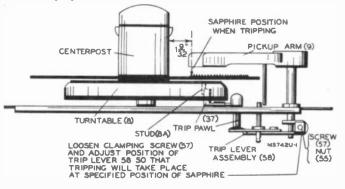


Figure 39—Tripping Position.

Landing Adjustment:

 After the tripping adjustment has been made as described above, turn the eccentric landing adjustment stud (45C) so that the sapphire will set down on the record half-way between the outer edge and the first music groove. This position is 25's" from the turntable spindle. The location of the adjustment stud is illustrated in Figure 42.

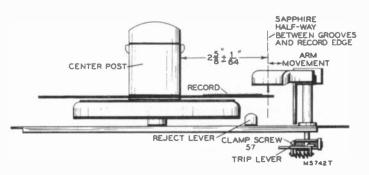


Figure 40-Landing Position.

Pickup Arm Height Adjustment (In Cycle):

Set the mechanism in cycle. Turn the turntable by hand, until the pickup arm has reached its maximum height. By means of a screwdriver turn the height adjustment stud (45D) until the distance between the top of the turntable and the sapphire point is 34''. Use that position of the eccentric stud which causes the pickup arm to rise during clockwise adjustment of the stud. The location of the adjusting stud is illustrated in Figure 42.

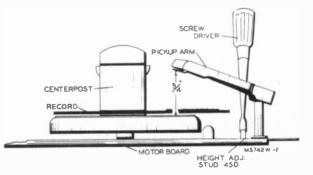
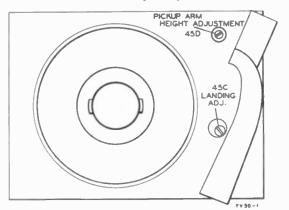


Figure 41—Height Adjustment.





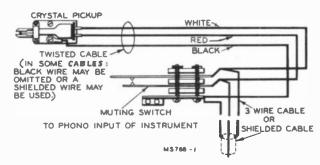


Figure 43—Pickup Muting Switch Wiring.

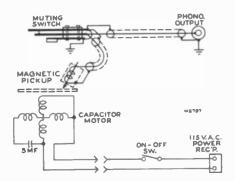
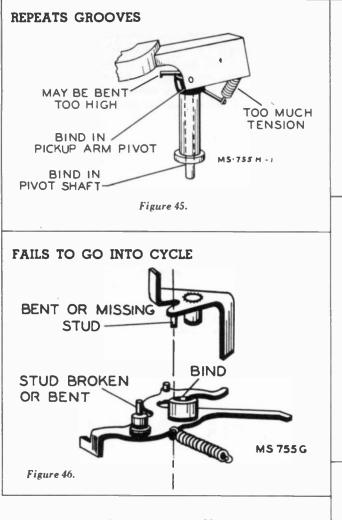


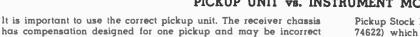
Figure 44--Schematic Diagram (Model CP-5203).

SERVICE HINTS (Continued)



Weak director lever (main lever) spring (Ill. No. 42) or excessive tension on muting switch may cause poor unlatching action and erratic pickup landing.

A drop of cement (Duco Household Cement or similar) applied to the ends of springs will prevent their becoming unhooked. Use care to prevent cementing turns of the springs.



Pickup Stock No. 74067 (RMP 128-1) uses a stylus (Stock No. 74068) which has a WHITE paint coding. It is used with the following instruments: 9EY3†, 9EY35, 9EY36, 9JY*, 9TW333, 9TW390, 9W101, 9W102, 9W103, 9W105, 9Y7, 45EY1, 45EY1, 45EY15 and 45J*

Pickup Stock No. 74625 (RMP 128-2) uses a stylus (Stock No. 74818) which has a BLUE paint coding. It is used with the following instruments: A55, A78, A106, TA128, TA129, TA169, 9EY3†, 9EY31, 9EY32, 9TW309, 9W51, 9W78, 9W106, 9Y51, 45EY+, S1000, A82, A91, A108, 9Y511, 4QV8C, 6QU3Y, 2T84, 6T86, 6T87 and 9T89.

* Models 9IY and 451.

for other pickups.

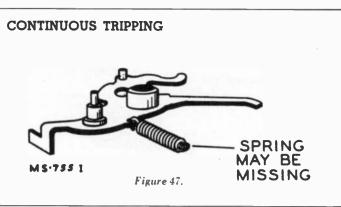
No. 74067 pickup is recommended as replacement although No. 74625 has been used as a substitute in some instruments.

The characteristics of the two pickups differ in that No. 74067 has a greater output in the middle audio frequencies. The response of No. 74625 is more "flat" and has a greater output at high audio frequencies.

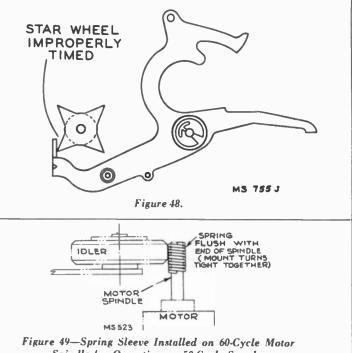
† Models 9EY3 and 45EY.

Use No. 74067 pickup in conjunction with RS132, RS132E or RS132F amplifier.

Use No. 74625 pickup in conjunction with RS132A amplifier.



RECORD DROP ON OR HIT PICKUP ARM



Spindle for Operation on 50-Cycle Supply.

PICKUP UNIT vs. INSTRUMENT MODEL

Pickup Stock No. 74466 (RMP 130-1) uses a stylus (Stock No. 74622) which has a BLACK paint coding It is used only with Model CP-5203.

Pickup Stock No. 74984 is a ceramic pickup used only with Models QJY, QEY3 and 6QU3Y.

Pickup Stock No. S-5578 is a ceramic pickup used with Models 9QV5 and 4QV8C.

CHANGE IN STYLUS COLOR CODE

The identification color on the bottom of the stylus holder of Stock Nos. 74068 and 74818 has been changed to provide identification of a factory process.

Stylus Stock No. 74068

Used in pickup Stock No. 74067 (RMP 128-1). Identification color may be either WHITE or BLACK.

Stylus Stock No. 74818

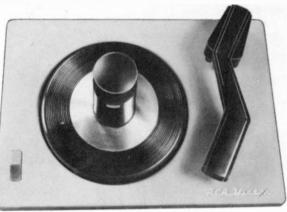
Used in pickup Stock No. 74625 (RMP 128-2). Identification color may be either BLUE or GREEN.

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RP-168 Series



RCAVICTOR



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MODEL IDENTIFICATION

- RP-190-1 (Uses crystal pickup Stock No. 75476." Models
- RP-190-1a (45-EY-2, 45-EY-3, 45-J-2 and 9Y510.
- RP-190-2 Uses crystal pickup Stock No. 75575. Models A-82, RP-190-2a A-91, A-101, A-108, 45-W-9, 45-W-10, 2781, 6784,
- 6T86, 6T87 and 9T89.
- RP-190-3 (Uses crystal pickup Stock No. 75476° and special RP-190-3a) motor (85 volts). Model 45-EY-3.
- RP-190-4 (Uses crystal pickup Stock No. 75476° and different RP-190-4a ("On-Off" switch, otherwise same as RP-190-1 and RP-190-1a
- RP-190-5 Uses ceramic pickup Stock No. 72697, different counterbalance spring and motor suitable for 50 cycle conversion. Otherwise same as RP-190-4a. Models QEY4, QEY5 QIY2.
- RP-190-6 Uses crystal pickup Stock No. 74067. Otherwise same as RP-190-4a.

*Use Stock No. 74067, for replacement.

NOTE: RP-190-1 vs. RP-190-1a. RP-190-2 vs. RP-190-2a, etc.

Two types of cycling slides and counterbalance assemblies have been used. The "a" in the identification indicates the use of the late type assemblies. See Page 10 for details.

CAUTION

- 1. Avoid handling the pickup arm when the mechanism is in cycle.
- 2. Do not use force to release a jam.
- 3. Do not try to remove the records on the turntable if the turntable is stopped in cycle.
- 4. If the separator knives protrude from the center post when the mechanism is out of cycle, push the "start-reject" knob to reject and the condition should be corrected automatically.

AUTOMATIC OPERATION

- Place a stack of records over the center post, with the desired selections upward, the last record to be played on top.
- Push the "start-reject" knob to "start" (forward) and release. The mechanism will automatically play in sequence one side of each record stacked on the separator shelves.
- 3. To reject a record being played, push the "start-reject" knob.
- 4. At conclusion of playing and as the last record is being repeated, lift the pickup arm and place on its rest. Turn off the power to the drive motor by pushing back on control knob.
- 5. Remove the stack of records by lifting them straight up.

RP-190 Series

45 R.P.M. Automatic Record Changer

SERVICE DATA

-1950 No. 14-

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

SPECIFICATIONS

furnicible speed
Records used RCA type seven-inch fine groove
Record capacity 12 records
Pickup force 5 grams
Stylus tip radius
Power supply

(RP-190-3 uses 85 volt, 60 cycle motor.)

LUBRICATION

A light machine oil (SAE No. 10) should be used to oil the bearings of the drive motor.

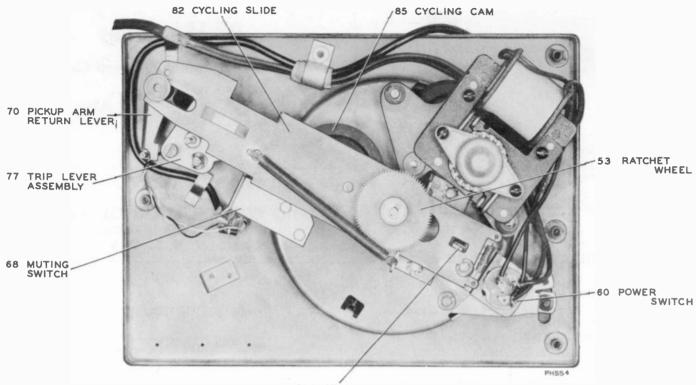
On all bearing surfaces, excepting the motor bearings, Houghton STA-PUT No. 320, or equivalent, should be used. On all other sliding surfaces, STA-PUT No. 512, or equivalent, is recommended. STA-PUT can be purchased from E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia, Pa.

(Do not oil or grease record separator shelves.)

It is important that the drive motor spindle and the rubber tire on the idler wheel be kept clean and free from oil or grease, dirt, or any foreign material at all times. Carbon tetrachloride or naphtha is satisfactory for cleaning these parts.

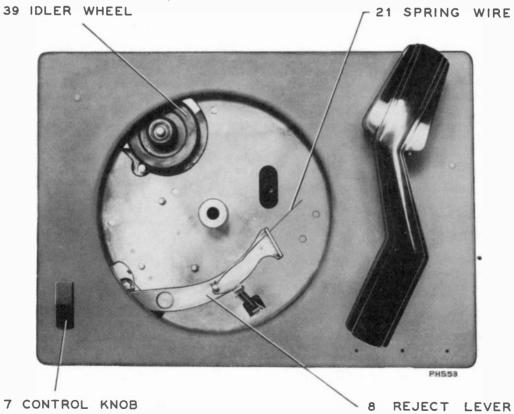
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82A STOP DOG

Fig. 1



Trip Lever (77)

The trip lever is mounted on the bottom end of the pickup arm vertical pivot shaft. The function is to transfer the movement of the pickup arm to parts of the operating mechanism below the motor board. The end of the trip lever contacts stud on cycling cam thereby starts tripping action.

Pickup Arm Return Lever (70)

The function of the pickup arm return lever is to provide a force necessary to push the pickup into landing position. The end of the pickup arm return lever is curved so as to provide a stop for trip lever. This stop determines landing position of the pickup.

Function of Principal Parts Reject Lever (22)

The function of the reject lever is to transfer the action of the control knob to the cycling cam thereby starting a change cycle.

Muting Switch (68)

The function of the muting switch is to short the pickup leads to prevent amplifying of mechanical noise, of the merchanism during change cycle.

Cycling Cam (85)

The cycling cam is mounted on the cycling slide. The function of the cam is to transfer the rotary motion of the turntable shaft into sliding motion of the cycling slide.

Cycle of Operation

Stop Dog (82A)

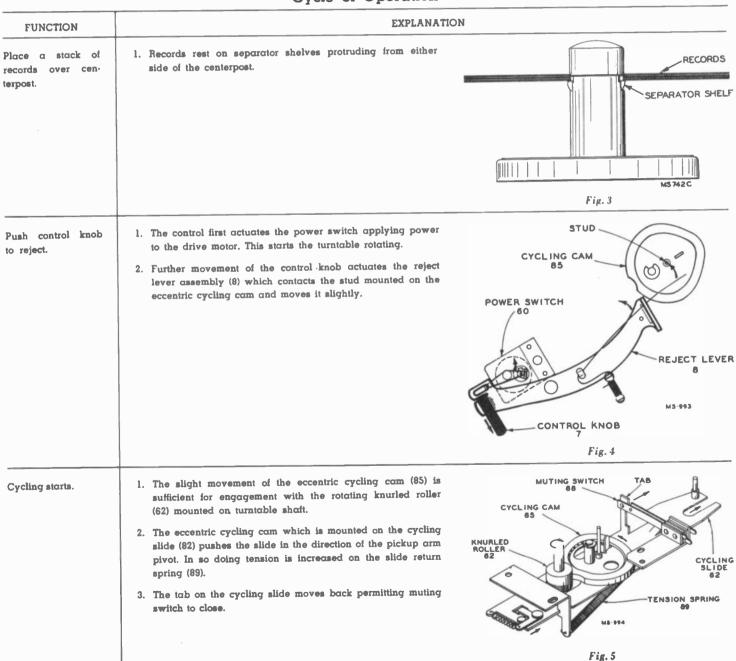
The stop dog is mounted on the end of cycling slide. The function of the stop dog is to engage the ratchet wheel on the separator shaft and prevent it from rotating, at the exact moment during change cycle.

Ratchet Wheel (53)

The function of the ratchet wheel located on the end of the separator shaft is to keep the separator shaft stationary at the proper time, so as to actuate the separator mechanism inside the centerpost.

Cycling Slide (82)

The cycling slide is the main connecting medium between the various moving parts.

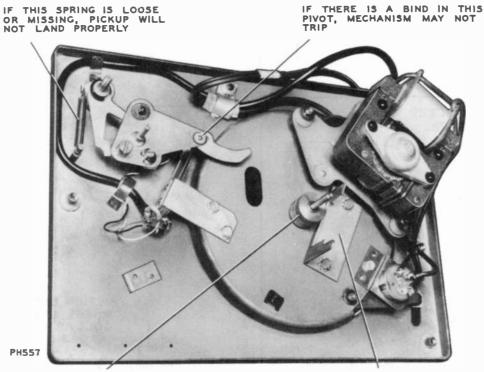


RP-190 Series

	Cycle of Operation—Conti	inued
Pickup raises from the rest.	 As the cycling slide continues to move in the direction of the pickup arm pivot the small incline pressed in the slide causes the elevating rod (74) to lift the pickup arm from the rest. The raised pickup arm moves inward slightly from the in- ward force of the pickup arm return lever (70), until the stud on the trip lever (77) assembly comes against edge of the cycling slide. The cycling slide continues to move further, which pushes the trip lever back. The eccentric landing adjustment stud (79) contacts and pushes the pickup arm return lever (70) against the tension of the return spring (69). 	PICKUP, ARM RETURN LEVER (70) PUSHES AGAINST STUD MOVING TRIP LEVER NI UNTIL STUD- COMES AGAINST SLIDE NICLINE LEVATING ROD 74
	PICKUP ARM RETURN SPRING SPRIN	Fig. 7 RATCHET WHEEL 53 STOP DOG MS-997
Separator knives separate the lower record from the stack and the lower record drops to the turntable.	 As the cycling slide reaches the limit in its movement in the direction of the pickup arm pivot, the stop dog mounted on the slide engages the rotating ratchet wheel (53). The ratchet wheel and separator shaft (6) then remains stationary and the turntable continues to rotate. The separator shelves and knives are coupled together in such a manner that the flattened end of the separator shaft pushes the knives out, which in turn pulls the opposite shelves in. As the shelves recede, the separator knives mounted above the shelves move out and separate the lower record of the stack and support the remaining records while the lower record drops to the turntable. 	Fig. 8 Fig. 8 Fig. 8 Fig. 8 Fig. 9
Pickup moves in for landing.	 The cycling slide moves away from the pickup arm pivot, due to the force produced by the tension spring (89) keeping the eccentric cycling cam against the rotating knurled roller (62). The knurled roller at this time is returning to the smaller diameter of the cam. The stud on trip lever assembly follows the slide due to the force produced by the action of the pickup arm return lever. After the slide has moved back a short distance the stud on the trip lever assembly no longer follows the slide since the landing adjustment stud comes against the curved stop on the end of the pickup arm return lever. At this moment the pickup is directly above the point of landing. As the cycling slide completes the return movement the elevating rod slides down the incline which lowers the 	LANDING AD- JUSTMENT STOP OW INST STOP OW IN
	stylus on the record.	

Cycle of Operation—Continued Cycle completed 1. The tab on the cycling slide contacts and opens the muting switch. and the record 0 TUD ON TRIP LEVER UNLATCHES FROM PICKUP ARM RETURN la plays. TAB OPENING 2. The stud on the cycling slide pushes pickup arm return lever back to permit free motion of the pickup arm. LEVER 3. The change cycle is completed as the cycling slide comes against the stop bracket, at which time the knurled roller rotates in the cut away section of the cam. 4. As the record plays and the pickup arm moves inward. 5. When the stylus reaches the end of the selection the end of the trip lever contacts the stud on the cycling cam, and THIS STUD UNLATCHES PICKUP ARM RETURN LEVER pushes it slightly. 6. The slight movement of the cycling cam causes engagement with the rotating knurled roller, thereby starting a Fig. 11 change cycle. 7. The mechanism repeats the preceding sequence of operations until the last record of the stack has dropped and has been played. This selection will be repeated until the KNURLED ROLLER ROTATES IN CUT-A-WAY SECTION OF CYCLING CAM. pickup is lifted and placed on the rest. mme **(**]] SLIDE COMES AGAINST BRACKET AND STOPS LEVER PUSHING LING CAM (85) START CHANGE CYC Fig. 12 Fig. 13

DO YOU KNOW?

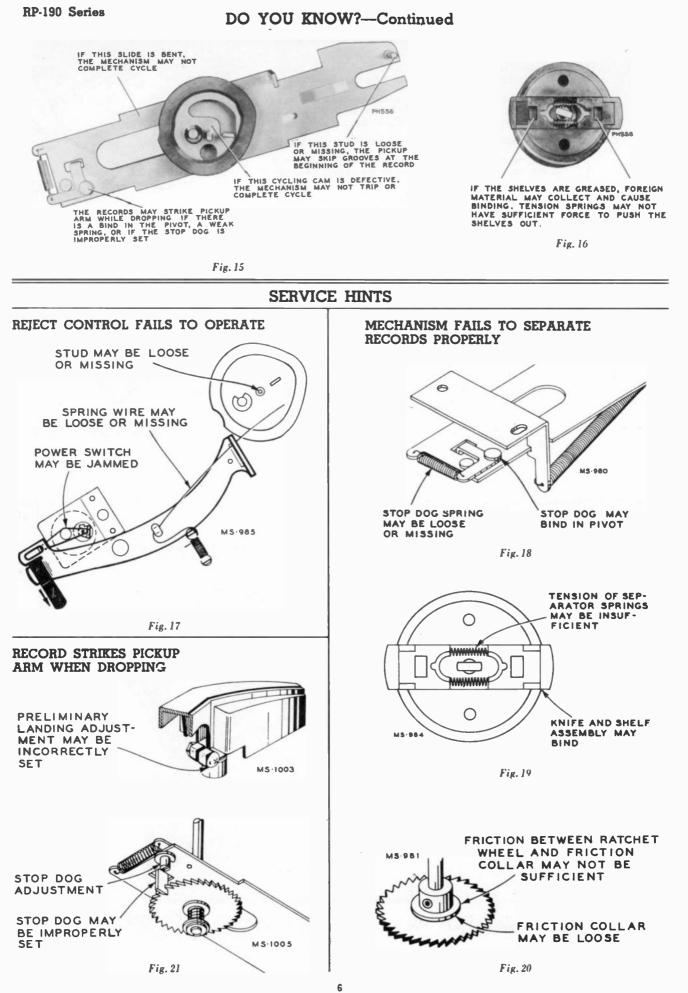


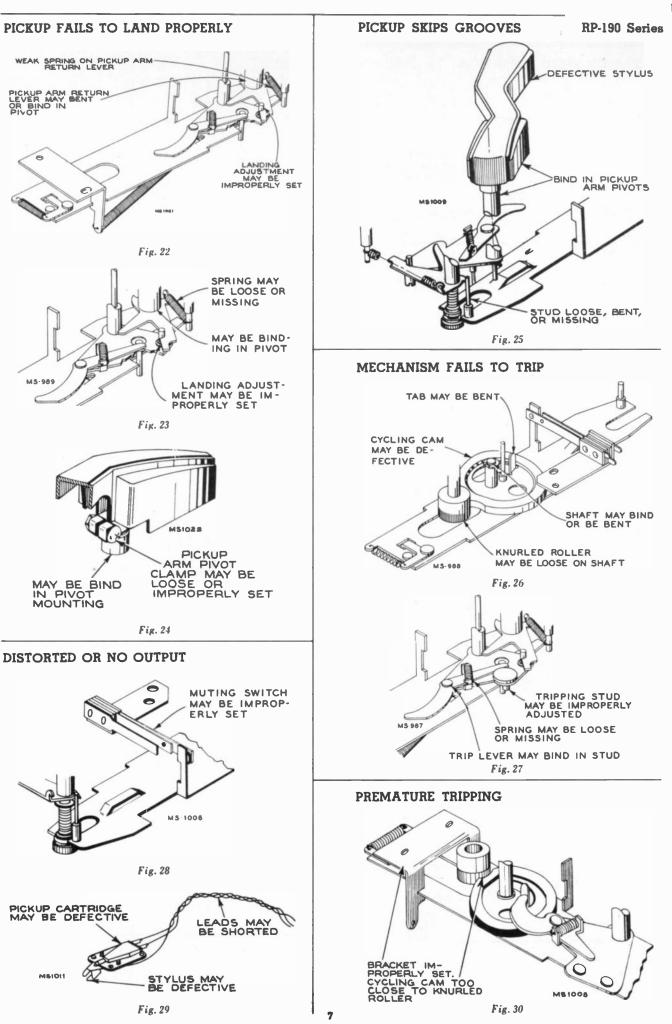
IF THIS KNURLED ROLLER IS LOOSE, MECHANISM MAY FAIL TO COMPLETE CYCLE

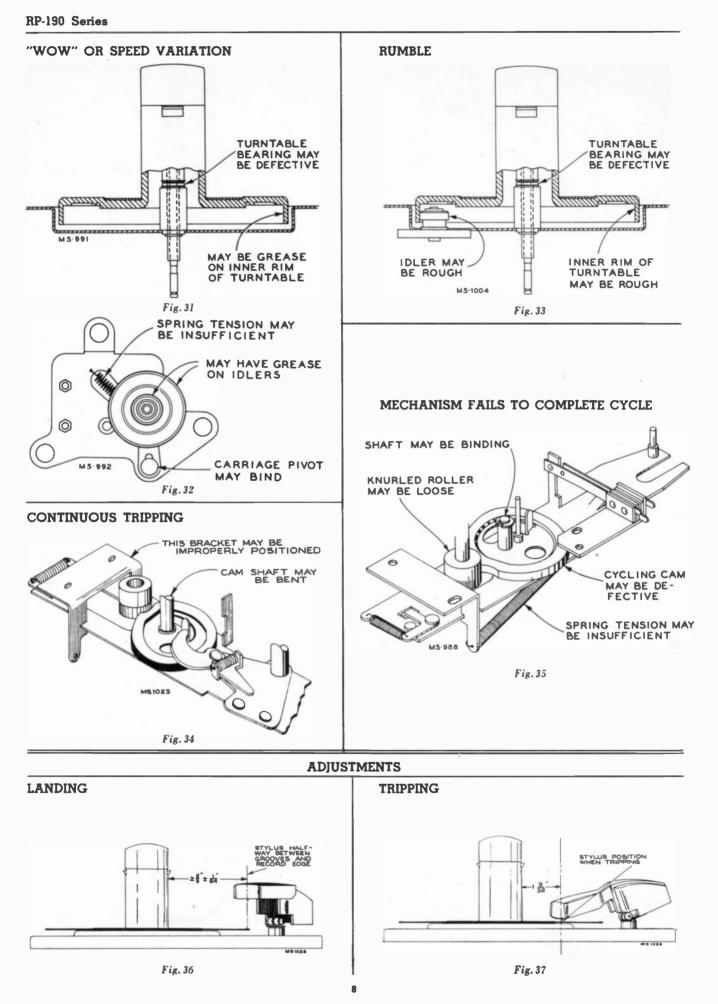
IF THIS BRACKET IS IMPROPERLY ADJUSTED, THE CYCLING SLIDE MAY BIND OR CONTINUOUS TRIPPING MAY RESULT

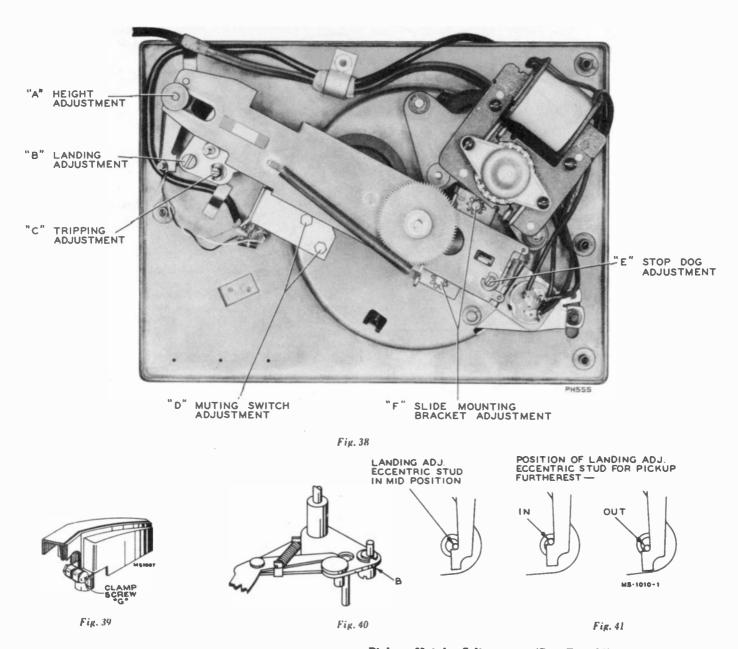
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RP-190 Series









Adjustments

Pickup Landing Adjustment:

Under ordinary conditions the landing adjustment is a screwdriver adjustment as shown. The adjustment of eccentric landing adjustment stud (B) gives approximately a 1/4" movement. (See Figs. 38, 40.)

If, however, the pickup arm has been removed it is first necessary to make an approximate landing adjustment as follows:

- With the mechanism out of cycle and the clamp screw (G) (Fig. 39) loose, place pickup arm on the rest and tighten clamp screw enough to prevent the clamp from slipping on the shaft.
- Set the landing adjustment stud (B) as shown (midadjustment). (See Figs. 40, 41.)
- With the power removed, push reject control to reject. Rotate turntable by hand in the correct direction until the pickup is about ready to land.
- Loosen clamp screw (G) and move pickup arm so the stylus is approximately 2⁵/s" from side of centerpost. Tighten clamp screw. (See Figs. 36, 39.)
- 5. Exact landing adjustment can now be made by a screwdriver on stud (B). (See Fig. 38.)

Pickup Height Adjustment (See Fig. 38):

Adjust knurled nut (A) until the distance (during change cycle) between the top of the turntable and the stylus point is approximately $1\,{\rm b}_{9}''.$

NOTE: If unable to adjust for sufficient height, it may be necessary to cut a few turns from the compression spring to allow more space on the shaft.

Tripping Adjustment (See Figs. 37, 38):

Adjust the eccentric tripping stud (C) until the mechanism trips when the stylus is 1.9/32'' from the side of the centerpost.

Mounting Bracket Adjustment (See Fig. 38):

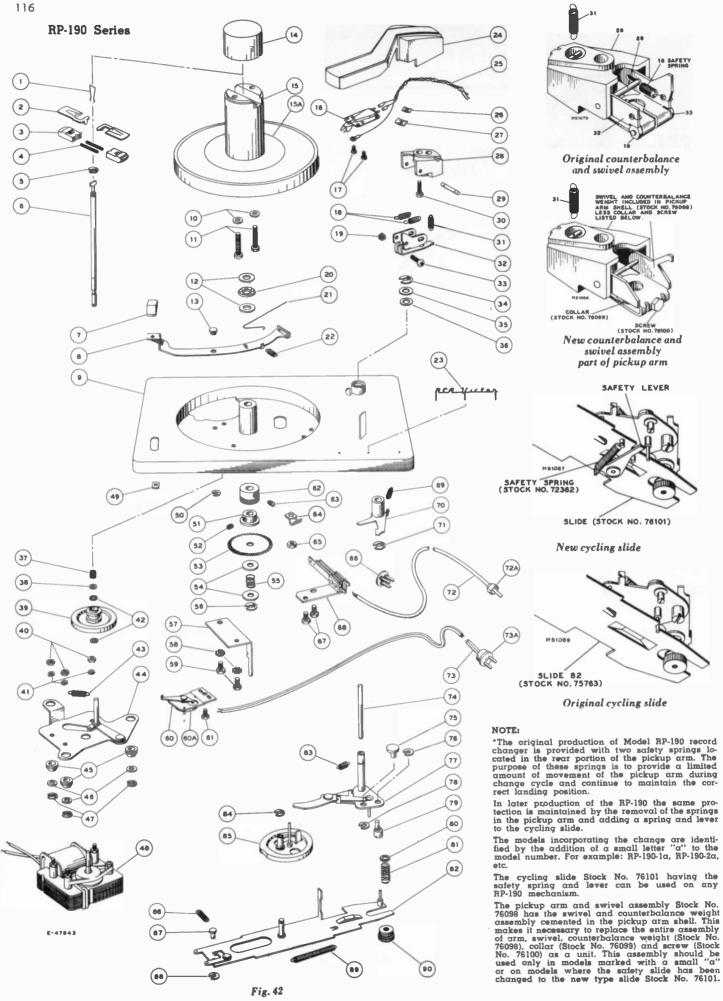
Loosen the two screws (F) and move the bracket so it is as near perpendicular to the slide as possible. Move back or forward until the cut away section of the cycling cam clears the knurled roller approximately $1/16^{"}$. Tighten screws.

Muting Switch Adjustment (See Fig. 38):

Loosen the two screws (D) and adjust the position of the switch so the contacts are approximately 1/32 to 1/16 inches apart when the mechanism is out of cycle. If the mounting screws do not give sufficient adjustment, bend tab on slide slightly.

Stop Dog Adjustment (See Fig. 38):

Turn the eccentric screw (E) until the record drops to the turntable without striking the pickup arm.



REPLACEMENT PARTS

RP-190 Series

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STOCK	ILL. No.	DESCRIPTION	Π	STOCK No.	ILL. No.	DESCRIPTION
			H			
74862		Spring—Spindle nose spring—formed		•75719	24	Arm-Pickup arm shell only (see note)
74865	3	Separator—Separator knife Shelf—Separator shelf		76098	24	Arm—Pickup arm (late type) complete with counterbalance, swivel and pin—less
75756	4	Spring-Separator shelf return spring (.118"				collar, pickup and cable (see note)
33726	5	O.D. x 3/4" — 16 turns) Washer—"C" washer to hold separator shaft		76099	24A	Collar—Pickup arm pivot shaft collar—less screw—for No. 76098 pickup arm (late type)
75757	6	and cam Shaft—Separator shaft with cam		75728	25	Cable-3-wire twisted pickup arm cable com- plete with connectors for all models using
75741	7	Knob—Control knob				crystal pickups
75739	8	Lever—Reject lever complete with formed spring		76298	25	Cable—3-wire twisted pickup arm cable com- plete with connectors for RP-190-5 using
75729	9	Board—Motorboard sub-assembly complete with welded and/or staked studs and rest		71095	26	ceramic pickup Nut—Speed nut for cable—in rear of arm
74869	10	Washer—No. 6 flat washer for under head of		72765	27	Nut—Speed nut for cable—in center of arm
		screws No. 75758		•75721	28	Weight—Counterbalance weight—die cast (see
75758		Screw—No. 6-32 x 1" fillister head machine screw (holds nose to spindle)		*75724	29	note) Pin—Pin for anchoring shock absorbing springs
74080	12	Washer—Thrust bearing washer		/5/24	23	(see note)
75748	13	Stud-Reject lever mounting stud		•75723	30	Screw-No. 6 x 11/16" fillister head screw to
75755	14	Cap—Spindle nose cap—red				fasten counterbalance (see note)
75753	15	Turntable—Turntable and shaft assembly complete with finished disc		75886	31	Spring—Counterbalance spring (.180" O.D. x .600" — 30 turns for all models using crys- tal pickups
75754	15 A	Disc—Finished disc for turntable — part of No. 75753		74060	31	Spring—Counterbalance spring (.171" O.D. x
74067	16	Pickup—Crystal pickup cartridge complete with stylus (RMP 128-1) for RP-190-1, -3, -4				.695" — 43 turns for RP-190-5 using coramic pickup
1		and -6		*75720	32	Swivel—Pickup arm swivel (see note)
75575	16	Pickup—Crystal pickup cartridge complete with stylus (RMP 128-4) for RP-190-2		*75726	33	Screw—No. 8-32 x 5%" cross recessed pan head machine screw to mount pickup arm swivel No. 75720
76297	16	Pickup—Ceramic pickup cartridge complete with stylus for RP-190-5		76100	33	Screw-No. 6-32 x 1/4" hex head machine
74069	16A	Guard—Stylus guard for No. 74067 pickup		35969	34	screw for pivot shaft collar No. 76099 Washer—"C" washer to mount trip lever
74819	16 A	Guard—Stylus guard for No. 75575 pickup		75752	35	-
74065	16B	Screw—No. 2-56 x 3/16" fillister head screw to mount No. 74069 or No. 74819 guard		76005	36	Washer-Steel thrust washer
74068	16C	Stylus—Replacement stylus and holder for No. 74067 pickup		74870	37	Washer—Bearing washer for tone arm Retainer—Idler wheel retainer (spring sleeve
75770	16C	Stylus—Replacement stylus and holder for		75887	38	type) Washer—Spring washer for idler wheel
		No. 75575 pickup		74077	39	Wheel-Idler wheel
74985	16C	Stylus—Replacement stylus for No. 76297 pickup			40	Nut—No. 6-32 hex nut for mounting motor to idler lever plate assembly
74230	16D	Nut—Nut and washer to mount No. 74068 or No. 75770 stylus		_	41	Lockwasher—No. 6 split lockwasher for No. 6-32 hex nut
75722	17	Screw—No. 4 x ¼" fillister head screw to mount pickup		74078	42	Washer-Dampening washer for idler wheel
•75727	18	Spring—Shock absorbing spring (.187" O.D. x ¾") (see note)		75762	43	Spring—Idler wheel tension spring (.195" O.D. x $29/32^{"}$ — $37\frac{1}{2}$ turns)
•75725	19	Nut—No. 8-32 hex nut to mount pickup arm (see note)		75759	44	Plate—Motor mounting plate complete with idler lever
72349	20	Bearing—Thrust bearing		75761	45	Grommet-Rubber grommet for motor mount-
75740	21	Spring-Reject lever spring (formed), part of				ing plate
75742	22	reject lever Spring—Reject lever return spring (.180" O.D.		75749	46	Washer—Flat washer—metal (.0299" x .190" I.D. x %" O.D.)—for mounting motor
74782	23	x .535" — 21½ turns) Emblem — "RCĂ Victor" emblem		33726	47	Washer—"C" washer to mount motor as- sembly

*SEE NOTE ON PAGE 10.

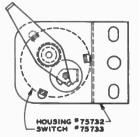
RP-190 Series

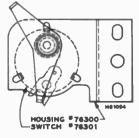
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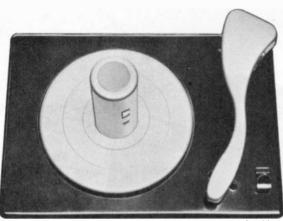
REPLACEMENT PARTS—Continued

STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	ILL. No.	DESCRIPTION
75760	48	Motor-117 volt, 60 cycle motor for all models	75730	68	Switch—Muting switch
75937	48	except RP-190-3 and RP-190-5 Motor—85 volt, 60 cycle motor for RP-190-3	76004	69	Spring—Pickup arm return lever spring (.195" O.D. x 1¼" 69 turns)
		(used in some Model 45-EY-3)	75734	70	Lever—Return lever
76299	48	Motor-117 volt, 60 cycle motor for RP-190-5	35969	71	Washer-"C" washer to mount return lever
76302	_	(less conversion spring) SpringConversion spring sleeve (60 to 50		72	Cable—Shielded audio cable (see Service Data for various instruments)
		cycle) for use on No. 76299 motor in RP-190-5	31048	72A	Plug—Pin plug for audio cable
74212	49	Nut-Control knob speed nut		73	Power cord (see Service Data for various instruments)
74431	50	Washer—Spring washer to mount reject lever mounting stud	30870	73A	Connector—2 contact male connector for power cable
75736	51	Collar—Friction collar	75731	74	Rod—Elevating rod
14974	52	Screw—No. 8-32 x 3/16" hex socket head— cup point—for friction collar	75768	75	Stud—Tripping adjustment stud
75738	53	Wheel-*Ratchet wheel	74431	76	Washer—Spring washer for adjusting studs
75750	54	Washer—Flat washer—metal (.0299" x .180° I.D. x 9/16" O.D.) — for ratchet wheel,	75767	77	Lever—Trip lever assembly—less spring and tripping and landing adjustment studs
		thrust spring	74431	78	Washer—Spring washer for adjusting studs
75743	55	Spring—Ratchet wheel thrust spring (5/16"	75769	79	Stud—Landing adjustment stud
33726	56	O.D. x 7/16" — 5½ turns) Washer—"C" washer to mount ratchet wheel	75749	80	Washer—Flat washer—metal (.0299" x .190" I.D. x %" O.D.)—to mount sub-motorboard
75735	57	Bracket—Mounting bracket for slide assembly	75746	81	Spring—Height adjustment spring (.262" O.D.
	58	Lockwasher—No. 8 external teeth lockwasher			x 13/16" — 8 turns)
74670	59	for cycling slide mounting bracket Screw—No. 8 x ¾″ self-tapping hex head	*75763	82	Slide—Cycling slide assembly complete with stop dog—less cam wheel and stop dog ad- justing stud (see note)
		screw to mount slide assembly bracket	76101	82	Slide—Cycling slide (late type) complete with
75732	60	Housing—"On-Off" switch housing and lever —less switch (for RP-190-1, -2 and -3)			stop dog and safety lever—less cam wheel, safety spring, stop dog spring and stop dog
76300	60	Housing			adjusting stud
		-less switch (for RP-190-4, -5 and -6)		82A	Dog—Stop dog—part of Item 82
75733	60A	Switch—"On-Off" switch—less housing (for RP-190-1, -2 and -3)	72362	82B	Spring—Safety lever actuating spring (.242" O.D. x 1" — 19½ turns) for slide No. 76101
76301	60Ă	Switch—"On-Off" switch—less housing (for RP-190-4, -5 and -6)	75742	83	Spring—Trip lever spring (.180" O.D. x .535" 21½ iurns)
	61	Screw-No. 8 x 1/4" self-tapping hex head screw to mount "On-Off" switch	33726	84	Washer-"C" washer for cam wheel
75737	62	RollerKnurled roller	75764	85	WheelCam wheel and tire
75751	63	Screw-No. 10-32 x 17/64" headless set screw-dog point-for knurled roller	75765	86	Spring—Stop dog tension spring (.195" O.D. x 11/16" 241/2 turns)
	64	Clamp-Cable clamp for audio cable	75786	87	Stud—Adjusting stud for stop dog
	65	Nut-No. 8-32 hex nut to fasten cable clamp ILL. 64	74431	88	Washer—Spring washer for stop dog adjust- ing stud
74192	66	Connector-3 contact male connector for audio cable	75744	89	Spring—Slide assembly return spring (14" O.D. x 2 23/32" — 90 turns)
—	67	Same as 61	75747	90	Nut-Knurled nut for height adjustment

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS







PH489

The RP193-1 record changer is designed to play and change automatically twelve of the new RCA type seven inch fine groove 45 r.p.m. phonograph records.

SPECIFICATIONS

Turntable speed	1		۰ ه	٠	• •	•	• •			•	٠	٠	• •	•	•					٠	٠	•	•	• •		•	• •	٠	٠	• •	•	4	5	r .	р.	m.
Records used .				•			• •				•	1	R	С	A	L	t	Y	p	0	8		N	0	r	Ы	ln	C	h	£	In	.0	g	r¢)0	70
Record capacity	,				•				•						•	•	•		• •						•	•	•	•			1	2	re	C	or	ds
Pickup force										• •	•			•	•		•	•					•			J	i p	P	F	03	к.	5	j (ŗ	aı	ns
Stylus tip radius		•		•				è			•							•		•	•	• •							•	• •		.0	0)	Ŀ	In	ch
Power supply .					•									•			1	10)5	-	Ľ	2.	5	¥	c	d	s	,	6	0	c	Y	cle	₽,	α	.c.

LUBRICATION

A light machine oil (Singer Sewing Machine Oil) or equivalent, should be used to oil the bearings of the drive motor and the following:

> Idler Carriage. Pickup Arm Pivot Bearing. Top & Bottom Turntable Shaft Bearings.

Houghton STA-PUT No. 512 or equivalent grease should be used on the following:

Ball bearing on bottom end of turntable shaft. Cycling cam shaft. Points of contact on reject slide assembly. Cam tracks where the following parts contact. Elevating rod, pickup arm lever and inclined edge where pinion gear rides. All gear teeth. Surfaces where pinion gear drive keys contact shelf and blade assemblies.

Houghton STA-PUT No. 320 can be used on the pinion gear shaft. (However, if available a graphite grease is highly recommended.)

(Do not oil or grease record separator shelves.)

It is important that the drive motor spindle and the rubber tire on the idler wheel be kept clean and free from oil and grease, dirt, or any foreign material at all times. Carbon tetrachloride or naphtha is satisfactory for cleaning those parts.

STA-PUT can be purchased from E. F. Houghton & Company, 303 W. Lehigh Avenue, Philadelphia, Pa.



RP-193-1

45 R.P.M. Automatic Record Changer

SERVICE DATA

-1950 No. 29-

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

CAUTION

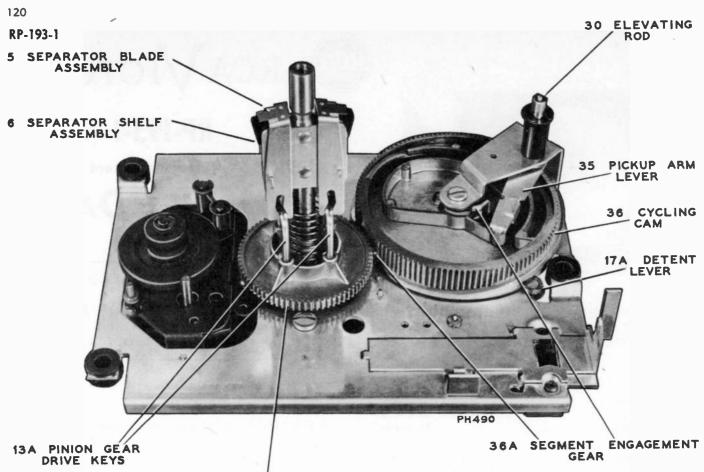
- Avoid handling the pickup arm when the mechanism is in cycle.
- 2. Do not use force to release a jam.
- Do not try to remove the records on the turntable if the turntable is stopped in cycle with separator blades exposed.

AUTOMATIC OPERATION

- 1. Place a stack of records over the center post, with the desired selections upward, the last record to be played on top.
- Push the "start-reject" knob toward the back of the cabinet and let go. The mechanism will automatically play in sequence one side of each record stacked on the separator shelves.
- 3. To reject a record being played, push the "start-reject" knob toward the back of the cabinet.
- 4. At conclusion of playing and as the last record is being repeated, lift the pickup arm and place on its rest. Turn off the power to the drive motor by pulling forward on control knob.
- 5. Remove the stack of records by lifting them straight up.

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Pickup Arm Lever (35)

The function of the pickup arm lever is to direct the horizontal movement of the pickup arm during change cycle. This is accomplished as the end of the pickup arm lever rides in the channel molded in the cycling cam. Later, as the mechanism is playing, the pickup arm lever follows the movement of the pickup arm until the pickup arm lever contacts and moves the segment engagement gear, thus tripping the mechanism.

Pinion Gear (13)

The function of the pinion gear is to mount the pinion gear drive keys and transfer the rotating motion of the turntable to the cycling cam during change cycle. 13 PÍNION GEAR

Function of Principal Parts

Pinion Gear Drive Keys (13A)

The function of the drive keys mounted on the pinion gear is to actuate the separator mechanism inside the centerpost as they raise and lower with the pinion gear.

Segment Engagement Gear and Lever Assembly (36A)

The segment engagement gear is mounted on the underside of the cycling cam. During the playing time the segment engagement gear is receded. As the mechanism is tripped the segment gear is extended, thereby making a momentary contact with the rotating pinion gear. This contact provides the movement to start the cycling cam rotating and carry the mechanism through change cycle.

Cycling Cam (36)

The function of the cycling cam and its molded channels is to direct the movement of the pickup arm and the separator mechanism during change cycle.

Detent Lever (17A)

The function of the detent lever is to engage the depression in the side of the cycling cam, and stabilize the cycling cam in the out of cycle position.

ADJUSTMENTS

PICKUP ARM HEIGHT

Loosen the screw marked ("A") on back of the pickup arm and adjust so the pickup will clear a stack of twelve records. Raising the screw in the elongated hole raises the pickup arm, lowering the screw lowers the pickup arm.

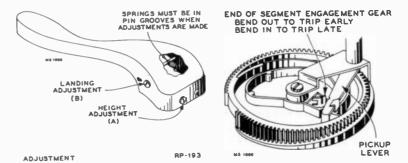
PICKUP LANDING ADJUSTMENT

Loosen screw marked ("B") and slide the mounting bracket forward to move the landing point away from the centerpost, and back to move the landing point inward.

NOTE: Before making the adjustment, make certain the safety springs (26) are in the pin grooves.

TRIPPING ADJUSTMENT

If mechanism fails to trip when the stylus is approximately $1\frac{9}{22}$ " from the side of the centerpost, bend the end of the segment engagement lever (indicated in drawing at right) out for early tripping and in for late tripping.



Note:

If spacing between separator blades and separator shelves do not fall between .040 to .048" bend blades accordingly.

Cycle of Operation

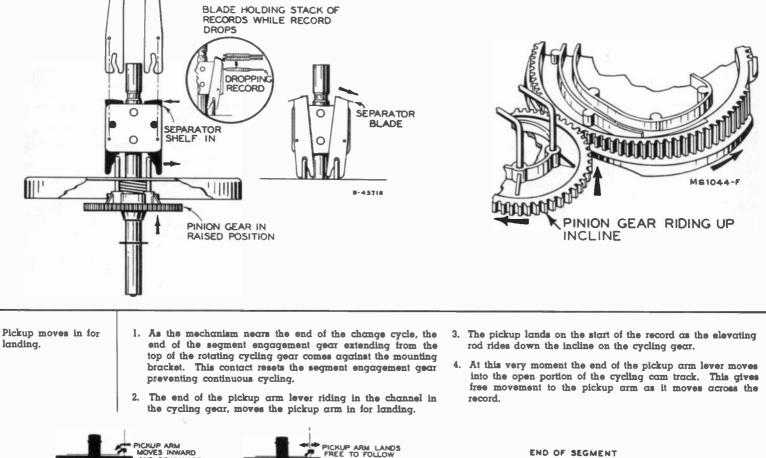


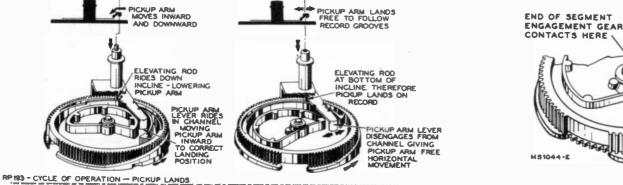
FUNCTION	EXPLANATION	
Place a stack of records over the centerpost.	 Records rest on separator shelves protruding from either side of the centerpost. 	RECORDS SHELF
Push control knob to reject and release.	 The control first actuates the power switch applying power to the drive motor. This action starts the turntable rotating. Further movement of the control knob causes the reject lever (39) to move the reject slide (47) sufficiently, for engagement with the end of the segment engagement gear and lever assembly (36Å). This movement through the train of levers trips the mechanism. 	CYCLING CAM TRIP SPRING 37 REJECT SLIDE 47 REJECT GEAR AND LEVER ASSEM- BLY 36A REJECT LEVER 39
Cycling starts.	 As the reject slide moves the segment engagement gear slightly, the segment gear snaps outward due to the action of trip spring (37). After the segment engagement gear has snapped out, the rotating pinion gear (13) engages the teeth of the segment gear and gives a slight rotary motion to the cycling cam (36). This slight rotary motion causes the teeth of the pinion gear and the teeth of the cycling gear to engage, thus starting change cycle. 	CYCLING CAM 36 TRIP SPRING 37 TRIP SPRING 37 MS1044-B TEETH OF SEGMENT ENGAGEMENT GEAR
Pickup raises from the rest and moves out.	 As the cycling gear starts rotating the pin on the muting switch moves off the boss on the gear permitting the switch to short out the pickup. The elevating rod (30) rides up the incline surface of the track on the cycling cam, causing the pickup to raise from the rest. 	3. As the cycling cam continues to rotate the turned down end of the pickup arm lever (35) follows the channel moulded in the cycling cam and swings the pickup arm out clear of the records.
ELEVATING ROD CONTACTS AND RAISES PICKUP ARM		CYCLING CAM NBIO44C MUTING SWITCH IS SHORTING OUT PICKUP

RP-193-1

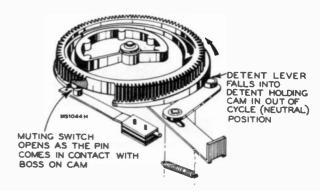
Separator blades separate the lower record from the stack and the lower record drops to the turntable.

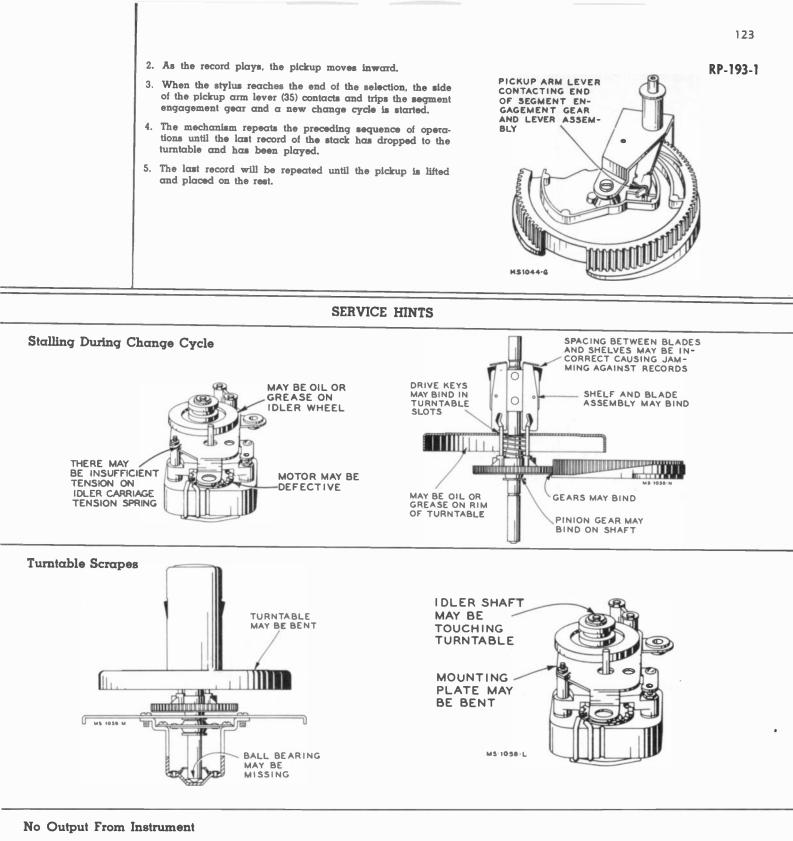
- 1. An instant after the pickup arm has started to raise the rotating pinion gear (13) starts to raise also. This is due to the lower edge of the gear riding up the spiral incline formed on the edge of the cycling cam.
- 2. The raising of the pinion gear and key assembly actuates the separating mechanism inside the centerpost. This action causes the support shelves to recede and the separator blades to move out to select the lower record of the stack and to support the remaining records while the bottom record drops to the turntable.

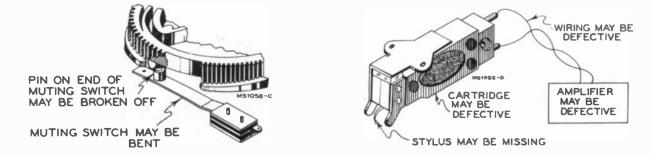


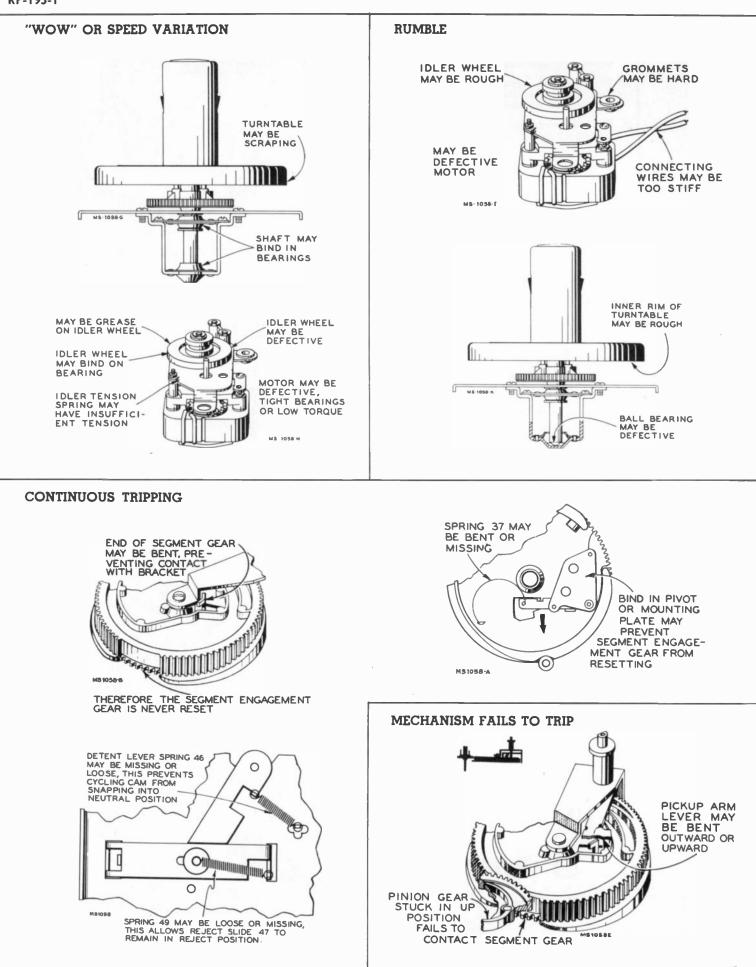


Cycling completed and the record plays. The detent lever (17A) snaps the cycling cam into a neutral position as the muting switch pin comes in contact with the boss on the cam. This completes the change cycle.

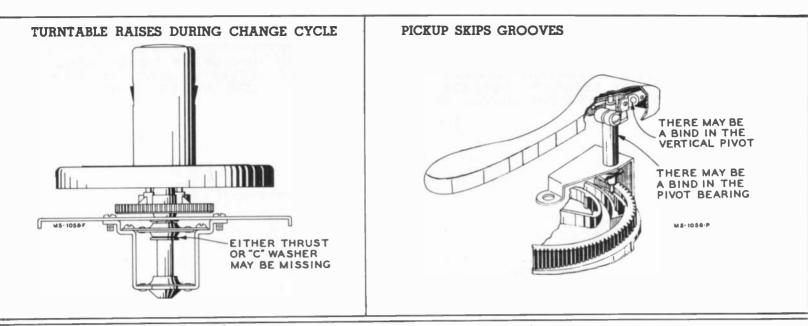




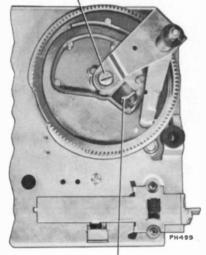




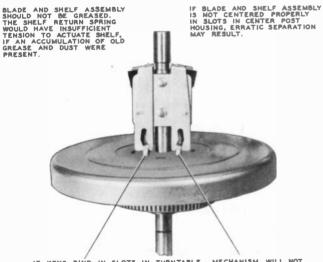
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IF MOUNTING BRACKET IS NOT SEATED PROPERLY OVER SHOULDER OF SHAFT, MECHANISM MAY FAIL TO TRIP. ALSO MUTING SWITCH MAY NOT FUNCTION PROPERLY.



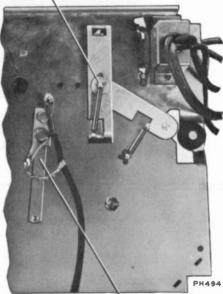
IF THE END OF THE SEGMENT GEAR IS BENT IMPROPERLY, RESETTING THE GEAR WILL NOT BE ACCOMP-LISHED AND CONTINUOUS TRIPPING WILL RESULT.



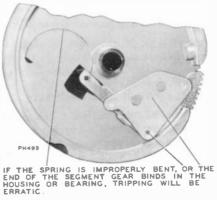
IF KEYS BIND IN SLOTS IN TURNTABLE, MECHANISM WILL NOT SEPARATE RECORDS. ALSO MECHANISM WILL NOT GO INTO CHANGE CYCLE IF THE PINION GEAR REMAINS IN THE UP POSITION.

DO YOU KNOW?

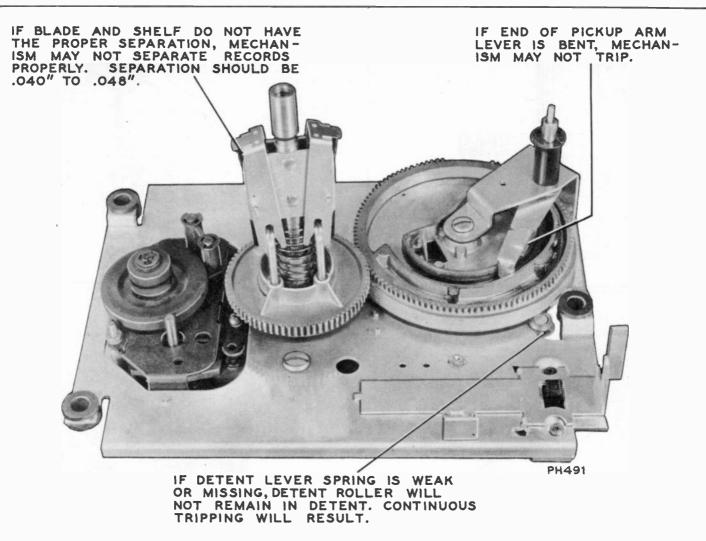
IF REJECT SLIDE BINDS, CON-TINUOUS TRIPPING MAY RESULT.



IF THE MUTING SWITCH IS BENT, MECHANICAL NOISES MAY BE AMPLIFIED DURING CHANGE CYCLE.



DO YOU KNOW? (Continued)



DISMANTLING MECHANISM

(Refer to exploded view on opposite page)

REMOVAL OF PICKUP ARM

- 1. Disconnect pickup wires.
- 2. Loosen clamp screw 28.
- 3. Lift pickup arm straight up.

REMOVAL OF PICKUP ARM SWIVEL (BRACKET)

- 1. Remove landing adjustment screw 22.
- Push pivot pin 25 away from the slotted side of the pickup arm shell, bend shell slightly to remove pin and entire swivel assembly will slide out.

REMOVAL OF TURNTABLE ASSEMBLY

 The entire turntable and pinion gear assembly (Nos. 1 to 40 inclusive) can be lifted out by removing the "C" washer 40 located below the upper turntable bearing.

DISMANTLING THE TURNTABLE ASSEMBLY

1. Remove "C" washer 40 located directly below the pinion gear.

- Slide the pinion gear 13 and spring 12 off the spindle shaft 10.
- 3. Remove cap 1.
- 4. Remove screw 2.
- 5. Separate spindle cover 3 from the turntable.
- 6. Push pin 8 out to remove spring 7, shelf 6 and blade assembly 5.

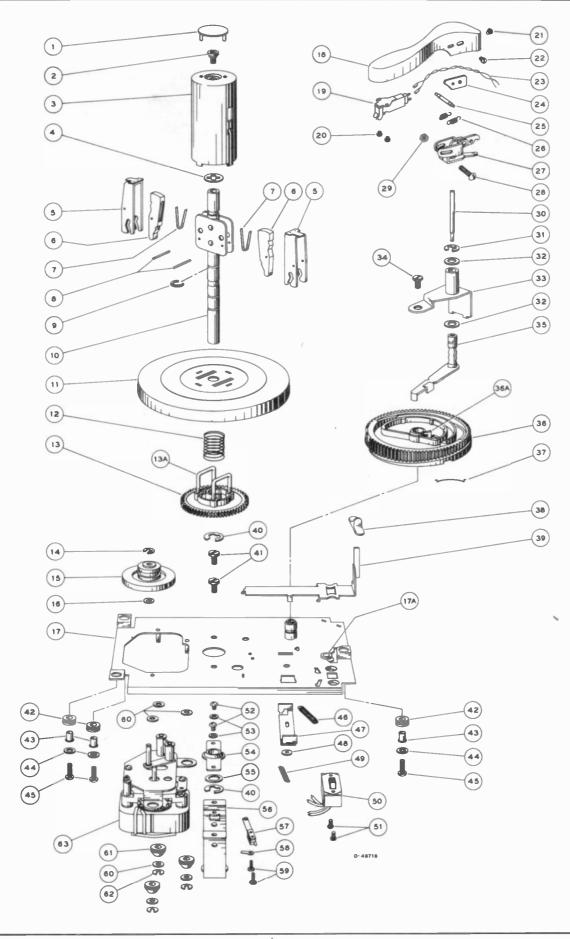
REMOVAL OF TURNTABLE SPINDLE SHAFT

1. Remove "C" washer 9 and lift out spindle shaft 10.

REMOVAL OF CYCLING CAM

- 1. Remove screw 34.
- Lift bracket assembly consisting parts Nos. 31 to 35 inclusive.
- 3. Remove cycling cam.

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REPLACEMENT PARTS

ILL.	STOCK		ILL.	STOCK	
NO.	NO.	DESCRIPTION	NO.	NO.	DESCRIPTION
1	76246	Cap—Turntable centerpost housing cap— red	34	72409	Screw—#8-32 x ¼" binder head screw to fasten pickup arm bearing bracket
2	76242	Screw-#8-32 x %" cross-recessed shoulder	35	76222	Lever—Pickup arm shaft and lever
		screw	36	76217	Cam—Cycling cam and gear complete with
3	76241	Housing—Centerpost housing			segment engaging gear and trip spring
4	76247	Washer—Spring washer for turntable cen- terpost and shoulder screw	36A		Gear-Segment engaging gear-part of Ill. #36
5	76237	Separator—Record separator and knife	37	76218	Spring—Trip spring
6	76238	Shelf—Record shelf	38	76251	Knob-Reject knob
7	76239	Spring-Record shelf spring (formed)	39	76223	Lever-Reject lever
8	76240	Pin-Record shelf and separator pin	40	76221	Washer—"C" washer to fasten spindle and centerpost
9	76245	Washer—"C" washer for turntable center-	41	76227	Screw—#10-32 x ¼" binder head machine
	=0000	post	41	/044/	screw # 10-32 x 74 binder head machine
10	76236	Shaft—Turntable shaft	42	76228	Grommet-Rubber grommet to mounting
11	76248	Turniable—Turniable and mat		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	sub-base
12	76244	Spring—Pinion gear return spring (²³ / ₃₂ " O.D. 1 ¹ / ₉ "—8 turns)	43	76249	Spacer—Metal spacer to mount mechanism in plastic cabinet used in (45]3)
13	76243	Gear-Turntable pinion gear complete with	44	76250	Washer—Flat metal washer to mount
13 A		iwo (2) drive keys Key—Drive key for turntable pinion gear—			mechanism in plastic cabinet used in (45]3)
	76229	included in Ill. #13	45		Screw—#8-32 x ¾" binder head machine
14		Washer—"C" washer to fasten idler wheel on Motor #9220-1.			screw to mount mechanism in plastic cab- inet used in (45]3)
15	76286	WheelIdler wheel for Motor 9220-1	46	76233	Spring—Detent lever return spring ($^{9}_{64}$ " O.D.
16	76287	Washer—Dampening washer for idler wheel for Motor 9220-1			x ¾"—34 turns)
17	76231	Base—Sub-base complete with all staked	47	76232	Link—Reject link
	/0431	and riveted parts including detent lever	48		Washer—Flat washer for mounting reject slide
17 A	70015	Lever—Detent lever—included in Ill. #17	49	76230	Spring—Reject slide return spring (%4" O.D.
18	76215	Arm—Pickup arm complete with counter- weight less crystal and cable			x 7/e"-42 turns)
19	76257	Crystal—Crystal cartridge complete with stylus	50 51	32875	Switch—ON-OFF switch complete with cover Screw—#4 x $\frac{3}{16}$ " cross recessed round
20	76216	Screw-#2-56 x ¹ /s" cross recessed fillister head machine screw to mount crystal			head self tapping screw to mount ON- OFF switch
21	76210	Screw—#4-40 x 1/3" binder head machine	52.		
		screw for height adjustment	53, 54,		
22	76210	Screw-#4-40 x 1/3" binder head machine	56	76234	Bearing—Turntable bearing assembly
		screw for landing adjustment	55	76226	Washer-Bakelite washer for bearing as-
23		Cable—Twisted pair cable and connectors			sembly
24	76211	Bracket—Landing adjustment bracket	57	76224	Switch—Muting switch
25	76212	Pin—Pivot pin	58		Lug—Solder lug
26	76213	Spring—Pickup arm safety spring (%16" O.D. x ³⁵ %4"—9 turns)	59	76225	Screw—#5-40 x $\frac{5}{16}$ hex head tapping screw for mounting muting switch (2)
27	76214	Bracket—Pickup arm mounting bracket			req'd)
28	75726	Screw—#8-32 x %" round head screw for	60	70490	Washer—Fibre washer for mounting motor
00		moun'ing bracket	61	76288	Grommet—Rubber grommet for motor mounting plate for Motor 9220-1
29	75725	Nut—#8-32 hex nut to fasten mounting bracket	62	76229	Washer—"C" washer to mount motor
30	76235	Rod—Elevating rod	63	76291	Motor-115 volt, 60 cycle motor less mount-
31	76220	Washer—"C" washer to fasten pickup arm lever			ing plate and idler wheel (stamped 9220-1)
32	57209	Washer—Spring washer for pickup arm lever and bearing bracket	-	76289	Plate—Motor mounting plate for Motor 9220-1
33	76219	Bracket—Pickup arm bearing bracket	-	76290	Spring—Idler wheel spring $(\frac{3}{16}^{"}$ O.D. x $\frac{5}{16}^{"}$) for Motor 9220-1
					716 / IOF MOIOF 3440-1

Additions to Parts List:

Stock No.	Description			
75274	Nut—Knurled nut to fasten stylus #76374			
76374	Stylus—Replacement stylus for pickup stamped 988370-1			
76323	Stylus—Replacement stylus for pickup stamped 988370-2			

Replacement of Pickup Stylus:

Either one of two types of pickups may be used in this record changer. Each has a replaceable osmium tipped stylus. The stylus in pickups stamped 988370-1 is secured with a knurled nut. It is only necessary to loosen the knurled nut to remove the stylus. Replacement stylus is Stock No. 76374.

The stylus in pickups stamped 988370-2 is secured by push fit in the pickup. To remove—insert small blade of a penknife under the stylus (close to shank of holder) and twist the knife blade. To replace—push shank of stylus holder into pickup.



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IDENTIFICATION OF MODELS

Each record changer bears a label on the underside of the motorboard in accordance with the following:

960282-1

60 cycle version used in domestic instruments. Has Stock No. 75044 crystal pickup. Used in Models A55, A78, TA128 and TA129.

960282-2

50/60 cycle version used in instruments designed for export sale. Has Stock No. S-5652 ceramic pickup. Used in Models 9QV5 and 4QV8C.

960282-3

50/60 cycle version used in instruments designed for export sale. Has Stock No. 75044 crystal pickup. Used in early production of Model 9QV5.

960282-4

60 cycle version used in domestic instruments. Has Stock No. 75475 crystal pickup. Used in Models A82, 2T81 and 6T84 (mahogany and walnut).

960282-5

Identical to 960282-4 except for tan finish. Used in Models A82, 2T81 and 6T84 (blonde and limed oak).

Compensation:

Some of the above record changers have a resistor/capacitor combination on the pickup lead terminal board. This is to compensate for the differing frequency response of various instruments. Correct values of these resistors and capacitors are indicated in the Service Data for the instruments which use the record changer.

AUTOMATIC OPERATION

- 1. Lift the record stabilizing clamp.
- Place a stack of records, ten inch if desired; over the center post leaving the edge of the stack resting on the ten-inch support.

When playing a stack of twelve-inch records, raise both the stabilizing clamp and the ten-inch record support before placing the stack over the center post. The twelve inch records will rest on the main support.

- 3. Lower the stabilizing clamp on the stack of records.
- 4. Turn the speed selector control for the proper speed.
- 5. Select the proper stylus by turning the knob at the front end of the pickup arm.

NOTE: The speed selector and the stylus selector controls must indicate the same when selecting for a certain type of record.

 Turn the control knob in the right hand end of the motorboard to "reject" and release.

The mechanism will play one side of each record in the stack automatically. It will continue to repeat the last record of the stack until the pickup is raised from the record and placed on the rest. RCAVICTOR

AUTOMATIC RECORD CHANGER MODEL 960282 SERIES SERVICE DATA

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

- 7. To reject a record being played, turn the control knob to reject and release.
- To remove records, place pickup arm on the rest, turn control knob to "off," raise stabilizing clamp and lift the entire stack.

NOTE: The pickup arm should only be handled when the control is in the manual position or before the pickup has played approximately $\frac{1}{3}$ the distance in, if playing automatically. The pickup arm can also be handled when the mechanism is stopped if it feels free to move.

FEATURES

- This record changer is a center support, drop type, two speed (78-33¹/₃ rpm) mechanism, designed to play automatically a series of twelve ten-inch, or ten twelve inch records of the standard 78 rpm type or of the long playing 33¹/₃ rpm type.
- The mechanism is equipped with α light weight, dual stylus pickup cartridge.
- 3. The automatic tripping device is of the acceleration type.
- The two speeds of 78 or 33¼ rpm are controlled by a single knob.
- 5. The stylus selection is accomplished by α single knob.

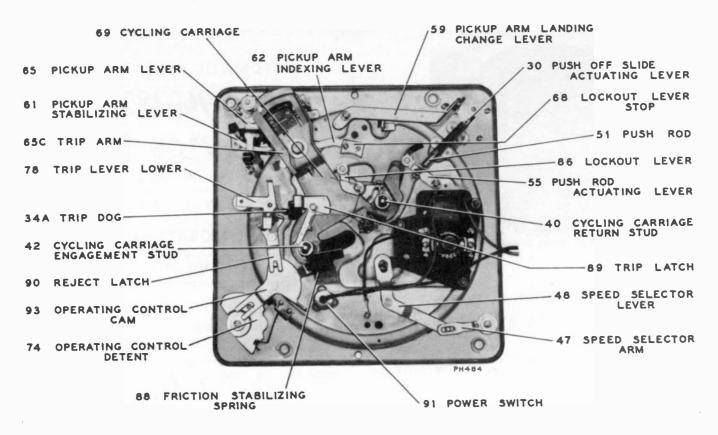
MANUAL OPERATION

- 1. Raise both the stabilizing clamps and the ten-inch support shelf.
- 2. Place either a ten or twelve inch record on turntable.
- 3. Select the proper speed and stylus.
- 4. Turn control knob to manual.
- 5. Place pickup on start of the record.
- 6. When selection is completed, lift pickup arm and place it on the rest.
- 7. Turn control knob to "off".
- 8. Lift record straight up to remove.

HELPFUL SUGGESTIONS

Before servicing the mechanism, inspect the assembly to determine whether all levers, springs and parts are in place and not jammed or bent.

- 1. Never use force to start or stop the turntable or any part of the mechanism.
- (a) If for any reason the mechanism becomes jammed, it may be released by pulling both the spiral engagement stud and the cycling carriage return stud downward. Then move the cycling carriage in a clockwise direction (viewed from the bottom).
 - (b) If the two studs cannot be pulled down, try to remove the turntable by lifting straight up.
- 3. Cracked or badly chipped records may damage the stylus.
- 4. Do not leave records on the mechanism for an extended period of time as a guard against warpage.



Push-off slide actuating lever 30

The actuating lever located inside the support post extends through the motorboard. The function is to transfer the movement of the push rod 51 to the 10 and 12 inch push-off slides.

Push-off slides 5, 10

The function of the slide is to push the records off the step in the center post.

Cycling Carriage 69

The cycling carriage forms the main tie link between the various levers. When the mechanism is tripped the cycling carriage engagement stud 42 raises and engages the cycling spiral channel located on the underside of the turntable. This engagement causes the cycling carriage to rotate about its pivot in a counterclockwise direction (Viewed from the bottom). The movement of the carriage continues in the same direction until the inclined portion of the spiral channel pushes the stud down to engage the latch (89). The next instant the cycling carriage return stud (40) becomes unlatched after which it raises and engages the spiral channel which returns the cycling carriage to the normal out of cycle position.

Cycling Carriage engagement Stud 42

The engagement stud forms a link between the cycling carriage and the cycling spiral on the under side of the turntable. This stud causes the cycling carriage to rotate in a counterclockwise direction (viewed from the bottom of the motorboard).

Cycling Carriage Return Stud 40

The return stud forms a link between the

FUNCTIONS OF PRINCIPAL LEVERS

cycling carriage and the cycling spiral. This causes the cycling carriage to return to the normal out of cycle position.

Push Rod 51

The push rod forms a link between the push rod actuating lever (55) and the push off slide actuating lever (30).

Elevating Rod 19

The elevating rod functions as a lift for the pickup arm.

Push rod actuating lever 55

Push rod actuating lever is a tie link between the push rod (51) and the cycling carriage (69). It also is provided with an adjustment to govern the travel of the push-off slides 5 and 10.

Friction stabilizing spring 88

This spring forms a wedge which holds the cycling carriage (69) from drilting when the mechanism is in the playing position. In its braking action it provides a means of slowing the movement of the pickup to provide a gentle landing.

Trip lever (upper) 34

As the pickup arm travels towards the center of the record, the trip lever is carried along by the inter-connecting levers. A small offset located on the turntable shaft rotating with the turntable contacts the end of the trip lever once with each revolution. On each contact the trip lever is pushed back slightly. This slight backward movement continues as long as the pickup is moving at a constant rate of speed. When the pickup enters the eccentric groove of the record, the movement is accelerated and thus allows the trip dog (34Å) to drop off the edge of the trip latch (89) before the turntable has made a revolution, therefore, the small offset on the turntable strikes the trip lever and in so doing, moves trip latch (89) and starts change cycle.

Trip Lever (lower) 78

The lower trip lever mechanically linked to the upper trip lever (34) transfers the action from the underside of the motorboard to the top of the motorboard.

Pickup Arm Landing Change Lever 59

The pickup arm landing change lever functions as a stop for the pickup indexing lever (62). The change lever position is altered depending upon the position of the 10 inch record support 4.

Pickup Arm Indexing Lever 62

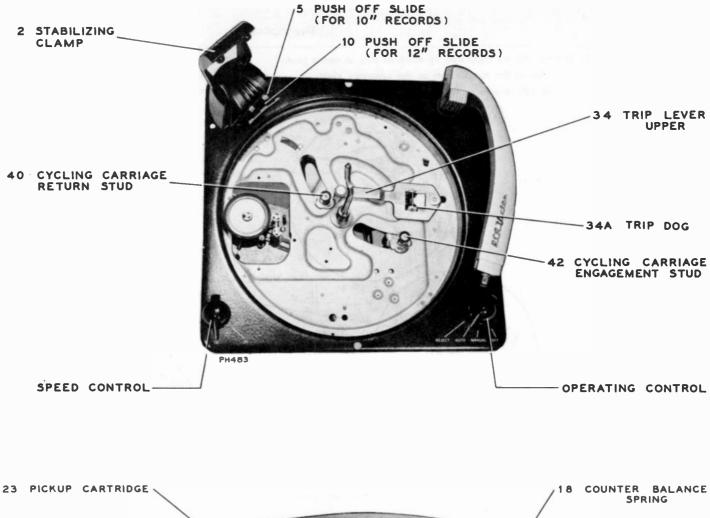
The pickup arm lever engages one of the notches in the indexing lever and in so doing determines the landing position of the pickup.

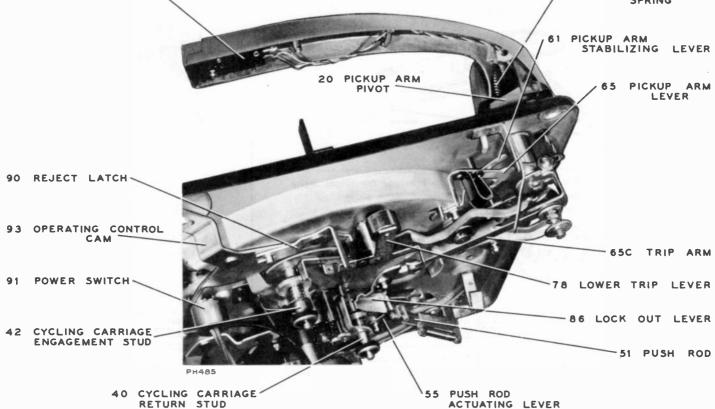
Pickup arm lever 65

The pickup arm lever is connected to the pickup arm through the pickup arm pivot (20). The inward motion of the pickup arm causes the tripping action as a result of the contact between the pickup arm lever and the lower trip lever.

Pickup Arm Stabilizing Lever 61

The pickup arm stabilizing lever is actuated by a small tab on the cycling carriage during the change cycle. The forward movement of this stabilizing lever permits contact with the stud (65Å) on the pickup arm lever, thereby stabilizing the pickup arm during the change cycle of the mechaniem.

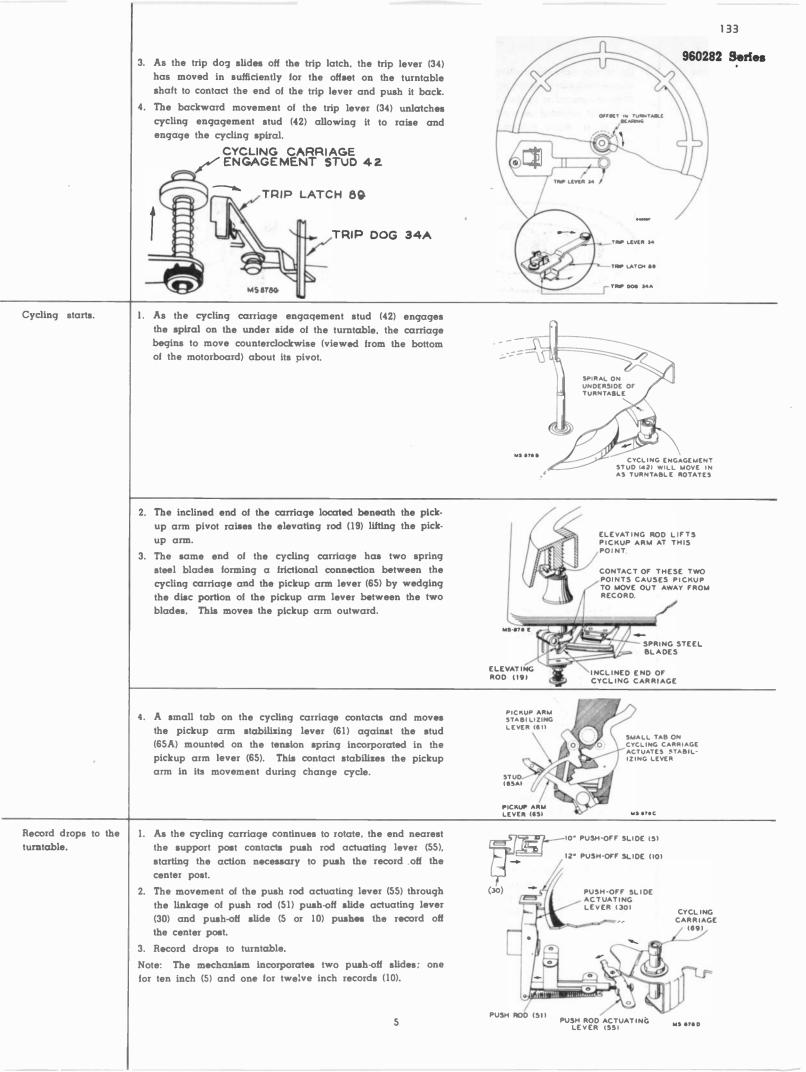






960282 Series	CYCLE OF OPERATION		
Function	Description		
Place a stack of 10 or 12 inch rec- ords over the center post. Lower the record stabilising clamp.	 The records are supported by notch or step in center post. The edge of the records rest on the separator shell. 10 inch records on the 10 inch shell (4) 	 12 inch records on the 12 inch shelf (9) 3. The position of the 10 inch support shelf (4) (up or down) determines the landing position of the pickup due to the action on the landing change (59) and index (62) levers. 	
Turn speed selector knob to 78 or 33 ¹ . rpm position (de- pending on type of record).	 The motor has a turned down shaft providing a means of changing speed by raising or lowering the idler on the dual diameter shaft. Image: Constraint of the state of the state	SMALL, SHAFT FOR 333 RPM	
Rotate stylus knob.	1. The rotation of the stylus knob selects the proper stylus depending on the type of record to be played. ROTATE TO CHANGE STILUS SIZE ROTATE TO CHANGE STILUS SIZE ROTE- ON ADME SETS MOTE - ON ADMESSITUTED FOR HANDLE SHOWN ABOVE	TRIP DOG 34A	
Push Control knob to reject position and release.	 The Operating Control detent (74) mechanically connected to control knob engages and actuates the power switch (91) starting the turntable rotating. Further rotation of the control knob moves the lower trip lever (78) sufficiently to allow the trip dog (34A) to slide off the end of the trip latch (89). 	BASB64	

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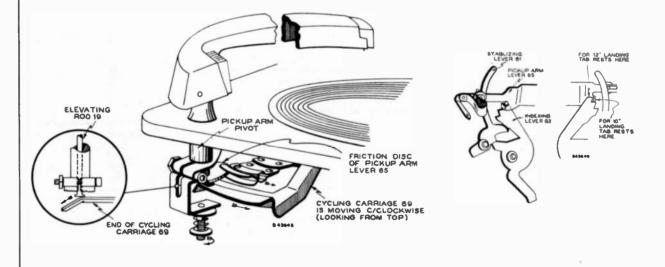
- Pickup moves in for landing.
- Up to this time the cycling carriage (69) is moving in a counterclockwise direction (viewed from the bottom). After the record is pushed off the center post the lock out lever (86) mounted on cycling carriage contacts the stop and in so doing unlatches the cycling carriage return stud (40).
- 2. As the cycling carriage return stud (40) raises to engage the spiral on the underside of the turntable, the cycling engagement stud (42) is pushed down and latched by the action of the incline in the spiral tract, thereby disengaging it from the spiral.
- 3. The cycling carriage is now moving clockwise (viewed from the bottom of the motorboard).



- 4. The end of the cycling carriage beneath the pickup arm pivot again makes the frictional contact with the disc on the pickup arm lever (65). This contact moves the pickup arm in for landing.
- 5. The pickup arm on its inward movement continues to be stabilized by the pickup arm stabilizing lever (61). This stabilizing continues until the tab on the pickup arm lever is against the ten or twelve inch landing notch in the

indexing lever. At this point the pickup should be directly over the point of landing on the record.

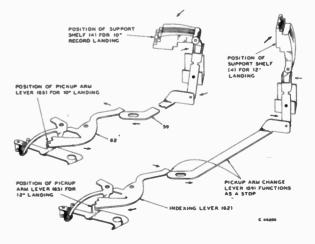
- 6. An instant later the small tab on the cycling carriage contacts the side of the pickup arm stabilizing lever, unlatching the indexing lever (62) and permitting free motion of the pickup arm.
- The elevating rod sliding down the small incline on the cycling carriage permits the pickup to land on the start of the record.



Note: It should be understood that the function of the indexing lever (62) is to determine the landing position of the pickup, both on ten and twelve inch records.

This is done by the pickup arm change lever (59) functioning as a stop for the indexing lever (62). The position of the pickup arm change lever in turn is governed by the position of the ten inch support shelf (4) (up or down).

 As the pickup is landing the cycling carriage has reached its starting position and the cycling carriage return stud (40) is pushed down by the incline in the cycling spiral and locked in position.



I. While the record plays, the end of the trip lever (34) is arm moves in at a constant rate of speed.
 slowly moving toward the center post due to the force produced by the pickup arm down through the linkage of the pickup arm lever (65) trip arm (65C) and the lower trip lever (78). As the trip lever slowly (34) approaches the offset on the inner shaft of the turntable it is pushed back slightly with each revolution of the turntable. The trip lever continues to be pushed back against the friction clutch of the trip arm (65C) as long as the pickup
TRIP LEVER
TURNTABLE BEARING OFFSET OFFSET TURNTABLE BEARING TURNTABLE BEARING OFFSET TRIP DOG (34A) MOVES BACK AND FORTH ALONG EDGE OF TRIP LATCH (89) BEFORE TRIPPING. PICKUP ARM LEVER (65)
CYCLING CARRIAGE ENGAGEMENT STUD (42) FRICTION
TRIP DOG SLIDES OFF AND CONTACTS INSIDE EDGE WHEN TRIPPING LEVER (78) B-43850
 After the mechanism has been tripped the pickup arm moves out and rises by action of the cycling carriage (69) on the pickup arm lever (65) and the elevating rod (19). The mechanism again follows the preceding sequence of dropping and playing records until the last record of this stack has been played. The mechanism is not provided with an automatic stop so the last selection is repeated until the pickup arm is placed on the rest and the power removed from the drive motor. Note: The pickup arm can be raised and moved to the rest position any time after the mechanism has completed the change cycle, providing the pickup has not played more than approximately ½ of the selection. If the pickup arm is moved after this time, the mechanism will go into change cycle and the pickup arm should not be retarded in its movement. The pickup arm is placed on the rest and the power removed from the drive motor.
 The control detent (74) which is mechanically connected to the control knob, actuates the power switch through the control cam (93). This action starts the turntable rotating. One end of the control cam also slides under the collar (79) on the cycling carriage engagement stud (42). This prevents the stud from raising if the trip lever is disturbed. The control cam also holds the manual lock out lever (90) in such a position that it locks the lower trip lever (34) is held away preventing contact with off-set on turntable shaft. ColLAR 79 ON CYCLING CARRIAGE ENRINGE CARRIAGE ENRINGE ENRINGE

ADJUSTMENTS

POSITION OF SUPPORT POST

- Loosen three mounting screws at the base of the support post.
- Slide support post to a position as indicated in accompanying drawing. The curvature of the shelf should conform with a 12" record.
- Aiter push-off slides have been adjusted, try a stack of both 10 and 12 inch records to determine the ease of separation. A compromise from the setting may be necessary due to differences in length of the 10 inch support shelf (4).

Adjustment of Push-Off Slides

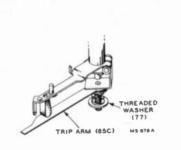
- Trip the mechanism and turn the turntable by hand until the cycling carriage has rotated counterclockwise. (Viewed from the bottom) to its limit.
- 2. Adjust screw 57 on push rod actuating lever until the 12 inch push-off slide is extending approximately $1_{16}^{\prime\prime\prime}$ over the edge of the shelf.
- Turn lock nut to hold screw and try a stack of 10 and 12 inch records for ease in separation.

Adjust lock out lever stop (68)

The lock out lever stop (68) should be so adjusted that the cycling carriage return stud (40) raises an instant before the spiral engagement stud (42) is pushed down. If this timing is not properly made the mechanism will jam.

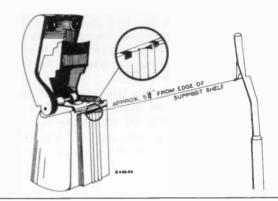
Adjustment of friction clutch on trip arm

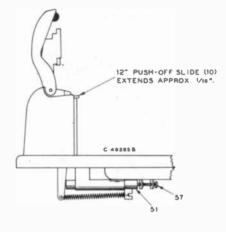
 Turn the threaded washer on the pickup arm lever to produce sufficient friction for trip arm so the mechanism will have positive tripping. Care must be exercised against excessive friction as it would cause premature wear on the side walls of the record or in many cases, actually jump the grooves.

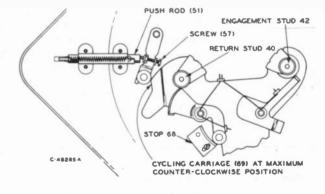


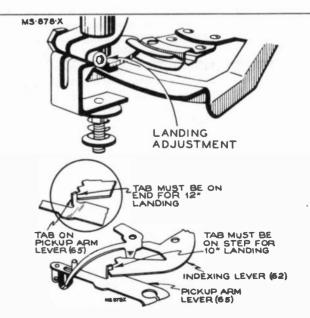
Pickup Landing Adjustment

- 1. Disconnect power from mechanism.
- 2. Place a 10" record on turntable.
- 3. Turn the operating control to reject and release.
- 4. Rotate the turntable by hand until the tab on the pickup arm lever (65) is about ready to move away from the indexing lever. (The pickup will be a few inches above the record at this moment).
- 5. Loosen adjustment screw and hold the pickup arm lever in this position while moving the pickup arm directly above the point of landing. (Landing should be about half way between the edge of the record and the start of the recorded section. Approximately 4-11/16" from the side of the center post for a 10" record).
- Tighten adjustment screw, apply power and check the pickup landing on both 10 and 12 inch records.
 If mechanism fails to land properly on 12" records the tab may be bent. In that case bend slightly.

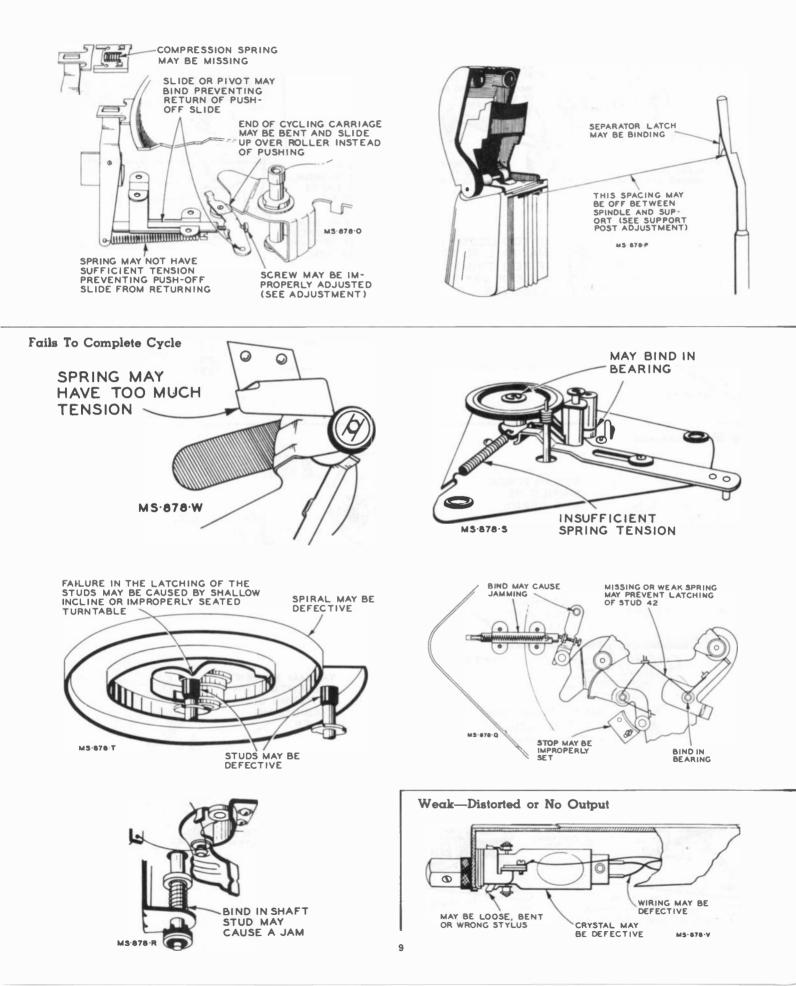








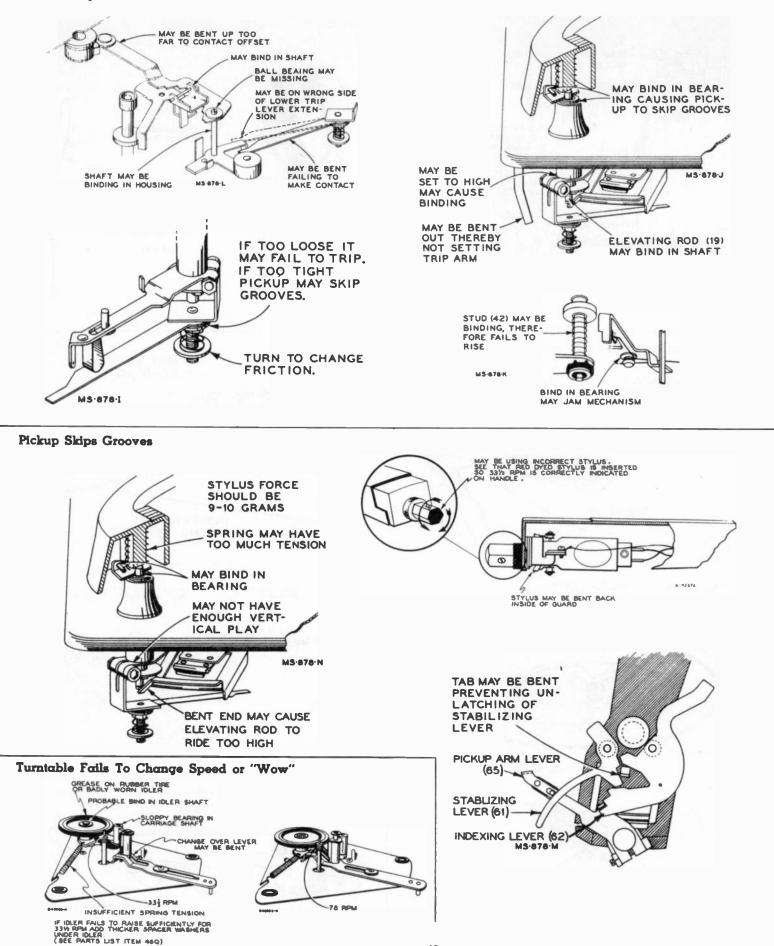
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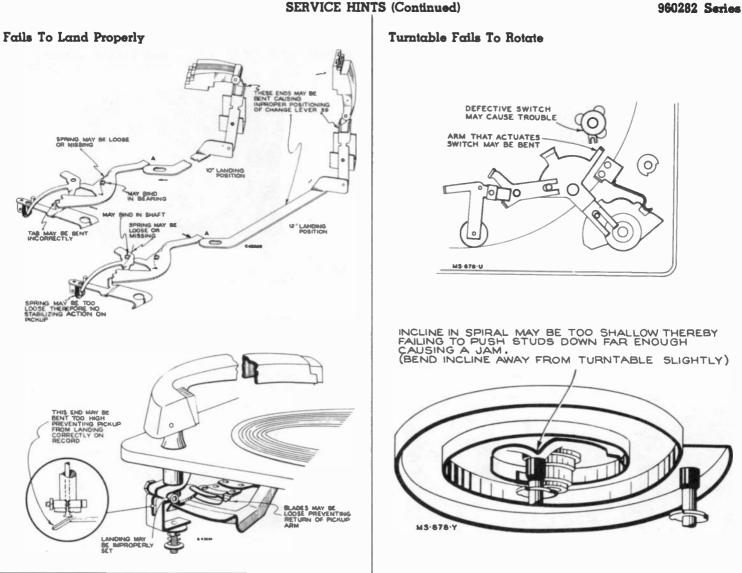


960282 Series Fails to Trip

SERVICE HINTS (Continued)



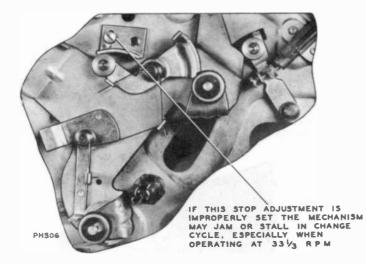
SERVICE HINTS (Continued)

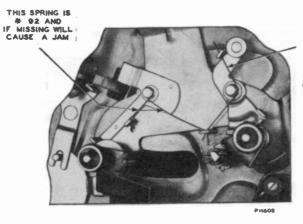


DO YOU KNOW?

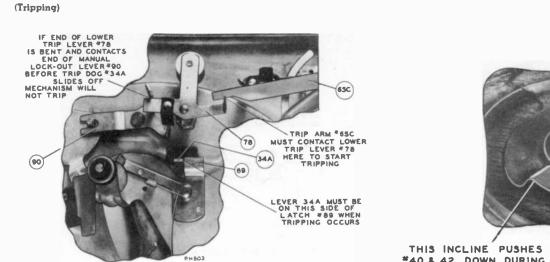
11

(Jamming or Stalling)





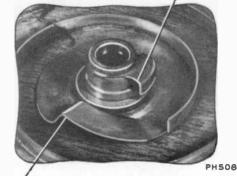
THIS SPRING IS # 87 AND IF MISSING STUO ⁴40 WILL REMAIN ENGACED WITH CYCLING SPIRAL CAUSING A JAM



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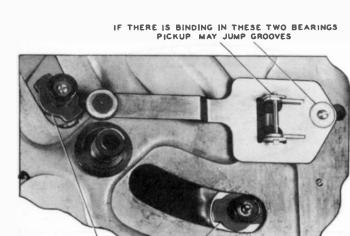
DO YOU KNOW?



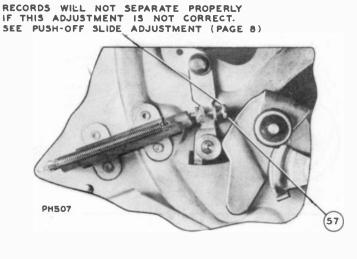


THIS INCLINE PUSHES STUDS *40 & 42 DOWN DURING CHANGE CYCLE

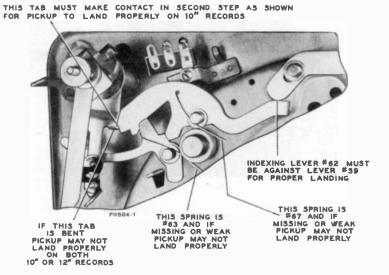
(Record separation)

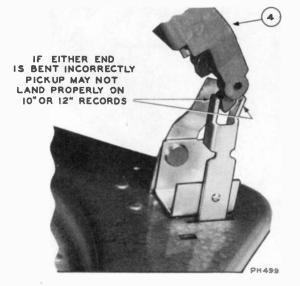


THESE BRASS BUSHINGS CAN BE TURNED TO REMOVE CYCLING CARRIAGE



(Pickup landing)





960282 Series

(Jumping grooves)

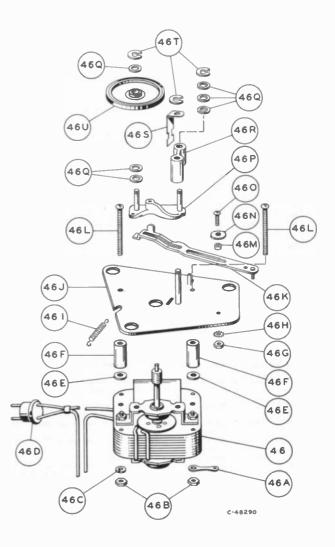
REPLACEMENT PARTS FOR MOTORS

ILL. No.	STOCK No.	DESCRIPTION
46	75288	Motor—117 volt, 60 cycle motor complete with mounting plate, idler wheel and change-over mechanism—for \$60282-1, -4 and -5. See Illus- tration on page 13
46	8-5637	Motor-117 voit, 50/60 cycle motor complete with mounting plate, idler wheel and change- over mechanism — for 960222-2 and -3. See illustration on page 13 The following motor parts (46A to 46U) are for ±752288 motor only
46 A	I	Lug—Terminal lug
46B		Nut—#6-32 hex nut to mount top plate (2 req'd)
46C		Lockwasher—#6 lockwasher (split) to mount top plate
46D	30870	Connector-2 contact male connector for motor leads
46E		Washer—Flat washer for under metal spacer (2 req'd)
46F	75290	Spacer—Metal spacer for motor mounting (2 reg'd)
46G		Nut-#4 hex nut to mount idler riser slide
46H		Lockwasher—#4 (external) lockwasher to mount Idler riser slide
46I	75291	Spring—Tension spring for idler carriage

~	(120)
(119)	
118	(12 2)
117	
(116)	
(115)	124
114	(125)
(113)	56 - 113
112	
(11)	
(110)	
109	(108)
108	
107	(127)
106	
103	
D-48711	@

Exploded view of 50/60 cycle motor (960282-2 and -3)

ILL. No,	STOCE No.	DESCRIPTION
46J	75292	Plate—Motor top plate including stud for idler pivot link
46K 46L	75283	Slide—Idler riser slide Screw—#5-32 x 13/4" round head hrass machine screw to mount top plate (2 reg'd)
46M 46N 46O	75294	Spacer-Metal spacer to mount idler riser slide Washer-Flat washer to mount idler riser slide Screw-Screw to mount idler riser slide (#440 x 3%" round head steel machine screw)
46P 46Q	75295 { 75296 } 75436	Carriage—Idler carriage Washer—Fibre dampening washer .010 thick
46R	75297	Link-Idler pivot link
465 46T	75298 75287	Guide—Idler riser slide guide Washer—"C" washer to mount idler carriage
46U	75300	and idler wheel Wheel—Idler wheel
1		The following items are available as replacement parts for Stock No. S-5637 motor.
108	S-6054	Grommet—Rubber grommet to mount motor
118	S-6050	Pulley—78 r.p.m. drive pulley
121	S-6051	Wheel-Idler wheel
122	S-6052	Pulley—33-1/3 r.p.m. drive pulley
130	S-6053	Spring-Spring sleeve for 60 to 50 cycle conversion.





REPLACEMENT PARTS

-					
ILL. No.		DESCRIPTION	ILL. No.	STOCE No.	DESCRIPTION
12	75254 75255	Pin—Push-off box hings pin Clamp—Stabilizing clamp assembly including rubber bumpers—marcon—for 960282-1, -2,	54 55	75308 75309	Spring—Tension spring for push rod Lever—Push rod actuating lever complete with mounting pivot stud and washer (includes
12	75921	-3 and -4 Clamp—Stabilizing clamp assembly including	56		Ill, 56 and 57) Nut#6 hex nut for push rod travel adjusting
3	75256	rubber bumpers—light brown—for 960282-5 Bumper—Rubber bumper for stabilizing clamp	57		screw (includes 75309, Ill. 55) Screw—Adjusting screw for push rod travel
4	75257	(2 req'd) (2 included) Support — 10" record support — marcon — ior	58	75310	(#8-32 x 56" fillister head screw) (included in 75309, Ill, S5)
4	75922	960282-1, -2, -3 and -4 Support—10" record support—light brown—for 960282-5	59	75310	Pin—Cotter pin for turntable spindle or center- post Lever—Pickup arm landing change lever com-
5	75258	Slide-10" record push-off alide Spring-Return spring for 10" push-off alide	60	/3311	plate with mounting plots stud and washer Board—Terminal board (3 contact)
7		(.250" O.D. x 9/16"-5 turns) Screw-#440 x 3/16" round head steel machine	61	75312	Lever-Pickup arm stabilising lever complete with mounting pivot stud and washer
	75260	screw Cover-12" record push-off slide cover	62	75313	Lever—Pickup arm indexing lever complete with mounting pivot stud and washer
	75261	Support — Main support casting for push-off mechanism—marcon—for 960282-1, -2, -3 and -4	63 64	75314 75315	Spring—Tension spring for stabilizing lever Screw—Screw to mount pickup arm lever
	75923	Support—Main support casting for push-off mechanism—light brown—for 960282-5	65	75316	(10-32" x 1" socket head cap screw) Lever—Pickup arm lever including trip arm,
10	75262 75263	Slide—12" record push-off slide Spindle—Turntable spindle or centerpost (in-			engagement stud and tension spring Nut-#10 hex nut for pickup arm lever mount-
118	75303	cludes ILL.11A) Ring—Turntable retainer ring	67	75317	ing screw Spring—Tension spring for indexing lever (2
12	75264	Knob-Stylus selector knob complete with set screw-lever type-for \$60282-1, -2 and -3	44	75318	turns) Stop—Lockout lever stop complete with mount-
12.4	/3824	Knob—Stylus selector knob complete with set screw—lever type—ior \$60282-4 and -5	69	75319	ing rivet Carriage—Cycling carriage
13		Screw-Screw for handle type control knob (in- cluded with Stock Nos. 75284 and 75924)	70	75320	Washer-Mounting washer (thin) for cycling
134		Enob—Stylus selector knob—hexagon—not used in actual production	71	75321	Washer—Mounting washer (thick) for cycling carriage
14	75265	Screw—Screw for hexagon control knob Collar—Threaded collar for pickup mounting	72	75322	Washer—Mounting washer (split) for cycling carriage
15	75268	assembly—for 960282-1, -2 and -3 Arm—Pickup arm shell complete with fibre	73	75323	Spring—Lock spring for detent complete with (2) rivets
15	75925	guide—for \$60282-1, -2, and -3 Arm—Pickup arm shell for \$60282-4 and -5	74	75324 75325	Detent—Operating control detent Washer—Friction washer (square-hole) for trip
17	75266	Pin—Pivot arm pin Spring—Retaining spring (hair-pin) for pivot	76	75326	arm (.060" x .189" square I.D. x ½" O.D.)
18	75269	arm pin Spring—Counterbalance spring for \$60282-1, -2 and -3	77	75327	Spring—Friction adjustment spring for trip arm (.360" O.D. x 33/64"—51/2 turns)
18	75929	Spring—Counterbalance spring for \$60282-4 and -5	"	/334/	Washer-Threaded washer for adjusting trip arm friction (.0673 x .159" LD. x 5%" O.D
19 20	75270 75271	Rod—Elevating rod Arm—Pivot arm and shaft	78	75328	.159" I.D. hole tapped #10-32) Lever-Lower trip lever
21	75272	Cable—Three wire pickup cable (12") complete with connectors	79	75329	Washer—Shouldered washer for cycling car- riage engagement stud for III. 42
25	75275 75278	Turntable—10" dia. Washer—Spacing washer (2 reg'd) (.006 x	80	75330	Spacer—Metal spacer for cycling carriage studs
27	75277	13/32" I.D. x 9/16" I.D.—Phosphor Bronze) Spring—Pressure spring for 10" record support	81	75331	Spring—Tension spring for cam roller (.378" O.D. x 1-1/32"—7 turns)
28 29	75278	Nut-4-40 hex nut Spring-Tension spring for stabilizing clamp	82	75332	Grommet—Rubber grommet for cycling carriage studs
30	75279	(.218" O.D. x 1%"-20 turns) Lever—Push-off slide actuating lever assembly	83 84	75304	Washer-Stop washer for cam studs (.059" x .190" I.D. x 5/5" I.D.)
31 32	3658	Ball—Steel ball (3/32" dia.) Screw#4-40 x ¼" fillister head screw	65	75334 75335	Nut—Speed nut for cycling carriage studs Washer—Engagement washer for cycling car-
33 34	75280 75281	Washer-Steel washer (_031" x _125" x 14")	86	75336	riage return stud Lever-Lockout lever complete with mounting
		Lever-Trip leves assembly including trip dog. ILL. 34A	87	75337	pivot stud and washer Spring-Tension spring for lockout lever (2
35	28350	Screw-Screw to mount main support (3 req'd) (#8-32 x ¾" thread cutting)	88	75338	turns) Spring—Friction stabilizing spring for cycling carriage complete with two (2) rivets
38	75040	Spring—Conical spring to mount record changer -4 required—for 960282-1, -2 and -3	89	75339	Latch—Trip latch complete with mounting pivot stud and washer
36	75927	Spring—Conical spring to mount record changer 3 required—for 960282-4 and -5	90	75340	Lover-Manual lockout lover complete with mounting pivot stud and washer
37 38	75282	Grommet—Rubber grommet for pickup cable exit	91 92	75341 75342 75343	Switch—Power switch complete with cover Spring—Trip latch tension spring—2 turns
39	75283	Board-Motorboard complete with all riveted, staked and welded parts	\$3	75343	Cam-Operating control cam complete with mounting pivot stud and washer
39	75928	Knob-Speed selector or function control knob -marcon-for 960202-1, -2, -3 and -4			
40	75284	Knob-Speed selector or function control knob- light brown-for 960282-5 Stud-Cycling carriage return stud including			
41	75285	shaft, washer and cambric roller Washer-Friction spring washer for turntable		O	
		and motor mounting. (.250" x .201" I.D. x .450" O.D.)			
42	75284	Stud—Cycling carriage engagement stud in- cluding shaft, washer and cambric roller		S	
43	75286	Grommet-Rubber grommet to mount motor (3 req'd)	1		(104)
44 45	75287	Washer—"C" washer to mount motor (3 req'd) Lug—Terminal lug			
47 48	75301 75302	Arm—Speed selector arm Lever — Speed selector lever complete with		(4	
		mounting pivot stud and washer—for 960282-1, -4 and -5. See page 18 for description of			
49	75282	960282-2 and -3 Grommet—Rubber grommet used in speed		6	
50	75304	change assembly Washer—Spacer washer (small) for speed selector arm (.059" x .190" I.D. x %5" O.D.)		(12	
51 52	75305	Rod—Push rod			
J .		Screw-Mounting screw complete with lock- washer for control knobs (10-32 x 3/6" fillister			(103) MS-863-1
53	75307	head-special) Housing—Push rod housing complete with four			
	ADDIV 1	(4) rivets	1		control levers used in 960282-2 and 96028. rder by item No. from RCA International

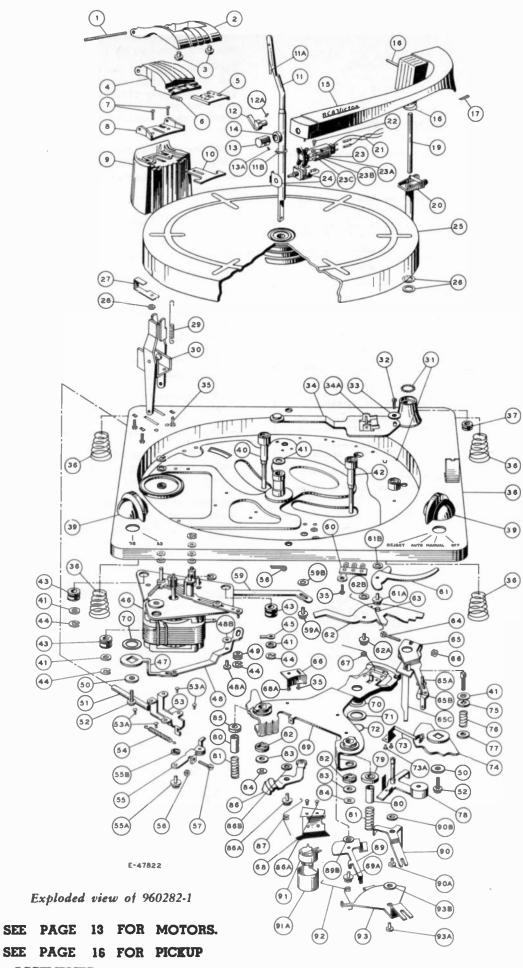
APPLY TO YOUR RCA DISTRIBUTOR

FOR PRICES OF REPLACEMENT PARTS

- 14

(order by item No. from RCA International Distributors only)





ASSEMBLIES.

960282 Series

PICKUP REPLACEMENT PARTS

ILL. No.	STOCK No.	DESCRIPTION
22		Screw—Mounting screw for pickup cartridge (4-40 x ½" fillister head) two required—for
22	75933	960282-1, -2 and -3 Screw—Mounting screw for pickup cartridge (2-56 x 1/8" fillister head) two required for
23	75044	960282-4 and -5 Pickup—Crystal pickup complete with two stylus—for 960282-1 and -3
23	8-5652	Pickup—Ceramic pickup complete with two stylus—for \$60282-2
23	75475	Pickup-Crystal pickup complete with two
23A	75045	stylus-for 960222-4 and -5 Stylus-33 1/3 r.p.m. stylus-RED-for #75044
238	75496	pickup cartridge Stylus—331/3 r.p.m. stylus—RED—for #75475
238	75046	pickup cartridge Stylus—78 r.p.m. stylus — PLAIN — for #75044
23B	75497	Stylus—78 r.p.m. stylus — PLAIN — for #75475
23C	75274	Pickup cartridge Nut—Stylus retaining nut—knutled—for #75044
23C	74230	Nut — Stylus teigining nut and masher (or
24	75273	Mount—Pickup cartridge mount assembly /2.
24 A	75931	Bracket-Bracket and bearing assembly (to
24B	75832	mount #75932 rotor in #75935 arm) - for 960322-4 and -5 Rotor - Rotor brachet and shaft assembly (to mount #75475 pickup in #75931 bracket)-
24C	75930	for 960282-4 and -5 Spring-Detent spring for rotor bracket assem-
24D	75975	bly #75932_for 960282.4 and .5 Screw_3.48 x 1/8" truss head screw to mount #75931 bracket to #75925 pickup arm shell for 960282.4 and .5

LUBRICATION

The motor bearings and all pivot bearings, excepting the pickup arm pivot, should be lubricated with S.A.E. 10 machine oil.

The pickup arm and the trip lever bearings are riding on ball bearings which should be packed sparingly with light grease, preierably STA-PUT #512. Use STA-PUT #512 or equivalent grease on the edges of all cams and pivots or sliding contacts including the spiral track and engagement stud.

NOTE: Do not oil friction clutch or trip arm 65C, spring steel wedge on end of cycling carriage 69 or friction brake 88.

NOTE: Keep oil and grease from all rubber parts of the mechanism.

MODELS 960282-2 AND 960282-3

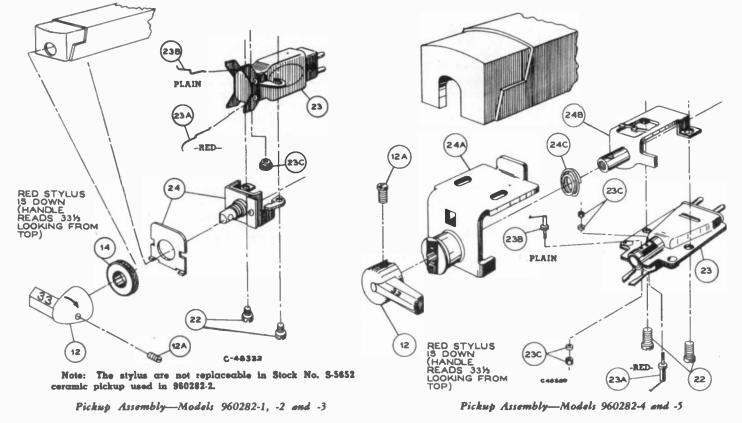
These record changers are used in instruments manufactured for RCA international Division.

They are identical to 960282-1 except for the following:

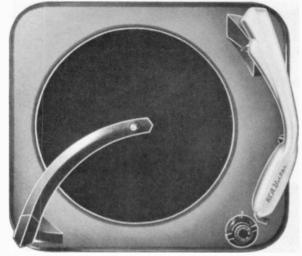
- A motor is used which may be converted for operation on a 50 cycle power supply. Stock No. S-5637 motor includes mounting plate, grommets, idler wheel and change-over mechanism. A 50 cycle conversion spring is also included.
- 2. Two levers (Items #101 and #102) are different. (Order replacements by description and item number.)
- A ceramic pickup cartridge is used only with 960282-2. Stock No. S-5852 ceramic cartridge complete, including styluses.
- 4. Stock No. 75044 crystal pickup is used with 960282-3.

NOTE: For operation on a 50 cycle power supply. Remove original spring sleeve from motor shaft and replace with the 50 cycle conversion spring.

Replacements for items used only on 960282-2 and 960282-3 are stocked by RCA International Distributors but are not stocked in the U. S. A. Order parts giving full description.







PH536

Mechanism may be used in the following instrume	ents:
Radio Combinations—A108	.960284-1, -2
—A91	.960284-1, -2
Television Combinations-9T89	.960284-1, -2
—-6 T 87	.960284-1, -2
The difference between 960284-1 and 960284-2 is	in color.
(See parts list.)	

SPECIFICATIONS

Turntable speed
Record used
Record capacity
Twelve ten-inch
Ten intermixed
Pickup force
Stylus radius
Type pickup
Power supply

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FEATURES

- This record changer is a center support intermix mechanism designed to play automatically a series of records up to ten 12-inch, twelve 10-inch, or ten intermixed records of the standard 78 RPM type. It will also play a series of the long playing 33-1/3 RPM type of similar diameter.
- The mechanism is equipped with a light weight dual stylus pickup cartridge. The proper stylus can be selected by turning a knob in the end of the pickup arm.



MODEL 960284-1,-2

Automatic Record Changer

SERVICE DATA - 1950 No. 12-

_ 1750 110. 12 _

PREPARED BY RCA SERVICE CO., INC.

FOR

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

After the last selection of the stack has been played, the pickup arm will go to the rest position and the mechanism will stop automatically.

- 4. The automatic tripping device is of the acceleration type.
- The speed change is accomplished by a single control mounted on the motorboard.

AUTOMATIC OPERATION

- 1. Lift and rotate the record support to one side.
- 2. Place a stack of records over the center post.
- 3. Rotate the record support to α position so the center post will extend through the hole in the end of the support.
- 4. Turn the speed control to select the proper speed.
- 5. Rotate the knob in the end of the pickup arm to the proper numeral corresponding to the turntable speed.
- 5. Turn the function control knob to reject and release. The mechanism will play one side of each record of the stack until the last selection has been played at which time it will stop automatically.
- 7. To reject a record being played, turn the function control knob to reject and release.
- 8. To remove records, lift and turn the record support to one side.
- 9. Lift the stack of records straight up.

MANUAL OPERATION

- 1. Lift and rotate the record support to one side.
- 2. Place the record to be played on the turntable (tilt slightly to slide over the step in the centerpost).
- 3. Set the speed and pickup cartridge controls properly.
- 4. Turn function control to reject and release.
- After the pickup sits on the record, place the record support over the centerpost, permitting it to rest on the step in the centerpost.
- 6. The mechanism will play the record after which it will stop automatically.

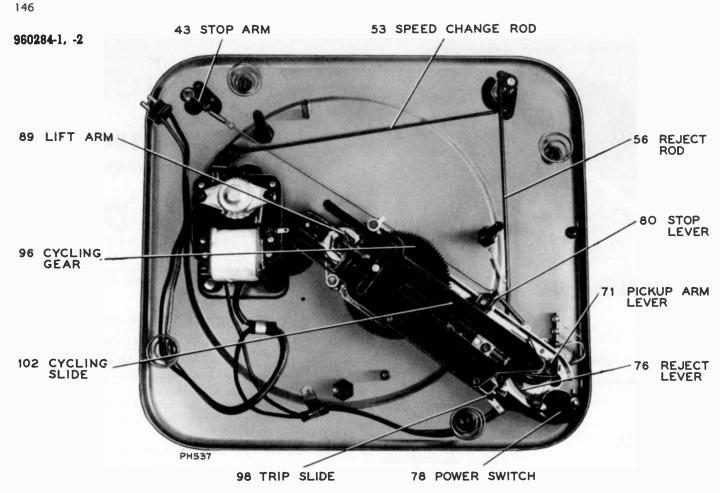


Fig. 1

FUNCTION OF PRINCIPAL LEVERS

See Fig. 1

Reject rod (56)

The function of the reject rod is to transfer the action from the control knob to the reject lever.

Trip slide (98)

The function of the trip slide is to transfer the movement of the pickup arm lever to the lower trip pawl. This action starts the change cycle.

Cycling gear (96)

The function of the cycling gears is to transfer the rotating motion of the turntable to the cycling mechanism.

Stop arm (43)

When the last record of the stack drops to the turntable, the record support arm drops. The lower end of the record support arm pivot actuates the stop lever thereby transferring the action for automatic stopping.

Lift arm (89)

The function of the lift arm is to transfer the movement of the cycling slide to the separator mechanism inside the centerpost.

Stop lever (80)

The function of the stop lever is to raise the trip slide and form a stop for pickup arm return lever. This results in the mechanism stopping automatically.

Cycling slide (102)

The function of the cycling slide is to transfer the action from the cycling gear to the other levers. See Figs. 1 and 4

Pickup arm lever (71)

The function of the pickup arm lever is to transfer movement of the pickup arm to levers located beneath the motorboard. Other levers beneath the motorboard also counter react through the pickup arm lever thereby directing the movement of the pickup arm.

Reject lever (76)

The function of the reject lever is to actuate the power switch and trip slide.

See Fig. 2

Twelve-inch indexing lever (61)

After the completion of each change cycle of the mechanism, the pickup arm automatically is indexed for ten-inch records unless a twelve-inch record has dropped to the turntable. As a twelve-inch record drops to the turntable, it moves the twelveinch indexing lever thereby directing the position of the selector lever.

See Fig. 3

Trip pawl (upper) (94)

The upper trip pawl functions as an actuating device for the cycling engagement pawl.

Cycling engagement pawl (96A)

The function of the cycling engagement pawl is to engage the off-set in the turntable shaft thereby starting change cycle.

See Fig. 4

Pickup arm return lever (68)

The function of the pickup arm return lever is to provide the force necessary to move the pickup into landing position.

Selector lever (83)

The function of the selector lever is to form a stop for the pickup arm return lever. The position of selector lever (up or down) determines whether the pickup lands on ten- or twelve-inch records.

Trip pawl (lower) (97)

The lower trip pawl transfers the action of the trip slide from the lower to the upper side of the cycling gear.

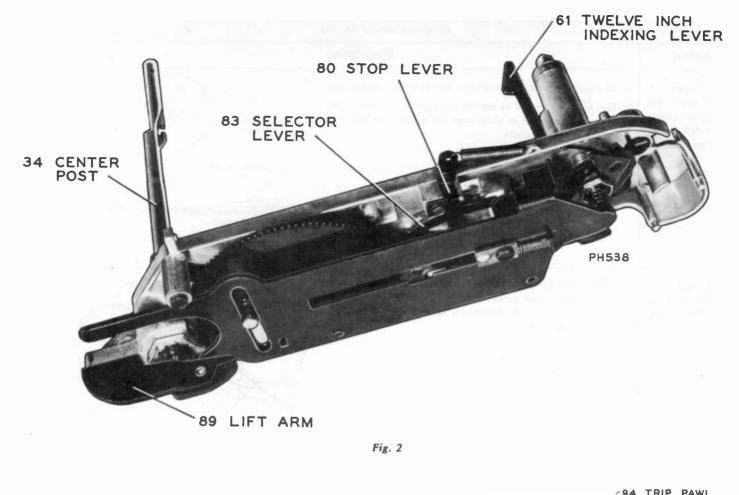
(See Exploded View-Fig. 6)

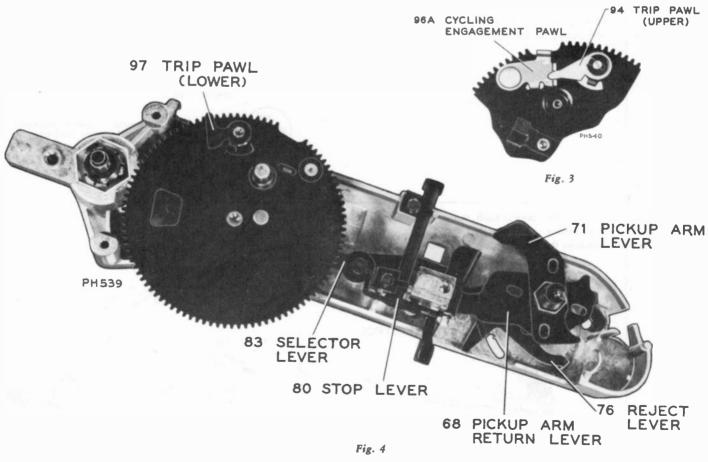
Record support (overarm) (1)

The function of the record support is to stabilize and hold the records in a horizontal plane which is parallel to the motorboard. After the last record of the stack drops to the turntable, the pivot of the record support drops down and actuates the automatic stopping device.

Center post (34)

The function of the center post is to support the stack of records. It also houses the separating mechanism.



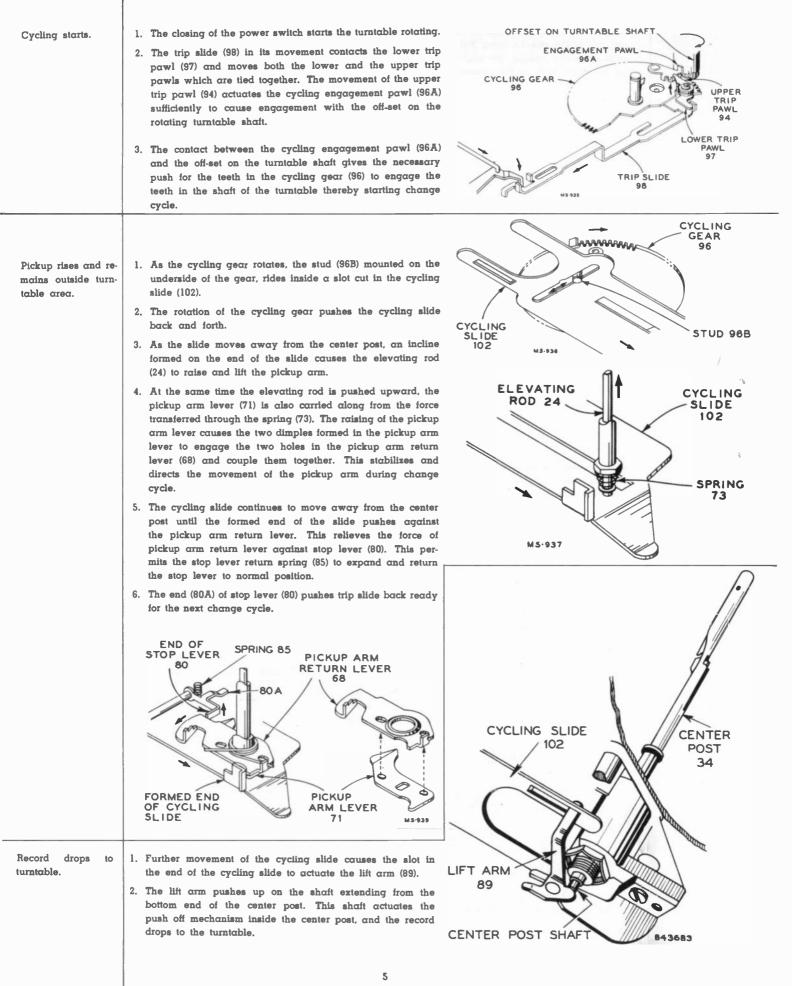


960284-1, -2

CYCLE OF OPERATION

NOTE: In the cycle of operation it is assumed the mechanism has stopped automatically (out of cycle) with the pickup arm on the rest.

Function	Description			
Place a stack of records over the center post (inter- mixed if so desired). Place the record support over the center post.	 The stack of records rests on the step in the centerpost (34). The hole in the end of the record support (1) permits the end of the support to slide over the center post and rest on the stack of records. RECORD CENTERPOST Centerpost 1 Centerpost 34 Centerpost 34 10" RECORD 12" RECORD 12" RECORD			
Turn the speed se- lector knob to 78 or 33-1/3 rpm position.	1. The speed change is accomplished by shifting to either of two shafts on the motor assembly which are rotating at different speeds. The additional shaft is connected by a small rubber belt. Image: Constraint of two shafts on the motor assembly which are rotating at different speeds. The additional shaft is connected by a small rubber belt. Image: Constraint of two shafts on the motor assembly which are rotating at different speeds. The additional shaft is connected by a small rubber belt. Image: Constraint of two shafts on the motor assembly which are rotating at different speeds. The additional shaft is connected by a small rubber belt. Image: Constraint of two shafts on the motor assembly two shafts on the motor assembly which are rotating at different speeds. Image: Constraint of two shafts on the motor assembly which are rotating at different speeds. Image: Constraint of two shafts on two shafts on the motor assembly two shafts on			
Rotate the knobs to select the proper stylus.	1. The rotation of the stylus knob (3) selects the proper stylus depending on the type of record to be played.			
Rotate function con- trol knob to reject position and re- lease.	1. The function control knob, through the linkage of the func- tion control arm (55), reject rod (56), and reject lever (76) actuates the power switch and the trip slide (98). FUNCTION CONTROL KNOB 26 FUNCTION CONTROL CUNCTION CONTROL ARM 55 Hasse			



960284-1, -2

	3. At this time the tab (96C) on cycling gear pushes down on one end of the selector lever (83) (which is pivoted in the center) thereby raising the other end causing it to latch on the edge (61A) of the twelve-inch indexing lever (61).	INDEXING LEVER LATCHES ON END END 61A TAB-96C PIVOT TAB-96C PIVOT SELECTOR LEVER 83
The pickup moves in for landing.	 As the cycling slide returns, the formed edge (102Å) on the slide moves back permitting the pickup arm return lever spring (66) to expand. This causes the pickup arm return lever (68) to move the pickup inward until the pickup arm return lever comes against the selector lever (83). The pickup is now directly above the point of landing. 	PICKUP ARM RETURN LEVER FORMED END 102A OF CYCLING SLIDE
Pickup sits on record.	1. The elevating rod (24) slides down the incline on the slide permitting the pickup to sit on the start of the record. NOTE:—12" indexing. The mechanism automatically is indexed for the pickup to land on a ten-inch record, each time the mechanism goes through change cycle, unless a twelve-inch record contacts indexing lever (61) as its drops to the turntable. On each revolution of the cycling gear (complete change cycle) the tab (96C) pushes down on the selector lever (83) and the other end of the selector lever latches on the top edge (61Å) of the twelve-inch indexing lever. Under these conditions the pickup will land correctly on a ten-inch record. On the other hand if a twelve-inch record drops to the turntable, it strikes the indexing lever on the way down. This permits the end of the selector lever (83) to drop down further into the recess (61B). The lower step of the pickup arm return lever makes contact with the selector lever and the pickup will land correctly on a twelve-inch record.	PICKUP ARM RETURN LEVER 68 PICKUP ARM RETURN LEVER 68 PICKUP ARM LEVER 71 INCLINE ON CYCLING SLIDE NS:943
	INDEXING LEVER SELECTOR LEVER B3 61A PICKUP ARM RETURN LEVER 68 10" RECORD POSITION 12" RECORD STRIKES SELECTOR LEVER AT LOWER END OF INDEXING LEVER SELECTOR LEVER SELECTOR LEVER SELECTOR LEVER SELECTOR LEVER TOPS PICKUP ARM RETURN LEVER 68 10" RECORD POSITION 12" RECORD POSITION	INDEXING LEVER 61 TAB 96C SELECTOR LEVER 83 EDGE 61A

960284-1, -2

Mechanism com- pletes cycle.	 Just before the cycling gear completes cycle, a small tab (102C) on cycling slide makes contact with lower trip pawl (97) thereby moving upper trip pawl (94) and cycling en- gagement pawl (96A) back. This prevents the re-engage- ment with the off-set on the turntable shaft which would start a new change cycle. The cycling gear comes to rest as the stud sliding in the slide. The cut away section of the gear is in position so the gear on the turntable shaft is free to rotate.
Record plays.	 As the record plays, the pickup moves in toward the center of the record carrying the trip slide along. This is due to the contact made with the pickup arm lever which is rotating with the pickup arm pivot. The trip slide contacts the lower trip pawl and both the lower and upper trip pawls and the cycling engagement pawls move slightly with each revolution of the record. This slight movement of the pawls is reversed each time the off-set on the turntable shaft comes in contact with the cycling engagement pawl. The back movement is taken up in the friction connection between the upper and lower trip pawls. This action continues as long as the pickup moves in at a constant rate of speed. When the stylus leaves the recorded
	section of the record, the rapid acceleration results in the rapid movement of the cycling engagement pawl. The cycling engagement pawl assumes such a position that the off-set on the turntable shaft makes a positive contact and the cycling cam is pushed sufficiently for engagement between the teeth of the cycling gear and the teeth in the turntable shaft. This starts change cycle.
Pickup raises and moves out.	 After the mechanism has been tripped the pickup arm moves out from action of the cycling slide (102) on the pickup arm lever (71). The mechanism again follows the preceding sequence of dropping and playing the records until the last record of the stack has been played.
Mechanism stops automatically.	 1. As the last record of the stack drops to the turntable the record support drops and actuates stop arm (4). This stop arm in turn applies force to stop lever through spring (8) dis in its outermost position (away from centerpost) and the hooked end (80B) of stop lever is forced down against, and sildes along the top surface of the cycling slide. The stop lever drops through sequence hole cut in the slide. The end (80B) now extends slightly below the cycling slide. At this time the pickup to the stop lever so the pickup is permitted to drar to be blocked by the tor and on the record. a. After the last selection has been played the mechanism figs further through the cycling slide. The other end 80C is now extends to be user applied to the stop lever to lower, thus extend to the stop lever to lower, the cycling slide. The other end 80C is the pickup arm return lever has moment the force wing turntee through the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has sole are pickup are to to be the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has moment is held back by the cycling slide. The other end 80C is the pickup arm return lever has momen

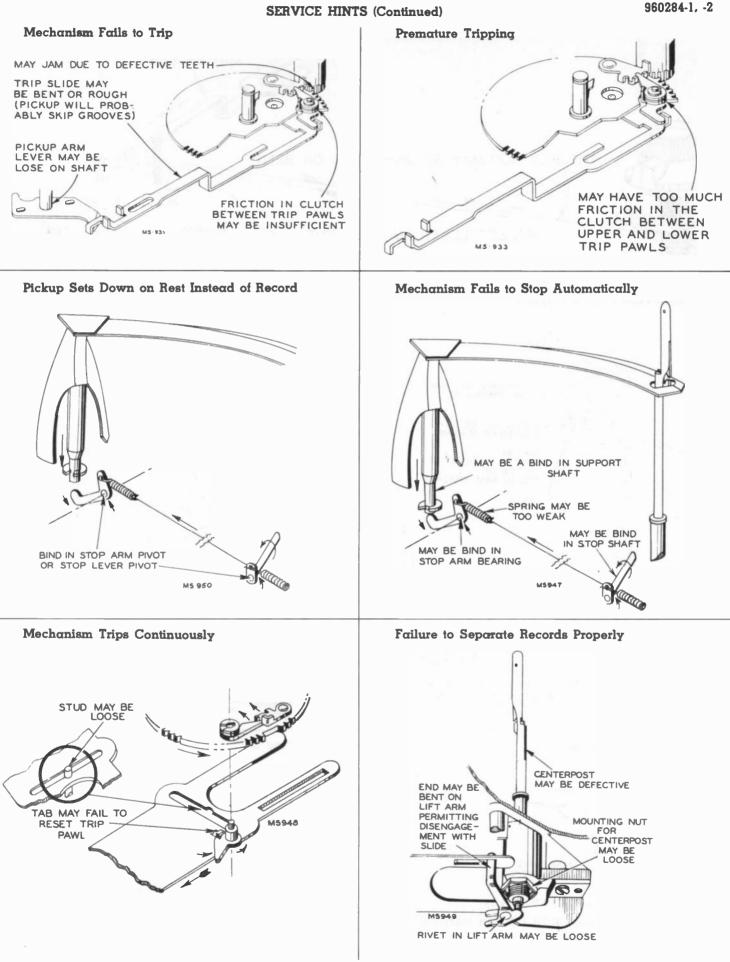
960284-1, -2 CYCLING 4. Next the cycling slide moves back, carrying the raised trip UPPER ENGAGEMENT TRIP PAWI / PAWL slide along until finally the formed end (98Å) of the trip slide (98) pushes reject lever which in turn actuates the power switch (78). This removes the power from the drive motor and mechanism stops. 5. The elevating rod (24) lowers the pickup arm to the rest. 6. As the cycling gear comes to rest, a small tab (102C) on cycling slide contacts and moves lower and upper trip pawls and cycling engagement pawl back to prevent en-TAB gagement with off-set on turntable shaft. This prevents 102C LOWER TRIP starting a change cycle if power would be applied to drive PAWL motor. (See page 17 for cycle of operation on modified mechanism.)

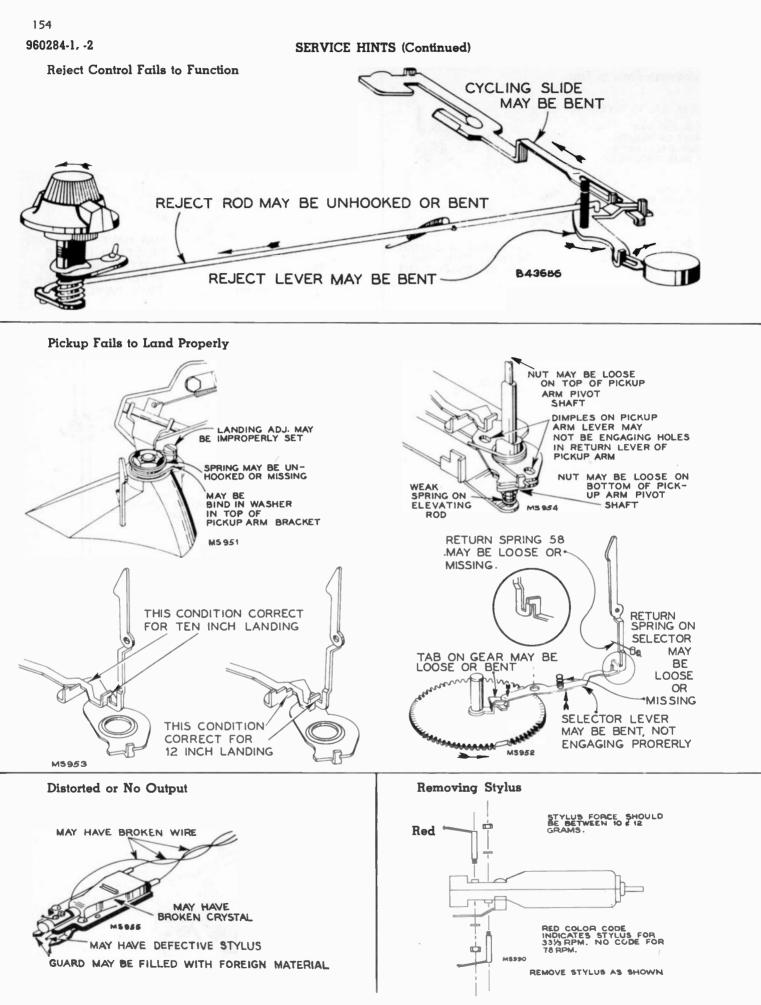
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SERVICE HINTS

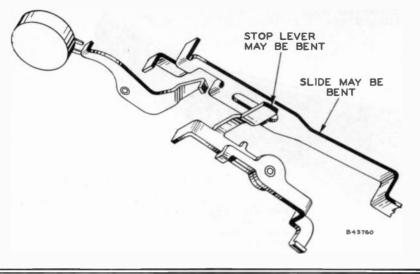
Pickup Arm Strikes Record on Center Post Speed Change Control Fails to Function PICKUP HEIGHT ADJUSTMENT SET TOO HIGH MAY BIND IN BEARING α Ø \mathcal{M} BELT MAY BE BROKEN OR STRETCHED CHANGE MECHANISM MAY BE DEFECTIVE TIE ROD MAY BE UNHOOKED MS-930 MS 885 L **Pickup Skips Grooves** PICKUP HEIGHT ADJUSTMENT MAY BE SET TOO HIGH SLIDE MAY BE BENT OR TIGHT DUE TO ROUGHNESS MAY HAVE IN-SUFFICIENT PICKUP FORCE ADJ. HERE MAY HAVE BIND IN PICKUP ARM PIVOT FRICTION CLUTCH ON TRIP PAWL MAY BE TOO TIGHT 0 SHAFT MAY BE BIND-MS-927 "Wow" or Speed Variation MS-121 MAY BE DE-FECTIVE IDLER С MOTOR MAY BE DEFECTIVE ά MAY BIND IN IDLER BEARING DRIVE BELT MAY BE MAY BE GREASE ON IDLER STRETCHED 0 CARRIAGE SPRING MAY HAVE INSUF-FICIENT TENSION MAY BE USING INCORRECT STYLUS MS-885-M MAY HAVE LOW 0 MS-928

SERVICE HINTS (Continued)

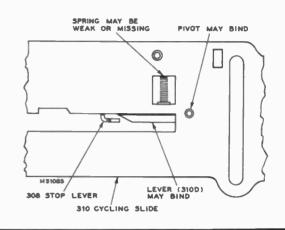




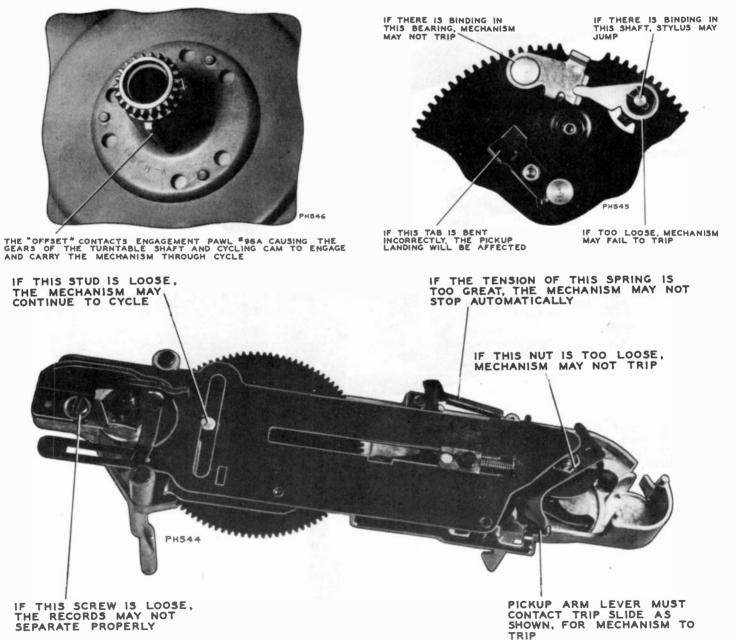
After Last Selection Has Been Played Pickup Sets on Rest. But Turntable Continues to Rotate



Mechanism Fails to Play Last Record (New Type Slide)



DO YOU KNOW?



DO YOU KNOW?

960284-1, -2

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1

1

IF HEIGHT ADJUSTMENT IS INCORRECT, MECHANISM WILL NOT PLAY A FULL STACK OF RECORDS

PH542

TIGHT VERTICAL BEARINGS MAY CAUSE THE STYLUS TO SKIP GROOVES

FOR CORRECT LANDING ON 12" RECORDS, THE RECORD MUST CONTACT THIS LEVER IF THIS ADJUSTMENT IS INCORRECT, PERMITTING TOO MUCH STYLUS FORCE IT WILL PRODUCE PREMATURE WEAR ON BOTH STYLUS AND RECORD. ALSO POOR REPRODUCTION SUCH AS SURFACE NOISE AND FREQUENCY DISTORTION. IF FORCE IS INSUFFICIENT, STYLUS MAY JUMP GROOVES. AGAIN POOR REPRODUCT-ION WILL RESULT.

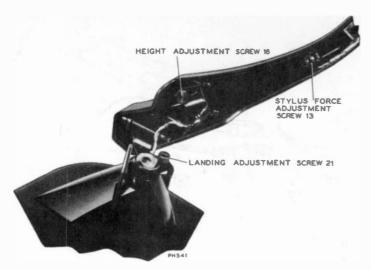
IF THIS ADJUSTMENT IS INCORRECT. THE PICKUP WILL NOT LAND PROPERLY

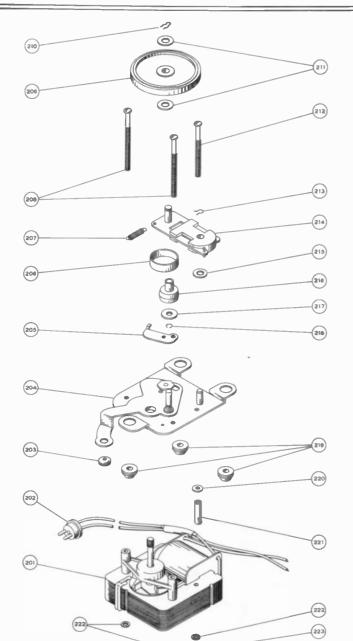
IF THIS SPRING IS MISSING, ERRATIC LANDING WILL RESULT

IF STOP LEVER BINDS, MECHANISM MAY STOP AUTOMATICALLY BEFORE STACK OF RECORDS HAS BEEN PLAYED IF DIMPLES IN PICKUP ARM LEVER DO NOT ENGAGE HOLES IN PICKUP ARM RETURN LEVER, PICKUP LANDING WILL BE VERY ERRATIC

PH543

IF THE PIVOT BINDS OR THE RETURN SPRING HAS INSUFFICIENT TENSION, THE PICKUP MAY CONTINUE TO ASSUME THE LANDING POSITION FOR 12" RECORDS

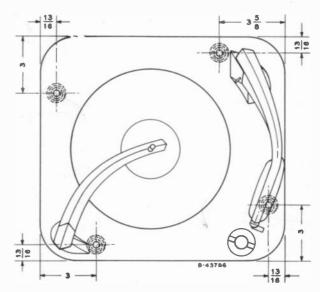




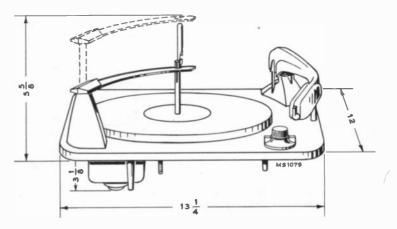
Landing Position—The landing position of the stylus is adjusted by means of the landing adjustment screw (21) mounted on the pickup arm support bracket assembly. Turn the screw for correct landing on 10" records and the 12" adjustment should automatically be correct.

Pickup Arm Height—The pickup arm height is adjusted by screw (16) located inside the pickup arm. To raise pickup arm turn screw counterclockwise to lower arm turn screw clockwise. The pickup arm height should be adjusted so that with a $1\frac{1}{3}$ " stack of records the pickup arm lifts $\frac{1}{3}$ " straight up as the change cycle starts.

Stylus Force—Stylus force should be ten to twelve grams. Loosen screw (13) and move slide back and forth until the correct stylus force is obtained.



Mechanism Mounting Dimensions



Mechanism Overall Dimensions

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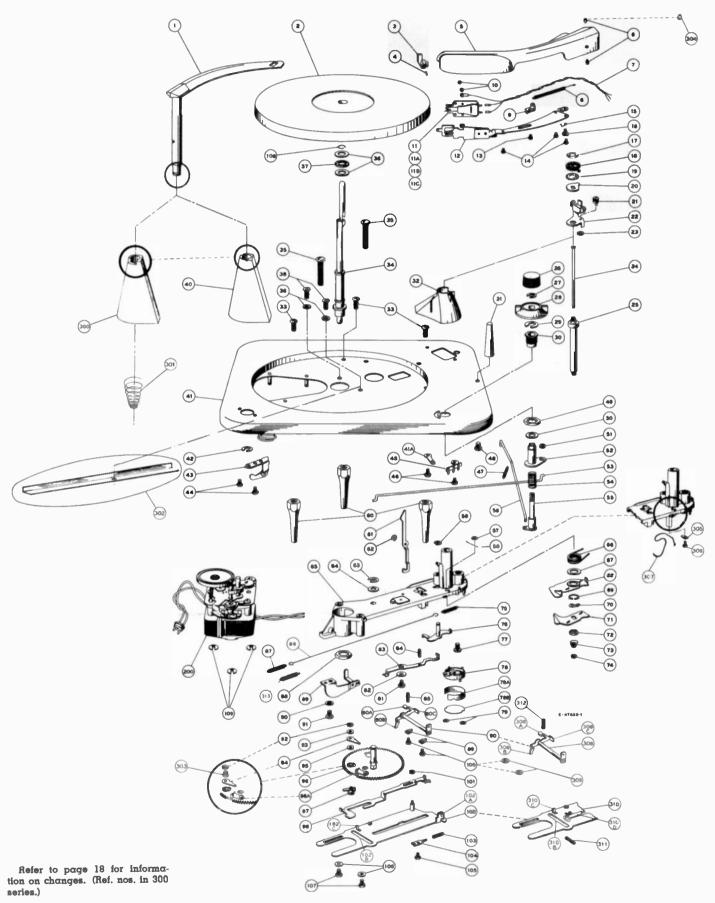
Exploded View of Motor

(22

-(224)

D-48684

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Exploded View of Entire Mechanism-Fig. 6

1

REPLACEMENT PARTS

ILL. NO.	STOCE NO.	DESCRIPTION	ILL. NO.	STOCK NO.	DESCRIPTION
1	75802	Support—Record support complete with plastic cap (marcon) and pin for 960284-1	37 38	75355	Bearing—Thrust bearing Screw—#10-24 x 5/16" pan head machine
1	75803	Support-Record support complete with plastic cap (tan) and pin for 960284-2			screw to mount die-cast sub-assembly
18	75804	Cap—Plastic cap (maroon) for record sup-	39		Lockwasher—#10 internal tooth lock washer to mount die-cast sub-assembly
18	75805	port assembly for 960284-1 Cap—Plastic cap (tan) for record support	40	75832	Housing—Record support housing (plum hammertone) (die-cast) for 960284-1
2	75806	assembly for 960284-2 Turntable—Turntable and hub assembly	40	75874	Housing—Record support housing (light brown) (die-cast) for 960284-2
3	76409	Knob—Stylus selector knob complete with screw III. #4	41		Board—Motorboard (plum hammertone) complete with mounting springs, cable
4	75807	Screw—Screw for stylus selector knob (in- cluded in 76409, Ill. #3) Arm—Pickup arm shell only complete with	41		clamps and motor mounting studs for 960284-1 Board—Motorboard (light brown) complete
6	75357	"RCA Victor" emblem Pivot—Pickup arm pivot (2 required)	1		with mounting springs, cable clamps and
7	75808	Cable—Three (3) wire pickup cable com-	41.8		motor mounting studs for 960284-2 Lug—Terminal lug
8	75809	plete with connectors Spring—Pickup arm counterbalance spring	42	75385	Washer—"C" washer for record suppor shaft
9	75810	(coll type) Bracket—Adjustment bracket for counter-	43	75834	Arm-Stop arm assembly Screw-#6 x 5/16" hex head self-tapping
10		balance spring Screw—Mounting screw for crystal			screw to mount record support housing and stop arm
11	75475	Crystal—Two-way (33½/78 RPM crystal	45		Board—Terminal board (3 contact)
11.8	75497	complete with styluses Stylus—Osmium tip stylus for 78 RPM sec-	46		Screw—#6-32 x ¼" hex head self-tapping screw to mount terminal board and plck
11B	75496	tion (not coded) Stylus—Osmium tip stylus for 33½ RPM	47	75401	up arm pivot housing Spring—Reject rod return spring (coil type)
11C	74230	section (coded "red") Nut—#00-112 nut and washer to mount	48	75830	Screw—#10 x ¹ /2" self-tapping cross-re- cessed head screw to mount arm rest
		stylus	49		Nut—Pal nut to mount threaded bushing
12 13	75811	Mount—Crystal mount and swivel assembly Screw—#6-32 x ½" round head machine	50	75835	Ill. #30 Washer—Bronze washer for control shaft
		screw to mount counterbalance spring adjustment bracket	51	75403	Grommet—Rubber grommet for motor speed control rod
14	71097	Screw—#4 x ¼" self tapping screw for crystal mount and swlvel assembly	52	75836	Arm—Motor speed control arm and shaf assembly
15	75812	Spring—Lock spring (coil type) for height adjustment screw	53 54	75837 75838	Rod-Motor speed control rod
16 17	75813	Screw—Height adjustment screw (hex head) Nut—Pal nut for mounting pickup arm	55	75839	Spring—Compression spring for contro lever shaft (coil type) Arm—Function control arm and shaf
18.	75814	bracket Spring—Tension spring (coil type) for land- ing adjustment stud	56	75840 75841	cssembly Rod—Reject rod Nut—Speed nut for 12" indexing leve:
19		Washer—Metal (steel) washer for pickup arm pivot sbaft (1/16" x 1/4" I.D. x 1/2" O.D.)	58	75842	return spring Spring—12" indexing lever return spring
20 21	75815 75816	Cam—Landing adjustment cam	59	75392	(formed) Washer"C" washer for mounting rejec
22	75817	Stud—Landing adjustment stud (eccentric) Bracket—Pickup arm mounting bracket com-	60	75843	lever LegPlastic leg
23	75818	plete with pin Nut-Speed nut for landing adjustment stud	61	75844 75397	Lever—12" indexing lever Washer—"C" washer for mounting 12"
24 25	75819 75820	Rod—Elevating rod Shaft—Pickup arm pivot shaft and sleeve	63	75373	indexing lever Washer—"C" washer for mounting cycling
26	75821	Knob-Function control knob (marcon) for 960284-1	64	75845	gear Washer-Fibre washer for mounting cycling
26	75822	Knob—Function control knob (tan) for 960284-2	65	75846	dear
27	75399	Washer Washer to mount function	66	75847	Casting—Main casting Spring—Pickup arm return lever spring
28	75823	control arm and shaft assembly Knob—Motor speed control knob (maroon) for 960284-1	67	75848	(coil type) Washer-Fiber washer for pickup arm pivo shaft
28	75824	Knob—Motor speed control knob (tcm) for 960234-2	68 69	75849 75850	Lever-Pickup arm return lever Retainer-Retainer ring for pickup arm
29 30	75825 75826	Washer—"C" washer to mount motor con- trol arm and shaft assembly Bushing. Theoretical charter is a control shaft	70	75851	return lever Washer—Spring washer for pickup arm
31	75827	Bushing—Threaded bushing for control shaft Rest—Pickup arm rest (marcon) for 960284-1	71	75852	pivot shaft Lever—Pickup arm lever
31 32	75828 75829	Res'—Pickup arm rest (tan) for 960284-2 Housing—Pickup arm pivot shaft housing	72 73	75854	Nut—Pal nut to fasten pickup arm lever Spring—Thrust spring (coil type) for elevat
32	75873	(plum hammerione) (die-cast) for 960284-1 Housing—Pickup arm pivot shaft housing (light housing) (die cast) for 960284.2	74	75397	ing rod Washer—"C" washer for elevating rod
33	75830	(light brown) (die-cast) for 960284-2 Screw—#10 x ½ self-tapping cross-re-	75	75855	Spring—Return spring (coil type) for sto
34	75831	cessed head screw to mount plastic legs Spindie—Turntable spindle assembly	76	75856	Lever—Reject lever Screw—#10-24 x $5/16''$ round head machine
35	75377	Screw—Motorboard mounting screw (¼-20 x 1¾" round head—special)	78	75857	screw and lockwasher Switch-"On-Off" switch complete with
36	75354	Washer-Thrust washer for turntable bear-		1	insulating strip and cover

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REPLACEMENT PARTS—Cont.

ILL. NO.	STOCK NO.	DESCRIPTION	ILL. NO.		DESCRIPTION
80	75858	Lever—Stop lever assembly (including 80A.	106		Washer-Brass washer for cycling slide
		B, C)	107		Screw-#6-32 x 1/2" hex head machine
81		Screw—#6-32 x ¼" hex head screw for selector lever			screw for mounting cycling slide
82		Washer—Flat washer (steel) for mounting	108	75353	Retainer-Turntable spindle thrust bearing assembly retainer
		selector lever	109	75876	Washer—"C" washer for mounting motor
83	75859	Lever-Selector lever	200	75333	Motor-117 volt, 60 cycle, complete with top
84	75860	Spring—Return spring (coil type) for selector			plate, idler wheel and drive belt
		lever	202	30870	Connector-2 contact male connector for
85	75861	Spring-Return spring (coil type) for stop			motor leads
86	75862	lever Link—Control link	203	75403	Grommet-Rubber grommet for motor speed
80 87	75862	Spring—Return spring (coil type) for stop	204		change tie rod (2 req'd) Plate—Motor top plate including speed
07	/3003	arm	204	75426	change carriage, 3 mounting grommets
88		Nut-Pal nut for spindle			and 1 speed change lever grommet
89	75864	Arm-Lift arm	205	75431	Plate—Friction guide plate
90	<u> </u>	Lockwasher—Internal teeth lockwasher	206	75376	Belt-Rubber belt for motor drive shaft
		(#10) for lift arm mounting screw	207	75383	Spring-Tension spring for idler wheel
91		Screw-#10-24 x 5/16" round head machine	208		Screw—#6-32 x 2" round head machine
92	75397	screw for lift arm			screw to mount top plate to motor
34	12381	Washer—"C" washer for mounting trip pawl	209	75382	WheelIdler wheel
93	75396	Washer—Fibre washer for trip pawl shaft	210	75380 75433	Spring—Hairpin spring for idler wheel Washer—Dampening washer for idler
94	75865	Pawl-Trip pawl-upper		/3433	wheel (2 reg'd)
95	75395	Washer—Spring washer for trip pawl shaft	212		Screw-#6-32 x 21/s" round head machine
96	75866	Gear-Cycling gear complete with shaft			screw to mount top plate to motor
		and engagement lever	213	75432	Spring—Hairpin spring to mount idler car-
96A		Lever—Engagement lever—part of Ill. 96			riage
97 98	75867 75868	Pawl—Trip pawl—lower	214 215	75430 75433	Carriage—Idler carriage Washer—Fibre washer
30 99	75869	Slide—Trip slide	215	75433	Pulley—Drive pulley and shaft assembly
99 100	13903	Strip—Bearing strip for stop lever shaft	=10	/0443	for 331/2 RPM
100		Screw—#4-40 x ¼" hex head screw for mounting stop lever shaft bearing strips	217	75428	Washer-Felt washer
101	75397	Washer-"C" washer for mounting trip	218	75427	Retainer-Retainer ring for drive pulley and
		slide			shaft
102	75870	Slide—Cycling slide and cam assembly	219	75386	Grommet-Rubber grommet to mount motor
103	75871	Spring-Stabilizing spring (coil type) for	220		(3 reg'd)
		cycling slide	220		Washer—Flat metal washer Spacer—Metal spacer to mount top plate to
104	75872	Plate—Bearing plate for cycling slide			motor
105		Screw—#6-32 x ½" hex head machine	222		Lockwasher-#6 internal teeth
		screw for mounting cycling slide bearing	223		Lug-Terminal lug
		plate	224		Nut-#6 hex nut

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

ILL. NO.	STOCK NO.	DESCRIPTION	ILL. NO.	STOCK NO.	DESCRIPTION
300	76395	Housing—Record support housing (plum hammertone) (dle cast) for 960284-1	306	—	ScrewMounting screw for Ill. No. 305 (4-40 Hex. Hd.)
300	76396	Housing-Record support housing (light	307	76312	Spring—Reject spring
		brown) (die cast) for 960284-2	308	76313	Lever—Stop lever
301	76308	Spring-Record support hold down spring	309	76310	Nut-Tinnerman nut, to mount stop lever on
302 303	76307 76309	Brace—Brace for motor board Spring—Friction spring for trip lever assem-	310	76315	main support Slide—Cycling slide complete with escape lever Ill. 310D
		bly	311	75861	Spring—Escape lever spring
304	76306	Bearing—Hinge button bearing	312	76314	Spring—Stop lever spring
305	76311	Support—Cycling slide support	313	76316	Spring—Stop arm take up spring

REPLACEMENT PARTS (Modified Type)

EXPLANATION OF AUTOMATIC STOPPING ACTION IN MECHANISMS HAVING NEW SLIDE (310) AND STOP LEVER (308) ASSEMBLIES

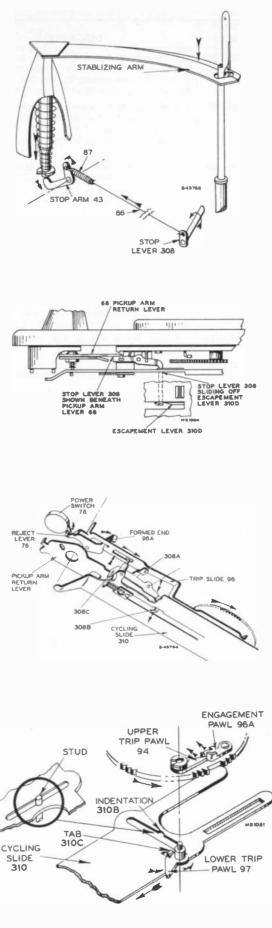
Mechanism stop automatically. 1. As the last record of the stack drops to the turntable the record support drops and actuates the stop arm (43). This stop arm in turn applies force to stop lever (308) through spring (87) and connecting wire (86). At this moment the cycling slide is in the outermost position (away from centerpost) and the end 308B of stop lever is forced against escape lever 310D which prevents it from lowering any further. 2. As the cycling slide returns to the out of cycle position the end (308B) of stop lever slides off the escape lever permitting the end (308B) to extend down through the slot in the cycling slide. At this time the pickup arm return lever has rotated too far to be blocked by the other end (308C) of the stop lever so the pickup is permitted to land on the record. 3. After the last selection has been played the mechanism again goes into change cycle, and the cycling slide moves into its outermost position. At this moment the force which has been applied to the stop lever from the record support causes the end (308B) to lower, thus extending further through the cycling slide. The other end (308C) of stop lever raises and blocks the pickup arm return lever which at this moment is held back by the cycling slide. 4. As the cycling slide moves back, it carries the raised trip slide along until finally the formed end (98Å) of the trip slide (98) pushes reject lever which in turn actuates the power switch (78). This removes the power from the drive motor and mechanism stops. 5. The elevating rod (24) lowers the pickup arm to the rest. 6. As the cycling gear comes to rest, a small tab (310C) on cycling slide contacts and moves lower and upper trip pawls and cycling engagement pawl back to prevent engagement with off-set on turntable shaft. This prevents starting a change cycle if power would be applied to drive motor.

NOTE: Assuming the mechanism stopped automatically, the record support will be down as far as it will go and the one end of the stop lever will block the pickup arm return lever.

In the mechanism with the old split type stop lever, when the record support is raised to place a stack of records on the post, one half of the stop lever can raise therefore the end (80B) can raise up through the square hole in the cycling slide while the other end continues to block the pickup arm return lever.

The lowering of end (80C) at this time would cause the pickup to jump in over the record.

In the case of the new type one piece stop lever (308) the end (308B) remains down until the change cycle starts and the cycling slide has reached the outermost position. At this time the end (308B) slides over the edge of escape lever (310D) and raises when the other end is lowering away from the pickup arm return lever which at this moment is being held back by formed end of cycling slides.



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GENERAL INFORMATION ON SUBSTITUTIONS AND CHANGES

ILL. NO.	DESCRIPTION	ILL. NO.	DESCRIPTION
III. No. 300	Record support housing can be used to replace old housing Ill. No. 40 in which case record sup- port hold down spring, Ill. No. 301 can be added to improve automatic stopping of mechanism.		When substituting the new type stop lever III. No. 308 a new spring III. No. 312 must be added to increase tension on lever. Tension spring III. No. 313 will have to be substituted for III. No. 87.
Ill. No. 301	Record hold down spring can only be used with new support housing Ill. No. 300. It cannot be used with old support housing Ill. No. 40 because it does not provide sufficient vertical clearance for pin in record support.	III. No. 309 III. No. 310	Tinnerman nuts are used on some castings in place of screws Ill. No. 100. Tinnerman nuts will be included when that type of casting is shipped. Cycling slide can be added to original mechanism if the stop lever new type Ill. No. 308 is also
III. No. 302	Motor board brace can be added to old type mechanism to straighten the well in which the turntable rides. This tends to prevent turntable	Ill. No. 311	changed. If this change is made also change springs Ill. Nos. 312 and 313. Escape lever spring is the same spring as used
	scraping and also to prevent bending of motor board while in transit.		on old mechanism item 85.
Ill. No. 303	Friction spring can be added to old mechanism by removing washers, Ill. Nos. 93 and 95. This change tends to improve tripping.	Ill. No. 312	Stop lever spring can be substituted in place of spring Ill. No. 85 on mechanism having old type "split" stop lever. This spring is absolutely es- sential on mechanism using new type stop lever
Ill. No. 304	Hinge button can be used in place of one pivot screw. The use of hinge button tends to control the friction in the vertical pickup arm pivot.	Ill. No. 313	III. No. 308. Stop arm take up spring must be used when
Ill. No. 305	Slide support Ill. No. 305 can be used on main castings having the standoff moulded on casting, as shown in circle in exploded view.		mechanism incorporates the following parts: New type stop lever Ill. No. 308 New type cycling slide Ill. No. 310
III. No. 306	Mounting screw 4 x 40 hex. hd. used with slide support Ill. No. 305.		Stop lever spring Ill. No. 312 Stop arm spring Ill. No. 313 can also be used
III. No. 307	Reject spring can be added to old mechanism to improve the return action of the reject lever.	III No. 25	without harm on old type mechanism.
III. No. 308		III. No. 75	Spring is now deleted on new mechanism using new Stop lever III. No. 308 Cycling slide III. No. 310 Stop arm spring III. No. 313 Stop lever spring III. No. 312

LUBRICATION

The mechanism is properly lubricated when it leaves the factory, so no lubrication should be necessary for a long period of time. If, however, the mechanism has unusual use or high operating temperatures, it may be necessary to add additional lubrication.

- It is suggested to use Lubriplate or STA-PUT No. 512 to:
 - 1. Pickup arm pivot.
 - 2. Points of sliding contact with cycling slide, including:
 - a. elevating rod
 - b. lift arm
 - c. roller on cycling cam
 - d. pickup arm return lever
 - e. pickup arm lever
 - 3. End of selector lever contacting tab on cycling gear.
 - 4. Turntable thrust bearing.

- 5. Sparingly on a trip slide.
- 6. All points of sliding contact.

Apply a small quantity of light machine oil #10 or Singer Sewing machine oil to:

- 1. Trip pawl pivot.
- 2. Cycling engagement pawl pivot.
- 3. Bearing of record support.
- 4. Elevating rod.
- 5. Bearing of lift arm.
- 6. Bearing of reject lever.
- 7. Bearing of stop lever.
- 8. Bearing of cycling gear.
- 9. Motor bearings.

NOTE: Keep oil or grease away from all rubber parts.





MODEL 960285-1

Automatic Record Changer

SERVICE DATA

-1950 No. 3-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

Manual Operation

- 1. Lift and rotate the record support to one side.
- Place the record to be played on the turntable (tilt slightly) to slide over the stop in the center post.
- 3. Set the speed and pickup cartridge controls properly.
- Turn function control to reject and release. (Allow mechanism to complete cycle.)
- Place the record support (2) over the spindle, permitting it to rest on the step of the spindle.
- The mechanism will play the record after which it will stop automatically.

Lubrication

The mechanism is properly lubricated when it leaves the factory, so lubrication should not be necessary for a long period of time. If, however, the mechanism has unusual use or high operating temperatures, it may be necessary to add additional lubrication.

- It is suggested to use Lubriplate or STA-PUT No. 512 to:
 - 1. Pickup pivot bushing (27).
 - 2. Frictional contact on the clutch assembly.
 - 3. Lift arm bearing and cam faces.
 - 4. Spring contact on stop rod (89).
 - 5. Channel on cycling cam (50).
 - 6. Roller on end of center post (39), ball bearing races 5-6-7.
 - 7. Trip slide (71).
 - 8. All frictional contacts and gears in general.

Apply a small quantity of light oil No. 10 or Singer Sewing machine oil to:

- 1. Trip dog (52).
- 2. Motor bearings.
- 3. Control levering bearing (59).
- 4. Record support bearing (2).

NOTE: Keep oil or grease away from all rubber parts.



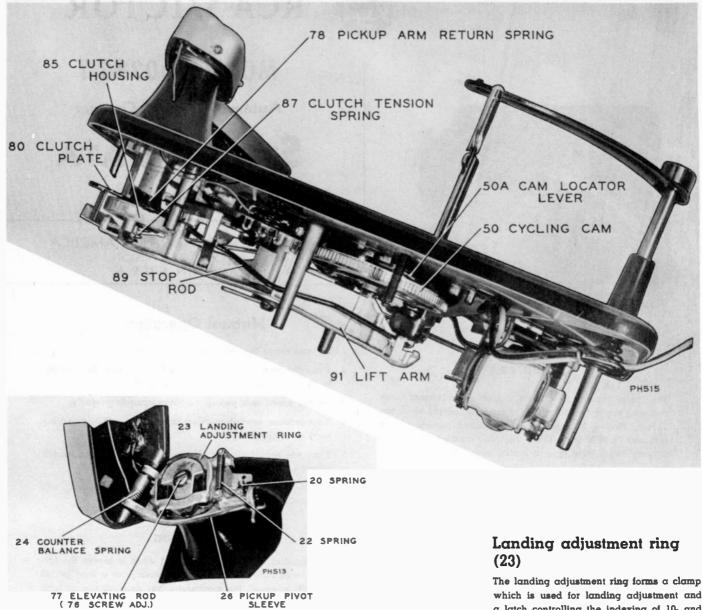
Features

- This record changer is a center support intermix mechanism designed to play automatically a series of records up to ten 12-inch, twelve 10-inch, or ten intermixed records of the standard 78 RPM type. It will also play a series of the long playing 33-1/3 RPM type of similar diameter.
- The mechanism is equipped with a light weight dual stylus pickup cartridge which can be selected by turning a knob in the end of the pickup arm.
- The mechanism will automatically stop and the pickup arm return to the rest position after the mechanism has played the last selection of the stack.
- 4. The automatic tripping device is of the acceleration type.
- 5. The speed change is accomplished by a single control mounted on the motorboard.

Automatic Operation

- 1. Lift and rotate the record support to one side.
- 2. Place a stack of records over the center post.
- 3. Rotate the record support so the center post will extend through the hole in the end of the support.
- 4. Turn the speed control to select the proper speed.
- 5. Rotate the knob in the end of the pickup arm to the proper numeral corresponding to the turntable speed.
- 6. Turn the function control knob to reject and release. The mechanism will play one side of each record of the stack until the last selection has been played at which time it will stop automatically.
- To reject a record being played, turn the function control knob to reject and release.
- To remove records, lift and turn the record support to one side.
- 9. Lift the stack of records straight up.

960285-1



Functions of Principal Levers

Control lever (59A)

The function of the control lever is to actuate both the reject rod (40) and the power switch (66). It is also engaged by the stop rod (89) causing the mechanism to stop automatically after the last selection has been played.

Trip slide (71)

The trip slide consists of a long thin piece of brass which actuates the lower trip dog to start automatic tripping.

Stop rod (89)

The stop rod consists of a long rod running lengthwise along the side of the lift arm (91). The function of the stop rod is to engage the control lever and stop the mechanism after the last selection has been played.

Lift arm (91)

Lift arm functions as a main tie between the cycling cam (50) and the other parts of the mechanism. It also directs the separation of the records and the movement of the pickup arm.

Centerpost (39)

The center post functions as a support for the stack of records and also provides a means of record separation by the mechanism inside the center post.

Record support (2)

The record support performs the function of stabilizing the stack of records. It also clamps the push off mechanism built inside the center post which in turn controls the stopping of the mechanism after the last selection has been played.

which is used for landing adjustment and a latch controlling the indexing of 10- and 12-inch records.

Reject rod (40)

The reject rod forms a tie between trip dog and control lever (59A).

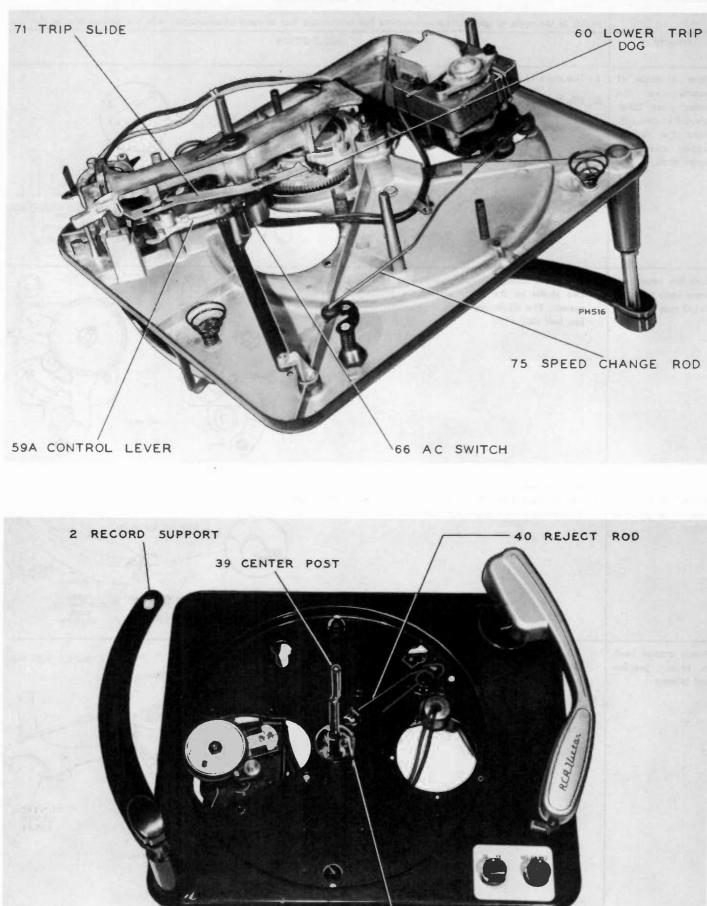
Upper trip dog (52)

The trip dog consists of a small piece of hardened steel mounted on the main cycling cam. The contact between the off-set on the turntable shaft and the trip dog cause the teeth of the cam and the teeth of the turntable shaft to engage thereby starting change cycle.

Lower trip dog (60)

The lower trip dog is in contact with trip slide (71) when tripping. It is connected by friction to the shaft of upper trip dog thereby providing the necessary take up to prevent the pickup from skipping grooves when tripping starts.





PH514

52 TRIP DOG

960285-1

Cycle of Operation

	NOTE: In the cycle of operation it is assumed the mechanism has stopped automatically with the pickup arm on the rest.
FUNCTION	DESCRIPTION
Place a stack of records over the center post (inter- mixed if so desired). Place the record support over the center post.	 The stack of records rest on the step in the center post (39). The hole in the end of the record support (2) permits the end of the support to slide over the center post and rest on the stack of records. This stabilizes the records. RECORD SUPPORT (2) RECORD SUPPORT (2) RECORD SUPPORT (2) A A A A A A A A A A A A A A A A A A A
Turn the speed se- lector knob to 78 or 33-1/3 rpm position.	1. The speed change is accomplished by shifting to either of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct of two shafts on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct on the motor which are rotating at different speeds. The additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connected by a small rub ber belt (36). Image: Construct on the additional shaft is connecte
Rotate the knob to select the proper stylus.	1. The rotation of the stylus knob (8) selects the proper stylus depending on the type of record to be played. NUMBER SHOWN ON TOP INDICATES WHICH C/CLOCKWISE STYLUS CONTACTS FOR RECORD 78RPM 333 RPM
Rotate control knob to reject position and release.	 The operating control actuates control lever (59A) which in turn actuates the power switch. This starts the turntable rotating. Further rotation of the control knob moves the reject rod (40) sufficiently to actuate the trip dog (52) which starts change cycle. Further rotation of the control knob moves the reject rod (52) which starts change cycle. OPERATING CONTROL (32) OPERATING CONTROL (32) MS-685 D

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Cycling starts.	 The reject rod (40) has moved the trip dog (52) sufficiently for the off-set in the rotating turntable shaft to engage and tend to push it away. Since the trip dog (52) is mounted on the edge of the cycling cam (50) the movement rotates the cam and in so doing, causes engagement between the teeth in the turn- table shaft and the cycling cam. This engagement starts change cycle. 	 As the cycling cam rotates, a small roller mounted on the lift arm (91) follows the track formed in the cycling cam (50). This engagement causes the lift arm (91) to start rotating in a clockwise direction (viewed from the bottom). The rotation of the lift arm (91) also causes contact with the small roller connecting the push-off mechanism inside the center post. This contact pushes the small roller and shaft upward.
	TRIP DOG 52 IS CONTACTED BY ROD 40	ROLLER
	CYCLING CAM 50 TRIP DOG 52 IS CONTACTED BY EXTENSION ON DRIVE GEAR	ROLLER AND SHAFT MOVES UP INTO CENTERPOST
The pickup rises and remains out- side turntable area.	 While the lift arm (91) is rotating the end directly under the pickup arm pivot engages the elevating rod (77) and raises the pickup. The pickup has been setting on the rest so it moves out very little when the lift arm (91) is rotating in a clockwise direction (viewed from bottom). At this same time the extended end of the lift arm (91) contacts end of clutch plate (80) rotating it in a clockwise direction (viewed from bottom) against the tension of spring (78). Since both the clutch plate (80) and housing (85) are rotated to the extreme clockwise direction, the clutch plate is engaged in a notch in the clutch housing which couples the two together. 	ELEVATING ROD 77 PICKUP ARM PIVOT BEARING ASSEMBLY AS LIFT LEVER 91 ROTATES ELEVATING ROD 77 IS PICKUP ARM PIVOT BEARING ASSEMBLY SPRING PICKUP ARM PIVOT BEARING SPRING PICKUP ARM PIVOT BEARING ASSEMBLY SPRING PICKUP ARM PIVOT BEARING ASSEMBLY SPRING PICKUP ARM PIVOT BEARING ASSEMBLY SPRING SPR
Record drops to turntable.	 The upward movement of the push-off mechanism actuates the small lever embedded in the center post to engage the center hole of the record and push the record off the step permitting it to drop to the turntable. 	RECORD
		LIFT ARM DI STARTS PUSHING UPWARD.

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960285-1		
The pickup moves in for landing.	 The next instant the lift arm (91) starts rotating in a counter- clockwise direction (viewed from bottom) returning to nor- mal out of cycle position. The separator mechanism returns to normal, and the pickup arm is pushed in by the force produced by the expanding spring (78). 	 The pickup arm continues to be pushed in until the end of the clutch plate (80) comes against the stop. At this instant the pickup is directly over the landing point on the record.
	M3-885-G CLUTCH PLATE (80) AND CLUTCH HOUS- ING (85) ARE COUP- LED TOGETHER	M3 403 F CLUTCH PLATE (BO) AND CLUTCH HOUSING (B5) REMAIN ENGAGED UNTIL PICKUP HAS LANDED ON ON THE START OF THE RECORD
The pickup lands.	 The clutch housing (85) is lowered slightly unlatching the clutch plate (80). This unlatching permits free movement of the pickup arm. The pickup is at this moment landing on the record. NOTE: It should be made clear at this time that the pickup are landing adjustment size (22) must cleare (25) husb 	MS-885A SPRING (78) CLUTCH PLATE AGAINST STOP
	arm, landing adjustment ring (23), pivot sleeve (26), bush- ing (27), pivot (82) and clutch assemblies (78 to 88) move horizontally as one unit inside the pivot housing on the motorboard. In addition the pickup pivot sleeve (26) rotates in respect to the bushing (27) in approximately a 5 or 10 degree arc. This movement determines the difference in the landing position on ten- or twelve-inch records.	CLUTCH HAS DROPPED V32" TO V16" AND IS MOVING CLOCKWISE
	As the pickup arm is moved out with each change cycle, the landing adjustment ring (23) it latched to the pickup pivot sleeve (26) through the latch (26A). If a ten-inch record drops to the turntable, the latch remains engaged and the pickup lands on the ten-inch record. On the other hand, if a twelve-inch record drops to the turntable, the edge of the record contacts the small lever at the side of the pickup arm and unlatches the pickup adjustment ring (23). This unlatching allows the pickup to position for landing on twelve-inch records.	t2" INDEXING LEVER MS 885-H
Change cycle is completed and rec- ord plays.	 The change cycle is completed as the cam locator lever (50Å) engages the two studs extending from the bottom of the motor board. This permits the drive gear on the turn- table shaft to rotate in the cut away section of the cycling cam. 	LANDING ADJUSTMENT RING (23) REMAINS LATCHED FOR 10" REC- ORD LANDING LANDING LANDING LANDING LANDING LANDING LANDING LANDING ADJUSTMENT RING (23) IS UNLATCHED FOR 12" RECORD LAND- ING
	2. As the record plays, the pickup moves in toward the center of the record carrying the trip slide (71) along because of the contact made with the projection on the clutch housing which is rotating with the pickup arm pivot.	4. The trip dog (52) is mounted on the edge of the cycling cam (50) at such an angle that as long as the pickup moves in at a constant rate of speed the projection contacts the trip dog (52) along the side and pushes it back. When the pickup leaves the recorded section of the record, the
	3. The trip slide (71) moves the trip dog (52) slightly with each revolution of the record, but this movement is reversed each time the off-set on the turntable shaft comes in con- tact with the trip dog (52). The back movement is taken up in the friction connection between the upper and lower trip dog. CLUTCH HOUSING COUP PICKUP THROUGH CLUT	
	LOWER TRIP DOG (80) MOVES CLOCKWISE TOWARDS CENTER O CYCLING CAM (50) ROTATES C/CLOCKWISE LOWER TRIP DOG HAS A FRICTION CONNECTION TO UPPER TRIP DOG THIS CLUTCH ALLOWS THE NECESSARY TAKE UP BEFORE TRIPING OCCURS.	PICKUP STUDE ON CANA LOCATOD

169 960285-1 Pickup raises and 1. After the mechanism has been tripped, the pickup moves moves out. out from action of the lift arm on the clutch assembly which is linked to pickup arm. 2. The mechanism again follows the preceding sequence of dropping and playing records until the last record of the START OF stack has been played. 3. After the last selection has been played and the mechanism again goes into change cycle, the support post (2) has CONTACT dropped sufficiently for the hole in the end to clamp and stop the push-off action built in the center post. 4. Since the push-off action is blocked and the lift arm (91) SLEEVE ROLLER tends to push up on the separator mechanism, the shaft mounting the small roller moves up into the brass sleeve instead of the entire assembly moving up. LLER MOVE STOP ROD 89 5. The brass sleeve remaining down forming a stop for the end of the stop rod (89) which is mounted on the side of the · lift arm (91). This contact causes it to rotate when the lift arm moves by. 6. The bent-up end of the stop rod (89) nearest the pickup 100 arm pivot engages the control lever (59A). 7. The engagement between the stop rod (89) and the control STOP ROD HAS BEEN ROTATED DUE TO CONTACT WITH SLEEVE lever (59Å) turns the power switch off and also holds one CONTROL LEVER 59A HOLDS CLUTCH PLATE 80 IN THIS POSITION WHEN PICKUP SETS ON REST end of the clutch plate causing the pickup to set down on the rest instead of the record. 8. The cycle is completed when the cycling cam becomes disengaged from the gear on the turntable shaft. This is accomplished by a cut-away section of the cam. SEPARATOR MECHANISM IS CLAMPED AT LIFT LEVER (91) CLAM THIS STOP ROD (89)ALIEVAN Runne CONTROL MAAASZ LEVER (59A) RECORD POWER SWITCH

ADJUSTMENTS

SUPPORT (2)

Approximate Landing Adjustment (if pickup arm assembly has been removed).

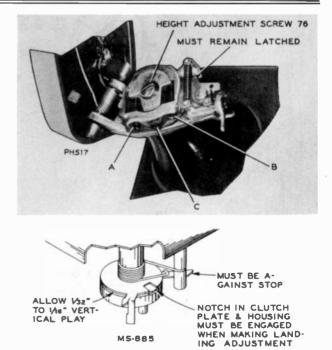
- 1. Remove power from mechanism.
- 2. Place a ten inch record on turntable.
- 3. Rotate turntable by hand until the pickup is just ready to land. Make sure the notch in the clutch plate remains engaged with clutch housing. The end of the clutch plate must be against stop also.
- 4. Hold the clutch and plate assembly. Loosen the set screw "C" and move the pickup into the approximate landing position.
- 5. Allow approximately 1/32" to 1/16" vertical play in pickup pivot shaft. (This vertical play is critical.)
- 6. Tighten set screw "C."

Exact Landing Adjustment.

- 1. Remove power from mechanism
- 2. Place a ten inch record on turntable.
- 3. Rotate turntable by hand until pickup is about ready to land.
- 4. To move pickup in, loosen set screw "A" a few turns and tighten "B."
- 5. To move the pickup out, loosen set screw "B" a few turns and tighten "A."

Pickup Arm Height.

Adjust screw (76) in the end of the elevating rod so the under side of pickup arm clears the rest by 1/8" to 3/16" during change cycle.



MS-885

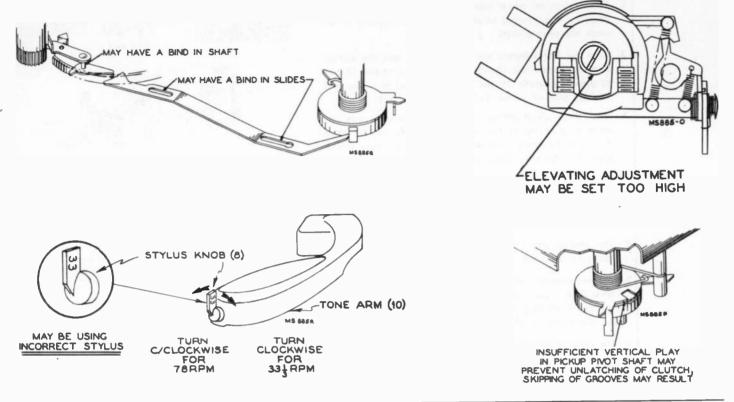
MS-885 8

(66)

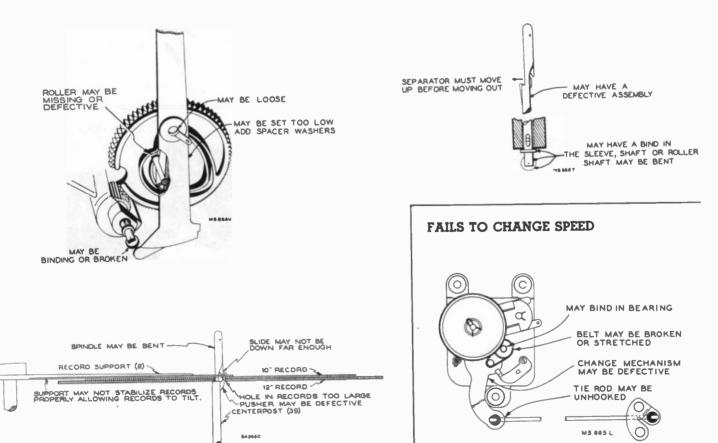
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SERVICE HINTS

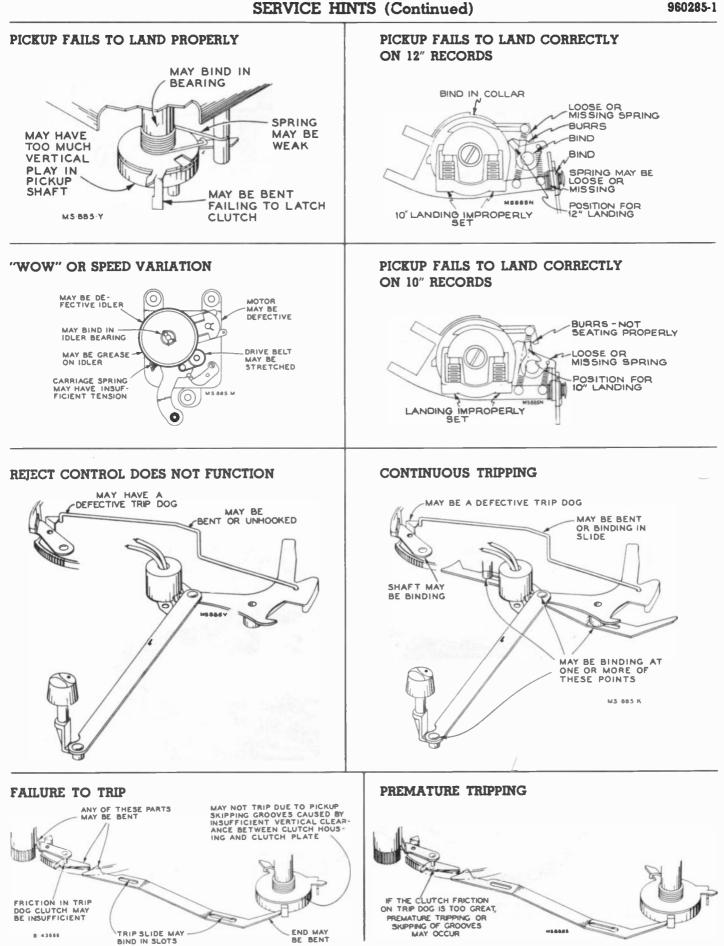
PICKUP SKIPS GROOVES



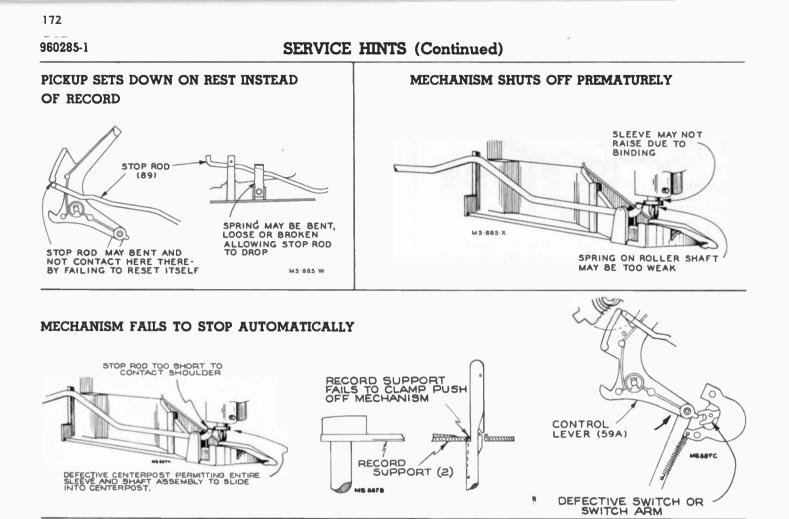
FAILURE TO SEPARATE RECORDS PROPERLY



SERVICE HINTS (Continued)

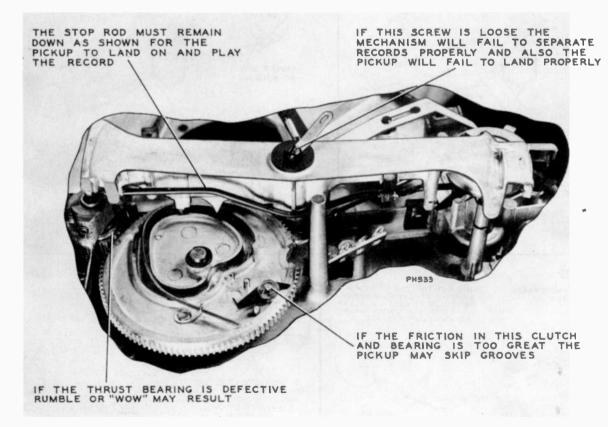


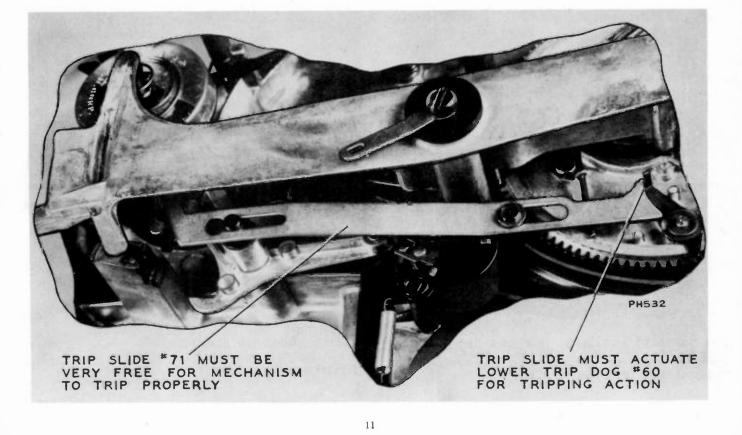
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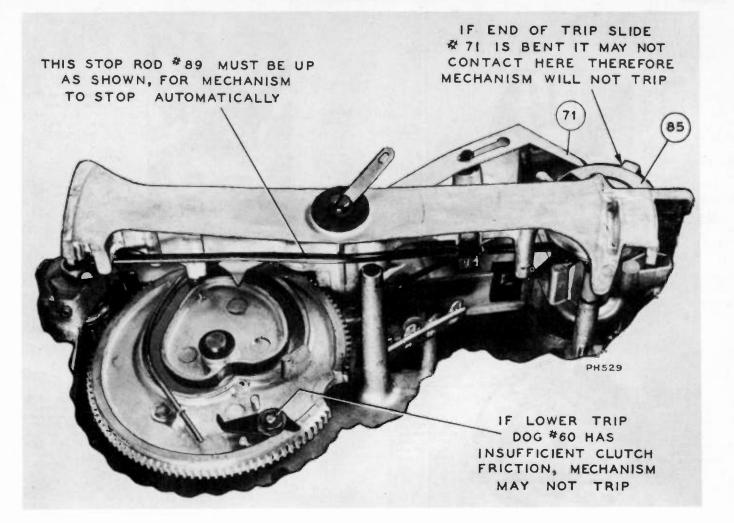


DO YOU KNOW?

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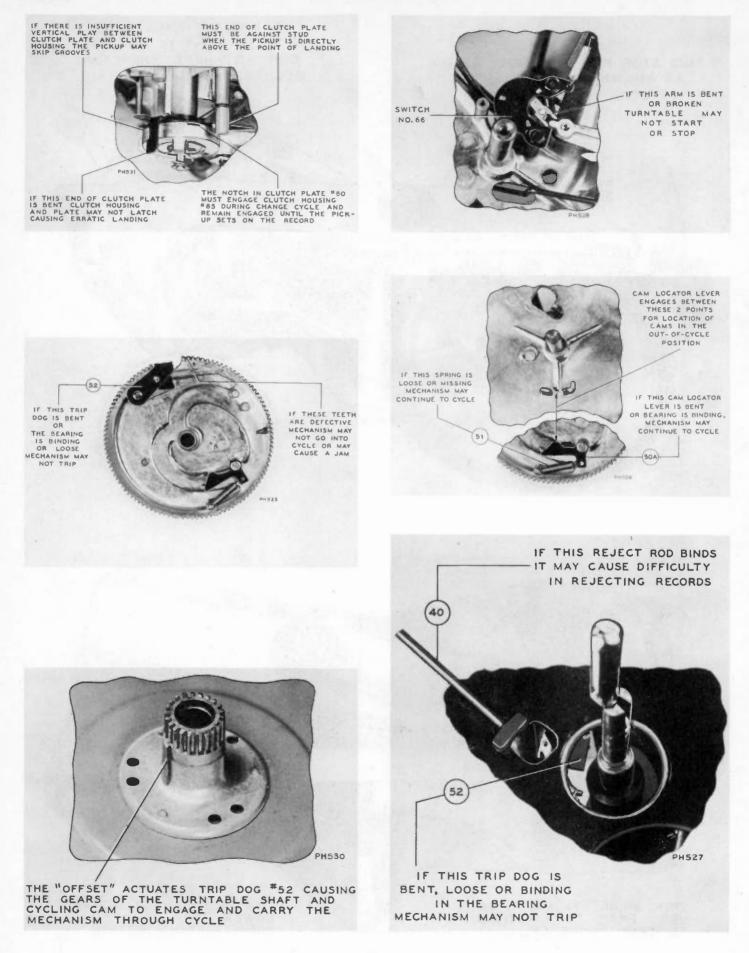


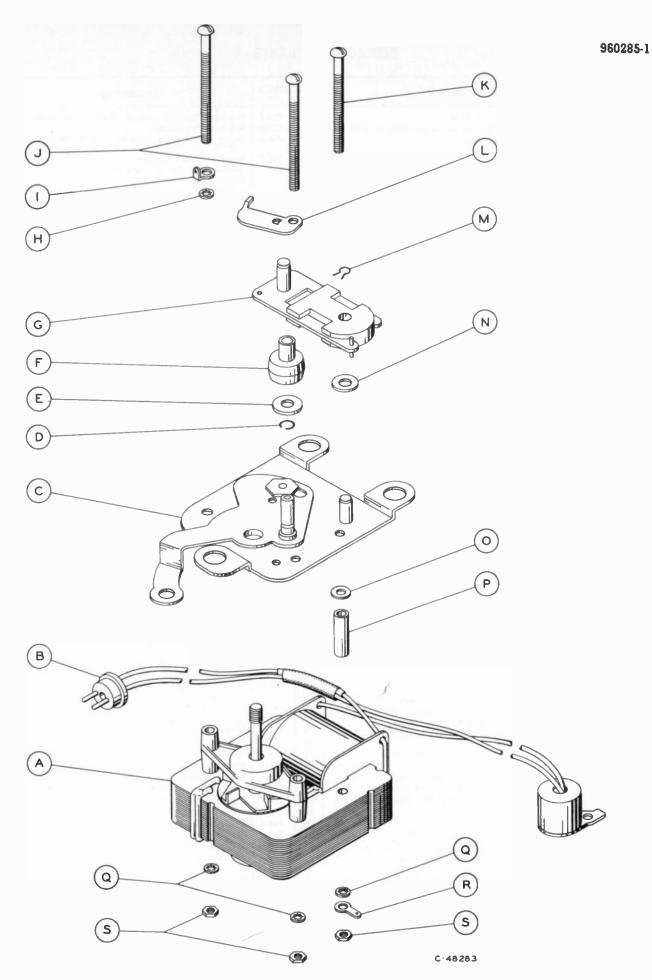


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DO YOU KNOW?





Exploded View of Motor (60 Cycle)

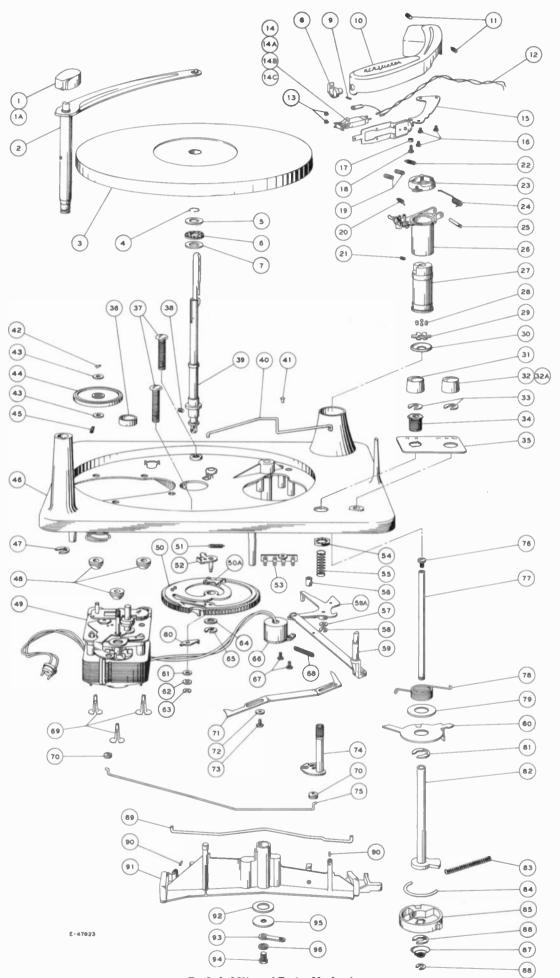
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REPLACEMENT PARTS

ILL. No.	STOCK No.	DESCRIPTION	ILL No		DESCRIPTION
1	75350	Knob-Record support knob	491	75427	Retainer—Retainer ring for drive pulley and shaft
18		Spring—Retaining spring for record support knob	491		Washer—Felt washer
2	75351	Support—Record support	491	75429	Pulley—Drive pulley and shaft assembly for 33-1/3 RPM
3	75352	Turntable	490	75430	Carriage—Idler carriage
4	75353	Retainer—Turntable spindle thrust bearing assem- bly retainer	491		Lockwasher—No. 6 internal teeth
5	75354	Washer-Thrust washer for turntable bearing	491		Terminal lug
6	75355	Bearing—Thrust bearing	49]		Screw-No. 6-32 x 2" round head machine screw to mount top plate to motor
7	75354	Washer—Thrust washer for turntable bearing	491		Screw-No. 6-32 x 2 ¹ / ₈ " round head machine screw
8	75264	Knob—Stylus selector knob (hundle type) complete with screw			to mount top plate to motor
9		Screw—Screw for stylus selector knob (included in	491		Plate—Friction guide plate
		75264, ILL. 8)	491		Spring—Hairpin spring to mount idler carriage Washer—Fibre washer
10	75356	Arm—Pickup arm shell only (plastic)	491		Spacer-Metal spacer to mount top plate to motor
11	75357	Pivot—Pickup arm pivot (2 required)	490	•	Lockwasher—No. 6 internal teeth
12	75358	Cable—Three wire pickup cable complete with connectors	491		Terminal lug
13		Screw—Mounting screw for crystal (2 required)	495	75387	Nut-No. 6 hex nut Cam-Main cam (including wire spring)
		(No. 4-40 x 1/8" round head screw)	51	75388	Spring—Cam locater lever spring
14 14A	75044	Crystal—Replacement crystal complete with styluses	52	75389	Pawl—Trip pawl
14A	75045 75046	Stylus—Stylus only (red) for 33 RPM section Stylus—Stylus only (plain) for 78 RPM section	53		Board—Terminal board
14C	75274	Nut-Mounting nut (knurled) for stylus	54		Nut—Locknut for speed control crank threaded bushing
15	75359	Mount—Crystal cartridge mount and swivel as-	55	75390	Spring—Spacer spring for speed control crank
		sembly	56		Bumper-Rubber bumper not stocked
16	71097	Screw-Mounting screw for crystal mount (3 re-	57	75391	Washer—Fibre washer for control lever shaft
17	75360	quired) (No. 4 x 1/4" self-tapping) Spacer—Metal spacer for crystal mount screw,	58	75392	Washer—"C" washer for mounting control lever
.,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ILL 18	59	75393	Lever—Function control crank, link and lever as- sembly
18	75002	Screw-Mounting screw for crystal mount (No. 4	60	75394	Pawl-Lower trip pawl
19	75361	x ¾" self-tapping) Screw—Landing adjustment screw (2 required) (No.	61	75395	Washer-Bronze washer (3%" O.D.) for trip pawl
		10 x 1/2" headless—special)	62	75396	shaft Washer Steel washer (1/4 O.D.) for this south
20	75362	Spring—Tension spring for indexing latch	02	/3350	Washer-Steel washer (1/4" O.D.) for trip pawl shaft
21	31085	Screw—Pickup pivot bushing screw (No. 8 x 1/8" Allen head set screw)	63	75397	Washer—"C" washer for trip pawl
22	75363	Spring—Tension spring for landing adjustment ring	64	75398	Washer-Fibre washer (1/2" O.D.) for mounting
23	75364	Ring—Landing adjustment ring	65	75399	main cam
24	75365	Spring—Counterbalance spring for pickup arm	66	75400	Washer—''C'' washer for mounting main cam Switch—Power switch (includes cover)
25	75366	Pin—Pivot pin for counterbalance spring	67		Screw—Power switch mounting screw (No. 6-32 x
26	75367	Sleeve—Pickup arm pivot sleeve, including latch			1/4" hex head)
27	75368	and two springs Bushing—Pickup arm pivot sleeve bushing	68	75401	Spring-Return spring for control lever link
28	10941	Ball—Steel ball (1/8" diameter)	69	75402	Fastener-Push fastener to mount motor (3 re- guired)
29	75369	Retainer—Ball bearing retainer	70	75403	Grommet—Rubber grommet for motor speed change
30	75370	CupBall race cup			tie rod (2 required)
31	75371	Knob-Speed control knob	71	75404	Lever-Trip slide lever
32	75372	Knob—Function control knob complete with spring	72	75405	Washer-Metal washer to mount trip slide
32 A		Spring—Retaining spring for function control knob (included in 75372, ILL. 32)	73		Screw—Mounting screw to mount trip slide lever (No. 4 x 1/4" hex head self-tapping)
33	75373	Washer—"C" washer for control knob (2 required)	74	75406	Crank—Speed control crank
34	75374	Bushing—Threaded bushing for speed control crank	75	75407	RodMotor speed change tie rod
35	75375	Escutcheon-Index escutcheon	76	75408	Screw—Pickup height adjusting screw (No. 6-32 x
36	75376	Belt—Rubber belt for motor drive shaft	77	75409	1/4" pan head brass) Rod—Elevating rod
37	75377	Screw—Motorboard mounting screws (2 required) (No. 1/4-20 x 13/3" round head—special)	78	75410	Spring—Return spring for pickup arm
38	30006	(No. 94-20 x 195" round nedd—special) Screw—Set screw for turntable centerpost (No. 8 x	79	75411	Washer—Spring washer for clutch plate
		3%" Allen head set screw)	80	75412	Plate—Clutch plate
39	75378	Spindle—Turntable spindle or centerpost	81	75413	Washer—"C" washer for pickup arm pivot
40	75379	Rod—Reject rod	82	75414	Shaft—Pickup arm pivot shaft
41		Rivet-Mounting rivet for terminal board, ILL. 53	83	75415	Spring—Clutch safety spring
42 43	75380 75433	Spring—Hairpin spring for idler wheel Washer—Dampening washer for idler wheel (2	84	75416	Guide—Clutch safety spring guide
-#-9	/ 3433	washer—Dampening washer for idler wheel (2 required)	85	75417 75392	Housing—Clutch housing Washer—''C'' washer for clutch housing
44	75382	Wheel-Idler wheel	80	75392	Spring-Conical spring for elevating rod
45	75383	Spring-Tension spring for idler wheel	88	75419	Washer
46	75384	Board—Motorboard complete with four mounting	89	75423	Rod-Lift arm stop rod complete with pins, ILL. 90
		springs, pivot arm housing, record support housing, terminal board (ILL, 53) and mounting studs	90		Pin-Mounting pin for stop rod (included in 75423-
47 48	75385 75386	stuas Washer—''C'' washer for record support pivot shaft Grommet—Rubber grommet to mount motor (3 re-	91	75420	ILL. 89) Arm—Lift arm assembly complete with stop rod and stop rod mounting pins (includes ILL. 89
		quired)			and ILL. 90)
49 A	75333	Motor—117 volt, 60 cycle, complete with top plate, idler wheel and drive belt	92	75421	Washer—Fibre washer for lift arm shaft
49B	30870	Connector—2 contact male connector for motor	93		Lug-Terminal lug
49C	75426	leads Plate—Motor top plate including speed change	34		Screw—Mounting screw for lift arm assembly (No. 8-32 x 3/6" pan head screw)
		carriage, 3 mounting grommets and 1 speed	95	75422	Washer-Retainer washer for lift arm shaft
_		change lever grommet	96		Lockwasher—No. 8 lockwasher (internal teeth)

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



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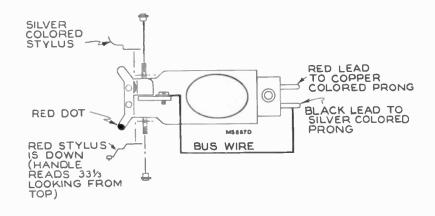
Exploded View of Entire Mechanism

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PICKUP INFORMATION

Pickup force should be approximately 8 to 10 grams. This force is determined by the design of the pickup and arm assembly.

However, a tight vertical bearing in the pickup arm will tend to have the same effect as insufficient pickup force.







TELEVISION RECEIVER MODEL T100

Chassis No. KCS38 - Mfr. No. 274 ----

SERVICE DATA - 1950 No. T1-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model T100 is a table type television receiver in a mahogany finish metal cabinet. The chassis employs twenty-one tubes plus two rectifiers and a 10BP4 kinescope.

Model T100, Mahogany Finish Metal Cabinet

Features of the television unit are: full twelve channel coverage; FM sound system; improved picture brilliance; picture

A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc. band width for picture channel and reduced hazard high voltage supply. An auxiliary audio input jack is provided to permit the use of an external record playing attachment.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

R-F FREQUENCY RANGES

Channel Number	Channel Freq. Mc.	Picture Carrier Freq. Mc.	Sound Carrier Freq. Mc.	Receiver R-F Osc. Freq. Mc.
2	54-60			
3	60-66	61.25		
4	66-72			
5	76-82			103
6				
7	174-180			
8	180-186			207
9	186-192			
10	192-198			
11	198-204			
12	204-210		209.75	
13				237

FINE TUNING RANGE

Plus and minus approximately 250 kc on channel 2 and plus and minus approximately 650 kc on channel 13.

POWER SUPPLY RATING

KCS38 115 volts, 60 cycles, 230 watts

LOUDSPEAKERS VCC20

KCS38	' EM Dy	namic, 3.	2 ohms
DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)		155%	211/4
Chassis (overall)	191/2	13	2012

PECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

Specifications continued on page 2

WEIGHT

Chassis with Tubes in Cabinet	84	lbs.
Shipping Weight	99	lbs.

RCA TUBE COMPLEMENT

	e Used Function
	6AG5
	6AG5 Converter
(3) RCĀ	6J6
	6AU6 1st Sound I-F Amplifier
(5) RCA	6AU6 2nd Sound I-F Amplifier
(6) RCA	6AL5
(7) RCA	6AV6 1st Audio Amplifier
(8) RCA	6K6GT Audio Output
	6BA6lst Picture I-F Amplifier
(10) RCA	6AG5 2nd Picture I-F Amplifier
	6BA6 3rd Picture I-F Amplifier
(12) RCA	6AG5 4th Picture I-F Amplifier
(13) RCA	6AL5 Picture 2nd Detector & Sync Limiter
(14) RCA	12AU7 1st and 2nd Video Amplifier
(15) RCA	6SN7GT AGC Amplifier & Vertical Sweep Oscillator
(16) RCA	6SN7GT AGC Rectifier & 1st Sync Separator
	6SN7GT
(17) RCA	bSN/GI Sync Ampliner & Zha Sync Separator
	6K6GT Vertical Sweep Output
(19) RCA	6SN7GT Horizontal Sweep Oscillator and Control
(20) RCA	6BG6G Horizontal Sweep Output
(21) RCA	6W4GT Damper
	1B3-GT/8016 High Voltage Rectifier
	5U4G Power Supply Rectifier
	10BP4 Kinescope
(LA) NOA	TANK I



ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

PICTURE INTERMEDIATE FREQUENCIES

Mc.
Mc.
Mc.
Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound	Carrier	Frequ	ency	•••••	••••••		21.25	Mc.
Sound	Discrim	inator	Band	Width	between	peaks		kc

VIDEO	RESPONSE	То	4	Mc.
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The following adjustments are necessary when turning the receiver on for the first time:

1. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear.

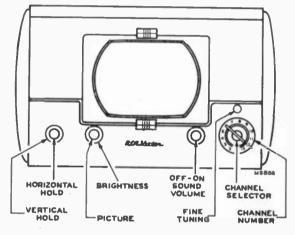


Figure 1-Receiver Operating Controls

OPERATING INSTRUCTIONS

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps 4, 8 and 9.

12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

 If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 9.

14. To use the instrument with a record player, plug the recordplayer output cable into the PHONO jack on the rear apron, and set the TV-PH switch on "PH." Set the TV-PH switch back to TV on completion of the record program.

NOTE: THE CHASSIS USED IN MODEL T100 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS T120 AND T121. REFER TO MODELS T120 AND T121 FOR ALIGNMENT PROCEDURE, TEST PATTERN AND WAVEFORM PHOTOGRAPHS, R-F UNIT WIRING, LEAD DRESS AND VOLTAGES. IT SHOULD BE NOTED THAT MODEL T100 USES A 10BP4 KINESCOPE WHEREAS MODELS T120 AND T121 USE A 12LP4 KINESCOPE. THE SECOND ANODE VOLTAGE (RECTIFIER AND KINESCOPE) IS SLIGHTLY LOWER IN MODEL T100.

MODELS T120 AND T121 INCORPORATE A WIDTH SELECTOR SWITCH BUT T100 DOES NOT. MODELS T120 AND T121 USE A PM SPEAKER AND MODEL T100 USES AN EM SPEAKER.

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED INVOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRECAUTIONS NECESSARY WHEN WORKING ON HIGH-VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH-VOLTAGE COMPARTMENT SHIELD REMOVED.

T100

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2, and with the part number on magnet towards the rear of the chassis. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

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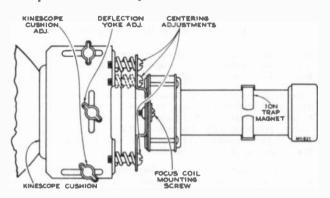


Figure 2—Yoke and Focus Coil Adjustments

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Centering Adjustment."

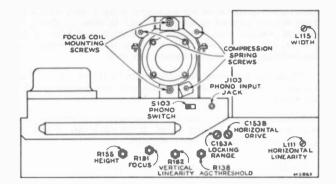


Figure 3—Rear Chassis Adjustments

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in c television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counter-clockwise. Turn the picture control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull in point. Repeat this procedure until 3 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

CENTERING ADJUSTMENT.—No electrical centering controls are provided. Centering is obtained by mechanically orienting the focus coil with the three adjustment screws shown in Figure 2. Center the picture on the screen by adjustment of these screws. The focus coil should be concentric around the neck of the kinescope to prevent curvature of the raster.

FOCUS COIL ADJUSTMENTS.—If, after making the centering adjustments described in the above paragraph, a corner of the picture is shadowed, it will be necessary to loosen the focus coil mounting screws (shown in Figure 2) and change the position of the coil to eliminate the shadow. Recenter the picture by adjustment of the centering screws.

Recheck the position of the ion trap magnet to insure that maximum brilliance is obtained. It is important that the kinescope not be operated with the ion trap magnet adjusted for less than maximum brightness. To do so may cause injury to the tube.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST. MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture, turn the horizontal drive control counter-clockwise until the left side of the picture begins to stretch.

Adjust the horizontal linearity control L111 to provide best linearity. Adjust the width control until the picture just fills the mask.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

CHECK TO SEE THAT THE CUSHION AND YOKE THUMB-SCREWS AND THE FOCUS COIL MOUNTING SCREWS ARE TIGHT.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not reguire readjustment in the field.

To check the adjustment of the AGC Threshold Control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise 'position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION-Since the vast majority of receivers are sold in strong signal areas, the chassis are

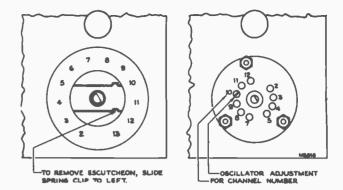


Figure 4-R-F Oscillator Adjustments

aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received. By this action, the r-i gain, is increased 50% at the expense of r-f bandwidth and an improvement in the weak signal picture results.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope, remove the kinescope socket, the ion-trap magnet, and the second-anode connector. Loosen the cross-recessed head screw on the kinescope strap, as shown in Figure 5. Withdraw the kinescope toward the front of the chassis.

INSTALLATION OF KINESCOPE.—Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection and focus coils until the bell of the tube is against the rubber cushion. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

To replace the chassis in the cabinet, first tighten the crossrecessed head screw on the kinescope strap. Slide the chassis into the cabinet, then insert and tighten the six chassis bolts. Loosen the kinescope strap from the rear of the cabinet, or from the bottom through a hole in the chassis shelf. The bottom end of the cross-recessed head screw is slotted to fit a screwdriver. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flore, then tighten the cushion adjusting screws. Push the yoke forward and tighten. Tighten the kinescope strap. Replace the knobs and the cabinet back.

T100

CHASSIS TOP VIEW

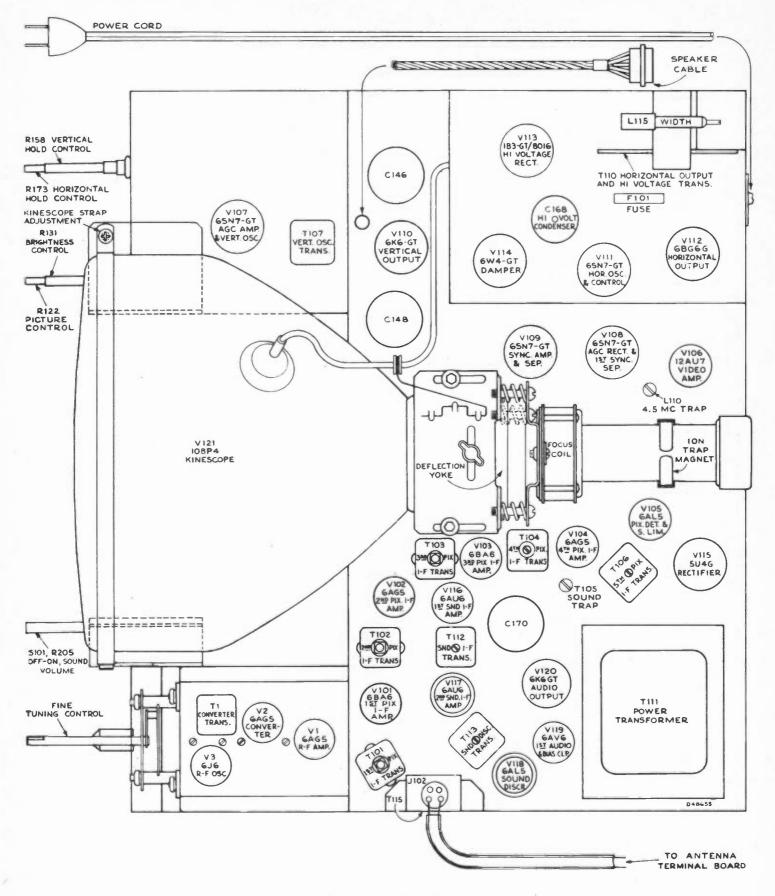


Figure 5-Chassis Top View

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T100

CHASSIS BOTTOM VIEW

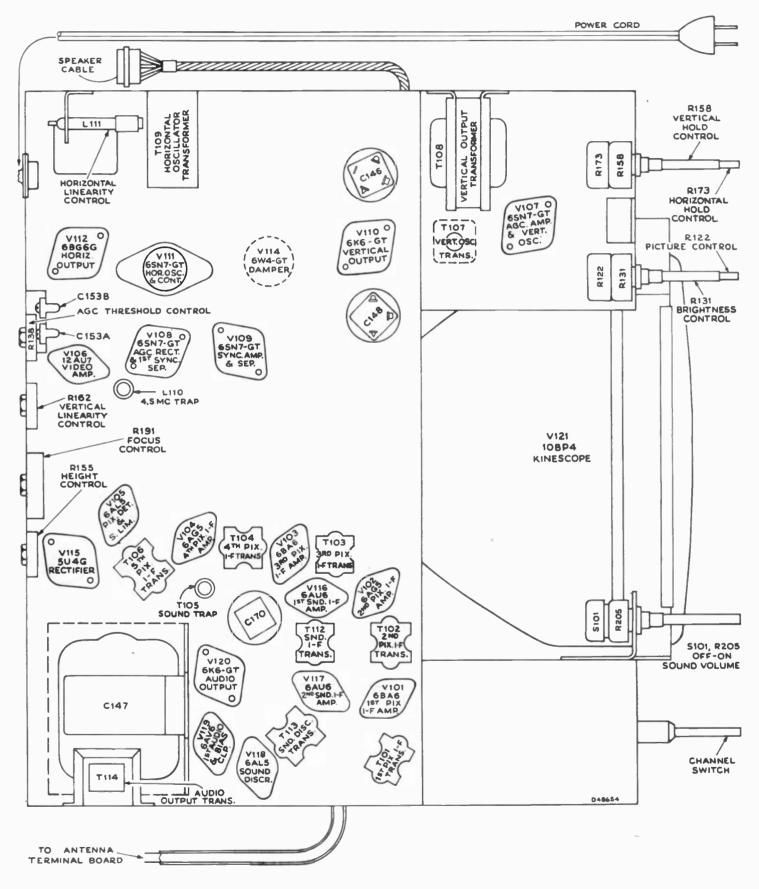
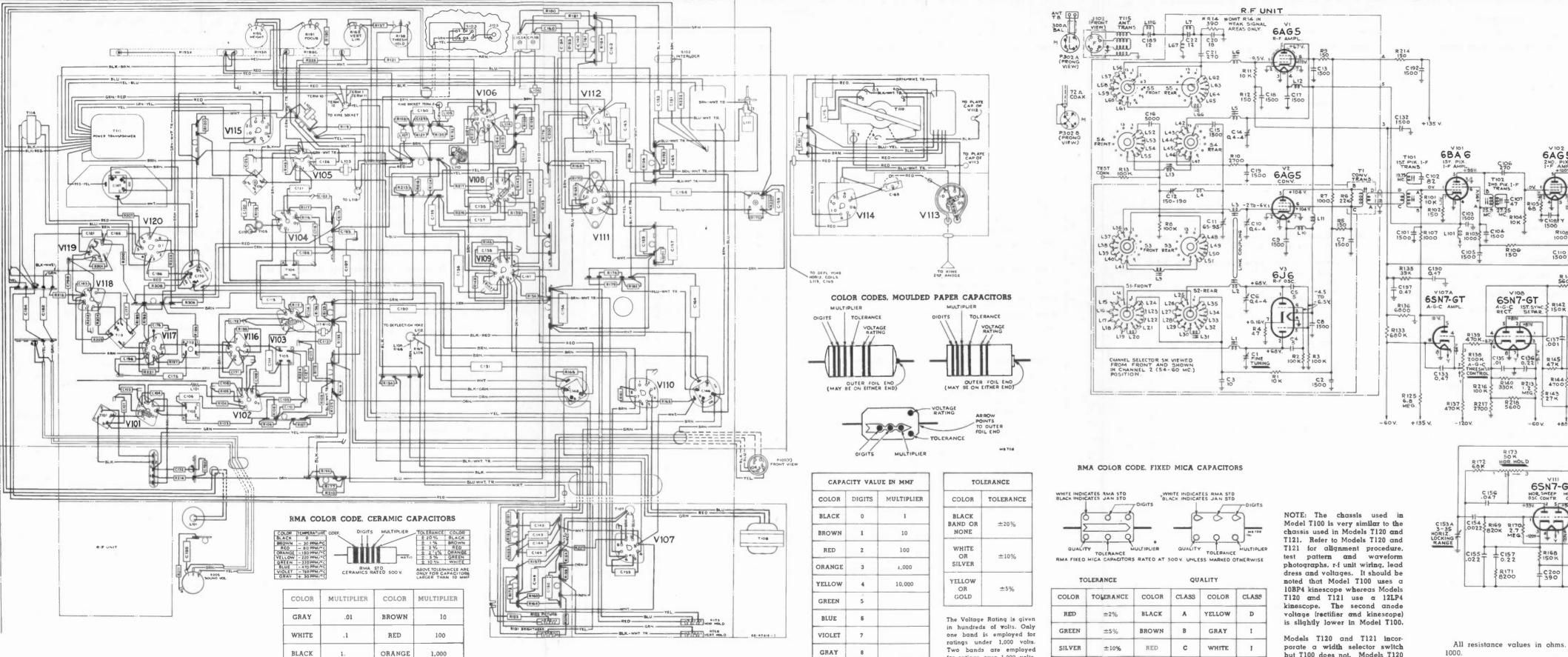


Figure 6—Chassis Bottom View



For digits, use digit column, page 8.

CHASSIS WIRING DIAGRAM

7

T100

CIRCUIT SCHEMATIC DIAGRAM

GAUG

11

6AG

R 141

R143

6SN7-GT

10

R168

C200

HOR. SW

HOR SWEEP

SYNC.

C139

RI48 MEG.

R174

R178

C159

R147 \$ R146

+215V

65N7-GT

SYNC. SYNC.

C141

R182

R183

OR DRIN

C162

for ratings over 1,000 volts.

voltage rating.

Use digit column to read

		dourne.				
COLOR	TOLERANCE	COLOR	CLASS	COLOR	CLASS	
RED	≐2%	BLACK	Ā	YELLOW	D	
GREEN	±5%	BROWN	В	GRAY	I	
SILVER	±10%	RED	с	WHITE	I	
BLACK	±20%	ORANGE	D			

but T100 does not. Models T120 and T121 use a PM speaker and Model T100 uses an EM speaker,

1000.

All capacitance values less than 1 in Direction of arrows at controls indi- codes, in electrolytic capacitor values Voltages should hold within ±20% with MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

All resistance values in ohms. K = Coil resistance values less than 1 In some receivers, substitutions have All voltages measured with "Voltohm are not shown.

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8

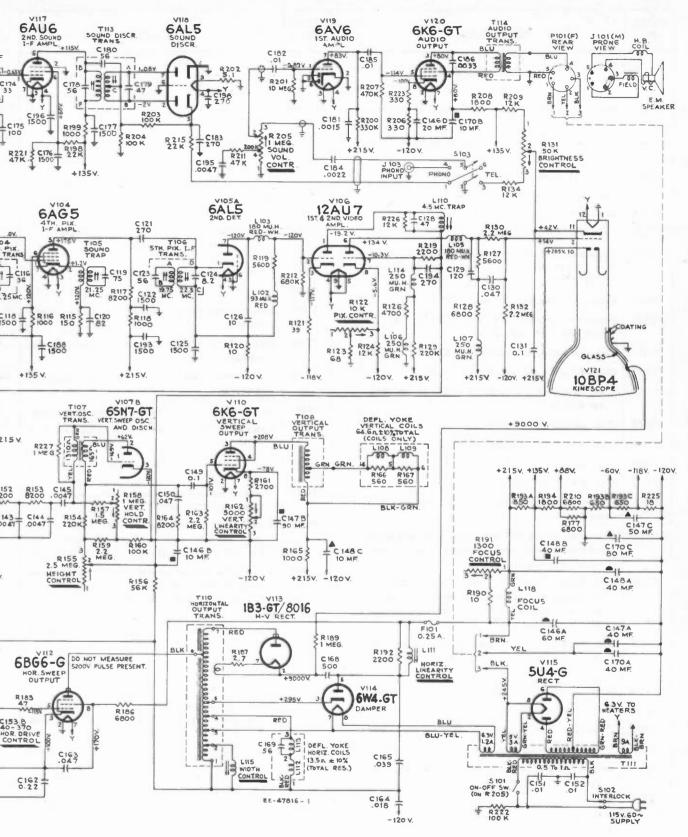
WHITE 9

9

6ALL6

11

T100



caused changes in component lead color Ohmyst" and with no signal input. and their lug identification markings. 117 v. a-c supply.

In some chassis R181 is 1 meg. In some chassis R227 is omitted.

Figure 8-Circuit Schematic Diagram REPLACEMENT PAR

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T100	

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T100	

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	
	R-F, 1-F CHASSIS ASSEMBLIES KCS 38	73561	Capacitor—Tub míd., 400 vol
74593	Capacitor—Mica trimmer, comprising 1 section of 3-35 mmf. and 1 section of 40-370 mmf. (C153A,	73594	Capacitor—Tub mid., 600 volt
39604	C153B) CapacitorMica, 10 mmf. (C126)	73565	Capacitor—Tuby mid., 1000 vo
74105	Capacitor—Mica, 33 mmf. C111)	74727	Capacitor-Tub
74726	Capacitor—Mica, 39 mmi. (C140)		mid., 1000 vo
64062	Capacitor-Ceramic, 82 mmi. (C120)	73562	Capacitor-Tubu
75060	Capacitor—Mica, 100 mmf. (C138)	74700	míd., 400 volt
39396	Capacitor—Ceramic, 100 mmf. (C175)	74728	Capacitor—Tub míd., 1000 vol
73921	CapacitorCeramic, 120 mmf. (C129)	73553	Capacitor-Tubu
73102	Capacitor—Mica, 180 mmf. (C158)		mid., 400 volt
73091	Capacitor—Mica, 270 mmf. (C106, C115, C121)	73592	Capacitor—Tubu mid., 600 volt
73922	Capacitor—Ceramic, 270 mmf. (C183, C194, C198)	73597	Capacitor-Tubu
39642	Capacitor—Mica, 390 mmi. (C141, C200)		mid., 1000 vo
74153	Capacitor—Hi-voltage, 500 mmi., 15,000 volts (C168)	73551	Capacitor—Tubu
4250	Capacitor—Mica, 560 mmi. (C160)	73557	mid., 400 volt
1501	Capacitor—Ceramic, 1500 mmi. (C101, C103, C104,	/333/	Capacitor—Tuby míd., 600 volta
	C105. C108. C109. C110. C113. C114. C117. C118. C122. C125. C127. C132. C171. C172. C178. C177. C188. C192. C193. C196)	73794	Capacitor—Tubu mid., 400 volts
1432	Capacitor—Electrolytic, comprising 2 sections of 40 mid., 450 volts and 1 section of 10 mid., 450 volts	73787	Capacitor—Tubu míd., 200 volta
	(C148A, C148B, C148C)	74585	Coil-Focus coil
582	Capacitor—Electrolytic, comprising 1 section of 40	71449	Coil—Horizontal
	míd., 450 volts, l section of 10 míd., 450 volts and l section of 80 míd., 200 volts (C170A, C170B,	71429	Coil-Width con
	C170C)	74170	Coil—Peaking co
583	Capacitor—Electrolytic, comprising 1 section of 40	71527	Coil—Peaking co
	mid., 450 volts, 1 section of 90 mid., 150 volts and 1 section of 50 mid., 150 volts (C147A, C147B,	74214	Coil-Peaking co
	C147C)	71526	Coil—Peaking co
3581	Capacitor—Electrolytic, comprising 1 section of 80 mid., 450 volts, 2 sections of 10 mid., 450 volts	73477	CollChoke coil
	and 1 section of 20 mid., 150 volts (C146A, C146B, C146C, C146D)	74594	Connector-2 co cable
3801	Capacitor-Tubular, paper, oil impregnated, .001	35787	Connector-Phon
3802	mid., 1000 volts (C137)	12493	Connector—5 cor cable
3602	Capacitor—Tubular, paper, oil impregnated, .0015 mid., 1000 volts (C181)	71789	Connector-Kines
3595	Capacitor—Tubular, moulded paper, oil filled, .0022	71521	Contact—Hi-vəlta
3795	mid., 800 volts (C142, C154, C161, C184) Capacitor—Tubular, paper, oil impregnated, .0033	72734	Control—Horizont R173)
	mid., 600 volts (C188)	74047	Control-Brightne
	Capacitor—Tubular, paper, oll impregnated, .0047	38408	

R	TS		

<u> </u>		<u> </u>	
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES KRK 7	30340	Retainer-Retainer ring for fine tuning stud
75067	Bracket-Vertical bracket for holding r-f oscillator	70881	Screw—#4-40 x ¼" binder head screw for adjust ing coils L14, L15, L16, L17, L18, L19
	tube shield.	73640	Screw—#4-40 x %" adjusting screw for L68
75069	Board—R-F unit power connection terminal board (5 contact)	71475	Screw—#4-40 x 15/32" adjusting screw for colle L21, L22, L23, L24
73478	Cable—I-F transmission cable (W1)	74575	Screw—#4-40 x 17/32" adjusting screw for L6
74035	Capacitor—Ceramic, 5 mmi. (C4, C5)	74573	Shaft—Channel selector shaft complete with paw
53511	Capacitor—Ceramic, 10 mmi. (C3)		and stud
54207	Capacitor-Ceramic, 18 mmi. (C20)	74574	Shaft—Fine tuning shaft and cam assembly
73449	CapacitorCeramic trimmer comprising 1 section	73632	Shieid-Metal tube shield for V1
	of 150-190 mmf. and 1 section of 65-95 mmf. (C11, C12)	72951	ShieldMetal tube shield for V3
73091	Capacitor-Ceramic, 270 mmf. (C21)	75443	Shield"U" shape shield for bottom of R-F unit
71501	CapacitorCeramic, 1500 mmi. (C2, C7, C8, C9, C13, C15, C17, C18, C19)	71494	Socket—Tube socket, moulded, 7 prong, saddle mounted
73473	Capacitor—Ceramic, 5,000 mmi. (C16)	73450	Socket—Tube socket, ceramic, 7 prong, bottom mounted
73460	Coil—R-F plate coil for channel 6 (L13)	74576	Spacer—Insulating spacer for front plate (4
73461	Coil—Rear section—Oscillator plate coil for chan- nel 6 (L20)	73457	required) Spring—Return spring for fine tuning control core
73462	Coil—Coupling inductance coil (L4)	74188	Spring—Retaining spring for adjustable core RCA
73475	Coil—Antenna filter shunt coil (C67)		74187
73476	Coll—I-F trap (L7, C22)	75068	Spring-Retaining spring for r-f oscillator tube
73477	Coll-Choke coil (L10, L11, L12)		shield
73874	Coil—Front section—Oscillator plate coil for chan- nel 6 (L31)	74578	Spring—Retaining spring for adjusting screws RCA 73640 and RCA 74575
74108	Coil—Fine tuning coil (1½ turns) with adjustable inductance core and capacitor stud (plunger adjustment) (L1, C1)	73468	Stator—Front oscillator section stator complete with rotor, segment, coils and adjusting screws (S1, L14, L15, L16, L17, L18, L19, L21, L22, L23, L24)
74109	Coll—Trimmer coll (1½ turns) with adjustable inductance core and capacitor stud (screw adjust-	73469	Stator—Rear oscillator section stator complete with rotor, segment, and colls (S2, L25, L26, L27, L28, L29, L30, L32, L33, L34, L35)
74110	ment for oscillator section or converter section) (L2, L3, C6, C10) Coll—Trimmer coll (3 turns) with adjustable in-	73633	Stator—Antenna stator complete with rotor and colls (S5, L6, L56, L57, L58, L59, L60, L81, L62, L63, L64, L65, L66, C21)
	ductance core and capacitor stud (screw adjust- ment) for r-f amplifier section (L5, C14)	73470	Stator—Converter stator complete with rotor and coils (S3, L9, L36, L37, L38, L39, L40, L41, L48,
73455	Core—Sliding core for fine tuning control trimmer	73471	L49, L50, L51) Stator—R-F amplifier stator complete with rotor
74187	Core—Adjustable core for coil L9		and coils (S4, L13, L42, L43, L44, L45, L46,
73453	Form—Coll form assembly for L9, C13		L47. L52. L53. L54. L55. C15. C16. R10)
73442	Link-Link assembly for fine tuning	75446	Stud—Capacitor stud. brass. No. 4-40 x ¹ % ₁₆ " with 3%4" screwdriver slot for trimmer coils 74109 and
71462	Loop—Oscillator to converter trimmer loop con- nector	75447	74110, uncoded or coded "ER" Stud—Capacitor stud, brass, No. 4-40 \times ¹³ / ₁₆ " with
74572	Plate—Front plate and bushing Resistor—Fixed, composition:—	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	364" screwdriver slot for trimmer coils 74109 and 74110, coded numerically or "Hi Q"
	47 ohms, ±20%, ½ watt (R4) 150 ohms, ±20%, ½ watt (R5, R8, R12)	73448	Transformer-Converter transformer (T1, R6)
	390 ohms, ±10%, ½ watt (R14)	73466	Washer-—Insulating washer for front shield (1 set
	1000 ohms, ±20%, ½ watt (R7)	74577	Washer—Spring washer for fine tuning shaft and
	2700 ohms, ±10%, ½ watt (R10) 10,000 ohms, ±20%, ½ watt (R1, R11) 100,000 ohms, ±20%, ½ watt (R2, R3, R8, R13)	2917	cam Washer—"C" washer for channel selector shaft or fine tuning shaft and cam

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REPLACEMENT PARTS (Continued)

T100

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onunued)					••	00	1100	REPLACEMENT		
¢	DESCRIPTION	STOCI No.	DESCRIPTION	STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
Capacitor—Tubulo mid., 400 volts	ar. paper, oil impregnated, .01 (Clas. clea)	7144	Control—Vertical linearity control (R162)		6800 ohms, ±10%, ½ watt (R150) 6800 ohms, ±5%, 1 watt (R128)		72927	Socket—Tube socket, 9 pin. miniature	71778	Trap-Sound trap (T105, C119)
		71440	Control—Height control (R155)		6800 ohms, ±10%, 2 watts (R177, R186, R210)		31251	Socket—Tube socket, octal, wafer	73476	Trap—I-F trap (L116, C189)
mid., 600 volts	ar, moulded paper, oil filled01 (C159)	7447:	Control-AGC threshold control (R138)	-	8200 ohms, ±5%, ½ watt (R164, R175)	ì	73249	Socket—Tube socket, octal, ceramic, plate mounted	71420	Yoke—Deflection yoke (L108, L109, L112, L113,
	ar, paper, oil impregnated, .01	74592	Control—Focus control (R191)		8200 ohms. ±10%, ½ watt (R152, R153, R171) 8200 ohms, ±5%, 1 watt (R117)		71509	Socket-Tube socket for 8016		C169. R166. R167)
	(C151, C152, C185)	71452	Cord—Power cord and plug		10.000 ohms, ±5%, ½ watt (R104)					
Capacitor-Tubulo	ar, moulded paper, oil filled, .018	71437	Cover-Insulating cover for electrolytics #71432.		10.000 ohms, ±10%, ½ watt (R182)		72741	Socket—Kinescope socket		SPEAKER ASSEMBLIES
mid., 1000 volts		//////	73581 and 73582		12.000 ohms. $\pm 10\%$. ^{1/2} watt (R134, R209, R226) 12.000 ohms. $\pm 10\%$, 2 watts (R124)		73586	Spring-Compression spring used under centering		970773-1
Capacitor-Tubula	ar, paper, oil impregnated, .022	74418	Cushion—Rubber cushion for kinescope bottom sup-		15.000 ohms, ±10%, 1 watt (R146)			control screws (3 required)		RL 116-1
mfd., 400 volts			port		22.000 ohms, ±10%, ½ watt (R151, R197, R220)		74595	Spring—Anode lead spring	71560	Connector—5 contact male connector for speaker
Capacitor-Tubulo	ar, moulded paper, oil filled, .039	73590	Cushion-Rubber cushion for deflection yoke hood		22.000 ohms. ±20%. ½ watt (R198, R215) 27.000 ohms. ±10%, ½ watt (R143)		74936	Spring—Suspension spring (coil type) for kine-	74599	Speaker—5" x 7" EM speaker complete with cone
mid., 1000 volts	(C165)		(2 required)		39.000 ohms. ±5%, ½ watt (R135)			scope tube socket leads		and voice coil
Capacitor-Tubula	rr, paper, oil impregnated, .047	73600	Fuse—Q.25 amp., 250 volts (F101)		47.000 ohms. ±10%, ½ watt (R145, R211) 47.000 ohms, ±20%, ½ watt (R221)		74735	Strap—Retaining strap for mounting kinescope		
mid., 400 volts	(C130, C139)	71799			56.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R126)		74596	Support—Bakelite supports (1 set) for mounting hi-		MISCELLANEOUS
	ir, paper, oil impregnated, .047		lead exit		68,000 ohms, ±10%, ½ watt (R172)			voltage rectifier tube mounting plate	74637	Back—Cabinet back
míd., 600 volts (37396	Grommet—Rubber grommet for mounting ceramic tube socket		100.000 ohms. ±5%. ½ watt (R203, R204) 100.000 ohms. ±10%, ½ watt (R160, R216)		46760	Switch-"TV-Phono" switch (S103)	75039	Board
	r, paper. oil impregnated, .047	73301	Magnet—lon trap magnet (PM type)		100.000 ohms, ±10%, 1 watt (R179)		74586	Transformer—Power transformer, 117 volt x 60 cy-	39153	Connector—4 contact male connector for antenna
míd., 1000 volts		73587			100.000 ohms. ±20%, 1 watt (R222)			cle (T111)		cable
mid., 400 volts (r, paper, oil impregnated, 0.1	18469			120.000 ohms, ±5%, 1 watt (R176) 120.000 ohms, ±10%, 1 watt (R174)		74587	Transformer—Vertical output transformer (T108)	74638	Cushion—Vinylite cushion for safety glass
		74598			150.000 ohms. ±10%, ½ watt (R168)		73569	Transformer—Vertical oscillator transformer (T107)	74627	Decal—Control panel function decal
mid., 600 volts (r, paper, oil impregnated, 0.1 C131)				150.000 ohms, ±20%, ½ watt (R142)					
	r, paper, oil Impregnated, 0.22	72067	Resistor—Wire wound, 5.1 ohms, ½ watt (R202)		180.000 ohms. \pm 5%. 1 watt (R178) 220.000 ohms. \pm 10%, $\frac{1}{2}$ watt (R129, R154)		74588	Transformer—Horizontal output and hi-voltage transformer (T110)	74809	Emblem—"RCA Victor" emblem
	(C136, C157, C162)	18471	Resistor—Wire wound, 10 ohms, ½ wait (R190)		330.000 ohms, ±10%, ½ watt (R140, R200)			·····	73642	Escutcheon—Channel marker escutcheon
Capacitor-Tubula	r, paper, oil impregnated, 0.47	73588	Resistor—Voltage divider, comprising 1 section of 850 ohms, 12 watts and 2 sections of 650 ohms,		470.000 ohms, ±10%, ½ watt (R137, R139, R180, R181, R224)	,	71419	Transformer—Sound output transformer (T114)	74631	Foot-Rubber foot (4 required)
	C133, C190, C197)		6 watts (R193A, R193B, R193C)		470.000 ohms, ±20%, ½ watt (R207)		74589	Transformer-First pix, i-f transformer (T101, C102,	74632	Gasket—Cork gasket for safety glass
Coil-Focus coil (L	.118)		Resistor-Fixed, composition:		680.000 ohms. ±10%, ½ watt (R133, R212)			R101)		Glass—Safety glass
	nearity control coil (L111)		10 ohms, ±20%, ½ watt (R120) 18 ohms, ±10%, ½ watt (R225)		820.000 ohms. $\pm 5\%$. $\frac{1}{2}$ watt (R169) 1 megohm, $\pm 10\%$. $\frac{1}{2}$ watt (R147)		74590	Transformer—Second pix, i-f transformer (T102,	i i	
			39 ohms, ±10%, ½ watt (R121)		1 megohm, ±20%, 1 watt (R189. R227)			C107)	74000	Knob—Horizontal hold control or picture control knob (inner)
Coil-Width contro			47 ohms. ±5%, ½ watt (R111)		1.2 megohm, ±5%, ½ watt (R213) 1.5 megohm, ±5%, ½ watt (R157)		74591	Transformer—Third pix, i-f transformer (T103, C112)		
Coil—Peaking coil	(36 muh) (L117, R110)		47 ohms, ±20%, ½ watt (R183) 68 ohms, ±10%, ½ watt (R105)		2.2 megohm, ±10%, ½ watt (R130, R132, R159,		74592	Transformer—Fourth pix, i-f transformer (T104,	74635	Knob—Channel selector knob
Coil—Peaking coil	(93 muh) (L102)		68 ohms, ±20%, ½ watt (R123)		R163)			C116)	74636	Knob-Fine tuning knob
Coil-Peaking coil	(180 muh) (L103, L105)		82 ohms, ±10%, ½ watt (R195)		2.7 megohm, ±5%, 1 watt (R170) 3.9 megohm, ±10%, ½ watt (R149)		73575	Transformer—Fifth pix, i-f transformer (T106, C123,	73998	Knob—Vertical hold control or brightness control
Coil-Peaking coil	(250 muh) (L106, L107, L114)		150 ohms, ±5%, ½ watt (R102) 150 ohms, ±10%, ½ watt (R115)		6.8 megohm, ±10%, ½ watt (R125)			C124)		knob (outer)
CollChoke coil (L	.101)		150 ohms, ±20%. ½ watt (R106, R109, R114, R214)		10 megohm, ±10%, ½ watt (R148) 10 megohm, ±20%, ½ watt (R201)		71424	Transformer—Sound, i-i transformer (T112, C173, C174)	74002	Knob—Volume control and power switch knob
Connector-2 cont	act male connector for power		270 ohms. ±10%, 2 watts (R184) 330 ohms. ±10%, ½ watt (R206, R223)	74601	Screw-#8-32 x %" cross-recessed binder head				74633	Nut—Speed nut for safety glass retainers
cable			1000 ohms, ±20%, ½ watt (R103, R107, R108,		screw for focus coil mounting (2 required)		/1427	Transformer—Sound discriminator transformer (T113, C178, C179, C180)	74630	Panel—Removable grille panel and cloth assembly
Connector-Phono	input connector (J103)		R113, R116, R118, R165, R199)	74602	Screw-#10-32 x 134" cross-recessed round head		77576		74628	Retainers-Safety glass retainers (1 set)
Connector—5 conta	ict female connector for speaker		1200 ohms. ±10%. ½ watt (R196) 1800 ohms. ±10%. 2 watts (R194, R208)		screw for focus coil adjustments (3 required)		/33/0	Transformer—Horizontal oscillator transformer (T109)		Spring—Retaining spring for knob #74000
cable			2200 ohms, ±10%, ½ watt (R219)	74416	Screw—#10-32 x 1¾" round head cross-recessed screw for strap 74735		73578	Transformer—Antenna transformer complete with		
Connector-Kinesco	ope anode connector		2200 ohms. ±10%. 1 watt (R192) 2700 ohms. ±10%. ½ watt (R161, R217)	71456	Screw			socket and bracket (T115, J102)	14270	Spring—Retaining spring for knobs #73998, 74002, 74635, 74636
Contact—Hi-vəltage	a capacitor contact		3900 ohms, ±5%, ½ watt (R112)		yoke mounting		73577	Trap—4.5 mc trap (L110, C128)	73643	Spring—Spring clip for channel marker escutcheon
Control—Horizontal	and vertical hold control (R158.		4700 ohms, ±5%, ½ watt (R126)	75083	Screw—#8-32 x $\frac{1}{4}$ wing screw for deflection				///////////////////////////////////////	-pring by ing the for channel marker escuicheon
R173)			4700 ohms, ±10%, ½ watt (R144) 5600 ohms, ±5%, ½ watt (R119)		yoke mounting		To obtain	resistors for which no stock number is given, order by	stating type	value of resistance tolerance and write-
Control-Brightness	and picture control (R122, R131)		5600 ohms, ±10%, ½ watt (R141, R218)		Shield—Tube shield			The store includes is given, older by	sound type,	where or resistance, lorerance and Wallage.
Control-Sound vol	lume control and power switch		5600 ohms, ±10%, 1 watt (R127)	74937	Sleeve-Rubber sleeve for focus coil					
(R205, S101)			6800 ohms, ±5%, ½ watt (R136)	73117	Socket—Tube socket, 7 pin, miniature			APPLY TO YOUR RCA DISTRIBUTOR	OR PRICES C	F REPLACEMENT PARTS

REPLACEMENT PARTS (Continued)



Model T120, Mahogany Finish Metal Cabinet



Model T121 Mahogany Finish Metal Cabinet



TELEVISION RECEIVER MODELS T120, T121

Chassis No. KCS 34C

SERVICE DATA

- 1950 No. T3 & No. T4 -

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Models T120 and T121 are 12" table style television receivers in mahogany finish metal cabinets. The receivers employ twenty-one tubes plus two rectifiers and a 12LP4 kinescope.

Features of the receivers are full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator; four mc band width for picture channel and reduced hazard high voltage supply. A phono input jack is provided to permit the use of an external record player.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

WEIGHT

Chassis v	vith	Tubes	in	Cabinet	92	lbs.
Shipping	We	ight				lbs.

RCA TUBE COMPLEMENT

non	1005	
		B Used Function
(1)		6AG5 R-F Amplifier
(2)		6AG5 Converter
(3)		6J6 R-F Oscillator
(4)	RCA	6AU6 1st Sound I-F Amplifier
(5)		6AU6 2nd Sound I-F Amplifier
(6)		6AL5
(7)		6AV6 1st Audio Amplifier
(8)	RCA	6K6GT Audio Output
(9)	RCA	6BA6lst Picture I-F Amplifier
(10)		6AG5 2nd Picture I-F Amplifier
(11)	RCA	6BA63rd Picture I-F Amplifier
(12)		6AG54th Picture I-F Amplifier
(13)		6AL5 Picture 2nd Detector & Sync Limiter
(14)	RCA	12AU7 1st and 2nd Video Amplifier
(15)	RCA	6SN7GT AGC Amplifier & Vertical
		Sweep Oscillator
(16)		6SN7GT AGC Rectifier & 1st Sync Separator
(17)	RCA	6SN7GT Sync Amplifier & 2nd Sync Separator
(18)	RCA	6K6GT Vertical Sweep Output
(19)	RCA	6SN7GT Horizontal Sweep Oscillator and
		Control
(20)		6BG6G Horizontal Sweep Output
(21)		6W4GT Damper
(22)		1B3-GT/8016 High Voltage Rectifier
(23)		5U4G Power Supply Rectifier
(24)	RCA	12LP4 Kinescope

R-F FREQUENCY RANGES Picture Sound Receiver

Channel Number	Channel Freq. Mc.	Carrier Freq. Mc.		
2				
3			65.75	
4				93
5			81.75	
6	82-88			109
7	174-180		179.75	201
8	180-186		185.75	207
9			191.75	213
10			197.75	219
11			203.75	
12	204-210	205.25	209.75	231
13		211.25		237

FINE TUNING RANGE

Plus and minus approximately 250 kc on channel 2 and plus and minus approximately 650 kc on channel 13.

POWER SUPPLY RATING

KCS34C 115 volts, 60 cycles, 230 watts

AUDIO POWER OUTPUT RATING 2.6 watts max.

LOUDSPEAKER

KCS34C92573-4	РМ Дуг	namic, 3.2	2 ohms
DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)	22	18	21 1/4
Chassis (overall)	191/2	13	201/2

RECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE INTERMEDIATE FREQUENCIES

Picture Carrier Frequency	25.75	Mc.
Adjacent Channel Sound Trap	27.25	Mc.
Accompanying Sound Traps	21.25	Mc.
Adjacent Channel Picture Carrier Trap	19.75	Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound	Carrier Freq	uency			•••••	21.25 Mc.	
Sound	Discriminator	Band	Width	between	peaks	350 kc	

VIDEO RESPONSE
FOCUS Magnetic
SWEEP DEFLECTION
SCANNING Interlaced, 525 line
HORIZONTAL SWEEP FREQUENCY 15,750 cps
VERTICAL SWEEP FREQUENCY
FRAME FREQUENCY (Picture Repetition Rate)

AGC Threshold Control rear chassis adjustment

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED INVOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRECAUTIONS NECESSARY WHEN WORKING ON HIGH-VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH-VOLTAGE COMPARTMENT SHIELD REMOVED.

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

1. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear.

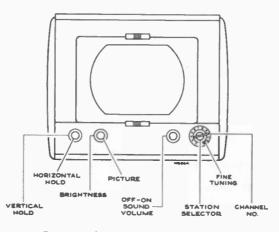


Figure 1—Receiver Operating Controls

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps 4; 8 and 9.

> 12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

> 13. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 9.

> 14. To use the instrument with a record player, plug the recordplayer output cable into the PHONO jack on the rear apron. and set the TV-PH switch on "PH." Set the TV-PH switch back to TV on completion of the record program.

Make sure that the receiver power switch is in the off position. Plug the receiver power cord into a 115 volt 60 cycle a-c outlet.

WARNING.—The high voltage supply in this receiver delivers 10.000 volts! A.C. interlocks are provided at the back of the set so that when the back is removed—so is the power.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2.

Turn the power switch to the "on" position, the brightness control three-quarters clockwise, and picture control fully counter-clockwise.

Immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the rater is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

DEFLECTION YOKE ADJUSTMENT. — If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 (on the rear of the chassis, see Figure 3) clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.— Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping down-

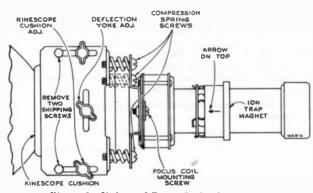


Figure 2—Yoke and Focus Coil Adjustments

ward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster. If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Ålignment of Horizontal Oscillator" and proceed with Focus Coil Ådjustments.

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counter-clockwise. Turn the picture control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull in point. Repeat this procedure until 3 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure on page 13. For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately one-quarter inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. However, it may be necessary to change this distance slightly in order to compensate for small differences in strength of the permanent magnets in the coil. If the receiver focuses with the focus control at or near the clockwise end of its range, the focus coil should be moved toward the yoke and if focus is obtained at or near the counter-clockwise end of the control, the coil should be moved away from the yoke.

The axis of the hole through the focus coil should be parallel with the axis of the kinescope neck.

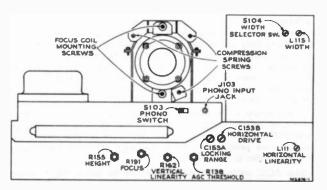


Figure 3—Rear Chassis Adjustments

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CENTERING ADJUSTMENT. — No electrical centering controls are provided. Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If the focus coil was appreciably changed in position or if a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by sliding the coil. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In extreme cases it may be necessary to adjust one or more of the three focus coil compression spring screws to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjust the horizontal drive control C153B to give a picture of maximum width within the limits of good linearity. Adjust the horizontal linearity control L111 to provide best linearity. Adjust the width control until the picture just fills the mask.

A width control coil and a width selector switch are provided. With the switch in position 1 (fully counter-clockwise), adjust the width coil until the picture fills the mask. On low line voltages it may not be possible to get sufficient width by adjustment of the width coil. In this case turn the width selector switch clockwise to position 2. In this position the width coil is disconnected, and adjustment of the width coil will have no effect. For still greater width, turn the width selector switch fully clockwise to position 3. In this position, the high voltage is reduced slightly thus permitting greater deflection.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

FOCUS. — Adjust the focus control (R191° on chassis rear apron) for maximum deflection in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

In some cases it may be possible to improve focus by a slight reposition of the ion trap magnet while staying within the range of maximum brightness.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

AGC THRESHOLD CONTROL. — The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC Threshold Control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received. CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 10. The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well. See Figures 8 and 9 for their location.

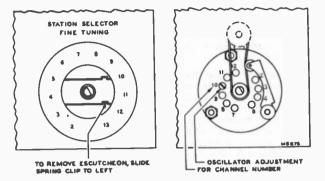


Figure 4-R-F Oscillator Adjustments

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vost majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r.f unit.

To peak the r-f unit in these receivers, disconnect the 390ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received. By this action, the r-f gain is increased 50% at the expense of r-f bandwidth and an improvement in the weak signal picture results.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

INSTALLATION OF KINESCOPE.—The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection and focus coils until the base of the tube protrudes approximately, two inches beyond the focus coil. If this tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

To replace the chassis in the cabinet, first tighten the crossrecessed head screw on the kinescope strap. Slide the chassis into the cabinet, then insert and tighten the six chassis bolts. Loosen the kinescope strap from the rear of the cabinet, or from the bottom through a hole in the chassis shell. The bottom end of the cross-recessed head screw is slotted to fit a screwdriver. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flare, then tighten the cushion adjusting screws. Push the yoke forward and tighten. Tighten the kinescope strap. Replace the knobs, and the cabinet back. CHASSIS TOP VIEW

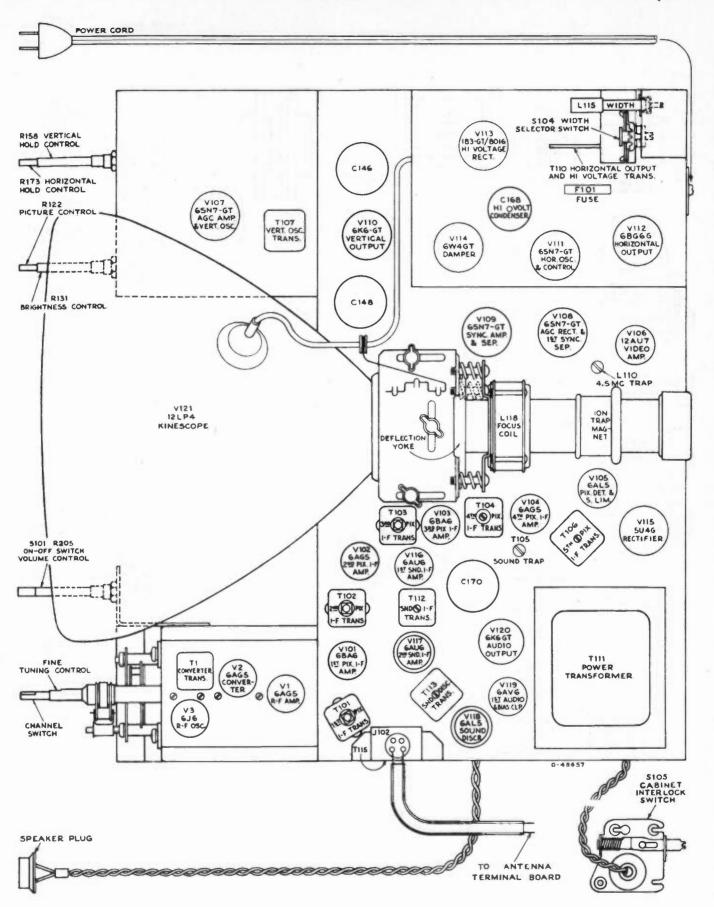
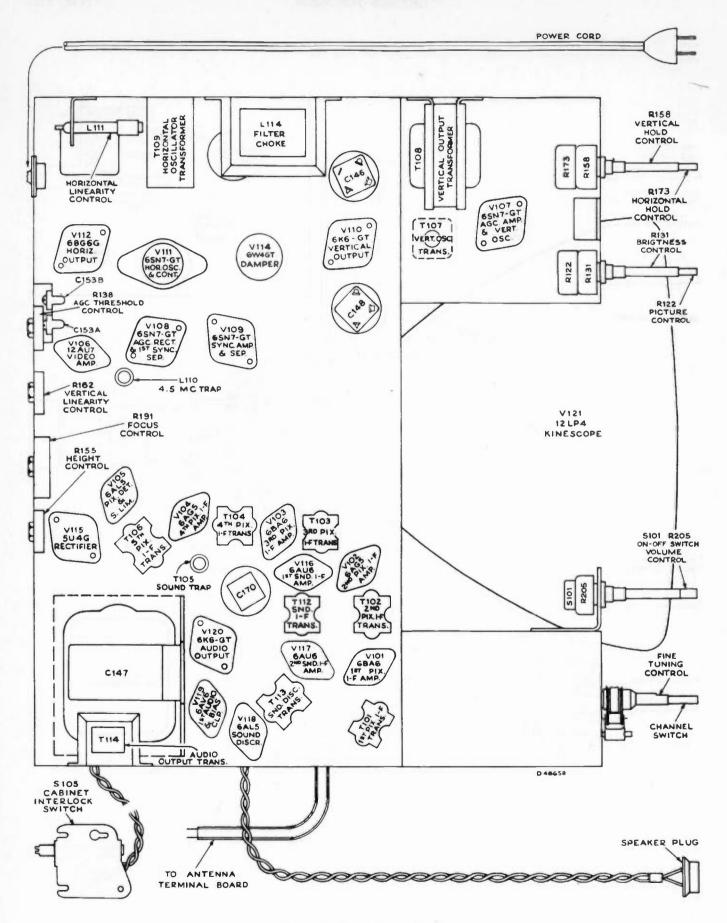


Figure 5-Chassis Top View

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CHASSIS BOTTOM VIEW





TEST EQUIPMENT. — To properly service the television chassis of this receiver, it is recommended that the following test equipment be available:

R-F Sweep Generator meeting the following requirements:

(a) Frequency Ranges

20 to 30 mc., 1 mc. and 10 mc. sweep width

50 to 90 mc., 10 mc. sweep width

170 to 225 mc., 10 mc. sweep width

(b) Output adjustable with at least .1 volt maximum.

(c) Output constant on all ranges.

(d) "Flat" output on all attenuator positions.

Cathode-Ray Oscilloscope. — For alignment purposes, the oscilloscope employed must have excellent low frequency and phase response, and should be capable of passing a 60-cycle square wave without appreciable distortion. While this requirement is not met by many commercial instruments, RCA Oscilloscopes, types WO-55A, WO-58A, WO-79A, and WO-60C fill the requirement and any of these may be employed.

For video and sync waveform observations, the oscilloscope must have excellent frequency and phase response from 10 cycles to at least two megacycles in all positions of the gain control. The RCA types WO-58A and WO-79A are ideally suited for this purpose.

Signal Generator to provide the following frequencies with crystal accuracy.

(a) Intermediate frequencies

19.75 mc. adjacent channel picture trap
21.25 mc. sound i-f and sound traps
22.05 and 24.75 mc. conv. and first pix i-f trans.
25.9 mc. second picture i-f transformer
24.6 mc. fourth picture i-f transformer
22.0 mc. third picture i-f transformer
22.5 mc. fifth picture i-f transformer
25.75 mc. picture carrier
27.25 mc. adjacent channel sound trap

(b) Radio frequencies

Channel Number	Carrier	Sound Carrier 'req. Mc.
2		. 59.75
3	61.25	. 65.75
4		. 71.75
5		. 81.75
6		. 87.75
7		. 179.75
8		. 185.75
9		. 191.75
10		. 197.75
11		. 203.75
12		. 209.75
13		. 215.75
1.1.0	and a state of a second should be adductable or	ad at loar

(c) Output of these ranges should be adjustable and at least .1 volt maximum.

Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

Electronic Voltmeter of Junior "VoltOhmyst" type and a high voltage multiplier probe for use with this meter to permit measurements up to 10 kv.

Service Precautions.—If possible, the chassis should be serviced without the kinescope. However, if it is necessary to view the raster during servicing, make sure the kinescope retaining strap is secure, and the yoke cushion is up firmly against the flare of the tube. CAUTION: Do not short the kinescope second anode lead. Its short circuit current is approximately 3 ma. This represents approximately 9 watts dissipation and a considerable overload on the high voltage filter resistor R189.

Adjustments Required. — Normally, only the r-f oscillator line will require the attention of the service technician. All other circuits are either broad or very stable and hence will seldom require readjustment.

The oscillator line is relatively non critical. When oscillator tubes are changed, in all probability it will be necessary to adjust only C6 in order to bring the entire line into adjustment.

ORDER OF ALIGNMENT. — When a complete receiver alignment is necessary, it can be most conveniently performed in the following order:

(1)	Sound discriminator	(5)	R-F and converter lines
(2)	Sound i-f transformers	(6)	R-F oscillator line
(3)	Picture i-f traps	(7)	4.5 mc. video trap
(4)	Picture i-f transformers	(8)	Sensitivity check

SOUND DISCRIMINATOR ALIGNMENT. — Set the signal generator for approximately .1 volt output at 21.25 mc. and connect it to the second sound i-f grid.

Detune T113 secondary (bottom).

Set the "VoltOhmyst" on the 10 volt scale.

Connect the meter in series with a one megohm resistor to the junction of diode resistors R203 and R204.

Adjust the primary of T113 (top) for maximum output on the meter.

Connect the "VoltOhmyst" to the junction of C183 and R203. Adjust T113 secondary (bottom). It will be found that it is possible to produce a positive or negative voltage on the meter dependent upon this adjustment. Obviously to pass from a positive to a negative voltage, the voltage must go through zero. T113 (bottom) should be adjusted so that the meter indicates zero output as the voltage swings from positive to negative. This point will be called discriminator zero output.

Connect the sweep oscillator to the grid of the second sound i-f amplifier.

Adjust the sweep band width to approximately 1 mc. with the center frequency at approximately 21.25 mc and with an output of approximately .1 volt.

Connect the oscilloscope to the junction of C183 and R203. The pattern obtained should be similar to that shown in Figure 12. If it is not, adjust the T113 (top) until the waveform is symmetrical.

The peak-to-peak band width of the discriminator should be approximately 350 kc. and it should be linear from 21.175 mc. to 21.325 mc.

SOUND I-F ALIGNMENT. — Connect the sweep oscillator to the first sound i-f amplifier grid.

Connect the oscilloscope to the second sound i-f grid return (terminal A T112) in series with a 33,000 chm isolating resistor.

Insert a 21.25 mc. marker signal from the signal generator into the second sound i-f grid.

Adjust T112 (top and bottom) for maximum gain and symmetry about the 21.25 mc. marker. The pattern obtained should be similar to that shown in Figure 13.

The output level from the sweep should be set to produce approximately .3 volt peak-to-peak at the second sound i-f grid return when the final touches on the above adjustment are made. It is necessary that the sweep output voltage should not exceed the specified values otherwise the response curve will be broadened, permitting slight misadjustment to pass unnoticed and possibly causing distortion on weak signals.

The band width at 70% response from the first sound i-f grid to the second i-f grid should be approximately 200 kc.

PICTURE I-F TRAP ADJUSTMENT. - Connect the "Volt-Ohmyst" to the junction of R135 and C190.

Remove the 6SN7GT AGC Amplifier tube V107. Connect a 250,000 ohm potentiometer between pins 5 and 6 of the V107 socket. Adjust the potentiometer until the "VoltOhmyst" reads approximately -12 volts. Note: Use approximately -6.5 volts bias on sets in which the third pix i-f obtains bias at junction of R135 and C190.

Set the channel switch to the blank position between channel numbers 2 and 13.

Connect the "VoltOhmyst" across the picture detector load resistor R119. Under this condition, both leads of the meter are at approximately -120 volts. In making this measurement, care should be taken not to touch the case of the meter or to permit the meter case to become grounded.

Connect the output of the signal generator to the grid of the converter tube V2. To do this, remove the tube from the socket and fashion a clip by twisting one end of a small piece of wire around pin number 1. Replace the tube in the socket leaving the end of the wire protruding from under the tube. Connect the signal generator to this wire through a 1,500 mmf capacitor keeping the leads as short as possible.

Set the generator to each of the following frequencies and with a thin fiber screwdriver tune the specified adjustment for minimum indication on the "VoltOhmyst." In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

(1) 21.25 mc.—T103 (top)	(4) 27.25 mc.—T104 (top)
(2) 21.25 mc.—T105 (top)	(5) 19.75 mc.—T106 (top)
(3) 27.25 mc.—T102 (top)	(6) 19.75 mc.—T101 (top)

In the above transformers using threaded cores, it is possible to run the cores completely through the coils and secure two peaks or nulls. The correct position is with the cores in the outside ends of the coils. If the cores are not in the correct position, the coupling will be incorrect and it will be impossible to secure the correct response.

PICTURE I-F TRANSFORMER ADJUSTMENTS. --- Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the "Volt-Ohmyst." During alignment, reduce the input signal if necessary to prevent overloading.

22.5	mcT106	(bottom)
24 6	mc - T104	(bottom)

- 22.0 mc.—T103 (bottom) 25.9 mc.—T102 (bottom)

T1 and T101 are coupled by a link and in combination constitute an overcoupled transformer. The characteristics of such a transformer are such that it is impossible to adjust it to a single frequency.

To sweep align T1 and T101 connect a 330 ohm composition resistor across the primary coils of T102, T103, T104 and T106.

Connect the "VoltOhmyst" to the junction of R135 and C190. Adjust the 250,000 ohm potentiometer for -2.0 volts on the meter.

Connect the oscilloscope to the plate of the first video amplifier, pin 1 of V106.

Connect a sweep generator to the converter grid through a 1,500 mmf capacitor. Set the generator to sweep from 20.0 mc. to 30.0 mc. and adjust the output to provide a 4 volt peak-topeak signal on the scope.

Connect the signal generator loosely to the converter grid and adjust to provide markers at 22.05 mc. and 24.75 mc.

Adjust T1 (top) and T101 (bottom) to obtain the response shown in Figure 14. The T1 core must penetrate to the terminal board end of the coil in order to obtain the correct response.

Remove the 330 ohm resistors from across T102, T103, T104 and T106.

Adjust the 250,000 ohm potentiometer for a 15 volt peak-topeak signal at the plate of the first video amplifier. The bias as measured by the "VoltOhmyst" should be -12 volts or -6.5 volts for earlier sets.

Observe and analyze the response curve obtained. The response will not be ideal and the i-f adjustments must be retouched in order to obtain the desired curve. See Figure 15.

On final adjustment the picture carrier marker must be at approximately 45% response. The curve must be approximately flat topped, with the 22.1 mc. marker at approximately 95% response, the 25.0 mc. marker below 90% and the 26.5 mc. marker at 5% to 10% on the response curve.

The most important consideration in making the i-f adjustments is to get the picture carrier at the 45% response point. If the picture carrier operates too low on the response curve, loss of low frequency video response, of picture brilliance, of blanking, and of sync may occur. If the picture carrier operates too high on the response curve, the picture becomes smeared. In making these adjustments, care should be taken that no two transformers are tuned to the same frequency as i-f oscillation may result.

Remove the converter tube and take off the clip to pin number 1. Replace the tube in the socket.

Picture I-F Oscillation. — If the receiver will operate without oscillating with the test equipment disconnected but breaks into oscillation or becomes unstable with the equipment connected, it may become necessary to establish a ground plane. Cover the test bench with a sheet of copper and set the chassis on the sheet. Set all the test equipment except the "Volt-Ohmyst" on the sheet and bond or bypass them to it. A Junior "VoltOhmyst" should not be bonded to the sheet since the negative test probe is not always connected to ground during alianment.

If the receiver is badly misaligned and two or more of the i-f transformers are tuned to the same frequency, the receiver may fall into i-f oscillation. I-F oscillation shows up as a voltage across the picture detector load resistor that is unaffected by r-f signal input. If such a condition is encountered, it is sometimes possible to stop oscillation by increasing the grid bias. If so, it should then be possible to align the transformers by the usual method. Once aligned in this manner, the i-f should be stable with reduced bias.

If the oscillation cannot be stopped in the above manner, shunt the grids of the first three pix i-f amplifiers to ground with 1,000 mmf. capacitors. Connect the signal generator to the fourth pix i-f grid and align T106 to frequency. Progressively remove the shunt from each grid and align the plate coil of that stage to frequency.

If this does not stop the oscillation, the difficulty is not due to i-f misalignment as the i-f section is stable when properly aligned. Check all i-f by-pass condensers, transformer shunting resistors, tubes, socket voltages, etc.

ANTENNA, R-F AND CONVERTER LINE ADJUSTMENT .--In order to align the r-f tuner, it will first be necessary to set the channel 13 oscillator to frequency. The shield over the bottom of the r-f unit must be in place when making any adjustments.

The channel 13 oscillator may be aligned by adjusting it to beat with a crystal calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available. Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, couple the meter probe loosely to the receiver oscillator.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier signal, connect the signal generator to the re-ceiver antenna terminals. Connect the "VoltOhmyst" to the sound discriminator output (junction of C183 and R203).

Set the receiver channel switch to 13.

Set the fine tuning control to the middle of its range while making the adjustment.

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Now that the channel 13 oscillator is set to frequency, we may proceed with the r-f alignment.

Remove the first pix i-f amplifier tube V101.

Connect the oscilloscope to the test connection at R13 in the r-f tuning unit.

Connect the "VoltOhmyst" to the junction of R135 and C197. Adjust the bias potentiometer for -3.5 volts on the meter.

Connect the r-f sweep oscillator to the receiver antenna terminals. The method of connection depends upon the output impedance of the sweep. The P102 connection for 300 ohm balanced or 72 ohm single-ended input are shown in the circuit diagram in Figure 79. If the sweep oscillator has a 50 ohm single-ended output, 300 ohm balanced output can be obtained by connecting as shown in Figure 7.

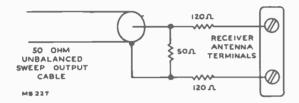


Figure 7—Unbalanced Sweep Cable Termination

Connect the signal generator loosely to the receiver antenna terminals.

Since channel 7 has the narrowest response of any of the high frequency channels, it should be adjusted first.

Set the receiver channel switch to channel 7.

Set the sweep oscillator to cover channel 7.

Insert markers of channel 7 picture carrier and sound carrier 175.25 mc. and 179.75 mc.

Adjust C10 and C14 until the curve falls symmetrically between the sound and picture carrier markers. Adjust C11 to give the proper bandwidth. Roughly peak L6 in conjunction with slight adjustments of C10 and C14 for a flat-topped, response curve with the sound and picture carriers at 90% to 95% response points on this curve. See Figure 16, channel 7.

Switch to channel 12 and adjust L6 for maximum response and minimum top slope of the curve.

Check the response of channels 7 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observe the response obtained. See Figure 16 for typical response curves. It should be found that all these channels have the proper shaped response with the markers above 80% response. If the markers do not fall within this requirement on one or more high frequency channels, since there are no individual channel adjustments. it will be necessary to readjust L6, C10, C11 and C14, and possibly compromise some channel slightly in order to get the markers up on other channels. Normally, however, no difficulty of this type should be experienced since the higher frequency channels become comparatively broad and the markers easily fall within the required range.

Channel 6 is next aligned in the same manner.

Set the receiver to channel 6.

Set the sweep oscillator to cover channel 6.

Set the marker oscillator to channel 6 picture and sound carrier frequencies.

Adjust L9, L13, L66 and C12, for an approximately flat-topped response curve located symmetrically between the markers. L9, L13 and L66 are the center frequency adjustments. C12 is the band width adjustment. Check channels 5 down through channel 2 by switching the receiver, sweep oscillator and marker oscillator to each channel and observing the response obtained. In all cases, the markers should be above the 80% response point. If this is not the case, L9, L13, L66 and C12 should be retouched. On final adjustment, all channels must be within the 80% specification.

Disconnect the bias pot. and replace V107. Replace V101.

Following an r-f alignment, the oscillator alignment must be checked.

R-F OSCILLATOR LINE ADJUSTMENT. — The r-i oscillator line may be aligned by adjusting it to beat with a crystal calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available.

Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated. If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, the calibration frequency listed under R-F Osc. Freq. must be available.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier frequency, the frequencies listed under Sound Carrier Freq. must be available.

Channel Number	Receiv R-F Os Freg. N	вс.	R-F Sound Carrier Freg. Mc.	Channel Oscillator Adjustment
TA CHILDAL	a saide s.	A.C. 1		2 E.C. J CON 1000 W COL
2	81		59.75	L24
3	87		65.75	L23
4			71.75	L22
5			81.75	L2 1
6			87.75	L31
7			179.75	L19
8	207		185.75	L18
9	213		191.75	L17
10	219		197.75	L16
11			203.75	L15
12			209.75	L14
13	237		215.75	C6

If the heterodyne frequency meter method is used, couple the meter probe loosely to the receiver oscillator.

If the r-f sound carrier method is used, connect the "Volt-Ohmyst" to the sound discriminator output (junction of C183 and R203).

Connect the signal generator to the receiver antenna terminals. The order of alignment remains the same regardless of which method is used.

If the r-f unit is removed from the receiver for service and is aligned separately the shield over the bottom of the r-f unit must be in place when making adjustments.

Since lower frequencies are obtained by adding steps of inductance, it is necessary to align channel 13 first and continue in reverse numerical order.

Set the receiver channel switch to 13.

Adjust the frequency standard to the correct frequency (237 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range while making the adjustment.

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator. Oscillator adjustments L1 and L2 shown on the schematic are factory control adjustments and should not be touched in the field.

Switch the receiver to channel 12.

Set the frequency standard to the proper frequency as listed in the alignment table.

Adjust L14 for indications as above.

9

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator trimmer for the speci-

Continued on Page 13.

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ALIGNMENT TABLE

THE DETAILED ALIGNMENT PROCEDURE BEGINNING ON PAGE 7 SHOULD BE READ BEFORE ALIGNMENT BY USE OF THE TABLE IS ATTEMPTED.

					IS ATTEMPTED.				
STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN, FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
			DISC	RIMINATO	R AND SOUND 1-1	F ALIGNMENT			
1	2nd sound i-f grid (pin 1, V117)	21.25 .1 volt output	Not used		Not used	In series with 1 meg. to junction of R203 & R204		Detune T113 (bot.) Adjust T113 (top) for max. on meter	Fig. 8 Fig. 9 Fig. 10
2	66	44	68		46	Junction of C183 & R203	Meter on 3 volt scale	T113 (bottom) for zero on meter	Fig. 9 Fig. 10
3	ee	64	2nd sound i-f grid (pin 1, V117)	21.25 center 1 mc. wide .1 v. out	Junct. of C183 & R203	Not used		netrical response e & negative). If T113 (top) until	Fig. 10 Fig. 12
4	1st sound i-f grid (pin 1, V116)	21.25 re- duced output	1st sound i-f grid	21.25 reduced output	Terminal A, T112 in series with a 33,000 obm resistor.	60	duced to provide	.T112 (top & hot.) for max. gain and symmetry at 21.25 mc.	Fig. 8 Fig. 9 Fig. 10 Fig. 13
			PI	CTURE I-	F AND TRAP AD	JUSTMENT			
5	Not used		Not used		Not used	Junction of R135 & C190	Remove V107. Connect potenti- ometer between pins 5 & 6 of V107 socket	Adjust pot. for meter reading of -12 volts or -6.5 volts on early sets	Fig. 10
6	Converter grid (pin 1, V2)	21.25	66		44	Across R119	Meter on 3 volt scale. Receiver be- tween 2 & 13	T103 (top) for min. on meter	Fig. 8
7	44	21.25	68		44	g4	66	T105 (top) for min.	44
8	66	27.25	44		84	44	đą.	T102 (top) for min.	44
9	<i>44</i>	27.25	**		44	da	88 	T104 (top) for min.	44
10	44	19.75	64		84	a4	44	T106 (top) for min.	
11	**	19.75	64		44	s4	66	T101 (top) for min.	+4
12	66	22.5	d4		e4	od	4 4	T106 (bottom) for max. on meter	Fig. 9
13	44	24.6	44				66	T104 (bottom) for max.	60
14	44	22.0			46		et	T103,(bottom) for max.	44
15	44	25.9	66		44	ad	88	T102 (bottom) for max.	
16	66	22.05 24.75	Converter grid (pin 1, V2)	Sweep- ing 20 to 30 mc.	Pin 1, V106	Junction of R135 & C190	Shunt 300 ohms across pri. T102, T103, T104, T106. Set bias -2 V. Set swp. gen. for 4 V. P-P on scope.	and T101 (bot- tom) for proper	Fig. 9
17	68		<i>da</i>	44	4.9	**	Remove sbunt re- sistors. Set bias to give 15 volts P to P on scope.	Adjust T1 (top), T101, T102, T103, T104, T106 (bot.) for proper resp.	Fig. 8 Fig. 9 Fig. 15
			ANTENN	A, R-F A	ND CONVERTER	LINE ALIGNMENT			
18	Antenna terminals	215.75	Not used		Not used	Junction of C183 & R203 for signal gen. method only	tered. Receiver on		
19						Junction of R135 & C197	Remove V101	Potentiometer for -3.5 volts on meter	
20	Antenna terminal (loosely)	175.25 & 179.75	Antenna terminals (see text for precaution)	Sweep- ing cbannel 7	Test Connection R13	Not used	Receiver on chan- nel 7	L6, C10, C11 & C14 for flat top response between markers. Markers above 90%.	Fig. 10
21	68	205.25 209.75	e4	channel 12			Receiver on chan- nel 12	L6 for max. re- sponse and min. slope of top of curve	Fig. 10
22	48	175.25 179.75	66	channel 7	68	68	Receiver on chan- nel 7	Check to see that response is as above	
23	44	181.25 185.75	40	channel 8	84	ee	Receiver on chan- nel 8	46	Fig. 1 (8)
24	od	187.25 191.75	48	channel 9	66	d •	Receiver on chan- nel 9	64	Fig. 10 (9)
25	"	193.25 197.75	44	channel 10	64	68	Receiver on chan- nel 10	8ª	Fig. 10 (10)

T120, T121

ALIGNMENT TABLE

STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
			RF A	ND CONVI	ERTER LINE ALIG	NMENT (Cont'd)		· _ ·	
26	44	199.25 203.75	66	cbannel 11	44	44	Receiver on chan- nel 11	44	Fig. 16 (11)
27	48	205.25 209.75	44	channel 12	64	44	Receiver on chan- nel 12	44	Fig. 16 (12)
28	64	211.25 215.75		channel 13	44	ed	Receiver on chan- nel 13	44.9	Fig. 16 (13)
29	If the response o	n any chan	nel (steps 22 tbro	ugh 28) is	below 80% at eithe	r marker, switch to	that channel and a	djust L6, C10, C11	& C14
	to pull response	up on that	Channel. I nen rec	Check steps	22 through 28.				
30	Antenna terminals (loosely)	83.25 87.75	Ant. terminals (see text for precaution)	Sweep- ing cban. 8	Test Connection R13	Not used	Receiver on chan- nel 6	L9, L13, L66 & C12 for response as above	
30 31	Antenna terminals	83.25	Ant. terminals (see text for	Sweep- ing	Test	Not used "		C12 for response	(6)
	Antenna terminals (loosely)	83.25 87.75 77.25	Ant. terminals (see text for precaution)	Sweep- ing cban. 8 cbannel	Test Connection R13		nel 6 Receiver on chan-	C12 for response as above Check to see that response is as	(6) Fig. 16
31	Antenna terminala (loosely) 4	83.25 87.75 77.25 81.75 67.25	Ant. terminals (see text for precaution)	Sweep- ing cban. 8 cbannel 5 channel	Test Connection R13		nel 6 Receiver on chan- nel 5 Receiver on chan-	C12 for response as above Check to see that response is as above	(6) Fig. 16 (5) Fig. 16

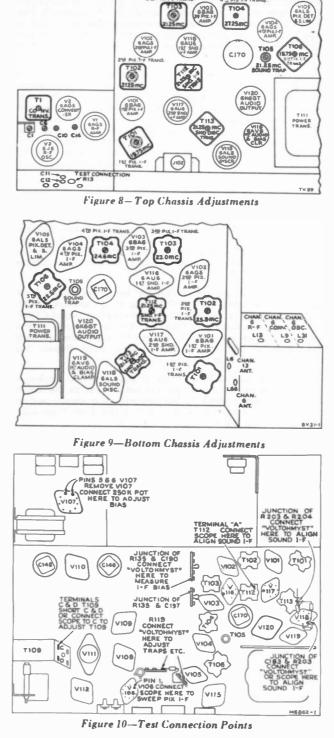
No.GENERATOR TOFREQ. MC.FREQ. METER TOFREQ. MC.FREQ. TOFREQ. TOFOLTONAND INSTRUCTIONSAND INSTRUCTIONS36Antenna terminals215.75Loosely coupled to r-fosc.237Not usedJunction of C183 & R2303 for sig. gen. method onlyFine tuning ceen- channol 13C6 for zero on het freq. meterF37"209.75"231""Rec. on chan. 12L14 as aboveF38"203.75"225""Rec. on chan. 11L15 as aboveF39"197.75"213""Rec. on chan. 10L16 as aboveF40"191.75"207""Rec. on chan. 8L17 as aboveF41"185.75"201""Rec. on chan. 6L19 as aboveF42"179.75"201""Rec. on chan. 7L19 as aboveF43"87.75"109""Rec. on chan. 6L13 as aboveF											
Iterminals Iterminals <th></th> <th>SIGNAL GENERATOR</th> <th>GEN. FREQ.</th> <th>HETERODYNE FREQ. METER</th> <th>METER FREQ.</th> <th>OSCILLOSCOPE</th> <th>"VOLTOHMYST"</th> <th>CONNECTIONS</th> <th>[</th> <th>REFER TO</th>		SIGNAL GENERATOR	GEN. FREQ.	HETERODYNE FREQ. METER	METER FREQ.	OSCILLOSCOPE	"VOLTOHMYST"	CONNECTIONS	[REFER TO	
37 203.75 203.75 203.75 203.75 213 214 214 214 214 214 214 214 214 215 215 216 216 217 217 218 219	36		215.75		237	Not used	& R203 for sig.	tered. Receiver on	meter or beat on	Fig. 10 Fig. 9 Fig. 8	
39 "1 197.75 "1 219 "1 "1 Rec. on chan. 11 L15 as above 40 "1 191.75 "1 219 "1 "1 Rec. on chan. 10 L16 as above 14 40 "1 191.75 "1 213 "1 "1 Rec. on chan. 9 L17 as above 41 "1 165.75 "1 207 "1 "1 Rec. on chan. 8 L18 as above 14 42 "1 179.75 "1 201 "1 "1 Rec. on chan. 8 L18 as above 14 43 "1 87.75 "1 109 "1 "1 Rec. on chan. 6 L31 as above 14 44 "1 81.75 "1 103 "1 "1 Rec. on chan. 5 L21 as above 14 45 "1 71.75 "1 93 "1 "1 Rec. on chan. 4 L22 as above 14 46 "1 65.75 "1 87 "1 "1 14 12.3 as above 12 46 "1 <th>37</th> <th>66</th> <th>209.75</th> <th></th> <th>231</th> <th>66</th> <th>64</th> <th>Rec. on chan. 12</th> <th>L14 as above</th> <th>Fig. 11</th>	37	66	209.75		231	66	64	Rec. on chan. 12	L14 as above	Fig. 11	
39 197.75 10 219 10 10 Rec. on chan. 10 L16 as above 40 " 191.75 " 213 " " Rec. on chan. 9 L17 as above 41 " 185.75 " 207 " " Rec. on chan. 8 L16 as above 42 " 179.75 " 201 " " Rec. on chan. 7 L19 as above 43 " 87.75 " 109 " " Rec. on chan. 6 L31 as above F 44 " 81.75 " 103 " " Rec. on chan. 5 L21 as above F 45 " 71.75 " 93 " " Rec. on chan. 4 L22 as above F 46 " 65.75 " 87 " " Rec. on chan. 3 L23 as above F	38	64	203.75	44	225	64	44	Rec. on chan. 11	L15 as above	44	
40 191.75 11 213 11 11 Rec. on chan. 9 L17 as above 41 165.75 10 207 11 11 Rec. on chan. 8 L18 as above 42 17 17 201 11	39	66	197.75	d4	219	46	44	Rec. on chan. 10	L16 as above	"	
41 1185.75 1185.75 110	40	44	191.75	44	213	64	44	Rec. on chan. 9	L17 as above	44	
43 44 87.75 44 109 44 46 81.75 47 109 47 48 49 81.75 109 47 47 Rec. on chan. 6 L31 as above F 44 44 91.75 44 103 44 44 81.75 103 44 44 81.75 121 as above F 45 46 46 51.75 44 93 44 44 86.75 122 as above F 46 47 65.75 44 87 46 46 46 46 46 46 46 46 46 47 123 as above F	41	44	185.75	66	207	66	44	Rec. on chan. 8	L18 as above	**	
*** *** 109 *** 109 *** Rec. on chan. 6 L31 as above F 44 " \$1.75 " 103 " " Rec. on chan. 5 L21 as above F 45 " 71.75 " 93 " " Rec. on chan. 4 L22 as above F 46 " 65.75 " 87 " " Rec. on chan. 3 L23 as above F	42	64	179.75	64	201	66	44	Rec. on chan, 7	L19 as above	44	
44 61.75 71.75 <th 71<="" th=""><th>43</th><th>64</th><th>87.75</th><th>46</th><th>109</th><th>44</th><th>44</th><th>Rec. on chan. 6</th><th>L31 as above</th><th>Fig. 9</th></th>	<th>43</th> <th>64</th> <th>87.75</th> <th>46</th> <th>109</th> <th>44</th> <th>44</th> <th>Rec. on chan. 6</th> <th>L31 as above</th> <th>Fig. 9</th>	43	64	87.75	46	109	44	44	Rec. on chan. 6	L31 as above	Fig. 9
45 71.75 93 1 Rec. on chan. 4 L22 as above 46 4 65.75 4 87 4 4 1 L23 as above 1	-44	64	81.75	64	103	66	64	Rec. on chan. 5	L21 as above	Fig. 11	
40 00.75 87 Rec. on chan. 3 L23 as above	45		71.75	44	93	4a	46	Rec. on chan. 4	L22 as above		
47 " 59.75 " 81 " " Rec. on chan. 2 L24 as above	46	44	65.75	4	87	66	44 1	Rec. on chan. 3	L23 as above	"	
	47	64	59.75	44	81	44	44	Rec. on chan. 2	L24 as above	- 44	

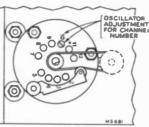
R-F OSCILLATOR ALIGNMENT

48 Repeat steps 36 through 47 as a check.

			AGC THRESHOLD ADJ	STMENT		
49	Not used	Not used	Pin 1, V106	Not used	Tune in station, turn pix control clockwise. Adjust R138 for max. gain without clipping sync on scope	Fig. 10 Fig. 17
		НО	RIZONTAL OSCILLATOR	ADJUSTMENT		
50	Short circuit termina	ls C and D of T109. Tune i	n a station.			
51	Turn hold control fu	lly clockwise. Adjust T109	Frequency Adjustment un	til horizontal blas	aking bar appears in the picture.	
52	Turn hold control ¼ correct. Repeat step	turn from clockwise to syn 51.	nc picture. Adjust width (L115), linearity (L111) and drive (C153B) controls until pic	ture is
53	Turn hold control fu pull-in. Adjust Locki	ally counterclockwise. Mome ng Range Control (C153A)	entarily remove signal. Tu for 7 to 9 bar pull-in.	rn hold control s	lowly clockwise. Note least number of bars	before
54	Remove clip from ter blanking bar appears	minals C and D of T109. To in picture.	urn hold control fully clos	kwise. Adjust T10	9 Oscillator Waveform Adjustment until hor	izontal
55	Connect low capacity form Adjustment unt ment. Remove oscillo	il broad and sharp peaks of	erminal C of T109. Turn f wave on oscilloscope are	old control ¼ tu same height. Kee	arn from clockwise. Adjust T109 Oscillator op picture in sync with hold control during a	Wave- adjust-
56	Turn hold control fu pull-in. Adjust Locki	illy counterclockwise. Mome ng Range Control (C153A)	ntarily remove signal. Tu for 3 bar pull-in.	rn held centrol s	lowly clockwise. Note least number of bars	before
57	Turn hold control ful	lly clockwise. Adjust T109	Freq. Adjustment until ho	rizontal blanking	appears as single vertical or diagonal bar	in pix.
			4.5 MC VIDEO TRAP AD	USTMENT		
58	Tune in a strong stat	tion. Short the trap winding	of T103. If a 4.5 mc beat	appears in pictu	are adjust L110 until beat is eliminated.	
58						
28			SENSITIVITY CHI	ск		

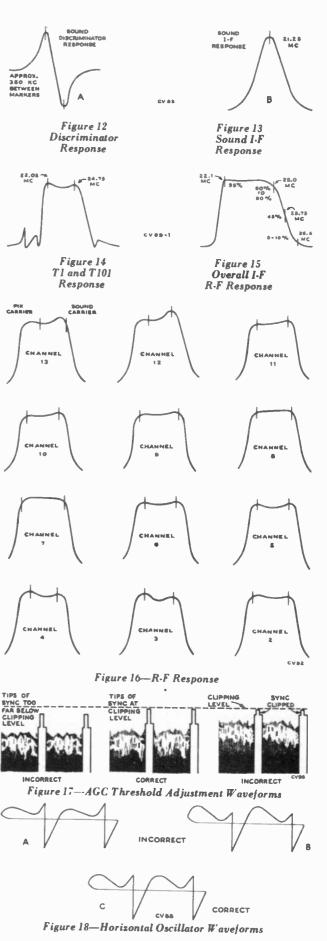
11





OSCILLATOR ADJUSTMENT FOR CHANNEL IS IS ON TOP OF R-F UNIT AND CHANNEL 6 IS ON SIDE. Figure 11-R-F Oscillator Adjustments

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T120, T121
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Continued from Page 9

fied indication. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning control in the middle third of its range.

After the oscillator has been set on all channels, start back at channel 13 and recheck to make sure that all adjustments are correct.

AGC THRESHOLD ADJUSTMENT. - The AGC threshold adjustment can be made by the method outlined in the Installation Instructions. However, a more accurate adjustment can be obtained by the use of an oscilloscope.

Tune in a station and advance the picture control to the maximum clockwise position. Connect the low capacity probe from the oscilloscope to the plate of the first video amplifier. Adjust the oscilloscope to observe the vertical sync pulse.

Turn the AGC threshold control R138 fully clockwise, then slowly, counterclockwise. As the control is turned counterclockwise, the receiver gain will increase slowly, increasing the size of the pattern on the oscilloscope. R138 should be turned counterclockwise until the receiver begins to overload as indicated by clipping of the sync. The control should be left in the maximum gain position in which no clipping of sync is observed. See Figure 17 for proper waveforms.

HORIZONTAL OSCILLATOR ADJUSTMENT. - Normally the adjustment of the horizontal oscillator is not considered to be a part of the alignment procedure, but since the oscillator waveform adjustment requires the use of an oscilloscope, it can not be done conveniently in the field. The waveform adjustment is made at the factory and normally should not require readjustment in the field. However, the waveform adjustment should be checked whenever the receiver is aligned or whenever the horizontal oscillator operation is improper.

Horizontal Frequency Adjustment. — With a clip lead, short circuit the coil between terminals C and D of the horizontal oscillator transformer T109. Tune in a television station and sync the picture if possible.

A .- Turn the horizontal hold control R173 to the extreme clockwise position. Adjust the T109 Frequency Adjustment (under the chassis) so that the picture is just out of sync and the horizontal blanking appears in the picture as a vertical bar. The position of the bar is unimportant.

B.-Turn the hold control approximately one quarter of a turn from the extreme clockwise position and examine the width and linearity of the picture. If picture width or linearity is incorrect, adjust the horizontal drive conrtol C153B, the width control L115 and the linearity control L111 until the picture is correct. If C153B, L115 or L111 were adjusted, repeat step A above.

Horizontal Locking Range Adjustment. -- Turn the horizontal hold control fully counterclockwise. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 9 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 7 bars are present, adjust C153A slightly counterclockwise. Turn the horizontal hold control counterclockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 7 to 9 bars are present.

Horizontal Oscillator Waveform Adjustment. - Remove the shorting clip from terminals C and D of T109. Turn the horizontal hold control to the extreme clockwise position. With a thin fibre screwdriver, adjust the Oscillator Waveform Adjustment Core of T109 (on the outside of the chassis) until the horizontal blanking bar appears in the raster.

A.-Connect the low capacity probe of an oscilloscope to terminal C of T109. Turn the horizontal hold control one guarter

ALIGNMENT PROCEDURE

turn from the clockwise position so that the picture is in sync. The pattern on the oscilloscope should be as shown in Fig-ure 18. Adjust the Oscillator Waveform Adjustment Core of T109 until the two peaks are at the same height. During this adjustment, the picture must be kept in sync by readjusting the hold control if necessary.

This adjustment is very important for correct operation of the circuit. If the broad peak of the wave on the oscilloscope is lower than the sharp peak, the noise immunity becomes poorer, the stabilizing effect of the tuned circuit is reduced and drift of the oscillator becomes more serious. On the other hand, if the broad peak is higher than the sharp peak, the oscillator is overstabilized, the pull-in range becomes inadequate and the broad peak can cause double triggering of the oscillator when the hold control approaches the clockwise position.

Remove the oscilloscope upon completion of this adjustment.

Check of Horizontal Oscillator Adjustments. - Set the horizontal hold control to the full counterclockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counterclockwise. Turn the horizontal hold control counterclockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 3 bars are present.

Turn the horizontal hold control to the maximum clockwise position. The picture should be just out of sync to the extent that the horizontal blanking bar appears as a single vertical or diagonal bar in the picture. Adjust the T109 Frequency Adjustment until this condition is fulfilled.

4.5 MC. VIDEO TRAP ADJUSTMENT. - Tune in a strong input from a station, and with a very short clip lead, short the trap winding of T103. Observe the picture for the appearance of a 4.5 mc. beat. If the beat appears in the picture, adjust L110 until the beat is eliminated or minimized.

SENSITIVITY CHECK. — A comparative sensitivity check can be made by operating the receiver on a weak signal from a television station and comparing the picture and sound obtained to that obtained on other receivers under the same conditions.

This weak signal can be obtained by connecting the shop antenna to the receiver through a ladder type attenuator pad. The number of stages in the pad depends upon the signal strength available at the antenna. A sufficient number of stages should be inserted so that a somewhat less than normal contrast picture is obtained when the picture control is at the maximum clockwise position. Only carbon type resistors should be used to construct the pad.

RESPONSE CURVES. — The response curves shown on page 15 and referred to throughout the alignment procedure were taken from a production set. Although these curves are typical, some variations can be expected.

The response curves are shown in the classical manner of presentation, that is with "response up" and low frequency to the left. The manner in which they will be seen in a given test set-up will depend upon the characteristics of the oscilloscope and the sweep generator. The curves may be seen inverted and/or switched from left to right depending on the deflection polarity of the oscilloscope and the phasing of the sweep generator.

ALIGNMENT TABLE. - Both methods of oscillator alignment are presented in the alignment table. The service tecnnician may thereby choose the method to sult his test equipment.

13



Figure 19-Normal Picture

Figure 20—Focus Coil and Ion Trap Magnet Misadjusted 343 A



Figure 21—Horizontal Linearity Control Misadjusted (Picture Cramped in Middle) ----

Figure 22-Width Control **Misad** justed



Figure 23—Horizontal Drive **Control** Misadjusted

Figure 24-Transients

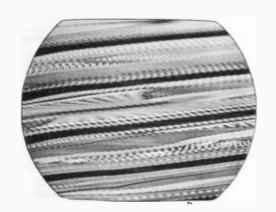


Figure 25-Test Pattern Showing Out of Sync Condition When Horizontal Hold Control Is in a Counter-clockwise Position-Just Before Pulling Into Sync

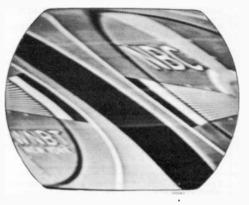
Figure 26-Test Pattern Showing Out of Sync Condition When Horizontal Hold Control Is at the Maximum Clockwise Position

14

TEST PATTERN PHOTOGRAPHS







PICTURE I-F RESPONSE.—At times it may be desirable to observe the individual i-f stage response. This can be achieved by the following method:

Shunt all i-f transformers and coils with a 330-ohm carbon resistor except the one whose response is to be observed.

Connect a wide band sweep generator to the converter grid and adjust it to sweep from 18 mc. to 30 mc.

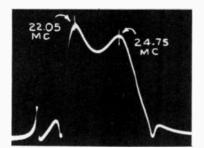


Figure 27-Résponse of Converter and First Pix I-F Transformer

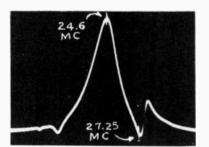


Figure 30—Response of Fourth Pix I-F Transformer

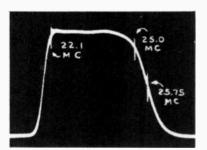
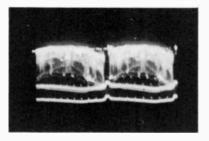
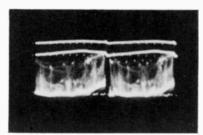


Figure 33-Overall Pix I-F Response





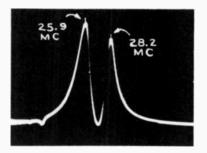


Figure 28—Response of Second Pix I-F Transformer

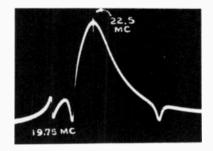


Figure 31-Response of Fifth Pix I-F Transformer

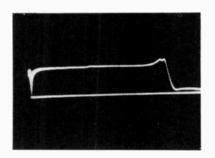


Figure 34—Video Response at Average Contrast

Video Signal Input to 1st Video Amplifier (Pin 2 of V106) (12AU7)

Figure 36—Vertical (Oscilloscope Synced to ½ of Vertical Sweep Rate) (5.4 Volts PP) ------

Figure 37—Horizontal (Oscilloscope Synced to ½ of Horizontal Sweep Rate) (5.4 Volts PP) ***

Sync Feed (Junction of L110, R219 and C194)

Figure 38-Vertical (28 Volts PP) -----

Figure 39-Horizontal (28 Volts PP) ***

Connect the oscilloscope across the picture detector load resistor and observe the overall response. The response obtained will be essentially that of the unshunted stage. The effects of the various traps are also visible on the stage response.

Figures 27 through 31 show the responses of the various stages obtained in the above manner. The curves shown are typical although some variation between receivers can be expected. Relative stage gain is not shown.

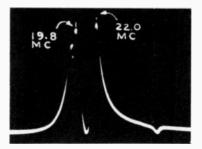


Figure 29—Response of Third Pix I-F Transformer

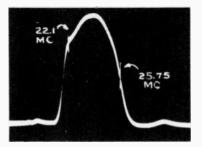


Figure 32-Response from First Pix 1-F grid to Pix Det.

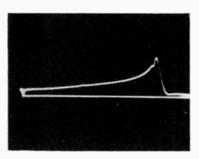
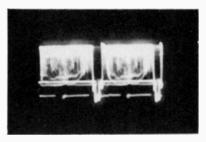
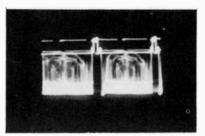
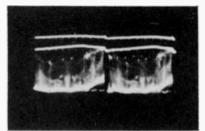


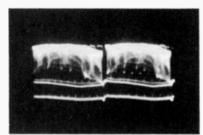
Figure 35—Video Response at **Minimum** Contrast

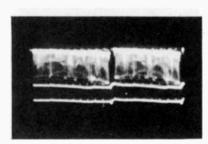


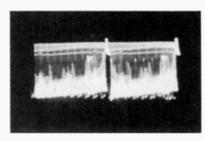


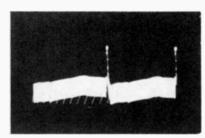
T120, T121

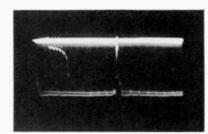












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WAVEFORM PHOTOGRAPHS

Input to 2nd Video Amplifier (Pin 7 of V106) (12AU7)

Figure 40—Vertical (17 Volts PP)

Figure 41—Horizontal (17 Volts PP) ↔

> Output of 2nd Video Amplifier (Junction of L105 and R127) (Picture Max.)

Figure 42—Vertical (96 Volts PP)

Figure 43—Horizontal (96 Volts PP) ↔

Input to Kinescope (Junction of R127 and R128) (Picture Max.)

Figure 44—Vertical (65 Volts PP)

Figure 45—Horizontal (65 Volts PP) ↔

Input to 1st Sync Separator (Pin 1 of V108) (6SN7GT)

Figure 46—Vertical (23 Volts PP)

Figure 47—Horizontal (23 Volts PP) →→→

AGC Rectifier Cathode (Pin 6 of V108) (6SN7GT)

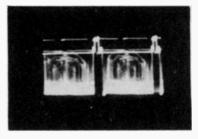
Figure 48—Vertical (4.7 Volts PP)

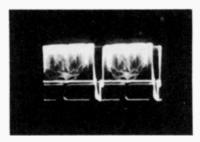
Figure 49—Horizontal (1.5 Volts PP) →→→

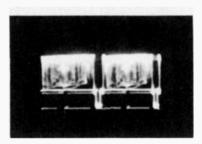
Output of 1st Sync Separator (Pin 5 of V108) (6SN7GT)

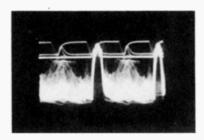
Figure 50—Vertical (24 Volts PP)

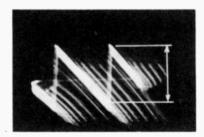
Figure 51—Horizontal (24 Volts PP) ↔













WAVEFORM PHOTOGRAPHS

Output of 1st Sync Separator (Pin 2 of V108) (6SN7GT)

Figure 52-Vertical (26 Volts PP)

Figure 53—Horizontal (25.5 Volts PP)

Input to Sync Amplifier (Junction of C137, C139 and R145)

Figure 54—Vertical (21 Volts PP)

Figure 55—Horizontal (21 Volts PP)

Output of Sync Amplifier (Pin 2 of V109) (6SN7GT)

Figure 56—Vertical (115 Volts PP)

Figure 57—Horizontal (105 Volts PP) →→→

Cathode of 2nd Sync Separator (Pin 6 of V109) (6SN7GT)

Figure 58—Vertical (17 Volts PP)

Figure 59—Horizontal (11 Volts PP) →→→

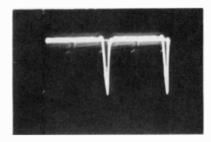
Figure 60—Output of Integrating Network (Junction of C144, C145 and R153) (45 Volts PP)

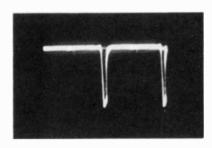
Figure 61—Grid of Vertical Oscillator (720 Volts PP) (Pin 1 of V107) (6SN7GT)

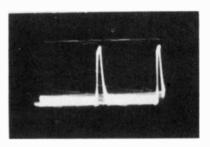
Figure 62—Grid of Vertical Output (160 Volts PP) (Pin 5 of V110) (6K6GT)

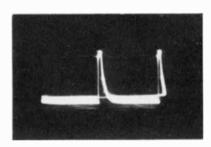
Figure 63—Plate of Vertical Output (750 Volts PP) (Pin 3 of V110) (6K6GT)

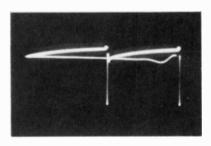


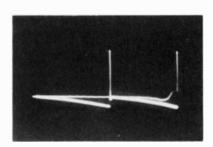


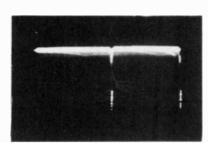


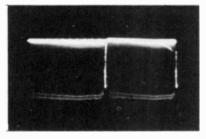


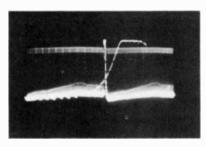


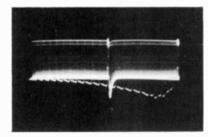


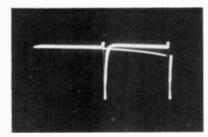


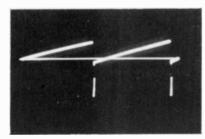




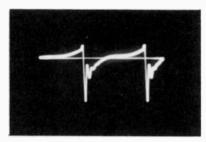


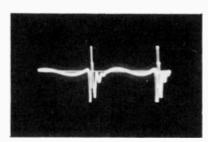


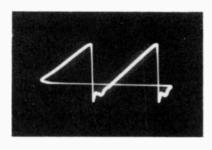


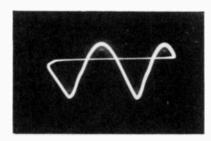


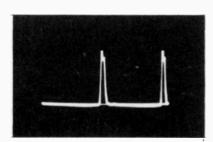
T120, T121











WAVEFORM PHOTOGRAPHS

Figure 64—Input of Vertical Deflection Coils (75 Volts PP) (Junction of Green Lead of T108 and Green Lead of Yoke)

Figure 65—Input to Horizontal Oscillator (17.5 Volts PP) (Junction of C153A and C154)

Figure 66—Junction of R168, R176 and R178 (150 Volts PP)

Figure 67—Grid of Horizontal Oscillator (480 Volts PP) (Pin 4 of V111) (6SN7GT)

Figure 68—Plate of Horizontal Oscillator (270 Volts PP) (Pin 5 of V111) (6SN7GT)

Figure 69—Terminal "C" of T109 (70 Volts PP)

Figure 70—Input to Horizontal Output Tube (42 Volts PP) (Junction of Cl60, R183 and Cl53B)

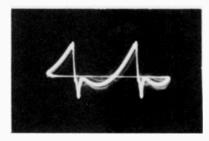
Figure 71—Plate of Horizontal Output (Approx. 6,000 Volts PP) (Measured Through a Capacity Voltage Divider Connected from Top Cap of V112 to Ground)

Figure 72—Junction of Cl67, Ll15 and Terminal 1 of T110 (165 Volts PP)

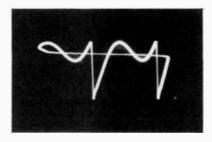
> Figure 73—Plate of Damper (125 Volts PP) (Pin 5 of V114) (6₩4GT)

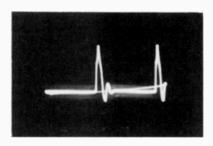
Figure 74—Input across Horizontal Deflection Coils (1,150 Volts PP)

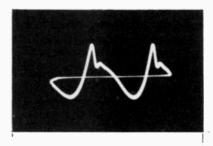
Figure 75—Horizontal Deflection Coil Current (0.6 amp. PP) Measured by Inserting a 5-ohm Resistor in Series with the Horizontal Deflection Coil and the Voltage across the Resistor Observed.

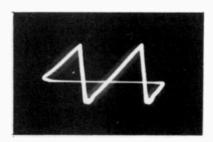












VOLTAGE CHART

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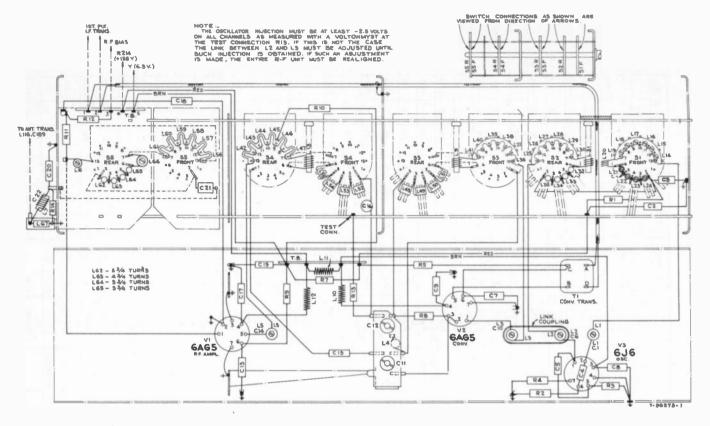
The following measurements represent two sets of conditions. In the first condition, a 2200 microvolt test pattern signal was fed late the receiver, the picture synced and the AGC threshold control properly adjusted. The second condition was obtained by removing the antenna leads and short circulting the receiver anienast remindis. Voltages shown are seed with "1. VoltOhnyst" between the indicated terminal and chaests ground and

		-	1					_			41	-	-		-		T	7	71	- A I	-	-	T	-	-	1	7	-			
	Notes on Measurements							*Screen connected to	plate	of hold gives -21 9 to +56	volts on plate			-buuu voit	•9700 volt	pulse present	•1200 volt	pulse present	A-C meanured	trans, center tap										*Average Brightness	
	Screen		-	1				•7 85	1 1.	1			4		1	1	1	i				0.7	, ,		1		1	3.3	m	ŀ	
	Plate S		-	5 25	3 75	4	35	+		6		r 4		2 2	•	-	99	65	210			0		3 1 1	1	40	-	19.3	18	=	1
Grid	Volte	- 19.5	- 19.3	- 4 7	-5 2	- 106	- 80	- 91	- 101	-92	- 108	100		- 115	1		1	1	1	1						8	68		- 120	30	1
M	Pin	1	-	-	-	4	*	s	w.			-		+	1		ł	1	!		- ,		-	• 1 1	1	-	-	Ś	5	~	~
Cathode	Volta	- 10	- 9.7	0	0	-51	- 59	-67	- 79	- 110	-120	- 130	00 -	-100	10200	9700	300	295	250	245	o 1		-	2°.0	140	•	0	66 -	- 111	51	42
С Ш	Pin			m	m	0	9	00	60		m 4		> m		2 & 7	2 8 7		m	2 & 8	2 46 8				· 0 -	5-		8	60	60	Ξ	=
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(z)	No.		1	1	1	1		+	+		1		00	00	!			1	1	1		0 0	9	•	1	1		+	+	2	9
Plate	Volta	. 8	.81	158	154	230	215	223	208	•48	33	2	•	Do Not Meas.		Do Not Meas.	•	Do Not Meas.	*335	•335	134	148	115	+ 8-		85	8	102	72	0006.	1
ы ы	Pin	+	3	3	3	Ś	s.	m	e	2	~ ~	1 4	Geo -		Cap	Cap	S	s	4 05 0	4 6	n .	n vi	5			2	7	m	m	Cap	Cap
	Condition	2200 Mu.V. Signal	No Signal	2200 Mu. V. Signal	No Signal	2200 Mu. V. Signal	Signal	Signal No	Signal 200 Mu. V.	Signal	Signal 2200 Mu. V. Signal	No	2200 Mu. V.	No Signal	Brightness Min.	Brightness Average	2200 Mu. V. Signal	Signal	×	Ň	No	2200 Mu. V. Signal	No	2200 Mu. V. Signal	No Signal	2200 Mu. V. Signal	No Signal	2200 Mu. V. Signal	No Signal	2200 Mu. V. Signal	No Signal
	Function			Sync Amplifier		Sync 3 Separator 2		Output	Horizontal 2		Horizontal 2		Horizontal 2 Output		H. V. Rectifier		Damper 2	e	Rectifier	Ist Sound 2	LF Amp.	2nd Sound 2	-	Sound 2: Discrim.		1st Audio 2 Amplifier		Audio 2: Output		Kinescope 2:	
	Tube			6SN7 GT		GT GT		GT	6SN7		6SN7 GT		C B C 6 G		1B3GT /8016		6W4GT	1	sU4G		0000	6AU6	+	6ALS		6AV6		6K6- GT		12LP4 1	
pup	Tube No.			V109 G		V109 G		V110	3		30		V112 6		V113 /8		V114 61	-	V115 51		70 0110	V117 6/		V118 6/		V119 6/	•	V120 G		V121 12	
ground	ſ	.0	•	3	1		w 10											T	T	1								. <u> </u>			
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icated to		I	(ina.)	.72	14.0		•5.3 to 5.	_	°1.8 to 2.1	1.9	7.5	8.2	6.8	4.0	11.0	6.5	5.9	48		1	Ţ	4.36	3.82	6.2	6.9	وز	ų	.2	6	,	.28
n the ind		Grid	Volta	-4.2		•-3.0 to-7.0	•-2.0 to-6.0	•-5.1 to-7.3	• 4.5 to 6.6	-11.0	0.0	0	0	-4.2	i Š	0	0	1	1	T	1	-113	130	• 12.2	• 10.3	- 56.5	- 64	-158	- 169	-19.3	-19.2
betwee		· · [No.	1	1	-	1	5 de 6	6	1	-	-	-	-	-	-	-	1		+	1.	3	3	7	7	4	+	-	1	4	+
ondition		Cathode	Volts	0	0	0	0	.19	.16	4	1.1	.75	.65	.25	.75	1.35	1.2	-112	- 120	- 56	-60	-111	-117	• - 5.3	* - 5.6	-55.5	- 60	-111	-120	-3.4	-8.7
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with "		Screen	Volts	142	111	•130 to 140	•104 to 109	1		125	95	115	100	135	100	135	120	1		1		1	I		ł		1	1	1	1	
anjuste are read			No.	9	٥		1	1	1	9	9	ø	ø	9	Ŷ	•		1	1		1	Ŀ	ł	ļ	1			1		1	
property shown	2	late	Volts	140	67	•130 to 140	•104 to 109	•38 to 95	*68 to 81	125	95	115	100	110	99	170	175	-113	- 120	-107	80	- 23.2	- 19.2	•166	•134	-11.0	0.0	76	62	97	81
control l'oltages	- Are	E. Plate	910 9 2	ŝ	v	S	s	1 & 2	1 65 2	s	Ś	s	v		Ś	1	1		~		5	1		9	0	s	s	3	3	Ś	ŝ
terminals. V		- Operating Condition		2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	Signal	2200 Mu.V. Signal	No Signal	2200 Mu.V. Signal	No Signal
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the rect		Tube	Type	6AG5		6AG5		6]6		6BA6		6AG5		6BA6		6AG5	+	6ALS		6ALS		12AU7		12AU7		GT GT		6SN7 GT		GT CT	
the picture			No.	V1 6		V2 6		V3 6		V101 6		V102 6		V103 6		V104 6		V105		V105 B		V106 1		V106 1		V107		V107 6		V108 0	
							*	1		1							19	£	1	1		1	-			1		1			

VOLTAGE CHART

211 T120 T121

R-F UNIT WIRING DIAGRAM



CRITICAL LEAD DRESS:

- 1. The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
- Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
- 3. If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
- 4. Picture if coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix if transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the if alignment should be rechecked.
- 5. Leads to L102 and L103 must be as short as possible.
- 6. Dress peaking coils L105, L106 and L107 up and away from the chassis.
- 7. Dress Cl83 across tube pins 5 and 6 with leads not exceeding % inch.
- 8. Dress C129 and C130 up and away from the chassis.
- 9. Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.
- 10. Dress the green lead from pin 2 of V106 away from the chassis.
- 11. Dress R168, R169, R170, R176 and R178 up and away from the chassis.
- 12. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.

- Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
- 14. Dress leads from L115 (width control coil) away from the transformer frame.
- 15. Dress T110 winding leads as shown in Figure 77.

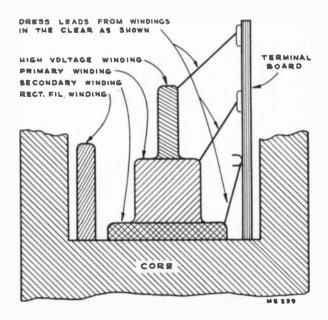


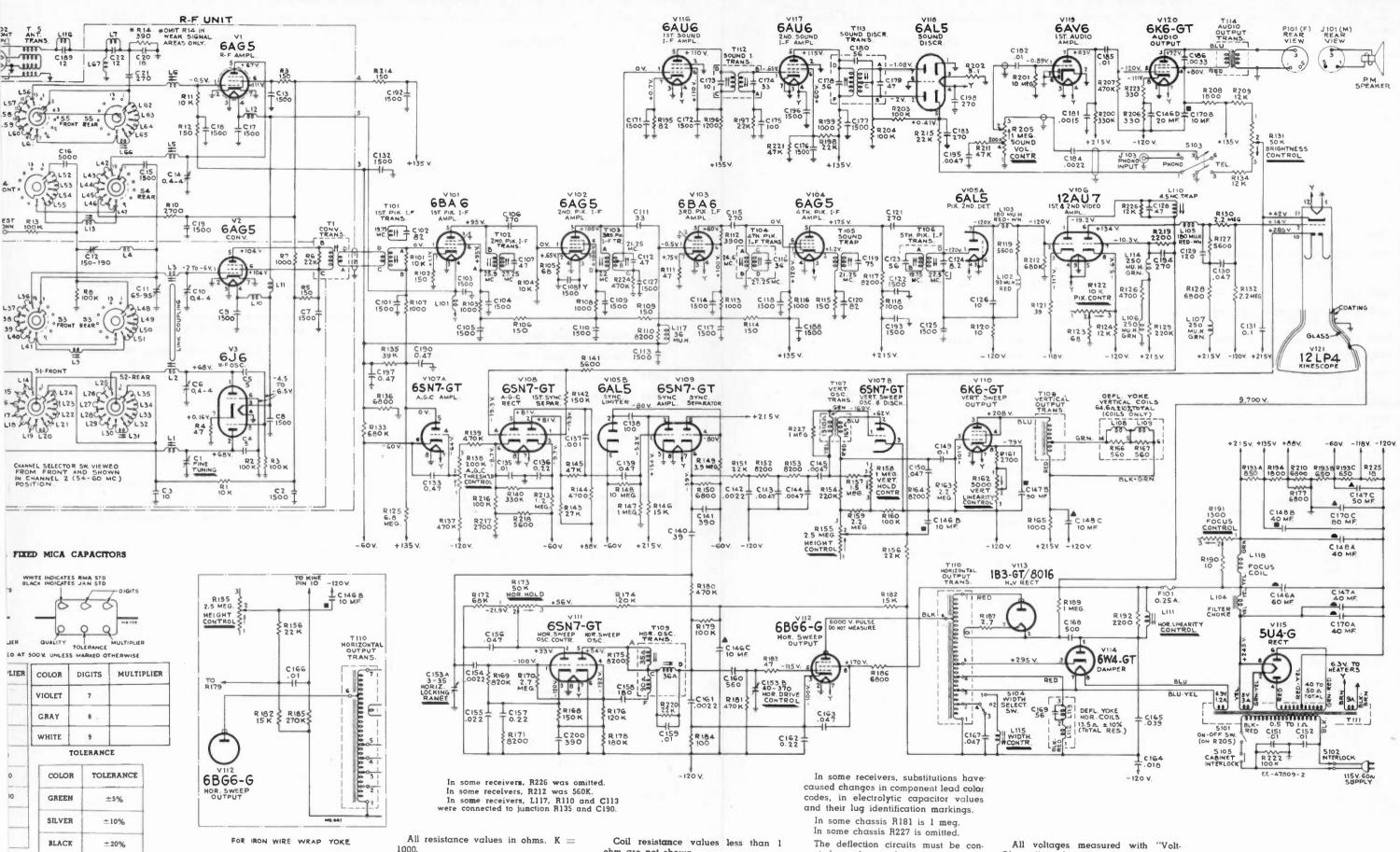
Figure 77-T110 Lead Dress

T120, T121

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N NC

CIRCUIT SCHEMATIC DIAGRAM



All capacitance values less than 1 in MF and above 1 in MMF unless other-

ohm are not shown. Direction of arrows at controls indi-

cates clockwise rotation.

nected as shown above for powdered iron core yokes. See partial schematic insert for iron wire wrap yokes.

Ohmyst" and with no signal input. Voltages should hold within $\pm 20\%$ with 117 v. a-c supply.

wise noted.

215-216 T120, T121

Figure 79-Circuit Schematic Diagram

T120, T121

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REPLACEMENT PARTS

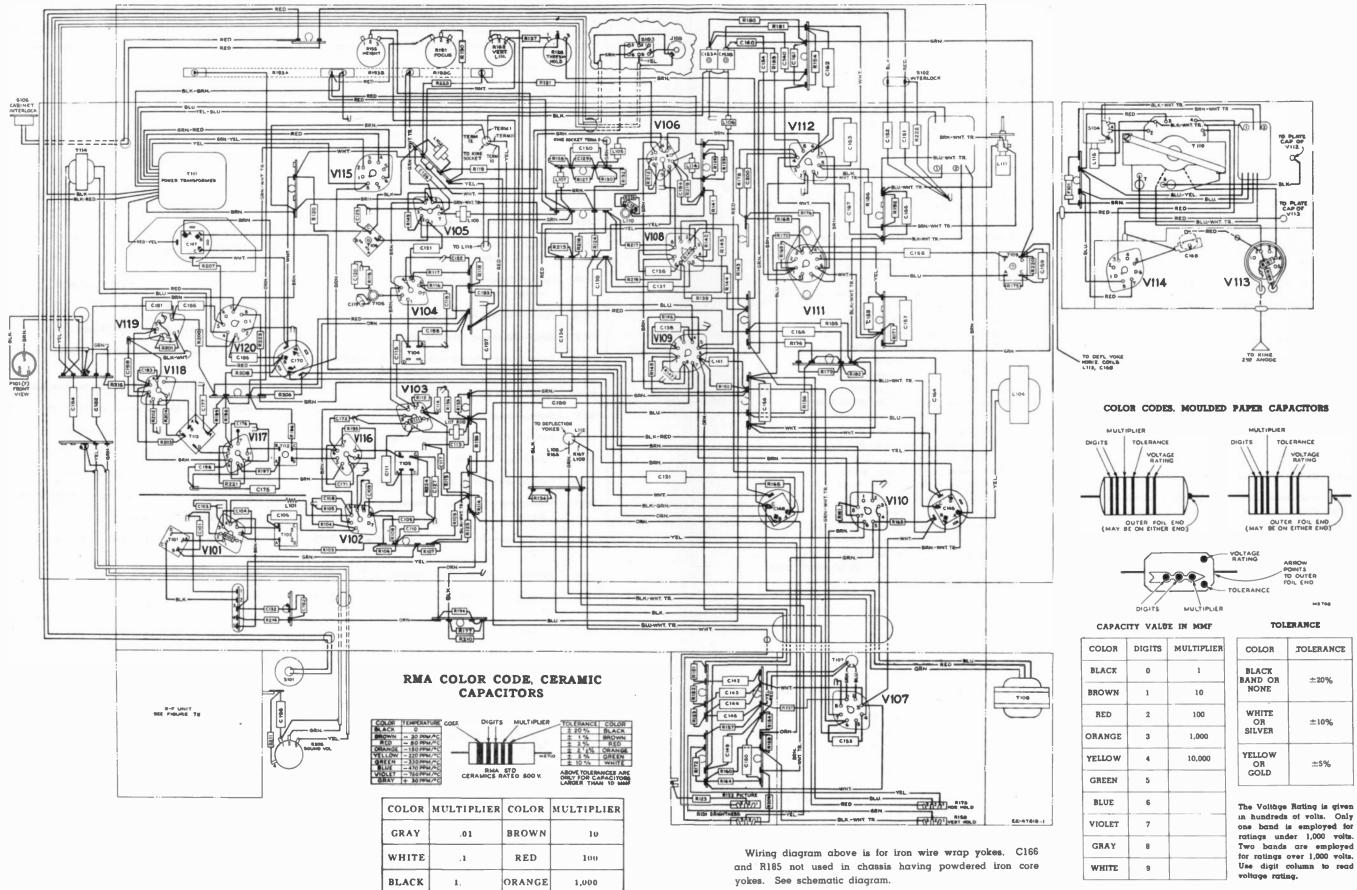
	R-F UNIT ASSEMBLIES		390 ohms, ±10%, ½ watt (R14) 1000 ohms, ±20%, ½ watt (R7)
73465	Belt-Drive belt		2700 ohms. ±10%, ½ watt (R10)
75069	Board-R-F unit power connection terminal board		10.000 ohms. ±20%. ½ watt (R1, R11)
75067	Bracket-Vertical bracket for holding r-f oscillator	14343	100.000 ohms. ±20%. ½ watt (R2, R3, R8, R13)
	tube shield	30340	Retainer—Channel selector shaft retaining ring Retainer—Retainer ring for fine tuning stud
73478	Cable—I-F transmission cable (W1)	70881	Screw—#4-40 x ¼" binder head screw for
73441	Cam—Fine tuning adjustment		justing coils L14, L15, L16, L17, L18, L19
74035	Capacitor—Ceramic, 5 mmf. (C4, C5)	73640	Screw—#4-40 x ³ / ₆ " adjusting screw for L66
53511	Capacitor-Ceramic, 10 mmf. (C3)	71475	Screw—#4-40 x 15/32" adjusting screw for co L21, L22, L23, L24
54207	Capacitor—Ceramic, 18 mmi. (C20)	74575	Screw—#4-40 x 17/32" adjusting screw for L6
73449	Capacitor—Ceramic trimmer comprising 1 section of 150-190 mmf. and 1 section of 55-95 mmf. (C11, C12)	73437	Shaft—Channel selector shaft complete with pa and stud
73091	Capacitor—Ceramic, 270 mmi. (C21)	73438	Shaft—Fine tuning control shaft and pulley
71501	Capacitor—Ceramic, 1500 mmf. (C2, C7, C8, C9,	73439	Shaft—Actuating shaft for fine tuning control
	C13. C15. C17. C18. C19)	72951	Shield—Metal tube shield for V3
73473	CapacitorCeramic, 500 mmf. (C18)	73454	Shield—Metal shield for drive belt
73480	Coil—R-F plate coil for channel 8 (L13)	73632	Shield—Metal tube shield for V1
73461	Coil—Rear section—Oscillator plate coil for chan- nel 8 (L20)	75443	Shield-"U" shape shield for bottom of r-f unit
73462	Coil—Coupling inductance coil (L4)	71494	Socket—Tube socket, moulded, 7 prong, sad mounted
73475	Coil—Antenna filter shunt coil (C67)	73450	Socket—Tube socket, ceramic, 7 prong, bott
73476	Coil—I-F trap (L7, C22)	74570	mounted
73477	Coil-Choke coil (L10. L11. L12)	74576	Spacer—Insulating spacer for front plate (4 req
73874	Coil—Front section—Oscillator plate coil for chan- nel 6 (L31)	73457 74188	Spring—Return spring for fine tuning control co Spring—Retaining spring for adjustable core R
74108	Coil—Fine tuning coil (1½ turns) with adjustable inductance core and capacitor stud (plunger ad- justment) (L1, C1)	75068	74187 Spring—Retaining spring for r-f oscillator tu shield
74109	Coil—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw ad- justment for oscillator section or converter sec-	73468	Stator—Front oscillator section stator complete w rotor, segment, coils and adjusting screws (L14, L15, L16, L17, L18, L19, L21, L22, L23, L2
74110	tion) (L2, L3, C6, C10) Coil—Trimmer coil (3 turns) with adjustable in- ductance core and capacitor stud (screw adjust-	73469	Stator—Rear oscillator section stator complete w rotor, segment and coils (S2, L25, L26, L27, L L29, L30, L32, L33, L34, L35)
	ment) for r-f amplifier section (L5, C14)	73633	Stator—Antenna stator complete with rotor a
73455	Core—Sliding core for fine tuning control trimmer		coils (S5. L6. L56. L57. L58. L59. L60. L61. L L63. L64. L65. L66. C21)
74187	Core-Adjustable core for coll L9	73470	Stator—Converter stator complete with rotor of
71493	Connector—Oscillator segment connector		colls (S3, L9, L36, L37, L38, L39, L40, L41, L L49, L50, L51)
73440	Detent-R-F unit detent mechanism and fibre shaft	73471	Stator—R-F amplifier stator complete with ra
71487	Form—Coil form for coil L31	/ / / / /	and coils (S4, L13, L42, L43, L44, L45, L46, L
73453	Form—Coil form assembly for L9, L13		L52, L53, L54, L55, C15, C16, R10)
73442 71462	Link—Link assembly for fine tuning Loop—Oscillator to converter trimmer loop con-	75446	Stud—Capacitor stud. brass, No. 4-40 x ¹³ / ₁₆ " w ³ / ₁₄ " 'screwdriver slot for trimmer colls 74109 o 74110, uncoded or coded "ER"
73834	nector NutSpeed nut for drive belt shield	75447	Stud—Capacitor stud, brass, No. 4-40 x ¹³ /16" w
73436	Plate—Front plate and bushing		3/14" screwdriver slot for trimmer coils 74109 (74110, coded numerically or "Hi Q"
73484	Pulley-Idler pulley	73448	Transformer-Converter transformer (T1, R6)
	Resistor—Fixed. Composition:—	73466	Washer—Insulating washer for front shield (1 s
	47 ohms. ±20%. ½ watt (R4)	2917	Washer-"C" washer for channel selector sh
	150 ohms. ±20%. ½ watt (R5, R9, R12)		or fine tuning shaft and cam

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T120, T121

REPLACEMENT PARTS (Continued)

STOCE No.	DESCRIPTION	STOCE No.	DESCRIPTION
	CHASSIS ASSEMBLIES	73920	Capacitor—Tubular, moulded paper, oil impreg- nated, .0047 mid, 600 volts (Cl43, Cl44, Cl45,
	ECS 34C		C195)
74593	Capacitor—Mica trimmer comprising 1 section of 3-35 mmf. and 1 section of 40-370 mmf. (C153A. C153B)	73561	Capacitor—Tubular, paper, oil impregnated01 mid. 400 volts (C135, C186, C182)
74153	Capacitor—Hi-voltage, 500 mmf., 15,000 volts (C188)	73594	Capacitor—Tubular, moulded paper, oil impreg- nated, .Q1 mfd, 600 volts (C159)
39604	Capacitor—Mica, 10 mmf. (C126)	73565	Capacitor—Tubular, paper, oil impregnated, .01 mfd, 1000 volts (C151, C152, C185)
74105	Capacitor—Mica, 33 mmf. (C111)	74727	Capacitor—Tubular, moulded paper, oil impreg-
74728	Capacitor-Mica, 39 mmf. (C140)		ngted018 mfd. 1000 volts (C184)
64062	Capacitor—Ceramic, 82 mmi. (C120)	73582	Capacitor—Tubular, paper, oil impregnated, .022 mfd, 400 volts (C155)
39396	Capacitor-Ceramic, 100 mmf. (C175)	74728	Capacitor—Tubular, moulded paper, oil impreg-
75060	Capacitor—Mica, 100 mmf. (C138)		nated, .039 mid. 1000 volts (C165)
73921	Capacitor-Ceramic, 120 mmf. (C129)	73553	Capacitor-Tubular, paper, oil impregnated, .047
73102	Capacitor-Mica, 180 mmf. (C158)	Paras	mfd, 400 volts (C130, C139, C167)
73922	Capacitor—Ceramic, 270 mmf. (C183, C194, C198)	73592	Capacitor—Tubular, moulded paper, oil impreg- nated047 mfd. 600 volts (C150, C156)
73091	Capacitor-Mica, 270 mmf. (C106, C115, C121)	73597	Capacitor—Tubular, paper, oil impregnated, .047
68542	Capacitor—Mica, 390 mmf. (C141, C200)		mfd. 1000 volts (C163)
74250	Capacitor—Mica, 580 mmf. (C160)	73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd, 400 volts (C149)
71501	Capacitor—Ceramic, 1500. mmf. (C101, C103, C104, C105, C108, C109, C110, C113, C114, C117, C118, C122, C125, C127, C132, C171, C172, C176, C177, C188, C192, C193, C196)	73557	Capacitor—Tubular, paper, oil impregnated. 0.1 mid. 600 volts (C131)
71432	Capacitor-Electrolytic, comprising 2 sections of 40	73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd. 400 volts (C136, C157, C162)
	mfd, 450 volts and 1 section of 10 mfd, 450 volts (C148A, C148B, C148C)	73787	Capacitor—Tubular, paper, oil impregnated, 0.47 mfd. 200 volts (C133, C190, C197)
73582	Capacitor-Electrolytic, comprising 1 section of 40	73154	Choke—Filter choke (L104)
	mfd. 450 volts. 1 section of 10 mfd. 450 volts and 1 section of 80 mfd. 200 volts (C170A. C170B.	74585	Coil—Focus coil (L118)
	C170C)	71429	Coil-Width control coil (L115)
73583	Capacitor-Electrolytic, comprising 1 section of 40, mfd, 450 volts, 1 section of 90 mfd, 150 volts and	71449	Coil—Horizontal linearity control coil (L111)
	l section of 50 mfd, 150 volts (C147A, C147B,	74170	Coil—Peaking coil (38 muh) (L117, R110)
	C147C)	71527	Coil—Peaking coil (93 muh) (L102)
73581	Capacitor—Electrolytic. comprising 1 section of 80 mfd. 450 volts. 2 sections of 10 mfd. 450 volts	74214	Coil-Peaking coil (180 muh) (L103, L105)
	and 1 section of 20 mfd. 150 volts (C146A, C146B, C148C; C148D)	71526	Coil—Peaking coil (250 muh) (L106, L107, L114)
73801	Capacitor—Tubular, paper, oil impregnated, .001	73477	Coil-Filament choke coil (L101)
	mid. 800 volts (C137)	74594	Connector—2 contact male connector for power cable
73802	Capacitor—Tubular, paper, oil impregnated, .0015 mfd, 800 volts (C181)	5119	Connector—3 contact female connector for speaker cable
73595	Capacitor—Tubular, moulded paper, oil impreg- nated, .0022 mid, 800 volts (C142, C154, C181, C184)	71789	Connector—Anode connector
73795	Capacitor-Tubular, paper, oil impregnated, .0033	71521	Connector-HI-voltage capacitor connector
	mfd. 600 volts (C186)	35787	Connector-Phono input connector (J103)



For digits, use digit column, page 22.

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Figure 78—Chassis Wiring Diagram

TB PP 300 J

P302 A (PRONG VIEW)

1 72 A

P302 B (PRONG VIEW)

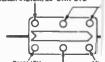
R	DIGITS	MULTIPLIER				
ĸ	0	1				
'N	1	10				
	2	100				
GE	3	1,000				
w	4	10,000				
N	5					
E	6					
ET	7					
Y	8					
E	9					

COLOR	JOLERANCE
BLACK BAND OR NONE	±20%
WHITE OR SILVER	±10%
YELLOW OR GOLD	±\$%

Two bands are employed

RMA COLOR CO

WHITE INDICATES RMA STD BLACK INDICATES JAN STD



QUALITY TOLERANCE RMA FIXED MICA CAPACITORS



REPLACEMENT PARTS (Continued)

STOCK

No.

219 T120, T121

DESCRIPTION

3900 ohms. ±5%, ½ watt (R112)

4700 ohms, ±5%, ½ watt (R126)

4700 ohms, ±10%, ½ watt (R144)

5600 ohms, ±5%, ½ watt (R119) 5600 ohms, ±10%, ½ watt (R141, R218)

5600 ohms, ±10%, 1 watt (R127)

6800 ohms. ±5%, ½ watt (R136)

6800 ohms. ±10%, ½ watt (R150) 6800 ohms, ±5%, 1 watt (R128)

6800 ohms. ±10%, 2 watts (R177, R186, R210)

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T120, T121

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION
71456	Screw—#8-32 wing screw for deflection yoke
73584	Shield-Tube shield
74937	Sleeve-Rubber sleeve for focus coil
73117	Socket—Tube socket. 7 pin. miniature
72927	Socket—Tube socket. 9 pin. miniature
31251	SocketTube socket. octal. wafer
73249	Socket—Tube socket, octal ceramic, plate mounted
71508	Socket-Tube socket for 8016
74834	Socket-Kinescope socket
73586	Spring—Compression spring used under centering control screws (3 req'd)
74936	Spring—Suspension spring (coil type) for kinescope socket leads
74595	Spring—Anode lead spring
74810	Strap—Kinescope retaining strap
74596	Support—Bakelite supports (1 set) for mounting hi- voltage rectifier tube mounting plate
46760	Switch—"TV-Phono" switch (S103)
74157	Switch-Interlock switch
74147	Switch-Width selector switch (S104)
73569	Transformer-Vertical oscillator transformer (T107)
71419	Transformer—Sound output transformer (T114)
74589	Transformer—First pix, i-i transformer (T101, C102, R101)
74590	Transformer—Second pix, i-f transformer (T102, C107)
74591	Transformer-Third pix, i-f transformer (T103, C112)
74592	Transformer—Fourth pix, i-i transformer (T104, C116)
73575	Transformer—Flith pix. i-i transformer (T106. C123. C124)
71424	Transformer—Sound i-f transformer (T112, C173, C174)
71427	Transformer Sound discriminator transformer (T113, C178, C179, C180)
73576	Transformer — Horizontal oscillator transformer (T109)
73578	Transformer—Antenna transformer complete with socket (T115, J102)
74586	Transformer—Power transformer 115 volts 60 cycle (T111)
74587	Transformer—Vertical output transformer (T108)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

		0000 0mms, 10/6, 2 worts (R1/7, R100, R210)
		8200 ohms, ±5%, ½ watt (R164, R175)
		8200 ohms, ±10%, ½ watt (R152, R153, R171)
		8200 ohms, ±5%, 1 watt (R117)
		10.000 ohms, ±5%, ½ watt (R104)
		12.000 ohms. ±10%, ½ watt (R134, R209, R226)
432,		12.000 ohms. ±10%. 2 watts (R124)
		15.000 ohms. ±10%. ½ watt (R182)
ting		15.000 ohms, ±10%, 1 watt (R146)
-		22.000 ohms. ±10%, ½ watt (R151, R156, R197.
boo		R220)
		22.000 ohms, ±20%, ½ watt (R215)
		27.000 ohms. ±10%. ½ watt (R143)
		39.000 ohms. ±5%, ½ watt (R135)
ntal		47.000 ohms, ±10%, ½ watt (R145, R211)
		47.000 ohms. ±20%, ½ watt (R221)
		68.000 ohms. ±10%, ½ watt (R172)
mic		100.000 ohms, ±5%, ½ watt (R203, R204)
		100.000 ohms, ±10%. ½ watt (R160, R216)
		100.000 ohms. ±10%, 1 watt (R179)
		100.000 ohms, ±20%, 1 watt (R222)
		120.000 ohms, ±5%, 1 watt (R176)
		120.000 ohms, ±10%, 1 watt (R174)
		150.000 ohms. ±10%, ½ watt (R168)
of		150,000 ohms, ±20%, ½ watt (R142)
atts		180,000 ohms, ±5%, 1 watt (R178)
		220.000 ohms, ±10%, ½ watt (R129, R154)
		270.000 ohms, ±10%, ½ watt (R185)
)		330.000 ohms, ±10%, ½ watt (R140, R200)
		470,000 obms, ±10%, ½ watt (R137, R139, R180,
2)		R181, R224)
		470.000 ohms, ±20%, ½ watt (R207)
,		680.000 ohms, ±10%, ½ watt (R133, R212)
		820.000 ohms. ±5%. ½ watt (R169)
		1 megohm, ±10%, ½ watt (R147)
		1 megohm, ±20%, 1 watt (R189, R227)
		1.2 megohm. ±5%, ½ watt (R213)
		1.5 megohm, ±5%, ½ watt (R157)
		2.2 megohm, ±10%, ½ watt (R130, R132, R159,
		R163)
		2.7 megohm, ±5%, 1 watt (R170)
		3.9 megohm, ±10%, ½ watt (R149)
		6.8 megohm, ±10%, ½ watt (R125)
		10 megohm. ±10%, ½ watt (R148)
		10 megohm. ±20%, ½ watt (R201)
214)		sa maâquun - wa wa va ve ward ferwast
	74416	Screw#10-32 x 134" cross recessed round head
108,		screw for kinescope retaining strap
	74601	Screw—#8-32 x 36" cross recessed binder head
		screw for focus coil mounting (2 req'd)
	74602	Screw-#10-32 x 1%" cross recessed round head

screw for focus coil adjustment (3 req'd)

Control-Sound volume control and power switch 38408 (R205, S101) Control-Vertical linearity control (R162) 71441 71440 Control-Height control (R155) Control-Focus control (R191) 74597 Control-AGC threshold control (R138) 74475 71457 Cord—Power cord and plug 71437 Cover-Insulating cover for electrolytics #714 73581 and 73582 74811 Cushion-Rubber cushion for kinescope mount 73590 Cushion-Rubber cushion for deflection yoke ho (2 req'd) 73600 Fuse-0.25 amp., 250 volts (F101) 71799 Grommet-Rubber grommet for yoke horizon lead exit 37396 Grommet-Rubber grommet for mounting cerar tube socket (2 req'd) 74823 Magnet-lon trap magnet (PM type) 73587 Nut-Speed nut to mount hi-voltage capacitor Plate—Bakelite mounting plate for electrolytics 18469 73588 Resistor-Voltage divider comprising 1 section 850 ohms, and 2 sections of 650 ohms, 6 wa (R193A, R193B, R193C) 74598 Resistor-Wire wound, 2.7 ohms, 1/3 watt (R187) 72067 Resistor-Wire wound, 5.1 ohms, 1/2 watt (R202 18471 Resistor-Wire wound, 10 ohms, ½ watt (R190) Resistor-Fixed, composition:---10 ohms. ±20%. ½ watt (R120) 18 ohms, ±10%, 1/2 watt (R225) 39 ohms. ±10%, ½ watt (R121) 47 ohms. ±5%, ½ watt (R111) 47 ohms. ±20%. ½ watt (R183) 68 ohms. ±10%. ½ watt (R105) 68 ohms, ±20%, ½ watt (R123) 82 ohms. ±10%. ½ watt (R195) 100 ohms, ±10%, 2 watts (R184) 150 ohms. ±5%, ½ watt (R102) 150 ohms, ±10%, ½ watt (R115) 150 ohms, ±20%, ½ watt (R106, R109, R114, R2 330 ohms. ±10%, ½ watt (R206, R223) 1000 ohms. ±20%, ½ watt (R103, R107, R1 R113, R116, R118, R165, R199) 1200 ohms, ±10%, ½ watt (R196) 1800 ohms. ±10%. 2 watts (R194, R208) 2200 ohms. ±10%. ½ watt (R219) 2200 ohms. ±10%, 1 watt (R192) 2700 ohms. ±10%. ½ watt (R161, R217)

DESCRIPTION

Control-Horizontal and vertical hold control (R158,

Control—Brightness and picture control (R122, R131)

STOCK

No.

72784

74047

R173)

	STOCK • No.	DESCRIPTION					
	74588	Transformer—Horizontal output and hi-voltage transformer (T110)					
	73577	Trap-4.5 mc trap (L110, C128)					
	71778	Trap-Sound trap (T105. C119)					
,	73476	Trap—I-F trap (L116. C189)					
	71420	Yoke—Deflection yoke (L108, L109, L112, L113, C169, R166, R167)					
		SPEAKER ASSEMBLIES					
		92573-4					
	73993	Speaker—5" x 7" PM speaker complete with cone and voice coil					
		MISCELLANEOUS					
	74886	Back—Cabinet back					
	75039	Board"Ant" terminal board					
	39153	Connector—4 contact male connector for antenna cable					
	74891	Cushion-Vinylite cushion for safety glass					
	74627	Decal-Control panel function decai					
	74809	Emblem-"RCA Victor" emblem					
	73642	Escutcheon-Channel marker escutcheon					
	74889	Foot—Cabinet foot (felt) (4 req'd)					
	74890	Gasket—Cork gasket for safety glass and cabinet					
	74888	Glass—Safety glass					
	74000	Knob—Horizontal hold control or picture control knob (inner)					
	73994	Knob—Fine tuning knob (outer)					
	74885	Knob-Channel selector knob (inner)					
	73998	Knob—Vertical hold control or brightness control knob (outer)					
	74002	Knob—Sound volume control and power switch knob					
	74633	Nut-Speed nut for safety glass retainers					
	74162	Plate—Mounting plate for interlock switch					
	74887	Retainers—Safety glass retainers (1 set)					
	30330	Spring-Retaining spring for knob #74000					
	72845	Spring—Retaining spring for knob #73994					
	14270	Spring—Retaining spring for knobs #73998. 74002 and 74885					
	73643	Spring—Spring clip for channel marker escutcheon					
1							





Model TC124 Walnut. Mahogany or Oak



Chassis Nos. KCS 34B Mfr. No. 274

SERVICE DATA - 1950 No. T6 -

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION

cept for cabinets. The kinescopes are shipped in place in the cabinet. These receivers employ twenty-one tubes plus two

Features of the television unit are full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc. band width for

CAMDEN, N. J., U. S. A.



rectifiers and a 12LP4 kinescope.

external record playing attachment.



Model TC125 Walnut, Mahogany or Oak

TELEVISION R-F FREQUENCY RANGE

Model TC127 Walnut, Mahogany or Oak

picture channel and reduced hazard high voltage supply. An auxiliary audio input jack is provided to permit the use of an

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Width Height Depth DIMENSIONS (inches) 22% 331/4 Cabinet (outside) TC124 All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc. Cabinet (outside) TC125 251/4 361/4 Fine Tuning Range.. \pm 250 kc. on chan. 2, \pm 650 kc. on chan. 13 253/8 361/2 Cabinet (outside) TC127 191/2 14 Chassis Assembly (overall) WEIGHT Chassis TC124 103 lbs. FOCUS POWER SUPPLY RATING115 volts, 60 cycles, 230 watts Shipping Weight LOUDSPEAKERS-92569-712" PM Dynamic, 3.2 ohms

The chassis used in Models TC124, TC125 and TC127 are identical to the chassis used in Models T120 and T121 except for the addition of a jewel lamp. The service data for Models T120 and T121 will apply to Models TC124, TC125 and TC127 except as noted above, the speaker and miscellaneous parts as listed on the following page.

201/2

21 1/4

22 ⁵/e

20

TC124, TC125, TC127

REPLACEMENT PARTS

STOCK No.	DESCRIPTION	STOCK No.	
	SPEAKER ASSEMBLIES	74959	Knob-Fine to
	92569-7W RL111-9 RMA-274		mahogany and TC127
	or 92569-7B	73995	Knob—Fine t oak instrum
13867	or 92569-7K RMA-252 Cap—Dust cap	75027	Knob—Fine tu (outer) for Model TC12
74901	Cone-Cone and voice coil assembly for 92569-7W	74960	Knob-Channe
75875	The second secon		mahogany
75642	Cone—Cone and voice coil assembly for 92569-7K	74961	TC125 and Knob—Channe
5118	Plug-3-prong male plug for speaker		instruments
73635	Speaker—12" PM speaker complete with cone and voice coil less plug NOTE: If stamping on speaker in instrument does	75028	Knob—Channe (inner) for a
	not agree with above speaker number, order re- placement parts by referring to model number of instruments, number stamped on speaker and full	74962	Model TC12 Knob—Brightn knob—dark- struments—
	description of part required.	73999	Knob—Brightn knob—tan—
	MISCELLANEOUS	75029	Knob-Brightn
74982	Back—Cabinet back for Model TC124	,	knob-choco
74968	Back—Cabinet back for Model TC125 and Model	74969	walnut instr
72857	Board—"Ant" terminal board	74969	Knob-Volume dark-for m
71599	Bracket—Pilot lamp bracket		Models TCl
13103	Cap—Pilot lamp cap	74003	Knob-Volume tan-for oak
71892 X3092	Catch—Bullet catch and strike for doors (2 required) for Model TC127	75030	Knob—Volume cbocolate b
¥2037	Cloth—Grille cloth for mahogany or wálnut instru- ments for Model TC124		struments fo
X3093	Cloth—Grille cloth for oak instruments for Model TC124	74963	Knob—Picture —dark—(inr ments—Mod
X3094	Cloth—Grille cloth for mahogany or walnut instru- ments for Model TC125	74001	Knob-Picture
X3089-	-Cloth-Grille cloth for oak instruments for Model TC125	75031	Knob-Picture
X3074	Cloth—Grille cloth for mahogany or walnut instru- ments for Model TC127		knob—choco walnut instr
X3075	Cloth—Grille cloth for oak instruments for Model TC127		Lamp—Pilot la
39153	Connector—4-contact inale connector for antenna cable	74730	Nail—Decorati quired) for N
74891	Cushion—Vinylite cushion for metal kinescope mask	74162	Plate-Mountir
74731	Decal—Control panel function decal for mahogany or walnut instruments	74971	Plate—Back p Model TC127
74732	Decal—Control panel function decal for oak instru- ments	74970	Pull—Cabinet
71768	Decal—Trade mark decal for Model TC127	74113	Screw—#8-32 for Model TC
74809	Emblem-"RCA Victor" emblem	72845	Spring—Retain
73642	Escutcheon—Channel marker escutcheon for ma- hogany or walnut instruments		and 75027
73740	Escutcheon-Channel marker escutcheon for oak instruments	14270	Spring—Retain 74960, 7496 75030
74755	Glass—Safety glass for Models TC124 and TC127	30330	Spring—Retain
74989	Glass-Safety glass for Model TC125		and 75031
37396	Grommet—Rubber grommet for speaker mounting (4 required)	73643	Spring—Spring
74308	Hinge-Cabinet door hinge (1 set) (2 required) for	72936	Stop-Door sto
	Model TC127	74161	Stud—Locating

tuning control knob-dark-(outer) for or walnut instruments-Models TC125 tuning control knob-tan-(outer) for nents uning control knob—chocolate brown mahogany or walnut instruments-24 nel selector knob-dark-(inner) for and walnut instruments-Models TC127 nel selector knob—tan—(inner) for oak nel selector knob—chocolate brown mahogany or walnut instruments for 24 ness control or vertical hold control k---(outer) for mahogany or walnut in--Models TC125 and TC127 ness control or vertical hold control -(outer) for oak instruments ness control or vertical hold control colate brown—(outer) for mahogany or truments for Model TC124 e control and power switch knobmahogany or walnut instruments for 125 and TC127 e control and power switch knobk instruments e control and power switch knobbrown—for mahogany or walnut inor Model TC124 e control or horizontal hold control knob iner) for mahogany or walnut instrudels TC125 and TC127 e control or horizontal hold control -(inner) for oak instruments e control or horizontal hold control colate brown-(inner) for mahogany or ruments for Model TC124

DESCRIPTION

- amp-Mazda 51
- tive head nail for grille bars (4 re-Model TC127
- ing plate for interlock switch
- plate for door pulls (2 required) for
- door pull (2 required) for Model TC127
- 2 x 1" trimit head screw for door pulls C127
- ning spring for knobs #73995, 74959
- ning spring for knobs #73999, 74003, 61, 74962, 74969, 75028, 75029 and
- ning spring for knobs #74001, 74963
- g clip for channel marker escutcheon
- op for Model TC127
- a stud for back covers

REFER TO MODELS T120 AND T121 FOR CHASSIS PARTS LISTING.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS





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TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION MODEL TA128

Chassis Nos. KCS42A, RK135D Mfr. No. 274

SERVICE DATA

- 1950 No. T7 -

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model TA128 television, AM-FM radio, phonograph combination employs twenty-six tubes plus two rectifiers and a 12LP4 kinescope. The radio tuner unit which feeds through the television audio system covers the AM and the FM broadcast bands. Two record changers are provided to play 331/3, 45 and 78 RPM records.

Model TA128 - Walnut, Mahogany or Oak

ELECTRICAL AND MECHANICAL SPECIFICATIONS

RECEIVER ANTENNA INPUT IMPEDANCE. 300 ohms balanced

Features of the television unit are full twelve channel cov-

erage; FM sound system; improved picture brilliance; picture A-G-C: A-F-C horizontal hold; stabilized vertical hold; two

stages of video amplification; noise saturation circuits; im-

proved sync separator and clipper; four mc. band width for pic-

ture channel and reduced hazard high voltage supply.

If necessary, the television chassis may be fed separately from either a 300 ohm balanced line or a 72 ohm co-ax.

RCA TUBE COMPLEMENT

T	ube Used	(Television	Chassis)	Function
(1) RCA	6AG5			R-F Amplifier
(2) RCA	6ÅG5			Converter
(3) RCA	6]6			R·F Oscillator
(4) RCA	6AU6		lst So	und I-F Amplifier
				ound I-F Amplifier
(6) RCA	6AL5		Soi	and Discriminator
(7) RCA	6ÅV6		lst	Audio Amplifier
(8) RCA	6V6GT			Audio Output
(9) RCA	6BA6		lst Pic	ture I-F Amplifier
(10) RCA	6AG5		2nd Pic	ture I-F Amplifier
(11) RCA	6BA6		3rd Pic	ture I-F Amplifier
				ture I-F Amplifier
				or & Sync Limiter
				Video Amplifier
				rtical Sweep Osc.
				st Sync Separator
				d Sync Separator
				al Sweep Output
(19) RCA	6SN7GT	Horizontal S	weep Oscil	lator and Control
(20) RCA	6BG6G		Horizont	al Sweep Output
				Damper
				Voltage Rectifier
				Supply Rectifier
(24) RCA	12LP4	• • • • • • • • • • • •		Kinescope

(Radio Tuner Chassis)

(1) RCA	6J6 Mixer and Oscillat	tor
(2) RCA	6BA6I-F Amplifi	ier
(3) RCA	6AU6F-M Driv	er
	6AL5Ratio Detect	
(5) RCA	6BF6 AM Detector AVC and Phone Pream	ip.

Specifications continued on page 2

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TELEVISION R-F FREQUENCY RANGE

Cabinet (outside).....

Chassis (overall)..... 185/s

PH 519

All 12 television channels,	54	mc	. to 8	8 mc.,	174 mc	. to 216 m
Fine Tuning Range±250	kc	. on	chan	. 2, ±	650 kc.	on chan. l
Picture Carrier Frequency						25.75 ma
Sound Carrier Frequency .						21.25 mc

AADIO IUMMO AANGE
Broadcast
POWER SUPPLY RATING115 volts, 60 cycles, 230 watts
AUDIO POWER OUTPUT RATING
CHASSIS DESIGNATIONS
Television Chassis KCS42A Radio Chassis RK135D 33½/78 RPM Record Changer 960282 45 RPM Record Changer RP168 Refer to Service Data 960282 or RP168 for information on the record changers.
LOUDSPEAKER 92569-8
WEIGHT
Chassis with Tubes in Cabinet
DIMENSIONS (inches) Width Height Depth

361/4

34 1/2

17

All 12 television channels,	54	mc.	to	88 m	nc., 174	mc.	to 216 n
Fine Tuning Range±250	kc.	on	cha	n. 2,	±650	kc. or	n chan.
Picture Carrier Frequency		• • •					.25.75 r
Sound Carrier Frequency							.21.25 n

RADIO TUNING RANGE

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

PICTURE I-F FREQUENCIES	OPERATING CONTROLS (front panel)
Picture Carrier Frequency	Channel Selector
Adjacent Channel Sound Trap	Tone }
Adjacent Channel Picture Carrier Trap19.75 mc.	Picture Horizontal Hold Picture Vertical Hold Vertical Hol
SOUND I-F FREQUENCIES	Picture } Brightness }
Sound Carrier Frequency	
Sound Discriminator Band Width between peaks	Function Switch
	Radio TuningSingle Control Knob
VIDEO RESPONSE	NON-OPERATING CONTROLS
FOCUSMagnetic	Horizontal Centeringrear chassis adjustment Vertical Centeringrear chassis adjustment Widthrear chassis screwdriver adjustment
SWEEP DEFLECTION	Width Selector Switchrear chassis screwdriver adjustment Heightrear chassis adjustment
SCANNINGInterlaced, 525 line	Horizontal Linearityrear chassis screwdriver adjustment Vertical Linearityrear chassis adjustment Horizontal Driverear chassis screwdriver adjustment
HORIZONTAL SCANNING FREQUENCY15,750 cps	Horizontal Oscillator Frequencybottom chassis adjustment Horizontal Oscillator Waveformside chassis adjustment
VERTICAL SCANNING FREQUENCY	Focusrear chassis adjustment Ion Trap Magnettop chassis adjustment Deflection Coiltop chassis wing nut adjustment
FRAME FREQUENCY (Picture Repetition Rate)	Focus Colltop chassis screwdriver adjustment

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED. IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT OPEN THE KINESCOPE SHIPPING CARTON, INSTALL, REMOVE OR HANDLE THE KINE-SCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

The kinescope bulb encloses a high vacuum and, due to its large surface area, is subjected to considerable air pressure. For these reasons, kinescopes must be handled with more care than ordinary receiving tubes.

The large end of the kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. In installation, if the tube sticks or fails to slip smoothly into its socket, or deflecting yoke, investigate and remove the cause of the trouble. Do not force the tube. Refer to the Receiver Installation section for detailed instructions on kinescope installation. All RCA kinescopes are shipped in special cartons and should be left in the cartons until ready for installation in the receiver. Keep the carton for possible future use.

The following adjustments are necessary when turning the receiver on for the first time.

1. Turn the radio FUNCTION switch to Tel.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately mid-position.

3. Set the STATION SELECTOR

to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL- hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear.

9. Adjust the PICTURE control for suitable picture contrast.

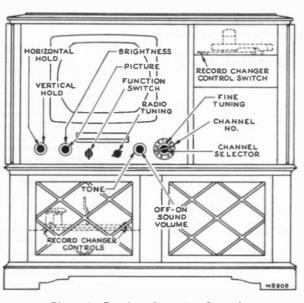


Figure 1—Receiver Operating Controls

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps numbers 4 and 9.

> 12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

> 13. If the positions of the controls have been changed, it may be necessary to repeat steps numbers 1 through 9.

> 14. For radio operation turn the FUNCTION switch to AM or FM and tune in station with the radio TUNING control.

> 15. For phono operation, turn the FUNCTION switch to PH for operation of the 331/3/78 rpm record changer, or to XPH for operation of the 45 rpm record changer.

THE TELEVISION SECTION OF THE CHASSIS USED IN MODEL TA128 IS SIMILAR TO THE CHASSIS OF MODELS T120 AND T121.

REFER TO T120, T121 SERVICE DATA ON PAGES 199 TO 210 INCLUSIVE FOR TELE-VISION ALIGNMENT PROCEDURE, TEST PATTERN PHOTOGRAPHS, RESPONSE CURVES AND WAVEFORM PHOTOGRAPHS.

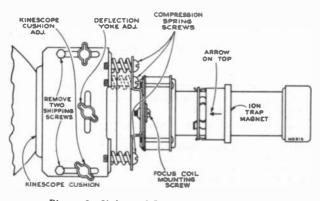


Figure 2—Yoke and Focus Coil Adjustments

INSTALLATION INSTRUCTIONS

Connect the antenna transmission line to the receiver antenna terminals.

Plug the receiver power cord into a 115 volt a-c power source. Turn the receiver power switch to the "on" position, the function switch to "tel," the brightness control three-quarters clockwise, and the picture control counter-clockwise.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

TA128

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DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

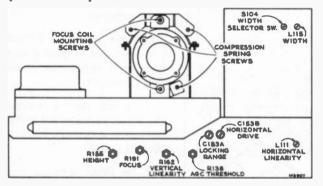


Figure 3—Rear Chassis Adjustments

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustments."

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horisontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counter-clockwise. Turn the picture control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 3 bars are present. Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately ¼ inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. However, it may be necessary to change this distance slightly in order to compensate for small differences in strength of the permanent magnets in the coil. If the receiver focuses with the focus control towards the clockwise end of its range, the focus coil should be moved toward the yoke and if focus is obtained towards the counter-clockwise end of the control, the coil should be moved away from the yoke. In order to prevent the beam from striking the neck of the kinescope, it is important that the axis of the hole through the focus coil should be kept in accurate alignment with the axis of the neck of the kinescope.

CENTERING ADJUSTMENTS.—Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If a corner of the raster is shadowed, check the position of the ion trap magnet. In extreme cases it may be necessary to adjust one or more of the focus coil compression screws to eliminate a corner shadow.

Recheck the position of the ion trap magnet to insure that maximum brilliance is obtained.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage, hence the brightest and best focused picture, turn the horizontal drive control counter-clockwise until the left side of the picture begins to stretch.

Adjust the horizontal linearity control L111 to provide best linearity. Adjust the width control until the picture just fills the mask.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

CHECK TO SEE THAT THE CUSHION AND YOKE THUMB. SCREWS AND THE FOCUS COIL MOUNTING SCREWS ARE TIGHT.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC Threshold Control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear. R138 should be readjusted. Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.

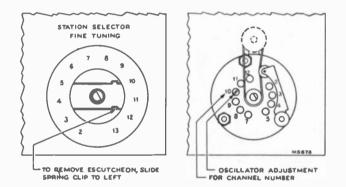


Figure 4—R-F Oscillator Adjustments

RECORD CHANGER OPERATION.—Turn the receiver function switch to each phono position and check each record player for proper operation.

RADIO OPERATION.—Turn the receiver function switch to AM and FM positions and check the radio for proper operation. Tune in a station of known frequency. If the dial pointer does not point to the correct spot on the dial, slip the dial pointer on the dial cord until the proper indication is obtained.

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received. By this action, the r-f gain is increased 50% at the expense of r-f bandwidth and an improvement in the weak signal picture results.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the back and the knobs, unplug all cables and remove the chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet. The kinescope is held on the chassis by means of a special strap, so that the chassis, and the kinescope can be handled together, as a unit. KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope, remove the kinescope socket, the ion-trap magnet, and the second-anode connector. Loosen the cross-recessed head screw on the kinescope strap, as shown in Figure 6. Withdraw the kinescope toward the front of the chassis.

INSTALLATION OF KINESCOPE.—Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

Tighten the cross-recessed head screw on the kinescope strap.

As may be seen by inspection, the radio dial lights and dial pointer are attached to the cabinet front panel. The dial cord is attached to the receiver chassis. The method of attachment may be seen in Figure 5.

Slide the dial pointer to the stop on the high frequency end of the dial. Turn the radio tuning shaft until the gang is completely unmeshed.

Slide the chassis into the cabinet until there is sufficient slack in the pilot light cable, then attach the pilot light sockets to the pilot light bracket.

Insert the chassis to its proper position, then install the six chassis bolts and tighten. Loosen the kinescope strap from the rear of the chassis. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flare, then tighten the cushion adjusting screws. Push the yoke forward and tighten. Tighten the kinescope strap. Replace the control knobs.

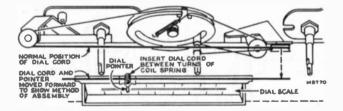


Figure 5-Dial Cord and Pointer Assembly

To hook up the dial pointer, reach over the television chassis to the radio and press the dial cord well into the coil spring.

Turn the set on and to radio position to see that the dial lighting is correct. If it is not, adjust the dial lights and shields. Tune in a station of known calibration and check the dial calibration.

Perform the entire television set-up procedure beginning with Ion Trap Magnet Adjustment.

CABINET ANTENNA.—A cabinet antenna is provided which may be employed in strong signal areas in which no reflections are experienced. The antenna leads are brought out near the receiver antenna terminals.

The link on the antenna terminal board on the back of the cabinet is for use in case it is desirable to connect a separate "A" band antenna.



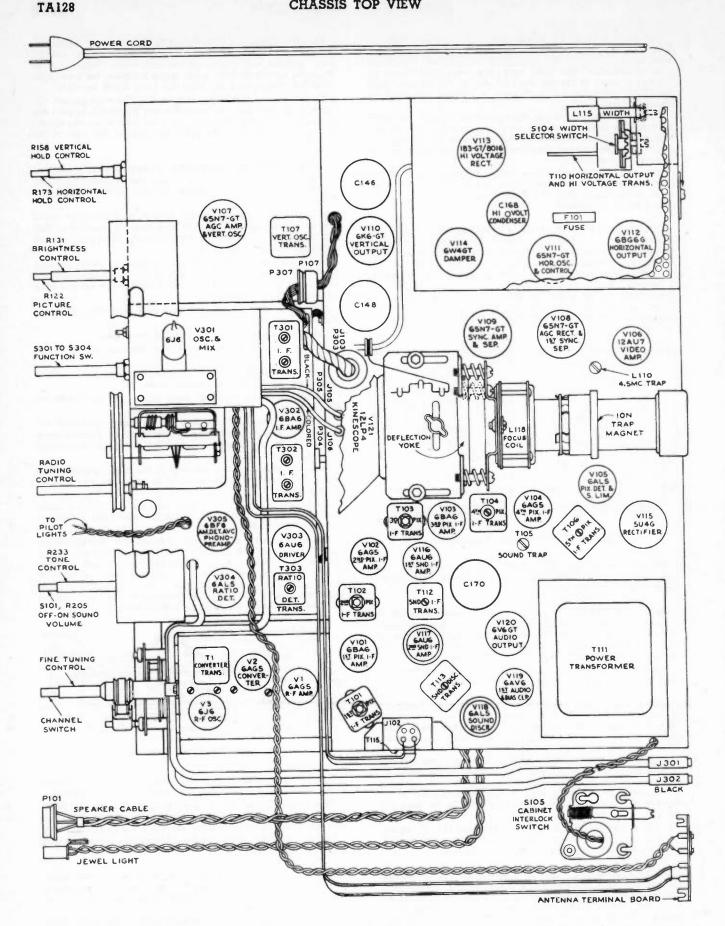


Figure 6-Chassis Top View

CHASSIS BOTTOM VIEW

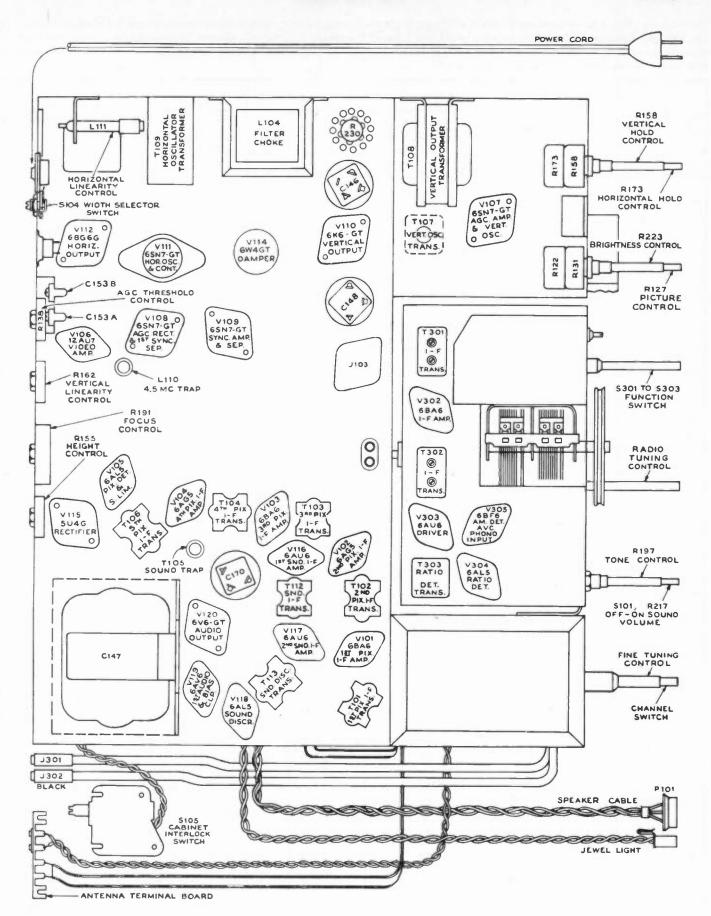


Figure 7-Chassis Bottom View

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VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition a 2200 microvolt test pattern signal was fed into the receiver, the picture was synced and the AGC threshold control was properly adjusted. The second condition was obtained by removing the antenna leads and shortcircuiting the receiver antenna terminals. Voltages shown are as read with "Jr. VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles a-c.

				E.	. Plate	E.	Screen	E. (Cathode	E . (Grid	I	I	Notes on
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Measurements
V1	6AG5	R-F Amplifier	2200 Mu. V. Signal	5	140	6	142	2 & 7	0	1	-2.4	5	2	
			No Signal	5	67	6	111	2 & 7	0	1	4	14.0	5.0	
			2200 Mu. V.	_	•130		•130				*3.0	*7.1	*2.3	
V2	6ÅG5	Converter	Signal No	5	to 140 *104	6	to 140	2 & 7	0	1	to -7.0	to 7.7 *5.3	to 2.7	*Depending upon channel
			Signal	5	to 109	6	to 109	2 & 7	0	1	to -6.0	to 5.9	to 1.0	
V3	6]6	R-F Oscillator	2200 Mu. V. Signal	1 & 2	*88 to 95		_	7	.19	5 & 6	*-5.1 to -7.3	*1.9 to 2.7	_	*Depending
			No Signal	1 & 2	*68 to 81			7	.16	5 & 6	*-4.5 to -6.6	*1.8 to 2.1	_	upon channel
V101	6BA6	lst Pix. I-F Amplifier	2200 Mu. V. Signal	5	125	6	125	7	.4	1	-12.5	2.8	1.3	
			No Signal	5	95	6	95	7	1.1	1	+.3	7.5	3.5	
V102	6AG5	2nd Pix. I-F Amplifier	2200 Mu. V. Signal	5	115	6	115	2 & 7	.75	1	0	8.2		
V102	07.00	Ampuner	No Signal	5	100	6	100	267	.65				2.5	
Mino	CREC	3d Pix. I-F	2200 Mu. V.	5	110					1	0	6.8	2.1	
V103	6BĀ6	Amplifier	SignalNo			6	135	7	.25	1	2.4	4.0	3.8	
	•	4th Pix. I-F	Signal 2200 Mu. V.	5	60	6	100	2 & 7	.75	1	4	11.0	4.8	
<u>V104</u>	6ÅG5	Amplifier	Signal No	5	170	6	135	2 & 7	1.35	1	0	6.5	2.0	
V105		Picture	Signal 2200 Mu. V.	5	175	6	120	2 & 7	1.2	1	0	5.9	1.8	
A	6AL5	2d Det.	Signal No	7	-113			1	112			.48		
V105		Sync	Signal 2200 Mu. V.	7	-120			1	-120					
B	6AL5	Limiter	Signal	2	-107			5	56					
		3 + 3Pt 1	Signal 2200 Mu. V.	2	-80			5	60					
V106	12AU7	lst Video Amplifier	Signal	1	-23.2			3	-111	2	-113	4.38		
			No Signal	1	-19.2			3	-117	2	-120	3.82		
V106	12AU7	2d Video Amplifier	2200 Mu. V. Signal	6	• 166			8	*-5.3	7	*-12.2	6.2	_	*At average
			No Signal	6	•134			8	*-5.6	7	<u>+</u> 10.3	6.9	_	contrast
V107 Ā	6SN7 GT	AGC Amplifier	2200 Mu. V. Signal	5	-12.6	_	_	6	-55.5	4	-56.5	.9	_	
			No Signal	5	+.3			6	- 60	4	-64	.3	_	
V107 B	6SN7 GT	Vertical Oscillator	2200 Mu. V. Signal	2	76	_	_	3	-111	1	-158	.2		
			No Signal	2	62	_		3	-120	1	-169	.2		
V108	6SN7 GT	AGC Rectifier	2200 Mu. V. Signal	5	97			6	-3.4	4	-19.3	.3		
			No Signal	5	81	_		6	-8.7	4	-19.3			
V108	6SN7 GT	lst Sync Separator	2200 Mu. V. Signal	2	96			3	-1.8			.28		
4100		Sebarator	No Signal	2	90 81					1	-19.5			
1/100	6SN7	Sync	2200 Mu. V.		Ī			3	-9.7	1	-19.3	1		
V109	GT	Amplifier	Signal No	2	158			3	0	1	<u>-4.7</u>	5.25		
			Signal	2	154			3	0	1	-5.2	3.75		

VOLTAGE CHART

				E.	Plate	E. 5	Screen	E. Co	thode	E.	Grid	I	I	Notes on
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volta	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Measurements
V109	6SN7 GT	Sync Separator	2200 Mu. V. Signal	5	230	_		6	-51	4	-106	.4	_	
			No Signal	5	215			6	-59	4	-80			
V110	6K6- GT	Vertical Output	2200 Mu. V.		223	<u> </u>	-					35		
	GI	Output	Signal No	3		4	223	8	-67	5	-91		*7.85	Screen connected to
_	6SN7	Horizontal	Signal 2200 Mu. V.	3	208	4	208	8	-79	5	-101		•7.7	plate *Variation
<u>V111</u>	GT	Osc. Control	Signal No	2	*48			3	-110	1	92	.2		of hold gives -21.9 to $+56$
	6SN7	Horizontal	Signal 2200 Mu. V.	2	• 33			3	-120	1	108	.2		volts on plate
V111	GT	Oscillator	Signal No	5	70			6	-111	4		2.4		
			Signal	5	54			6	-120	4	-192	2.4		
V112	6BG6G	Horizontal Output	2200 Mu. V. Signal	Cap	Do Not Meas.	8	180	3	90	5	-110	72	9.4	
			No Signal	Сар	Do Not Meas.	8	170	3	-100	5	-115	70	9.2	
V113	1B3GT /8016	H. V. Rectifier	Brightness Min.	Сар	Do Not Meas.		_	2 & 7	10,500		_	0		
			Brightness Äverage	Сар	Do Not Meas.	_		2 & 7	10,000					
V114	6W4GT	Damper	2200 Mu. V. Signal	5	Do Not Meas.							.1		
V119	owigi	Damper	No		Do Not			3	306			66		
			Signal 2200 Mu. V.	5	Meas.			3	295			65		* Ā-C meas-
V115	5U4G	Rectifier	Signal No	4 & 6	335			2 & 8	250		_	210		ured from plate to trans. center
		lst Sound	Signal 2200 Mu, V,	4 & 6	335			2 & 8	245			215		tap
V116	6AU6	I-F Amplifier	Signal No	5	134	6	134	7	.9	1	5	8.2	3.3	
	,		Signal	5	110	6	110	7	.7	1	5	5.7	2.6	
V117	<u>6AU6</u>	2nd Sound I-F Amplifier	2200 Mu. V. Signal	5	148	6	90	7	0	1	-9	1.6	.8	
			No Signal	5	115	6	60	7	0	1	65	3.35	1.15	
V118	6AL5	Sound Discrim.	2200 Mu. V. Signal	2	8.4	_	_	5	5.8	_	_	_	_	
			No Signal	2	-2.0	_	_	5	.41	_	_			
			2200 Mu. V. Signal	7	-3.7		_	1	0	_		_		
			No Signal	7	-1.08			1	0					
V119	6AV6	lst Audio Amplifier	2200 Mu. V. Signal	7	85							-		
V113	0740	withman	No					2	0	1	89	.49		
	6V6-	Audio	Signal 2200 Mu. V.	7	83			2	0	1	89	4		
V120	GT	Output	Signal No	3	102	4	113	8	-99	5	-108	19.3	3.3	
			Signal 2200 Mu. V.	3	72	4	80	8	110	5	120	18	3	* Average
<u>V121</u>	12LP4	Kinescope	Signal No	Cap	*10,000	10	290	11	51	2	20	1		Brightness
		Minon and	Signal	Сар	*10,000	10	285	11	42	2	14		_	*Äverage Brightn ess
V 301	6]6	Mixer and Oscillator	No Signal	1 2	110 95	_		7	0	6 5	-2.0 -5.0			
V302	6BA6	Radio I-F Amplifier	No Signal	5	210	6	105	7	.8	1	-0.2		_	Function
V303	6 AV6	Radio F-M Driver	No Signal	5	205	6	135	7	1.5	1	0	_	_	switch in
V304	6AL5	Radio Ratio Det.	No Signal	2	-0.2 -0.2	_	_	1	-0.1	_	=	=		F-M position
		• A-M Det. and Phono Preamp.	No Signal	7	-0.2			2	0					

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RADIO ALIGNMENT PROCEDURE

If any lead dressing is necessary, it should be done before aligning the receiver. When making a complete alignment follow the table below in sequence. If only a portion of the circuit is to be aligned select the portion required and follow with the remaining steps in the section. Any adjustments made on the 455 kc. I-F's make it necessary to adjust the 10.7 mc. I-F's.

"AM" R-F-I-F ALIGNMENT

Test-Oscillator.—For all alignment operations, connect low side of the test-osc. to the receiver chassis, and keep the osc. output as low as possible to avoid a-v-c action. Output Meter.—Connect the meter across the speaker voice coil, and turn the receiver volume control to max.

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to	Function Switch	Turn Radio Dial to—	Adjust the following			
1	Antenna terminal in series with .01 mfd.	455 kc. Modulated	AM	Low Freq. end of Dial	[†] Top and bot. cores of T301 and T302. (For max. voltage across voice coil.)			
2		1,620 kc.	AM	Min. capacity	Osc. C308 for maximum output.			
3	Ant. terminal through dummy ant. of 200 mmfs.	1,400 kc.	AM	Tune to signal	Ant. C304 for maximum output.			
4		600 kc.	AM	600 kc.	Osc. L306 and Ant. L303.			
5	Repeat steps 2, 3 and 4 for maximum output.							

⁺ Use alternate loading. Connect an 18,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 18,000-ohm resistor while the plate winding is being peaked. **RATIO DETECTOR ALIGNMENT**

Connect probe of "VoltOhmyst" to negative side of C328 and low side to chassis. Connect output meter across speaker voice coll

	The second							
Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to	Function Switch	Radio Dial Tuned to	Adjust			
6	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.	10.7 mc. 30% AM	FM		Top of T303 for maximum DC on "VoltOhmyst."			
7	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.	Modulated	FM		Bottom of T303 for minimum audio output on meter.			
8	8 Repeat steps 6 and 7 as necessary making final adjustment with r-f input level set to give approximately -3.0 volts d-c on "VoltOhmyst."							

"FM" R-F-I-F ALIGNMENT

Steps	Connect the High Side of the Test Osc. to	Tune Test Osc. to	Function Switch	Radio Dial Tuned to	Adjust			
9	Terminal 3 of S301-2 rear through 270 oh:ns.	10.7 mc.	FM	88 mc.	*T301 and T302 for max. with r-f input set to give –3 volts on "VoltOhmyst."			
10	Terminal 3 of S301-2 rear through 270 ohms.	106 mc.	FM	106 mc.	Set C302 to max. capacity. Squeeze L307 and adjust C302 for maximum.			
11	Terminal 3 of S301-2 rear through 270 ohms.	90 mc.	FM	Tune to signal	Squeeze L301 and rock gang for maximum output.			
12	Repeat steps 10 and 11 as required.							

• Use a 680-ohm resistor to load the plate winding while the grid winding of the same transformer is being peaked. Then the grid winding is loaded with 680-ohm resistor while the plate winding is being peaked.

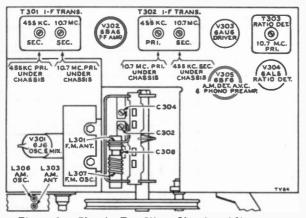


Figure 8—Chassis, Top View, Showing Adjustments

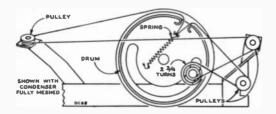


Figure 9—Dial and Drive Cord Assembly

CRITICAL LEAD DRESS:

- 1. Ground lead on pin 2 of V302 and V303 should be dressed down flat on chassis.
- 2. Dual .005 mfd. capacitors and diode filter should be dressed to clear the bottom of the cabinet.
- 3. Dress C329 across V302 sockets with short and direct leads.
- 4. Dress V302 plate lead from pin 5 down to the chassis.
- 5. Dress AVC lead from R321 to switch down to chassis and against back of gang mounting plate.
- Dress lead from pin 6 of V305 down to chassis and against back of gang mounting plate.
- 7. Dress AVC lead from 1st I-F to switch against chassis and against gang mounting plate.
- 8. Dress lead from switch to pin 1 of V301 against plate supporting gang.
- 9. Dress all insulated F-M leads down to chassis.
- Connect C309 with short lead to pin 6 of V301 keeping body of cap away from plate lead and switch terminals.
- 11. The coupling between L301 and L307 should be adjusted to give proper injection voltage to the mixer grid. This has been found to be correct when the distance between adjacent end turns is $\frac{3}{26}$ " to $\frac{7}{16}$ " measured at top of the form.
- 12. Dress cabled leads away from antenna transmission lines.
- 13. Dress all uninsulated bus wire so as to avoid short circuits.

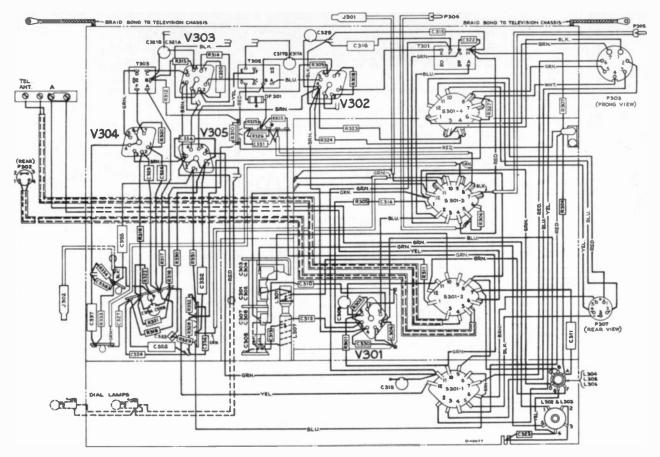


Figure 10—Radio Chassis Wiring Diagram (RK135D)

THE TELEVISION SECTION OF THE CHASSIS USED IN MODEL TA128 IS SIMILAR TO THE CHASSIS OF MODELS T120 AND T121.

REFER TO T120, T121 SERVICE DATA ON PAGES 199 TO 210 INCLUSIVE FOR TELE-VISION ALIGNMENT PROCEDURE, TEST PATTERN PHOTOGRAPHS, RESPONSE CURVES AND WAVEFORM PHOTOGRAPHS.

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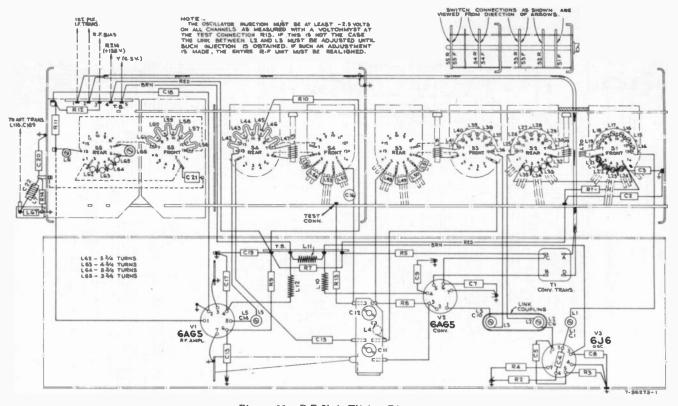


Figure 11--R-F Unit Wiring Diagram

TELEVISION CRITICAL LEAD DRESS

- The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
- Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
- 3. If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
- 4. Picture i-f coupling capacitors C106. C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¹/₄ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
- 5. Leads to L102 and L103 must be as short as possible.
- 6. Dress peaking coils L105, L106 and L107 up and away from the chassis.
- 7. Dress C183 across tube pins 5 and 6 with leads not exceeding $\frac{3}{2}$ inch.
- 8. Dress C129 and C130 up and away from the chassis.
- Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.
- 10. Dress the green lead from pin 2 of V106 away from the chassis.
- 11. Dress R169, R169, R170, R176 and R178 up and away from the chassis.
- 12. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.

- Contact between the i-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
- 14. Dress leads from L110 (width control coil) away from the transformer frame.
- 15. Dress T110 winding leads as shown in Figure 12.

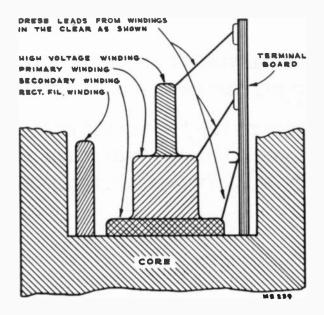


Figure 12-T110 Lead Dress

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REPLACEMENT PARTS

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	RF UNIT ASSEMBLIES	71494	Socket—Tube socket, moulded, 7 prong, saddle mounted
	KRK5	73450	Socket-Tube socket, ceramic, 7 prong, bottom mounted
73465	Belt-Drive belt	74576	Spacer—Insulating spacer for front plate (4 required)
75069	Board—R-F unit power connection terminal board	73457	Spring-Return spring for fine tuning control core
75067	Bracket—Vertical bracket for holding r-f oscillator tube shield	74188	Spring—Retaining spring for adjustable core RCA 74187
73478	Cable—I-F transmission cable (W1)	75058	Spring-Retaining spring for r-f oscillator tube shield
73441	Cam—Fine tuning adjustment	74578	Spring—Retaining spring for adjusting screws RCA 73640 and RCA 74575
74035	Capacitor—Ceramic, 5 mmf. (C4, C5)	73468	Stator-Front oscillator section stator complete with rotor,
53511	Capacitor—Ceramic, 10 mmf. (C3)		segment, coils and adjusting screws (S1, L14, L15, L16, L17, L18, L19, L21, L22, L23, L24)
54207	Capacitor—Ceramic, 18 mmf. (C20)	73469	Stator-Rear oscillator section stator complete with rotor.
73449	Capacitor—Ceramic trimmer comprising 1 section of 150- 190 mmf. and 1 section of 65-95 mmf. (C11, C12)		segment, coils (52, L25, L26, L27, L28, L29, L30, L32, L33, L34, L35)
73091	Capacitor—Ceramic, 270 mmf. (C21)	73633	Stator-Antenna stator complete with rotor and coils (S5,
71501	Capacitor—Ceramic, 1500 mmi. (C2, C7, C8, C9, C13, C15, C17, C18, C19)		L6, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L86, C21)
73473	Capacitor—Ceramic, 5000 mmf. (C16)	73470	Stator—Converter stator complete with rotor and coils (\$3, 19, 136, 137, 138, 139, 140, 141, 148, 149, 150, 151)
73460	Coil—R-F plate coil for channel 6 (L13)	73471	Stator—R-F amplifier stator complete with rotor and coils
73461	Coil—Rear section—Oscillator plate coil for channel 6 (L20)		(S4, L13, L42, L43, L44, L45, L46, L47, L52, L53, L54, L55, C15, C16, R10)
73462	Coil—Coupling inductance coil (L4)	75446	Stud—Capacitor stud—brass No. 4-40 x 13/16" with 3/64"
73475	Coil-Antenna filter shunt coil (C67)		screw driver slot for trimmer coils 74109 and 74110
73478	Coil—I-F trap (L7, C22)	75447	uncoded or coded "ER"
73477	Coil—Choke coil (L10, L11, L12)	/344/	Stud—Capacitor stud—brass No. 4-40 x 13 '18" with 3/64" screw driver slot for trimmer coils 74109 and 74110
73874	Coil—Front section—Oscillator plate coil for channel 6 (L31)		coded numerically or "Hi Q"
74108	Coil—Fine tuning coil (1) turns) with adjustable induc-	73448	Transformer-Converter transformer (T1, R6)
	tance core and capacitor stud (plunger adjustment) (L1, C1)	73466	Washer—Insulating washer for front shield (1 set)
74108	Coil—Trimmer coll (1½ turns) with adjustable inductance core and capacitor stud (screw adjustment for oscil- lator section or converter section) (L2, L3, C6, C10)	2917	Washer—"C" washer for channel selector shaft or fine tuning shaft and cam
74110	Coll—Trimmer coil (3 turns) with adjustable inductance core and capacitor stud (screw adjustment) for r-f ampli- fier section (L5, C14)		TELEVISION CHASSIS ASSEMBLIES KCS 42A
73455	Core—Sliding core for fine tuning control trimmer	74593	Capacitor-Mica trimmer comprising 1 section of 3-35 mmf.
74187	CoreAdjustable core for coll L9	_	and 1 section of 40-370 mmf. (C153A, C153B)
71493	Connector-Oscillator segment connector	72615	Capacitor-Mica, 10 mmf. (C126)
73440	Detent-R-F unit detent mechanism and fibre shaft	74105	Capacitor-Mica, 33 mmf. (C111)
71487	Form—Coil form for coil L31	64062	Capacitor—Mica, 39 mmf. (C140) Capacitor—Ceramic, 82 mmf. (C120)
73453	Form—Coll form assembly for L9, L13	39396	Capacitor—Ceramic, 100 mmf. (C175)
73442	Link—Link assembly for fine tuning	75060	Capacitor—Mica, 100 mmf. (C138)
71462 73634	Loop-Oscillator to converter trimmer loop connector	73921	Capacitor-Ceramic, 120 mmf. (C129)
73634	Nut—Speed nut for drive belt shield	39630	Capacitor—Mica, 120 mmf. (C181)
73456	Plate—Front plate and bushing Puiley—Idler pulley	73102	Capacitor-Mica, 180 mmf. (C158)
	Resistor-Fixed, composition:	73922	Capacitor-Ceramic, 270 mmf. (C183, C194, C198)
	47 ohms, +20%, 1/2 watt (R4)	73091	Capacitor-Mica, 270 mmf. (C106, C115, C121)
	150 ohms, ±20%, 1/2 watt (R5, R9, R12)	68542	Capacitor—Mica, 390 mmf. (C141, C200)
	390 ohms, ±10%, ½ watt (R14)	74153	Capacitor-Ceramic, 500 mmf. 15,000 volts (C168)
	1000 ohms, ±20%, ½ watt (R7)	74250	Capacitor—Mica, 560 mmf. (C160)
	2700 ohms, ±10%, ½ watt (R10) 10,000 ohms, ±20%, ½ watt (R1, R11)	71501	Capacitor—Ceramic, 15°J mmf. (C101, C103, C104, C105, C108, C109, C110, C,13, C114, C117, C118, C122, C125, C127, C132, C171, C172, C176, C177, C188, C192, C193, C196)
14040	100.000 ohms. <u>+</u> 20%, ¹ / ₂ watt (R2, R3, R8, R13)	71432	Capacitor-Electrolytic, comprising 2 sections of 40 mfd.,
14343 30340	Retainer—Channel selector shaft retaining ring Retainer—Retainer ring for fine tuning stud		450 volts and 1 section of 10 mfd., 450 volts (C148A, C148B, C148C)
70881	Screw—No. 4-40 x 1/4" binder head screw for adjusting coils L14, L15, L16, L17, L18, L19	73582	Capacitor—Electrolytic, comprising 1 section of 40 mid., 450 volts, 1 section of 10 mid., 450 volts and 1 section of 80 mid., 200 volts (C170A, C170B, C170C)
73640 71475	Screw—No. 4-40 x ½" adjusting screw for L66	73583	Capacitor-Electrolytic, comprising 1 section of 40 mid., 450 volts, 1 section of 90 mid., 150 volts and 1 section
	Screw—No. 4-40 x 15/32" adjusting screw for coils L21, L22, L23, L24		of 50 mid., 150 volts (C147A, C147B, C147C)
74575 73437	L22, L23, L24 Screw—No. 4-40 x 17/32" adjusting screw for L6 Shaft—Channel selector shaft complete with pawl and	73581	of 50 mfd., 150 volts (C147A, C147B, C147C) Capacitor—Electrolytic, comprising 1 section of 60 mfd., 450 volts, 2 sections of 10 mfd., 450 volts and 1 section of 20 mfd., 150 volts (C146A, C146B, C146C, C146D)
	L22, L23, L24 Screw—No. 4-40 x 17/32" αdjusting screw for L6	73581	of 50 mid., 150 volts (C147A, C147B, C147C) Capacitor—Electrolytic, comprising 1 section of 60 mid., 450 volts, 2 sections of 10 mid., 450 volts and 1 section of 20 mid., 150 volts (C145A, C145B, C146C, C145D) Capacitor—Tubular, paper, oil impregnated, .001 mid., 600
73437 73438 73439	L22, L23, L24 Screw—No. 4-40 x 17/32" adjusting screw for L6 Shaft—Channel selector shaft complete with pawl and stud Shaft—Fine tuning control shaft and pulley Shaft—Actuating shaft for fine tuning control		of 50 mid., 150 volts (C147A, C147B, C147C) Capacitor—Electrolytic, comprising 1 section of 60 mid., 450 volts, 2 sections of 10 mid., 450 volts and 1 section of 20 mid., 150 volts (C146A, C146B, C146C, C146D) Capacitor—Tubular, paper, oil impregnated, .001 mid., 600 volts (C137, C203) Capacitor—Tubular, paper, oil impregnated, .0015 mid.,
73437 73438	L22, L23, L24 Screw—No. 4-40 x 17/32" adjusting screw for L6 Shaft—Channel selector shaft complete with pawl and stud Shaft—Fine tuning control shaft and pulley	73801	of 50 mid., 150 volts (C147A, C147B, C147C) Capacitor—Electrolytic, comprising 1 section of 60 mid., 450 volts, 2 sections of 10 mid., 450 volts and 1 section of 20 mid., 150 volts (C146A, C146B, C146C, C146D) Capacitor—Tubular, paper, oil impregnated, .001 mid., 600 volts (C137, C203) Capacitor—Tubular, paper, oil impregnated, .0015 mid., 1000 volts (C186) Capacitor—Tubular, paper, oil impregnated, .0022 mid.,
73437 73438 73439 75443	L22, L23, L24 Screw—No. 4-40 x 17/32" adjusting screw for L6 Shaft—Channel selector shaft complete with pawl and stud Shaft—Fine tuning control shaft and pulley Shaft—Actuating shaft for fine tuning control Shield—"U" shape shield for bottom of r-f unit	73801 73802	of 50 mid., 150 volts (C147A, C147B, C147C) Capacitor—Electrolytic, comprising 1 section of 60 mid., 450 volts, 2 sections of 10 mid., 450 volts and 1 section of 20 mid., 150 volts (C146A, C146B, C146C, C146D) Capacitor—Tubular, paper, oil impregnated, .001 mid., 600 volts (C137, C203) Capacitor—Tubular, paper, oil impregnated, .0015 mid., 1000 volts (C186)

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STOCK No.	DESCRIPTION		STOCK No.
73795	Capacitor—Tubular, paper, oil impregnated, .0033 mid., 600 volts (C184)		18469 33514
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 600 volts (C143, C144, C145, C202)		74598
73561	Capacitor—Tubular, paper, oil impregnated, .01 mfd., 400 volts (C135, C182, C195)		72067
73594	Capacitor-Tubular, moulded paper, oil impregnated, .01 mid., 600 volts (C159)		18471 74049
73565	Capacitor—Tubular, moulded paper, .01 mid., 1000 volts (C151, C152, C185)		73588
73797	Capacitor—Tubular, paper, oil impregnated, .015 mfd., 600 volts (C204)		
74727	Capacitor—Tubular, moulded paper, oil impregnated, .018 mfd., 1000 volts (C164)		
73562	Capacitor—Tubular, paper, oil impregnated, .022 mid., 400 volts (C155)		
74728	Capacitor—Tubular, moulded paper, oil impregnated, .038 mfd., 1000 volts (C165)		
73553	Capacitor—Tubular, paper, oil impregnated, .047 mid., 400 volts (C130, C139, C201, C167)		
73592	Capacitor—Tubular, paper, oil impregnated, .047 mid., 600 volts (C150, C156)		
73597	Capacitor—Tubular, paper, oil impregnated, .047 mfd., 1000 volts (C163)		
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mid., 400 volts (C149)		
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 600 volts (C131)		
73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mid., 200 volts (C138, C157, C162)		
73787	Capacitor—Tubular, paper, oil Impregnated, 0.47 mid., 200 volts (Cl33, Cl90, Cl97)		
73154	Choke-Filter choke (L104)		
74585	Coil—Focus coil (L118)		
71449	Coil—Horizontal linearity control coil (L111)		
71429	Coil-Width control coil (L115)		
74170	Coil—Peaking coil (36 muh) (L117, R110)		
71527	Coil—Peaking coil (93 muh) (L102)	1	
74214	Coil—Peaking coil (180 muh) (L103, L105)		
71526	Coil—Peaking coil (250 muh) (L106, L107, L114)		
73477	Coil—Filament choke coil (L101)		
72108	Connector-7 contact female connector (J103)		
74594	Connector—2 contact male connector for power cord		
72172	Connector—3 contact female connector for changers cable (J108)		
5040	Connector—4 contact female connector for speaker cable (P101)		-
71789	Connector-Anode connector		
71521	Connector—Hi-voltage capacitor connector		
14786	Connector—5 contact male connector (P107)		
72734	Control—Horizontal hold and vertical hold control (R158, R173)		
74047	Control—Picture and brightness control (R122, R131)		
74359	Control—Tone control, volume control and power switch (R205, R233, S101)		
71441	Control—Vertical linearity control (R162)		
71440	Control—Height control (R155)		
74597	Control—Focus control (R191)		
74475	Control—AGC threshold control (R138)		
71457	Cord—Power cord and plug		
71437	Cover—Insulating cover for electrolytics Nos. 71432, 73581 and 73582		
73590	Cushion-Rubber cushion for deflection yoke hood (2 re- guired)		
74811	Cushion-Rubber cushion for kinescope mounting		
73600	Fuse-0.25 amp. 250 volts (F101)		
71799	Grommet—Rubber grommet for yoke horizontal lead exit		
37396	Grommet-Rubber grommet for mounting ceramic tube		
74030	socket (2 required) Grommet—Rubber grommet for mounting radio chassis (3		
74823	required) Magnet—lon trap magnet	1	
73587	Nut—Speed nut for mounting hi-voltage capacitor		
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DESCRIPTION
late—Bakelite mounting plate for electrolytics
eceptacle2 contact female receptacle for audio cable and switching cable (J105, J106)
esistor—Wire wound, 2.7 ohms, 1/3 watt (R187)
esistor—Wire wound, 5.1 ohms, ½ watt (R202)
esistor—Wire wound, 10 ohms, ½ watt (R180)
tesistor—Wire wound, 500 ohms, 20 watts (R230)
esistor—Voltage divider, comprising 1 section of 850 ohms, 12 watts and 2 sections of 650 ohms, 6 watts (R193A, R193B, R193C)
esistor-Fixed, composition:
10 ohms, <u>+20%</u> , <u>V</u> ₂ watt (R120)
18 ohms, ±10%, ½ watt (R225) 39 ohms, ±10%, ½ watt (R120)
47 ohms, ±5%, ½ watt (R111)
47 ohms, ±20%, ½ watt (R183)
68 ohms, ±10%, ½ watt (R105)
68 ohms, ±20%, ½ watt (R123)
82 ohms, ±10%, ½ watt (R195)
100 ohms, ±10%, 2 watts (R184)
150 ohms, ±5%, ½ watt (R102)
150 ohms, ±10%, ½ watt (R115)
150 ohms, ±20%, ½ watt (R106, R109, R114, R214)
220 ohms, ±10%, 1 watt (R223)
270 ohms, ±10%, 1 watt (R206)
1000 ohms, ±20%, ½ watt (R103, R107, R108, R113, R116, R118, R165, R199)
1200 ohms, ±10%, ½ watt (R196)
1800 ohms, ±10%, 2 watts (R194, R208)
2200 ohms, ±10%, ½ watt (R219)
2200 ohms, ±10%, 1 watt (R192)
2700 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R161, R217)
3900 ohms, \pm 5%, $\frac{1}{2}$ watt (R112)
4700 ohms, ±5%, ½ watt (R126) 4700 ohms, ±10%, ½ watt (R144)
5600 ohms, ±5%, ½ watt (R119)
5600 ohms, ±10%, ½ watt (R141, R218)
5600 ohms, ±10%, 1 watt (R127)
6800 ohms, ±5%, ½ watt (R136)
6800 ohms, ±10%, ½ watt (R150)
6800 ohms, ±5%, 1 watt (R128)
6800 ohms, ±10%, 2 watts (R177, R186, R210)
8200 ohms, ±5%, ½ watt (R164, R175)
8200 ohms, ±10%, ½ watt (R152, R153, R171)
8200 ohms, ±5%, 1 watt (R117)
10,000 ohms, ±5%, ½ watt (R104)
12,000 ohms, ±10%, ½ watt (R134, R209, R226)
12,000 ohms, ±10%, 2 watts (R124)
15,000 ohms, ±10%, ½ watt (R182, R211)
15,000 ohms, ±10%, 1 watt (R146)
22,000 ohms, ±10%, ½ watt (R151, R156, R197, R220)
22,000 ohms, ±20%, ½ watt (R198, R215)
27,000 ohms, ±10%, ½ watt (R143, R234) 39,000 ohms, ±5%, ½ watt (R135)
47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R145)
47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ walt (R13) 47,000 ohms, $\pm 20\%$, $\frac{1}{2}$ walt (R221)
68,000 ohms, ±10%, ½ watt (R172)
100,000 ohms, \pm 5%, $\frac{1}{2}$ watt (R203, R204)
100,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R160, R216)
100,000 ohms, $\pm 10\%$, 1 watt (R179)
100,000 chms, ±20%, 1 watt (R222)

REPLACEMENT PARTS (Continued)

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STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	120,000 ohms, ±5%, 1 watt (R176)	73476	Trap—I-F trap (L116, C189)
	120,000 ohms, ±10%, 1 watt (R174)	74262	Yoke-Deflection yoke (L108, L109, L112, L113, C169, R166,
	150,000 chms, ±10%, ½ watt (R168)		R 167)
	150,000 chms, ±20%, ½ watt (R142)		
	180,000 ohms, ±19%, ½ watt (R232)		RADIO CHASSIS ASSEMBLIES RK 135D
	180,000 ohms, ±5%, 1 watt (R178)		
	220,000 ohms, ±10%, ½ watt (R129, R154)	74039	Board—''Telv-Ant'' terminal board (TB301) Bracket—Drive cord bracket complete with two pulleys
	330,000 ohms, ±10%, ½ watt (R140, R200)	/4040	-R.H.
	470.000 ohms, ±10%, ½ watt (R137, R139, R180, R224, R231)	74027 74911	Bracket—Drive cord bracket complete with pulley—L.H. Cable—Shielded cable complete with female connector
	470,000 ohms, ±20%, 1/2 watt (R207)		(W307, W311)
	680,000 ohms, ±10%, ½ watt (R133, R212)	71105	Cable—Shielded cable complete with pin plug (W301, W302)
	\$20,000 ohms, ±5%, ½ watt (R169) 1 megohm, ±10%, ½ watt (R147)	74017	Capacitor—Variable tuning capacitor (C301, C302, C303,
	1 megohm, ±20%, 1 watt (R189, R227)		C304, C305, C307, C308)
	1.2 megohm, ±5%, ½ watt (R213)	73866	Capacitor—Ceramic, 2 mmf. (C308)
	1.5 megohm, ±5%, ½ watt (R157)	39044	Capacitor—Ceramic, 15 mmf. (C312)
	2.2 megohm, ±10%, ½ watt (R130, R132, R159, R163)	39042	Capacitor—Ceramic, 47 mmf. (C330)
	2.7 megohm, ±5%, 1 watt (R170)	73867	Capacitor—Ceramic, 56 mmf. (C313)
	3.9 megohm, ±10%, ½ watt (R149)	33379	Capacitor—Ceramic, 68 mmf. (C310)
	8.8 megohm, ±10%, ½ watt (R125)	39396	Capacitor—Ceramic, 100 mmf. (C322, C323)
	10 megohm, ±10%, ½ watt (R148)	48125	Capacitor-Ceramic, 150 mmf. (C314)
	10 megohm, +20%, 1/2 watt (R201)		Capacitor—Ceramic, 180 mmf. (C334, C338)
74416	Screw-No. 10-32 x 134" cross recessed round head screw	39640 73748	Capacitor—Mica, 330 mmf. (C325, C326) Capacitor—Ceramic, 1500 mmf. (C309)
14410	for kinescope retaining strap	74009	Capacitor—Ceramic, 1300 mmi. (C309) Capacitor—Ceramic, dual. 4000 mmi. (C317, C318, C321)
71458	Screw-No. 8-32 wing screw for deflection yoke	73473	Capacitor—Ceramic, 3000 mmi. (C317, C318, C321) Capacitor—Ceramic, 5000 mmi. (C318, C329)
74601	Screw-No. 8-32 x 36" cross recessed binder head screw	73747	Capacitor—Electrolytic, 2 mid., 50 volts (C328)
	for focus coil mounting (2 required)	322.23	Capacitor—Electrolytic, 15 mid., 300 volts (C333)
74602	Screw—No. 10-32 x 1¼" cross recessed binder head screw for focus coil adjustment (3 required)	70602	Capacitor—Tubular, paper, .0025 mid., 400 volts (C332)
73584	Shield—Tube shield	73961	Capacitor-Tubular, paper, .003 mid., 200 volts (C327,
74937	Sleeve-Rubber sleeve for focus coil		
73117	Socket-Tube socket, 7 pin, miniature	71553	Capacitor—Tubular, paper, .005 mid., 400 volts (C315, C320, C324)
72927	Socket-Tube socket, 9 pin, miniature	71923	Capacitor—Tubular, paper, .01 mid., 200 volts (C335)
31251 73249	Socket—Tube socket, octal, wafer Socket—Tube socket, octal, ceramic, plate mounted	71925	Capacitor—Tubular, paper, .01 mid., 400 volts (C311)
71508	Socket-Tube socket for 1B3GT/8016	71928	Capacitor—Tubular, paper, .02 mid., 200 volts (C337)
31364	Socket-Pilot lamp socket	72596	Capacitor—Tubular, paper, .05 mid., 200 volts (C338)
74834	Socket-Kinescope tube socket	74455	Capacitor—Tubular, paper, .05 mid., 400 volts (C316)
73586	Spring—Compression spring used under centering control	74020	Coil—Antenna coil—AM (L302, L303)
	screws (3 required)	73744	Coil—Oscillator coil—AM (L304, L305, L306)
74936	Spring—Suspension spring (coil type) for kinescope tube socket leads	74024	Coil—Antanna coil—FM (L301) Coil—Oscillator coil—FM (L307)
74595	Spring—Anode lead spring	36395	Connector-7 contact male connector (P103)
74893	Strap—Kinescope retaining strap	12493	Connector-5 contact female connector (P107B)
74596	Supports—Bakelite supports (1 set) for mounting hi-voltage rectifier tube mounting plate	39153	Connector—4 prong male connector (P102)
74147	Switch-Wldth selector switch (S104)	72953	Cord—Drive cord (approx. 42" overall)
74157	Switch—Cabinet interlock switch (\$105)	74011	Filter-Diode filter, dual 200 mmt. and 47,000 ohms (DF301)
74981	Transformer-Power transformer, 115 volt, 60 cycles (T111)	74023	Resistor—Wire wound, 0.51 ohms, 1 watt (R323, R324)
74587	Transformer—Vertical output transformer (T108)		Resistor—Fixed, composition:
73569	Transformer—Vertical oscillator transformer (T107)		10 ohms, ±20%, ½ watt (R311)
74588	Transformer—Horizontal output and hi-voltage transformer (T110)		68 ohms, ±20%, ½ watt (R308) 100 ohms, ±20%, ½ watt (R305, R317)
74589	Transformer-First pix, i-f transformer (T101, C102, R101)		120 ohms, ±10%, ½ watt (R314)
74590	Transformer—Second pix, i-i transformer (T102, C107)		680 ohms, ±20%, ½ watt (R310, R312)
74591	Transformer—Third pix, i-f transformer (T103, C112)		1200 ohms, ±5%, ½ watt (R319)
74592	Transformer-Fourth pix, i-f transformer (T104, C116)		3300 ohms, ±5%, ½ watt (R320)
73575	Transformer-Fifth plx, l-f transformer (T106, C123, C124)		4700 ohms, ±10%, ½ watt (R333)
71424	Transformer—Sound i-f transformer (T112, C173, C174)		10,000 ohms, ±20%, ½ watt (R306)
71427	Transformer—Sound discriminator transformer (T113, C178, C179, C180)		15,000 ohms, ±10%, ½ watt (R304)
73576	Transformer-Horizontal oscillator transformer (T109)		15,000 ohms, ±20%, ½ watt (R315, R318)
73578	Transformer—Antenna transformer complete with socket		18,000 ohms, ±10%, ½ watt (R302)
	and bracket (T115, J102)		27,000 ohms, ±10%, ½ watt (R307, R309)
73577	Trap-4.5 mc trap (L110, C128)		39,000 ohms, ±10%, ½ watt (R322)
71778	Trap—Sound trap (T105, C119)		68,000 ohms, ±10%, ½ watt (R328)

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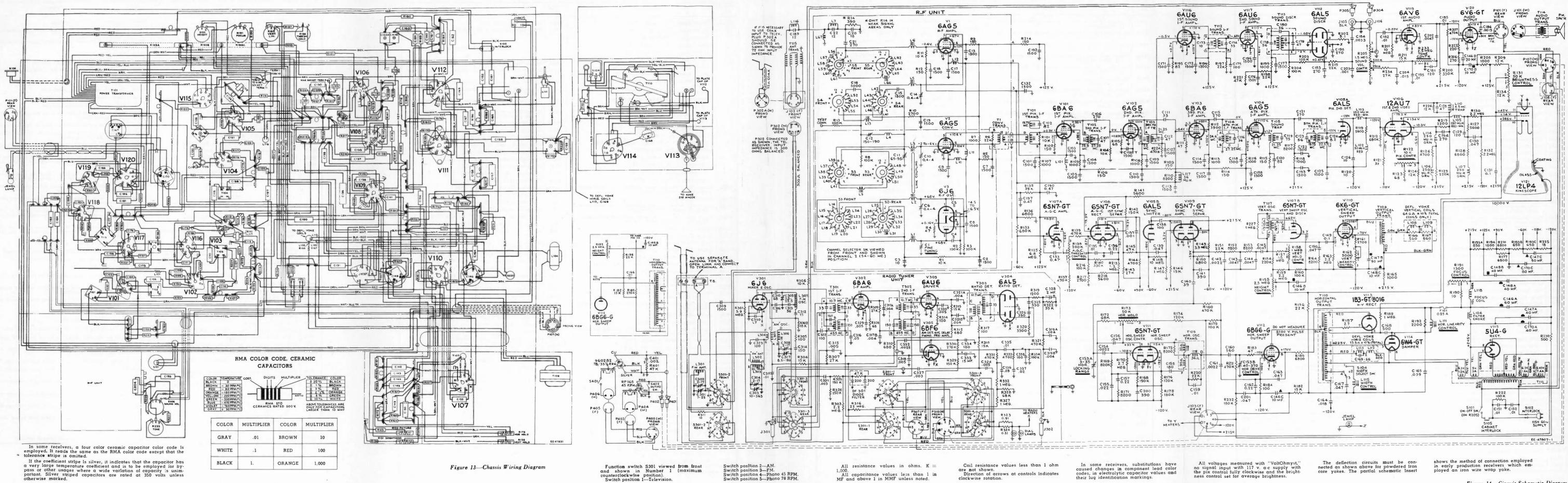
TA128

REPLACEMENT PARTS (Continued)

100,000 ohms, ±10%, ½ watt (R334)74674Emblem—"RCA Victor" emblem150,000 ohms, ±10%, ½ watt (R325, R326, R329)73642Escutcheon—Channel marker escutcheon for walaut instruments270,000 ohms, ±10%, ½ watt (R330)73740Escutcheon—Channel marker escutcheon for ments470,000 ohms, ±10%, ½ watt (R321)73740Escutcheon—Channel marker escutcheon for ments470,000 ohms, ±10%, ½ watt (R321)74755Glass—Safety glass1 megohm, ±10%, ½ watt (R303)74755Glass—Safety glass2.2 megohm, ±20%, ½ watt (R301)74206Grommet—Rubber grommet for speaker22 megohm, ±20%, ½ watt (R316)74206Grommet—Rubber grommet for mounting changer (4 required)74028Shaft—Tuning knob shaft7320073117Socket—Tube socket, 7 pin, miniature for V301, V304, V3057018674038Spring—Drive cord spring7499474894Switch—Selector switch (S301)7399573745Transformer—First i-f transformer, dual (T301)7496174018Transformer—Second i-i transformer, dual (T302)74961	
270,000 ohms, ±10%, ½ watt (R330)walnut instruments470,000 ohms, ±10%, ½ watt (R331)73740Escutcheon—Channel marker escutcheon for ments470,000 ohms, ±20%, ½ watt (R321)1 megohm, ±10%, ½ watt (R327, R332)747552.2 megohm, ±20%, ½ watt (R303)3.9 megohm, ±10%, ½ watt (R301)747562.2 megohm, ±20%, ½ watt (R301)74206Grommet—Rubber grommet for speaker2.2 megohm, ±20%, ½ watt (R301)74206Grommet—Rubber grommet for mounting changer (4 required)24 megohm, ±20%, ½ watt (R316)74308Hinge—Door hinge (1 set) for L.H. or R.H. dat 738274028Shaft—Tuning knob shaft732007382Shield—Tube shield7016673117Socket—Tube socket, 7 pin, miniature for V301, V304, V3057405174038Spring—Drive cord spring7495974894Switch—Selector switch (S301)7399573745Transformer—First i-f transformer, dual (T301)7490074179Socket—First i-f transformer, dual (T301)74900	
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73632Shield—Tube shield73200Hinge—Lower hinge for center door73117Socket—Tube socket, 7 pin, miniature for V301, V304, V30570166Hinge—Upper hinge for center door74179Socket—Tube socket, 7 pin, miniature for V302, V30374051Indicator—Station selector indicator31364Socket—Dial lamp socket74959Knob—Fine tuning knob—dark—for mahoga instruments (outer)74038Spring—Drive cord spring73955Knob—Fine tuning knob—dark—for mahoga instruments (outer)74894Switch—Selector switch (S301)73955Knob—Fine tuning knob—tan—for oak instru walnut instruments (lnner)74179Transformer—First i-f transformer, dual (T301)74860Knob—Channel selector knob—dark—for re walnut instruments (lnner)	ors
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74894 Switch—Selector switch (\$301) 7395 Knob—Fine tuning knob—tan—for oak instru- Transformer—First i-i transformer, dual (T301) 73745 Transformer—First i-i transformer, dual (T301) 73745 Transformer—First i-i transformer, dual (T301)	ny or woman
73745 Transformer—First i-f transformer, dual (T301) 73745 Transformer—First i-f transformer, dual (T301) 74960 Knob—Channel selector knob—dark—for r walnut instruments (inner)	ments (outer)
Richte Samuel and Samuel and Market (2001)	nahogany or
74961 Knob-Channel selector knob-tan-for oa	
73743 Transformer-Ratio detector transformer (T303) (inner)	r instruments
33726 Washer_"C" washer for tuning shaft (rear) 74962 Knob_Vertical hold control, brightness co	atrol or tone
34457 Washer-Spring washer for tuning shaft (front) control knob-dark-for mahogany or w ments (outer)	
74172 Washer—Fibre washer to prevent drive cord slippage 73999 Knob—Vertical hold control, brightness co control knob—tan—for oak instruments (o	
SPEAKER ASSEMBLIES 92569-8W 74978 Knob—Tuning or selector switch knob—dark any or walnut instruments	-for mahog-
RL-111-10 74979 KnobTuning or selector switch knobtan RMA-#274 struments	-lor oak in-
13867 Cap-Dust cap 74963 Knob-Horizontal hold control, picture control	ol or volume
74801 Cone—Cone complete with voice coil (3.2 ohms) control and power switch knob—dark—fe instruments (inner)	
5039 Connector—4 prong male connector (J101) 74001 Knob—Horizontal hold control, picture control	
74900 Speaker—12" P.M. speaker complete with cone and voice coil (3.2 ohms) less transformer and plug ments (inner)	
74802 Transformer—Output transformer (T114) 11765 Lamp—Dial or pilot lamp—Mazda 51	
NOTE: If stamping in instruments does not agree with above speaker number, order replacement parts by re-	equired)
ferring to model number of instruments, number stamped on speaker and full description of part required. 74162 Plate-Mounting plate for interlock switch	
75037 Pull-Door pull	
MISCELLANEOUS Resistor—Fixed, composition, 47,000 ohms,	10%, ½ watt
74977 Back—Cabinet back 74582 Screw—No. 8-32 x 134" special head screw	to mount 45
74054 Bracket—Dial lamp bracket (2 required) RPM changer (3 required) 71599 Bracket—Pilot lamp bracket 70000	
71599 Bracket—Pilot lamp bracket 75038 Screw—No. 8-32 x V2" trimit head cross-re for door pull 75041 Button—Plug button for shipping bolts holes in 33/78 for door pull	cessed screw
72437 Cable—Shielded pickup cable complete with pin plug	1
13103 Cap-Pilot lamp cap	
73803 Capacitor-Tubular, paper, .002 mid., 400 volts (C402) 73643 Spring-Spring clip for channel marker escu	tcheon
71892 Catch—Bullet catch and strike 72845 Spring—Retaining spring for knobs No. 7	995 and No.
X3074 Cloth—Grille cloth for mahogany or walnut instruments 74959	
X3090 Cloth—Grille cloth for oak instruments 14270 Spring—Retaining spring for knobs Nos. 74961, 74962	73999, 74960,
14782 Connector—3 contact male connector for record changer 30330 Spring—Retaining spring for trobs Nos. 740	01 and 74963
30868 Connector—2 contact female connector for record changer 74055 Spring—Spring clip for dial and bezel as guired)	
74581 Cover-Mounting screw cover for 45 RPM changer (3 regulred) regulred)	
71984 Decal—Trade mark decal (RCA Victor) 74422 Spring—Conical spring to mount 45 RPM ch —L.H. (2 reguired)	anger—upper
74273 Decal—Trade mark decal (Victrola) 74423 Spring—Conical spring to mount 45 RPM ch	anger-lower
74898 Decal—Control panel function decal for mahogany or wal- nut instruments 75040 Spring—Mounting spring for 33/78 RPM re	-
74899 Decal—Control panel function decal for oak instruments (4 required)	erie enouget
74052 Dial—Dial scale and bezel 72936 Stop—Door stop	
74391 Edging—Vinylite edging for metal mask 74161 Stud—Locating stud for back cover (2 required)	ed)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage:

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



TA128

Function switch S301 viewed from front and shown in Number 1 (maximum counterclockwise position). Switch position 1—Television.

Switch position 2-AM. Switch position 3-FM. Switch position 4-Phono 45 RPM. Switch position 5-Phono 78 RPM.

All resistance values in ohms. K = All capacitance values less than 1 in MF and above 1 in MMF unless noted.

Coil resistance values less than 1 ohm are not shown. Direction of arrows at controls indicates clockwise rotation.

In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values and their lug identification markings.

All voltages measured with "VoltOhmyst," no signal input with 117 v. a-c supply with the pix control fully clockwise and the brightness control set for average brightness.

The deflection circuits **m**ust be con-nected as shown above for powdered Iron core yokes. The partial schematic Insert

in early production receivers which em-ployed an iron wire wrap yoke.

TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION **MODEL TA129**

Chassis Nos. KCS41A-1, RK135D

- Mfr. No. 274 -

SERVICE DATA

---- 1950 No. T8 --

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Walnut,

or Oak

Model TA129 receiver employs twenty-six tubes plus three rectifiers and a 12LP4 kinescope.

The television receiver is provided with Electronic Magnifier deflection circuits by which the center portion of the picture may be enlarged to fill the screen. Choice of picture coverage

ELECTRICAL AND MECHANICAL SPECIFICATIONS RECEIVER ANTENNA INPUT IMPEDANCE 300 ohms balanced

The radio tuner unit which feeds through the television audio

Two record changers are provided to play 45 and 78/331/3

system covers the AM and the FM broadcast bands.

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc.
Fine Tuning Range ± 230 kc. on chan. 2, ± 650 kc. on chan. 13
Picture Carrier Frequency
Sound Carrier Frequency

RADIO TUNING RANGE

Broadcast	
Frequency Modulation	
Intermediate Frequency-Al	M
Intermediate Frequency-FM	I

POWER SUPPLY RATING115 volts, 60 cycles, 300 watts

CHASSIS DESIGNATIONS

Television Chassis	[-1
Radio Chassis	5D
78/331/3 RPM Record Changer	82
45 RPM Record ChangerRP16	8C
Refer to Service Data 960282 or RP168 for information on a record changers.	he

LOUDSPEAKER-92569-8 (RL111-10)12 inch PM Dynamic

WEIGHT

Chassis with Tubes in Cabinet			
Shipping Weight			221 108.
DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)	37	38 3⁄4	223⁄4
Chassis (Overall)	19 ³ /a	121/4	201⁄4
		-	

If necessary, the television chassis may be fed separately from either a 300 ohm balanced line or a 72 ohm co-ax.

RCA TUBE COMPLEMENT

RPM records.

is made by operation of a remote switch.

	Tub	• Used Function
(1)	RCA	6AG5
(2)	RCA	6AG5Converter
(3)	RCA	6J6R-F Oscillator
(4)	RCA	6AU6lst Sound I-F Amplifier
(5)	RCA	6AU62nd Sound I-F Amplifier
(6)	RCA	6AL5Sound Discriminator
(7)	RCA	6AV6lst Audio Amplifier
(8)		6V6GTAudio Output
(9)		6BA6lst Picture I-F Amplifier
(10)	RCA	6AG52nd Picture I-F Amplifier
(11)		6BA63rd Picture I-F Amplifier
(12)		6AG54th Picture I-F Amplifier
(13)		6AL5Picture 2nd Detector & Sync Limiter
(14)	RCA	12AU7lst and 2nd Video Amplifier
(15)	RCA	6SN7GTAGC Amplifier & Vertical Sweep Osc.
(16)	RCĀ	6SN7GTAGC Rectifier & 1st Sync Separator
(17)		6SN7GTSync Amplifier & 2nd Sync Separator
(18)	RCA	6K6GTVertical Sweep Output
(19)	RCĂ	6SN7GTHorizontal Sweep Oscillator and Control
(20)	RCĂ	6BG6GHorizontal Sweep Output
(21)		6W4GTDamper
(22)	RCA	1B3-GT/8016High Voltage Rectifier
(23)	RCA	5U4GPower Supply Rectifier (2 tubes)
(24)	RCA	12LP4Kinescope

(Radio Tuner Chassis)

(1)	RCA	6J6Mixer and Oscillator
(2)	RCA	6BA6I-F Amplifier
(3)	RCA	6AU6F-M Driver
(4)	RCA	6AL5Ratio Detector
(5)	RCĀ	6BF6

Specifications continued on page 2



ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE I-F FREQUENCIES	OPERATING CONTROLS (front panel)
Picture Carrier Frequency	Channel Selector
Adjacent Channel Sound Trap27.25 mc.	The tuning)
Accompanying Sound Traps21.25 mc.	Tone Sound Volume and On-Off Switch
Adjacent Channel Picture Carrier Trap	Picture Horizontal Hold
SOUND I-F FREQUENCIES	Picture Brightness
Sound Carrier Frequency21.25 mc.	
Sound Discriminator Band Width between peaks	Function SwitchSingle Control Knob
e	Radio TuningSingle Control Knob
VIDEO RESPONSE	NON-OPERATING CONTROLS
FOCUS Magnetic	Horizontal Centeringrear chassis adjustment Vertical Centeringrear chassis adjustment Shunt Width Coilrear chassis screwdriver adjustments
	Control Wildsh, Coll control and a second stress adjustment
SWEEP DEFLECTION Magnetic	Series Width Coilrear chassis screwdriver adjustment Expanded Width Coilrear chassis screwdriver adjustment Width Selector Switchrear chassis screwdriver adjustment
SWEEP DEFLECTION Magnetic SCANNING Interlaced, 525 line	Expanded Width Coilrear chassis screwdriver adjustment Width Selector Switchrear chassis screwdriver adjustment Heightrear chassis adjustment Horizontal Linearityrear chassis screwdriver adjustment Vertical Linearityrear chassis adjustment
	Expanded Width Coilrear chassis screwdriver adjustment Width Selector Switchrear chassis screwdriver adjustment Heightrear chassis adjustment Horizontal Linearityrear chassis screwdriver adjustment Vertical Linearityrear chassis adjustment Horizontal Driverear chassis screwdriver adjustment Horizontal Drive
SCANNING Interlaced, 525 line	Expanded Width Coilrear chassis screwdriver adjustment Width Selector Switchrear chassis screwdriver adjustment Heightrear chassis adjustment Horizontal Linearityrear chassis adjustment Vertical Linearityrear chassis adjustment Horizontal Driverear chassis screwdriver adjustment

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT OPEN THE KINESCOPE SHIPPING CARTON, INSTALL, REMOVE OR HANDLE THE KINE-SCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

The kinescope bulb encloses a high vacuum and, due to its large surface area, is subjected to considerable air pressure. For these reasons, kinescopes must be handled with more care than ordinary receiving tubes.

The large end of the kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. In installation, if the tube sticks or fails to sllp smoothly into its socket, or deflecting yoke, investigate and remove the cause of the trouble. Do not force the tube. Refer to the Receiver Installation section for detailed instructions on kinescope installation. All RCA kinescopes are shipped in special cartons and should be left in the cartons until ready for installation in the receiver. Keep the carton for possible future use.

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The following adjustments are necessary when turning the receiver on for the first time.

1. Turn the radio FUNCTION switch to Tel.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SE-LECTOR to the desired channel.

4. Adjust the FINE TUN-ING control for best sound fidelity and SOUND VOLUME for suitable volume

5. Turn the BRIGHTNESS control fully counterclockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZON-TAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counterclockwise until the retrace lines just disappear.

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps numbers 4 and 9.

> 12. To operate the Electric Magnifier, push the button on the remote cable.

> 13. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

> 14. If the positions of the controls have been changed, it may be necessary to repeat steps numbers 1 through 9.

> 15. For radio operation turn the FUNCTION switch to AM or FM and tune in station with the radio TUNING control.

> 16. For phono operation, turn the function switch to PH for operation of the 78 rpm changer or to XPH for operation of the 45 rpm changer.

Figure 1—Receiver Operating Controls

THE TELEVISION SECTION OF THE CHASSIS USED IN MODEL TA129 IS SIMILAR TO THE CHASSIS OF MODELS T120 AND T121.

REFER TO T120, T121 SERVICE DATA ON PAGES 199 TO 210 INCLUSIVE FOR TELEVISION ALIGN-MENT PROCEDURE, TEST PATTERN PHOTOGRAPHS, RESPONSE CURVES AND WAVEFORM PHOTO-GRAPHS.

THE RADIO SECTION OF MODEL TA129 IS IDENTICAL TO THE RADIO SECTION OF MODEL TA128. REFER TO PAGE 232 FOR RADIO ALIGNMENT PROCEDURE.

INSTALLATION INSTRUCTIONS

3

Remove the television compartment back.

Make sure that all tubes are in place and are firmly seated in their sockets.

Check to see that the high voltage lead is attached to the kinescope second anode connector socket on the bell of the tube

Connect the antenna transmission line to the receiver antenna terminals.

Plug the receiver power cord into a 115 volt a-c power source. Turn the power switch to the "on" position, the function switch to Tel, the brightness control three-quarters clockwise, and picture control counterclockwise.

ION TRAP MAGNET ADJUSTMENT .-- Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magne: for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maxi-

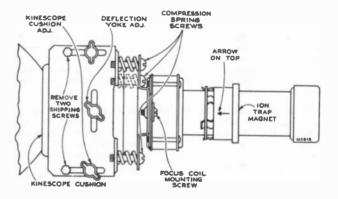
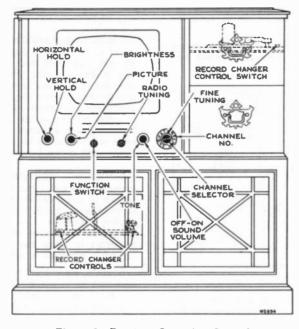


Figure 2-Yoke and Focus Coil Adjustments

mum position with which good line focus can be maintained.

DEFLECTION YOKE ADJUSTMENT .--- If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.



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PICTURE ADJUSTMENTS. It will now be necessary to obtain a test pattern picture in order to make further adjust-ments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

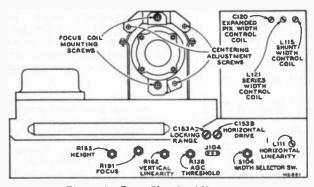


Figure 3-Rear Chassis Adjustments

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT .- Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normat and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustments."

ALIGNMENT OF HORIZONTAL OSCILLATOR .--- li in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.-Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or disagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counter-clockwise. Turn the picture control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull in point. Repeat this procedure until 3 bars are present.

Repeat the adjustments under "Horisontal Frequency Adjustment" and "Horisontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the

horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the For field purposes paraalignment procedure graph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

FOCUS COIL ADJUSTMENTS .- The focus coil should be adjusted so that there is approximately ¼ inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. However, it may be necessary to change this distance slightly in order to compensate for small differences in strength of the permanent magnets in the coil. In order to prevent the beam from striking the neck of the kinescope, it is important that the axis of the hole through the focus coil should be kept in accurate alignment with the axis of the neck of the kinescope.

CENTERING ADJUSTMENTS .--- Centering is obtained by loosening the two tocus coil mounting screws and sliding the coil up or down or from side to side. If a corner of the raster is shadowed, check the position of the ion trap magnet. Slightly reposition it to eliminate the shadow and recenter the picture by sliding the coil. In extreme cases it may be necessary to adjust one or more of the focus coil compression screws to eliminate a corner shadow.

Recheck the position of the ion trap magnet to insure that maximum brilliance is obtained. It is important that the kinescope not be operated with the ion trap magnet adjusted for less than maximum brightness. To do so may cause injury to the tube.

PICTURE SIZE AND LINEARITY .- Connect the "Electronic Magnifier" switch to its socket on the rear apron of the chassis. Set the switch to the large (expanded) picture position. Set the Expanded Width Selector Switch S104 to the counter-clockwise position and adjust the Expanded Width Control L120 so that the test pattern outer circle normally tangent to the top of the picture is now tangent to the side of the picture. (If the width is not sufficient, set the Expanded Width Selector Switch to the center or the clockwise end position.) Adjust the Horizontal Drive and the Horizontal Linearity Control until the pattern is symmetrical from left to right. In general, the core of the Linearity Control Coil should be between ½ to all the way out of the coil.

Set the "Electronic Magnifier" switch to the normal size position. Observe to see if the picture width is correct. If it is not, adjust either the Series Width Control Coil L121, or the Shunt Width Control Coil L115 until the picture is the correct width. If the Series Width Coil core is out too far, the picture will "ring" on the left half. This ring will be shown as one or more faint light or dark vertical bars somewhere on the left half of the picture with resulting poor horizontal linearity.

When the proper width is obtained, switch to the expanded picture position, wait for a few seconds then switch back to the normal position. Observe if the top of the picture immediately assumes its final position or if it takes several seconds to come to a stop. If the picture requires more than a second to become still, adjust the core of L115 or L121 in and the other out while maintaining the proper width. Repeat the above test and observe if the picture immediately comes to rest when switched to the normal size position. Continue to adjust L115 and L121 until this condition is satisfied and the picture is the proper width. Observe the picture horizontal linearity and if necessary retouch Horizontal Drive, Linearity and Width Controls L115 and L121.

With the "Electronic Magnifier" switch in normal position, adjust the Height (R155) and the Vertical Linearity control (R162) as usual in order to obtain good vertical linearity. In addition, if difficulty is experienced in obtaining good vertical linearity at the top one-half inch of the picture, slightly adjust the Vertical Peaking Control L119.

Switch to the expanded picture position and note if the proper aspect ratio is obtained. If not, adjust L112 and/or S104.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.-Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical wedge" and best focus in the white areas of the pattern.

AGC THRESHOLD CONTROL .-- The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

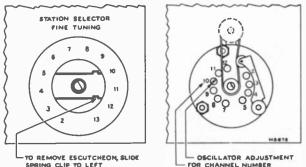
To check the adjustment of the AGC Threshold Control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS .-- Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.



SPRING CLIP TO LEFT

Figure 4-R-F Oscillator Adjustments

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION .--- Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL .-- To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the back and the knobs, unplug all cables and remove the chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet. The kinescope is held on the chassis by means of a special strap, so that the chassis and the kinescope can be handled together, as a unit.

KINESCOPE HANDLING PRECAUTION .--- Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope, remove the kinescope socket, the ion-trap magnet, and the second-anode connector. Loosen the cross-recessed head screw on the kinescope strap. Withdraw the kinescope toward the front of the chassis.

INSTALLATION OF KINESCOPE .- Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

As may be seen by inspection, the radio dial lights and dial pointer are attached to the cabinet front panel. The dial cord is attached to the receiver chassis. The method of attachment may be seen in Figure 5.

Slide the dial pointer to the stop on the high frequency end of the dial. Turn the radio tuning shaft until the gang is completely unmeshed.

To replace the chassis in the cabinet, first tighten the cross recessed head screw on the kinescope strap. Slide the chassis into the cabinet until there is sufficient slack in the pilot light cable then attach the pilot light sockets to the pilot light bracket.

Insert the chassis to its proper position, then install the six chassis bolts and tighten. Loosen the kinescope strap from the rear of the chassis. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flare then tighten the cushion adjusting screws. Push the yoke forward and tighten Tighten the kinescope strap. Replace the control knobs.

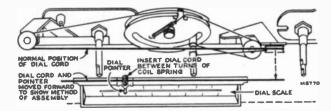


Figure 5—Dial Cord and Pointer Assembly

To hook up the dial pointer, reach over the television chassis to the radio and press the dial cord well into the coil spring.

Turn the set on and to radio position to see that the dial lighting is correct. If it is not, adjust the dial lights and shields. Tune in a station of known frequency and check the dial calibration.

CABINET ANTENNA .-- A cabinet antenna is provided which may be employed in strong signal areas in which no reflections are experienced. The antenna leads are brought out near the receiver antenna terminal board.

The link on the antenna terminal board is for use in case it is desirable to connect a separate "A" band antenna.

TA129

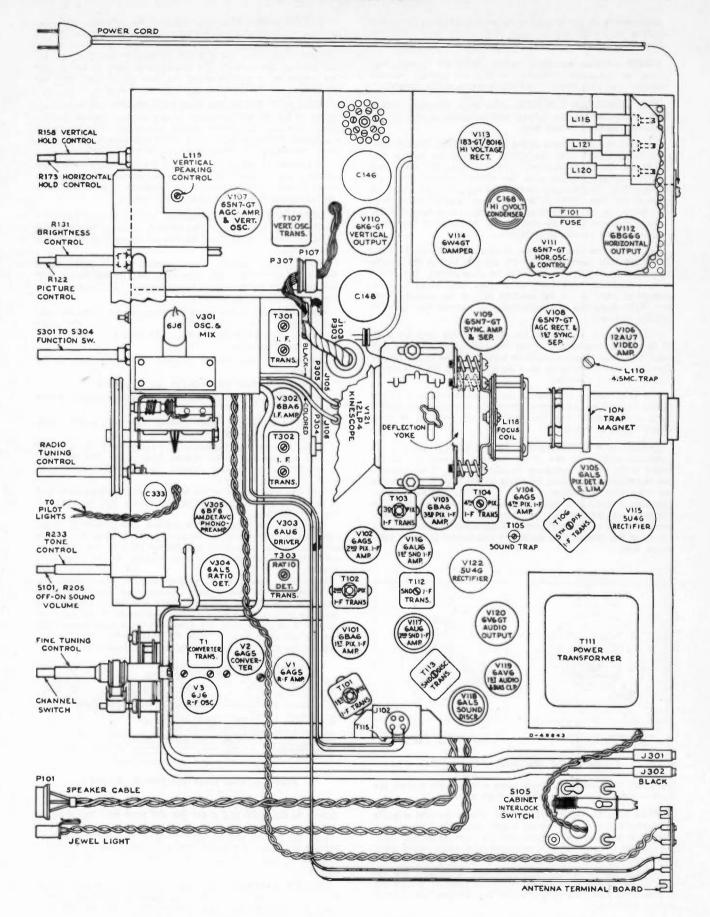


Figure 6-Chassis Top View

CHASSIS BOTTOM VIEW

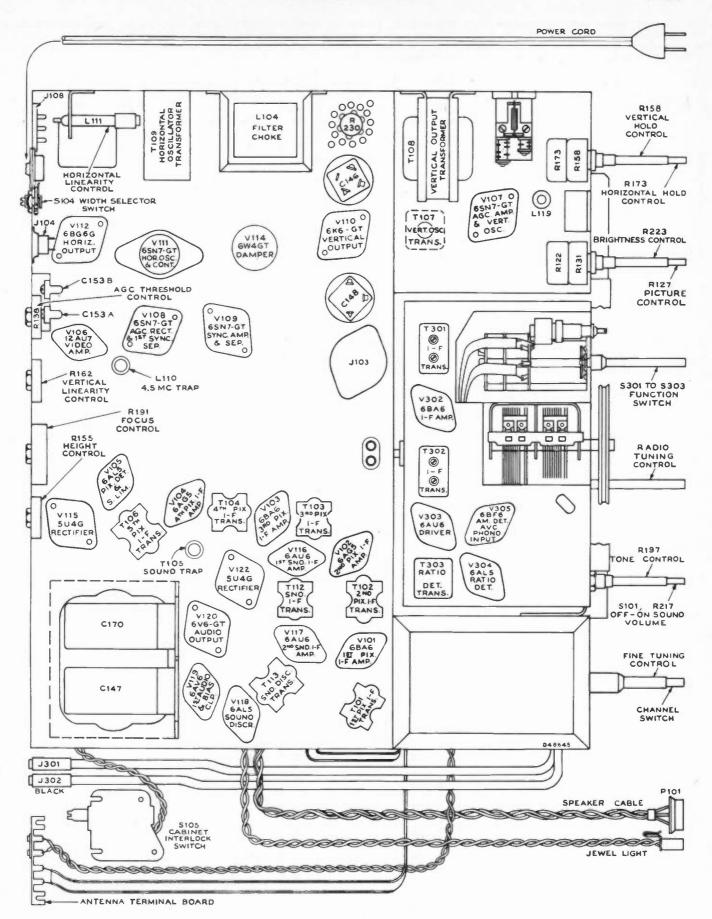


Figure 7-Chassis Bottom View

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VOLTAGE CHAPT

The following measurements represent two sets of conditions. In the first condition a 2200 microvolt test pattern signal was fed into the receiver, the picture was synced and the AGC threshold control was properly adjusted. The second condition was obtained by removing the antenna leads and short-circuiting the receiver antenna terminals. Voltages shown are as read with "Jz. VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles a-c.

				E.	Plate	E. 5	Screen	E. C	athode	E.	Grid	I	I	
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurement
V 1	6AG5	R-F Amplifier	2200 Mu. V. Signal	5	140	6	142	2 & 7	0	1	-2.4	.72	.33	
		•	No Signal	5	67	6	111	2 & 7	0	1	4	14.0	5.0	
V2	6AG5	Converter	2200 Mu. V. Signal	5	*130 to 140	6	*130 to 140	2 & 7	0	1	*-3.0 to -7.0	*7.1 to 7.7	*2.3 to 2.7	*Depending
			No Signal	5	*104 to 109	6	*104 to 109	2 & 7	0	1	*-2.0 to -6.0	*5.3 to 5.9	*.8 to 1.0	upon channel
V3	6]6	R-F Oscillator	2200 Mu. V. Signal	1 & 2	*88 to 95		-	7	.19	5 & 6	*-5.1 to -7.3	*1.9 to 2.7	-	*Depending
			No Signal	1 & 2	*68 to 81			7	.16	5 & 6	*-4.5 to -6.6	*1.8 to 2.1		upon channel
V101	6BA6	lst Pix. I-F Ämplifier	2200 Mu. V. Signal	5	125	6	125	7	.4	1	-12.5	2.8	1.3	
			No Signal	5	95	6	95	7	1.1	1	+.3	7.5	3.5	
V102	6AG5	2d Pix. I-F Amplifier	2200 Mu. V. Signal	5	115	6	115	2 & 7	.75	1	0	8.2	2.5	
			No Signal	5	100	6	100	2 & 7	.65	1	0	6.8	2.1	
V103	6BA6	3d Pix I-F Amplifier	2200 Mu. V. Signal	5	110	6	135	7	.25	1	-2.4	4.0	3.8	
			No Signal	5	60	6	100	2 & 7	.75	1	4	11.0	4.8	
V104	6AG5	4th Pix. I-F Amplifier	2200 Mu. V. Signal	5	170	6	135	2 & 7	1.35	1	0	6.5	2.0	
			No Signal	5	175	6	120	2 & 7	1.2	1	0	5.9	1.8	
V105 A	6AL5	Picture 2d Det.	2200 Mu. V. Signal	7	-113		_	1	-112		_	.48	_	
			No Signal	7	-120		_	1	-120				_	
V105 B	6AL5	Sync Limiter	2200 Mu. V. Signal	2	-107	_		5	-56		_		_	
			No Signal	2	-80		_	5	-60	_	_	_	_	
V106	12AU7	lst Video Amplifier	2200 Mu. V. Signal	1	-23.2	_		3	-111	2	-113	4.38		
			No Signal	1	-19.2			3	-117	2	-120	3.82	_	
V106	12AU7	2d Video Amplifier	2200 Mu. V. Signal	6	•166			8	*-5.3	7	•-12.2	6.2	_	*At average
			No Signal	6	•134		_	8	* 5.6	7	•-10.3	6.9	_	contrast
V107 Ā	6SN7 GT	ACG Amplifier	2200 Mu. V. Signal	5	-12.6		_	6	\$5.5	4	-56.5	.9	_	
			No Signal	5	+.3	_	_	6	-60	4	64	.3	_	
V107 B	6SN7 GT	Vertical Oscillator	2200 Mu. V. Signal	2	76			3	-111	1	-158	.2	_	
			No Signal	2	62		_	3	-120	1	-169	.2	_	
V108	6SN7 GT	AGC Rectifier	2200 Mu. V. Signal	5	97		_	6	-3.4	4	-19.3	.3		
			No Signal	5	81	_	_	6	-8.7	4	-19.3	.28	_	
V 108	6SN7 GT	lst Sync Separator	2200 Mu. V. Signal	2	96	_		3	-1.8	1	-19.5	.1		
			No Signal	2	81			3	-9.7	1	-19.3	.1		
V109	6SN7 GT	Sync Amplifier	2200 Mu. V. Signal	2	158		-	3	0	1	-4.7	5.25	_	
			No Signal	2	154	-	_	3	0	1	-5.2	3.75		

VOLTAGE CHART

	2	5	1
TA	1	2	9

				E	. Plate	E.	Screen	E.	Cathode	E	E. Grid	1	I	
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurements
V109	6SN7 GT	Sync Separator	2200 Mu. V. Signal	5	230		_	6	51	4	-106	.4		
			No Signal	5	215			6	-59	4	-80	.35		
V110	6K6- GT	Vertical Output	2200 Mu. V. Signal	3	223	4	223	8	67	5	-91		*7.85	*Screen connected to
			No Signal	3	208	4	208	8	-79	5	-101		•7.7	plate
V 111	6SN7 GT	Horizontal Osc. Control	2200 Mu. V. Signal	2	*48			3	-110	1	-92	.2		*Variation of hold gives
			No Signal	2	•33	_		3	-120	1	-108	.2		-21.9 to +56 volts on plate
v 111	6SN7 GT	Horizontal Oscillator	2200 Mu. V. Signal	5	70		_	6	-111	4	-185	2.4		
			No Signal	5	54	-	_	6	-120	4	-192	2.4	_	
V112	6BG6G	Horizontal Output	2200 Mu. V. Signal	Сар	Do Not Meas.	8	180	3	-90	5	-110	68	-	
			No Signal	Сар	Do Not Meas.	8	170	3	-100	5	-115	67	_	
V113	1 B3GT /8016	H. V. Rectifier	Brightness Min.	Сар	Do Not Meas.	_		2 & 7	9500	_	-	0	_	
			Brightness . Äverage	Сар	Do Not Meas.		-	2 & 7	9000	_	_	.1	_	
V114	6W4GT	Damper	2200 Mu. V. Signal	5	Do Not Meas.	-	-	3	300			66	-	
			No Signal	5	Do Not Meas.			3	295	_	_	65	_	
V115 V122	5U4G	Rectifier	2200 Mu. V. Signal	4 & 6	335			2 & 6	250	_		210		*A-C meas- ured from plate
			No Signal	4 & 6	335			2 & 8	245	_	_	215		to trans. center tap
V116	6AU6	lst Sound I-F Amplifier	2200 Mu. V. Signal	5	134	6	134	7	.9	1	0	8.2	3.3	
			No Signal	5	110	6	110	7	.7	1	0	5.7	2.6	
V117	6AU6	2nd Sound I-F Amplifier		5	148	6	90	7	0	1	-9	1.6	.8	
			No Signal	5	115	6	60	7	0	1	65	3.35	1.15	
V118	6AL5	Sound Discrim.	2200 Mu. V Signal	2	-8.4	_	_	5	5.8				_	
			No Signal	2	-2.0	_	_	5	.41	_		_)
			2200 Mu. V. Signal	7	-3.7			1	0	_	_			
			No Signal	7	-1.08		-	1	0	_	_			
V119	6AV6	lst Audio Amplifier	2200 Mu. V. Signal	7	85		-	2	0	1	89	.49		
			No Signal	7	83		_	2	0	1	89	.4		
V120	6K6– GT	Audio Output	2200 Mu. V. Signal	3	102	4	113	8	-99	5	-108	19.3	3.3	
			No Signal	3	72	4	80	8	-111	5	-114	18	3	
V121	12LP4	Kinescope	2200 Mu. V. Signal	Сар	9000	10	290	11	51	2	20	.1	_	*Average Brightness
			No Signal	Сар	_	10	285	11	42	2	14	-	_	Average Brightness
V301	6]6	Mixer and Oscillator	No Signal	1 2	110 95	_	=	7	0	6 5	-2.0 5.0	_	_	
V302	6BA6	Radio I-F Amplifier	No Signal	5	210	6	105	7	.8	1	-0.2	-	_	Function switch
V303	6AV6	Radio F-M Driver	No Signal	5	205	6	135	7	1.5	1	0	_	_	in
V304	6AL5	Radio Radio Det.	No Signal	27	-0.2 -0.2	_	_	5 1	-0.2 -0.1	-	_			F-M position
		Radio	No	6										

RADIO CHASSIS WIRING DIAGRAM

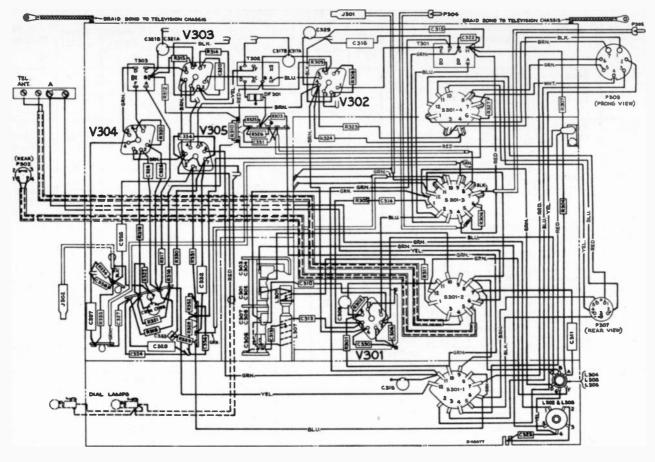


Figure 8-Radio Chassis Wiring Diagram (RK135D)

TELEVISION CRITICAL LEAD DRESS

- 1. The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
- 2. Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
- 3. If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
- 4. Picture i-f coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
- 5. Leads to L102 and L103 must be as short as possible.
- 6. Dress peaking coils L105, L106 and L107 up and away from the chassis.
- 7. Dress C183 across tube pins 5 and 6 with leads not exceeding 36 inch.
- 8. Dress C129 and C130 up and away from the chassis.
- 9. Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.
- Dress the green lead from pin 2 of V106 away from the chassis.
- 11. Dress R169, R169, R170, R176 and R178 up and away from the chassis.
- 12. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.

- Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
- 14. Dress leads from the width control coils away from the transformer frame.
- 15. Dress T110 winding leads as shown in Figure 9.

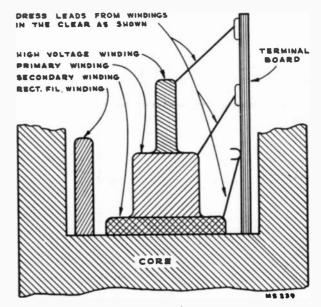


Figure 9-T110 Lead Dress

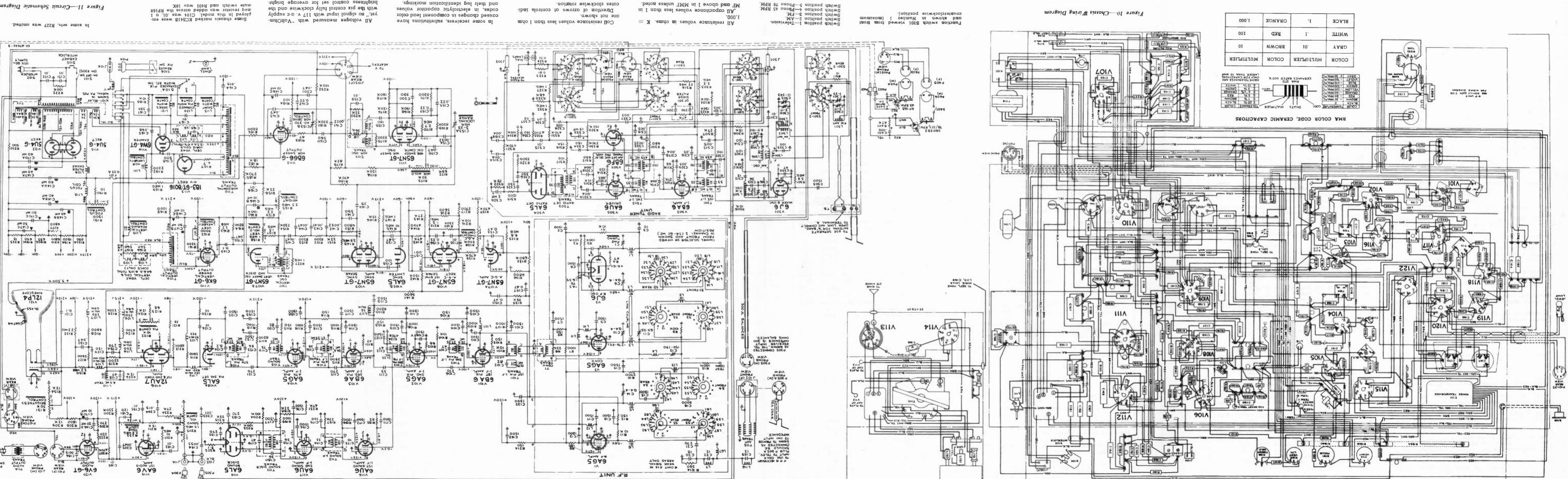


Figure 11-—Circuit Schematic Diagran

WITIG ZALICU CHO WANT MOR TOL

induiness control set tor average bri with the pix control tully clockwise and the

and their lug identification markings. codes, in electrolytic capacitor values

cates clockwise rotation Direction of arrows at controls

TA129

'All capacitance values less than 1 in

MI and above I in MMF unless noted.

523-524

652

REPLACEMENT PARTS (Continued)

621AT

097

270.000 ohms, ±10%, ½ weth (R320) 470.000 ohms, ±10%, ½ weth (R320)		C189, R166, R167) Yoke-Deflection yoke (L108, L109, L112, L113,	28214
120'000 opma: =10%' 1/3 watt (H325, H326, H329)		Itab-I-F trap (L116, C189)	9476
100'000 opms' ∓10%' ½ matt (H334) 88'000 opms' ∓10%' ½ matt (H338)		Ltab-gonuq ttab (1102, C119)	8441
39.000 ohms. ±10%, ½ weth (R328)		Itab 4'2 mc ttab (F110' C138)	2222
27.000 ohms, ±10%, ½ watt (R307, R309)		ditw etelomor transformer complete with	8458
18.000 ohms, ±10%, ½ watt (R302)		(1109)	0236
12'000 opure: = 50%' 1/2 MCH (B312' B318)		Transformer-Horizonial oscillator transformer	9496
]3,000 ohms, ±20%, ½ watt (R306) 10,000 ohms, ±20%, ½ watt (R306)		(1113' C128' C129' C180)	
4000 opurs: +10%, 1/2 weth (H336)		Transformer-Sound discriminator transformer	1427
3300 opms. ±5%, ½ watt (fi320)		C174) C174)	
1200 ohms, ±5%, ½ watt (R319)		Cl34)	1424
(880 opms) ∓30%' ½ Matt (H310' H313)		Transformer-Fifth pix, 1-f transformer (T106, C123,	5456
120 opme, 土10%, 好 watt (R305, R317)		C110)	
68 ohms. ±20%, ½ watt (R308)		Transformer-Fourth pix, 1-f transformer (T104,	26574
10 ohms. ±20%, 1/2 watt (R311)		Transformer-Third pix, I-f transformer (T103, C112)	16574
Resistor—Fixed, composition:		C101) C102)	
	0705/	Trunsformer-Second pix, 1-4 trunsformer (T102,	06574
Actistor—Wire wound, 0.51 ohms, 1 woth (R323, Resistor—Wire wound, 0.51 ohms, 1	74023	Transformer-First pix, 1-f transformer (T101, C102, R101)	COCh
Filter-Diode filter, duci 200 mmt. and 47,000	11074	transformer (T110)	68574
Cord-Drive cord (approximately 42" overall)	25624	Fransiormer-Horizontal output and hi-voltage	88574
Connector-4 prong male connector (P102)	39123	Transformer-Vertical oscillator transformer (T107)	69564
	15483	Transformer-Vertical cutout transformer (T108)	S4874
Coll—Oscillator coll—F.M. (1307) Connector—7 contact male connector (P103)	38332	Transformer-Power transformer 115 volt (T111)	26874
Coll-Antenna coll-F.M. (L301)	14024	Zwitch-Interlock switch (S105)	4127
Coll-Oscillator coll-Y.M. (L304, L305, L306)	13144	bi-voltage rectifier tube mounting plate Switch—Width selector switch (S104)	24872
Coll-Antenna coll-A.M. (L302, L303)	74020	Support-Bakelite supports (I set) for mounting	96574
Capacitor—Tubular, paper, .05 mid. 400 volts (C316)	55774	Strap-Kinescope relaining strap	£6874
(C338)	33776	socket leads	
Capacitor-Tubular, paper, .05 mid. 200 volts	12596	Spring-Suspension spring for kinescope tube	98674
		Spring-Anode lead spring	56574
(C311) Capacitor—Tubular, paper, .02 mid. 200 volts	11928	control screws (3 required)	0000
Capacitor	52612	Socket-Pilot lamp socket	13288 13284
(C332)		Socket-Kinescope socket	1364 76874
Capacitor—Tubular, paper, .01 mid, 200 volts	21923	Socket-Tube socket for 8016	80514
(C312' C330' C334)	0001	Socket-Tube socket, octal, ceramic, plate mounted	67262
(C327, C331) Capacitor—Tubulat, paper, .005 mid. 400 volts	11223	Socket-Tube socket, octal, water	31521
Capacitor-Tubular, paper, .003 mid. 200 volts	19602	Socket-Tube socket. 9 pin. miniciure	12927
(C333)		Socket-Tube socket. 7 pin. miniature	21152
Capacitor-Inbulat, paper, .0025 mid. 400 volts	20902	Sleeve-Rubber sleeve for focus coll	74937
Capacitor—Electrolytic, 2 mid, 50 volts (C328) Capacitor—Electrolytic, 15 mid, 50 volts (C328)	32223	bieids eduT—bieid2	13284
Capachor-Ceramic, 5000 mmi. (C318, C329)	2422	screw for focus coll adjustment (3 required)	
C331)		Screw-#10.32 x 114" cross recessed binder head	20877
Capacitor-Ceramic, dual, 4000 mmf. (C317, C319,	60072	scient to focus coll mounting (2 required)	1005
Capacitor-Ceramic, 1500 mmf. (Cata), Cata)	13148	Screw—#8-32 x 3%, cross recessed binder head	10974
Capacitor—Ceramic, 180 mmf. (C325, C326) Capacitor—Mica, 330 mmf. (C325, C328)	33640 11333	Screw-#8-32 x 1/6" wing screw for deflection yoke	28083
Capacitor-Ceramic, 150 mml. (C314)	48132	sciem tot ginescope teidining sitop	00036
Capacitor-Ceramic, 100 mmf. (C322, C323)	36266	Screw-#10-32 x 1%" cross recessed round head	91774
Capacitor-Coramic, 68 mmt. (C310)	333240	10 megohm, ±20%, ½ watt (R201)	
Capacitor—Ceramic, 56 mmf. (C313)	13867	10 megohm, ±10%, ½ watt (R148)	
Capacitor—Ceramic, 15 mmf. (C312) Capacitor—Ceramic, 47 mmf. (C312)	39042	6.8 megohm, ±10%, ½ watt (R125)	
Capacitor-Ceramic, 2 mmf. (C306)	99862	2.7 megohm, 土5%, I watt (R149) 3.9 megohm, 土10%, ½ watt (R149)	
C303' C304' C302' C302' C308)		R163) 7.7 megohun +5%, 1 watt (R170)	
Capacitor-Variable tuning capacitor (C301, C302.	21072	2.2 megohm. ±10%, 1/2 watt (R130, R132, R159,	
(M301' M303)		1.5 megohm. ±5%, ½ watt (R157)	
Caple-Shielded cable complete with pin plug	SOIIL	I.2 megopm, ±5%, ½ wath (H123)	
Cable—Shisided cable complete with temale con- nector (W307, W311)	11674	I megohm. ±10%, ½ wath (R1&) I megohm. ±20%, I wath (R189, R227)	
H.I	11074	(820.000 chms. ±5%, ½ wath (189)	
Bracket-Drive cord bracket complete with pulley	14027	680.000 ohms. ±10%, ½ watt (R133)	
"H.H.—R.H.H.		560,000 ohms, ±10%, 1/2 wath (R212)	
Bracket-Drive cord bracket complete with two	14026	470,000 ohms. ±20%, ½ watt (R207)	
Board-"Telv-Ant" terminal board (TB301)	66097	R180) R70,000 obms. ±10%, ½ watt (R137, R139, R224, R180)	
HK 132D		330.000 ohms. ±10%, ½ waft (R140, R200)	
BYDIO CHYZZIZ YZZEWBILEZ		270.000 ohms. ±10%, 1/3 watt (R185)	
DESCRIPTION	.oN	DESCHIBLION	.oN

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REPLACEMENT PARTS (Continued)

 238 Goby - Tunkny hook acting (23) Bibly - Charge (34) Cohe - Shield of the starting and the starting action (23) Bibly - Charge (34) Cohe - Shield of the shirt of the shirt	 apide of s37/3 RNM characteristic and (R321) apide of s27/3 RNM characteristic control in the sector i	 (1) Solver-Tibe socket, Y andti (323) (2) Case-Cabinei back (3) Case-Cabinei back (4) Case-Cabinei cranking and control prioribulation color color calculation color calculati calculation color calculation color calculation color calcul	pull (2 required for each pull)		Capacitor-Tubular, paper, .002 mid, 400 volts	3803
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 J. Turnstormer-Elone, Marking Problemer (1131) J. Tanstormer-Tobe sochet. 7 pln. minictrues for wolling instruments J. Socket-Tobe sochet. 7 pln. minictrue for V305 J. Socket-Tobe sochet. 7 pln. minictrue for V4000 J. Socket-Tobe sochet. 7 pln. minictrue for V40000 J. Socket-Tobe sochet. 7	 (1) 2) 2.2 megohim ±10%, ½ wachi (R321) (2) 2.5 megohim ±20%, 10000000	0. DESCRIPTION No. DESCRIPTION 0.0 Speck-Table socket, 7 ph. minicture for V303 74373 Decai-Trade mark decal (Yethola) 173 Wath-#rank knob shold 74373 Decai-Trade mark decal (Yethola) 173 Wath-#rank knob shold 74305 Dial-Dial scale and besel 173 Wath-#rank knob shold 74305 Dial-Dial scale and besel 173 Wath-Frank knob shold 74305 Dial-Dial scale and besel 173 Wath-Trank knob shold 74305 Dial-Dial scale and besel Dial-Dial scale and besel 173 Wathor-Tank knob socket, 7 ph. minicture (1301) 74305 Dial-Dial scale and besel Dial-Dial scale and besel 173 Wathor-Tank knob Socket-Dial ingetures (1303) 74305 Dial-Dial scale and besel Dial-Dial scale and besel 173 Wathor-Tank knob Socket-Dial ingetures (1303) 74305 Dial-Dial scale and besel Dial-Dial scale and besel Dial-Dial scale and besel 173 Wathor-Socket (1301) 74305 Math-#Socket (1001) Dial-Dial scale and besel Dial-Dial scale and besel 173 Socket-Dial ingetures (1303) 74305 Math = Prostome (1004)		62672		
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033 Connector—4 prong male connector 4 1001) 74363 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V301 74363 Excurches moderny connection and basel 1286 Connector—5 pring wath (R303) 74363 Excurches moderny connection and basel 1293 Static—Tube socket, 7 pin, minicture for V303 74363 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V303 74363 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V303 74363 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches moderny connection and basel 118 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches moderny connection and basel 111 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches moderny connection and basel 117 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches moderny connection and basel 118 Socket—Tube socket, 7 pin, minicture for V303 74353 Excurches for M104	 (103) (203) <li< td=""><td>0.0 DESCRIPTION 73399 KnobChansic Component (101) 0.1 Competing ±10%, ½ work (1321) 73399 KnobChansi and basel 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1320) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1320) 74353 Ndaber (101) 0.1 Staneform (101) 74353 Ndaber (101) 0.1 Staneform (1321) 74353 Ndaber (101) 0.1 Staneform (1321) 74353 Ndaber (101) 0.1 Staneform (1101) Ndaber (101)</td><td></td><td></td><td></td><td>100</td></li<>	0.0 DESCRIPTION 73399 KnobChansic Component (101) 0.1 Competing ±10%, ½ work (1321) 73399 KnobChansi and basel 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Stanegohm, ±10%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1321) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1320) 74353 Ndaber (101) 0.1 Staneform, ±20%, ½ work (1320) 74353 Ndaber (101) 0.1 Staneform (101) 74353 Ndaber (101) 0.1 Staneform (1321) 74353 Ndaber (101) 0.1 Staneform (1321) 74353 Ndaber (101) 0.1 Staneform (1101) Ndaber (101)				100
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32.5 megoham. ±10%, ½ wadit (R327, R332) 74950 Tangbar action and basel 11 SPEAKER ASSEMBLIES 74950 Tangbar action and basel 22.5 Speaker 10%, ½ wadit (R303) 74935 Tangbar action and basel 33.5 megoham. ±10%, ½ wadit (R303) 74955 Tangbar action and basel 33.5 megohan. ±10%, ½ wadit (R303) 74955 Tangbar action and basel 33.5 megohan. ±10%, ½ wadit (R316) 74956 Tangbar action and basel 33.5 megohan. ±20%, ½ wadit (R316) 74955 Tangbar action and basel 74955 33.6 Socies-Thos sociest, 7 pin, minicture for tuning shaft (rear) 74956 Minge-Factor and basel 1000 basel	92569.5W 92569.5W 92569.5W 74960 74961 7000 Ohms. ±20%, 1% work (R321) 17 92569.5W 92569.5W 74960 74951 74951 74951 17 92569.5W 92569.5W 74961 7000 Ohms. ±20%, 1% work (R321) 74951 74951 74051 <td< td=""><td>92569.9W DESCRIPTION No. DESCRIPTION 0.0 DESCRIPTION No. DESCRIPTION 0.1 Spick Ender 10%, 1% work (R321) 74373 Decul-Trade mark decal (Microid) 17.2 Washer ±20%, 1% work (R321) 74323 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R321) 74323 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74052 Dical-Dial scale mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74052 Decul-Dial scale of the mark means 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Dical-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74050 Endit-Dial scale of the mouthing species 2.2 Socket-Dial grapher socket, 7 pin, mindature for 18303 74356 <t< td=""><td></td><td>03072</td><td></td><td></td></t<></td></td<>	92569.9W DESCRIPTION No. DESCRIPTION 0.0 DESCRIPTION No. DESCRIPTION 0.1 Spick Ender 10%, 1% work (R321) 74373 Decul-Trade mark decal (Microid) 17.2 Washer ±20%, 1% work (R321) 74323 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R321) 74323 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74052 Dical-Dial scale mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Trade mark decal (Microid) 2.2 meyohm ±20%, 1% work (R327, R332) 74052 Decul-Dial scale of the mark means 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Decul-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74053 Dical-Dial scale of the mouthing species 2.2 meyohm ±20%, 1% work (R327, R332) 74050 Endit-Dial scale of the mouthing species 2.2 Socket-Dial grapher socket, 7 pin, mindature for 18303 74356 <t< td=""><td></td><td>03072</td><td></td><td></td></t<>		03072		
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172 Wather—Flbre wath (R327, R332) 74955 Knob—Flne tuning knob—fan-for maing knob for	1172 Wather—Flore wath (R321) 74373 74373 Decal—Trade mark decal (Victroid) 1117 Socket—Tube socket, 7 pin, miniature for V303 74303 74353 74053 Minge—Speaker compariment door hinge—loor ming a more dark of required) 1173 Socket—Tube socket, 7 pin, miniature for V303 74303 74353 Minge—Speaker compariment door hinge—loor ming a more dark of required) 1173 Socket—Tube socket, 7 pin, miniature for V303 74303 74303 74353 Minge—Speaker compariment door hinge—loor ming a more door hinge—loor minge a more door hinge a more door hinge a more door hinge a more door hinge a more door hinge—loor minge a more door hinge a more door hinge a more door minge a	1723 Washer—Flute washer tor tuning shoth washer tor muning shoth washer tor tuning shoth (fort) 73955 Rood—Fine tuning shoth washer tor tuning shoth washer tor muning shoth (fort) 1733 Washer—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 1733 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 173 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 173 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 173 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 174 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 173 Socket—Flute washer tor tuning shoth (fort) 74353 Knob—Fine tuning shoth (fort) 175 Socket—Flute washer tor mouthing shoth (fort) 74353 Knob—Fine tuning shoth (fort) 173 Socket—Flute washer tor mouthing shoth (fort) 74353 Knob—Fine tuning shoth (fort) 175 Socket—Flute washer tor mouthing shoth (fort) 74353 Knob—Fine tuning shoth (fort) 174 Socket—Flute washer tor mouthing shoth (fort) 74308 Knob—Fine washer			epoddiia	
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1 megohm. ±10%, ½ wark (R327, R332) 74809 Emblem-""RCA Victor" emblem 2.5 megohm. ±10%, ½ wark (R303) 74809 Emblem-""RCA Victor" emblem 2.5 megohm. ±10%, ½ wark (R303) 74809 Emblem-""""""""""""""""""""""""""""""""""""	1000 مر۲0,000 ohms. ±20%, ½ waft (R321) 74373 Decal—Trade mark decal (Victrola) 1000 1 megohm. ±10%, ½ waft (R321) 74052 Dial—Dial scale and besel 1173 50cket—Tube socket, 7 pin, miniature for V303. 74052 Dial—Dial scale and besel 1173 50cket—Tube socket, 7 pin, miniature for V303. 74052 Excutcheon—Channel marker escutcheon for mouning 33/7 1173 50cket—Tube socket, 7 pin, miniature for V303. 74052 Excutcheon—Channel marker escutcheon for mouning 33/7 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giase-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303. 74306 Giose-Satety giase 1173 50cket—Tube socket, 7 pin, miniature for V303.	October DESCRIPTION No. Decal—Trade mark decal (Victor, emblem filinge—Teacher 10%, 1% wath (R321) 173 Socket—Tube socket, 7 pin, minicture for V301, 3.3 megohm, ±20%, 1% wath (R321) 74303 74305 Dial—Dial scale and besel filinge—Teacher and the socket of pinge (I securite for mounting speaks 3.3 megohm, ±20%, 1% wath (R321) 74373 Decal—Trade mark decal (Victor) Mo. 117 Socket—Tube socket, 7 pin, minicture for V301, 3.3 megohm, ±20%, 1% wath (R321) 74305 Dial—Dial scale and besel instruments Mo. Decal—Trade mark decal (Victor) More of hinge (I securite for mounting 33/7) 117 Socket—Tube socket, 7 pin, minicture for V301, 3.3 megohm, ±20%, 1% wath (R321) 74305 Dial—Dial scale and besel instruments More of hinge (I securite for mounting 33/7) 117 Socket—Tube socket, 7 pin, minicture for V301, 3.4505 74305 Dial—Dial scale and besel instruments More of hinge (I securite for mounting 33/7) 118 Socket—Tube socket, 7 pin, minicture for V303, 3.4505 74305 Dial—Dial scale and besel instruments 117 Socket—Tube socket, 7 pin, minicture for V303, 3.5064 74305 Dial—Tubes of scale for anothing scale of anothing sca	adda abum loon manned and the		(10cT) fourb remotanost 1-1 teri3-remotanosT	
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I megohm. ±10%, ½ wath (R323) 74052 Dial-Dial scale and besel 2.2 megohm. ±10%, ½ wath (R303) 74052 Dial-Dial scale and besel 2.3 megohm. ±20%, ½ wath (R303) 74052 Dial-Dial scale and besel 2.3 megohm. ±20%, ½ wath (R303) 74052 Excutcheon-Channel market escutcheon for mouthing specie 2.3 megohm. ±20%, ½ wath (R303) 74052 Excutcheon-Channel market escutcheon for mouthing specie 028 Shield-Tube socket, 7 pin, miniature for V301, 7455 Escutcheon-Channel market escutcheon for mouthing specie 038 Socket-Tube socket, 7 pin, miniature for V302, 7455 Escutcheon-Channel market escutcheon for mouthing specie 117 Socket-Tube socket, 7 pin, miniature for V302, 7456 Grass-Satel grass 117 Socket-Tube socket, 7 pin, miniature for V302, 7456 Grass-Satel grass 117 Socket-Tube socket, 7 pin, miniature for V302, 7456 Grass-Satel grass 117 Socket-Tube socket, 7 pin, miniature for V302, 7456 Grass-Satel grass 118 Socket-Tube socket, 7 pin, miniature for V302, 7455 Grass-Gater grass 118 Socket-Tube socket, 7 pin, miniature for V302, 7456 Grass-Gater grass 118	178 V300.000 0.00000 0.0000 0.0000	Oc. DESCRIPTION No. DESCRIPTION 0.0 DESCRIPTION No. No. Decul-Trade mark decal (Victuola) 179 Socket-Tube socket, 7 pin, minicture for V302, 74373 Decul-Trade mark decal (Victuola) 2.2 megohm, ±20%, ½ wath (R321) 74373 Pacul-Dial scale and bestel 2.3 megohm, ±20%, ½ wath (R321) 74525 Escutcheon-Channel market secutcheon for mounting specks 2.3 megohm, ±20%, ½ wath (R321) 74525 Escutcheon-Channel market secutcheon for mounting specks 2.4 Socket-Tube socket, 7 pin, minicture for V301, 7455 Escutcheon-Channel market secutcheon for mounting specks 2.3 megohm, ±20%, ½ wath (R321) 74525 Escutcheon-Channel market secutcheon for mounting specks 2.3 megohm, ±20%, ½ wath (R321) 74525 Escutcheon-Channel market secutcheon for mounting specks 2.4 Socket-Tube socket, 7 pin, minicture for V301, 7455 Escutcheon-Channel market secutcheon for mounting specks 2.3 megohm, ±20%, ½ wath (R303) 74525 Escutcheon-Channel market secutore for mounting specks 2.4 Socket-Tube socket, 7 pin, minicture for V301, 7455 Escutcheon-Channel market secutore for mounting specks 2.4 Socket-Tube socket, 7 Market (R303) 7455 Escutcheon-Channel for mounting specks	(iez I)			
173 Socket-Tube socket, 7 pin, miniciture for V302, 50d - Finblem - "RCA Victor" emblem - "RCA Victor" escuticheon - "Contract escuticheon - "Contra	173 Socket-Tube socket, 7 pin. minicture for V303. 174 Socket-Tube socket, 7 pin. minicture for V303. 175 Socket-Tube socket, 7 pin. minicture for V303. 175 Socket-Tube socket, 7 pin. minicture for V303.	0.0 DESCRIPTION No. Decal—Trade mark decal (Victuola) 117 Socket—Tube socket, 7 pin, miniature for V301, 13 74373 Decal—Trade mark decal (Victuola) 23.2 megohm, ±20%, ½ wath (R321) 7453 Tablem—"RCA Victor" emblem 23.3 megohm, ±20%, ½ wath (R321) 7453 Ecutation—Channel market escutcheon for mounting specie 23.3 megohm, ±20%, ½ wath (R321) 7453 Ecutation—Channel market escutcheon for mounting specie 23.4 Socket—Tube socket, 7 pin, miniature for V301) 7453 Ecuticheon—Channel market escutcheon for mounting specie 23.5 megohm, ±20%, ½ wath (R321) 7453 Ecuticheon—Channel market escutcheon for mounting specie 23.5 megohm, ±20%, ½ wath (R301) 7453 Ecuticheon—Channel market escutcheon for mounting specie 23.4 Socket—Tube socket, 7 pin, miniature for V301, 7453 Ecuticheon—Channel market escuticheon for mounting specie 23.5 Socket—Tube socket, 7 pin, miniature for V303, 7453 Ecuticheon—Channel market escuticheon for mounting specie 23.5 Socket—Tube socket, 7 pin, miniature for V301, 7453 Ecuticheon—Channel for mounting specie 23.5 Socket—Tube socket, 7 pin, miniature for V303, 7453 Formet-Market	(i sei) HingeRecord storage compariment door hing	96872	Spring—Drive cord spring	800
I megohm. ±10%, ½ wath (R327, R332) 74052 Dial-Dial scale and besel 2.2 megohm. ±20%, ½ wath (R303) 74052 Dial-Dial scale and besel 3.3 megohm. ±20%, ½ wath (R303) 74052 Excutcheon-Channel market escutcheon for on for on market escutcheon for on market escutcheon for on for on market escutcheon for on market escutcheon for on market escutcheon for market escutcheon for on for on market escutcheon for on for on market escutcheon for market escutcheon for on for on market escutcheon for market escutcheon for on for on for on market escutcheon for market escutcheon for market escutcheon for on the socket. 7 pln, miniature for V301, 74755 028 SheldTube socket. 7 pln, miniature for V301, 15 0304 Ecutementer escutcheon for on for on market escutcheon for market escutcheon for on the socket. 7 pln, miniature for V305 117 SocketTube socket. 7 pln, miniature for V301, 15 056 Grass-Sately glass 117 SocketTube socket. 7 pln, miniature for V301, 15 118 The socket. 7 pln, miniature for V301, 15 119 For the socket. 7 pln, miniature for V301, 15 110 SocketTube socket. 7 pln, miniature for V301, 15 111 SocketTube socket. 7 pln, miniature for V301, 15	V304, V305 V304, V305 V400, 000 ohms, ±20%, ½ work (R321) 74373 Decal—Trade mark decal (Victroid) 1000 A70,000 ohms, ±20%, ½ work (R321) 74809 Emblem—"RCA Victor" emblem 23.2 megohm, ±10%, ½ work (R303) 74809 Emblem—"RCA Victor" emblem 23.3 megohm, ±20%, ½ work (R301) 74809 Emblem—"RCA Victor" emblem 23.4 megohm, ±20%, ½ work (R301) 74809 Emblem—"RCA Victor" emblem 23.5 megohm, ±20%, ½ work (R301) 74809 Emblem—"RCA Victor" emblem 23.5 megohm, ±20%, ½ work (R301) 73740 Ecutatoeon—Channel market escutation for oal intertuments 1028 Shield—Tube socket, 7 pin, miniature for V301, 74755 Giass—Sately giass 117 Socket—Tube socket, 7 pin, miniature for V301, 74755 Giass—Sately giass 117 Socket—Tube socket, 7 pin, miniature for V301, 74755 Giass—Sately giass	Octome 2004, V305 Mo. No. Decal—Trade mark decal (Victola) 117 Socket—Tube socket, 7 pln, minicture for V301) 74373 Decal—Trade mark decal (Victola) 235 Sheld—Tube socket, 7 pln, minicture for V301) 74373 Decal—Trade mark decal (Victola) 028 Sheld—Tube socket, 7 pln, minicture for V301) 74525 Ecutoboon—Channel market secutoboon for on 028 Sheld—Tube socket, 7 pln, minicture for V301) 74532 Ecutoboon—Channel market secutoboon for on 028 Sheld—Tube socket, 7 pln, minicture for V301) 74532 Ecutoboon—Channel market secutoboon for on 038 Sheld—Tube socket, 7 pln, minicture for V301) 74535 Ecutoboon—Channel market secutoboon for on 038 Sheld—Tube socket, 7 pln, minicture for V301) 74535 Ecutoboon—Channel market secutoboon for on 038 Sheld—Tube socket, 7 pln, minicture for V301) 74535 Ecutoboon—Channel market secutoboon for on 039 Finiture for V303 74035 Finiture for V301 74542	Hinge—Television compariment door hinge (l set) Hinge—Record storage compariment door hing (l set)	96872	Spring—Ditve cord spring	800
11.7 Societ—Tube societ, 7 pin, minicitute for V301, 5 74755 Cides—Sciety gides 11.7 Societ—Tube societ, 7 pin, minicitute for V301, 5 74809 Emblem—""""""""""""""""""""""""""""""""""""	1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides 1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides 1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides 1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides 1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides 1) Societ-Tube societ, 7 pin. minicture for V301. 74755 Gides-Sciety gides	Oc. DESCRIPTION No. Description Description Ecutionent	RPM changer (4 required) Hinge—Record storage compariment door hing (1 set)	24896 24308	Sbund—Duiae cote sbund gockei—Dici jamb sockei A303	038 364
I megohm. ±10%, ½ wath (R327, R332) 74052 Dial-Dial scale and besel 2.2 megohm. ±20%, ½ wath (R303) 74809 Emblem-"RCA Victor" emblem 2.2 megohm. ±20%, ½ wath (R301) 73542 Escutcheon-Channel mathematic 028 Shaft-Tuning knob shaft 73740 Escutcheon-Channel mathematic 028 Shaft-Tuning knob shaft 73740 Escutcheon-Channel mathematic	(532) Shield—Tuning knob shaft 第30%, ½ wath (R321) 73740 Esculation—"RCA Victor" emblem 10.000 ohms. ±20%, ½ wath (R321) 74373 Decal—Trade mark decal (Victola) 10.28 Shaft—Tuning knob shaft 73740 Faculation—"RCA Victor" emblem 23.2 megohm, ±20%, ½ wath (R321) 74809 Endlem—"RCA Victor" emblem 10.28 Shaft—Tuning knob shaft 73740 74809 Endlem—"RCA Victor" endlem	Oc. DESCRIPTION No. DESCRIPTION 0.38 Shaft—Tuning knob shaft Mo. Decal—Trade mark decal (Victor) No. 0.28 Shaft—Tuning knob shaft Mo. No. Decal—Trade mark decal (Victor) No. 0.38 Shaft—Tuning knob shaft Mo. No. Decal—Trade mark decal (Victor) No.	(1 sei) HPM changer (4 required) HPM changer (4 required) Hinge—Record storage compariment door hing Hinge—Record storage compariment door hing (1 sei)	14896 74308 74308	Socket-Tube socket. 7 pin, miniciture for V302, V303 Socket-Dici lamp socket	038 364
I megohm. ±10%, ½ wath (R327, R332) 74052 Dial-Dial scale and besel 2.2 megohm. ±10%, ½ wath (R303) 74809 Emblem-"RCA Victor" emblem 2.2 megohm. ±20%, ½ wath (R301) 74809 Emblem-"RCA Victor" emblem 2.3 megohm. ±20%, ½ wath (R301) 7342 Escutcheon-Channel mattements 2.3 megohm. ±20%, ½ wath (R301) 73642 Escutcheon-Channel mattements 2.3 megohm. ±20%, ½ wath (R301) 73642 Escutcheon-Channel mattements 2.3 megohm. ±20%, ½ wath (R301) 73642 Escutcheon-Channel mattements	1028 Shaft—Tuning knob shaft	Oc. DESCRIPTION No. Tablem 'RCA Victor'' emblem 0.3 ShathTuning knob shati Mo. DecalTrade mark decal (Victola) 0.3 ShathTuning knob shati Mo. Decal-Dial scale and besel 0.3 ShathTuning knob shati Mo. Decal-Dial scale and besel	(1 sei) (1 sei) (1 sei) (1 sei) (1 sei) (1 sei) (2 sommet-Rubber grommet for mounting 33/7 Hinge-Record storage compariment door hing (1 sei)	96872 24308 24308 24308 24308	V304, V305 Socket-Tube socket, 7 pin, miniciure for V302, V303 Socket-Dici lamp socket Spring-Drive cord spring	8008 795 641
I megohm. ±10%, ½ wath (R327, R322) 74809 Emblem—"RCA Victor" emblem 2.2 megohm. ±10%, ½ wath (R303) 74809 Emblem—"RCA Victor" emblem 2.2 megohm. ±20%, ½ wath (R301) 74809 Emblem—"RCA Victor" emblem	22 megohm, ±20%, ½ wati (R321) 74273 Decal—Trade mark decal (Victuoia) 2.2 megohm, ±20%, ½ wati (R321) 74809 Emblem—"RCA Victor" emblem 22 megohm, ±20%, ½ wati (R301) 74809 Emblem—"RCA Victor" esculcheon fo 22 megohm, ±20%, ½ wati (R301) 7642 Esculcheon—Channel market esculcheon fo 22 megohm, ±20%, ½ wati (R301) 7642 Esculcheon—Channel market esculcheon fo	Colspan="2">DESCRIPTION No. Deschant descal Vision Deschant Escuricheon Mo. Deschant Mo. Mo. Deschant Mo. Deschant Mo. Deschant Mo. Deschant Mo. Mo. Mo. Mo. Deschant Mo. Deschant Mo. <	(1 sei) Hinge-Sciety glass Grommet-Rubber grommet for mounting 33/7 RPM changer (4 required) RPM	96872 24308 24308 24308 24308	Socket-Tube socket, 7 pin, minicture for V301, V304, V305 Socket-Tube socket, 7 pin, minicture for V302, V303 Socket-Dici lamp socket Spring-Ditve cotd spring	80038 394 112
I megohm, ±10%, ½ wath (R321, R322) 74809 Emblem—"RCA Victor" emblem 2.2 megohm, ±10%, ½ wath (R303) 74809 Emblem—"RCA Victor" emblem 3.9 megohm, ±10%, ½ wath (R301) 73642 Escutcheon—Channel market escutcheon for	3.9 megohm, ±10%, ½ wath (H321) 74873 Facultan - ''RCA Victor'' emblem 3.9 megohm, ±10%, ½ wath (H321) 74809 Emblem - '''''''''''''''''''''''''''''''''''	Oc. DESCRIPTION No. Decal—Trade mark decal (Victor) market esculcheon fo 2.3 megohm. ±10%, ½ wath (R301) 74373 74809 Emblem—''RCA Victor'' emblem 3.9 megohm. ±10%, ½ wath (R301) 74373 74809 Emblem—''RCA Victor'' emblem	[1 sei] Escuicheon—Channel marker escuicheon for oa Instruments Grommet—Rubber grommet for mounting speake RPM changer (4 required) RPM changer (4 required) RPM changer (4 required) (1 sei) (1 sei) (2 sei) (3 sei) (4 sei) (5 sei) (5 sei) (5 sei) (5 sei) (5 sei) (6 sei) (6 sei) (6 sei) (6 sei) (6 sei) (7 sei) (7 sei) (6 sei) (7	14896 14308 24308 24308 24328 14222	Spring—Drive cord spring Socket—Tube socket. 7 pin. minicture for V301, V304, V305 Socket—Tube socket. 7 pin. minicture for V302, V303 Socket—Tube socket Spring—Drive cord spring	038 364 112 112 635
I megohm, ±10%, ½ watt (B327, B332) 74052 Dial-Dial scale and bezel	I megopur ±10%, ½ watt (#321) 74222 Decal—Dial scale and besel 1 megopur ±10%, ½ watt (#321) 74273 Decal—Dial scale and besel	I medopm: ±10%; ½ wath (B321) 14022 Dial-Dial scale and besel 1 medopm: ±10%; ½ wath (B321) 74022 Dial-Dial scale and besel	[1 sei] Escuicheon—Channel marker escuicheon for oa Instruments Grommet—Rubber grommet for mounting speake RPM changer (4 required) RPM changer (4 required) RPM changer (4 required) (1 sei) (1 sei) (2 sei) (3 sei) (4 sei) (5 sei) (5 sei) (5 sei) (5 sei) (5 sei) (6 sei) (6 sei) (6 sei) (6 sei) (6 sei) (7 sei) (7 sei) (6 sei) (7	14896 14308 24308 24308 24328 14222	Shaft—Tuning knob shaft Sheld—Tuning knob shaft Socket—Tube socket, 7 pin, minicture for V301, V304, V305 Socket—Tube socket, 7 pin, minicture for V302, V303 Socket—Dici lamp socket Socket—Tube socket Socket—Dici lamp socket Socket—Tube socket Socket—Tube socket Spring—Tube socket Spring—Tube socket Spring—Tube socket Spring Spri	038 364 112 112 635
	470,000 ohms. ±20%, ½ wath (R321) 74273 Decal-Trade math decal (Vichola)	سوری ۲۵٫٫٫٫٫٫٫٫٫٫٫٫٫٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬٬	Escutcheon—Channel market escutcheon to madogany or wainut instruments Escutcheon—Channel market escutcheon for oa instruments Glass—Sately glass Grommet—Rubber grommet for mounting speake RPM changer (4 required) RPM changer (4 required) Grommet—Rubber grommet for mounting 33/7 Hinge—fiscord storage compariment door hing (1 set) (1 set)	14896 14308 14308 14329 14320 13340 13340	22 megohm, ±20%, ½ wati (R316) Shield-Tuning knob shafi Socket-Tube socket, 7 pin, miniature for V302, V303, V305 Socket-Tube socket, 7 pin, miniature for V302, V303 Socket-Tube socket, 7 pin, miniature for V302, V303 Socket-Tube socket Socket-Tube socket Socket-Tube socket Socket-Socket Socket-Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socket Socke	1128 1128 1128 1128 1112
470.000 obms. ±20%, ½ work (R321) 74273 Decal-Trade mark decal (Nichola)		o. DESCRIPTION No. DESCRIPTION	(1 sei) Excutcheon—Channel marker escutcheon to Hinge—Record storage compariments Crommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Excutcheon—Channel marker escutcheon for od Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Bradianes Excutcheon—Channel marker escutcheon for od Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber growthet for mounting 33/7 Grommet—Rubber growthet for mounting 33/7 Growthet—Rubber growthet for mounting 33/7 Growthet and	14836 14308 14308 14308 1432 14400 14803 14803	2.2 megohm. ±20%, ½ wati (R303) 3.9 megohm. ±20%, ½ wati (R301) Shaft-Tuning knob shaft Sheld-Tube socket, 7 pin, miniature for V302, 90cket-Tube socket, 7 pin, miniature for V302, 90cket-Tube socket, 7 pin, miniature for V302, 90cket-Tube socket, 7 pin, miniature for V302, 910, V305 50cket-Tube socket, 7 pin, miniature for V302, 910, V305 910, V305 910	1994 1038 1364 1179 1028 1622
	or DESCRIPTION No. DESCRIPTION		(1 sei) Pical—Pical scale and bezel RPM changer Channel marker esculcheon for MPnge—Felevision compariment door hinge Grommet—Rubber grommet for mounting 33/7 RPM changer (4 required) Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Dias—Satety glass Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Dias—Satety glass Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber growthet for mounting 33/7 Growthet — Rubber growthet for mounting 33/7 Growthet = Rubber growthe	14836 14308 14308 14308 14328 14328 14308 14008	I meyohm, ±10%, ½ wati (R327, R332) 2.2 meyohm, ±10%, ½ wati (R303) 3.2 meyohm, ±20%, ½ wati (R301) 3.2 meyohm, ±20%, ½ wati (R301) 52 meyohm, ±20%, ½ wati (R301) 50 ckei-Tube sockei, 7 pin, miniature ior V302, 90 ckei-Tu	1038 364 112 112
			(1 sei) Pical—Yacord storde compariment door hing Hinge—Yacord storde compariment door hing RPM changer (4 required) Grommet—Rubber grommet for mounting speaks Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Grommet—Rubber grommet for mounting 33/7 Diate—Satety glass Grommet—Rubber grommet for mounting 33/7 Diate—Satety glass Grommet—Rubber grommet for mounting 33/7 Diate—Satety glass Grommet—Rubber grommet for mounting 33/7 BPR changer (4 required) Grommet—Satety glass Grommet—Rubber grommet for mounting 33/7 Grommet—Satety glass Grommet—Rubber grommet for mounting 33/7 Grommet—Satety glass Grommet—Satety glass Grommet—Rubber growpet Grommet—Satety glass Grommet—Satety glass Grommet Grommet—Satety glass Grommet—Satety glass Grommet Grom	14836 14308 14308 14308 14328 14328 14308 14008	I meyohm, ±10%, ½ wati (R327, R332) 2.2 meyohm, ±10%, ½ wati (R303) 3.2 meyohm, ±20%, ½ wati (R301) 3.2 meyohm, ±20%, ½ wati (R301) 52 meyohm, ±20%, ½ wati (R301) 50 ckei-Tube sockei, 7 pin, miniature ior V302, 90 ckei-Tu	1128 1128 1128 1128 1112

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REPLACEMENT PARTS (Continued)

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				SI		
chasais (3 required)]	mid, 600 volts (CI42, CI54, CI61)		Spring-Return spring for fine tuning control core	45764
Grommet-Rubber grommet for	24030		mid, 1000 volts (C186) Capacitor-Tubular, paper, oll impregnated, .0022	56562	Spacer-Insulating spacer for front plate (4 read.)	94574
Grommet-Rubber grommet for a	96828		Capacitor-Tubular, paper, oil impregnated, .0015	20802	Socket-Tube socket, ceramic, 7 prong, bottom mounted	13420
ine boel	30020		mtd, 600 volts (C137,C203)	10957	petruom	0.000
Grommet-Rubber grommet for	66414		CI46B, CI46C, CI46D) Capacitor-Tubular, paper, oil impregnated, .001	10801	Socket-Tube socket, moulded, 7 prong, saddle	¥6¥14
Fuse 0.25 cmp., 250 volts (F101)	13600		and I section of 20 mid, 150 volts (Cl46A,		Shield-Meral shield for drive belt Shield-Meral tube shield for VI	13632
Cushion-Rubber cushion for defi	13280		mid, 450 volts, 2 sections of 10 mid, 450 volts.	1000/	Shield-Metal tube shield for V3	15627
Cushion-Rubber cushion for kin	11874		Capacitor-Electrolytic comprising l section of 60	18564	finu i-i to mottod tot bleids sapda "U"-bleid?	67754
and 73581 Cover-Insulating cover for elec	11432		I section of 50 mtd, 150 volts (CI47A, CI47B,		Shaft-Actuating shaft for fine tuning control	62724
Cord-Power cord and plug	45714		mid, 450 volts, l section of 90 mid, 150 volts, and	00004	and stud Shaft—Fine tuning control shaft and pullev	13438
Control AGC threshold control (54996		Capacitor-Electrolytic comprising I section of 40	23283	Shaft-Channel selector shaft complete with pawl	13432
Control—Focus control (R191) Control—Focus control (R155)	26572 07712		I section of 80 mtd, 200 volts (CI70A, CI70B,		Screw-#4.40 x 17/32" adjusting screw for L6	\$4574
Control-Vertical linearity control	19914		mid, 450 volts, l section of 10 mid, 450 volts and	7000/	[73] [73] [73] [74] [74] [75] [75] [75] [75] [75] [75] [75] [75	54714
amitch (R205, R233, S101)			Aojis (Cl488, Cl488, Cl48C)	13285	Screw-#4.40 x 38" adiusting screw for L66	13640
R131) Control. volume co	65672		40 mid, 450 volts and 1 section of 10 mid, 450		ing coils L14, L15, L16, L17, L18, L19	
Control-Brightness and picture	47074		Capacitor-Electrolytic comprising 2 sections of	21432	Screw—#4.40 x $N_{\rm e}$ binder head screw for adjust.	18804
HIT3)			C188' C133' C133' C139' C141' C115' C119' C111'		Retainer-Channel selector shaft retaining ring	14343
Connector—5 contact male conne Control—Hortzontal and vertical h	14786		CI02' CI08' CI03' CI10' CI13' CI14' CI11' CI18'		100.000 ohms, ±20%, 1/2 wall (R2, R3, R8, R13)	
Connector-Hi-voltage capacitor o	12514		Capacitor-Ceramic, 1500 mmi. (C101, C103, C104,	10514	2700 ohms. ±10%, ½ wcti (R10) 10.000 ohms. ±20%, ½ wcti (R10)	
Connector-Anode connector	68414		Capacitor-Hi-voltage, 500 mmi., 15 kv (C168) Capacitor-Mica, 560 mmi. (C160)	24250	1000 ohms, ±20%, ½ watt (R1)	
			Capacitor-Mica, 390 mmf, (C141, C200)	29962	390 ohms, ±10%, ½ watt (R14)	
Connector-4 contact temale conn	2040		Capacitor-Mica, 330 mmf. (C187)	07960	150 ohms. ±20%, ½ watt (R5, R9, R12)	
cotq	00102		Capacitor-Mica, 270 mmf. (C106, C115, C121)	16022	Resistor—Fixed, composition: 47 ohms, 土20%, 以 watt (所4)	
Connector-2 contact male cont	14594		Capacitor-Mica, 180 mmf. (C153, C194, C198)	23622	Enliet-Idiet Dulley	13464
Connector-7 contact female con	22108		CapacitorMica, 120 mmi, (C181)	33630	Plate-Front plate and bushing	13436
Connector-2 contact (polarized)	6/87/		Capacitor-Ceramic, 120 mmf. (C129)	12624	Nut-Speed nut for drive belt shield	13634
Coll-Filament choke coll (L101)	13477		Capacitor-Mica, 100 mmt., 1000 v. (C138)	09052	Loop—Osc. to converter timmer loop connector	21462
Coll-Peaking coll (250 muh) (L10	11236			38386	Form-Coll form assembly for L9, L13 Link-Link assembly for fine funing	27762
Coll-beaking coll (180 muh) (L10	74214		Capacitor	e40e5 1415e	Form-Coll form for coll L31	48714
Coll-Beaking coll (93 muh) (L103 Coll-Peaking coll (36 muh) (L103	11227		Cupacitor-Mica, 33 mmf. (CIII)	50174	Detent-R-F unit detent mechanism and fibre shaft	13440
Coll-Series width coll (L121)	84874		Capacitor-Mica, 10 mmf. (C126)	39604	Core-Adjustable core for coll L9	28172
Coll-Vertical peaking coll (L119)	LL87L				Connector—Oscillator segment connector Core—Sliding core for fine tuning control trimmer	SSPE4 E6714
Coll-Midth control coll (L115, L1	71429		Capacitor-Mica trimmer comprising I section of 3-35 mmf. and I section of 40-370 mmf. (CI53A.	26574	ment) for r-f amplifier section (L5, C14)	COPIE
Coll-Focus coll linearity control Coll-Focus coll (L118)	1446 S8577			00176	ductance core and capacitor stud (screw adjust-	
Croke-Filter choke (LI04)	10102		LEFERISION CHESSIS ESSEMBRIES KCS 414		Coll-Trimmer coll (3 turns) with adjustable in-	01174
miq 200 Aojia (C133' C180' C18			tine tuning shaft and cam		thon) (L2, L3, C6, C10)	1
Capacitor-Tubulat, paper, oil i	73787		Washer-Insulating washer for front shield (I set) Washer-"C" washer for channel selector shaft or	2312	inductance core and capacitor stud (screw ad-	
Capacitor-Tubular, paper, oll in mid. 400 volts (C136, C157, C16	13794		Transformer-Converter transformer (Tl, R6)	87764	Coil-Trimmer coil (1 ½ turns) with adjustable	60174
mid. 600 volts (C131)	10000		74110 coded numerically or "Hi Q"		inductance core and capacitor stud (plunger ad- justment) (L1, C1)	
Capacitor-Tubulat, paper, oll	73557		bind 00187 store at the store store of the part of the	(220)	Coll-Fine tuning coil (11/2 turns) with adjustable	80174
Capacitor—Tubular, paper, oll mid, 400 volts (C149)	1000/		Stud-Copacitor stud-brass #4.40 x 13/1, with	15447	uej e ([3])	
C) alfo volta mid. 1000 volta (C16	13367		it's screw driver slot for trimmer coils 74109 and		Coll-Front section-Oscillator plate coll for chan-	13814
Capacitor-Tubular, moulded pa	51862		Stud-Capacitor stud-brass #4.40 x 13/10" with	12446	Coil-Choke coil (L10, L11, L12) Coil-I-F trap (L7, C22)	13411
mtq 1000 A01# (C183)			T25' T23' T24' T22' C12' C12' H10) aug colle (24' T13' T45' T43' T44' T42' T46' T41'		Coli-Antenna filter shunt coll (C67)	54784
Capacitor-Tubular, paper, oil in Capacitor	73597		Stator-R-F amplifier stator complete with rotor	14764	Coil-Coupling inductance coll (L4)	13462
Capacitor-Tubular, moulded po	26567		[46' [20' [2]]		uel 6 (L20)	
mid. 400 volta (C130, C139, C20			colla (S3, L9, L36, L37, L38, L39, L40, L41, L48,		Coil-R-R section-Oscillator plate coil for chan-	19764
Capacitor-Tubular, paper, oil i	13223		Stator-Converter stator complete with rotor and	13410	Capacitor—Ceramic, 5000 mmt. (C16)	64764
Capacitor—Tubulat, paper, oll i mid. 400 volts (C155)	13262		coils (55, L6, L56, L57, L58, L59, L60, L61, L62,		CI3' CI2' CI1' CI8' CI3)	
i lie nored 1000 volta [C]	03366		Stator-Antenna stator complete with rotor and	23633	Capacitor-Coramic, 1500 mmf. (C2, C7, C8, C9,	10514
Capacitor-Tubular moulded po	74727		[736] [307] [337] [347] [347] [37]		(C11, C12) Capacitor—Ceramic, 270 mmf. (C21)	16002
	10101		Stator-Rear oscillator section stator complete with rotor, segment and coils (S2, L25, L26, L27, L28,	69764	of 150-190 mmf. and l section of 65-95 mmf.	
Capacitor-Tubular, paper, oil is Capacity (C159)	13797			03704	Capacitor-Ceramic trimmer comprising I section	67762
Capacitor-Tubular, moulded po	13284		(21' LI4' LI2' LIE' LI1' LI8' LI3' L3' L53' L33'		Capacitor-Ceramic, 10 mmf. (C3) Capacitor-Ceramic, 18 mmf. (C30)	24207
1000 A01# (CI2I' CI23' CI82)			Stator—Front oscillator section stator complete with rotor, segment, colls and adjusting screws	00501	Capacitor—Ceramic, 5 mmi. (C4, C3)	24032
Capacitor—Tubulat, moulded	13262		bleida otoria reinte reiner toinlinee troini?	89762	Cam-Fine tuning adjustment	19964
Capacitor-Tubular, paper, oil	19962		Spring-Retaining spring for r-f oscillator tube	89054.	Cable-1-F transmission cable (W1)	13478
			13640 and RCA 74575		Bracket-Y-F unit power connection terminal board Bracket-Vertical bracket for r-f oscillator shield	29092 69092
Capacitor-Tubulat, paper, oll in	02687		Spring—Reicining spring for adjusting screws RCA 74187	84574	Belt-Drive belt	59764
Capacitor—Tubulat, paper, oll in mid, 600 volts (C184)	56464		Spring-Retaining spring for adjustable core	88174	BE UNIT ASSEMBLIES KRK 5	
DESCRIPTIO	No.		DESCRIPTION	STOCK No.	DESCRIPTION	No. STOCK
	STOCK	J	L			
	esiat	1	esiat S	TRAG TNEM	REPLACE	
		857 LSZ				

220,000 ohms, ±10%, 1/2 watt (R129, R154, R181)			chassis (3 required)
180,000 ohms. ±5%, 1 wan (R178)		1	Grommet-Rubber grommet tot mounding radio
180.000 ohms. ±10%, ½ well (R232)			tube socket (2 required)
120'000 орше: ∓50%; ½ ман (Ц143) 120'000 орше: ∓10%; ½ ман (Ц143)			Grommet-Rubber grommet for mounting ceramic
120,000 ohms. ±10%, 1 watt (R174)			Grommet—Rubber grommet for yoke horizontal
120,000 ohms, ±5%, 1 watt (R176)	1		Fuse-0.25 cmp., 250 volts (F101)
100.000 ohms. ±20%. 1 watt (R222)			(S required)
100,000 ohms. ±10%, ½ watt (R160, R216)			Cushion-Rubber cushion for deflection yoke hood
100.000 ohms. 土5%. 以 watt (第203. 第204)			Cushion-Rubber cushion for kinescope mounting
82,000 ohms, ±10%, 1 watt (R179)			Guq 73581
68,000 ohms. ±10%, ½ well (R172)			Cover-Insulating cover for electrolytics #71432
47,000 ohma. 土10%, 杉 Waff (用145) 47,000 ohma, 土20%, 杉 Waff (吊221)			CordPower cord and plug
(3), (3), (3), (3), (3), (3), (3), (3),		· ·	Control-AGC threshold control (R138)
27.000 ohms. ±10%, 1/2 watt (R143, R234)			Control-Focus control (R191)
22,000 ohms, ±20%, 1/2 watt (R198, R215)			Control—Vertical ilnearity control (R162) Control—Vertical ilnearity control (R162)
R220)			switch (R205, R233, S101)
22.000 ohms. ±10%, ½ watt (RISI, RIS6, R197,		ł	Control-Tone control, volume control and power
18,000 ohms, ±10%, 1 watt (R182)			(ICIH
12.000 ohme. ±10%, 1 wont (R146)			Control-Brightness and picture control (R122,
15,000 obms, 土10%, 北 wan fill)			(571A
12,000 ohms, ±10%, ½ wcff (R134, R209, R226) 12,000 ohms, ±10%, 2 wcffs (R134, R209, R226)			Control-Hortzontal and vertical hold control (R158,
10,000 ohms, ±10%, 1/2 wath (R188)			Connector-5 contact male connector (P107)
10.000 ohms. ±5%, 1/2 watt (R104)			Connector—Hi-voltage capacitor connector Connector—Anode connector
8200 ohms. ±10%, 2 watts (R186)			
8200 ohms, ±5%, 1 watt (R117)	1		Connector
8200 ohms. ±10%, ½ wat (R152, R153, R171)			Connector-3 contact temale connector (1108)
8200 ohms, ±5%, ½ watt (Ri64, Ri75)			cord
6800 ohms, ±10%, 2 watts (R177, R210)			Connector-2 contact male connector for power
6800 ohms, ±5%, 1 watt (R128)			Connector-7 contact female connector (1103)
6800 ohms. 土5%, ½ watt (R136) 6800 ohms. 土10%, ½ watt (R130)			tor electronic magnifier cable (1104)
5600 ohms. ±10%, 1 wott (R127)			Connector-2 contact (polarized) female connector
5600 ohms, ±10%, ½ watt (R141, R218)			Coll—Packing coll (250 muh) (L101) Coll—Pilament choke coll (L101)
2600 ohms, ±5%, ½ watt (R119)			CollPecking coll (180 muh) (L103, L103
4700 ohms. ±10%, ½ watt (A144)			Coll—Beaking coll (33 muh) (L102)
4700 ohms, ±5%, ½ watt (R126)			Coll-Peaking coll (36 muh) (LII7, RII0)
3900 opme: ∓2%' ½ Matt (H112)			Coll—Series width coll (L121)
3200 opme: 〒10%' 1% Matt (#212)			Coll—Vertical peaking coll (L119)
2200 ohms. ±10%, ½ watt (R219) 2200 ohms. ±10%, 1 watt (R161, R192)			Coll-Midth control coll (L115, L120)
1800 ohms. ±10%, 2 watts (R194, R208)			Coll-Horizonial linearity control coll (L111)
1200 ohms. ±10%, ½ watt (R196)			CollFocus coll (LII8) Choke-Filter choke (LI04)
RII3, RII6, RII8, RI65, R199)		1	mid. 200 volts (C133, C190, C197)
1000 ohms. ±20%, ½ watt (R103, R107, R108,			Capacitor-Tubular, paper, oll impregnated, 0.47
270 ohms, ±10%, 1 watt (R206)			mid. 400 volts (C136, C157, C162)
220 opms' ∓10%' I watt (B223)			Capacitor-Tubular, paper, oll impregnated, 0.22
120 opus: = 20%, 1% watt (HIIO, HIO, HII4, H214)			mtd. 600 volts (C131)
150 ohms, 土5%, ½ watt (用102) 150 ohms, 土10%, ½ watt (用115)			Capacitor-Tubulat, paper, oll impregnated, 0.1
100 obms. ±10%, 2 watts (A184)			mid. 400 volts (C149)
82 ohms, ±10%, ½ watt (R195)			nated088 mid. 1000 volts (C165) Capacitor—Tubulat. paper, oll impregnated. 0.1
68 ohms. ±20%, ½ watt (R123)			Capacitor—Tubulat, moulded paper, oll impreg-
68 ohms. ±10%. ½ watt (R105)			mid. 1000 volts (C163)
47 ohms. ±20%, ½ watt (R183)			Capacitor-Tubular, paper, oll impregnated, .047
47 ohms. ±5%, ½ watt (R111)			ncied, .047 mid. 600 volts (CI50, CI56)
39 opms; ±10%; ½ watt (H121)			Capacitor-Tubular, moulded paper, oil impreg-
10 ohms. ±20%, ½ wan (R120) 18 ohms. ±10%, ½ wan (R225)			mid. 400 volts (C130, C139, C201)
Resistor-Fixed, composition:			Capacitor-Tubular, paper, oll impregnated, .047
6 watte (RI93A. R193B, R193C)			Capacitor—Tubular, paper, oil impregnated, .022 mid. 400 volts (C155)
850 ohms, 12 watts and 2 sections of 650 ohms,			ncied. 018 mid. 1000 volts (C164)
Resistor-Voltage divider, comprising I section of	23288		Capacitor-Tubular, moulded paper, oll impreg-
Resistor-Wite, wound, 500 ohms, 20 wotts (R230)	67074		mid. 600 volts (C204)
Resistor-Wire wound. 10 ohms, 1/2 wath (R190)	18471		Capacitor-Tubular, paper, oll impregnated, .015
Resistor-Wire wound. 5.1 ohms. 1/2 watt (R202)	72067		ncied01 mtd. 600 volts (C159)
Resistor-Wire wound, 4.7 ohms. 18 woth (R187)	72633		Capacitor-Tubular, moulded paper, oil impreg-
Reidy-Electronic magnifier reidy (K101)	24873		1000 A01# (C121' C123' C182)
Receptacle—2 contact female receptacle for audio cable and switching cable (1105, 1106)	\$1000		Capacitor—Tubular, moulded paper, .01 mid.
Bacapiecia-2 conjuct famela recenterio for cudio	33214 18469		Capacitor-Tubular, paper, oil impregrated, .01 mid. 400 volts (C135, C166, C167, C182, C195)
Nut-Speed nut to mount hi-voltage capacitor	13781		mid, 600 volts (Ci43, Ci44, Ci45, C202)
Magnet-lon trap magnet (P.M. type)	87172		Capacitor-Tubular, paper, oli impregnated, .0047
(beilupei 2)			mid. 600 volts (C184)
Grommet-Rubber grommet for mounting relay	72283		Capacitor-Tubular, paper, oll impregnated, .0033
DESCRIPTION	STOCK No.		DESCHIPTION
	Mar #5, July 75		





Model T164 Walnut, Mahogany or Oak





Model TC165 Walnut, Mahogany or Oak



Model TC167 Walnut, Mahogany or Oak

Walnut, Mahogany or Oak

Model TC166



Model TC168 Walnut, Mahogany or Oak

GENERAL DESCRIPTION

Models T164, TC165, TC166, TC167 and TC168 receivers employ twenty-one tubes plus two rectifiers and a 16GP4 kinescope. The receivers are identical except for cabinets, jewel lights and speakers. A phono input jack is provided to permit the use of an external record player.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE..... 146 square inches on a 16GP4 kinescope

B-F FREQUENCY RANGES

All 12 television channels,							
Fine Tuning Range ±250	kc	. on	chan.	2, ±	650	kc. or	chan. 13
Picture Carrier Frequency	r						25.75 mc.
Sound Carrier Frequency							

CHASSIS DESIGNATIONS

KCS40	 				In	Model T164
KCS40Ā	 	In	Models	TC165,	TC166, 7	C167, TC168

LOUDSPEAKERS

KCS40	(92580-3W) 8"	PM	Dynamic,	3.2	ohms
KCS40A (9	2569-10W) 12"	PM	Dynamic,	3.2	ohms

RCAVICTOR

TELEVISION RECEIVERS MODELS T164, TC165, TC166,

TC167, TC168 Chassis Nos. KCS40 or KCS40A

- Mfr. No. 274 -

SERVICE DATA

— 1950 No. T5 —

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

POWER SUPPLY RATING..... 115 volts, 60 cycles, 250 watts

RECEIVER ANTENNA INPUT IMPEDANCE Choice: 300 ohms balanced or 72 ohms unbalanced.

PCA TURE COMPLEMENT

RCA		COMPLEMENT	Em	action
		e Used		
(1)	RCA	6AG5	R-F	Amplifier
(2)		6AG5		
(3)	RCA	6J6	R-F	Oscillator
(4)	RCA	6AU6 lst Sour	ıd I-F	Amplifier
(5)	RCA	6AU6 2nd Sour	id I-F	Amplifier
(6)	RCA	6AL5 Soun	d Dia	criminator
(7)	RCA	6AV6 lst /	Audio	Amplifier
(8)		6K6GT		
(9)		6BA6lst Pictu		
(10)	RCA	6AG52nd Pictur	re I·F	Amplifier
(11)	RCĀ	6BA6 3rd Pictu	re I-F	Amplifier
(12)	RCA	6AG5 4th Pictu	re I-F	Amplifier
(13)	RCA	6AL5 Picture 2nd Detector an	nd Sy	nc Limiter
(14)		12AU7 1st and 2nd		
(15)	RCA	6SN7GT AGC Amplifier and Verti	ical S	weep Osc.
(16)	RCA	6SN7GTAGC Rectifier and 1st	Sync	Separator
(17)	RCA	6SN7GTSync Amplifier and 2nd	Sync	Separator
(18)	RCA	6K6GT Vertical	Swe	ep Output
(19)		6SN7GT Horizontal Sweep Oscilla		
(20)		6BG6G Horizontal		
(21)	RCA	6W4GT		. Damper
(22)	RCA	1B3-GT/8016 High V	oltag	e Rectifier
(23)	RCA	5U4G Power	Suppl	y Rectifier
(24)	RCA	16GP4		Kinescope

DIMENS	IONS (inch	(20)	Width	Height	Depth
Cabinet	(outside),	T164	23	211/4	21 3/8
Cabinet	(outside),	TC165	27%	38¼	20 %
Cabinet	(outside),	TC166	27%	38¾	223⁄4
Cabinet	(outside),	TC167	25¾	38¾	223⁄4
Cabinet	(outside),	TC168	26%	37%	22 7⁄8
Chassis	(overall).		191/4	11	181/2

WEIGHT Model	Chassis with Tubes in Cabinet	Shipping Weight
T164	96	115
TC165	101	123
TC166	106	130
TC167	123	148
TC168	117	141

Specifications continued on page 2

TC167, TC168

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

25.75 Mc

PICTUR	E INTER	MEDIAIL	FREQUENCIES	
Picture	Corrier	Frequency	8	

Adjacent Channel Sound Trap	:.
Accompanying Sound Traps21.25 Ma	:.
Adjacent Channel Picture Carrier Trap19.75 Ma	:.

-

SOUND INTERMEDIATE FREQUENCIES

Sound	Carrier Frequ	lency.				.25 Mc.
Sound	Discriminator	Band	Width	between	$peaks \dots \dots$. 350 kc
VIDEO	RESPONSE				То	4 Mc.

FOCUS
SCANNINGInterlaced, 525 line
HORIZONTAL SWEEP FREQUENCY15,750 cps
SWEEP DEFLECTION
VERTICAL SWEEP FREQUENCY
FRAME FREQUENCY (Picture Repetition Rate)

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

1. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately mid position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear.

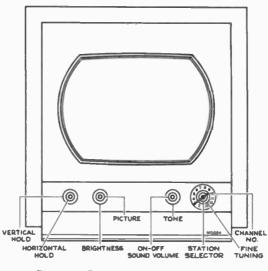


Figure 1—Receiver Operating Controls

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

> 11. In switching from one station to another, it may be necessary to repeat steps 4, 8 and 9.

> 12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

> 13. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 9.

> 14. To use the instrument with a record player, plug the recordplayer output cable into the PHONO jack on the rear apron. and set the TV-PH switch on "PH." Set the TV-PH switch back to TV on completion of the record program.

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED INVOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRECAUTIONS NECESSARY WHEN WORKING ON HIGH-VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH-VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOG-GLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

INSTALLATION INSTRUCTIONS

ION TRAP MAGNET ADJUSTMENT .-- Set the ion trap magnet approximately in the position shown in Figure 2, and with the part number on magnet towards the rear of the chassis. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure

of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

DEFLECTION YOKE ADJUSTMENT .- If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

INSTALLATION INSTRUCTIONS

RIMESCOPE CUSHION READ. COMPRESSION SPRING POCUS COIL MAGNETIC SREWS POCUS COIL FOCUS COIL ION TRAP MACHETIC SHINT CONTRAP SCREWS

Figure 2—Yoke and Focus Coil Adjustments

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

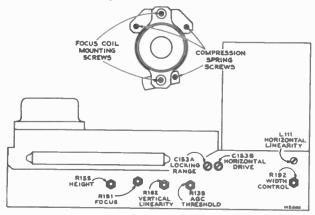


Figure 3 -- Rear Chassis Adjustments

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Usually the picture will remain in sync. Turn the control clockwise slowly. If the picture did fall out of sync upon removal of the signal, the number of diagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. The picture should remain in sync for approximately 180 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR. — If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 180 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the T109 sine wave core (on the outside of the apron) all the way out of the coil.

Set the locking range trimmer C153A one-half turn out from maximum capacity.

Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and turn the frequency wave core of T109 under the chassis until the picture syncs and the sync bar just begins to move into the picture.

Note.—Occasionally, a tube may be found which does not respond to this alignment procedure since it may not be possible to sync the picture by means of the frequency core when the sine wave core is all the way out of the coil. Yet, the tube may work perfectly well when the circuit is properly aligned. In such a case, it may be necessary to turn the sine wave core in slightly, and readjust the frequency core to obtain sync.

Turn the sine wave core of T109 in until the blanking bar begins to move off to the left of the picture. Alternately turn the sine wave core in and the frequency out, keeping the picture in sync and the blanking bar showing in the picture.

Continue alternate adjustments until the picture falls from sync into a parasitic oscillation as indicated by a non-synchronized pattern which flickers in width and centering with possibly a light ragged vertical bar through the center of the screen.

Turn the sine wave core out $\frac{1}{2}$ turn. Adjust the frequency core in until the picture is in sync and horizontal blanking appears as a vertical bar in the picture.

Check of Pull-in Range.—Turn the horizontal hold control fully counter-clockwise. Connect a 270K ohm resistor across C156. Momentarily switch off channel and back; the picture will then be out of sync. Turn the hold control clockwise slowly and observe the minimum number of bars obtained just before the picture pulls into sync.

The picture should snap in from two complete blanking bars. If two bars are not obtained, turn the locking range trimmer C153A in to obtain less bars or out to obtain more bars.

If C153A was adjusted, remove the 270K resistor, turn the horizontal hold control fully clockwise and adjust the T109 frequency core until horizontal blanking appears as a vertical bar in the synced picture. Then repeat the entire check of pull-in range to this point.

Repeat the adjustments under "Check of Pull-in Range" until the conditions specified are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If the oscillator does not hold sync properly at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure on page 13.

FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately one-quarter inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. The axis of the hole through the focus coil should be parallel with the axis of the kinescope neck.

The focus coil is provided with a magnetic shunt in the form of a metal sleeve as shown in Figure 2. If the receiver focuses with the focus control near the end of its range, loosen the shunt locking screw and slide the shunt backward or forward until focus occurs in the center range of the focus control.

CENTERING ADJUSTMENT. — No electrical centering controls are provided. Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If the focus coil was appreciably changed in position or if a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by sliding the coil. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In extreme cases it may be necessary to adjust one or more of the three focus coil compression spring screws to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST. MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture. adjust horizontal drive counter-clockwise as far as possible without losing tension on trimmer.

T164, TC165, TC166,

TC167, TC168

INSTALLATION INSTRUCTIONS

T164, TC165, TC166,

TC167, TC168

Set the width control to minimum picture width.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained. Do not run the core in beyond the point of maximum linearity change, as the current drawn by the 6BG6G then becomes excessive.

Adjust the width control for the proper picture width.

Readjust linearity, but again not beyond the point of maximum linearity change. If necessary adjust the drive control for best linearity.

If at very high line voltage, the picture width is excessive even with the width control set at minimum, turn the linearity coil out to obtain the proper width. On high line voltage, excessive width generally will be accompanied by good linearity, without retouching the drive.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron) until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust the focus coil to align the picture with the mask.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC threshold control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 9. The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well. See Figures 8 and 9 for their location.

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

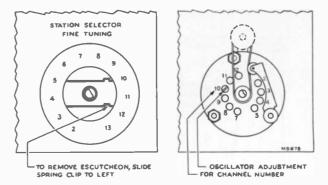


Figure 4—R-F Oscillator Adjustments

To peak the r-f unit in these receivers, disconnect the 390ohm resistor R14 which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs, the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the pilot light cable, the yoke and focus coil cable. Remove the yoke frame grounding strap and the interlock switch. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus coil as an assembly.

INSTALLATION OF KINESCOPE.—Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this partion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube,

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten.

Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possible. If this is not done, difficulty will be encountered in adjusting the ion trap magnet and focus coil because of shadows on the corner of the raster.

Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and slip the high voltage lead clip between the rim of the kinescope and the mask.

Reconnect all other cables. Do not forget to replace the yoke frame grounding strap. Perform the entire set-up procedure beginning with Ion Trap Magnet Adjustment.

CABINET ANTENNA.—A cabinet antenna is provided which may be employed in strong signal areas in which no reflections are experienced. The antenna leads are brought out near the receiver antenna terminal board.

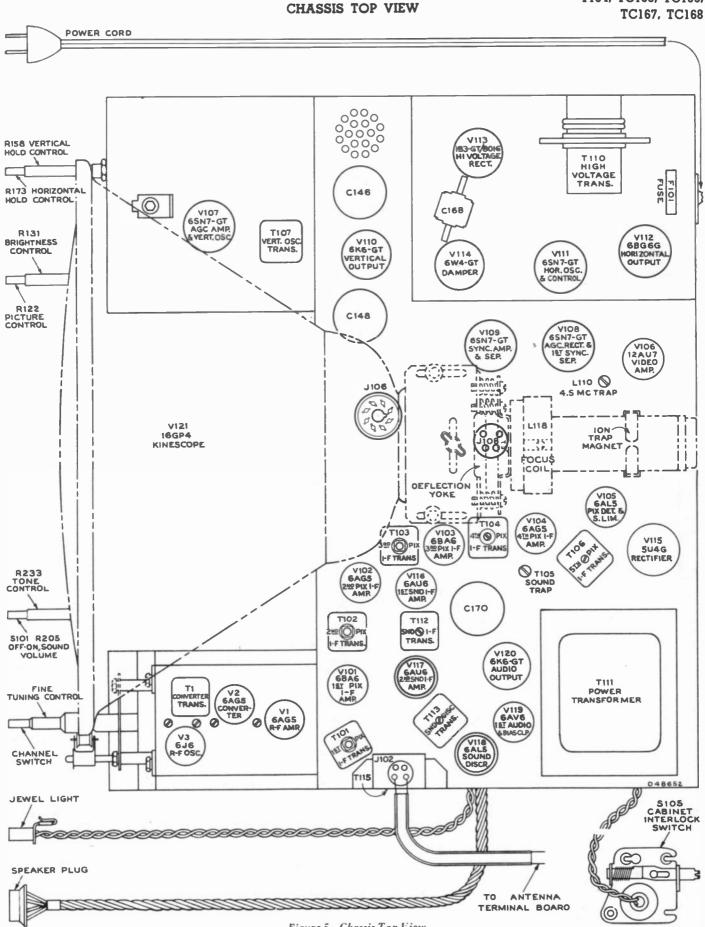


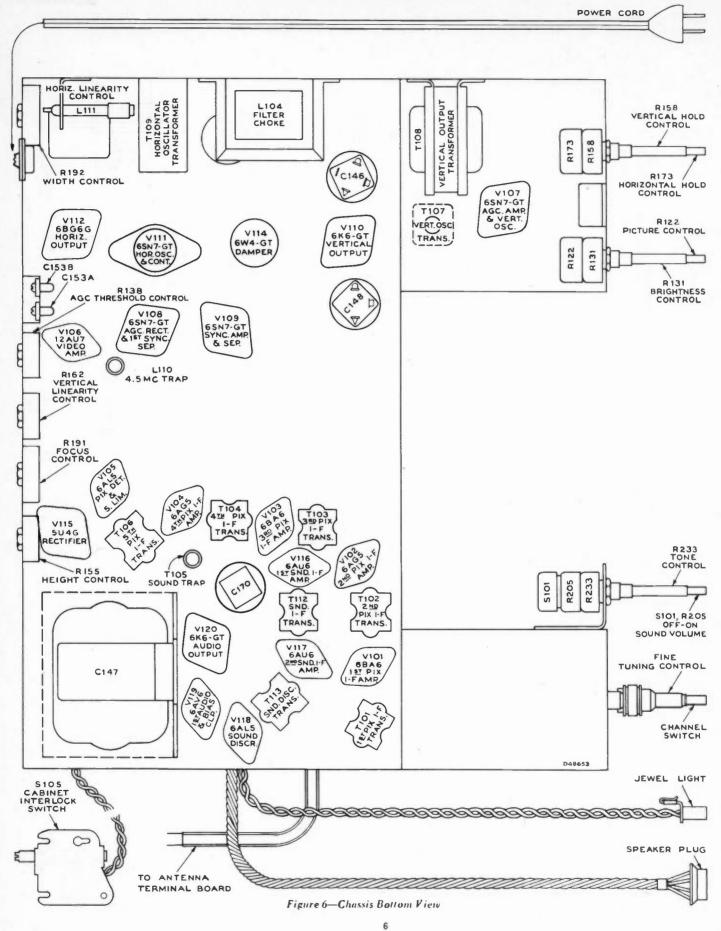
Figure 5-Chassis Top View

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T164, TC165, TC166,

T164. TC165. TC166. TC167. TC168

CHASSIS BOTTOM VIEW



TEST EQUIPMENT. — To service properly the television chassis of this receiver, it is recommended that the following test equipment be available:

R-F Sweep Generator meeting the following requirements:

- (a) Frequency Ranges
 - 20 to 30 mc., 1 mc. and 10 mc. sweep width
 - 50 to 90 mc., 10 mc. sweep width
 - 170 to 225 mc., 10 mc. sweep width
- (b) Output adjustable with at least .1 volt maximum.
- (c) Output constant on all ranges.
- (d) "Flat" output on all attenuator positions.

Cathode-Ray Oscilloscope. — For alignment purposes, the oscilloscope employed must have excellent low frequency and phase response, and should be capable of passing a 60-cycle square wave without appreciable distortion. While this requirement is not met by many commercial instruments, RCA Oscilloscopes, types WO-55A, WO-58A, WO-79A, and WO-60C fill the requirement and any of these may be employed.

For video and sync waveform observations, the oscilloscope must have excellent frequency and phase response from 10 cycles to at least two megacycles in all positions of the gain control. The RCA types WO-58A and WO-79A are ideally suited for this purpose.

Signal Generator to provide the following frequencies with crystal accuracy.

(a) Intermediate frequencies

- 19.75 mc. adjacent channel picture trap
- 21.25 mc. sound i-f and sound traps
- 22.05 and 24.75 mc. conv. and first pix i-f trans.
- 25.9 mc. second picture i-f transformer
- 24.6 mc. fourth picture i-f transformer
- 22.0 mc. third picture i-f transformer
- 22.5 mc. fifth picture i-f transformer
- 25.75 mc. picture carrier

27.25 mc. adjacent channel sound trap

(b) Radio frequencies

	Picture	Sound
Channel	Carrier	Carrier
Number	Freq. Mc.	Freq. Mc.
2	55.25	. 59.75
3	61.25	. 65.75
4	67.25	. 71.75
5	77.25	. 81.75
6	83.25	. 87.75
7		. 179.75
9		. 191.75
10	193.25	. 197.75
11		. 203.75
12	205.25	. 209.75
	211.25	

(c) Output on these ranges should be adjustable and at least .1 volt maximum.

Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

Electronic Voltmeter of Junior "VoltOhmyst" type and a high voltage multiplier probe for use with this meter to permit measurements up to 15 kv.

Service Precautions. — If possible, the chassis should be serviced without the kinescope. However, if it is necessary to view the raster during servicing, it would be a great convenience to have a set of yoke, focus coil, kinescope socket, high voltage and speaker extension cables.

CAUTION: Do not short the kinescope second-anode lead. Its short circuit current represents a considerable overload on the high voltage rectifier V113. Adjustments Required. — Normally, only the r-f oscillator line will require the attention of the service technician. All other circuits are either broad or very stable and hence will seldom require readjustment.

The cscillator line is relatively non-critical. When oscillator tubes are changed, in all probability it will be necessary to adjust only C6 in order to bring the entire line into adjustment.

ORDER OF ALIGNMENT. — When a complete receiver alignment is necessary, it can be most conveniently performed in the following order:

- (1) Sound discriminator (5) R-F and converter lines
- (2) Sound i-f transformers (6) R-F oscillator line
- (3) Picture i-f traps

(7) 4.5 mc. video trap

(4) Picture i-f transformers (8) Sensitivity check

SOUND DISCRIMINATOR ALIGNMENT. — Set the signal generator for approximately .1 volt output at 21.25 mc. and connect it to the second sound i-f grid.

Detune T113 secondary (bottom).

Set the "VoltOhmyst" on the 3-volt scale.

Connect the meter, in series with a 1-megohm resistor, to the junction of diode resistors R203 and R204.

Adjust the primary of T113 (top) for maximum output on the meter.

Connect the "VoltOhmyst" to the junction of C183 and R203. Adjust T113 secondary (bottom). It will be found that it is possible to produce a positive or negative voltage on the meter dependent upon this adjustment. Obviously to pass from a positive to a negative voltage, the voltage must go through zero. T113 (bottom) should be adjusted so that the meter indicates zero output as the voltage swings from positive to negative. This point will be called discriminator zero output.

Connect the sweep oscillator to the grid of the second sound i-f amplifier.

Adjust the sweep band width to approximately 1 mc. with the center frequency at approximately 21.25 mc. and with an output of approximately .1 volt.

Connect the oscilloscope to the junction of C183 and R203. The pattern obtained should be similar to that shown in Figure 12. If it is not, adjust T113 (top) until the waveform is symmetrical.

The peak-to-peak band width of the discriminator should be approximately 350 kc. and the trace should be linear from 21.175 mc. to 21.325 mc.

SOUND I-F ALIGNMENT. — Connect the sweep oscillator to the first sound i-f amplifier grid.

Connect the oscilloscope to the second sound i-f grid return (terminal \mathbb{A} of T112) in series with a 33,000-ohm isolating resistor.

Insert a 21.25 mc. marker signal from the signal generator into the first sound i-f grid.

Adjust T112 (top and bottom) for maximum gain and symmetry about the 21.25 mc. marker. The pattern obtained should be similar to that shown in Figure 13.

The output level from the sweep should be set to produce approximately .3 volt peak-to-peak at the second sound i-f grid return when the final touches on the above adjustment are made. It is necessary that the sweep output voltage should not exceed the specified values otherwise the response curve will be broadened, permitting slight misadjustment to pass un noticed and possibly causing distortion on weak signals.

The band width at 70% response from the first sound i-f grid to the second i-f grid should be approximately 200 kc.

T164, TC165, TC166,

TC167. TC168

ALIGNMENT PROCEDURE

PICTURE I-F TRAP ADJUSTMENT. — Connect the "Volt-Ohmyst" to the junction of R135 and C190.

T164, TC165, TC166,

TC167, TC168

Remove the 6SN7GT AGC Amplifier tube V107. Connect a 250,000-ohm potentiometer between pins 5 and 6 of the V107 socket. Adjust the potentiometer until the "VoltOhmyst" reads approximately -12 volts.

Set the channel switch to the blank position between channels number 2 and 13.

Connect the "VoltOhmyst" across the picture detector load resistor R119. Under this condition, both leads of the meter are at approximately -120 volts. In making this connection, care should be taken not to touch the case of the meter or to permit the meter case to become grounded.

Connect the output of the signal generator to the grid of the converter tube V2. To do this, remove the tube from the socket and fashion a clip by twisting one end of a small piece of wire around pin number 1. Replace the tube in the socket leaving the end of the wire protruding from under the tube. Connect the signal generator to this wire through a 1,500 mmf capacitor keeping the leads as short as possible.

Set the generator to each of the following frequencies and with a thin fiber screwdriver tune the specified adjustment for minimum indication on the "VoltOhmyst." In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

(1)	21.25	mcT103	(top)	(4)	27.25	mcT104	(top)
(2)	21.25	mcT105	(top)	(5)	19.75	mc T106	(top)
(3)	27.25	mcT102	(top)	(6)	19.75	mcT101	(top)

In the above transformers using threaded cores, it is possible to run the cores completely through the coils and secure two peaks or nulls. The correct position is with the cores in the outside ends of the coils. If the cores are not in the correct position, the coupling will be incorrect and it will be impossible to secure the correct response.

PICTURE I-F TRANSFORMER ADJUSTMENTS. — Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the "Volt-Ohmyst." During alignment, reduce the input signal if necessary to prevent overloading.

22.5	mcT)06	(bottom)
24.6	mcT104	(bottom)
22.0	mcT103	(bottom)
25.9	mcT102	(bottom)

T1 and T101 are coupled by a link and in combination constitute an overcoupled transformer. The characteristics of such a transformer are such that it is impossible to adjust it to a single frequency.

To sweep align T1 and T101, connect a 330-ohm composition resistor across the primary coils of T102, T103, T104 and T106.

Connect the "VoltOhmyst" to the junction of R135 and C190. Adjust the 250,000-ohm variable resistor for -2.0 volts on the meter.

Connect the oscilloscope to the plate of the first video amplifier, pin 1 of V106.

Connect a sweep generator to the converter grid through a 1,500 mmf capacitor. Set the generator to sweep from 20.0 mc. to 30.0 mc. and adjust the output to provide a 4-volt peak-to-peak signal on the scope.

Connect the signal generator loosely to the converter grid and tune it to provide markers at 22.05 mc. and 24.75 mc.

Adjust T1 (top) and T101 (bottom) to obtain the response shown in Figure 14. The T1 core must penetrate to the terminal-board end of the coil in order to obtain the correct response.

Remove the 330-ohm resistors from across T102, T103, T104 and T106.

Adjust the 250,000-ohm potentiometer for a 15-volt peak-to-peak signal at the plate of the first video amplifier. The bias as measured by the "VoltOhmyst" should be -12 volts or less.

Observe and analyze the response curve obtained. The response will not be ideal and the if adjustments must be retouched in order to obtain the desired curve. See Figure 15.

On final adjustment the picture carrier marker must be at approximately 45% response. The curve must be approximately flat topped, with the 22.1 mc. marker at approximately 95% response and the 25.0 mc. marker below 90% response. A 26.5 mc. marker must fall between 5 and 10% response.

The most important consideration in making the i-f adjustments is to get the picture carrier at the 45% response point. If the picture carrier operates too low on the response curve, loss of low frequency video response, of picture brilliance, of blanking, and of sync may occur. If the picture carrier operates too high on the response curve, the picture becomes smeared. In making these adjustments, care should be taken to see that no two transformers are tuned to the same frequency as i-f oscillation may result.

Remove the converter tube and take off the clip to pin number 1. Replace the tube in the socket.

Picture I-F Oscillation. - If the receiver will operate without oscillating with the test equipment disconnected but breaks into oscillation or becomes unstable with the equipment connected, it may become necessary to establish a ground plane. Cover the test bench with a sheet of copper and set the chassis on the sheet. Set all the test equipment except the "Volt-Ohmyst" on the sheet and bond or bypass them to it. A Junior "VoltOhmyst" should not be bonded to the sheet since the negative test probe is not always connected to ground during alignment. If the receiver is badly misaligned and two or more of the i-f transformers are tuned to the same frequency, the receiver may fall into i-f oscillation. I-F oscillation shows up as a voltage across the picture detector load resistor that is unaffected by r-f signal input. If such a condition is encountered, it is sometimes possible to stop oscillation by adjusting the transformers approximately to frequency by setting the adjustment cores of T101, T102, T103, T104, T105 and T106 to be approximately equal to those of another receiver known to be in proper alignment. If this does not have the desired effect, it may now be possible to stop oscillation by increasing the grid bias. If so, it should then be possible to align the transformers by the usual method. Once aligned in this manner, the i-f amplifier should be stable with reduced bias.

If the oscillation cannot be stopped in the above manner, shunt the grids of the first three pix i-f amplifiers to ground with 1,000 mmf. capacitors. Connect the signal generator to the fourth pix i-f grid and align T106 to frequency. Progressively remove the shunt from each grid and align the plate coil of that stage to frequency.

If this does not stop the oscillation, the difficulty is not due to i-f misalignment as the i-f section is stable when properly aligned. Check all i-f by-pass condensers, transformer shunting resistors, tubes, socket voltages, etc.

ANTENNA, R-F AND CONVERTER LINE ADJUSTMENT. — In order to align the r-f tuner, it will first be necessary to set the channel-13 oscillator to frequency. The shield over the bottom of the r-f unit must be in place when making any adjustments.

The channel-13 oscillator may be aligned by adjusting it to beat with a crystal-calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available. Regardless of which method of oscillator alignment is used, the freè quency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, couple the meter probe loosely to the receiver oscillator.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier signal, connect the signal generator to the receiver antenna terminals. Connect the "VoltOhmyst" to the zound discriminator output (junction of C183 and R203).

Set the receiver switch to 13.

Set the fine tuning control to the middle of its range.

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Now that the channel-13 oscillator is set to frequency, we may proceed with the r-f alignment.

Connect the "VoltOhmyst" to the junction of R135 and L117. Adjust the 250K pot. for -3.5 volts on the meter

Remove the first pix i-f amplifier tube V101.

Connect the oscilloscope to the test connection at R13 in the r-f tuning unit.

Connect the r-f sweep oscillator to the receiver antenna terminals. The method of connection depends upon the output impedance of the sweep. The P102 connections for 300-ohm balanced or 72-ohm single-ended input are shown in the circuit diagrams in Figure 78. If the sweep oscillator has a 50-ohm single-ended output, 300-ohm balanced output can be obtained by connecting as shown in Figure 7.

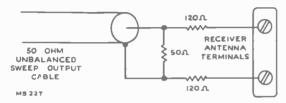


Figure 7-Unbalanced Sweep Cable Termination

Connect the signal generator loosely to the receiver antenna terminals.

Since channel 7 has the narrowest response of any of the high frequency channels, it should be adjusted first.

Set the receiver channel switch to channel 7.

Set the sweep oscillator to cover channel 7.

Insert markers of chapnel 7 picture carrier and sound carrier, 175.25 mc. and 179.75 mc.

Adjust C10 and C14 until the curve falls symmetrically between the sound and picture carrier markers. Adjust C11 to give the proper band width. Roughly peak L6 in conjunction with slight adjustments of C10 and C14 for a flat-topped response curve with the sound and picture carriers at 90% to 95% response points on this curve. See Figure 16, channel 7.

Switch to channel 12 and adjust L6 for maximum response and minimum top slope of the curve.

Check the response of channels 7 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observing the response obtained. See Figure 16 for typical response curves. It should be found that all these channels have the proper shaped response with the markers above 80% response. If the markers do not fall within this requirement on one or more high frequency channels, since there are no individual channel adjustments, it will be necessary to readjust L6, C10, C11 and C14, and possibly compromise some channel slightly in order to get the markers up on other channels. Normally, however, no difficulty of this type should be experienced since the higher frequency channels are comparatively broad and the markers easily fall within the required range.

Channel 6 is next aligned in the same manner.

Set the receiver to channel 6.

Set the sweep oscillator to cover channel 6.

Set the marker oscillator to channel 6 picture and sound carrier frequencies.

Adjust L9, L13, L66, and C12 for an approximately flattopped response curve located symmetrically between the markers. L9, L13 and L66 are the center frequency adjustments. C12 is the band-width adjustment 269

Check channels 5 down through channel 2 by switching the receiver, sweep oscillator and marker oscillator to each channel and observing the response obtained. In all cases, the markers should be above the 80% response point. If this is not the case, L9, L13, L66 and C12 should be retouched. On final adjustment, all channels must be within the 80% specification.

Disconnect the 250K pot., and replace V107 and V101.

Following an r-f alignment, the oscillator alignment must be checked.

R-F OSCILLATOR LINE ADJUSTMENT. — The r-f oscillator line may be aligned by adjusting it to beat with a crystal calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available.

Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated. If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, the calibration frequency listed under R-F Osc. Freq. must be available.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier frequency, the frequencies listed under Sound Carrier Freq. must be available.

	Receiver R-F Osc. Freq. Mc.	R-F Sound Carrier Freq. Mc.	
2	81	59.75	L24
3	87	65.75	L23
4	93	71.75	L22
5	103	81.75	L21
6		87.75	L31
7	201	179.75	L19
8	207	185.75	L18
9	213	191.75	L17
10		197.75	L16
11	225	203.75	L15
12	231	209.75	L14
13	237	215.75	C6

If the heterodyne frequency meter method is used, couple the meter probe loosely to the receiver oscillator.

If the r-f sound carrier method is used, connect the "Volt-Ohmyst" to the sound discriminator output (junction of C183 and R203) and connect the signal generator to the receiver antenna terminals. The order of alignment remains the same regardless of which method is used.

If the r-f unit is removed from the receiver for service and is aligned separately, the shield over the bottom of the r-f unit must be in place when making adjustments.

Since the lower frequencies are obtained by adding steps of inductance, it is necessary to align channel 13 first and continue in reverse numerical order.

Set the receiver channel switch to 13.

Adjust the frequency standard to the correct frequency (237 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range while making the adjustment.

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator. Oscillator adjustments L1 and L2 shown on the schematic are factory control adjustments and should not be touched in the field.

Switch the receiver to channel 12.

Set the frequency standard to the proper frequency as listed in the alignment table.

Adjust L14 for indications as above.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator trimmer for the speci-

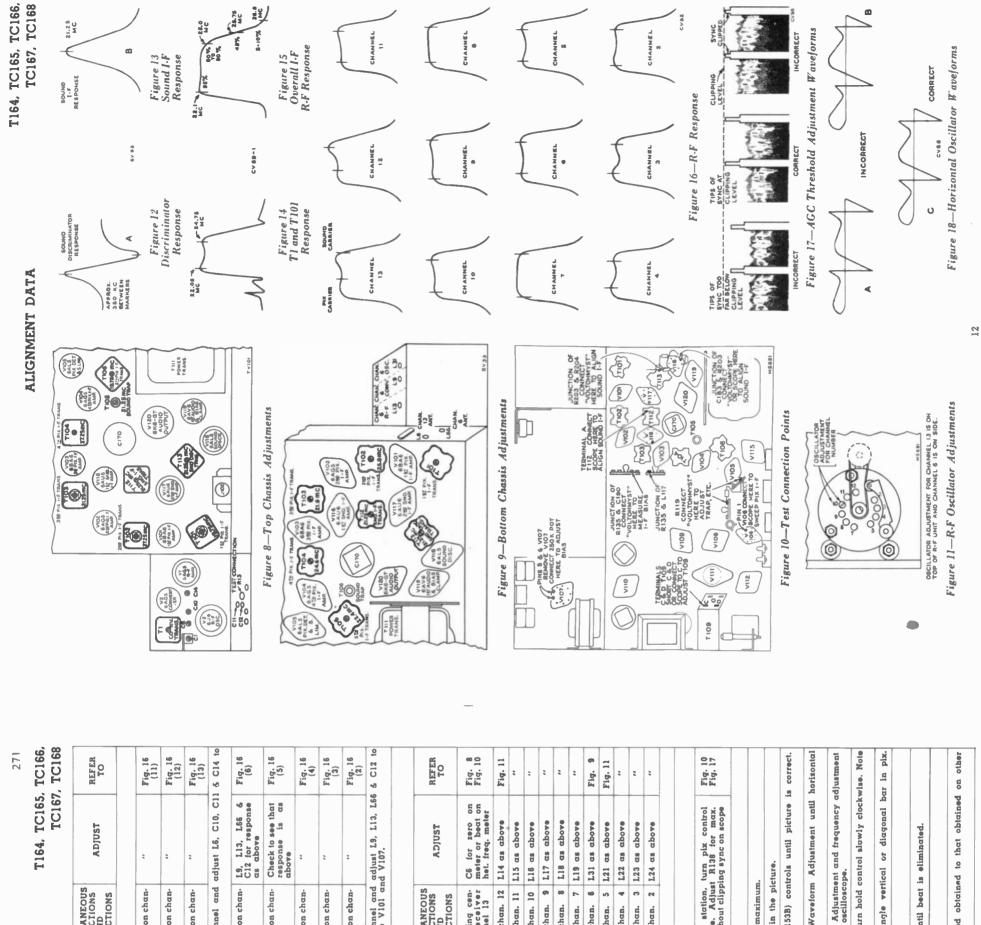
Continued on page 13

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ALIGNMENT TABLE

THE DETAILED ALIGNMENT PROCEDURE BEGINNING ON PAGE 7 SHOULD BE READ BEFORE ALIGNMENT BY USE OF THE TABLE IS ATTEMPTED.

STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
			DISC	RIMINATO	R AND SOUND I-F	ALIGNMENT			
1	2nd sound i-f grid (pin 1, V117)	21.25 .1 volt output	Not used		Not used	In series with 1 meg. to junction of R203 & R204		Detune Tl13(bot.) Adjust Tl13 (top) for max. on meter	Fig. 8 Fig. 9 Fig. 10
2	22	**	68 		"	Junct. of C183 & R203	Meter on 3 volt scale	ale zero on meter	
3		ð a	2nd sound i-f grid (pin 1, V117)	21.25 center l mc. wide .l v. out	Junction of C183 & R203	Not used	waveform (positiv	netrical response ve & negative). If T113 (top) until	Fig. 10 Fig. 12
4	lst sound i-f grid (pin 1, V116)	21.25 reduced output	lst sound i-f grid	21.25 reduced output	Terminal A, T112 in series with a 33,000 ohm resistor	"	Sweep output re- duced to provide .3 volt p-to-p on scope	Till2 (top & bot.) tor max.gain and symmetry at 21.25 mc.	Fig. 8 Fig. 9 Fig. 10 Fig. 13
				PICTURE I	F AND TRAP ADJU	STMENT			
5	Not used		Not used		Not used	Junction of R135 & C190	Remove V107. Connect potenti- ometer between pins 5 & 6 of V107 socket	Adjust pot. for meter reading of -12 volts	Fig. 10
6	Converter grid (pin 1, V2)	21.25			**	Across R119	Meter on 3 volt scale. Receiver between 2 and 13	T103 (top) for min. on meter	Fig. 8
7	**	21.25	"		**	¢0	**	T105 (top) for min.	**
8	**	27.25	**			24		T102 (top) for min.	**
9	**	27.25	66		**			T104 (top) for min.	**
10	**	19.75	48				0.0	T106 (top) for min.	**
11		19.75	**		20	**		T101 (top) for min.	4.5
12	**	22.5			47	80	**	T106 (bottom) for max, on meter	Fig. 9
13		24.6	69			"	**	T104 (bottom) for max.	68
14		22.0	88		58	**		T103 (bottom) for max.	
15	88	25.9	90		80	61	88	T102 (bottom) for max.	80
16		22.05 24.75	Converter grid (pin 1, V2)	Sweep- ing 20 to 30 mc.	Pin 1, V106	Junction of R135 & C190	Shunt 330 ohms across pri. T102, T103, T104, T106, Set bias -2 V. Set swp. gen. for 4 V. P-P on scope.	Adjust T1 (top) and T101 (bot- tom) for proper response	Fig. 8 Fig. 9 Fig. 14
17	e1		"			60	Remove shunt re- sistors. Set bias to give 15 volts P to P on scope.	Adjust T1 (top), T101, T102, T103, T104, T106 (bot.) for proper resp.	Fig. 8 Fig. 9 Fig. 15
				NA, R-F AI	ND CONVERTER LI	NE ALIGNMENT			
18	Antenna terminals	215.75	Not used		Not used	Junction of C183 & R203 for signal gen. method only	Fine tuning cen- tered. Receiver on channel 13. Het- erodyne meter coupled to oscil- lator if used.	C6 for zero on meter or beat on het. freq. meter	Fig. 8 Fig. 10
19						Junction of R135 & L117	Remove V101	Potentiometer for -3.5 volts on meter	Fig. 8 Fig. 10
20	Antenna terminal (loosely)	175.25 & 179.75	Antenna terminals (see text for precaution)	Sweep- ing channel 7	Test Connection R13	Not used			Fig. 8 Fig. 9 Fig. 16 (7)
21	80	205.25 209.75	b#	channel 12	20	25	Receiver on chan- nel 12	L6 for max, re- sponse and min, slope of top of curve	Fig. 8 Fig. 16 (12)
22	20	175.25 179.75	80	channel 7	58	**	Receiver on chan- nel 7	Check to see that response is as above	Fig. 16 (7)
23	88	181.25 185.75	68	channel 8	80	80	Receiver on chan- nel 8	**	Fig. 16 (8)
24	20	187.25 191.75	68	channel 9	47		Receiver on chan- nel 9		Fig. 16 (9)
25	**	193.25 197.75	**	chennel 10	40	28	Receiver on chan- nel 10	**	Fig. 16 (10)



counter-clock wise. Momentarily remove signal. Turn hold control slowly clockwise. Note patrol (C153A) for 2 bar pull-in. stment until horizontal blanking appears as single vertical or diagonal bar in pix. e weak signal. Compare the picture and sound obtained to that obtained on other nırcıl fully clockwise. Adjust T109 Oscillator Waveform Adjustment until horizonta ssible positions. ist width (R192), linearity (L111) and drive (C153B) controls until picture is correct 109. Allernately adjusi T109 Oscillator Waveform Adjustment and frequency adjustment s height while keeping picture in sync. Remove oscilloscope. to that channel and adjust L9, L13, L66 & C12 and replace V101 and V107. Tune in station, turn pix control clockwise. Adjust R138 for max. gain without clipping sync on scope Rec. on chan. 4 L22 as above until beat is eliminated. justment until horizontal blanking bar appears in the picture. locking range trimmer C153Å V_2 turn out from maximum. MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS Fine tuning cen-tered. Receiver on channel 13 low 80% at either marker, switch to that channel and ough 28. Rec. on chan. 12 Receiver on chan-nel 12 Receiver on chan-nel 6 Receiver on chan-nel 11 Rec. on chan. 11 Rec. on chan. 6 Rec. on chan. 3 Receiver on chan-nel 13 Receiver on chan-nel 5 Receiver on chan-nel 4 Receiver on chan-nel 3 Receiver on chan-nel 2 on chan. 10 Rec. on chan. 5 on chan. 2 on chan. Rec. on chan. Rec. on chan. appears in picture adjust 4.5 mc. trap (L110) Rec. Rec. Rec. NVERTER LINE ALIGNMENT (Continued) CONNECT "VOLTOHMYST" TO Junction of C183 & R203 for sig. gen. method only CONNECT "VOLTOHMYST" TO low 80% at either marker, switch rough 34. Disconnect the bias pot. Not used Not used OSCILLATOR ADJUSTMENT * • : 2 2 ENT PROCEDURE EO TRAP ADJUSTMENT ESHOLD ADJUSTMENT **ILLATOR ALIGNMENT** CONNECT OSCILLOSCOPE TO CONNECT OSCILLOSCOPE TO Test Connection R13 SITIVITY CHECK Pin 1, V106

Not used

11

ALIGNM

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through 47 as a check.		
	AGC	THR
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OH	HORIZONTAL	ITAL
als C and D of T109. Tune in	in a stati	
clockwise to sync	r reque	Adlu Adlu
h step, 53.		
core	109. Turn hold in outer of two	ld co
Connect low capacity probe of oscilloscope to termi until broad and sharp peaks of wave on oscilloscop	to terminal C cilloscope are	of Ti
Connect a 270K resistor across C156. Turn hold con least number of bars before pull-in. Adjust Locking	iold control fu Locking Ran	o Co
	T109 Freq.	Adjus
	4.5 MC	
station. Short T103 trap. If a 4.5	4	oeat o
		SEN
		provid
Short circuit terminals C and D Turn hold control fully clockw Turn hold control 1/4 turn from Repeat step 51, then proceed w Remove clip from terminals C Blanking bar appears in pictu Connect low capacity probe of Connect a 270K resistor across least number of bars before p furn hold control fully clock Turn hold control fully clock Turn in a strong station. Shor	and D of T109. Tun clockwise. Adjust T n from clockwise to ceed with step 53. incls C and D of 7 picture with core i picture with core i a picture on os acts of ware on os acts of ware on os clockwise. Adjust clockwise. Adjust	HORIZO e. Adjust T109 Frequence e. Adjust T109 Frequence lockwise to sync picture. h step, 53. with core in outer of tw with core in outer of tw with core in outer of tw and D of T109. Turn ho with core in outer of tw with core in outer of tw with core in outer of tw with core in outer of tw and D of T109 Freq. ise. Adjust T109 Freq. 4.5 M 4.5 M attenuator pad to F

	are presented in the alignment table. The service technician may thereby choose the method to suit his test equipment.	in amplitude to the peak of the saw tooth, on the oscilloscope as shown in Figure 18, while maintaining the picture in
and a second sec	ALICNMENT TABLE. — Both methods of oscillator alignment	A. — Connect the low capacity probe of an oscilloscope to terminal C of T109. Alternately adjust the waveform and fre- auency cores of T109 until the peak of the sine wave is equal
N N N N	inverted and/or switched from left to right depending on the deflection polarity of the oscilloscope and the phasing of the sweep generator.	tions. The core should be in the position nearest the outside of the chassis.
	to the left. The manner in which they will be seen in a given test set-up will depend upon the characteristics of the oscillo- scope and the sweep generator. The curves may be seen	form Adjustment Core of T109 (on the outside of the chassis) until the horizontal blanking bar appears in the raster. The waveform adjustment core will sync the picture in two posi-
	The response curves are shown in the classical manner of presentation, that is with "response up" and low frequency	shorting clip from terminals C and D of T109. Turn the hori- zontal hold control to the extreme clockwise position. With a thin fibre screwdriver, if necessary, adjust the Oscillator Wave-
	12 and referred to throughout the alignment procedure were taken from a production set. Although these curves are typical, variations can be expected.	above. Horizontal Oscillator Waveform Adjustment. — Remove the
	RESPONSE CURVES The response curves shown on page	control R192 and the linearity control L111 until the picture is correct. If C153B was adjusted, repeat step "A" and note
	is at the maximum clockwise position. Only carbon type re- sistors should be used to construct the pad.	turn from the extreme clockwise position and examine we width and linearity of the picture. It picture width or linearity is incorrect adjust the horizontal drive control C153B the width
	stages should be inserted so that a somewhat less than normal contrast picture is obtained when the picture control	B Turn the hold control approximately one-quarter of a
	The number of stages in the pad depends upon the signal strength available at the antenna. A sufficient number of	case it may be necessary to remove the short non-the sync sine ways core out then in until it is possible to obtain sync by addingthered of the fractionary core
rigiire 23Overali Pix I-F Response	This weak signal can be obtained by connecting the shop	sine wave coil is snorred out. Iet, the tube may work per- fectly well when the circuit is properly aligned. In such a fect is the short the short the turn the
	to that obtained on other receivers under the same conditions.	respond to step "A" above, since it may not be possible to sync the picture by means of the frequency core when the
	SENSITIVITY CHECK. — A comparative sensitivity check can be made by operating the receiver on a weak signal from a	Note.—Occasionally a tube may be found which does not
a Mc	иррениз ні ніє рисниге, чиризі жито инни ніє лесьі за силимилісь.	the horizontal blanking appears in the picture as a vertical bar. The position of the bar is unimportant.
25.75	the picture for the appearance of a 4.5 mc. beat. If the beat	A: intra international intra control action or one exercise clockwise position. Adjust the T109 Frequency Adjustment (inclor the choseic) so that the microre is just out of sync and
	9.3 PMC. VIDEO INAT. — With a strong input itom a station, defune the receiver from the correct fine tuning point. With a very short clin lead short the tran winding of T103. Observe	vision station and sync the picture if possible. \mathbf{A} — Turn the horizontal hold control R173 to the extreme
22.1 25.0	A 5 MC VIDEO TRED With a strong input from a station	clip lead, short circuit the coil between terminals C and D of the horizontal oscillator transformer T109. Tune in a tele-
	or diagonal bar in the picture. Adjust the T103 Frequency Adjustment until this condition is fulfilled.	Horizontal Frequency Adjustment.—Set the locking range trimmer one half turn out from maximum capacity. With a
Pix I.F. Transformer		whenever the horizontal oscillator operation is improper.
Eine 90 Dannah formt		quire readjustment in the field. However, the waveform adjust- ment should be checked whenever the receiver is aligned or
27.25 MC	horizontal blanking bar begins to move in the picture. Then repeat the entire "Check of Pull-in Range" procedure to this point Report this procedure until two bar pull-in is obtained	waveform adjustment requires the use of an oscilloscope, it can not be done conveniently in the field. The waveform ad- instment is made at the factory and normally should not re-
		HORIZONTAL OSCILLATOR ADJUSTMENT Normally the adjustment of the horizontal oscillator is not considered to be a port of the clianment procedure, but since the oscillator
		na tanana ana ang ang ang ang pagtan ana ang ang
MC /	into sync. The picture should snap in from two complete blanking bars. If two bars are not obtained turn the locking	as inducated by clipping of the sync. The control should be left in the maximum gain position in which no clipping of sync is observed. See Figure 17 for proper waveforms.
	Turn the hold control clockwise slowly and observe the minimum number of bars obtained just before the picture pulls	the size of the pattern on the oscilloscope. R138 should be turned counter-clockwise until the receiver begins to overload
Figure 19–-Response of Converter and First Pix I-F Transformer	Momentarily switch off channel and back. The picture will then be out of sync.	slowly counter-clockwise. As the control is turned counter- clockwise, the receiver gain will increase slowly, increasing
		sync pulse.
	Check of Oscillator Pull-in Range.—Set the horizontal hold control to the full counter-clockwise position.	from the oscilloscope to the plate of the first video amplifier, pin 1 of V106. Adjust the oscilloscope to observe the horizontal
	Remove the oscilloscope upon completion of this adjustment.	Tune in a station and advance the picture control to the maximum clockwise position. Connect the low capacity probe
	quate and the broad peak can cause double triggering of the oscillator when the hold control approaches the clockwise position.	justment can be made by the method outlined in the Installa- tion Instructions. However, a more accurate adjustment can be obtained by the use of an oscilloscope.
MC 24.75	and arit of the oscillator becomes more serious. On the other hand, if the broad peak is higher than the sharp peak, the oscillator is overstabilized, the pull-in range becomes inade-	AGC THRESHOLD ADJUSTMENT The AGC threshold ad-
	lower than the sharp peak, the noise immunity becomes poorer, the stabilizing effect of the tuned circuit is reduced	at channel 13 and recheck to make sure that all adjustments are correct.
resistor except the one whose response is to b	This adjustment is very important for correct operation of the circuit. If the broad neak of the wave on the oscilloscope is	control in the middle third of its range.
	synchronization. Then adjust the frequency core until hori- zontal blanking shows as a vertical bar in the picture.	fied indication. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning
PICTURE I.F RESPONSE. — At times it may	PROCEDURE (Continued) TC167,	ALIGNMENT
T164, TC165, TC166, TC167, TC168 RESPON	T164, TC165, TC166,	

Figure 31 --- Horizontal ŧ 14

Figure 30-Vertical (28 Volts PP)

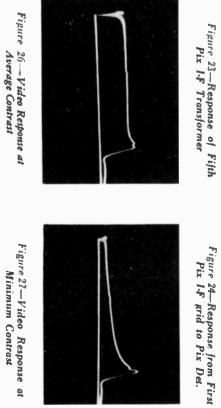
Sync Feed (Junction of L104, R219 and C194)

Figure 29—Horizontal (Oscilloscope Synced to ½ of Horizontal Sweep Rate) (5.4 Volts PP)

Figure 28- Vertical (Oscilloscope Synced to ½ of Vertical Sweep Rate) (5.4 Volts PP) ŧ

Video Signal Input to 1st Video Am-plifier (Pin 2 of V106) (12AU7)

Figure 26-Video Response at Average Contrast





19.75 MC

25.9 MC <) .

Figure 20-Response of Second Pix I-F Transformer

M0.8

.

22.0 MC

be desirable to can be achieved Connect a wide band sweep generator to the converter grid and adjust it to sweep from 18 mc. to 30 mc.

330 ohm carbon be observed.

SE AND WAVEFORM PHOTOGRAPHS

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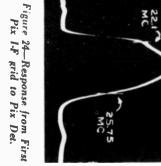
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Connect the oscilloscope across the picture detector load re-sistor and observe the overall response. The response obtained will be essentially that of the unshunted stage. The effects of the various traps are also visible on the stage response.



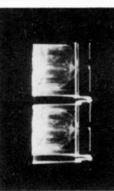
Figure 21-Response of Third Pix I-F Transformer







(28 Volts PP)



WAVEFORM PHOTOGRAPHS

Input to 2nd Video Amplifier (Pin 7 of V106) (12AU7)

Figure 32—Vertical (17 Volts PP) ------

Figure 33-Horizontal (17 Volts PP) $\rightarrow\rightarrow$

Output of 2nd Video Amplifier (Junction of L105 and R127) (Picture Max.)

Figure 34—Vertical (96 Volts PP) ------

Figure 35—Horizontal (96 Volts PP) ***

Input to Kinescope (Junction of R127 and R128) (Picture Max.)

Figure 36—Vertical (65 Volts PP) ------

Figure 37—Horizontal (65 Volts PP) ***

Input to 1st Sync Separator (Pin 1 of V108) (6SN7GT)

Figure 38—Vertical (25 Volts PP) ------

Figure 39—Horizontal (23 Volts PP) ***

AGC Rectifier Cathode (Pin 6 of V108) (6SN7GT)

Figure 40----Vertical (4.7 Volts PP) ------

Figure 41—Horizontal (1.5 Volts PP) ***

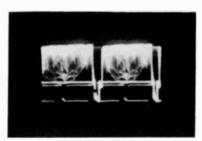
Output of AGC Rectifier (Pin 5 of V108) (6SN7GT)

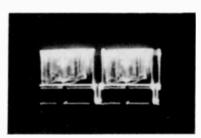
Figure 42—Vertical (24 Volts PP) ------

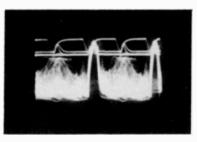
Figure 43—Horizontal (24 Volts PP) ***

T164, TC165, TC166, TC167, TC168

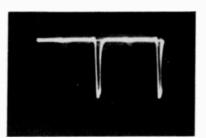


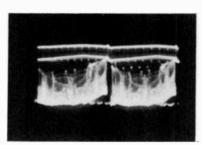


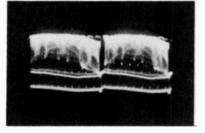


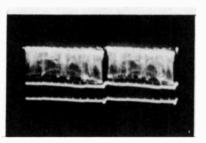


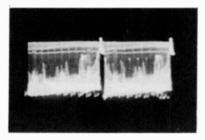


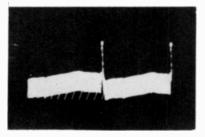


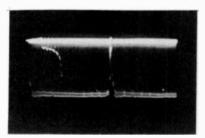


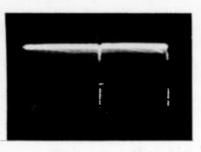




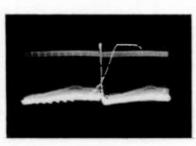


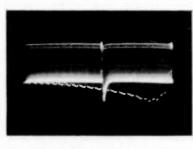
















WAVEFORM PHOTOGRAPHS

Output of 1st Sync Separator (Pin 2 of V108) (6SN7GT)

Figure 44---Vertical (26 Volts PP)

Figure 45—Horizontal (25.5 Volts PP)

Input to Sync Amplifier (Junction of C137, C139 and R145)

Figure 46—Vertical (21 Volts PP)

Figure 47—Horizontal (21 Volts PP)

Output of Sync Amplifier (Pin 2 of V109) (6SN7GT)

Figure 48-Vertical (115 Volts PP)

Figure 49—Horizontal (105 Volts PP)

Gathode of 2nd Sync Separator (Pin 6 of V109) (6SN7GT)

Figure 50-Vertical (17 Volts PP)

Figure 51—Horizontal (11 Volts PP) ↔

Figure 52—Output of Integrating Network (Junction of Cl44, Cl45 and R153) (45 Volts PP)

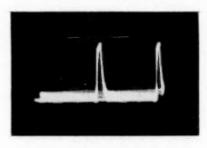
Figure 53—Grid of Vertical Oscillator (720 Volts PP) (Pin 1 of V107) (6SN7GT)

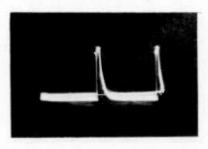
Figure 54—Grid of Vertical Output (160 Volts PP) (Pin 5 of V110) (6K6GT)

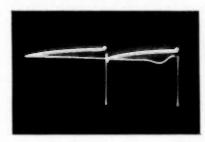
Figure 55—Plate of Vertical Output (750 Volts PP) (Pin 3 of V110) (6K6GT)

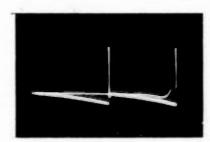












WAVEFORM PHOTOGRAPHS

Figure 56—Input of Vertical Deflection Coils (75 Volts PP) (Junction of Green Lead of T108 and Green Lead of Yoke)

Figure 57—Input to Horizontal Oscillator (17.5 Volts PP) (Junction of C153A and C154)

Figure 58—Junction of R168, R176 and R178 (150 Volts PP)

Figure 59—Grid of Horizontal Oscillator (480 Volts PP) (Pin 4 of V111) (6SN7GT)

Figure 60—Plate of Horizontal Oscillator (270 Volts PP) (Pin 5 of V111) (6SN7GT)

Figure 61—. Terminal "C" of T109 (70 Volts PP)

Figure 62-Input to Horizontal Output Tube (42 Volts PP) (Junction of C160, R183 and C153B)

Figure 63—Plate of Horizontal Output (Approx. 6,500 Volts PP) (Measured Through a Capacity Voltage Divider Connected from Top Cap of V112 to Ground)

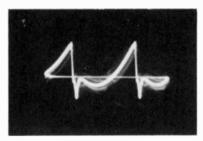
Figure 64—Terminal 1 of T110 (200 Volts PP)

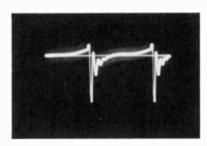
Figure 65—Plate of Damper (250 Volts PP) (Pin 5 of V114) (6W4GT)

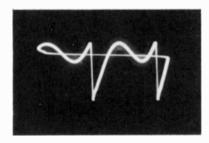
Figure 66—Input to Horizontal Deflection Coils (3,000 Volts PP)

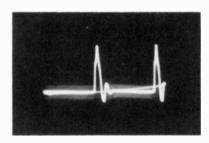
Figure 67—Horizontal Deflection Coil Current (0.5 Amp. PP) Measured by Inserting a 5-ohm Resistor in series with the yoke and observing the waveform across the resistor.

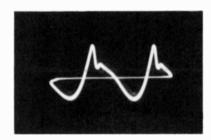
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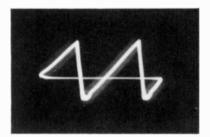


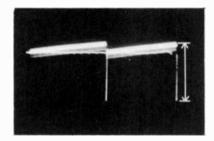




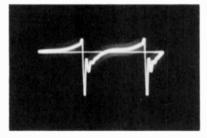


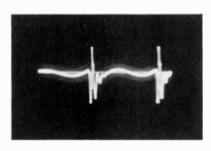




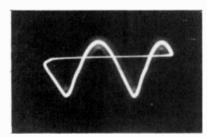


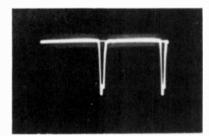
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VOLTAGE CHART

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The following measurements represent two sets of conditions. In the first condition a 2200 microvolt test pattern signal was fed into the receiver, the picture was synced and the AGC threshold control was properly adjusted. The second condition was obtained by removing the antenna leads and short-circuiting the receiver antenna terminals. Voltages shown are as read with "Jr. VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles a-c. Symbol < means less than.

Tube	Tube		Operating	E.	Plate	E . 1	Screen	E. C	Cathode	E	. Grid	I	I	
No.	Туре	Function	Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurements
Vl	6ÅG5	R-F Amplifier	2200 Mu. V. Signal	5	130	6	132	2 & 7	0	1	-2.2	5	2	
			No Signal	5	67	6	111	2 & 7	0	1	0.0	14.0	5.0	
			2200 Mu. V.	3	*130	D	*130	201	U	-	•-3.0	*7.1	*2.3	
V 2	6ĀG5	Converter	Signal	5	to 140	6	to 140	2 & 7	0	1	to -7.0	to 7.7	to 2.7	*Depending
			No Signal	5	*107 to 109	6	*107 to 109	2 & 7	0	1	*-2.0 to -6.0	*5.3 to 5.9	*.8 to 1.0	upon channe
V3	6]6	R-F Oscillator	2200 Mu. V. Signal	1 & 2	*88 to 95	_	· · ·	7	.19	5 & 6	*-5.1 to -7.3	*1.9 to 2.7	_	*Denerding
	0,0		No		*68			7			*-4 .5	*1.8		*Depending upon channe
		lst Pix. I-F	Signal 2200 Mu. V.	1 & 2	to 81			/	.16	5 & 6	to -6.6	to 2.1	_	
V101	6BA6	Amplifier	Signal	5	128	6	128	7	.4	1	-11.0	1.9	.8	
			No Signal	5	95	6	95	7	1.73	1	+.2	8.1	3.4	
V102	6AG5	2d Pix. I-F Amplifier	2200 Mu. V. Signal	5	119	6	119	2 & 7	.78	1	0	8.8	2.4	
			No Signal	5	100	. 6	100	2 & 7	.62	1	0	7.4	1.6	
V103	6 BA 6	3d Pix. I-F	2200 Mu. V.	5	81	6	119	7	.52	1	-2.2	11.1 -	.3	
¥103	0010	Amplifier	Signal No											
		4th pix. I-F	Signal 2200 Mu. V.	5	55	6	96	7	.62	1	+0.2	13.2	.3	
V104	6AG5	Amplifier	Signal	5	159	6	135	2 & 7	1.5	1	0	7.2	2.2	
			No Signal	5	165	6	118	2 & 7	1.35	1	0	6.8	2.4	
V105 A	6AL5	Picture 2d Det.	2200 Mu. V. Signal	7	-116	_	_	1	-127		_	.3	_	
			No Signal	7	-131	_	-	1	-135	_	_	<0.1	_	
V105 B	6AL5	Sync Limiter	2200 Mu. V. Signal	2	-117	_	_	5	-58	_	_	_	_	
			No Signal	2	-63	_		5	-60	1				
		lst Video	2200 Mu. V.							-				
V106	12AU7	Amplifier	Signal No	1	-18.7			3	-125	2	-129	2.6	-	
V106	12AU7	2d Video	Signal 2200 Mu. V.	1	-28.0	-		3	-133	2	-135	6.6	-	
100	12407	Amplifier	Signal	6	•120		_	8	*-11.0	7	*-13.2	9.2	_ <	*Åt minimun
			No Signal	6	•127			8,	*-17.0	7	•-21.0	8.5		contrast
			2200 Mu. V. Signal	6	•193	-	_	8	•0.6	7	•-13.1	3.2	_	*Ät maximun
			No Signal	6	*228	_		8	•-0.8	7	*-20.0	0.2	_	contrast
V107 Ā	6SN7 GT	ACG Amplifier	2200 Mu. V. Signal	5	-11			6	-58	4	-61	.12	_	
			No Signal	5	+ 0.2	_		6	-60	4	-66	0		
V107 B	6SN7 GT	Vertical Oscillator	2200 Mu. V. Signal	2	125			3	-127	1	-170	.31		
Ð	01	Oscingiol	No	2	1								-	
11100	6SN7	AGC	Signal 2200 Mu. V.	1	120		-	3	-135	1	-175	.30	-	
V108	GT	Rectifier	Signal No	5	87	-		6	-2	4	-19.5	.3		
	6SN7	lst Sync	Signal 2200 Mu. V.	5	75		-	6	-22	4	-28.0	<.1		
V108	GT	Separator	Signal No	2	87			3	-3	1	-18.5	<.1	-	
			Signal	2	73	-	-	3	-22	1	-28.0	<.1		

VOLTAGE CHART

		Y	T					-		7		*	7	-
Tube	Tube		Operating	E.	Plate	E. S	creen	E. C	athode	E	. Grid	I	I	
No.	Туре	Function	Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurements
V109	6SN7 GT	Sync Amplifier	2200 Mu. V. Signal	2	153	-	-	3	0	1	-5.0	5.8	_	
			No Signal	2	160	-		3	0	1	-5.6	5.4	-	
V109	6SN7 GT	Sync Separator	2200 Mu. V. Signal	5	241			6	-58	4	-117	.22		
			No Signal	5	240	-		6	-57	4	-65	.71	_	
V110	6K6- GT	Vertical Output	2200 Mu. V. Signal	3	240	4	240	8	78	5	-107	10	2.0	Screen connected to
			No Signal	3	235	4	235	8	-83	5	-111	10	1.9	plate
V 111	6SN7 GT	Horizontal Osc. Control	2200 Mu. V. Signal	2	50	-		3	-136	1	-127	.11		Hold control
			No Signal	2	14			3	*-155	1	*-147	.10	-	counterclockwis
			No Signal	2	78			3	•-140	1	•-142	.11	-	Hold control clockwise
V 111	6SN7 GT	Horizontal Oscillator	2200 Mu. V. Signal	5	86			6	-127	4	-193	2.0	-	
			No Signal	5	80			6	-135	4	-205	1.7		
V112	6BG6G	Horizontal Output	2200 Mu. V. Signal	Cap	Do Not Meas.	8	152	3	-117	5	-145	67.9	8.1	
			No Signal	Сар	Do Not Meas.	8	150	3	-126	5	-157	66.0	8.0	
V 113	1 B3GT /8016	H. V. Rectifier	Brightness Min.	Cap	Do Not Meas.			2 & 7	12,300	_		0		
			Brightness Average	Cap	Do Not Meas.	-		2 & 7	11,700			.1		
V114	6W4GT	Damper	2200 Mu. V. Signal	5	Do Not Meas.	_		3	498	_		86		
			No Signal	5	Do Not Meas.			3	496		-	70	_	
V115	5U4G	Rectifier	2200 Mu. V. Signal	4 & 6	*385	-	_	2 & 8	267	-		225		*AC meas- ured from plate
			No Signal	4 & 6	*385			2 & 8	260			226	-	to trans. center tap
V116	6AU6	lst Sound I-F Amplifier	2200 Mu. V. Signal	5	124	6	124	7	.87	1	-0.1	7.0	3.0	
			No Signal	5	107	6	107	7	.75	1	-0.15	6.4	2.3	
V117	6AU6	2nd Sound I-F Amplifier	2200 Mu. V. Signal	5	130	6	67	7	0	1	-9	4.3	1.5	
			No Signal	5	120	6	60	7	0	1	-0.37	3.7	1.6	
V118	6AL5	Sound Discrim.	2200 Mu. V. Signal	2	-8.4		_	5	5.8	-	6		-	
			No Signal	2	-0.4			5	0	-	-			
			2200 Mu. V. Signal	7	-3.7	-		1	0		-			
			No Signal	7	-0.4	-		1	0	-	-			
V119	6AV6	lst Audio Amplifier	2200 Mu. V. Signal No	7	80	-		2	0	1	89	.48	-	
	CVC	Audio	Signal	7	77			2	0	1	89	.47		
V120	6K6- GT	Output	2200 Mu. V. Signal No	3	193	4	135	8	-101	5	-127	12.4	2.1	
			Signal 2200 Mu. V.	3	193	4	121	8	-109	5	-135	11.9	2.1	Avg. Bright.
V121	16GP4	Kinescope	2200 Mu. V. Signal 2200 Mu. V.	Cap	12,300	10	250	11	77	2	35	.06	-	Avg. Bright. Avg. Contrast Min. Bright.
			Signal 2200 Mu. V.	Cap	12,700	10	250	11	110	2	36	0	-	Avg. Contrast Low Bright.
			Signal No	Сар	12,700	10	368	11	105	2	-2	0		Avg. Bright.
			Signal	Cap	11,700	10	366	11	73	2	48	.18	-	Ävg. Contrast

R-F UNIT WIRING DIAGRAM

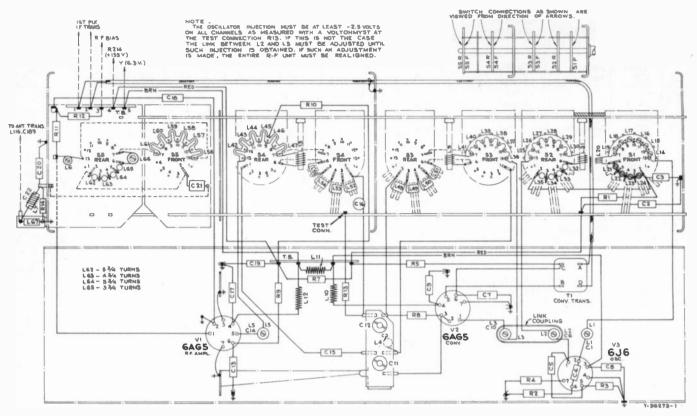


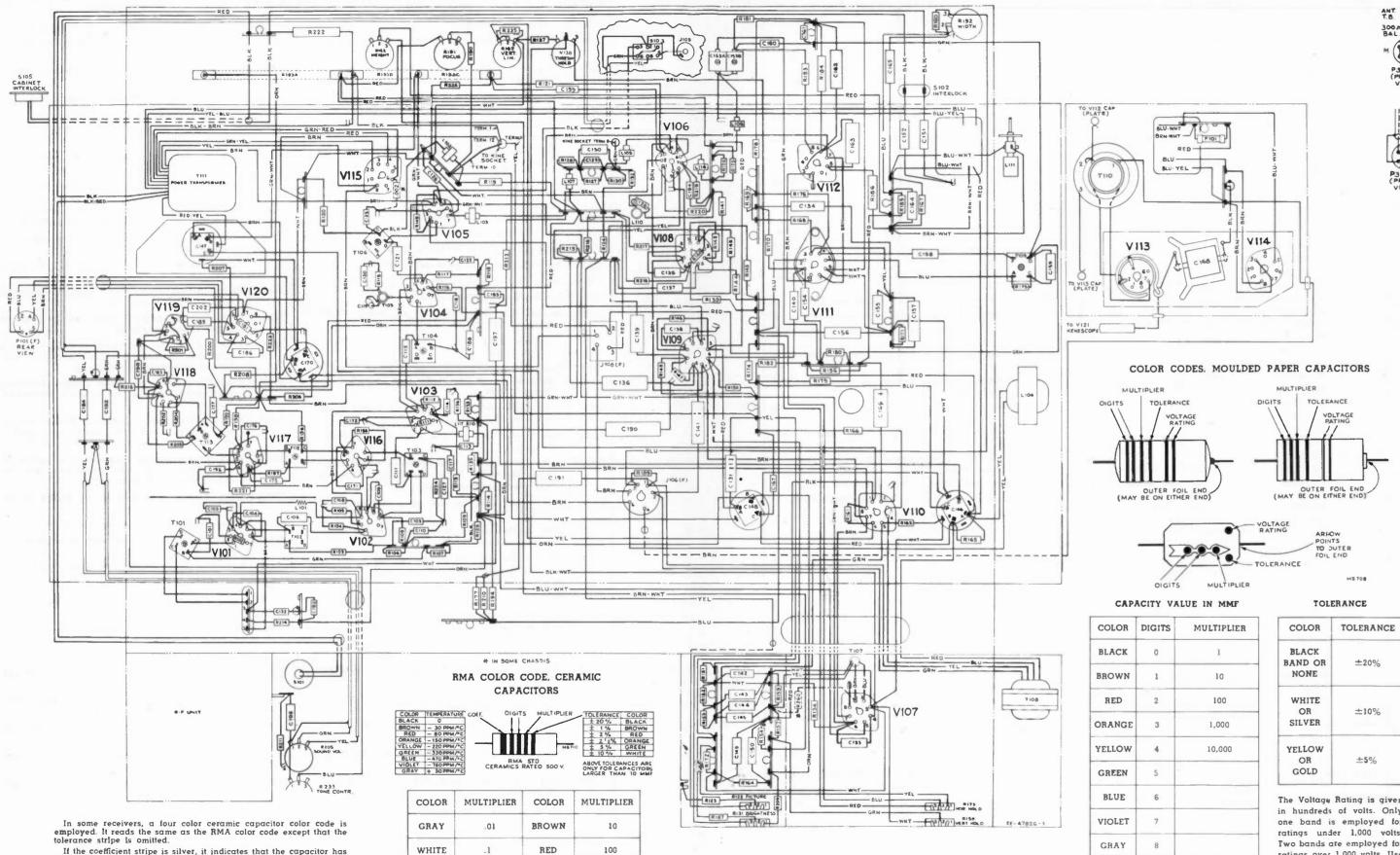
Figure 68-R-F Unit Wiring Diagram

CRITICAL LEAD DRESS:

- The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
- 2. Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
- If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
- 4. Picture i-f coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
- 5. Dress black lead from terminal C of T106 down next to chassis.
- 6. Leads to L102 and L103 must be as short as possible.
- 7. Dress peaking coils L105, L106, L107 and L114 up and away from the chassis.
- Dress C183 across tube pins 5 and 6 with leads not exceeding ³/₉ inch.
- 9. Dress body of R215 as close to tube pin as possible.
- 10. Dress C129 and C130 up and away from the chassis.
- Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.

- 12. Dress the green lead from pin 2 of V106 away from the chassis.
- 13. Dress R168, R176 and R178 up and away from the chassis.
- 14. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.
- Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
- Dress three a-c leads to S101 under clamp and away from R211.
- Dress black lead from power transformer and red lead from S102 to terminal board, on top side of four potentiometers.
- Dress all leads from V115 to V122 on power transformer side of terminal board.
- 19. All solder joints in the high voltage section should be free of sharp edges.
- 20. The lead side of the V113 plate cap should be turned away from the fixed high voltage shield and the lead should be dressed away from all objects.
- All leads under the horizontal plate in the high voltage section should be kept reasonably short and dressed away from the V113 corona ring.
- 22. The red-black lead from terminal 2 of the deflection yoke should be dressed around the green and yellow leads and away from the red lead. The loose end of the red-black wire should be heavily taped.

CHASSIS WIRING DIAGRAM



If the coefficient stripe is silver, it indicates that the capacitor has a very large temperature coefficient and is to be employed for by-pass or other usages where a wide variation of capacity is unim-portant. Silver striped capacitors are rated at 350 volts unless otherwise marked.

For digits, use digit column, page 22

ORANGE 1.000

BLACK 1.

Figure 69- Chassis Wiring Diagram

T164, TC165, TC166, TC167, TC168

CIRCUIT SCHEMATIC DIAGRAM

GAUG

COLOR	DIGITS	MULTIPLIER
BLACK	0	1
BROWN	1	10
RED	2	100
ORANGE	3	1,000
YELLOW	4	10.000
GREEN	5	
BLUE	6	
VIOLET	7	
GRAY	8	
WHITE	9	



C132 +125 1111 6AG5 6BA G TRANS T 1500 6AG5 C12 L4 C101 - R107 C105+ C110 + R135 C 113 R 141 LC197 T 0.47 S2-REAR ¥1074 65N7-GT GAL5 65N7-GT 6SN7-GT R136 A.G.C AMPL IST. SYNC. A-G-C SYNC. STNC. 1 40 2V CHANNEL SELECTOR SW VIEWED FROM FRONT AND SHOWN IN CHANNEL 2 (54-60 MC) POSITION. TUNING C133 R216 R 147 _____ R146 R218 COLOR DIGITS MULTIPLIER RMA COLOR CODE, FIXED MICA CAPACITORS GOLD +240V .1 WHITE INDICATES RMA STO BLACK INDICATES JAN STO WHITE INDICATES RMA STD BLACK INDICATES JAN STD BLACK 1 BROWN 10 R174 R17 RED 100 2 QUALITY UI TIPLIER QUALITY MULTIPLIER C 156 TOLERANCE OLERANCE ORANGE 3 1,000 RMA FIXED MICA CAPACITORS RATED AT SOCY. UNLESS MARKED OTHERWISE ALA TO ATAN TOLERANCE QUALITY YELLOW 4 10,000 COLOR TOLERANCE COLOR CLASS COLOR CLASS GREEN 5 RANGE RED ±2% BLACK YELLOW BLUE 6 A 157 CR169 GREEN ±5% BROWN GRAY VIOLET

R-F UNI

The Voltage Rating is given in hundreds of volts. Only one band is employed for ratings under 1,000 volts. Two bands are employed for ratings over 1,000 volts. Use digit column to read voltage rating

SILVER

BLACK

2 1

P302 B (PRONG VIEW)

All resistance values in ohms. K = Coil resistance values less than 1 1000

RED

ORANGE D

WHITE

C

±10%

±20%

MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

ohm are not shown.

GRAY

WHITE

8

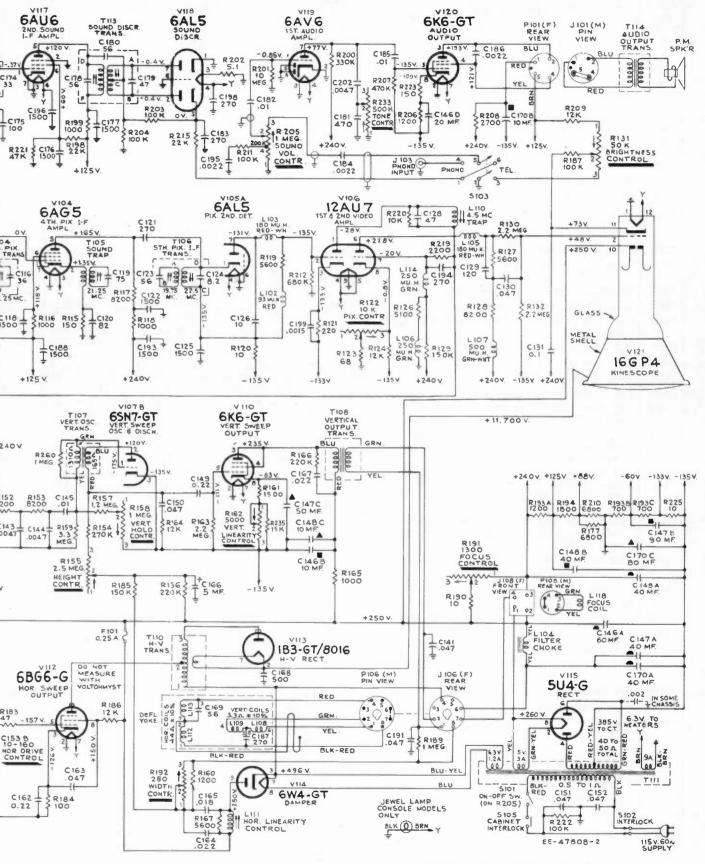
All voltages measured with "Volt-Ohmyst" and with no signal input. All capacitance values less than 1 in Direction of arrows at controls indi- Voltages should hold within ±20% were 820 ohms. with 117 v. a-c supply.

In some receivers, R206 and R223 R225 was 18, R128 was 6,800, R129 was and R235 was omitted. In some receivers, R220 was 12K.

R 180

In some receivers, C141 was omitted. In some receivers, R121 was 39, In some receivers, R161 was 1,000

T164, TC165, TC166, TC167, TC168



was omitted.

220K, L107 was 250 Muh and C139 In some receivers, R160 and R167 were omitted.

In some receivers, R260 was 470K. In some receivers, R187 was 150K and V121-10 was connected to arm (2) of height control R155. R188 (470K) was used between V121-11 and +125 v. In some receivers, C151 and C152 were .01 mfd.

REPLACEMENT PARTS

T164, TC165, TC166,

285

286

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T164, TC165, TC166,

TC167, TC168

STOCK

No.

TC167, TC168

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES KRK 5B	71475	Screw—No. 4-40 x 15/32" adjusting screw for coil L21, L22, L23, L24
		73437	Shaft—Channel selector shaft complete with paw
73465	Belt—Drive belt	72420	and stud
75069 75067	Board-R-F unit power connection terminal board Bracket-Vertical bracket for holding r-f oscillator	73438	Shaft—Fine tuning control shaft and pulley Shaft—Actuating shaft for fine tuning control
/306/	tube shield	75443	Shield—"U" shaped shield for bottom of r-f unit
73478	Cable—I-F transmission cable (W1)	72951	Shield—Metal tube shield for V3
73441	Cam—Fine tuning adjustment	73454	Shield—Metal shield for drive belt
74035	Capacitor—Ceramic, 5 mmf. (C4, C5)	73632	Shield-Metal tube shield for Vl
53511	Capacitor—Ceramic, 10 mmf. (C3)	71494	Socket—Tube socket, moulded, 7 prong, saddl mounted
54207	Capacitor—Ceramic, 18 mmf. (C20)	73450	Socket—Tube socket, ceramic, 7 prong, bottor
73449	Capacitor—Ceramic trimmer comprising 1 section of 150-190 mmf. and 1 section of 65-95 mmf. (C11, C12)	74576	mounted Spacer—Insulating spacer for front plate (4 re
73091	Capacitor—Ceramic, 270 mmf. (C21)	75068	quired) Spring-—Retaining spring for r-f oscillator tube shield
71501	Capacitor—Ceramic, 1,500 mmf. (C2, C7, C8, C9,	73457	Spring—Return spring for fine tuning control cor
73473	Č13, C15, C17, C18, C19) Capacitor—Ceramic, 5,000 mmf. (C16)	74188	Spring—Retaining spring for adjustable core RCA 74187
73460 73461	Coil—R-F plate coil for channel 6 (L13) Coil—Rear section—Oscillator plate coil for chan-	74578	Spring—Retaining spring for adjusting screws RCA 73640 and RCA 74575
73462	nel 6 (L20) Coil—Coupling inductance coil (L4)	73468	Stator—Front oscillator section stator complete with rotor, segment, coils and adjusting screws (S)
73475	Coil—Antenna filter shunt coil (C67)	80400	L14, L15, L16, L17, L18, L19, L21, L22, L23, L24
73476	Coil—I-F trap (L7, C22)	73469	Stator—Rear oscillator section stator complete with rotor, segment and coils (S2, L25, L26, L27, L26
73477	Coil—Choke coil (L10, L11, L12)		L29, L30, L32, L33, L34, L35)
73874	Coil—Front section—Oscillator plate coil for chan- nel 6 (L31)	73633	Stator—Antenna stator complete with rotor an coils (S5, L6, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, C21)
74108	Coil—Fine tuning coil (1½ turns) with adjustable inductance core and capacitor stud (plunger ad- justment) (L1, C1)	73470	Stator—Converter stator complete with rotor and coils (S3, L9, L36, L37, L38, L39, L40, L41, L48 L49, L50, L51)
74109	Coil—Trimmer coil (1½ turns) with adjustable in- ductance core and capacitor stud (screw adjust- ment for oscillator section or converter section)	73471	Stator—R-F amplifier stator complete with rotor an coils (S4, L13, L42, L43, L44, L45, L46, L47, L52, L53, L54, L55, C15, C16, R10)
74110	(L2, L3, C6, C10) Coil—Trimmer coil (3 turns) with adjustable in- ductance core and capacitor stud (screw adjust-	75446	Stud—Capacitor stud—brass, No. 4.40 x 13/16" wit 3/64" screwdriver slot for (rimmer coils 74109 an 74110, uncoded or coded "ER"
73455	ment) for r-f amplifier section (L5, Cl4) Core—Sliding core for fine tuning control trimmer	75447	Stud—Capacitor stud—brass, No. 4-40 x 13/16" wit 3/64" screwdriver slot for trimmer coils 74109 an
74187	Core—Adjustable core for coil L9		74110, coded numerically or "Hi Q"
71493	Connector—Oscillator segment connector	1	Transformer—Converter transformer (T1, R6)
73440	Detent—R-F unit detent mechanism and fibre shaft	73466	Washer-Insulating washer for front shield (1 set)
71487	Form-Coil form for coil L31	2917	Washer—"C" washer for channel selector shaft of fine tuning shaft and cam
73453	Form-Coil form assembly for L9, L13		
73442	Link—Link assembly for fine tuning		CHASSIS ASSEMBLIES
71462	Loop-Oscillator to converter trimmer loop con-		KCS40 - T164
72624	nector		KCS40A - TC165, TC166, TC167, TC168
73634 73436	Nut-Speed nut for drive belt shield	75086	Bracket—Focus coil mounting bracket—upper
73436	Plate—Front plate and bushing Pulley—Idler pulley	75087	Bracket—Focus coil mounting bracket—lower
/ 3101	Resistor—Fixed, composition: 47 ohms, $\pm 20\%$, ½ watt (R4)	74946	Capacitor—Mica trimmer comprising 1 section (4-70 mmf, and 1 section of 10-160 mmf, (C1537 C153B)
	150 ohms, ±20%, ½ watt (R5, R9, R12)	39604	Capacitor—Mica, 10 mmf. (C126)
	390 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R14) 1,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R7)	74105	Capacitor—Mica, 33 mmf. (C111)
	2,700 ohms, ±10%, ½ watt (R10)	64062	Capacitor—Ceramic, 82 mmf. (C120)
	10,000 ohms, ±20%, ½ watt (R1, R11)	73090	Capacitor-Mica, 82 mmf. (C140, C154)
140.00	100,000 ohms. $\pm 20\%$, $\frac{1}{2}$ watt (R2, R3, R8, R13)	39396	Capacitor—Ceramic, 100 mmf. (C175)
14343	Retainer—Channel selector shaft retaining ring	75060	Capacitor—Mica, 100 mmf. (C138) Capacitor—Ceramic, 120 mmf. (C129)
30340	Retainer—Retainer ring for fine tuning stud	73921	Capacitor—Ceramic, 120 mmi. (C129) Capacitor—Mica, 180 mmf. (C158)
70881	Screw—No. 4-40 x ¼" binder head screw for ad- justing coils L14, L15, L16, L17, L18, L19	73922	Capacitor—Ceramic, 270 mmf. (C183, C194, C198)
73640	Screw—No. 4-40 x %" adjusting screw for L66	73091	Capacitor—Mica, 270 mmf. (C106, C115, C121)

71501 Capacitor-Ceramic, 1,500 mmf. (C101, C103, C104, C105, C108, C109, C110, C113, C114, C117, C118, 30568 C122, C125, C127, C132, C171, C172, C176, C177, C188, C192, C193, C196) 60942 28417 Capacitor-Electrolytic, 5 mfd, 450 volts (C166) 71432 Capacitor—Electrolytic, comprising 2 sections of 40 74594 mfd, 450 volts and 1 section of 10 mfd, 450 volts 5040 (C148A, C148B, C148C) 73582 Capacitor—Electrolytic, comprising 1 section of 40 mfd, 450 volts, 1 section of 10 mfd, 450 volts, and 74967 72734 1 section of 80 mfd, 200 volts (C170A, C170B, C170C) 73583 Capacitor—Electrolytic, comprising 1 section of 40 mfd, 450 volts, 1 section of 90 mfd, 150 volts and 74047 74048 1 section of 50 mfd, 150 volts (C147A, C147B, C147C) 73581 Capacitor—Electrolytic, comprising 1 section of 60 mfd, 450 volts, 2 sections of 10 mfd, 450 volts 71441 71440 and 1 section of 20 mfd, 150 volts (C146A, C146B, 74597 C146C, C146D) 74475 73801 Capacitor—Tubular, moulded paper, oil impreg-nated, .001 mfd, 1,000 volts (C137, C161) 74945 71457 73802 Capacitor—Tubular, paper, oil impregnated, .0015 71437 mfd, 600 volts (C199) 73595 Capacitor-Tubular, paper, oil impregnated, .0022 mfd, 600 volts (C142, C184, C186, C195) 74956 73920 Capacitor-Tubular, paper, oil impregnated, .0047 mfd, 600 volts (C143, C144, C202) 73600 73561 Capacitor-Tubular, paper, oil impregnated, .01 71799 mfd, 400 volts (C135, C182) 73594 Capacitor—Tubular, moulded paper, oil impreg-37396 nated, .01 mfd, 600 volts (C145, C159) 73565 Capacitor—Tubular, paper, oil impregnated, .01 75445 mfd, 1,000 volts (C185) 35787 74727 Capacitor—Tubular, paper, oil impregnated, .018 74953 mfd, 1,000 volts (C165) 18469 73562 Capacitor—Tubular, paper, oil impregnated, .022 75444 mfd, 400 volts (C155, C167) 73810 Capacitor-Tubular, paper, oil impregnated, .022 72067 mfd, 1,000 volts (C164) 75071 Capacitor-Tubular, moulded paper, .047 mfd, 400 18471 volts (C151, C152) 74955 73553 Capacitor—Tubular, paper, oil impregnated, .047 mfd, 400 volts (C130, C134) 73592 Capacitor-Tubular, paper, oil impregnated, .047 mfd, 600 volts (C139, C156) 73597 Capacitor—Tubular, paper, oil impregnated, .047 mfd, 1.000 volts (C141, C150, C163, C191) 73557 Capacitor—Tubular, paper, oil impregnated, 0.1 mfd, 600 volts (C131) 73794 Capacitor—Tubular, paper, oil impregnated, 0.22 mfd, 400 volts (C136, C162) 74957 Capacitor—Tubular, paper, oil impregnated, 0.22 mfd, 600 volts (C149) 73787 Capacitor--Tubular, paper, oil impregnated, 0.47 mfd, 200 volts (C133, C157, C190, C197) 73154 Choke—Filter choke (L104) 71449 Coil—Horizontal linearity control coil (L111) 74983 Coil—Focus coil (L118, P108) 73477 Coil—Filament choke coil (L101) 74170 Coil—Peaking coil (36 muh) (L117, R110) 71527 Coil—Peaking coil (93 muh) (L102) 74214 Coil—Peaking coil (180 muh) (L103, L105) 71526 Coil-Peaking coil (250 muh) (L106, L114)

DESCRIPTION

74947 Capacitor-Ceramic, 500 mmf., 20,000 volts (C168)

74250 | Capacitor-Mica, 560 mmf. (C160)

REPLACEMENT PARTS (Continued)

REPLACEMENT PARTS (Continued)

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STOCK No.	DESCRIPTION
75252	Coil—Peaking coil (500 muh) (L107)
31027	Connector—4 contact female connector for focus coil (J108)
30568	Connector—4 contact male connector—part of focus coil (P108)
60942	Connector—8 contact female connector for deflec- tion yoke (J106)
74594	Connector—Male connector for power cable
5040	Connector-4 contact female connector for speaker cable (P101)
74967	Connector—Anode connector
72734	Control—Horizontal and vertical hold control (R158, R173)
74047	Control—Brightness and picture control (R122, R131)
74048	Control—Volume control, tone control and power switch (R205, R233, S101)
71441	Control—Vertical linearity control (R162)
71440	Control—Height control (R155)
74597	Control—Focus control (R191)
74475	Control—AGC threshold control (R138)
74945	Control—Width control (R192)
71457	Cord-Power cord and plug
71437	Cover—Insulating cover for electrolytics Nos. 71432, 73581 and 73582
74956	Cushion—Rubber cushion for deflection yoke hood (2 required)
73600	Fuse—0.25 amps., 250 volts (F101)
71799	Grommet—Rubber grommet for horizontal yoke lead exit or 2nd anode lead exit
37396	Grommet—Rubber grommet for mounting ceramic tube socket
75445	Hood-Deflection yoke hood less rubber cushions
35787	Jack—Phono input jack (J103)
74953	Magnet-Ion trap magnet (P.M.)
18469 75444	Plate—Bakelite mounting plate for electrolytics Plate—Bakelite plate complete with tube socket for
-	high voltage rectifier
72067	Resistor—Wire wound, 5.1 ohms, ½ watt (R202)
18471	Resistor-Wire wound, 10 ohms, ½ watt (R190)
74955	Resistor—Voltage divider comprising 1 section of 1,200 ohms, 16 watts, and 2 sections of 700 ohms, 5½ watts (R193A, R193B, R193C)
	Resistor—Fixed, composition—
	10 ohms, ±20%, ½ watt (R120)
	10 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R225)
	47 ohms, ±5%, ½ watt (R111) 47 ohms, ±20%, ½ watt (R183)
	$68 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R105)}$
	68 ohms, ±20%, ½ watt (R123)
	82 ohms, ±10%, ½ watt (R195) 100 ohms, ±10%, 2 watts (R184)
	$150 \text{ ohms}, \pm 5\%, \frac{1}{2} \text{ watt} (R102)$
	150 ohms, ±10%, ½ watt (R115, R223)
	150 ohms, ±20%, ½ watt (R106, R109, R114, R214) 220 ohms, ±10%, ½ watt (R121)
	$1,000 \text{ ohms}, \pm 10\%, \%$ watt (R121) 1,000 ohms, $\pm 20\%, \%$ watt (R103, R107, R108,
	R113, R116, R118, R165, R199)
	$1,200 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R196)$
	1,200 ohms, ±10%, 1 watt (R160, R206) 1,500 ohms, ±10%, ½ watt (R161)
	$1,800 \text{ ohms}, \pm 10\%, 2 \text{ watts (R194)}$
	2,200 ohms, ±10%, ½ watt (R219)
	2,700 chms. ±10%. ½ watt (R217) 2,700 chms. ±10%, 2 watts (R208)
	2,700 011113, 1070, 2 willis (1200)

1

STOCK No.	DESCRIPTION	
	3,900 ohms, ±5%, ½ watt (R112)	
	3,900 ohms, ±10%, ½ watt (R171)	
	4.700 ohms. $\pm 10\%$, $\frac{1}{2}$ watt (R144)	
	5,100 ohms, ±5%, ½ watt (R126) 5,600 ohms, ±5%, ½ watt (R119)	
	5,600 chms, $\pm 10\%$, $\frac{1}{2}$ watt (R119) 5,600 chms, $\pm 10\%$, $\frac{1}{2}$ watt (R218)	
	$5.600 \text{ ohms}, \pm 10\%, 1 \text{ watt (R127, R167)}$	
	6.800 ohms, ±5%, ½ watt (R136)	
	6,800 ohms, ±10%, ½ watt (R150)	
	6,800 ohms, ±10%, 2 watts (R177, R210)	
	8,200 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R175)	
	8,200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R152, R153)	
	8,200 ohms, ±5%, 1 watt (R117, R128) 10,000 ohms, ±5%, ½ watt (R104)	
	$10,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R141, R182, R220)}$	
	12,000 ohms, ±5%, ½ watt (R164)	
	12,000 ohms, ±10%, ½ watt (R209)	
	12,000 ohms, ±10%, 1 watt (R186)	
	12,000 ohms, $\pm 10\%$, 2 watts (R124)	
	15,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R235)	
	15,000 ohms, $\pm 10\%$, 1 watt (R146)	
	22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R134, R197)	
	22,000 ohms, ±20%, ½ watt (R198, R215) 27,000 ohms, ±10%, ½ watt (R143, R151)	
	$27,000 \text{ ohms}, \pm 10\%, \% \text{ watt} (R143, R151)$ 39,000 ohms, $\pm 5\%, \% \text{ watt} (R135)$	
	$47,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R133)}$	
	$47,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt (R221)}$	
	$82,000 \text{ ohms}, \pm 5\%, 1 \text{ watt (R179)}$	
	$82,000 \text{ ohms}, \pm 10\%, 1 \text{ watt (R168)}$	
	100,000 ohms, ±5%, ½ watt (R203, R204)	
	100,000 ohms. ±10%, ½ watt (R187, R211, R216)	
	100.000 ohms, ±10%, 1 watt (R174)	
	100,000 ohms, ±20%, 2 watts (R222)	
	120,000 ohms, $\pm 10\%$, 1 watt (R172)	
	150,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R129, R180, R185)	
	150,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R142)	
	150,000 ohms, $\pm 5\%$, 1 watt (R176)	
	220,000 ohms, $\pm 10\%$, ½ watt (R156, R166) 270,000 ohms, $\pm 10\%$, ½ watt (R154)	
	$330,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R140, R170, R200)$	
	$330,000 \text{ ohms}, \pm 5\%, 1 \text{ watt (R178)}$	
	$470,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R137, R139, R224)}$	
	$470,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt (R207)}$	
	680,000 ohms, ±10%, ½ watt (R133, R212)	
	820,000 ohms, ±10%, ½ watt (R169)	
	l megohm, ±10%, ½ watt (R147, R181)	
	l megohm, ±20%, ½ watt (R189, R260)	
	1.2 megohm, ±5%, ½ watt (R157, R213)	
	2.2 megohm, ±10%, ½ watt (R130, R132, R163)	
	3.3 megohm, ±5%, ½ watt (R159)	
	3.9 megohm, ±10%, ½ watt (R149) 6.8 megohm, ±10%, ½ watt (R125)	
	$10 \text{ megohm}, \pm 10\%, \frac{1}{2} \text{ watt (R148)}$	
	10 megohm, ±20%, ½ watt (R201)	
74602	Screw-No. 10-32 x 134" cross recessed round head	
74601	screw for focus coil adjustments (3 required)	
74601	Screw—No. 8-32 x 36" cross recessed pan head screw for focus coil mounting (2 required)	
71456	Screw—No. 8-32 x 7_{16} wing screw for fastening	
	support and bracket	
75083	Screw-No. 8-32 wing screw for mounting deflec-	
	tion yoke	
73584	Shield—Tube shield	
74937	Sleeve-Rubber sleeve for focus coil	
73117	Socket—Tube socket, 7 pin, miniature Socket—Tube socket, 9 pin, miniature.	
75223		

STOCK No.	DESCRIPTION
31251	Socket—Tube socket, octal, wafer
73249	Socket—Tube socket, octal, ceramic
71508	Socket-Tube socket for 1B3GT/8016
74834	Socket – Kinescope socket
31364	Socket – Pilot lamp socket for KCS40A
74936	Spring – Suspension spring (coil type) for kinescope socket leads
74954	Spring—Compression spring for hood and yoke assembly (3 required)
74944	Support-Rubber support for 2nd anode lead
74948	Support–Bakelite supports (1 set) for mounting hi- voltage plate
46760	Switch -"TV · Phono" switch (S103)
74157	Switch-Cabinet interlock switch (S105)
73569	Transformer -Vertical oscillator transformer (T107)
74589	Transformer—First pix I-F transformer (T101, C102, R101)
74590	Transformer – Second pix I-F transformer (T102, C107)
74591	Transformer – Third pix I-F transformer (T103, C112)
74592	Transformer -Fourth pix I-F transformer (T104, C116)
73575	Transformer – Fifth pix I-F transformer (T106, C123, C124)
71424	Transformer – Sound I-F transformer (T112, C173, C174)
71427	Transformer Sound discriminator transformer (T113, C178, C179, C180)
73576	Transformer Horizontal ocscillator transformer (T109)
73578	Transformer -Antenna transformer complete with socket (T115, J102)
74949	Transformer-Power transformer, 115 volts, 60 cycles (T111)
74951	TransformerHigh voltage transformer (T110)
74950	Transformer-Vertical output transformer (T108)
73577	Trap-4.5 mc trap (L110, C128)
71778	Trap—Sound trap (T105, C119)
73476	Trap—I-F trap (L116, C189)
74952	Yoke—Deflection yoke (L108, L109, L112, L113, C169, C187, P106)
	SPEAKER ASSEMBLIES FOR MODEL T164 Stamped 92580-3 W RMA-274 RL105C5
75023	CapDust cap
75024	Cone — Cone and voice coil assembly
5039	Connector—4 contact male connector for speaker ([101)
75025	Gasket—Speaker cone gasket
75022	Speaker—8" P.M. speaker complete with cone and voice coil (3.2 ohms) less output transformer and connector
75034	Transformer—Output transformer (T114)
	SPEAKER ASSEMBLIES FOR MODELS TC165, TC166, TC167, TC168
	Stamped 92569-10W RL 111-16 RMA 274 or 92569-10B
13867	Cap—Dust cap
74901 75875	Cone—Cone and voice coil assembly for 92569-10W Cone—Cone and voice coil assembly for 92569-10B

T164, TC165, TC166, TC167, TC168

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REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
5039	Connector—4 contact male connector for speaker (J101)	73642	Escutcheon—Channel marker escutcheon for ma- hogany or walnut instruments
75035	Speaker	73740	Escutcheon—Channel marker escutcheon for oak or maple instruments
75036	Transformer-Output transformer	72113	Foot-Rubber foot (4 required) for Model T164
	NOTE: If stamping on speaker in instrument does	74975	Glass—Safety glass for Model T164
	not agree with above speaker number, order re- placement parts by referring to model number of instrument, number stamped on speaker and full	74606	Glass—Safety glass for Models TC165, TC166, TC167 and TC168
	description of part required.	37396	Grommet—Rubber grommet to mount speaker (4 re- quired) for Models TC165, TC167 and TC168
	MISCELLANEOUS	73200	Hinge—Drop panel hinge (2 required) for Model T164
74958	Back-Cabinet back for Model T164	74308	Hinge—Cabinet door hinge (1 set) (4 required for Model TC167 and 2 required for Model TC168)
75019	Back—Cabinet back for Model TC165 Back—Cabinet back for Model TC166	74959	Knob—Fine tuning knob—dark—for mahogany or walnut instruments (outer)
74972	Back—Cabinet back for Model TC167	73995	Knob—Fine tuning knob—tan—for oak or maple instruments (outer)
75020	Back—Cabinet back for Model TC168 Board—"Ant" terminal board	74960	Knob Channel selector knobdarkfor mahogany or walnut instruments (inner)
71599	Bracket—Pilot lamp bracket for Models TC165, TC166, TC167, TC168	74961	Knob—Channel selector knob—tan—for oak or maple instruments (inner)
13103	Cap—Pilot lamp cap for Models TC165, TC166, TC167, TC168	74962	Knob—Tone control, brightness control or vertical hold control knob—dark—for walnut or ma-
71892	Catch—Bullet catch and strike for doors (1 set) (4 required for Model TC167 and 2 required for Model TC168)	73999	hogany instruments (outer) Knob—Tone control, brightness control, or vertical hold control—tan—for oak or maple instruments
X1917	Cloth—Grille cloth for mahogany or walnut instru- ments for Model T164	74963	(outer) Knob—Picture control, horizontal hold control or
X1918	Cloth—Grille cloth for oak instruments for Model T164		volume control and power switch knob—dark— for mahogany or walnut instruments (inner)
X3074	Cloth—Grille cloth for mahogany or walnut instru- ments for Models TC165, and TC168, and maple instruments for Model TC168	74001	Knob—Picture control, horizontal hold control or volume control and power switch knob—tan—for oak or maple instruments (inner)
X3089	Cloth—Grille cloth for oak instruments for Model TC165	11765	Lamp—Pilot lamp—Mazda 51—for Models TC165, TC166, TC167 and TC168
X3088	Cloth—Grille cloth for mahogany or walnut instru-	74162	Plate—Mounting plate for interlock switch
X 3101	ments for Model TC167 Cloth—Grille cloth for mahogany and walnut in-	74450	Plate—Back plate for door pull (4 required) for Model TC167
	struments for Model TC166	74451	Pull-Door pull (4 required) for Model TC167
X3090	Cloth-Grille cloth for oak instruments for Models	75021	Pull-Door pull (2 required) for Model TC168
39153	TC166 and TC167 Connector—4 contact male connector for antenna	74113	Screw-No. 8-32 x 1" trimit head screw for door pulls for Model TC167
30566	cable (P102) Connector—4 contact male connector, part of focus	74269	Screw—No. 8-32 x 34" trimit head screw for door pull for Model TC168
25202	coil (P108)	73643	Spring—Spring clip for channel marker escutcheons
35383	Connector—8 contact male connector, part of deflec- tion yoke (P106)	72845	Spring—Retaining spring for knobs Nos. 73995 and 74959
74607	Decal—Control panel function decal for mahogany or walnut instruments	14270	Spring—Retaining spring for knobs Nos. 73999, 74960, 74961 and 74962
74608	Decal—Control panel function decal for oak or maple instruments	30330	Spring—Retaining spring for knobs Nos. 74001 and 74963
71984	Decal—Trade mark decal (RCA Victor) for Model T164	74966	Spring—Formed spring for kinescope masking panel (8 required)
71768	Decal—Trade mark decal (RCA Victor) for Models TC167 and TC168	72936	Stop—Door stop (2 required for Model TC167 and l required for Model TC168)
74809	Emblem-"RCA Victor" emblem	74161	Stud-Locating stud for back (2 required)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Model TA169 Walnut, Mahogany or Oak



TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION **MODEL TA169**

Chassis Nos. KCS43, RK135D

SERVICE DATA

- 1950 No. T9 -

RADIO CORPORATION OF AMERICA **RCA VICTOR DIVISION** CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model TA169 is a "16 inch" television, AM-FM radio phonograph combination. The receiver employs thirty tubes plus three rectifiers and a 16GP4 kinescope. Two record changers are provided to play 331/3, 45 and 78 RPM records.

Features of the television unit are full twelve channel cov-

erage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc. band width for picture channel and reduced hazard high voltage supply.

(Television Chassis)

Function

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE...... 146 square inches on a 16GP4 kinescope

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc. Fine Tuning Range. ± 250 kc. on chan. 2, ± 650 kc. on chan. 13

RADIO TUNING RANGE

Broadcast .		 	 	 	
Frequency I	Modulation	 	 	 	
Intermediate	Frequency-AM	 	 	 	
Intermediate	Frequency-FM	 	 	 	 10.7 mc.

RECEIVER ANTENNA INPUT IMPEDANCE. 300 ohms balanced

If necessary, the television chassis may be fed separately from either a 300 ohm balanced line or a 72 ohm co-ax.

POWER SUPPLY RATING 115 volts, 60 cycles, 270 watts

CHASSIS DESIGNATIONS

Television Chassis
Radio Chassis
331/3/78 RPM Record Changer
45 RPM Record ChangerRP168C
Refer to Service Data 960285 or RP168 for information on the record changers.
IOIDSDEEVED 02560 5 12 inch DM Dungmin

LOUDSPLAKE	n 32363-3	 .	z incn	PM Dynami	5
Voice Coil Imp	pedance	 3.2	ohms	at 400 cycles	8

WEIGHT

Chassis	with	Tubes	in	Cabinet	 	 	 	 		. 190	lbs.
Shipping	r We	ight			 	 	 	 		.230	lbs.

DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside) Chassis (overall)			

(1) RCA 6AG5 ... (2) RCA 6AG5Converter (3) RCA 6J6R-F Oscillator (4) RCA 6AU6lst Sound I-F Amplifier DCA CALLO 2-4 6-

RCA TUBE COMPLEMENT

Tube Used

(5) RCA	6AU6 2nd Sound I-F Amplifier
(6) RCA	6AL5Sound Discriminator
(7) RCA	12AX7Audio Amplifier and Phase Inverter
(8) RCA	6V6GT Audio Output (2 tubes)
(9) RCA	6EA6 Ist Picture I-F Amplifier
(10) RCA	6AG5 2nd Picture I-F Amplifier
(11) RCA	6BA6 3rd Picture I-F Amplifier
(12) RCA	6AG5 4th Picture I-F Amplifier
(13) RCA	6AL5 Picture 2nd Detector & Sync Limiter
	12AU7lst and 2nd Video Amplifier
(15) RCA	6SN7GTAGC Amplifier & Vertical Sweep Osc.
	6SN7GTAGC Rectifier & 1st Sync Separator
(17) RCA	6SN7GTSync Amplifier & 2nd Sync Separator
	6K6GT Vertical Sweep Output
	6SN7GTHorizontal Sweep Oscillator and Control
	6BG6G Horizontal Sweep Output
	6W4GT Damper
	1B3-GT/8016High Voltage Rectifier
	5U4G Power Supply Rectifier (2 tubes)
(24) RCA	16GP4Kinescope

(Radio Tuner Chassis)

(1) RC.	A 6J6		Mixer and Oscillator
(2) RC.	4 6BA6		I-F Amplifier
(3) RC.	4 6AU6		F-M Driver
			Ratio Detector
(5) RC.	A 6BF6AM	Detector AVC	and Phone Preamp.

VIDEO RESPONSE
FOCUS
SWEEP DEFLECTION
SCANNING

TA169

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

OPERATING INSTRUCTIONS

VERTICAL SCANNING FREQUENCY

SOUND I-F FREQUENCIES

Sound Carrier Frequency...... 21.25 mc.

The following adjustments are necessary when turning the receiver on for the first time.

1. Turn the radio FUNCTION switch to Tel.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately midposition.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear.

9. Adjust the PICTURE control for suitable picture contrast.

HORIZONTAL PICTURE HOLD RECORD CHANGER HOLD CONTROL SWITCH RADIO TUNING FINE UNING l CHANNEL NO 1 FUNCTIO CHANNEL SWITCH NE -ON OFF SOUND FCORD CHANGER CONTROLS Ma Bar

Figure 1—Receiver Operating Controls

INSTALLATION INSTRUCTIONS

PICTURE I-F FREQUENCIES

Picture Carrier Frequency	25.75 mc.
Adjacent Channel Sound Trap	27.25 mc.
Accompanying Sound Traps	21.25 mc.
Adjacent Channel Picture Carrier Trap	19.75 mc.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

> 11. In switching from one station to another, it may be necessary to repeat steps numbers 4 and 9.

> 12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

> 13. If the positions of the controls have been changed, it may be necessary to repeat steps numbers 1 through 9.

> 14. For radio operation turn the FUNCTION switch to AM or FM and tune in station with the radio TUNING control.

> 15. For phono operation, turn the FUNCTION switch to PH for operation of the 3313/78 rpm record changer, or to XPH for operation of the 45 rpm record changer.

WARNING .- The high voltage supply in this receiver delivers 12,000 volts! A.C. interlocks are provided at the back of the set so that when the back is removed so is the power.

ANTENNA AND POWER CONNECTIONS. - Connect the leads from the antenna to the receiver antenna terminals.

Make sure that the receiver power switch is in the off position. Plug the receiver power cord into a 115 volt, 60 cycle $\alpha \cdot c$ outlet.

Turn the power switch to the "on" position, the brightness control three-quarters clockwise, and picture control fully counter-clockwise.

ION TRAP MAGNET ADJUSTMENT .- Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

DEFLECTION YOKE ADJUSTMENT .--- If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

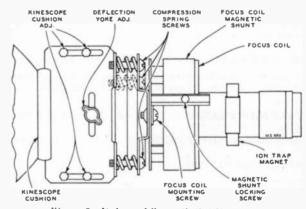


Figure 2—Yoke and Focus Coil Adjustments

PICTURE ADJUSTMENTS .- It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.



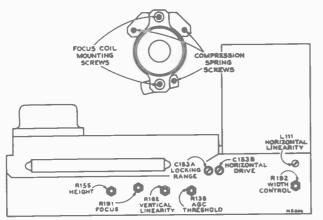


Figure 3 - Rear Chassis Adjustments

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Usually the picture will remain in sync. Turn the control clockwise slowly. If the picture did fall out of sync upon removal of the signal, the number of diagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. The picture should remain in sync for approximately 180 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustments."

ALIGNMENT OF HORIZONTAL OSCILLATOR. — If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 180 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the T109 sine wave core (on the outside of the apron) all the way out of the coil. Set the locking range trimmer C153A one-half turn out from maximum capacity.

Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and turn the irequency wave core of T109 under the chassis until the picture syncs and the sync bar just begins to move into the picture.

NOTE.—Occasionally, a tube may be found which does not respond to this alignment procedure since it may not be possible to sync the picture by means of the frequency core when the sine wave core is all the way out of the coil. Yet, the tube may work perfectly well when the circuit is properly aligned. In such a case, it may be necessary to turn the sine wave core in slightly, and readjust the frequency core to obtain sync.

Turn the sine wave core of T109 in until the blanking bar begins to move off to the left of the picture. Alternately turn the sine wave core in and the frequency out, keeping the picture in sync and the blanking bar showing in the picture.

Continue alternate adjustments until the picture falls from sync into a parasitic oscillation as indicated by a non-synchronized pattern which flickers in width and centering with possibly a light ragged vertical bar through the center of the screen.

Turn the sine wave core out ½ turn. Adjust the frequency core in until the picture is in sync and horizontal blanking appears as a vertical bar in the picture.

Check of Pull-in Range.—Turn the horizontal hold control fully counter-clockwise. Connect a 270K ohm resistor across C156. Momentarily switch off channel and back; the picture will then be out of sync. Turn the hold control clockwise slowly and observe the minimum number of bars obtained just before the picture pulls into sync.

The picture should snot in from two complete blanking bars. If two bars are not obtained, turn the locking range trimmer C153Å in to obtain less bars or out to obtain more bars.

If C153A was adjusted, remove the 270K resistor, turn the horizontal hold control fully clockwise and adjust the T109 frequency core until horizontal blanking appears as a vertical bar in the synced picture. Then repeat the entire check of pull-in range to this point.

Repeat the adjustments under "Check of Pull-in Range" until the conditions specified are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If the oscillator does not hold sync properly at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure.

• FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately one-quarter inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. The axis of the hole through the focus coil should be parallel with the axis of the kinescope neck. The focus coil is provided with a magnetic shunt in the form of a metal sleeve. If the receiver focuses with the focus control at or near the end of its range, loosen the shunt locking screw and slide the shunt forward or backward until focus is obtained with the focus control in the middle of its range.

CENTERING ADJUSTMENT.—No electrical centering controls are provided. Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If the focus coil was appreciably changed in position or if a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by sliding the coil. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In extreme cases it may be necessary to adjust one or more of the three focus coil compression spring screws to eliminate a corner shadow.

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture, adjust horizontal drive counter-clockwise as far as possible without losing tension on trimmer.

Set the width control to minimum picture width.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained. Do not run the core in beyond the point of maximum linearity change, as the current drawn by the 6BG6G then becomes excessive.

Adjust the width control for the proper picture width.

Readjust linearity, but again not beyond the point of maximum linearity change. If necessary adjust the drive control for best linearity.

If at very high line voltage, the picture width is excessive even with the width control set at minimum, turn the linearity coil out to obtain the proper width. On high line voltage, excessive width generally will be accompanied by good linearity, without retouching the drive.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS. — Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron) until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust the focus coil to align the picture with the mask.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC threshold control, tune

in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure. The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.

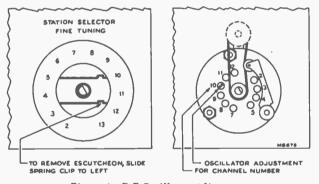


Figure 4-R-F Oscillator Adjustments

RADIO OPERATION.—Turn the receiver function switch to AM and FM positions and check the radio for proper operation. Tune in a station of known frequency. If the dial pointer does not point to the correct spot on the dial, slip the dial pointer on the dial cord until the proper indication is obtained.

RECORD CHANGER OPERATION.—Turn the receiver function switch to each phono position and check each record player for proper operation.

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor R14 which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs, the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the pilot light cable, the yoke and focus coil cable. Remove the yoke frame grounding strap and the interlock switch. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus coil as an assembly.

INSTALLATION OF KINESCOPE.—Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten.

Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment locking screws. Slide the deflection yoke as far forward as possible and tighten. If this is not done, difficulty will be encountered in adjusting the ion trap magnet and focus coil because of shadows on the corner of the raster.

Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and slip the high voltage lead clip between the rim of the kinescope and the mask.

Reconnect all other cables. Do not forget to replace the yoke frame grounding strap.

As may be seen by inspection, the radio dial lights and dial pointer are attached to the cabinet front panel. The dial cord is attached to the receiver chassis. The method of attachment may be seen in Figure 5.

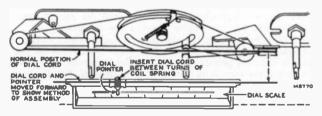


Figure 5—Dial Cord and Pointer Assembly

Reach over the television chassis to the radio and slip the radio pilot lights on the cabinet pilot light brackets.

To hook up the dial pointer, turn the tuning shaft until the gang is fully meshed. Slip the dial pointer to the low frequency end of the dial and press the dial cord well into the coil spring.

Turn the set on and to radio position to see that the dial lighting is correct. If it is not, adjust the dial lights and shields. Tune in a station of known calibration and check the dial calibration.

Perform the entire television set-up procedure beginning with Ion Trap Magnet Adjustment.

CABINET ANTENNA.—A cabinet antenna is provided for use in strong signal areas in which no reflections are experienced. The leads from the antenna are brought out near the receiver antenna terminal board. To connect the cabinet antenna, attach the leads to the terminal board. If reception is satisfactory, no other antenna is necessary. However, if reception is unsatisfactory, it will be necessary to employ an outdoor antenna or an indoor antenna which can be oriented.

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RADIO ALIGNMENT PROCEDURE

If any lead dressing is necessary, it should be done before aligning the receiver. When making a complete alignment follow the table below in sequence. If only a portion of the circuit is to be aligned select the portion required and follow with the remaining steps in the section. Any adjustments made on the 455 kc. I-F's make it necessary to adjust the 10.7 mc. I-F's.

"AM" R-F—I-F ALIGNMENT

Test-Oscillator.—For all alignment operations, connect low side of the test-osc. to the receiver chassis, and keep the osc. output as low as possible to avoid a-v-c action. Output Meter.—Connect the meter across the speaker voice coil, and turn the receiver volume control to max.

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to—	Function Switch	Turn Radio Dial to—	Adjust the following
1	Antenna terminal in series with .01 mfd.	455 kc. Modulated	ĀM	Low Freq. end of Dial	†Top and bot. cores of T301 and T302. (For max. voltage across voice coil.)
2		1,620 kc.	AM	Min. capacity	Osc. C308 for maximum output.
3	Ant. terminal through dummy ant. of 200 mmfs.	1,400 kc.	ĀM	Tune to signal	Ant. C304 for maximum output.
4	dummy dire of 200 minus.	600 kc.	ĀM	600 kc.	Osc. L306 and Ant. L303.
5	Repeat steps 2, 3 and 4 f	or maximum outpu	t.		

† Use alternate loading. Connect an 18,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 18,000-ohm resistor while the plate winding is being peaked.

RATIO DETECTOR ALIGNMENT

Connect probe of "VoltOhmyst" to negative side of C328 and low side to chassis. Connect output meter across speaker voice coil.

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to—	Function Switch	Radio Dial Tuned to—	Adjust
6	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.	10.7 mc. 30% AM	FM		Top of T303 for maximum DC on "VoltOhmyst."
7	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.	Modulated	FM		Bottom of T303 for minimum audio output on meter.
8	Repeat steps 6 and 7 as ne on ''VoltOhmyst.''	cessary making fir	al adjustment with	r-f input level se	t to give approximately -3.0 volts d-c

"FM"	R-F-I-F	ALIGNMENT

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to—	Function Switch	Radio Dial Tuned to—	Ādjust
9	Terminal 3 of S301-2 rear through 270 ohms.	10.7 mc.	FM	88 mc.	*T301 and T302 for max. with r-f input set to give -3 volts on ''VoltOhmyst."
10	Terminal 3 of S301-2 rear through 270 ohms.	106 mc.	FM	106 mc.	Set C302 to max. capacity. Squeeze L307 and adjust C302 for maximum.
11	Terminal 3 of S301-2 rear through 270 ohms.	90 mc.	FM	Tune to signal	Squeeze L301 and rock gang for maximum output.
12	Repeat steps 10 and 11 a	s required.			

• Use a 680-ohm resistor to load the plate winding while the grid winding of the same transformer is being peaked. Then the grid winding is loaded with 680-ohm resistor while the plate winding is being peaked.

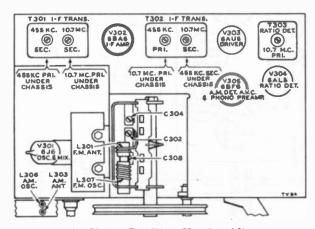


Figure 6-Chassis, Top View, Showing Adjustments

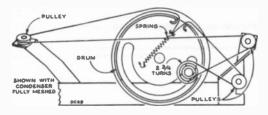


Figure 7—Dial and Drive Cord Assembly

CRITICAL LEAD DRESS:

- Ground lead on pin 2 of V302 and V303 should be dressed down flat on chassis.
- 2. Dual .005 mfd. capacitors and diode filter should be dressed to clear the bottom of the cabinet.
- 3. Dress C329 across V302 sockets with short and direct leads.
- 4. Dress V302 plate lead from pin 5 down to the chassis.
- 5. Dress AVC lead from R321 to switch down to chassis and against back of gang mounting plate.
- Dress lead from pin 6 of V305 down to chassis and against back of gang mounting plate.
- 7. Dress AVC lead from 1st I-F to switch against chassis and against gang mounting plate.
- Dress lead from switch to pin 1 of V301 against plate supporting gang.
- 9. Dress all insulated F-M leads down to chassis.
- 10. Connect C309 with short lead to pin 6 of V301 keeping body of cap away from plate lead and switch terminals.
- 11. The coupling between L301 and L307 should be adjusted to give proper injection voltage to the mixer grid. This has been found to be correct when the distance between adjacent end turns is 3%'' to 7/16'' measured at top of the form.
- 12. Dress cabled leads away from antenna transmission lines.
- 13. Dress all uninsulated bus wire so as to avoid short circuits.

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CHASSIS TOP VIEW

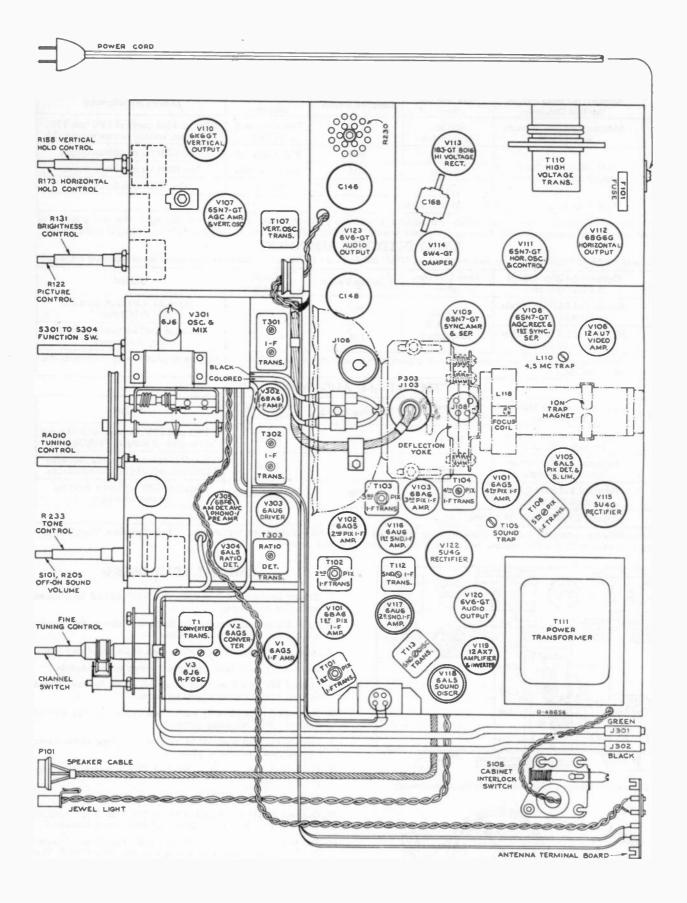


Figure 8----Chassis Top View

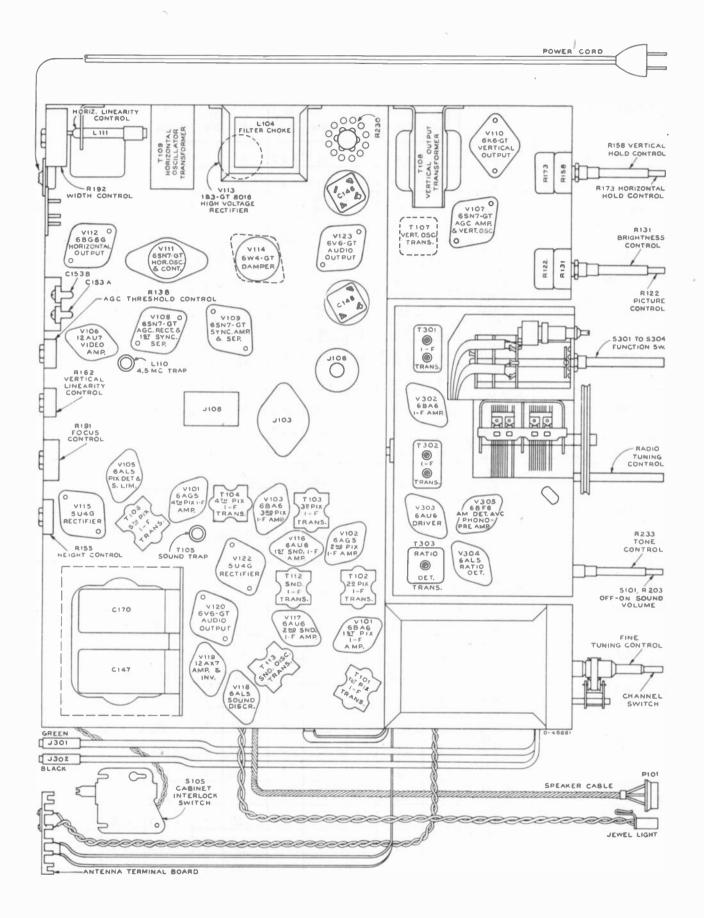


Figure 9 - Chassis Bottom View

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VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition a 2200 microvolt test pattern signal was fed into the receiver, the picture was synced and the AGC threshold control was properly adjusted. The second condition was obtained by removing the antenna leads and short-circuiting the receiver antenna terminals. Voltages shown are as read with "Jr. VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles a-c. Symbol < means less than.

Tube	Tube		Operating	E. P	lạte	E. S	icreen	E. Ca	thode	E.	Grid	I	I	Notes on
No.	Туре	Function	Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Measure- ments
V1	6AG5	R-F Amplifier	2200 Mu. V. Signal	5	130	6	132	2&7	0	1	-2.2	5	2	
			No Signal	5	67	6	111	2&7	0	1	0.0	14.0	5.0	
V2	6AG5	Converter	2200 Mu. V. Signal	5	*130 to 140	. 6	*130 to 140	2&7	0	1	*-3.0 to -7.0	*7.1 to 7.7	*2.3 to 2.7	*Depending
	UNGS	CONVENIER	No Signal	5	*107 to 109	6	*107 to 109	2 & 7	0	1	*-2.0 to -6.0	*5.3 to 5.9	*.8 to 1.0	upon channe
V3	6]6	R-F Oscillator	2200 Mu. V. Signal	1&2	*88 to 95		_	7	.19	5&6	*-5.1 to -7.3	*1.9 to 2.7		*Depending
			No Signal	1&2	*68 to 81	_	_	7			*-4.5 to -6.6	*1.8 to 2.1	_	upon channe
V101	6BA6	1st Pix. I-F Amplifier	2200 Mu. V. Signal	5	128	6	128	7	.4 •	1	-11.0	1.9	.8	
			No Signal	5	95	6	95	7	1.73	1	+.2	8.1	3.4	
V 102	6AG5	2nd Pix. I-F Amplifier	2200 Mu. V. Signal	5	119	6	119	2&7	.78	1	0	8.8	2.4	
			No Signal	5	100	6	100	2&7	.62	1	0	7.4	1.6	
V103	6BA6	3d Pix. I-F Amplifier	2200 Mu. V. Signal	5	81	6	119	7	.52	1	-2.2	11.1	.3	
			No Signal	5	55	6	96	2&7	.62	1	+.2	13.2	.3	
V104	6AG5	4th Pix. I-F Amplifier	2200 Mu. V. Signal	5	159	6	135	2&7	1.5	1	0	7.2	2.2	
			No Signal	5	165	6	118	2&7	1.35	1	0	6.8	2.4	
V105 Å	6AL5	Picture 2d Det.	2200 Mu. V. Signal	7	_116			1	_127	_		.3		
			No Signal	7	-131	_	_	1	-135	°		< 0.1	_	
V105 B	6AL5	Sync Limiter	2200 Mu. V. Signal	2	-117		_	5	-58	_		_		
			No Signal	2	-83		_	5	60		_	_	_	
V106	12AU7	lst Video Amplifier	2200 Mu. V. Signal	1	-18.7			3	-125	2	-129	2.6		
			No Signal	1	-28.0	_	_	3	_133	2	-135	6.6	_	
V106	12AU7	2d Video Amplifier	2200 Mu. V. Signal	6	•120		_	8	-11.0	7	•_13.2	9.2	_	*Ät minimu
			No Signal	6	•127	_		8	•_17.0	7	•21.0	8.5	_	contrast
V107 A	6SN7 GT	AGC Amplifier	2200 Mu. V. Signal	5	-11.0		_	6	-58	4	-61	.12		
			No Signal	5	+0.2	_		6	-60	4	66	0	_	
V107 B	6SN7 GT	Vertical Oscillator	2200 Mu. V. Signal	2	.125			3	-127	1	-170	.31	_	
			No Signal	2	120			3	-135	1	-175	.30	_	
V108	6SN7 GT	AGC Rectifier	2200 Mu. V. Signal	5	87			6	-2	4	-19.5	.3		
			No Signal	5	75		_	6	-22	4	-28.0	<.1	_	
V108	6SN7 GT	lst Sync Separator	2200 Mu. V. Signal	2	87	_		3	-3	1	-18.5	<.1		
			No Signal	2	73			3	-22	1	28.0	<.1		
V109	6SN7 GT	Sync Amplifier	2200 Mu. V. Signal	2	153			3	0	1	-5.7	5.8		
			No Signal	2	160		_	3	0	1	-5.6	5.4	_	

VOLTAGE' CHART

Tube	Tube		Operating	E. 1	Plate	E. 5	Screen	E. C	athode	E.	Grid	I	I	Notes on
No.	Туре	Function	Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Measure- ments
V109	6SN7 GT	Sync	2200 Mu. V.		241									
109	GI	Separator	Signal No Signal	5	241			6	<u>-58</u>	4	117 65	.22		
V110	6K6- GT	Vertical Output	2200 Mu. V. Signal	3	240	4	•240	8	-78	5	-107	10	2.0	*Screen
			No Signal	3	235	4	*235	8	-83	5	-111	10	1.9	connected to plate
V111	6SN7 GT	Horizontal Osc. Control	2200 Mu. V. Signal	2	*48		_	3	-136	1	-127	.11	_	*Variation of hold gives
			No Signal	2	•33			3	-140	1	140	.10		— 21.9 to +56 volts on plate
V111	6SN7 GT	Horizontal Oscillator	2200 Mu. V. Signal	5	86			6	-127	4	- 193	2.0		
			No Signal	5	80			6	-135	4	-205	1.7		
V112	6BG6G	Horizontal Output	2200 Mu. V. Signal	Cap	Do Not Meas.	8	152	3	-117	5	-145	67.9	8.1	
	18007	TT 17	No Signal	Cap	Do Not Meas.	8	150	3	-126	5	-157	66.0	8.0	
V113	1 B3GT /8016	H. V. Rectifier	Brightness Min. Brightness	Cap	Do Not Meas. Do Not			2&7	12,300			0		
			Average 2200 Mu. V.	Cap	Do Not Meas.			2&7	11,700			.1		
V114	6W4GT	Damper	Signal No	5	Do Not			3	498			86		
			Signal 2200 Mu. V.	_5	Meas.			3	496			70		
V115	5U4G	Rectifier	Signal No	4 & 6	385			2&8	267			225		*A-C meas- ured from plate to trans. center
			Signal	4&6	385			2 & 8	260			226		tap
V 116	6AU6	lst Sound I-F Amplifier	2200 Mu. V. Signal No	5	124	6	124	7	.87	1	0.1	7.0	3.0	
		2nd Sound	Signal 2200 Mu. V.	5	107	6	107	7	.75	1	-0.15	6.4	2.3	
V117	6ÅU6	I-F Amplifier	Signal No	5	130	6	67	7	0	1	-9	4.3	1.5	
			Signal	5	120	6	60	7	0	1	-0.37	3.7	1.6	
V118	6AL5	Sound Discrim.	2200 Mu. V. Signal	2 7	8.4 3.7			5 1	5.8 0					
			No Signal	2 7	-0.4 -0.4			5 1	0		_			
V119	12AX7	l st Audio Amplifier	2200 Mu. V. Signal	1	100	_		3	0	2	9			
			No Signal	1	100		_	3	0	2	9			
		Phase Inverter	2200 Mu. V. Signal	6	130	_		8	0	7	9			
W120	CUC	Audio	No Signal	6	130			8	0	7	9			
V120 V123	6V6- GT	Audio Output	2200 Mu. V. Signal No	3	230	4	85	8	-113	5	-127	22	5	*Per tube
			Signal 2200 Mu. V.	3	230	4	85	8	-120	5	_135	22	5	*Per tube *Average
V121	16GP4	Kinescope	Signal No	Cap	12,300	10	250	11	77	2	35	.06		Average Brightness Average
		Minute	Signal	Cap	11,700	10	250	11	73	2	48	.18		Brightness
V 301	6]6	Mixer and Oscillator Radio I-F	No Signal No	1 2	110 95			7	0	6 5	2.0 5.0			
<u>v</u> 302	6 B A6	Amplifier Radio F-M	No Signal No	5	210	6	105	7	.8	1	-0.2			Function switch
<u>v</u> 303	6AV6	Driver Radio	No Signal No	5 2	205	6	135	7	1.5 —0.2	1	0			in F-M position
V304	6AL5	Ratio Det. A-M Det. and	Signal No	7	-0.2			1	-0.2					P. C. CARLON
V305	6BF6	Phono Preamp	Signal	7	-0.2	—		2	0	—		—		

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RADIO CHASSIS WIRING DIAGRAM

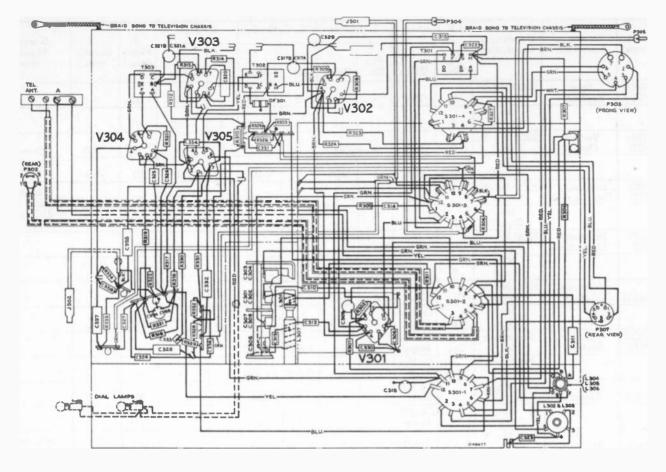


Figure 10—Radio Chassis Wiring Diagram (RK135D)

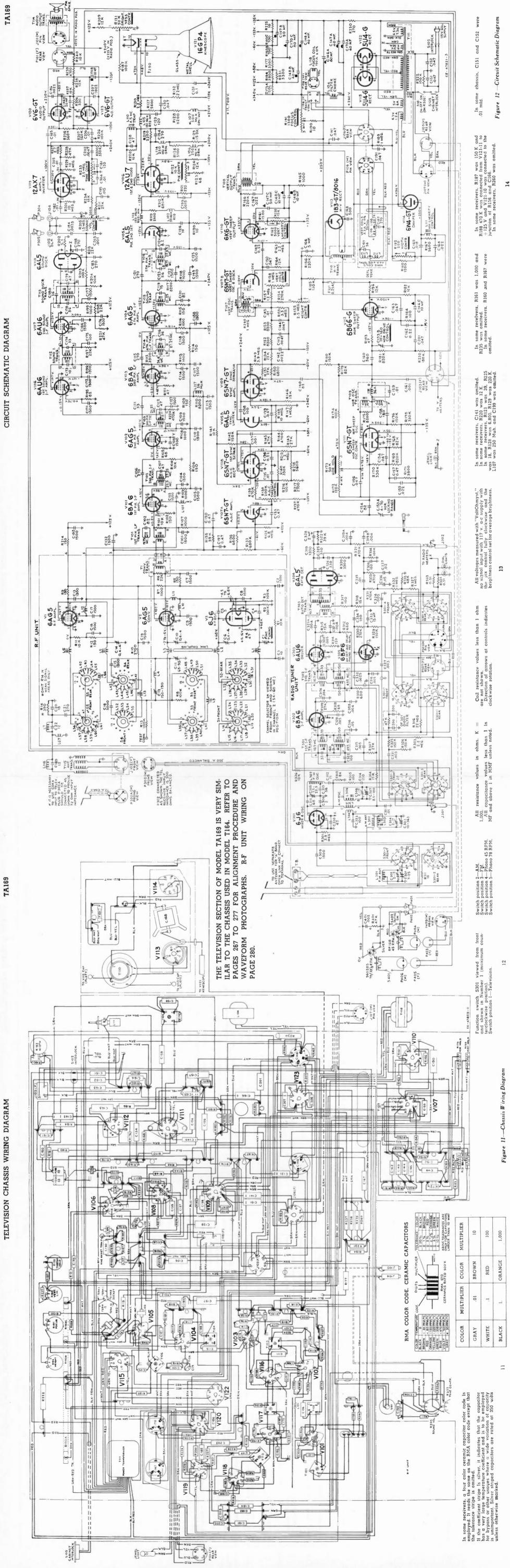
TELEVISION CRITICAL LEAD DRESS

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- The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
- 2. Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
- If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
- 4. Picture i-f coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
- 5. Dress black lead from terminal C of T106 down next to chassis.
- 6. Leads to L102 and L103 must be as short as possible.
- 7. Dress peaking coils £105, £106 and £107 up and away from the chassis.
- Dress C183 across tube pins 5 and 6 with leads not exceeding ³/₈ inch.
- 9. Dress body of R215 as close to tube pin as possible.
- 10. Dress C129 and C130 up and away from the chassis.
- 11. Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.

- 12. Dress the green lead from pin 2 of V106 away from the chassis.
- 13. Dress R168, R169, R170, R176 and R178 up and away from the chassis.
- 14. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.
- Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
- Dress three a-c leads to S101 under clamp and away from R211.
- 17. Dress black lead from power transformer and red lead from S102 to terminal board, on top of four potentiometers.
- Dress all leads from V115 to V122 on power transformer side of terminal board.
- 19. Dress all leads away from R230.
- Dress brown and yellow leads of phono motor cable under R165 and under C201.
- All solder joints in the high voltage section should be free of sharp edges.
- 22. The lead side of the V113 plate cap should be turned away from the fixed high voltage shield.
- 23. All leads under the horizontal plate in the high voltage section should be kept reasonably short and dressed away from the V113 corona ring.

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REPLACEMENT PARTS

STOCK	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES KRK 5B	73632 71494	Shield—Metal tube shield for V1 Socket—Tube socket, moulded, 7 prong, saddle mounted
73465	belt .	73450	Socket-Tube socket, ceramic, 7 prong, bottom mounted
75069	BoardR-F unit power connection terminal board (3 contact)	74576	Spacer-insulating spacer for front plate (4 required) Spring-Return spring for fine tuning control core
75067	Bracket—Vertical bracket for holding r-f oscillator tube shield	74188	Spring-Relaining spring for adjustable core RCA 74187
73478	CableI-F transmission cable (W1) CamFine tuning adjustment	1.4.7.0	and RCA 74575
74035		75068	oe shi plete
53511	-Ceramic,		LI6, L17, L18, L19,
73449	Capacitor—Ceramic, is min. (Cev) Capacitor—Ceramic trimmer, comprising 1 section of 150- 190 mm/ and 1 section of 65-95 mini. (C11, C12)	73469	-Rear oscillator section segment and coils (S2,
73091	CapacitorCeramic, 270 mmf. (C21)	73633	rith rotor and
71501	<u>~</u>	1.000	(S5, L6, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L65, L57, L58, L59, L59, L59, L60, L61, L61, L62, L63, L64, L65, L66, C21)
73473	Capacitor-Ceramic, 5,000 mmf. (C16)	73470	Stator—Converter stator complete with rotor and coils (S3, L9, L36, L37, L38, L39, L40, L41, L48, L49, L50, L51)
73460 73461	Coil—R-F plate coil for channel 6 (L13) Coil—Rear section—Oscillator plate coil for channel 6	73471	
73462	(L20) Coil—Coupling inductance coil (L4)	75446	L55, C15, C16, R10) Stud—Capacitor stud — brass, No. 4-40 x 13 16" with
73475			3 64" screwdriver slot for trimmer coils 74109 a 74110, uncoded or coded "ER"
73476	Coil-I-F trap (L7, C22) Coil-Choke coil (L10, L11, L12)	75447	Stud—Capacitor stud — brass, No. 4.40 x 13 16" with 3 54" screwdriver slot for trimmer coils 74109 and
73874	Coil—Front section—Oscillator plate coil for channel 6 (L31)	73448	74110, coded numerically of AIG
74108	Coil—Fine tuning coll (1½ turns) with adjustable in- ductance core and capacitor stud (plunger adjustment) (L1, C1)	73466 2917	Washer—Insulating washer for front shield (1 set) Washer—'C' washer for channel selector shaft or fine
74109	Coil—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw adjustment for oscilla- tor section or converter section) (12, L3, C6, C10)		TELEVISION CHASSIS ASSEMBLIES
74110	Coll—Trimmer coll (3 turns) with adjustable inductance core and capacitor stud (screw adjustment) for r-f amplitier section (15, C14)	•75086	Bracket-Mounting bracket (upper) for focus coil
71493	Connector—Oscillator segment connector	74911	Cable-Shielded cable complete with female connector
73455 74187	Core—Sliding core for fine tuning control trimmer Core—Adjustable core for coil L9	74946	(W101, W103, J104, J105) Capacitor—Mica trimmer, comprising 1 section of 4-70
73440		39604	mmf. and 1 section of 10-160 mmf. (C153A, C153B) Capacitor-Mica. 10 mmf. (C126)
71487	Form—Coil form assembly for 19. 113	74105	
73442		64062 73090	Capacitor—Ceramic, 82 mmf. (C120) Capacitor—Mica. 82 mmf. (C140, C154)
71462	Loop—Oscillator to converter trimmer loop connector	39396	-Ceramic,
73634 73436	Nut-Speed nut for drive belt shield Plate-Front plate and bushing	75060	Capacitor—Mica, 100 mmf. (C138) Capacitor—Ceramic, 120 mmf. (C129)
73464	Pulley-Idler pulley	39630	
	Resistor—Fixed, composition:	73102	Capacitor-Mica, 180 mmt. (C138) Capacitor-Mica, 270 mmf. (C106, C115, C121)
	9/ onms, ±20%, ½ wott (R5, R9, R12) 150 ohms, ±20%, ½ wott (R5, R9, R12)	73922	
	390 ohms, ±10%, ½ watt (R14)	74250	-Mica, 560 mml. (C160)
	2,700 ohms, ±10%, ½ walt (R10)	71501	Capacitor-Ceramic, 1,500 mmf. (C10), C103, C104, C105, C109, C119, C113, C113, C114, C117, C118, C122, C125, C127, C129, C129, C129, C127, C128, C122, C125,
	10,000 chms, ±20%, ½ watt (R1, R11)	2	
14343	RetainerChannel selector shaft retaining ring	73582	Capacitor-Electrolytic, comprising 1 section of 40 mfd.,
30340	RetainerRetainer ring for fine tuning stud		s, and 1 section of 10 mid., 430 voits, of 80 mfd., 200 volts (C170A, C170B, C17
70831	-No. 4-40 x 1/4" binder head screw L14, L15, L16, L17, L18, L19	73583	Capacitor-Electrolytic, comprising 1 section of 40 mtd., 450 volts, 1 section of 90 mtd., 150 volts, and 1 section of 50 mtd., 150 volts (C147A, C147B, C147C)
73640 71475	Screw—No. 4-40 x 3%" adjusting screw for L66 Screw—No. 4-40 x 15/32" adjusting screw for coils L21,	71432	Capacitor-Electrolytic, comprising 2 sections of 40 mfd., 450 volts, and 1 section of 10 mfd., 450 volts (C148A,
74575	No. 4-40 x 17, 32″ adjusting screw	73581	Cl48B, Cl48C) Capacitor-Electrolytic, comprising 1 section of 60 mi
73437		19567	450 volts. 2 sections of 10 mfd. 450 volts, and 1 section of 20 mfd., 150 volts (C146A, C146B, C146C, C146D)
73438	Shaft—Fine tuning control shaft and pulley	73801	Capacitor—Tubular, mouided paper, oil impregnated .001 mid., 1.000 volts (C137, C161, C203)
75443	Shield-"'U'' shape shield for bottom of r-f unit	73802	CapacitorTubular, paper, oil impregnated, .0015 mfd., 500 volts (C199)
72951	Shield—Metal tube shield for V3 Shield—Metal shield for Arize helt	73595	Capacitor—Tubular, paper, oil impregnated, .0022 mfd., 600 volts (C142)
10101			

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 Coperitor-Tubular, paper, oli impregnated002 mid Caperitor-Tubular, paper, oli impregnated013 mid Caperitor-Tubular, paper, oli impregnated01 mid 600 Caperitor-Tubular, paper, oli impregnated02 mid 600 volt. (C185, C165) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187, C197) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C19, C185, C187) Caperitor-Tubular, paper, oli impregnated047 mid 600 volt. (C19, C185, C187) Call-Peaking coli (30 mub) (L102, L103) Call-Peaking coli (37 mub) (L103, L103) Call-Peaking coli (30 mub) (L104, L104) Cannetor-J contert female connector	AGC threshold control (R138) Width control (R192) wer cord and plug sulating cover for electrolytics No. 71432 81 Rubber cushion for yoke hood (2 required 5 amp., 250 volts (F101) -Rubber grommet for yoke horizontal lead	
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CapacitorTubular, paper, oil impregnated0022 1.000 volts (C186, C207) CapacitorTubular, paper, oil impregnated0033 600 volts (C181, C144, C202) CapacitorTubular, paper, oil impregnated01 mfd volts (C133, C182, C204) CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 mfd volts (C145, C159, C205) CapacitorTubular, paper, oil impregnated01 1.000 volts (C185, C206) CapacitorTubular, paper, oil impregnated01 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated018 1.000 volts (C155, C164, C167) CapacitorTubular, paper, oil impregnated022 CapacitorTubular, molded paper047 mfd., 400 (C151, C152) CapacitorTubular, paper, oil impregnated047	(C130, C134, C201) Tubular, paper, oil impreanated047	73592 Cap
CapacitorTubular, paper, oil impregnated0022 1.000 volts (C186, C207) CapacitorTubular, paper, oil impregnated0033 600 volts (C184, C144, C202) CapacitorTubular, paper, oil impregnated01 mfd volts (C143, C144, C202) CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 1.000 volts (C145, C185, C206) CapacitorTubular, paper, oil impregnated01 1.000 volts (C185, C206) CapacitorTubular, paper, oil impregnated01 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated016 1.000 volts (C185) CapacitorTubular, paper, oil impregnated016 1.000 volts (C185) CapacitorTubular, paper, oil impregnated022 (C151, C152)	Tubular, paper, oil impregnated, .047	73553 Cap
CapacitorTubular, paper, oil impregnated0022 1,000 volts (C186, C207) CapacitorTubular, paper, oil impregnated0033 600 volts (C184, C144, C202) CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 CapacitorTubular, paper, oil impregnated01 1,000 volts (C185, C206) CapacitorTubular, paper, oil impregnated01 CapacitorTubular, paper, oil impregnated01 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated018 1,000 volts (C185) CapacitorTubular, paper, oil impregnated018 1,000 volts (C195) CapacitorTubular, paper, oil impregnated018 1,000 volts (C155) CapacitorTubular, paper, oil impregnated018 1,000 volts (C155) Capacitor	molded paper, .047 míd., 400 v	75071 Cap
CapacitorTubular, paper, oil impregnated0022 1.000 volts (C186, C207) CapacitorTubular, paper, oil impregnated0033 600 volts (C184, C144, C202) CapacitorTubular, paper, oil impregnated01 mfd CapacitorTubular, paper, oil impregnated01 1.000 volts (C185, C206) CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated015 CapacitorTubular, paper, oil impregnated018 1.000 volts (C165)	—Tubular, paper, oil impregnated, .022 hts (C155, C164, C167)	73562 Cap
CapacitorTubular, paper, oil impregnated, .0022 1,000 volts (C186, C207) CapacitorTubular, paper, oil impregnated, .0033 600 volts (C184, C144, C202) CapacitorTubular, paper, oil impregnated, .01 mfd volts (C143, C144, C204) CapacitorTubular, paper, oil impregnated, .01 mfd volts (C145, C182, C204) CapacitorTubular, paper, oil impregnated, .01 mfd conts (C145, C185, C206) CapacitorTubular, paper, oil impregnated, .01 1.000 volts (C185, C206) CapacitorTubular, paper, oil impregnated, .01 CapacitorTubular, paper, oil impregnated, .01 CapacitorTubular, paper, oil impregnated, .01 CapacitorTubular, paper, oil impregnated, .01	(C165)	
CapacitorTubular, paper, oil impregnated, .0022 1.000 volts (C186, C207) CapacitorTubular, paper, oil impregnated, .0033 600 volts (C184, C144, C202) CapacitorTubular, paper, oil impregnated, .0047 600 volts (C143, C144, C202) CapacitorTubular, paper, oil impregnated, .01 mfd volts (C135, C182, C204) CapacitorTubular, paper, oil impregnated, .01 mfd volts (C145, C152, C205) CapacitorFubular, paper, oil impregnated, .01 1.000 volts (C185, C206)	(Clay) Tubular, paper, oil impreanated, .018	74777 0.00
 Capacitor-Tubular, paper, oil impregnated, .0022 1,000 volts (C186, C207) Capacitor-Tubular, paper, oil impregnated, .0033 600 volts (C184, C184, C202) Capacitor-Tubular, paper, oil impregnated, .0047 600 volts (C143, C144, C202) Capacitor-Tubular, paper, oil impregnated, .01 mfd volts (C135, C182, C204) Capacitor-Tubular, paper, oil impregnated, .01 mfd volts (C145, C159, C205) Capacitor-Tubular, paper, oil impregnated, .01 	Tubular, paper, oil impregnated, .015	73797 Cap
Capacitor-Tubular, paper, oil impregnated, .0022 Capacitor-Tubular, paper, oil impregnated, .0033 600 volts (C184) Capacitor-Tubular, paper, oil impregnated, .0047 600 volts (C143, C144, C202) Capacitor-Tubular, paper, oil impregnated, .01 mfd volts (C135, C182, C204) Capacitor-Tubular, paper, oil impregnated, .01 mfd volts (C145, C159, C205)	fubular, paper, oil impregnated, .01 sits (C185, C206)	
Capacitor-Tubular, paper, oil impregnated, .0022 1.000 volts (C186, C207) Capacitor-Tubular, paper, oil impregnated, .0033 600 volts (C184, C104, C202) Capacitor-Tubular, paper, oil impregnated, .0047 600 volts (C143, C144, C202) Capacitor-Tubular, paper, oil impregnated, .01 mfd Capacitor-Tubular, paper, oil impregnated, .01 mfd	C205) (C205)	April 1665/
Capacitor-Tubular, paper, oil impregnated, .0022 1.000 volts (C186, C207) Capacitor-Tubular, paper, oil impregnated, .0033 600 volts (C184) Capacitor-Tubular, paper, oil impregnated, .0047 600 volts (C143, C144, C202) Capacitor-Tubular, paper, oil impregnated, .01 mfd	(C204)	
Capacitor-Tubular, paper, oil impregnated, .0022 1.000 volts (C186, C207) Capacitor-Tubular, paper, oil impregnated, .0033 600 volts (C184) C144, C202) 600 volts (C144, C144, C202)	Tubular, paper, oil impregnated, .01 mfd.,	73561 Cap
Capacitor—Tubular, paper, oil impregnated0022 1,000 volts (C186, C207) Capacitor—Tubular, paper, oil impregnated, .0033 600 volts (C184)	Tubular, paper, oil impregnated, .0047 (C143, C144, C202)	73920 Cap
Capacitor—Tubular, paper, oil impregnated, .0022 1.000 volts (C186, C207)	Tubular, paper, oil impregnated, .0033 m (C184)	73795 Cap 60
Anticipation Tribular manage of Impactant 0000	s (C186, C207)	202
DESCRIPTION	RIP	STOCK No.

74030 75445 74953 18469 75444 72067 18471 •75085 74955 STOCK No. 48207

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REPLACEMENT PARTS (Continued)

TA169 305

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10,000 ohms, -20%, 1/2 watt (R306)			
		Transformer—Sound discriminator transformer (T113,	
3,300 ohms, \pm 5°a, $\frac{1}{2}$ watt (R320)			
1,200 ohms, ±5°o, 1/2 watt (R319)		Transformer—Fifth bix. i.f transformer (T106. C123. C124)	
±10%, ½ watt (R314)		Transformer_Third alv is transformer (T103 C112)	
100 ohms, $\pm 20\%$, 1/2 watt (R305, R317)		Transformer Scoold min is transformer (1101, C102, M101)	74500
68 ohms 20°o. 1/2 watt (R308)			
10 ohms. $\pm 20^{\circ}$, 1/2 watt (R311)			
onms,	_	Transformer-Vertical output transformer (T108)	
Vire wound off theme I worth (Basa	74023		_
Filter—Dlode filter, dual, 200 mmf. and 47,000 ohms	74011	Transformer—Power transformer, 115 volts, 60 cycles	
Cord—Drive cord (approx. 42" overall)	72953	Switch—Cabinet interlock switch (S105)	74157
Connector-4 prong male connector (P102)	39153	plate	9464/
Connector—5 contact female connector (P107B)	12493	Support-Rubber support for 2nd anode lead	
Connector—7 contact male connector (P103)	36395	•	
Coil—F-M oscillator coil (L307)		Spring-Suspension spring (coil type) for kinescope	74936
-F-M		spring—Compression spring used under centering control screws (3 required)	1000
-A·M oscillator coil (L304		Socket	
coil (L302, L303)		SocketKinescope socket	74834
paper05 mfd. 400 volte		Socket-Iube socket, 8 contact for 183 GT/8016	80017
paper05 mfd., 200 volts			73249
-Tubular, paper, .02 mfd., 200 volts		sockel,	31251
-Tubular paper, 01 mid. 400		socket,	72927
Congritor Tubular paper 01 mtd 200 wate (C225)	71923	Socket-Tube socket, 7 pin. miniature	73117
Capacitor-Tubular, paper, .005 mfd., 400 volts (C315,	71553	• for fo	74937
		L 1	73584
Capacitor-Tubular, paper, .003 mid. 200 volts (C327.		focus coll mounting (2 required)	
Capacitor-Tubular, paper, .0025 mid. 400 volts (C332)		Screw-No. 8-32 x 3/6" cross recessed pan head screw for	74601
Capacitor—Electrolytic, 2 mid., 30 volte (C328)		ScrewNo. 8-32 x 1/4" wing screw for deflection yoke mounting	•75083
-Ceramic, 5,1	73473	tor focus coil adjustments (3 required)	
-Ceramic,	74009	Screw-No. 10-32 x 13/4" cross recessed round head screw	74602
-Ceramic, 1,500	73748	10 megohm, ±20%, 1/2 watt (R201, R229)	
	39540	megohm,	
		megohm.	
-Ceramic,		3.9 megohini,	
Capacitor-Ceramic, 100 mmf. (C322, C323)	39296	megonm,	
Capacitor—Ceramic, 68 mmf. (C310)	33379	megonm, 10%	
Capacitor-Coramic, 56 mmf. (C313)	73867		
Capacitor-Coramic, 47 mmf. (C330)	39042	1 megohm, ±20°o, 1/2 watt (R189, R260)	
	39044	1 megohm, ±10°, 1/2 watt (R147)	
Capacitor—Ceramic, 2 mmf. (C306)	73866	820,000 ohms, ±10%, 1/2 watt (R169, R181)	
Capacitor-Variable tuning capacitor (C301, C302, C303, C304, C305, C307, C308)	/4017	680.000 ohms, ±10%, 1/2 watt (R133, R212)	
		560,000 ohms, ±10%, 1/2 watt (R207, R236)	
Cable—Shielded cable complete with pin plug (W301,	71105		
Cable-Shielded cable complete with female connector (W307, W311)	74911	ohms, ±5%, 1 watt (R178)	
Bracket—Drive cord bracket complete with pulley—L.H.	74027		
R.H.		270 000 chms 10°, 2 Watt (2154)	
BoordIelv-Ant'' terminal board (TB301)		ohms, ±10%.	
NK 135 D		ohms,	
		150,000 ohms, ±20%, 1/2 watt (R142)	
			_
Yoke-Deflection yoke (L108, L109, L112, L113, C169, C187, P106)	74952	ohms, ≓ 10%.	
Trap-I-F trap (L116, C189)	73476	ohms.	
Trap-Sound trap (T105, C119)	71778	+ 10°6.	
Trap-4.5 mc trap (L110, C128)	73577	ohms, ±5%, ½ watt (R203, I	
Iransformer—Anteinal oscillator transformer (T109) Transformer—Antenna transformer complete with socket	73578	82,000 onms, 20%, 1 wdit (M1/3) 82,000 ohms, 10%, 1 wdit (M168)	
DESCRIPTION	STOCK	DESCRIPTION	STOCK

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740 735 731 741 741 741 740 740 740 737 740 737 740

STO

7510 7159 7429 7243 7380 7380 7189 7189 7189 7189 3086 3086 3086 3086 3086 1478

1386 7490 7564 503 7363 7363

TA169

REPLACEMENT PARTS (Continued)

DESCRIPTION	STOCK	DESCRIPTION
ohms, ±10%, ½ watt (R304)	74273	Decal-Trade mark decal (Victrola)
ohms, ±20%, ½ watt (R315, ohms, ±10%, ¼ watt (R302)	74898	Decal—Control panel function decal for mahogany or walnut instruments
±10%,	74899	Decal—Control panel function decal for oak instruments
	74052	Dial-Dial scale and bezel assembly Emblem
ohms, :	73642	Escutheon-Channel marker escutcheon for mahogany
ohms,	73740	-
±10%, ½	74606	menus Glass—Satety glass
±20%, ½	37396	Grommet-Rubber grommet to mount speaker (4 required)
1 megohm, $\pm 10\%$, $\frac{1}{2}$ watt (R327, R332)	74308	
megohm, ±20%,	70166	Hinge-Cabinet door hinge for center door-upper Hinge-Cabinet door hinge for center door lower
±20%,	74051	Indicator-Station selector indicator
Shaft—Tuning	74959	Knob-Fine tuning knob marcon - for mahogany or
Shield—Tube shield	73995	Knob-Fine luning knob-(an -for oak instrument (aster)
Socket—Tube socket, 7 pin, miniature for V301, V305	74960	Knob-Channel selector knob-marcon-for mahogany or walnut instruments times.
SocketTube socket, 7 pln, miniature for V302,	74961	Knob-Channel selector knob-tan-for oak instruments
Spring-	74962	(inner) Vering' bold postol brickland postol -
		control knob-marcon-for mahogany or walnut instru-
	73999	Knob-Vertical hold control, brightness control or tone
Transformer-Ratio delector transformer (T303)	74978	Knob-Tuning or selector switch knob-marcon-for
ſ	74979	
Washer-Spring washer for tuning shaft (front)		instruments
wasner-ribre wasner to prevent drive cord suppage		Knob-Horizontal hold control, picture control or volume control and power switch knob-maroon-for ma-
SPEAKER ASSEMBLIES 92569-5 W RL 111-8 RMA 274	74001	Enob-Horizontal hold control, picture control or volume
Y C-60C76 JO		ments (inner)
1 4	_	Nut-Tee nut to mount 45 RPM changer (3 required)
		Plate—Mounting plate for cabinet interlock switch
Connector-4 contact male connector (J101)	75037	Pull-Door pull
Iransformer—Output transformer (III4) Speaker—12" P.M. speaker complete with come and waire		R401) (R401) (R401)
coil less output transformer and plug	74582	ScrewNo. 8-32 x 13/4/' special screw to mount 45 RPM changer (3 required)
MOLES	74156	Screw-No. 8-32 x 7/16" wing screw for deflection yoke and focus coil support and bracket
on syenner and but description of part required.		Screw—No. 8-32 x ½" trimit head screw for door pull Slide—Station indicator slide
MISCELLANEOUS		Slide—Slide mechanism for changer carriages
Bracket—Dial lamp bracket (2 required)		Spring—Spring clip for dial and bezel assembly (2 re- quired)
Bracket-Pilot lamp bracket	72845	Spring—Retaining spring for knobs No. 73995 and No. 74959
45 RPM changer	14270 \$	Spring—Retaining spring for knobs 73999, 74960, 74961 and 74962
Cable—Shielded pickup cable complete with pin plug for 33 78 RPM changer		Spring—Retaining spring for knobs 74001 and 74963
-		Spring—Spring clip for channel marker escutcheon
Capacitor-Tubular, paper, .002 mid., 400 volts (C401) Catch-Bullet catch and strike for doors (3 required)		Spring—Conical spring to mount 45 RPM changer—upper —R.H. (1 required)
Cloth-Grille cloth for mahogany or walnut cabinets	74422 \$	Spring—Conical spring to mount 45 RPM changer—upper L.H. (2 required)
Cloth-Grille cloth for oak cabinets	74423 S	Spring—Conical spring to mount 45 RPM changer—lower —(3 required)
extension cable	74966 \$	Spring—Formed spring for kinescope masking panel (8
Connector-2 contact male connector for 45 RPM motor extension cable		Stop-Door stop
Connector-3 contact male connector for record changer power cable		Stud—Locating stud for back cover (2 required)
Cover-Mounting screw cover for 45 RPM changer		Washer—"C" washer for mounting 33 78 RPM changer (2 required)
4028 4028 3117 3117 3117 3117 3745 3745 3745 3745 3745 3745 3745 374	15.000 ohms. $\pm 10\%$, $1/2$ wortt (R304) 15.000 ohms. $\pm 10\%$, $1/2$ wortt (R302) 27.000 ohms. $\pm 10\%$, $1/2$ wortt (R302) 39.000 ohms. $\pm 10\%$, $1/2$ wortt (R302) 100.000 ohms. $\pm 10\%$, $1/2$ wortt (R303) 100.000 ohms. $\pm 10\%$, $1/2$ wortt (R303) 100.000 ohms. $\pm 10\%$, $1/2$ wortt (R301) 470.000 ohms. $\pm 10\%$, $1/2$ wortt (R301) 2.2 megohm. $\pm 10\%$, $1/2$ wortt (R302) 3.3 megohm. $\pm 10\%$, $1/2$ wortt (R303) 1.1 megohm. $\pm 20\%$, $1/2$ wortt (R301) 2.2 megohm. $\pm 10\%$, $1/2$ wortt (R302) 3.2 megohm. $\pm 10\%$, $1/2$ wortt (R303) 3.4 megohm. $\pm 10\%$, $1/2$ wortt (R303) 3.5 hott-Tuning knob short Sheid-Tube socket. 7 pin. miniature for Socket-Dial lamp socket Spring-Drive cord spring Switch-Selector switch (S301) 1 ransformer-Ratio detector transformer, dual (730) Transformer-Ratio detector transformer, dual (730) Transformer-Coue and voice coil assembly for 925 Cone-Cone and full description of part requined) Bracket-Cablnet back Bracket-Cablet back Bracket-Cablet back Bracket-Cablet back Consector-2 contact made connector for valuet Coble-Shielded pickup cable complete with Coble-Shielded pickup cable complete with Cohle-Shielded pickup cable complete with Cohle-Grille cloth for oak cables Connector-2 contact female connector for 45 extension cable Connector-2 contact male connector for 45 extension cable Contector-2 contact male connector for 45 extension cable Contector-4 female connector for 45 Prover conte	15.000 ohms. $\pm 10\%$, ij wardt (330) 7437 15.000 ohms. $\pm 10\%$, ij wardt (332) 7493 27.000 ohms. $\pm 10\%$, ij wardt (332) 7493 27.000 ohms. $\pm 10\%$, ij wardt (332) 7493 39.000 ohms. $\pm 10\%$, ij wardt (332) 7493 27.000 ohms. $\pm 10\%$, ij wardt (332) 7493 39.000 ohms. $\pm 10\%$, ij wardt (332) 7493 27.000 ohms. $\pm 10\%$, ij wardt (332) 7493 28.000 ohms. $\pm 10\%$, ij wardt (332) 7493 29.000 ohms. $\pm 10\%$, ij wardt (332) 7493 20.000 ohm. $\pm 10\%$, ij wardt (332) 7493 21. megohm. $\pm 20\%$, ij wardt (332) 7403 21. megohm. $\pm 10\%$, ij wardt (332) 7403 30.000 ohms. $\pm 10\%$, ij wardt (332) 7404 31.000 ohms. $\pm 10\%$, ij wardt (332) 7403 32. megohm. $\pm 20\%$, ij wardt (332) 7403 32. megohm. $\pm 10\%$, is wardt (331) 7403 33.000 ohms. $\pm 10\%$, is wardt (332) 7403 32.000 ohms. $\pm 10\%$, is wardt (332) 7403 33.000 ohms. $\pm 10\%$, is wardt (332) 7403 33.000 ohms. $\pm 10\%$, is wardt (332) 7403 33.000 ohms. $\pm 10\%$, is wardt (332) 7403 33.000 ohms. ± 1

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obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage. APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Model S1000-Walnut or Mahogany

RCA VICTOR TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION MODEL S1000 Chassis Nos. KCS31-1 and RC617B Mfr. No. 274

SERVICE DATA

----- 1950 No. T2 ----RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model S1000 is a deluxe 16 inch television and AM-FM radio receiver. Two record changers are provided to play 78, 33¹/₃ and 45 RPM records. The "MAGIC MONITOR," an automatic scratch suppressor, is provided to permit improved reproduction from old or worn records. The instrument employs 34 tubes plus 4 rectifiers and a 16AP4 kinescope. Features of the television unit are full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation, circuits; improved sync separator and clipper; four mc band width for picture channel-and reduced hazard high voltage supply.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

-PICTURE SIZE.......146 square inches on a 16 inch kinescope

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc. Fine Tuning Range \pm 250 kc on chan. 2, \pm 650 kc on chan. 13 Picture Carrier Frequency
VIDEO RESPONSE
SWEEP DEFLECTION
FOCUS Magnetic
RADIO TUNING RANGE Broadcast 540-1,600 kc Short Wave 9.2-16 mc. Frequency Modulation 88-108 mc. Intermediate Frequency—AM 455 kc Intermediate Frequency—FM 10.7 mc.
POWER SUPPLY RATING
AUDIO POWER OUTPUT RATING
CHASSIS DESIGNATIONS Television Chassis
78/331/3 RPM Record Changer
78/331/2 RPM Record Changer
78/331/3 RPM Record Changer 960285 45 RPM Record Changer RP168C Refer to Service Data 960285 or RP168 for information on the record changers. Image: Comparis Compari

RECEIVER ANTENNA INPUT IMPEDANCE....300 ohms balanced If desired, television chassis may be fed from 72 ohm co-ax.

RCA TUBE COMPLEMENT

		(Television	Chassis)		Fu	nction	
(1)	RCA	6AG5			F	₹-F	Amplifier
(2)	RCA	6]6			F	I-F C	Oscillator
(3)	RCA	6AG5				C	Converter
(4)	RCA	6AU6		ls	t Sound	I-F	Amplifier
(5)	RCA	6AU6		2nd	Sound	I-F /	Amplifier
(6)	RCA	6AL5			Sound	Disc	riminator
(7)	RCA	6AV6				. Bio	is Clamp
(8)	RCA	6ÅG5		lst	Picture	I-F /	Ampliner
(9)	RCA	6ÅG5		2nd	Picture	I-F .	Amplifier
(10)	RCA	6AG5		3rd	Picture	I-F -	Amplifier
(11)	RCĀ	6ÅG5	·····	4th	Picture	FL.	Ampliner
(12)	RCA	6AL5	Picture	2nd Detec	tor and	Syn	c Limiter
(13)	RCA	6AU6			Ist Vic	100	Ampliller
(14)	RCA	6K6GT			Znd Vi	1eo	Ampliner
(15)	RCA	6SN7GT	AGC A	mplilier a	nd vert.	. 5w	eep Osc.
(16)	RCA	6SN7GT	AGC Re	ctifier and	1 Ist Sy	nc a	Separator
(17)	RCA	6SN7GT	Sync Amj	plifier and	2nd Sy	nc a	Separator
(18)	RCA	6K6GT		Ve	rucal S	wee	p Output
(19)		6SN7GT	Horizontal	Sweep C	scillator	an	- Control
(20)	RCA	6BG6G		Hon:	zontal S	wee	p Output
(21)	RCA	5V4G					Domper
(22)	RCA	1B3-GT/80)16	Н.	v. riecu	iner	(2 tubes)
(23)	RCA	5U4G	Ро	ower Supp	bly Rect	1110Y	(2 (uDes)
(24)	RCA	16AP4				r	лиавсора

(Radio Tuner Chassis)

(1)	RCA	6BA6
(2)	RCA	6BA6Mixer
(3)	RCA	6BE6. Oscillator
(4)	RCA	6BA6 I-F Amplifier
(5)	RCĀ	6AU6
(6)	RCA	6AL5 Ratio Detector
(7)	RCA	6AV6 AM Detector, AVC, AF Amplifier
(8)	RCA	6C4. Phase Invertor
(9)	RCA	6V6GT Audio Output (2 tubes)
(10)	RCA	6BA6 MM Band Pass Ampliner
(11)	RCA	6BF6
12)	RCA	6BA6 MM Reactance Tube

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TELEVISION OPERATION

The following adjustments are necessary when tuning the receiver on for the first time.

1. Turn the radio FUNCTION switch to Tel.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.

5. Turn the PICTURE control to mid-position.

6. Turn the BRIGHTNESS control fully counterclockwise then clockwise until a light pattern appears on the screen.

7. Adjust the VERTICAL hold control until the pattern stops vertical movement.

8. Adjust the HORIZON-TAL hold control until a picture is obtained and centered.

9. Turn the BRIGHTNESS control counterclockwise until the retrace lines just disappear.

10. Adjust the PICTURE control for suitable picture contrast.

11. After the receiver has been on for some time it may be necessary to readjust FINE TUNING control for improved sound fidelity.

12. In switching from one station to another, it may be necessary to repeat steps numbers 4 and 10.

13. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

14. If the position of the controls has been changed, it may be necessary to repeat steps numbers 2 through 10.

RADIO OPERATION

- 1. Turn the radio FUNCTION switch to the desired band.
- 2. Tune in the desired station with the TUNING control.

PUSH BUTTON OPERATION

- 1. Turn the radio FUNCTION switch to PB.
- 2. Push the appropriate button to receive the desired station.

PHONOGRAPH OPERATION

l. Turn the radio FUNC-TION switch to Ph for operation of the $78/33\frac{1}{3}$ RPM changer or to XPh. for operation of the 45 RPM changer.

2. Place a record on the appropriate changer and slip the changer power switch to "ON".

"MAGIC MONITOR"

The MAGIC MONITOR operates only when the function switch is in the phono position.

1. Push the gold push button to turn MM on.

2. Push the gold push button a second time to turn MM off.

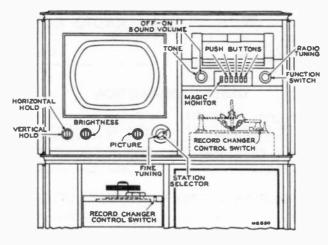


Figure 1-Receiver Operating Controls

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT OPEN THE KINESCOPE SHIPPING CARTON, INSTALL, REMOVE OR HANDLE THE KINE-SCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

The kinescope bulb encloses a high vacuum and, due to its large surface area, is subjected to considerable air pressure. For these reasons, kinescopes must be handled with more care than ordinary receiving tubes.

The large end of the kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. In installation, if the tube sticks or fails to slip smoothly into its socket, or deflecting yoke, investigate and remove the cause of the trouble. Do not force the tube. Refer to the Receiver Installation section for detailed instructions on kinescope installation. All RCA kinescopes are shipped in special cartons and should be left in the cartons until ready for installation in the receiver. Keep the carton for possible future use. MODEL S1000 IS VERY SIMILAR TO MODEL 9TW390. THE TELEVISION CHASSIS IS IDENTICAL. MODEL S1000 USES 960285 RECORD CHANGER (78/33¹/₃ r.p.m.) INSTEAD OF RP177B (78 r.p.m.). THE RADIO CHASSIS DIFFERS ONLY IN THE VALUE OF A FEW COMPONENTS.

REFER TO MODEL 9TW390 IN VOL. V FOR ADDITIONAL INFORMATION.

INSTALLATION INSTRUCTIONS

Remove the television front panel by loosening the two wingnuts inside the cabinet and by turning the two locking plates as shown in Figure 2. Hinge the panel at the bottom and tilt it out at the top.

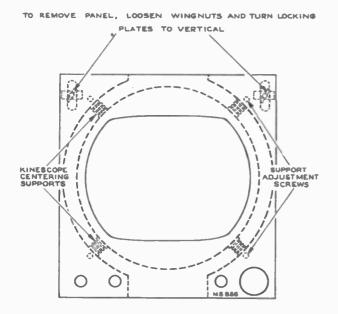


Figure 2—Television Panel, Front View

Remove the two self-tapping screws from the kinescopecushion slide as shown in Figure 3.

Loosen the two kinescope cushion adjustment wing screws and slide the cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

From the front of the cabinet, look through the deflection yoke and check the alignment of the focus coil with the yoke. If the focus coil is not in line, loosen the two focus coil mounting screws and move the coil until alignment is obtained. Tighten the mounting screws with the coil in this position.

Loosen the two lower kinescope face centering supports, and set them at approximately mid-position. See Figure 2 for location of the supports and their adjustment screws. Loosen the two upper supports (from inside the cabinet), slip them up as far as possible and tighten.

Check the centering supports. There should be a small wire clip on the inner surface of each. The clip in the lower left corner should be connected to the high voltage lead.

KINESCOPE HANDLING PRECAUTION.—Do not open the kinescope shipping carton, install, remove, or handle the kinescope in any manner, unless shatter-proof goggles and heavy gloves are worn. Persons not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling. The shipping carton should be kept for use in case of future moves.

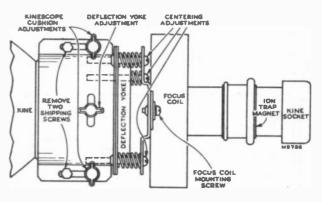


Figure 3—Yoke and Focus Coil Adjustments

Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

EINESCOPE INSTALLATION.—Turn the kinescope so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection and focus coils as shown in Figure 4. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slip the ion trap magnet assembly over the neck of the kinescope with the large magnet towards the base of the tube.

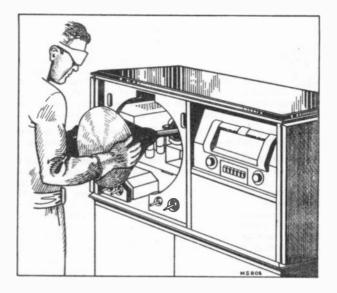


Figure 4—Kinescope Insertion

Connect the kinescope socket to the tube base.

Adjust the four centering supports until the face of the kinescope is in the center of the cabinet opening. Tighten the four supports securely.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks with a soft cloth moistened with the Drackett Co.'s "Windex" or similar cleaning agent.

Install the cabinet front panel by reversal of the procedure indicated in Figure 2. Fasten the two bars in back of the panel and tighten the wingnuts.

Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possible. If this is not done, difficulty will be encountered in adjusting the ion trap magnet and focus coil because of shadows on the corner of the raster.

The antenna and power connections should now be made. Install the front panel control knobs.

Make sure that all tubes are firmly seated in their sockets and all cable plugs are in the proper sockets as shown in Figure 5.

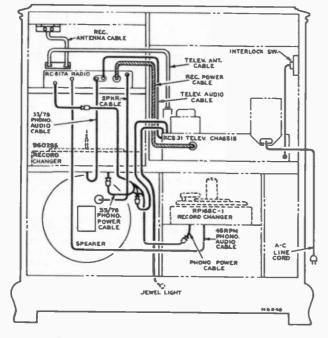


Figure 5—Interconnecting Cable Diagram

WARNING.—The high voltage supply in this receiver delivers 12,000 volts! If it is necessary to remove the kinescope after the receiver has been operating, short the kinescope cone to the chassis before attempting removal of or adjustments to the kinescope. A.C. interlocks are provided at the back of the set so that when the back is removed—so is the power.

Turn the power switch to the "on" position, the brightness control fully clockwise, and picture control counterclockwise.

ION TRAP MAGNET ADJUSTMENT.—Looking at the kinescope gun structure, it will be observed that the second cylinder from the base inside the glass neck is provided with two small metal flags. The ion trap rear magnet poles should be approximately over these flags. Starting from this position adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average bril liance. Adjust the focus control (R201 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

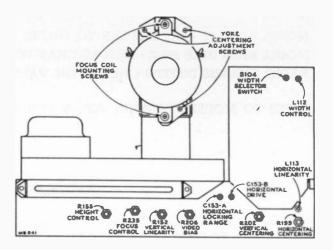


Figure 6--Rear Chassis Adjustments

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 2 through 10 of the television receiver operating instructions on page 2.

If the Horizontal Oscillator is operating properly, it should be possible to sync the picture at this point.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.— Turn the horizontal hold control to the extreme counterclockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counterclockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Centering Adjustment."

ALIGNMENT OF HOLIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counterclockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull in point, it will be necessary to make the following adjustments.

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counterclockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counterclockwise. Turn the picture control counterclock wise, momentarily remove the signal and recheck the number

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of bars present at the pull in point. Repeat this procedure until 3 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is operating properly it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure For field purposes paragraph "A" under Oscillator Waveform Adjustment may be omitted.

CENTERING ADJUSTMENTS.—Centering is obtained by adjustment of the centering controls and by mechanically orienting the focus coil with three adjustment screws shown in Figure 3. The focus coil should be concentric around the neck of the kinescope to prevent curvature of the raster.

Adjust the focus coil until it is at right angles to the neck of the kinescope. Center the picture with the electrical centering controls. If a shadow appears on a corner of the picture, adjust the focus coil centering screws to eliminate the shadow and re-center the picture with the electrical centering controls.

FOCUS COIL ADJUSTMENTS.—If, after making the centering adjustments in the above paragraph, a corner of the picture is shadowed, it will be necessary to loosen the focus coil mounting screws (shown in Figure 3) and chance the position of the coil to eliminate the shadow. Re-center the picture by adjustment of the electrical centering controls and the focus coil centering cdjustments.

Recheck the position of the ion trap magnet to insure that maximum brilliance is obtained.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron) until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust vertical centering to align the picture with the mask.

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjust the horizontal drive control C153B to give a picture of maximum width within the limits of good linearity. Adjust the horizontal linearity control L113 to provide best linearity.

A width control coil and a width selector switch are provided. With the switch in position 1 (fully counterclockwise), adjust the width coil until the picture fills the mask. On low line voltages it may not be possible to get sufficient width by adjustment of the width coil. In this case turn the width selector switch clockwise to position 2. In this position the width coil is disconnected, and adjustment of the width coil will have no effect. For still greater width, turn the width selector switch fully clockwise to position 3. In this position, the 6BG6G screen voltage is increased as well as disconnecting the width control coil.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R235) on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

CHECE to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

VIDEO BIAS CONTROL.—Normally the video bias control (R206) should be in the fully clockwise position. To check to see if this is the correct position, turn the picture control clockwise and adjust the brightness control until the retrace lines just disappear. If the whites are compressed as indicated by a "washed out" appearance in light areas, turn the video bias control counterclockwise until the picture appears normal.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 7. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.

In the event that it becomes necessary to adjust the channel 6 oscillator, the core may be reached through a hole through the cabinet partition in back of the 960285 record changer.

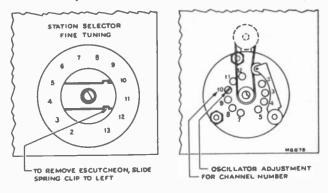


Figure 7-R-F Oscillator Adjustments

RADIO OPERATION—Turn the receiver function switch to AM and FM positions and check the radio for proper operation. In switching from radio to television or from television to radio, approximately 30 seconds warm-up time is required.

PUSH-BUTTON ADJUSTMENT—To adjust the radio push buttons, set the function switch to the broadcast band position, tune the receiver to the desired station and identify the program. Turn the function switch to the push button position and push the appropriate push button. Adjust the corresponding oscillator core until the desired station is heard. Adjust the corresponding antenna trimmer for maximum output. Proceed in the same manner to adjust the remaining push buttons. Figure 21 shows the location of the push-button adjustments and the range which the adjustments will cover.

Select the proper station call letter marker, moisten the back of the marker and insert in the appropriate recess in the push button bezel. Place marker celluloid cover in the recess over the marker.

RECORD CHANGER OPERATION—Turn the receiver function switch to each phono position and check each record player for proper operation.

Replace the cabinet back and make sure that the screws holding it are up tight, otherwise it may rattle or buzz when the receiver is operated at high volume.

WEAK SIGNAL AREA OPERATION—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received. By this action, the r-f gain, is increased 50% at the expense of r-f bandwidth and an improvement in the weak signal picture results.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CABINET ANTENNA—A cabinet antenna is provided for use in strong signal areas in which no reflections are experienced. The leads from the antenna are brought out near the receiver antenna terminal board. To connect the cabinet antenna, attach the leads to the terminal board. If reception is satisfactory, no other antenna is necessary. However, if reception is unsatisfactory, it will be necessary to employ an outdoor antenna or an indoor antenna which can be oriented.

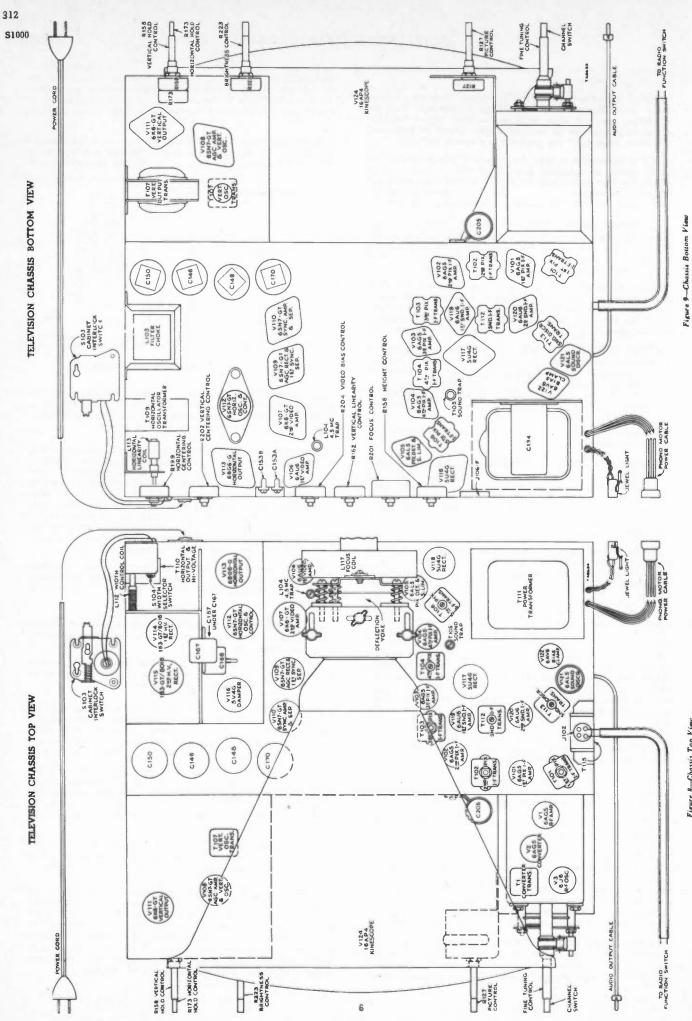


Figure 8-Chassis Top View

TELEVISION VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition a 2200 mircovolt test pottern signal was fed into the receiver, the picture synced. The second condition was obtained by removing the aminum leads and abort circuiting the receiver contenan terminals. Voltopes aboven are as read with "Tr. VoltOmaya" between the indicated terminal and chasis around and with the receiver constrains on 117

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Signadi 2 Signadi 2 Signadi 2 2200 Mu. V. 5 Signadi 5
conv are GT Amplifier 68N7 Sync GT Separator
meeta meeta v110 v110 v110 v111
1 Screen (mm.) 3 3.0 5.0 1.5 10.3.0
Plate (mmc.) 7 7 14.0 14.0 0 0010 0010 0010
PHn Volta No. Volta 14.8 15.4 15.4 17.0 5 & 67.0
a Pia Vola Vola 267 0 267 0 267 0 267 7 0 7 19 7 19 7 19 7 19 7 19 7 19 7 19
Vola No. 140 6 7 8 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Condition Pinn Condition No. 2200 Mu. V. 5 Signadi 5 200 Mu. V. 5 200 Mu. 5 200 Mu. 5 200 Mu. V. 5 200 Mu. 5 200 M
Function R-F Amphiber 2200 Mu. Amphiber 2300 Mu. Skymol Converter 34,000 Skymol Sky Sky Sky Sky Sky Sky Sky Sky Sky Sky
Tube Type 6AGS 6AGS 6AGS

TELEVISION VOLTAGE CHART

RADIO MISCELLANEOUS DATA

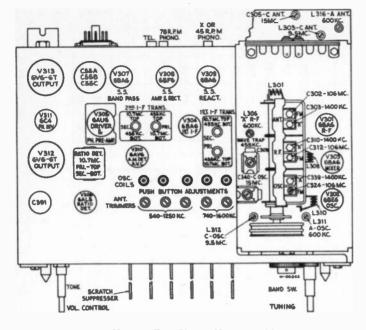


Figure 10-Chassis, Top View, Showing Adjustments

CRITICAL LEAD DRESS

The lead from terminal 5, switch S304, front, to terminal on switch S307, must be dressed between the main base and r-f shelf.

Dress all other leads away from the lead between T301 and S303 front.

Dress lead from pin 1 V305 to T302 down along chassis base.

Keep R327 dressed down along chassis base.

Keep the leads of C329 as short as possible.

The lead from pin 2 V304 must be dressed close to be dressed close to base. This lead provides degeneration for the i-f stage and neither its length or the point at which it is grounded to the chassis should be changed.

All the r-f and i-f wiring in the receiver is critical as to length and placement and should not be changed unless necessary.

PUSH BUTTON ADJUSTMENT

Make a list of the desired stations, arranged in order from low to high frequencies.

Turn the range switch to the broadcast position and manually tune in the first station on the list.

Turn range switch to push-button position and press in the second from the left-hand button.

Adjust the oscillator core rod to receive the first station.

Adjust the antenna trimmer screw for peak output on the first station. Proceed in the same manner to adjust for the remaining stations. Repeat adjustments for best results.

MODEL S1000 IS VERY SIMILAR TO MODEL 9TW390.

THE TELEVISION CHASSIS IS IDENTICAL.

Figure 11 — Dial and Drive Cord Assembly

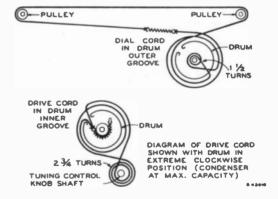
MODEL S1000 USES 960285 RECORD CHANGER (78/33¹/₃ r.p.m.) INSTEAD OF RP177B (78 r.p.m.). THE RADIO CHASSIS DIFFERS ONLY IN THE VALUE OF A FEW COMPONENTS.

REFER TO MODEL 9TW390 IN VOL. V FOR ADDITIONAL INFORMATION.

RADIO VOLTAGE CHART

Voltages measured in respect to ground, using a "VoltOhmyst."

Tube	Туре	Element	Pin	Tel.	Phono.	FM
V 301	6BA6	Plate	5	_	175	168
4301	ODAG	Scg.	6	_	86	87
		Plate	5	_	-	130
V302	6BE6	G 2. 3. 4	6 6 7	—	-	120
		G.	1	-		-7.8
		Plate	5	-		250
17000		Scg.	6	_	30	52
V303	6BA6	Grid	1	_	52	45
		Cath.	7	-	.42	1.1
		Plate	5	-	228	215
V304	6BA6	Scg.	6	-	1.0	110
		Cath.	7	-	1.15	1.0
1000	O B TTO	Plate	5	_	0	250
V305	6AU6	Scg.	6		145	184
V306	6AL5	-	-	-	-	-
		Plate	5	_	211	197
11000		Scg.	6	1	72	68
V307	6BA6	Grid	1	-	0	0
		Cath.	7		8.3	7.5
17200	0.000	Plate	7	-	127	118
V308	6BF6	Cath.	2		6.6	6.2
V309	6BA6	Plate	5		62	60
4 20 3	ODAO	Scg.	6	-	22	123
		Plate	7	88	95	84
V310	6AV6	Grid	1	8	8	8
		Plate	165	170	145	182
V3 11	6C4	Grid	6	+39	+47	+25.
		Cath.	7	48	57.5	5.2
		Plate	3	240	290	270
V312	6V6GT	Scg.	4	90	195	175
V313		Grid	5	-122	-79	-91.5
	1	Cath.	8	-109	-61	-75



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RADIO SCHEMATIC DIAGRAM

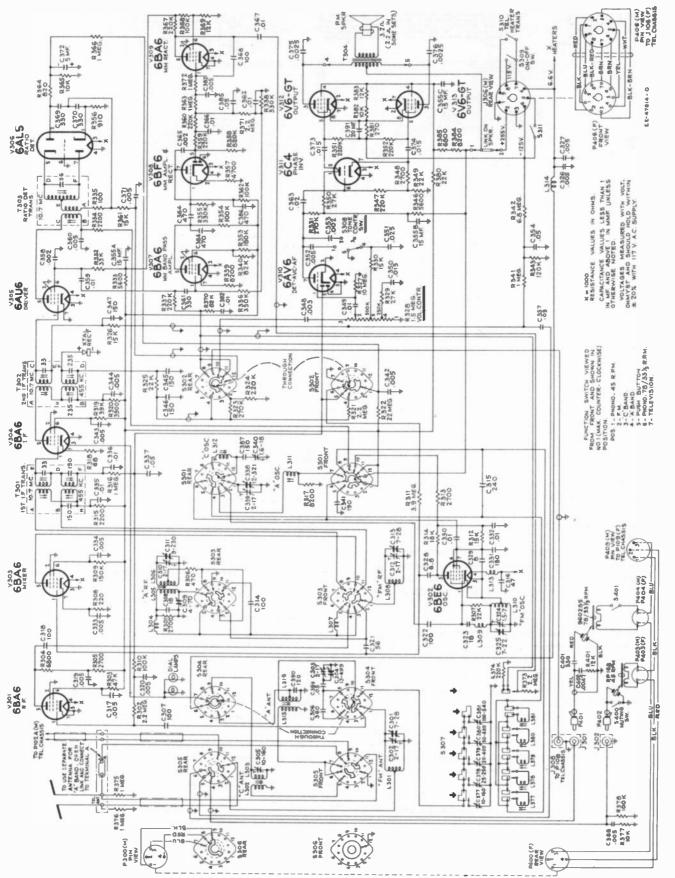


Figure 12----Radio Schematic Diagram

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TELEVISION R-F UNIT WIRING DIAGRAM

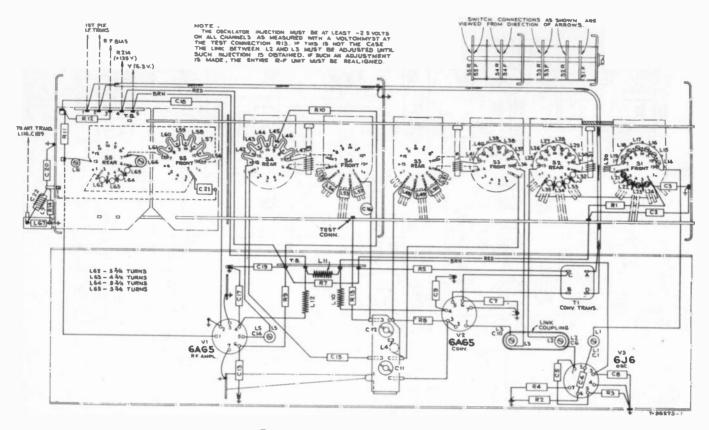


Figure 13-R-F Unit Wiring Diagram

TELEVISION CRITICAL LEAD DRESS:

- The ground bus from pin 2 and the center shield of V120 socket should not be shortened or rerouted.
- 2. Dress the body of R195 as close to tube pin as possible.
- 3. Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V120, V121 and V122 should be down against the chassis and away from grid or plate leads.
- Dress all leads crossing the i-f circuits close to the chassis and held so they cannot move and change alignment.
- If it is necessary to replace any of the 1500 mmf capacitors in the picture i.f circuit, the lead length must be kept as short as possible.
- 6. Picture i-f coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
- 7. Leads to L102 and L103 must be as short as possible.
- Dress peaking coils L105, L106, L107, L108 and L109 up and away from the chassis.
- 9. Dress R129 away from L109.
- Dress C183 across V121 tube pins 5 and 6 with leads not exceeding 3/6 inch.

- Dress the blue lead from pin 5 of V122 down against the chassis and under two shielded leads.
- 12. Dress C129 and C199 up and away from the chassis.
- Dress the yellow lead from the picture control away from the chassis. Dress the yellow lead from pin 8 of V106 away from the chassis.
- 14. Dress the green lead from pin 8 of V107 away from the chassis.
- Dress R168, R169, R170, R176 and R178 up and away from the chassis.
- 16. The leads to the volume control should be dressed down against the chassis and away from V119 and V120.
- 17. Dress the yoke red horizontal deflection lead under the clips of the fixed H. V. shield.
- 18. Dress the green lead from C166 close to the chassis and away from the red lead connected to T110-4.
- 19. Insert the red lead into T110-4 from the top of the terminal.
- All soldered connections in the high voltage compartment should be free of sharp points.
- Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.

S1000

REPLACEMENT PARTS S1000 321 STOCK 322 No. DESCRIPTION 323 R. F. UNIT ASSEMBLIES KRK5 A 73465 Belt-Drive belt 75069 Board-R-F unit power connection terminal board 75087 Bracket-Vertical bracket for helding r-f oscillator tube shield 73478 Cable—I-F transmission (4%") (W1) 73441 Cam—Fine tuning adjustment cam 74035 Capacitor-Ceramic, 5 mmf. (C4. C5) 53511 Capacitor-Ceramic, 10 mmi. (C3) 54207 Capacitor-Ceramic, 18 mmf. (C20) 73449 Capacitor—Ceramic trimmer, comprising 1 section of 150-190 mmi. and 1 section of 65-95 mmi. (C11, C12) 73091 Capacitor—Ceramic, 270 mmf. (C21) 71501 Capacitor-Ceramic, 1500 mmi. (C2, C7, C8, C9, C13, C15, C17, C18, C19) 73473 Capacitor-Ceramic, 5.000 mmi. (C16) 73475 Coil—Antenna filter shunt coil (L67) 73477 Coil-Choke coil (L10, L11, L12) 73874 Coil—Convertor grid coil tor channel #6 (L9. L31) 73462 Coil—Coupling inductance coil (L4) 74108 Coil—Fine tuning coil (1½ turns) with adjustable inductance core and capacitor stud (threaded bushing type with plunger adjustment) (L1, C1) 73476 Coil—I-F trap (L7, C22) 73461 Coil—Osc, plate coil (4 turns) for channel #6 (L20) 73460 Coil—R-F plate coil for channel #6 (L13) 74109 Coil—Trimmer coil (1½ turns) with adj. inductance core and capacitor stud (threaded bushing type with screw adjustment) for oscillator section or convertor section (L2 C6, L3, C10) 74110 Coil-Trimmer coil (3 turns) with adjustable inductance core and capacitor stud (threaded bushing type with screw adjustment) for r-f amplifier section (L5, C14) 71493 Connector—Oscillator segment connector 74187 Core—Adjustable core for L31 73455 Core—Sliding core for fine tuning control trimmer 73440 Detent—R·F unit detent mechanism and fibre shaft 73453 Form—Coil form assembly for L9, L13 71487 Form-Coil form for oscillator plate coil L31 73442 Link—Link assembly for fine tuning 71462 Loop-Oscillator to convertor trimmer loop connector 73634 Nut-Speed nut for drive belt shield 73467 Nut-Speed nut to mount trimmer coils 73443. 73444 and 73446 74166 Plate—Front plate and bushing 73464 Pulley-Idler pulley Resistor-Fixed, composition, 47 ohms ±20%, 1/2 watt (R4) Resistor—Fixed, composition, 150 ohms $\pm 20\%$, $\frac{1}{2}$ watt (R5, R9, R12) Resistor-Fixed, composition, 1.000 ohms ±20%, 1/2 watt (R7) Resistor—Fixed, composition, 1,000 ohms $\pm 10\%$, $\frac{1}{2}$

watt (R11) Resistor—Fixed, composition, 2700 ohms $\pm 10\%$, $\frac{1}{2}$ watt (R10) Resistor—Fixed, composition, 10.000 ohms $\pm 20\%$. 1/2 watt (R1)

Resistor—Fixed, composition, 100.000 ohms ±20%. 1/2 watt (R2, R3, R8, R13)

14343 Retainer—Channel selector shaft retaining ring

30340 Retainer-Retainer for fine tuning link stud 71476 Screw—#4-40 x ¹/4" binder head screw for adjusting

- coils L14, L15, L16, L17, L18, L19 71475 Screw—#4-40 x .296 adjusting screw for coils
- L6. L21. L22. L23. L24
- 73640 Screw—#4-40 x ¾" adjusting screw for L66 74167 Shaft—Actuating shaft for fine tuning control
- 74168 Shaft—Channel selector shaft complete with pawl and stud
- 73438 Shaft—Fine tuning control shaft and pulley
- 72951 Shield—Metal tube shield for V3
- 73454 Shield—Metal shield for drive belt 73832 Shield—Metal tube shleld for V1
- 75443 Shield—"U" shape shield for bottom of r-f unit
- 71494 Socket-Tube socket
- 73450 Socket-Tube socket, ceramic, 7 prong
- 74188 Spring—Retaining spring for adjustable core #74187
- 73457 Spring-Return spring for fine tuning control core 73456 Spring—Tension spring for drive belt shield
- 75068 Spring-Retaining spring for r-f oscillator tube shield 73787 Cap
- 73633 Stator—Antenna stator complete with rotor and coils (S5, L6, L56, L57, L58, L59, L60, L61, L62, L63, L64, 74106 Cap L65, L66, C21)
- 73470 Stator—Convertor stator complete with rotor and coils (S3, L36, L37, L38, L39, L40, L41, L48, L49, L50, L51)

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-	No. DESCRIPTION	No. DESCRIPTION	No.	DESCRIPTION	No.	DESCRIPTION	No.	DESCRIPTION	No.	DESCRIPTION
	3468 Stator—Front oscillator section stator complete with rotor, segment, coils and adjusting screws (S1, L14, L15, L16, L17, L18, L19, L21, L22, L23, L24)	73582 Capacitor—Electrolytic comprising 1 section of 40 mid, 450 volts, 1 section of 10 mid, 450 volts and 1 section of 80 mid, 200 volts (B section not used)		Resistor—Wire wound, 820 ohms. 4 watt (R205, R234) Resistor—Fixed, composition, 1000 ohms, ±10%, ½ watt (R138)		Resistor—Fixed, composition, 2.2 megohm. ±10%, ¹ / ₂ watt (R131, R132, R159, R163) Resistor—Fixed, composition, 2.7 megohm, ±5%, 1		Capacitor—Tubular .005 mid, 400 volts (C317, C319, C334, C343, C344, C352, C360) Capacitor—Tubular, .01 mid, 200 volts (C336, C349,	wat	or—Fixed, composition, 5600 ohms, ±10%, ½ (R333, R346) or—Fixed, composition, 6800 ohms, ±10%, 1
	3469 Stator—Rear oscillator section stator complete with rotor, segment and coils (S2, L25, L26, L27, L28, L29, L30, L32, L33, L34, L35)	(C194 A, C194 B, C194 C) 73583 Capacitor—Electrolytic comprising 1 section of 40		Resistor—Fixed, composition, 1000 ohms, ±20%, ½ watt (R103, R107, R108, R113, R116, R118, R165,	1	watt (R170) Resistor—Fixed, composition, 3.9 megohm, ±10%, ½	72827	C366, C392) Capacitor—Tubular, .01 mid, 400 volts (C330, C332,	Resist	(R304) pr—Fixed, composition, 6800 ohms, $\pm 10\%$, 2
	3471 Stator—R-F amplifier stator complete with rotor and colis (S4, L42, L43, L44, L45, L46, L47, L52, L53,	mid, 450 volts, 1 section of 90 mid, 450 volts and 1 section of 50 mid, 150 volts (C148 A, C148 B, C148 C)		R211) Resistor—Fixed, composition, 1200 ohms, ±10%. ½	1	watt (R149) Resistor—Fixed, composition, 4:7 megohm. +5%, 1		C335, C359, C367) Capacitor—Tubular, .015 mid, 200 volts (C350)	Resist	t (R385) or—Fixed, composition, 8200 ohms, $\pm 10\%$, $\frac{1}{2}$
	L54, L55) ' S446 Stud—Capacitor stud-brass, No. 4-40 x ¹¹⁰ / ₁₆ " with	74266 Capacitor-Electrolytic 40 mid. 400 volts (C205)		watt (R161, R208) Resistor—Fixed, composition, 3300 ohms, ±10%, ½	71456	watt (R133) Screw—#8-32 x 7/16" wing screw for deflection	73797	Capacitor—Tubular, .015 mid, 400 volts (C373, C374) Capacitor—Tubular, .02 mid, 400 volts (C383)	Resist	r (R317, R339) or Fixed, composition, 8200 ohms, ±10%, 2
	³ ⁴ ₁₄ " screwdriver slot for trimmer coils 74109 and 74110, uncoded or coded "ER"	73581 Capacitor—Electrolytic comprising 1 section of 60 mid, 450 volts, 2 sections of 10 mid, 450 volts and	48207		75083	yoke mounting Screw—#8-32 x 1/4" wing screw for deflection	73554	Capacitor—Tubular, .025 mfd, 400 volts (C351) Capacitor—Tubular, .05 mfd, 200 volts (C351)	Resist	t (R384) pr—Fixed, composition, 10,000 ohms, $\pm 10\%$.
	5447 Stud—Capacitor stud-brass. No. 4-40 x $\frac{13}{16}$ with $\frac{3}{14}$ s rewdriver slot for trimmer coils 74109 and	l section of 20 mfd. 150 volts (D section not used) (C146 A. C146 B. C146 C. C146 D)		Resistor—Fixed, composition, 3900 ohms, ±5%, 2 watt (R125, R129, R128)		yoke mounting Shield—Tube shield for V120 and V121	1	C357, C362, C385)	Resist	watt (R365, R377) pr—Fixed, composition, 10.000 ohms, ±10%.
	74110, coded numerically or "Hi Q" 2917 Washer—"C" washer for channel selector shaft	74433 Capacitor—Electrolytic comprising 1 section of 90 mfd, 350 volts and 1 section of 10 mfd, 350 volts		Resistor—Fixed, composition, 4700 ohms, ±5%, ½ watt (R120)	73117 5	Socket—Tube socket, octal, wafer Socket—Tube socket, 7 pin, miniature		Coll—Oscillator coll complete with core and stud— "C" band ([312)	Resist	att (R382) or—Flxed, composition, 12.000 ohms, ±10%,
	3466 Washer—Insulating washers for front shield (1 set) 3448 Transformer—Convertor transformer (T1 (R6))	(C212 A. C212 B) 71436 Capacitor—Electrolytic comprising 1 section of 250		Resistor—Fixed, composition, 4700 ohms, ±10%, ½ watt (R146)	31319 8	Socket—Tube socket, ceramic, octal, plate mounted Socket—Tube socket, moulded, octal, saddle mounted		Coll—R-F coil complete with core and stud—"A" band (L305, L306)	Resist	watt (R369) or—Fixed, composition, 12.000 ohms, ±10%,
		mid, 10 volts and 1 section of 1000 mid, 6 volts (C170 A, C170 B)		Resistor—Fixed, composition, 5100 ohms, ±5%, ½ watt (R124)	75061 9	Socket—Jube socket for 8016 Socket—9 pin socket—moulded (J106)		Coil—Oscillator coil complete with core and stud "A" band (L311)	Resist	att (R383) or—Fixed, composition, 15,000 ohms, ±10%.
	TELEVISION CHASSIS ASSEMBLIES KCS31	73578 Coil—Antenna matching coils complete with socket and bracket (T115, J102)		Resistor—Fixed, composition, 5600 ohms, ±5%, ½ watt (R112)	74251	Socket—Pilot lamp socket Socket—Kinescope socket		Coil—Antenna coil complete with core and stud— "A" band (L315, L316)	Resist	watt (R326, R330, R361) or—Fixed, composition, 18,000 ohms, ±10%,
'	2437 Cable—Shielded audio cable complete with pin plug /3414 Cap—Hi-voltage rectifier and horiz, output plate cap	73577 Coil—Video trap (L104, C128) 71449 Coil—Horizontal linearity control coil (L113)		Resistor—Fixed, composition, 5600 ohms, ±10%, 1 watt (R187)		Spacer—Bakelite spacer to mount moulded tube socket	73678	Coil—Antenna coil complete with core and stud— "C" band (L302, L303)	Resist	ratt (R314) or—Fixed, composition, 22,000 ohms, $\pm 10\%$.
	2809 Capacitor-Mica, 5 mmf. (C186) 4182 Capacitor-Ceramic, 6 mmf. (C126)	71429 Coll—Width control coil (L112) 71778 Coil—Sound trap (T105, C119)		Resistor—Fixed, composition, 6800 ohms, ±10%, ½ watt (R150)	72190	Spring—Suspension spring for kinescope leads Spring—Hood and yoke pressure spring (3 req'd)		Coil—Low pass filter coil (L307) Coil—P.B. oscillator coil complete with core and	Resist	watt (R325, R349) or—Freed, composition, 22,000 ohms, ±10%.
	3580 Capacitor—Mica trimmer, comprising 1 section 10-160 mmi., 1 section of 40-370 mmf. (C153A, C153B)	74570 Coll—Focus coll (L120) 73476 Coll—I-F trap (L118, C189)		Resistor—Fixed, composition, 6800 ohms, ±5%, 1 watt (R117)	74150	Spring—Anode spring Support—Vertical plate support (bakelite)		stud-H.F. (L377, L378) Coil-P.B. oscillator coil complete with core and stud	Resis	ratt (R380) or—Fixed, composition, 27,000 ohms, ±10%,
	4105 Capacitor—Mica, 33 mmf. (C111) 4062 Capacitor—Ceramic, 82 mmf. (C120)	73476 Coll—1-r trap (L118, C189) 71529 Coll—Peaking coil (120 mh) (L102, L108, R119, R226) 71528 Coil—Peaking coil (180 mh) (L105, L109, R123, R130)		Resistor—Fixed, composition, 8200 ohms, ±5%, ½ watt (R164, R175)	74147	Support—Bakelite support for 2nd anode lead Switch—Width control coil switch (S104)		-LF. (1379, L380, L381) Coll-Antenna coll-F.M. #16 buss tinned, 8 turns	Resis	watt (R329, R350) or—Fixed, composition, 33.000 ohms, ±10%.
	5060 Capacitor—Mica, 100 mmf. (C138) 9396 Capacitor—Ceramic, 100 mmf. (C175)	73477 Coll—Peaking coll (L101) 71526 Coll—Choke coll (L101) 71526 Coll—Peaking coll (250 mh) (L103)		Resistor—Fixed, composition, 8200 ohms, ±10%. ½ watt (R152, R153, R171)	74194	Switch—Interlock switch (S103) Transformer—Power trans. 115 volt, 60 cycle (T117)		per inch 3¼ (L301) CoilR.F. coil-F.M. #16 buss tinned, 8 turns per	Resis	watt (R332) or—Fixed, composition, 39,000 ohms, ±10%.
	3921 Capacitor—Ceramic, 120 mmf. (C199) 1418 Capacitor—Mica, 180 mmf. (C140)	74214 Coll—Peaking coll (180 mh) (L105) 71527 Coll—Peaking coll (93 mh) (L107)		Resistor—Fixed, composition, 10.000 ohms, ±5%, ½ watt (R104)	74144	Transformer—Vertical output transformer (T108) Transformer—Vertical oscillator transformer (T107)		Coll—Oscillator coil F.M. #16 buss tinned, 8 turns	Resis	ratt (R319) or—Fixed, composition, 47,000 ohms, ±10%.
	3102 Capacitor—Mica, 180 mmf. (C158) 4154 Capacitor—Ceramic, 250 mmf., 20,000 volts (C187)	74170 Coll—Peaking coll (36 mh) (L107) 74160 Connector—Anode connector		Resistor—Fixed, composition, 10.000 ohms, ±10%, ½ watt (R141, R182, R224)	73571	Transformer—Horizontal output and hi-voltage (T110) Transformer—First pix if trans. (T101, C102, R101)		per inch 3 ¹ / ₂ turns R.H. (L310) Coll—Choke coll (L313)	Resis	ratt (R303) or-Fixed, composition, 82,000 ohms, ±10%,
	3091 Capacitor—Mica, 270 mmi, (C106, C115, C121, C136) 3922 Capacitor—Ceramic, 270 mmi, (C183, C204)	71521 Contact—Hi-voltage capacitor contact 72734 Control—Ho. and vert. hold control (R158, R173)		Resistor—Fixed, composition, 12.000 ohms. ±5%. ½ watt (R136)	73573	Transformer—Second pix i-f transformer (T102, C107) Transformer—Third pix i-f transformer (T103, C112)	71942	Coll—Choke coll (L314) Coll—Peaking coll (L304)	Resis	watt (R340, R370) or-Fixed, composition, 100,000 ohms, ±10%.
	19642 Capacitor—Mica, 390 mmi, (C141) 14153 Capacitor—Ceramic, 500 mmf., 15 kw (C167, C168)	73156 Control-Brightness control (R223) 73663 Control-Picture control (R127)		Resistor—Fixed, composition, 12,000 ohms, ±10%, 2 watt (R147)	73575	Transformer—Fourth pix i-f transformer (T104, C116) Transformer—Fifth pix i-f trans. (T106, C123, C124)	75062	Connector-9 prong male connector for interconnect-	Resis	watt (R354. R362, R378) or-Fixed, composition, 100,000 ohms, ±20%.
	4250 Capacitor—Mica, 560 mmf. (C160) 71501 Capacitor—Ceramic, 1500 mmf. (C101, C103, C104,	71441 Control—Vertical linearity control (R162)		Resistor—Fixed, composition, 18,000 ohms. ±10%, ½ watt (R137)		Transformer—Sound i.f transformer (T112, C173, C174) Transformer—Sound discriminator transformer (T113,	5040	ing power supply cable (between television and radio chassis) (J306) Connector—4 contact female plug for speaker cable	Resis	watt (R310) lor—Fixed, composition, 100.000 ohms, ±10%.
	C105, C108, C109, C110, C113, C114, C117, C118, C122, C125, C132, C171, C172, C176, C177, C188,	71440 Control—Height control (R155) 71443 Control—Vertical centering control (R202)		Resistor—Fixed, composition, 22,000 ohms, ±10%, ½ watt (R145, R151, R177)		C178, C179, C180) Transformer-Horizontal oscillator transformer (T109)	35384	Connector—s contact made plug for speaker cable Connector—s contact male plug for phono cable Control—Volume control, tone control and power	Resis	vatt (R368) tor—Fixed, composition, 120.000 ohms, ±10%.
	C191. C192. C193, C196) 3801 Capacitor—Tublar, moulded paper, .001 mid, 600	74146 Control—Hor. cent. or video bias control (R199, R206) 74442 Control—Focus control (R235)		Resistor—Fixed, composition, 22.000 ohms, ±20%, ½ watt (R195, R209, R210)		Transformer—Filament trans. 115 volt. 60 cycle (T116) Yoke—Deflection yoke (L110, L111, L114, L115, C169,		switch (R328, S308, S309) Cord—Tuning drive cord (approx, 22" overall)	Resis	watt (R343) or—Fixed, composition, 150,000 ohms, ±10%, ratt (R309)
	volts (C137) 3803 Capacitor—Tubular, moulded paper, .0022 mfd, 600	71457 Cord—Power cord and plug 71437 Cover—Insulating cover for electrolytics #71432,		Resistor—Fixed, composition, 39,000 ohms, ±10%, ½ watt (R249)		R166, R167)	72953	Cord—Indicator drive cord (approx. 22° overall) Coupling—F.M. coupling unit (L309, R307, C323)	Resis	tor—Fixed, composition, 180,000 ohms. ±10%, watt (R353)
	volts (C142, C154) 3595 Capacitor—Tubular, moulded paper, oil filled, .0022	73581 and 73583 72772 Cover—Insulating cover for electrolytic 71436		Resistor—Fixed, composition, 47.000 ohms, ±10%, ¹ / ₂ watt (R142, R144)		RADIO CHASSIS ASSEMBLY RC 617B	72043	Gear-Selector switch drive gear	Resis	tor—Fixed, composition, 220,000 ohms, ±10%. watt (R324, R337, R347, R351, R352, R359, R360,
	mid. 600 volts (C161) 3795 Capacitor—Tubular, moulded paper, .0033 mid, 600	73590 Cushion—Deflection yoke hook cushion (2 req'd) 73600 Fuse—0.25 amperes, 250 volts (F101, F102)		Resistor—Fixed, composition, 47.000 ohms, ±20%, ¹ / ₂ watt (R225)		Board	72042	Gear-Sleeve gear Gear-Scissor gear for tuning capacitor	R3	tor-Fixed, composition, 270.000 ohms. ±10%.
	volts (C202) 3796 Capacitor—Tubular, moulded paper, 20039 mid, 600	71799 Grommet—Rubber grommet for 2nd anode lead 37396 Grommet—Rubber grommet to mount ceramic tube		Resistor—Fixed, composition, 56,000 ohms, ±5%, ½ watt (R135)	/36/3	Capacitor—Variable tuning capacitor (C301, C302, C303, C304, C310, C311, C312, C313, C325, C338, C303)	72069	Grommet-Rubber grommet for rear mounting feet (2 reg'd)	1/2	watt (R323, R331) tor-Fixed, composition, 330,000 ohms, ±10%,
	volts (C198) 3550 Capacitor—Tubular, moulded paper, .0047 mfd, 600	socket (2 req'd) 74148 Magnet—Ion trap magnet (P.M. type)		Resistor—Fixed, composition, 56.000 ohms, ±10%, ½ watt (R156)		C339) Capacitor—Trimmer 1.5-7 mmi. (C324) Capacitor—Adjustable trimmer—1.6-18 mmi. (C340)	70930	Grommet—Rubber grommet for mounting r-f shelf (4 reg'd)	1/2	watt (R336, R338, R355) tor—Fixed, composition, 820,000 ohms. ±10%,
	volts (C127, C143, C144) 3920 Capacitor—Tubular, moulded paper, oil filled, .0047	18469 Plate—Bakelite mounting plate for electrolytics 71448 Plug—Male plug for power cable		Resistor—Fixed, composition, 82,000 ohms, ±10%, ½ watt (R172)	72334	Capacitor—Adjustable trimmer—1.0-10 mmf. (C309) Capacitor—Ceramic. 6.8 mmf. (C328)	70429	Grommet—Rubber grommet for mounting tube socket (4 reg'd)	1/2	watt (R358) tor-Fixed composition, 1 megohm, ±10%, ½
	mid, 600 volts (C145) /3561 Capacitor—Tubular, moulded paper, .01 mid, 400	31572 Plug—3 contact female plug for motor cable 31048 Plug—Pin plug for shielded audio cable		Resistor—Fixed, composition, 100,000 ohms, ±5%, 1/2 watt (R215, R216) Resistor—Fixed, composition, 100,000 ohms, ±10%.	73686	Capacitor—Ceramic, 8 mmi. (C328) Capacitor—Ceramic, 8 mmi. (C329) Capacitor—Adjustable trimmer—10-160 mmf. (C305)	33514 35787	Jack—Phono-television Input jack Jack—Phono input jack for RP168A changer	w	tt (R341) tor-Fixed, composition, 1 megohm, ±20%, ½
11	volts (C134, C151, C152) 3594 Capacitor—Tubular, moulded paper, oil filled, .01	73154 Reactor—Filter choke 74156 Resistor—Wire wound, 3.9 ohms, ½ watt (R189, R190)		1/2 watt (R140, R160)	36463	Capacitor—Ceramic, 18 mmf. (C308) Capacitor—Ceramic, 47 mmf. (C316)	73766	Pinion—Pinion and shaft for tuning capacitor Plate—Dial back plate	W	ttt (R316, R363, R366, R372, R375, R376) tor-Fixed, composition, 2.2 megohm, ±20%,
	mid, 600 volts (C159) 3562 Capacitor—Tubular, moulded paper, .022 mid, 400	72067 Resistor—Wire wound, 5.1 ohms, ½ watt (R1214) Resistor—Fixed, composition, 10 ohms, ±20%, ½		Resistor—Fixed, composition, 100,000 ohms, ±10%, 1 watt (R176, R179) Resistor—Fixed, composition, 100,000 ohms, ±20%,	39622	Capacitor—Ceramic, 47 mmi. (C316) Capacitor—Mica. 56 mmf. (C321) Capacitor—Ceramic, 100 mmf. (C307, C314, C322,	19820	Plate—Mounting plate for electrolytic #74533 Pulley—Drive cord pulley	1/2	watt (R302, R321, R371, R373) tor—Fixed, composition, 3.9 megohm, ±10%.
	volts (C155, C217) 3596 Capacitor—Tubular, moulded paper, oil filled, .033	watt (R121) Resistor—Fixed, composition, 39 ohms, ±10%, ½		2 watt (R236) Resistor—Fixed, composition, 100,000 ohms, $\pm 10\%$, Resistor—Fixed, composition, 150,000 ohms, $\pm 10\%$,		C368) Capacitor—Mica, 100 mmi. (C318)	54374	Rectifier—Crystal rectifier Resistor—Fixed, composition, 68 ohms, $\pm 10\%$, $\frac{1}{2}$	1/2	watt (R31) tor—Fixed, composition, 6.8 megohm, ±10%,
	mid, 1000 volts (C164) 3553 Capacitor—Tubular, moulded paper, .047 mid, 400	watt (R111) Resistor—Fixed, composition, 47 ohms, ±20%, ½		¹ / ₂ watt (R168, R180) Resistor—Fixed, composition, 150,000 ohms, ±5%,		Capacitor—Mica trimmer consisting of 1 section of 100.540 mmf., 2 sections of 50.400 mmf., 1 section		watt (R318) Resistor—Fixed, composition, 100 ohms, ±10%, ½	1/2	watt (R342) tar-Fixed, composition, 10 megohm, ±20%.
	volts (C129, C139, C197) 3592 Capacitor—Tubular, moulded paper, oil filled, .047	watt (R183) Resistor—Fixed, composition, 68 ohms, ±10%, ½		I watt (R178) Resistor—Fixed, composition, 150,000 ohms, ± 3.6 , Resistor—Fixed, composition, 150,000 ohms, $\pm 10\%$,		of 25-250 mmf., and 1 section of 10-180 mmf. (C377, C378, C379, C380, C381)		watt (R335) Resistor—Fixed, composition, 220 ohms, $\pm 10\%$, $\frac{1}{2}$	1/2	watt (R327) itor—Fixed, composition, 22 megohm, ±20%,
11	mid, 600 volts (C147, C156) 3564 Capacitor—Tubular, moulded paper, .047 mid, 1000	watt (R105, R102) Resistor—Fixed, composition, 82 ohms, ±5%, ½		l watt (R174) Resistor—Fixed, composition, 180,000 ohms, ±10%,		Capacitor—Ceramic, 120 mmf. (C390) Capacitor—Ceramic, 150 mmf. (C345, C346, C347,		watt (R308) Resistor—Fixed, composition, 270 ohms, ±10%, 2	1/2	watt (R322) iner-Relainer ring for tuning knob shaft
	volts (C163) 3597 Capacitor—Tubular, moulded paper, oll filled, .047	watt (R122) Resistor—Fixed, composition, 82 chms, ±10%, ½		$^{1/2}$ watt (R143, R186) Resistor—Fixed, composition, 180,000 ohms, $\pm 10\%$,		C387) Capacitor—Mica, 180 mmf. (C331)		watt (R381) Resistor—Fixed, composition, 470 ohms, ±10%, ½	31611 Scre	w-#8.32 x ¼" set screw for drive drum Tuning knob shaft
	3784 mid, 1000 volts (C165) Capacitor—Tubular, moulded paper, 0.1 mid, 200	watt (R207) Resistor—Fixed, composition, 120 ohms, ±10%, ½		2 watt (R191, R192, R193) Resistor—Fixed, composition, 220.000 ohms, $\pm 10\%$,	73687	Capacitor—Ceramic, 190 mmi, (C341) Capacitor—Mica, 240 mmi, (C315)		watt (R306) Resistor—Fixed, composition, 820 ohms, ±10%, ½	72951 Shie	d-Tube shield
	volts (C201) Capacitor—Tubular, moulded paper, 0.1 mfd, 400	watt (R126) Resistor—Fixed, composition, 150 ohms, ±10%, ½		1/2 watt (R154) Resistor—Fixed, composition, 360,000 ohms, ±5%,	39640	Capacitor-Mica, 330 mmi, (C361, C369, C370) Capacitor-Mica, 360 mmi, (306)		watt (R364) Resistor—Fixed, composition, 910 ohms, ±5%, ½	73117 Sock	et—Tube socket complete with base and shield et—Tube socket, 7 pin, miniature, wafer
	volts (C130, C149) Capacitor—Tubular, moulded paper. 0.22 mfd, 200	watt (R115) Resistor—Fixed, composition, 150 ohms, ±20%, ½		¹ / ₂ watt (R134) Resistor—Fixed, composition, 560,000 ohms, ±10%,	39644	Capacitor—Mica, 470 mmi. (C364, C384, C386) Capacitor—Electrolytic 5 mid, 50 volts (C372)		watt (R356) Resistor—Fixed, composition, 2200 ohms, ±10%, ½	31364 Sock	et—Tube socket wafer et—Dlal lamp socket
	volts (C135) 3794 Capacitor—Tubular, moulded paper, 0.22 mfd, 400	watt (R106, R109, R114, R198) Resistor—Fixed, composition, 150 ohms, ±10%, 2		¹ / ₂ watt (R194) Resistor—Fixed, composition, 820,000 ohms, ±5%.		Capacitor-Electrolytic, triple, 15 mid 450 volts (C355 A, C355 B, C355 C)		watt (R315, R334) Resistor—Fixed, composition, 2700 ohms, ±10%, ½	31418 Sprin	et—Tube socket 1g—Tuning drive cord spring or Indicator drive
	volts (C157) 3787 Capacitor—Tubular, moulded paper. 0.47 mfd, 200	watt (R184) 74375 Resistor—Wire wound, 150 ohms, 20 watt (R196)		$\frac{1}{2}$ watt (R169) Resistor—Fixed, composition, 820,000 chms, $\pm 10\%$.		Capacitor—Electrolytic, 20 mid, 25 volts (C391) Capacitor—Tubular .002 mid, 400 volts (C353, C358,		watt (R301, R305, R348) Resistor—Fixed, composition, 2700 ohms, ±10%, 1	73671 Sup	rd spring ort—Dial back plate support bracket complete
	volts (C133, C162, C190) 4106 Capacitor—Electrolytic 5 mfd, 50 volts (C131) 1432 Capacitor—Electrolytic 5 mfd, 50 volts (C131)	74155 Resistor—Voltage divider comprising 1 section of 775 ohms, 9.5 watts, 1 section of 550 ohms, 5 watts,		¹ /2 watt (185) Resistor—Fixed, composition, 1 megohm, ±20%, ½		C365) Capacitor—Tubular, .0025 mid, 1000 volts (C375, C376)		wait (R313) Resistor—Fixed, composition, 3900 ohms, ±10%, 1	73672 Sup	th drive cord pulley and lamp bracket—L.H. ort—Dial back plate support bracket complete
	1432 Capacitor—Electrolytic comprising 2 sections of 40 mid, 450 volts and 1 section of 10 mid, 450 volts	l section of 350 ohms, 3 watts and 1 section of 450 ohms, 5 watts (R203 A, R203 B, R203 C, R203 D)		watt (R139, R148, R250) Resistor—Fixed, composition, 1.5 megohm, ±5%, ½	71921	Capacitor—Tubular .003 mfd, 200 volts C348) Capacitor—Tubular .005 mfd, 200 volts (C320, C326,		watt (R320) Resistor—Fixed, composition, 4700 ohms, ±10%, ½	74535 Swit	th drive cord pulley and lamp bracket—R.H. ch—Selector switch including filaments switch
	(C150 A, C150 B, C150 C)	73582 Capacitor-Electrolytic comprising 1 section of 40		watt (R157)		C327, C333, C342, C371, C382, C388)		watt (R357)		301. S302. S303, S304, S305, S306, S310, S311)

324 S1000

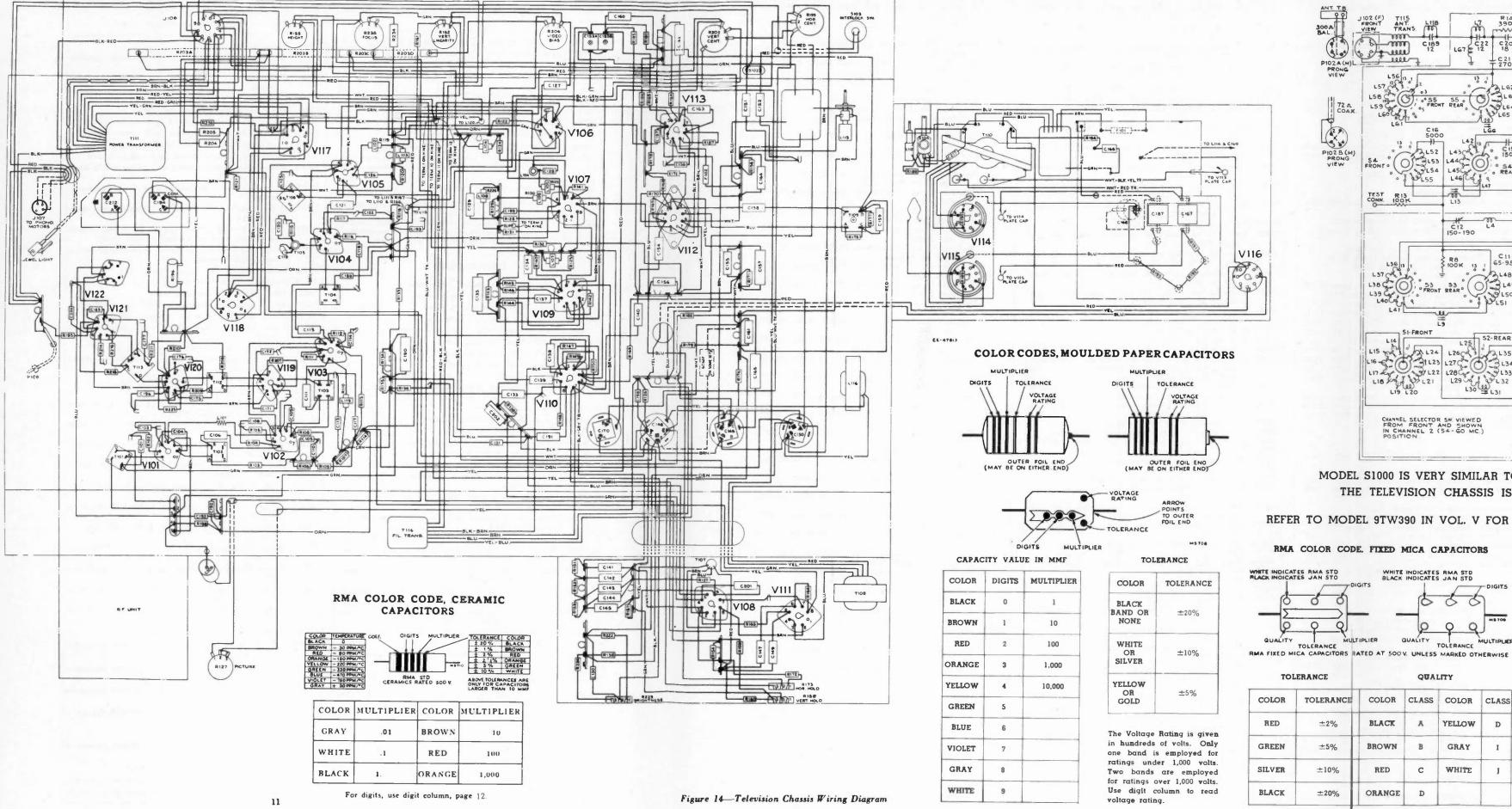
STOCK No.	DESCRIPTION	STOCK	DESCRIPTION
73683	Switch—P.B. switch complete less coils and trimmer	73705	Dial-Glass dial scale
	(S307, S307Ā)	73180	Emblem—"RCA Victor" emblem
72889	Transformer—Ratio detector transformer (T303)	73642	Escutcheon—Television channel marker escutche
73376	Transformer—First i-f transformer—dual (T301)	74609	
74019	Transformer—Second i-i transformer—dual (T302)	37396	Glass—Safety glass Grommet—Rubber grommet for mounting spea
	SPEAKER ASSEMBLIES	11889	(4 req'd) Grommet—Rubber grommet for mounting re
	92569-6W RL111-13	74308	chassis
	RMA 274	1	Hinge—Door hinge (1 set) (4 req'd)
		72036	Indicator—Station selector indicator
13867	Cap—Dust cap	73222	Knob-Television fine tuning knob-dark-(outer)
74901	Cone—Cone and voice coil assembly	72147	Knob—Radio selector switch knob—dark—(outer)
5039	Connector-4 contact male connector for speaker	72148	Knob-Radio tone control knob-marcon-(outer)
74753	Speaker—12" P. M. speaker complete with cone and	72149	Knob—Radio tuning control knob—dark—(inner)
	voice coil (3.2 ohms) less output transformer and plug	72150	Knob—Radio volume control and power switch k —dark—(Inner)
73636	Transformer—Output transformer	73224	Knob-Television channel selector knob-maroo
	NOTE:-If stamping in instruments does not agree with above speaker number, order replace-	73228	(inner) Knob—Television horizontal hold control knob—d
	ment parts by referring to model number of instrument, number stamped on speaker	73226	
	and full description of part required.		or vertical hold control knob-dark-(outer)
	N/2077 LENTON	73230	Knob—Television picture control or brightness con knob—dark—(inner)
	MISCELLANEOUS	11765	Lamp—Dial or pilot lamp—Mazda #51
74158	Back—Television chassis back cover	74543	Marker—"Magic Monitor" marker tab
	Back-Cabinet bottom back cover	74605	Mask—Kinescope masking panel
	Back—Radio chassis back cover	74208	Nut-Tee nut for mounting 45 RPM changer (3 re
		74162	Plate-Mounting plate for interlock switch
72146		74124	Plate—Stud plate and wing nut for control pane
	Bezel—Radio dial scale bezel less dial	/1141	req'd)
72857	Board—"Ant" terminal board	73771	Pull—Door pull for upper doors (2 req'd)
71599	Bracket—Pilot lamp bracket	73760	-
72151	Button—Push button—black	/3/00	Pull—Door pull for lower doors (4 req'd) or for 33 RPM record changer drawer
73696	Button—"Magic Monitor" push button—gold	74271	Runner-45 RPM changer runner-R.H.
74545	Cable—Shielded pickup cable complete with pln	74272	-
	plug for 45 RPM changer	74582	
13103	Cap-Pilot lamp cap	/4304	Screw—#8-32 x 1 ³ 4" special screw for moun 45 RPM changer (3 reg'd)
71892	Catch—Bullet catch and strike	74279	Screw—#8-32 x 7/8" trimit head screw for up
72157	Clip—P.B. bezel spring clip	/16/3	doors door pull
X3033	Cloth—Grille cloth for mahogany instruments	74269	
	Cloth—Grille cloth for walnut instruments	/1200	#73760 (2 reg'd for each pull)
	Connector—Anode connector (3 reg'd)	74617	
72850			(part of cabinet)
/ 2000	radio cable	74618	Slide—33/78 RPM changer slide and bracket—L.
72850			(part of cabinet)
/ 2000	cable	74615	Slide—33/78 RPM changer slide—R.H.—(part
39153		1	Carriage)
03193	to radio cable	74616	Slide—33/78 RPM changer slide—L.H.—{part
75063			carriage)
75064		34053	Spring—Retaining spring for buttons #72151
31567		72845	73696 Spring—Retaining spring for knobs #72147
30868	necting motor cable Connector—2 contact female connector for intercon-	14270	73222 Spring—Retaining spring for knobs #72148, 73
	necting motor cable		73226, and 73230
30868	Connector—2 contact female connector for motor cable for 45 RPM changer	30330	Spring—Retaining spring for knobs #72150 73228
35352	Connector-4 contact female connector for intercon-	30900	
30870	necting cable Connector—2 contact male connector for motor cable	73643	
	for 45 RPM changer	72156	
36765	Cover—Celluloid cover for call letter markers and	74423	Spring—Conical spring to mount 45 RPM chang bottom (3 reg'd)
74581		74421	SpringConical spring to mount 45 RPM chang
74539	changer (3 req'd)	74422	upper R.H. (1 req'd) Spring—Conical spring to mount 45 RPM chang
			upper L.H. (2 req'd)
74619		72936	
73612		73185	· · · · · · · · · · · · · · · · · · ·
70005	Decal—Radio control panel—L.H. decal (tone control, volume control and power switch)		req'd)
72695			Stud—Locating stud for cabinet back
74613	Decal—Radio control panel—R.H. (Selector switch		-
74613		74159	-

.

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

TELEVISION CHASSIS WIRING DIAGRAM



36 MU.H.

R109

_

R148 R150

22K

11-

C159

125 V

CAGS

R108 -

C110 ±

R 141

R146

1/112

6SN7-GT

SYNC.

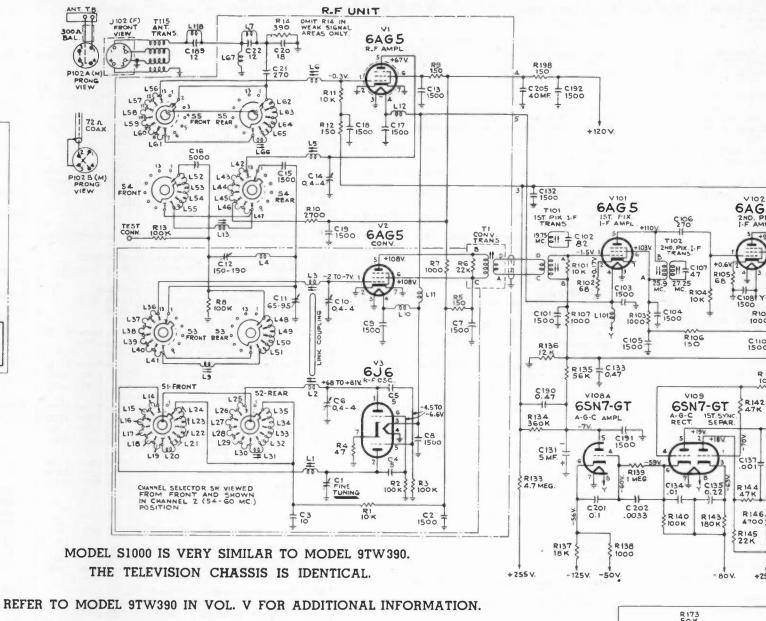
R147

R174

6AUG

1-E A.4

TS	MULTIPLIER	
	1	B
	10	BI
	100	
	1,000	5
	10,000	Y
		Th
		in
-		rat
		Tw
		for
1		12.0



TOI	ERANCE	QUALITY				
COLOR	TOLERANCE	COLOR	CLASS	COLOR	CLASS	
RED	±2%	BLACK	A	YELLOW	D	
GREEN	±5%	BROWN	В	GRAY	I	
SILVER	±10%	RED	с	WHITE	J	
BLACK	±20%	ORANGE	D			

COLOR	DIGITS	MULTIPLIER
GOLD	-	.1
BLACK	0	1.
BROWN	1	10
RED	2	100
ORANGE	3	1,000
YELLOW	4	10,000
GREEN	5	
BLUE	6	
VIOLET	7	
GRAY	8	
WHITE	9	

wise noted.

RANGE

R172

C156

4 \$ R169 R

HOR HOLD

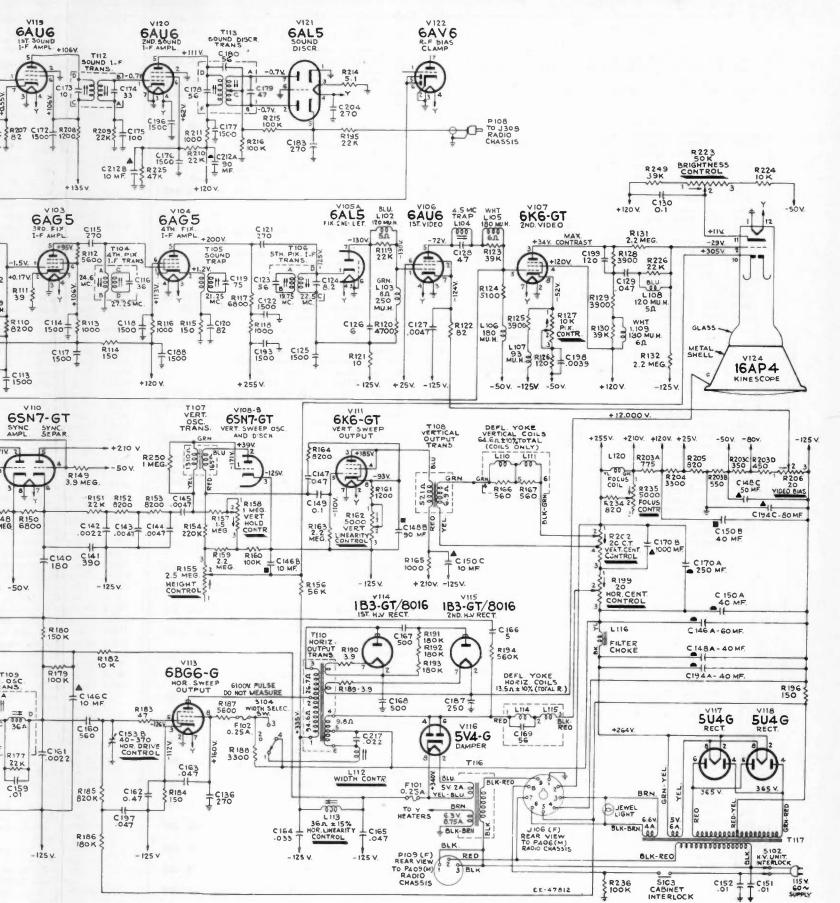
C157 R168

\$R171 8200

are not shown.

R178

13



All resistance values in ohms. K = 100. All capacitance values less than 1 in MF and above 1 in MMF unless other-wise noted. Coil resistance values less than 1 ohm are not shown. Coil resistance values less than 1 ohm are not shown. All voltages measured with "VoltOhmyst" caused changes in component lead color their lug identification markings. All voltages measured with "VoltOhmyst" and with no signal input. VoltoJess should of MF tubular condenser was connected in parallel with it. All voltages measured with "VoltOhmyst" and with no signal input. VoltoJess should of MF tubular condenser was connected in parallel with it. All voltages measured with "VoltOhmyst" and with no signal input. VoltoJess should a 60 MF tubular condenser was connected in parallel with it. All voltages measured with "VoltOhmyst" and with no signal input. VoltoJess should a 60 MF tubular condenser was connected in parallel with it. All voltages measured with "VoltoJess" All voltages measured with "VoltoJess" and with no signal input. VoltoJess should a 60 MF tubular condenser was connected in parallel with it. All voltages measured with "VoltoJess" All voltages measured with "VoltoJess" All some receivers, R11 is 1000 ohms and In some chassis C162 was .22 mfd. In some chassis R222 (47K) was used in weak signal areas, R14 may be dis-on the weakest low channel station. In some chassis R250 is omitted.

In some chassis City 47K) was used in-Figure 15 - Television

Circuit Schematic Diagram



Model 2T51 "Shelby" Mahogany Finish



TELEVISION RECEIVERS MODELS 2T51, 2T60

Chassis Nos. KCS45, or KCS45A

— Mfr. No. 274 —

SERVICE DATA -- 1950 No. T12 ---

PREPARED BY RCA SERVICE CO., INC. FOR

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION

CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 2T51 and 2T60 receivers employ nineteen tubes plus rectifier and a 12LP4 kinescope. The receivers are identical except for cabinets, jewel lights, speakers and filter chokes.

Features of the television unit are: full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc. band width for picture channel and reduced hazard high voltage supply. An auxiliary audio input jack is provided to permit the use of an external record playing attachment.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Model

2T60

"Cumberland"

Walnut,

Mahogany

or Öak

TELEVISION R-F FREQUENCY RANGE

3

All 12 television channe Fine Tuning Range±25 Picture Carrier Frequenc Sound Carrier Frequenc	ls, 54 mc. to 0 kc. on cha cy	88 mc. 174 m n. 2, ±650 kc	. on chan. 13 25.50 mc.
VIDEO RESPONSE			To 4 mc.
SWEEP DEFLECTION			Magnetic
FOCUS		,,	Magnetic
POWER SUPPLY RATIN	G 115	volts, 60 cycle	es, 160 watts
AUDIO POWER OUTPUT	RATING		5 watts max.
CHASSIS DESIGNATION KCS45 KCS45Å			
LOUDSPEAKERS KCS45 (97 KCS45A		*	
DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside), 2T51	181⁄1	16 ¼	22
Cabinet (outside), 2T60	21	341⁄4	21
Chassis (overall)	16	15	19
2100		•••••	

RECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

RCA TUBE COMPLEMENT

		Tu	be Used Function
(1)	RCA	6CB6 R-F Amplifier
(2)	RCA	6J6R-F Oscillator and Mixer
(3)	RCA	6AU6 1st Sound I-F-Amplifier
(4)	RCA	6AU6 2nd Sound I-F Amplifier
(5)	RCA	6AL5 Sound Discriminator
(6)	RCA	6AV6 lst Audio Amplifier
			6AQ5 Audio Output
(8)	RCA	6AU6 1st Picture I-F Amplifier
(9)	RCA	6CB6 2nd Picture I-F Amplifier
			6AU6 3rd Picture I-F Amplifier
(11)	RCA	6CB6 4th Picture I-F Amplifier
(12)	RCA	6AL5 Picture 2nd Detector and AGC Detector
(13)	RCA	12AU7 1st and 2nd Video Amplifier
			12AU7 DC Restorer and Sync Separator
			6AV6 Vertical Sweep Oscillator
			6AQ5 Vertical Sweep Output
(l7)	RCA	6SN7GT Horizontal Sweep Oscillator and
			Control
			6AU5GT Horizontal Sweep Output
			6W4GT
			1B3-GT/8016 High Voltage Rectifier
(21)	RCĂ	12LP4 Kinescope

Specifications continued on page 2

ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE INTERMEDIATE FREQUENCIES

Picture Carrier Frequency	25.50	Mc.
Adjacent Channel Sound Trap	27.00	Mc.
Accompanying Sound Traps	21.00	Mc.
Adjacent Channel Picture Carrier Trap	19.50	Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound Carrier Frequency		21.00 Mc.
Sound Discriminator Band	Width between peaks	400 kc

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

1. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOL UME control to approximately mid-position.

3. Set the STATION SELECTOR

to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and brightness controls for suitable picture contrast and brightness.

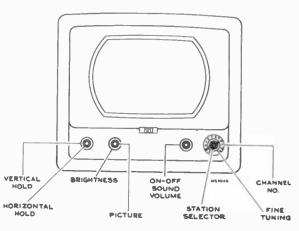


Figure 1-Receiver Operating Controls

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED. IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT REMOVE THE RECEIVER CHASSIS, INSTALL, REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINE-SCOPE AWAY FROM THE BODY WHILE HANDLING.

2

 VIDEO RESPONSE
 To 4 Mc.

 FOCUS
 Magnetic

 SWEEP DEFLECTION
 Magnetic

 HORIZONTAL SWEEP FREQUENCY
 15,750 cps

 SCANNING
 Interlaced, 525 line

 VERTICAL SWEEP FREQUENCY
 60 cps

 FRAME FREQUENCY (Picture Repetition Rate)
 30 cps

9. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

10. In switching from one position to another, it may be necessary to repeat steps 4 and 8.

11. When the set is turned on again after an idle period it

should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

12. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 9.

13. To use a record player, plug the record-player output cable into the PHONO jack on the rear apron, and set the TV-PH switch to "PH." Upon completion of the record program, set the TV-PH switch to TV position.

Make sure that all tubes are in place and are firmly seated in their sockets.

Check to see that the kinescope high voltage lead clip is in place.

Connect the antenna transmission line to the receiver antenna terminals. Plug a power cord into the 115 volt a-c power source and into the receiver interlock receptacle. Turn the receiver power switch to the "on" position, the brightness control fully clockwise, and the picture control counter-clockwise.

ION TRAP MAGNET ADJUSTMENT.---Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Turn the focus control (shown in Figure 2) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum clockwise position with which good line focus can be maintained.

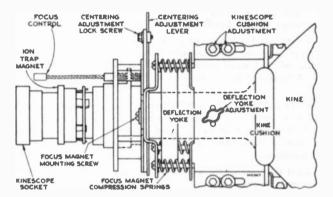


Figure 2—Yoke and Focus Magnet Adjustments

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn \$105 on the rear apron (see Figure 3) counter-clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.— Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull-in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show l vertical or diagonal black bar in the raster.

If the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Magnet Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control

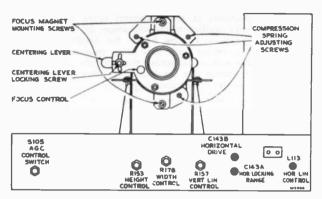


Figure 3-Rear Chassis Adjustments

from the pull-in point, it will be necessary to make the following adjustments.

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T107 horizontal frequency adjustment on top of the chassis until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horisontal Locking Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. The picture may remain in sync. If so turn the T108 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C147A slightly clockwise. If less than 2 bars are present, adjust C147A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horisontal Oscillator by the method outlined in the alignment procedure on page 13. For field purposes paragraph "A" under Horisontal Oscillator Waveform Adjustment may be omitted.

FOCUS MAGNET ADJUSTMENT.—The focus coil should be adjusted so that there is approximately three-eighths inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus magnet. This spacing gives best average focus over the face of the tube.

The axis of the hole through the magnet should be parallel with the axis of the kinescope neck with the kinescope neck through the middle.

CENTERING ADJUSTMENT.--No electrical centering controls are provided. Centering is accomplished by means of a separate plate on the focus magnet. Some centering plates include a locking screw which must be loosened before centering, and others are held in adjustment by friction. Up and down adjustment of the plate moves the picture side to side and sidewise adjustment moves the picture up and down.

If a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by adjustment of the focus magnet plate. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In some cases it may be necessary to shift the position of the focus magnet in order to eliminate a corner shadow.

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture, adjust horizontal drive counter-clockwise as far as possible without stretching the left side of the picture. As a first adjustment, set the horizontal drive trimmer C143B one-half turn out from maximum capacity.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained.

Adjust the width control R178 to obtain correct picture width. A slight readjustment of these three controls may be necessary to obtain the best linearity.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R153 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R157 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

FOCUS.—Adjust the focus magnet for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

On focus magnets using two shunts, the one with the cable is the "fine adjustment" and the other is the "focus range" adjustment. In general, the two shunts should be adjusted to approximately equal positions.

Recheck the position of the ion trap magnet to make sure that maximum brightness is obtained.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

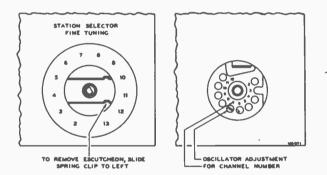


Figure 4—R-F Oscillator Adjustments

CHECE OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 9. The adjustments for channels 2 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment of channel 13 is on top of the chassis.

AGC CONTROL.—The AGC control switch is provided as an installation adjustment. The normal position for strong signal areas is with the switch in the number 1 or counterclockwise position. If impulse type of interference is experienced, turn the switch to the number 2 or center position. In very weak signal areas in which impulse type interference is experienced, turn the switch to position number 3 or fully clockwise. In this position, all AGC is removed and the receiver will overload if the input signal exceeds 200 microvolts. However, for signals under 200 microvolts, this position of the AGC control switch gives best noise immunity of sync.

FM TRAP ADJUSTMENT.—In some instances interference may be encountered from a strong FM station signal. A trap is provided to eliminate this type of interference. To adjust the trap tune in the station on which the interference is observed and adjust the L203 core on top of the r-f unit for minimum interference in the picture. CAUTION: In some receivers, the FM trap L203 will tune down into channel 6 or even into channel 5. Needless to say, such an adjustment will cause greatly reduced sensitivity on these channels. If channels 5 or 6 are to be received, check L203 to make sure that it does not affect sensitivity on these two channels.

Replace the cabinet back and reconnect the antenna leads to the cabinet back.

VENTILATION CAUTION.—The receiver is provided with adequate ventilation holes in the bottom and back of the cabinet. Care should be taken not to allow these holes to be covered or ventilation to be impeded in any way.

If the receiver is to be operated with the back of the cabinet near a wall, at least a two-inch clearance should be maintained between cabinet and wall.

CHASSIS REMOVAL.—To remove the chassis for repair or installation of a new kinescope, remove the cabinet back and the control knobs, unplug the speaker cable, and remove the four chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet. The kinescope is held on the chassis by means of a special strap, so that the chassis and the kinescope can be handled together, as a unit.

To remove the kinescope, remove the kinescope socket, the ion-trap magnet, and the second-anode connector. Loosen the cross-recessed head screw on the kinescope strap. Withdraw the kinescope toward the front of the chassis.

INSTALLATION OF KINESCOPE.—The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection yoke and focus magnet. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

To replace the chassis in the cabinet, first tighten the crossrecessed head screw on the kinescope strap. Slide the chassis into the cabinet, then insert and tighten the four chassis bolts. Loosen the kinescope strap from the rear of the cabinet. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flare, then tighten the cushion adjusting screws. Tighten the kinescope strap. Then replace the knobs, and the cabinet back.

ANTENNAS.—The finest television receiver built may be said to be only as good as the antenna design and installation. It is therefore important to select the proper antenna to suit the particular local conditions, to install it properly and orient it correctly.

If two or more stations are available between channels two and six and the two stations are in different directions, it may be possible to make a compromise orientation which will provide a satisfactory signal on all such channels.

CABINET ANTENNA.—A cabinet antenna is provided in both model receivers and the leads are brought out near the antenna terminal board. The cabinet antenna may be employed in place of the outdoor antenna in areas where the signals are strong and no reflections are experienced.

CHASSIS TOP VIEW

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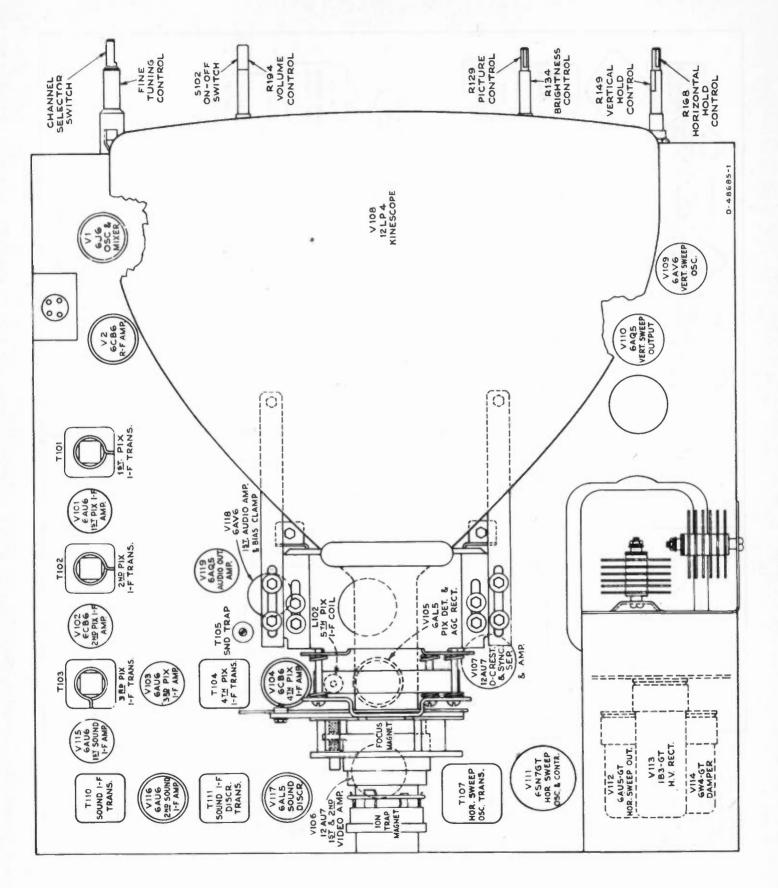


Figure 5-Chassis Top View

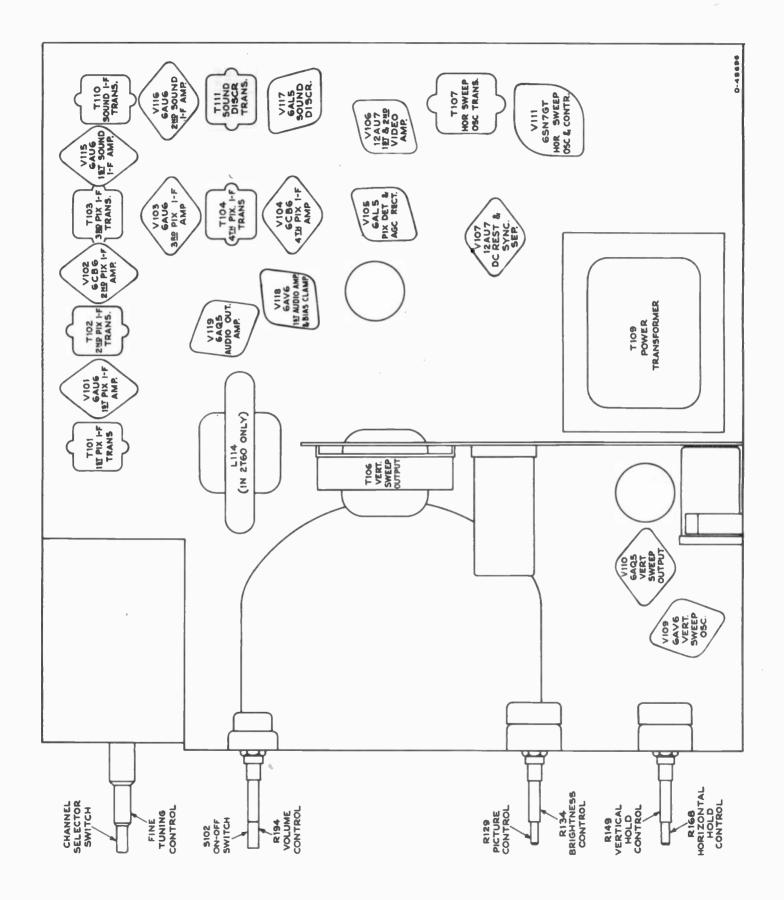


Figure 6-Chassis Bottom View

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R-F Sweep Generator meeting the following requirements:

- (a) Frequency Ranges
 - 20 to 30 mc., 1 mc. and 10 mc. sweep width
 - 50 to 90 mc., sweep width
 - 170 to 225 mc., 10 mc. sweep width
- (b) Output adjustable with at least .1 volt maximum.
- (c) Output constant on all ranges.
- (d) "Flat" output on all attenuator positions.

Cathode-Ray Oscilloscope.—For alignment purposes, the oscilloscope employed must have excellent low frequency and phase response, and should be capable of passing a 60-cycle square wave without appreciable distortion. While this requirement is not met by many commercial instruments, RCA Oscilloscopes, types WO-55Å, WO-58Å, WO-79Å, and WO-60C fill the requirement and any of these may be employed.

For video and sync waveform observations, the oscilloscope must have excellent frequency and phase response from 10 cycles to at least two megacycles in all positions of the gain control. The RCA types WO-58A and WO-79A are ideally suited for this purpose.

Signal Generator to provide the following frequencies with crystal accuracy.

(a) Intermediate frequencies

19.50 mc. adjacent channel picture trap 21.00 mc. sound i-f and sound traps 22.3 and 25.4 mc. conv. and first pix i-f trans. 25.3 mc. second picture i-f transformer 22.5 mc. fourth picture i-f transformer 21.75 mc. third picture i-f transformer 24.35 mc. fifth picture i-f coil 25.50 mc. picture carrier 27.00 mc. adjacent channel sound trap

(b) Radio frequencies

Channel Number	Picture 'Carrier Freq. Mc.	Sound Carrier Freq. Mc.
2	55.25	59.75
3	61.25	65.75
4	67.25	71.75
5		81.75
6		87.75
7		179.75
8		
9		
10		
11		203.75
12		209.75
13		215.75

(c) Output of these ranges should be adjustable and at least .1 volt maximum.

Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

Electronic Voltmeter of Junior "VoltOhmyst" type and a high voltage multiplier probe for use with this meter to permit measurements up to 10 kv.

Service Precautions.—If possible, the chassis should be serviced without the kinescope. However, if it is necessary to view the raster during servicing, make sure the kinescope retaining strap is secure, and the yoke cushion is up firmly against the flare of the tube. CAUTION: Do not short the kinescope second anode lead. Its short circuit current is approximately 3 ma. This respresents approximately 9 watts dissipation and a considerable overload on the high voltage filter resistor R179.

Adjustments Required.—Normally, only the r-f oscillator and mixer lines will require the attention of the service technician. All other circuits are either broad or very stable and hence will seldom require readjustment.

ORDER OF ALIGNMENT.—When a complete receiver alignment is necessary, it can be most conveniently performed in the following order:

(1)	Sound discriminator	(5) R.F. unit
(2)	Sound i-f transformers	(6) Overall picture i-f
(3)	Picture i-f traps	(7) Horizontal oscillator
(4)	Picture i-f transformers	(8) Sensitivity check

SOUND DISCRIMINATOR ALIGNMENT.—Set the signal generator for approximately .1 volt output at 21.00 mc. and connect it to the second sound i-f grid. pin 1 of V116.

Detune T111 secondary (bottom) to the extreme counterclockwise position.

Set the "VoltOhmyst" on the 3-volt scale.

Connect the meter, in series with a one-megohm resistor, to pin 7 of V117.

Adjust the primary of T111 (top) for maximum output on the meter.

Connect the "VoltOhmyst" to the junction of R192 and S103. Adjust T111 secondary (bottom). It will be found that it is possible to produce a positive or negative voltage on the meter dependent upon this adjustment. Obviously to pass from a positive to a negative voltage, the voltage must go through zero. T111 (bottom) should be adjusted so that the meter indicates zero output as the voltage swings from positive to negative. This, point will be called discriminator zero output.

Connect the sweep oscillator to the grid of the second sound i-f amplifier, pin 1 to V116.

Adjust the sweep band width to approximately 1 mc. with the center frequency at approximately 21.00 mc. and with an output of approximately .1 volt.

Connect the oscilloscope to the junction of R192 and S103. The pattern obtained should be similar to that shown in Figure 12. If it is not, adjust T111 (top) until the wave form is symmetrical.

The peak-to-peak band width of the discriminator should be approximately 400 kc. and the trace should be linear from 20.925 mc. to 21.075 mc.

Note.—The bottom core and stud in the discriminator transformer are at plus B potential.

SOUND I-F ALIGNMENT.—Connect the sweep oscillator to the first sound i-f amplifier grid, pin 1 of V115.

Insert a 21.00 mc. marker signal from the signal generator into the first sound i-f grid.

With the oscilloscope connected as above, adjust T110 for maximum gain and symmetry about the 21.00 mc. marker on the discriminator pattern. The pattern obtained should be similar to that shown in Figure 12.

The output level from the sweep should be set to produce approximately 1.0 volt peak-to-peak at the junction of R192 and S103, when the final touches on the above adjustment are made. It is necessary that the sweep output voltage should not exceed the specified values otherwise the response curve will be broadened, permitting slight misadjustment to pass unnoticed and possibly causing distortion on weak signals.

The band width at 70% response from the first sound i-f grid to the second i-f grid should be approximately 530 kc.

PICTURE I-F TRAP ADJUSTMENT.—Connect the "Volt-Ohmyst" to the junction of R102 and R103.

Obtain a 7.5 volt battery capable of withstanding appreciable current drain and connect the ends of a 1,000 ohm potentiometer across it. Connect the battery positive terminal to chassis and the potentiometer arm to the junction of R102 and R103. Adjust the potentiometer for -3.0 volts indication on the "VoltOhmyst."

Set the channel switch to the blank position between channels number 2 and 13.

Connect the "VoltOhmyst" to pin 2 of V106 and to ground.

Connect the output of the signal generator to terminal D of T101.

Set the generator to each of the following frequencies and with a thin fiber screwdriver tune the specified adjustment for minimum indication on the "VoltOhmyst." In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

(1) 21.00 mc.—T103 (top)	(4) 27.00 mc.—T104 (top)
(2) 21.00 mc.—T105 (top)	(5) 19.50 mcT101 (top)
(3) 27.00 mc.—T102 (top)	

In the above transformers using threaded cores, it is possible to run the cores completely through the coils and secure two peaks or nulls. The correct position is with the cores in the outside ends of the coils. If the cores are not in the correct position, the coupling will be incorrect and it will be impossible to secure the correct response.

PICTURE 1-F TRANSFORMER ADJUSTMENTS.—Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the "Volt-Ohmyst." During alignment, reduce the input signal if necessary to prevent overloading.

^{24.35} mc.—L102	21.75 mc.—T103 (bottom)
^{22.5} mcT104 (bottom)	25.3 mc.—T102 (bottom)

[•] In some receivers R115 was 3900, R119 was 8,200, and L114 was omitted, T104 bottom was tuned to 24.35MC and L102 was tuned to 22.5MC.

R-F UNIT ALIGNMENT.—Disconnect the co-ax link from terminal 2 of the r-f unit terminal board and connect a 39 ohm composition resistor between lugs 1 and 2.

Detune T1 by backing the core all the way out of the coil.

In early production units in which L44 is adjustable, back the L44 core all the way out. Back L203 core all the way out.

In order to align the r-f tuner, it will first be necessary to set the channel 13-oscillator to frequency. The shield over the bottom of the r-f unit must be in place when making any adjustments.

The oscillator may be aligned by adjusting it to beat with a crystal-calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available. Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, couple the meter probe loosely to the receiver oscillator.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier signal, connect the signal generator to the receiver antenna terminals. Connect the "VoltOhmyst" to the sound discriminator output (junction of R192 and S103). Also couple the link loosely to lug 2 of the r-f unit terminal board so as to permit measurement at sound discriminator.

Set the channel selector switch to 13.

Adjust the frequency standard to the correct frequency (236.75 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range.

Adjust C1 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Now that the channel-13 oscillator is set to frequency, we may proceed with the r-f alignment.

Turn the AGC control to the counter-clockwise position.

Connect the bias box to terminal 3 of the r-f unit terminal board and adjust the bias box potentiometer for -3.5 volts.

Connect the oscilloscope to the test connection at R5 on top of the r-f unit.

Connect the r-f sweep oscillator to the receiver antenna terminals. The method of connection depends upon the output impedance of the sweep. The P300 connections for 300-ohm balanced or 72-ohm single-ended input are shown in the circuit schematic diagram on page 27. If the sweep oscillator has a 50-ohm single-ended output, 300-ohm balanced output can be obtained by connecting as shown in Figure 7.

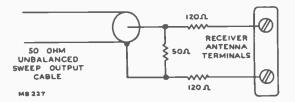


Figure 7—Unbalanced Sweep Cable Termination

Connect the signal generator loosely to the receiver antenna terminals.

Set the receiver channel switch to channel 8.

Set the sweep oscillator to cover channel 8.

Insert markers of channel 8 picture carrier and sound carrier, 181.25 mc. and 185.75 mc.

Adjust C9, C11, C16 and C22 for approximately correct curve shape, frequency, and band width as shown in Figure 15.

The correct adjustment of C22 is indicated by maximum amplitude of the curve midway between the markers. C16 tunes the r-f amplifier plate circuit and affects the frequency of the curve most noticeably. C9 tunes the converter grid circuit and affects the tilt of the curve most noticeably (assuming that C22 has been properly adjusted). C11 is the coupling adjustment and hence, primarily affects the response band width.

Set the receiver channel switch to channel 6.

Adjust the frequency standard to the correct frequency (108.75 mc. for heterodyne frequency meter or 87.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range.

Adjust L5 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Set the sweep generator to channel 6.

From the signal generator, insert channel 6 sound and picture carrier markers, 83.25 mc. and 87.75 mc.

Adjust L42, L45 and L49 for proper response as shown in Figure 15.

L42 is adjusted to give maximum amplitude of the curve between the markers. L45 primarily affects the tilt of the curve. L49 primarily affects the frequency of response.

Connect the "VoltOhmyst" to the r-f unit test point at R5.

Adjust C7 for -3.0 volts at the test point.

Retouch L42, L45 and L49 for proper response if necessary. If necessary, retouch C11 for proper band width on channel 6. Continue these retouching adjustments until proper response is obtained and -3.0 volts of oscillator injection are present at the test point.

Set the receiver channel selector switch to channel 8 and readjust Cl for proper oscillator frequency.

Set the sweep oscillator and signal generator to channel 8. Readjust C9, C16 and C22 for correct curve shape, frequency and band width. Readjust C11 only if necessary.

Switch the receiver, the sweep oscillator and signal generator to channel 13.

Adjust L52 for maximum amplitude of the curve midway between markers and then overshoot the adjustment by turning the slug in the same direction from the initial setting a little more than the amount of turning required to reach maximum amplitude of response.

Adjust C22 for maximum amplitude of response.

Turn off the sweep generator. Adjust the L43 core for correct channel 13 oscillator frequency, then overshoot the adjustment by turning the slug a little more in the same direction from the initial setting. Reset the oscillator to proper frequency by adjustment of C1.

Turn the sweep oscillator back on.

Check the response of channels 7 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observing the response and oscillator injection obtained. See Figure 15 for typical response curves. It should be found that all these channels have the proper shaped response with the markers above 80% response.

If the markers do not fall within this requirement, switch to channel 8 and readjust C9, C11, C16 and C22 as necessary. If C22 required adjustment, the adjustment should be overshot a small amount and corrected by adjustment of L52 to give maximum amplitude of response between the sound and picture carrier markers. The antenna circuit (L52, C22) is broad so that tracking is not particularly critical.

If the valley in the top of the selectivity curves for the high channels is deeper than normal, the curve can be flattened somewhat by decreasing the inductance of L44 by turning the core stud in. Be sure to check for undesirable resonant suckouts on channels 7 and 8 if this is done. In later production units, L44 may be fixed and not require adjustment.

Turn the sweep oscillator off and check the receiver channel 8 r-f oscillator frequency. If the oscillator is off frequency overshoot the adjustment of C1 and correct by adjusting L43.

Turn the receiver channel selector switch to channel 6. Adjust L5 for correct oscillator frequency.

Turn the sweep oscillator on and to channel 6 and observe the response curve. If necessary readjust L42, L45 and L49. It should not be necessary to touch C11.

Check the oscillator injection voltage at the test point. If necessary adjust C7 to give -3 volts injection. If C7 is adjusted, switch to channel 8, and readjust C9 for proper curve shape, then recheck channel 6.

Switch the receiver through channel 6 down through channel 2 and check for normal reponse curve chapes and oscillator injection voltage.

Likewise check channels 7 through 13, stopping on 13 for the next step.

With the receiver on channel 13, check the receiver oscillator frequency. Correct by adjustment of C1 if necessary.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator trimmer for the specified indication. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning control in the middle third of its range.

Channel Number	Picture Carrier Freq. Mc.	Sound Carrier Freq. Mc.	Receiver R-F Osc. Freq. Mc.	
2	55.25		80.750	L1
3	61.25	65.75	86.750	L2
4	67.25	71.75	92.750	L3
5	77.25	81.75	102.750	I 4
6	83.25		108.750	L 5
7		179.75	200.750	L 6
8		185.75	206.750	L7
9	187.25			L8
10	193.25	197.75		L 9
11		203.75		L10
12	205.25	209.75	230.750	L11
13	211.25	215.75	236.750	C1

Switch to channel 8 and observe the response.

Adjust T1 clockwise while watching the change in response. When T1 is properly adjusted, the selectivity curve will be slightly wider with a slightly deeper valley in its top.

Switch through all channels and observe response, oscillator injection and r-f oscillator frequency. Minor touch-ups of adjustments may be made at this time. However, if C7 or C9 are changed appreciably, then a recheck of the oscillator frequency on all channels should be made.

Reconnect the link from T101 to terminal 2 of the r-f unit terminal board.

Since T1 was adjusted during the r-f unit alignment it will be necessary to sweep the overall i-f response.

R-F UNIT TUBE CHANGES.—Since most of the circuits are low capacitance circuits the r-f unit may require readjustments when the tubes are changed.

If the 6CB6 r-f amplifier tube is changed, it may be necessary to readjust C16 and C22.

If the 6J6 oscillator and mixer tube is changed, then more extensive adjustments are required.

For good conversion efficiency, the oscillator injection to a triode mixer must be held reasonably close to the optimum value. Although there is some latitude in this level, it is nearly expended in the normal variation in injection from channel to channel. Consequently, the adjustment of C7 is limited primarily to establishing the conditions for good conversion. Since changes in oscillator injection affect conversion gain, it also affects the input capacity of the mixer, thus also affecting tracking of the mixer grid circuit. These tube variations with their consequent effect on circuit alignment thereby require readjustment of the r-f unit if maximum conversion efficiency is to be retained after the 6J6 tube is changed. It may be possible, however, to try several 6J6 tubes and select one which gives satisfactory performance without realignment.

SWEEP ALIGNMENT OF PIX I-F.—Set the r-f unit bias to -3.5 volts.

Connect a 47 ohm resistor across the link circuit at T101 terminals C and D.

Remove the second picture i-f tube.

With the oscilloscope connected to the r.f unit test connection and the sweep oscillator connected to the antenna terminals, set the sweep output to give 0.1 volt peak-to-peak on the oscilloscope.

Switch through the channels and select one that is essentially flat and with the two carriers at 90% response or higher. Channel 6 is usually the most desirable for this test.

Remove the 47 ohm resistor and replace V102

Connect the oscilloscope to terminal 2 of V106 socket.

Clip 330 ohm resistors across R107, R110, R115 and R119.

Connect the bias box to the junction of R102 and R103. Adjust the box for -1 volt.

Adjust the sweep oscillator output to give 0.5 volt peak-topeak on the oscilloscope.

Connect the signal generator loosely to the i-f amplifier.

Adjust T1 and T101 bottom core to obtain the response curve shown in Figure 13.

Remove the 330 ohm resistors across R107, R110, R115 and R119.

Set the i-f bias to -4.5 volts.

Adjust the sweep output to give 3 volts peak-to-peak on the oscilloscope.

Retouch T1, T101 bottom, T102 bottom, T103 bottom, T104 bottom and L102 to obtain the response curve shown in Figure 14.

Continued on Page 13.

2T51, 2T60

ALIGNMENT TABLE

THE DETAILED ALIGNMENT PROCEDURE BEGINNING ON PAGE 7 SHOULD BE READ BEFORE ALIGNMENT BY USE OF THE TABLE

STEP No.	CONNECT SIGNAL GENERATO TO	GEI	N. SWE Q. GENER	EP ATOR	SWEEP GEN. FREQ. MC.		NECT DSCOPE O	CONNECT. "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO												
				D	ISCRIMIN	ATOR AN	D SOUND	I-F ALIGNMENT															
1	2nd sound i-f ((pin 1, VII6)	grid 21.0 .1 vo outp	olt		-			Not used.		Not used.		Not used.		Not used.		Not used.		Not used.		in series with 1 meg. to pin 7 of V117	Meter on 3 volt scale	Detune Tili (bot.) Adjust Tili (top) for max. on meter	Fig. 12 Fig. 9 Fig. 8
2	88		**		_	00		Junction of R192 6 S103	Meter on 3 volt scale	Till (bottom) for zero on meter	Fig. 12 Fig. 9												
3	60		2nd sound (pin 1, V)		21.00 center l mc. wide .l v. out	6 S103		Not used	form (positive &	ical response wave- negative). If not (top) until they are	Fig. 12 Fig. 8												
4	lst sound i-f (pin, 1, VII5)	grid 21.0 re- duce outp	(pin 1, V)		21.00 reduced output	tl.00 " iuced			Sweep output re- duced to provide 1.0 volt p-to-p on scope	T110 for max. gain and symmetry at 21.00 mc.	Fig. 12 Fig. 10 Fig. 4												
			1		PICTU	RE I-F AN	D TRAP A	DJUSTMENT															
5	Not used		Not used		_	Not used		Junction of R102 6 R103	Connect bigs box to junction of R102 6 R103 and to ground	Adjust potentiom- eter for -3.0 volts on meter	Flg. 1(
6	Terminal D T101	of 21.	00 "		_	88		Pin 2 of V106 and to ground	Meter on 3 volt scale. Receiver be- tween 2 & 13	T103 (top) for min. on meter	Fig. 1 Fig. 1												
7	**	21.	00 "		—	**		88	**	T105 (top) for min.	Flg. (
8	07	27.	00 "		_	**		88	**	T102 (top) for min.													
9		27.0	00 "					88	**	T104 (top) for min.	"												
10	**	19.	50 "	0	_	50		<i>aa</i>				**		T101 (top) for min.	"								
11		24.	35 "		-675-0	**		**	**	L102 (top) for max.	"												
12	20	22	.5 "		-000-0	20 8		**		T104 (bot.) for max.	Fig.												
13	80	21.	75 "			88		20	67	T103 (bot.) for max.	"												
						R-F UNI	T ALIGNM	IENT															
STEP. No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	HETEP FREQ.	INECT IODYNE METER IO	HET. METER FREQ. MC.	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFEI												
14	receiver oscil permit measu	lator is ad arement at	sound discrim	ing in th ingtor. I at of the	e r-t sour 'n early j coil. In a	d carrier production rder to al	units in ion the r-	which 144 is adjust	table, back the L44 t be necessary to s	between lugs 1 and -f unit terminal board core all the way out et the channel 13 os	. Detu												
15	Antenna terminals	215.75 MC.	Not used			ly coupled 236.75 oscillator MC.		Junction of R192 & S103 for signal gen. method only	tered. Receiver on	meter or beat on het, freq, meter	Fig. 1 Fig.												
16			60					Connect "Volt- Ohmyst" to ter- minal 3 of the r-f unit terminal board	Turn AGC control counter-clockwise. Connect bias box to terminal 3 of r-f unit term. board	box potentiometer	Fig.												
17	Antenna terminal (loosely)	ninal 185.75 ter		Sweep- ing channe 8		used —		ed —		Not uzed —		Not uzed	to test connection unit. Adjust C9, Correct curve sho band width. C22 mox. amplitude be primarily effects ti	Connect oscilloscope at R5 on top the r-f Cl1, Cl6 and C22. type, frequency, and is adjusted to give bitween markers. C9 it and Cl6 primarily cy of response. Cl1 b band width.	Fig. 1 (8)								
	20	87.75	**	Not used		ly coupled 108.75 oscillator		Junction of R192 & S103 for signal gen. method only	Rec. on channel 6	L5 for zero on meter or beat on het, freq. meter	Fig. 1 Fig. 1 Fig. 1												
18			68	Channe 6	l Not us	•d		- be		used		used -					1.49 for proper respo	Adjust L42, L45 and onse. L42 is adjusted ade between markers. cts tilt and L49 pri- c. of response. If	Fig. 1 (6)				
I8 19		83.25 87.75							necessary, retouch	Cl1 for proper width.													
			Not used	40%+	Not us	ed	_	Connect "Volt- Ohmyst" to r-f unit test point R5	necessary, retouch Rec. on channel 6	Cll for proper width.													
19	Not used	87.75	Not used					Ohmyst" to r-f	necessary, retouch	Cll for proper width. Adjust C7 for -3.0 volts at the test	Fig. 8 Fig. 9												

ALIGNMENT TABLE

2T51, 2T60

335

AL	IGN	MENT	TĀ
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					ALIGNI	MENT 1	ABLE		2T5	1, 2T60
STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT HETERODYNE FREQ. METER	HET. FREQ. METER MC.	CONNECT "VOLTOHMYST" TO	MISCELLLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
23	Antenna terminal (loosely)	101.25 185.75	Antenna terminals (see text for precaution)	Sweeping channel ß	Nnt used		Not used	C22 for correct curv	adjust C9, C16 and e shape, frequency leadjust C11 only if	Fig. 8 Fig. 9 Fig. 15 (8)
24	00	211.25 215.75	20	Sweeping channel 13	Not used		Not used	amplitude between overshoot a little ma of turning required	Adjust L52 for max. markers and then ore than the amount to reach max. re- 22 to regain max. 150.	Fig. 9 Fig. 15 (13)
25	**	215.75	Not used	_	Loosely coupled to r-f oscillator	236.75	function of R192 & S103 for signal gen. method only	13. Adjust L43 for osc. freq. then over	l. Receiver on chan. correct channel 13 shoot. Reset the osc. adjustment of C1.	Fig. 10 Fig. 11
26	**	205.25 209.75	Antenna terminals (see text for -	channel 12	Not used		Connect "Volt- Ohmyst" to r-f unit test point at R5	Rec. on chan. 12	Check to see that response is correct and -3.0 volts of osc. injection is present	Fig. 8 Fig. 15
27		199.25 203.75	precaution)	channel	**	-	65	Rec. on chan. 11	**	Fig. 15 (11)
28	88	193.25	**	l l channel	##			Rec. on chan. 10	11	Fig. 15
29	80	197.75 187.25		10 channel	84			Rec. on chan. 9		(10) Fig. 15
		191.75		9 channel				Rec. on chan. 8		(9) Fig. 15
30		185.75		8						(8)
31	88	175.25		channel 7	**	-	20	Rec. on chan. 7	**	Fig. 15 (7)
32	to pull respon	nse up on	the low channe	el yet main	ntain correct respo	onse on cl	annel 8. lf C22 req	uired adjustment, the	I, C16 and C22 as m adjustment should be picture carrier marker	overshot
33			5			ustment of	i Ci and correct by	adjusting L43.		
34	Repeat steps	-	h 33 until all rea	quirements	1				-	
35	Antenna terminais (loosely)	87.75	Not used	_	Loosely coupled to r-f oscillator	108.75	Junction of R192 & S103 for sig. gen. method only	Rec. on chan. 6	L5 for zero on meter or beat on het. freq. meter	Fig. 10 Fig. 10
36	**	83.25 87.75	Ant. terminals (see text for precaution)	Sweeping channel 6	Not used	-	Not used		lf necessary read- 19. It should not be Cll.	Fig. 8 Fig. 9 Fig. 15
37	Not used	_	Not used		Not used	_	Connect "Volt- Ohmyst" to the r-f unit test point at R5	just C7 to give -3 justed, switch to ch	h. If necessary ad- volts. If C7 is ad- nannel 8, and read- esponse then repeat	Fig. 9 Fig. 10
38	Antenna terminals (loosely)	77.25 81.75	Ant. terminals (see text for precaution)	channel 5	60	_	20	Rec. on chan. 5	Check to see that response is correct and -3.0 volts of osc. injection is -	Fig. 15 (5)
39	**	67.25 71.75		channel 4	**	-		Rec. on chan. 4	present	Fig. 15 (9)
40	*#	61.25 65.75	**	channel 3	88	-	88	Rec. on chan. 3		Fig. 15 (3)
41	00	55.25 59.75	18	channel 2	88	—	20	Rec. on chan, 2	88	Fig. 15 (2)
42	Likewise che	ck channe	ls 7 through 13	, as outline	ed in steps 3i ba	ck throug	h 26, stopping on ch	annel 13 for next step		
43	Antenna terminals	215.75	Not used	-	Loosely coupled to r-f oscillator	236.75	Junction of R192 & S103 for sig. gen. method only	Fine tuning cen- tered. Receiver on channei 13	Cl for zero on meter or beat on het. freq. meter	Fig. 8 Fig. 10
44	**	209.75	**			230.75		Rec. on chan, 12	Lll as above	Fig. 11
45	18	203.75	**	_	44	224.75	88	Rec. on chan. 11 Rec. on chan. 10	L10 as above L9 as above	Fig. 11 Fig. 11
46 47		197.75	**		**	218.75 212.75	00 00	Rec. on chan. 10 Rec. on chan. 9	L9 as above	Fig. 11 Fig. 11
48	**	185 75	00	-		206.75	**	Rec. on chan. 8	L7 as above	Fig. 11
49	**	179.75		-		200.75	20	Rec. on chan. 7	L6 as above	Fig. 11
50	11	87.75				108.75	** **	Rec. on chan. 6 Rec. on chan. 5	L5 as above L4 as above	Fig. 11 Fig. 11
51 52		81.75	00		80	92.75	11	Rec. on chan. 4	L3 as above	Fig. 11
53	**	65.75	09	-	**	86.75	**	Rec. on chan. 3	L2 as above	Fig. 11
54	80	59.75	**	-		80.75	**	Rec. on chan. 2	Ll as above	Fig. 11
55 56	Repeat steps Antenna terminals	43 through 181.25 185.75	h 54 as a check. Antenna terminals	Sweeping channel 8	Not used	_		Rec. on chan. 8. test point. Adjust T properly adjusted, ct wider with a slig	l clockwise. When arve will be slightly	Fig. 15 (8)
						41-	jan	in top.	of adjustment	he mode
57	Switch throug	gh all cho	innels and obse	rve respon	appreciably then	a rechect	r-f oscillator freque	ncy. Minor touch-ups	of adjustments may nels should be made	be made
58									p alignment of Pix I-	

STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
				SWEEP /	LIGNMENT OF P	CTURE I-F AMPLI	FIER		
59	Loosely coupled to i-f amplifier	22.3 23.4	Antenna Ierminals	Sweeping selected channel	Terminal 2 of V106 socket	Junction of R102 and R103	Select channel known to have good r-f response. Clip 330 ohm re- sistors across R107, R110, R115, R119. Connect bias box to junction R102, R103.	Adjust bias box for -1.0 v. Set sweep to give 0.5 v. p-p on oscilloscope. Ad- just T1 and T101 for correct response.	Fig. 8 Fig. 9 Fig. 10 Fig. 13
60	pa	21.85 24.75 25.50 26.25					Remove 330 ohm resistors. Set bics box for -4.5 v.	Set sweep to give 3.0 v. p-p on oscil- loscope. Adjust TI, T101 bot., T102 bot., T103 bot., T104 bot. and L102 for de- sired response	Fig. 14

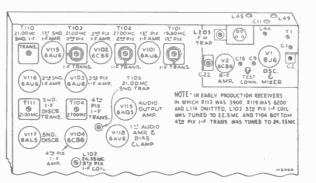


Figure 8-Top Chassis Adjustments

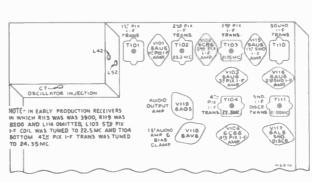


Figure 9-Bottom Chassis Adjustments

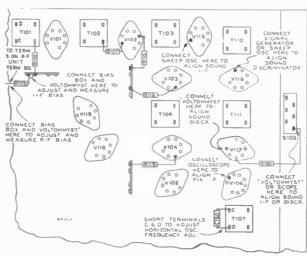


Figure 10—Test Connection Points

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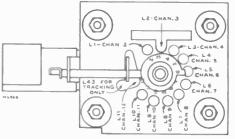


Figure 11-R-F Oscillator Adjustments

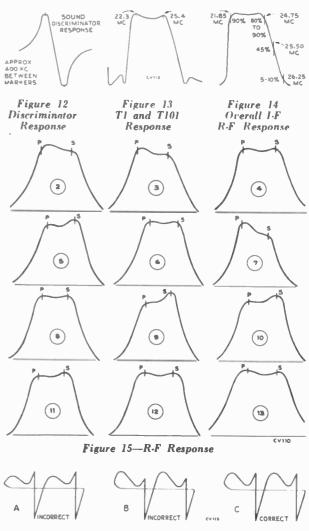


Figure 16—Horizontal Oscillator Waveforms

HORIZONTAL OSCILLATOR ADJUSTMENT .--- Normally the adjustment of the horizontal oscillator is not considered to be a part of the alignment procedure, but since the oscillator waveform adjustment requires the use of an oscilloscope, it can not be done conveniently in the field. The waveform adjustment is made at the factory and normally should not require readjustment in the field. However, the waveform adjustment should be checked whenever the receiver is aligned or whenever the horizontal oscillator operation is improper.

Horizontal Frequency Adjustment.—With a clip lead, short circuit the coil between terminals C and D of the horizontal oscillator transformer T107. Tune in a television station and sync the nicture if nossible.

A.-Turn the horizontal hold control R168 to the extreme clockwise position. Adjust the T107 Frequency Adjustment (atop the chassis) so that the picture is just out of sync and the horizontal blanking appears in the picture as a vertical bar. The position of the bar is unimportant.

B.-Turn the hold control approximately one-quarter of a turn from the extreme clockwise position and examine the width and linearity of the picture. If picture width or, linearity is incorrect, adjust the horizontal drive control C143B, the width control R178 and the linearity control L113 until the picture is correct. If C143B, R178 or L113 were adjusted, repeat step A above.

Horizontal Locking Range Adjustment.—Turn the horizontal hold control fully counter-clockwise. The picture may remain in sync. If so, turn the T107 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into svnc.

If more than 9 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C143A slightly clockwise. If less than 7 bars are present, adjust C143A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 7 to 9 bars are present.

Horizontal Oscillator Waveform Adjustment.-Remove the shorting clip from terminals C and D of T107. Turn the horizontal hold control to the extreme clockwise position. With a thin fibre screwdriver, adjust the Oscillator Waveform Adjustment Core of T107 (under the chassis) until the horizontal blanking bar appears in the center.

A.-Connect the low capacity probe of an oscilloscope to terminal C of T107. Turn the horizontal hold control one-quarter turn from the clockwise position so that the picture is in sync. The pattern on the oscilloscope should be as shown in Figure 16. Adjust the Oscillator Waveform Adjustment Core of T107 until the two peaks are at the same height. During this adjustment, the picture must be kept in sync by readjusting the hold control if necessary.

This adjustment is very important for correct operation of the circuit. If the broad peak of the wave on the oscilloscope is lower than the sharp peak, the noise immunity becomes poorer, the stabilizing effect of the tuned circuit is reduced and drift of the oscillator becomes more seroius. On the other hand, if the broad peak is higher than the sharp peak, the oscillator is overstabilized, the pull-in range becomes inadequate and the broad peak can cause double triggering of the oscillator when the hold control approaches the clockwise position.

Remove the oscilloscope upon completion of this adjustment.

Check of Horizontal Oscillator Adjustments.-Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C143A

slightly clockwise. If less than 2 bars are present, adjust C143A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Turn the horizontal hold control to the maximum clockwise position. The picture should be just out of sync to the extent that the horizontal blanking bar appears as a single vertical or diagonal bar in the picture. Adjust the T107 Frequency Adjustment until this condition is fulfilled.

SENSITIVITY CHECK .-- A comparative sensitivity check can be made by operating the receiver on a weak signal from a television station and comparing the picture and sound obtained to that obtained on other receivers under the same conditions.

This weak signal can be obtained by connecting the shop antenna to the receiver through a ladder type attenuator pad. The number of stages in the pad depends upon the signal strength available at the antenna. A sufficient number of stages should be inserted so that a somewhat less than normal contrast picture is obtained when the picture control is at the maximum clockwise position. Only carbon type resistors should be used to construct the pad.

RESPONSE CURVES.—The response curves shown on page 12 and referred to throughout the alignment procedure were taken from a production set. Although these curves are typical, some variations can be expected.

The response curves are shown in the classical manner of presentation, that is with "response up" and low frequency to the left. The manner in which they will be seen in a given test set-up will depend upon the characteristics of the oscilloscope and the sweep generator. The curves may be seen inverted and/or switched from left to right depending on the deflection polarity of the oscilloscope and the phasing of the sweep generator.

CHANGE OF I-F FREQUENCY .- Early production chassis were aligned with 21.25 mc. sound i-f and 25.75 mc. picture carrier i-f frequencies. See Television Supplement No. 2 for a discussion of i-f harmonic interference and its cure by change of i-f frequency.

NOTES ON R-F UNIT ALIGNMENT.-Because of the frequency spectrum involved and the nature of the device, many of the r-f unit leads and components are critical in some respects. Even the power supply leads form loops which couple to the tuned circuits, and if resonant at any of the frequencies involved in the performance of the tuner, may cause serious departures from the desired characteristics. In the design of the receiver these undesirable resonant loops have been shifted far enough away in frequency to allow reasonable latitude in their components and physical arrangement without being troublesome. When the r-f unit is aligned in the receiver, no trouble from resonant loops should be experienced. However, if the unit is aligned in a jig separate from the receiver, attention should be paid to insure that unwanted resonances do not exist which might present a faulty representation of r-f unit alianment.

A resonant circuit exists between the r-f tuner chassis and the outer shield box, which couples into the antenna and r-f plate circuits. The frequency of this resonance depends on the physical structure of the shield box, and the capacitance between the tuner chassis and the front plate. In the KRK8 units, this resonance should fall between 120 and 135 mc. and is controlled in the design by using insulating washers of different thicknesses (in the front plate to tuner chassis mounting) to compensate for differences in the shield boxes of different models of receivers. The performance of the tuner, particularly on channels 7 and 8 will be impaired if the proper washers for the particular shield box involved are not used. Obviously then, if the r-f unit is removed for service, the washers should be replaced in the correct order when the unit is replaced.

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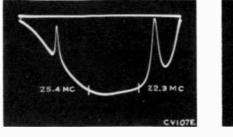
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RESPONSE CURVES— WAVEFORM PHOTOGRAPHS

PICTURE I-F RESPONSE .- At times it may be desirable to observe the individual i-f stage response. This can be achieved by the following method:

Shunt all i-f transformers and coils with a 330 ohm carbon resistor except the one whose response is to be observed.



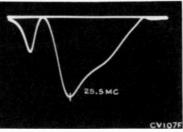
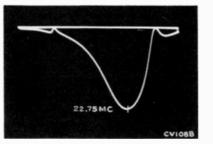
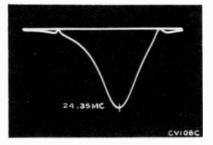


Figure 17-Response of Converter and First Pix I-F Transformer





Pix I-F Coil

Figure 20-Response of Fourth Pix I.F Transformer

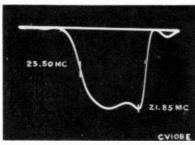
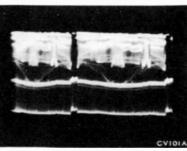


Figure 23-Overall Pix **I-F** Response



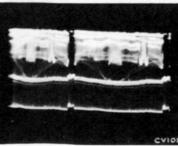


Figure 29-Horizontal (5.3 Volts PP)

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Connect a wide band sweep generator to the converter grid and adjust it to sweep from 18 mc. to 30 mc.

Connect the oscilloscope across the picture detector load resistor and observe the overall response. The response obtained will be essentially that of the unshunted stage. The effects of the various traps are also visible on the stage response.

Figure 18-Response of Second Pix I.F Transformer

Figure 21-Response of Fifth



Figure 24-Video Response at Average Contrast

Plate of Picture Detector (Pin 2 of V105) (6AL5)

Figure 26-Vertical (Oscilloscope Synced to ½ of Vertical Sweep Rate) (5.5 Volts PP)

Figure 27—Horizontal (Oscilloscope Synced to 1/2 of Horizontal Sweep Rate) (5.5 Volts PP)

> Grid of 1st Video Amplifier (Pin 2 of V106) (12AU7)

Figure 28-Vertical (5.3 Volts PP)

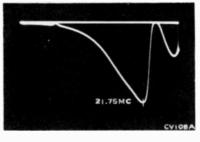


Figure 19 - Response of Third Pix I-F Transformer

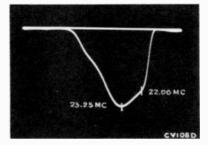


Figure 22-Response from First Pix I-F Grid to Pix Det.

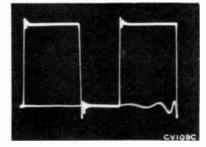
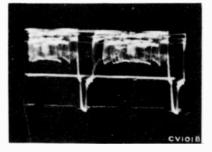
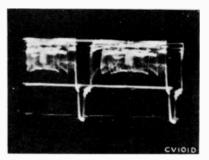
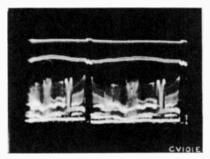
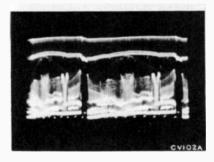


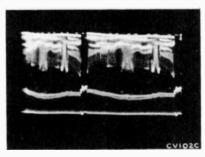
Figure 25 - Video Response (100KC Square Wave)

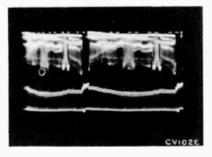


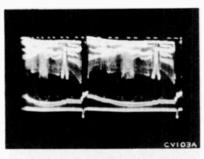


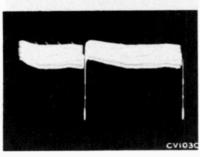












WAVEFORM PHOTOGRAPHS

Plate of 1st Video Amplifier (Pin 1 of V106) (12AU7) Voltages depend on setting of Pix control

Figure 30–Vertical (2-18 Volts PP)

Figure 31—Horizontal (2-18 Volts PP)

Grid of 2nd Video Amplifier (Pin 7 of V106) (12AU7)

Voltages depend on setting of Pix control

Figure 32—Vertical (2-18 Volts PP)

Figure 33—Horizontal (2.18 Volts PP)

Plate of 2nd Video Amplifier (Picture Max.) (Pin 6 of V106) (12AU7) Voltages depend on setting of Pix control

Figure 34.—Vertical (15.90 Volts PP)

Figure 35—Horizontal (15.90 Volts PP)

Input to Kinescope (Junction of R121 and C192) (Picture Max.) Voltages depend on setting of Pix control

Figure 36—Vertical (15.90 Volts PP)

Figure 37,—Horizontal (15.90 Volts PP)

Cathode of D-C Restorer (Pin 3 of V107A) (12AU7) Voltages depend on setting of Pix control

Figure 38-Vertical (11-80 Volts PP)

Figure 39—Horizontal (11-80Volts PP)

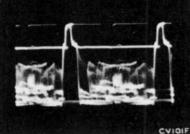
Grid of D-C Restorer (Pin 2 of V107A) (12AU7) Voltages depend on setting of Pix control

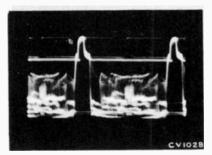
Figure 40-Vertical (0.4-7.5 Volts PP)

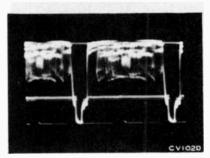
Figure 41—Horizontal (0.4-7.5 Volts PP)

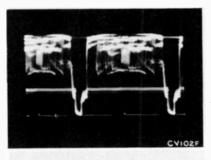
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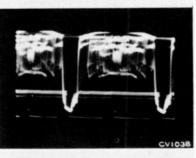


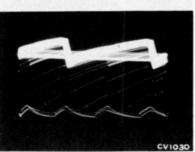




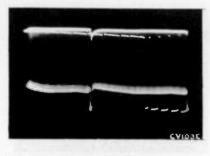


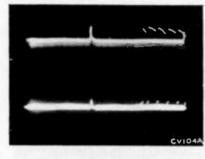


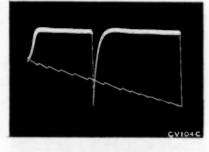


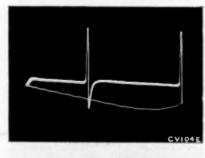


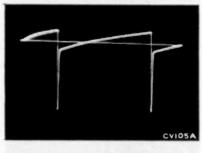
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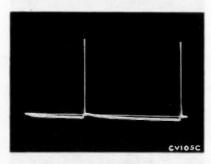












WAVEFORM PHOTOGRAPHS

Grid of Sync Separator (Pin 7 of V107B) (12AU7) Voltages depend on setting of Pix control

Figure 42-Vertical (2.5-16 Volts PP)

Figure 43—Horizontal (2.5-16 Volts PP)

Plate of Sync Separator (Pin 6 of V107B) (12AU7) Voltages depend on setting of Pix control

Figure 44—Vertical (18-22 Volts PP)

Figure 45—Horizontal (18-22 Volts PP)

Cathode of Sync Separator (Pin 8 of V107B) (12AU7) Voltages depend on setting of Pix control

Figure 46-Vertical (0.2-1.2 Volts PP)

Figure 47—Horizontal (0.2-1.2 Volts PP)

Figure 48—Output of Integrating Network (Junction of Cl39, Cl40 and Rl47) (8.5 Volts PP)

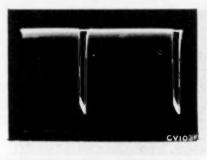
Figure 49—Grid of Vertical Oscillator (75 Volts PP) (Pin 1 of V109) (6AV6)

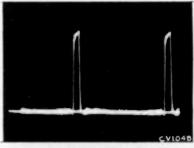
Figure 50-Grid of Vertical Output (90 Volts PP) (Pin 1 of V110) (6AQ5)

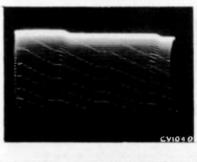
Figure 51—Plate of Vertical Output (600 Volts PP) (Pin 5 of V110) (6AQ5)

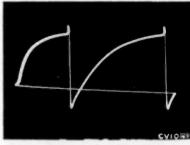
Figure 52-Junction of C159, C179 and R202 (275 Volts PP)

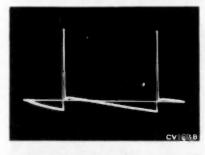
Figure 53—Input of Vertical Deflection Coils (20 Volts PP) (Junction of Green Lead of T106 and Green Lead of Yoke)

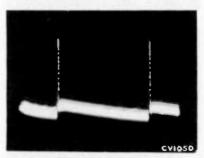


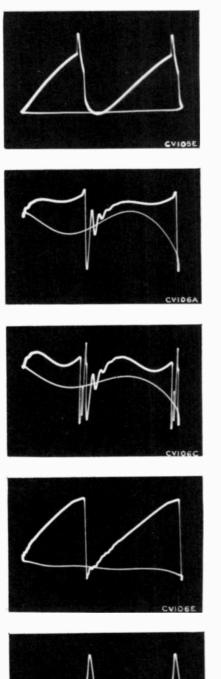


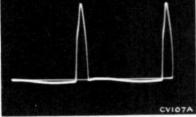


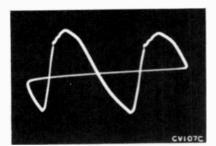












WAVEFORM PHOTOGRAPHS

Figure 54—Grid of Horizontal Oscillator Control (27 Volts PP) (Pin 1 of V111) (6SN7GT)

Figure 55—Cathode of Horizontal Oscillator Control (1.0 Volts PP) (Pin 3 of V111) (6SN7GT)

Figure 56—Junction of R163, R164 and R170 (70 Volts PP)

Figure 57 Grid of Horizontal Oscillator (290 Volts PP) (Pin 4 of V111) (6SN7GT)

Figure 58--Plate of Horizontal Oscillator (150 Volts PP) (Pin 5 of V111) (6SN7GT)

Figure 59—Terminal "C" of T107 (100 Volts PP)

Figure 60—Input to Horizontal Output Tube (60-80 Volts PP) Depends on setting of drive control (Junction of C152 and C143B)

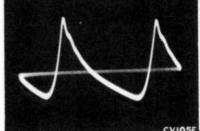
Figure 61—Plate of Horizontal ()utput (Approx. 5000 Volts PP) (Measured Through a Capacity Voltage Divider Connected from Top Cap of V112 to Ground)

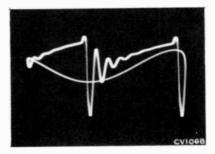
Figure 62 Cathode of Damper (2100-2700 Volts PP) Depends on setting of width control (Pin 3 of V114) (6W4GT)

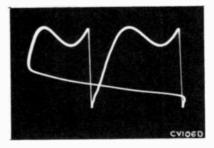
Figure 63—Plate of Damper (90-130 Volts PP) Depends on setting of width control (Pin 5 of V114) (6W4GT)

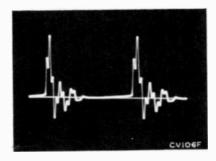
Figure 64—Junction of Yoke and Width Control (80-145 Volts PP) Depends on setting of width control

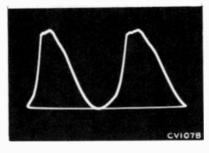
Figure 65-Voltage Across Width Control (0.85 Volts PP) Depends on setting of width control

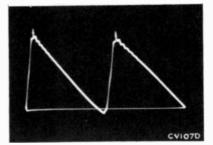












2T51, 2T60

VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition, a 2500 microvolt test pattern signal was fed into the receiver, the picture synchronized and the AGC control properly adjusted. The second condition was obtained by removing the antenna leads and short circuiting the receiver antenna terminals. Voltages shown are read with a "Senior VoltOhmyst" type WV97A between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles, a-c. The symbol < means less than.

				E.	Plate	E. S	creen	E. Co	zthode	E	. Grid			
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	I Plate (ma.)	I Screen (ma.)	Notes on Measurements
V 1	6]6	Mixer	2500 Mu. V. Signal	2	135	_	_	7	0	5	-3.25	7.4		
	.,.		No Signal	2	130	_		7	0	5	-3,1	7.1		
		R-F	2500 Mu. V.					7	0	6				p
<u>V1</u>	6]6	Oscillator	Signal No Signal	1	119			7	0	6	*-4.16 *-2.37	4.83		*Depending upon channel
10		R-F	2500 Mu. V.		040	6	173	2	<0.1	1				
V2	6AG5	Amplifier	Signal No Signal	5	243 197	6	113	2	0,28		-4.45	8.6	2.35	
V101	6AU6	lst Pix. I-F Amplifier	2500 Mu. V.	5	205	6	232	7	0.15	1	-5.8	1.32	0.52	•
VIUI	6AU6	Ampuner	Signal No Signal	5	112	6	152	7	1.0	1		6.8	2.8	
V102	6CB6	2nd Pix. I-F Amplifier	2500 Mu. V. Signal	5	192	6	205	2	0.5	1	5.8	4.4	0.8	
			No Signal	5	118	6	122	2	1.38	1	0.6	9.8	2.5	
V103	6AU6	3d Pix. I-F Amplifier	2500 Mu. V. Signal	5	190	6	228	7	0.2	1	0.6	1.28	0.55	
			No Signal	5	85	6	145	7	1.8	1	0	6.5	2.98	
V104	6CB6	4th Pix. I-F Amplifier	2500 Mu. V. Signal	5	159	6	148	2	1.8	1	0	9,3	2.7	
			No Signal	5	166	6	143	2	1.62	1	0	0.42	2.4	
V105	6AL5	Picture 2d Det.	2500 Mu. V. Signal	2	-2.3			5	0			8.2		
			No Signal	2	0.52			5	0		<u> </u>	<0.1		
V105	6AL5	AGC Rectifier	2500 Mu, V. Signal	7	-9.0	amagu		1	0			0.12		
			No Signal	7	-2,45	_	_	1	0		-	<0.1		
V106	12AU7	lst Video Amplifier	2500 Mu. V. Signal	1	100	_	_	3	1.0	2	-2.4	3.8	_	At maximum
			No Signal	1	48	-	_	3	0.7	2	0.38	2.7	_	contrast
			2500 Mu, V. Signal	1	180	_	-	3	9.1	2	-2.9	0.69		At minimum
			No Signal	1	100		_	3	5.9	2	0.38	0.6		contrast
V106	12AU7	2d Video Amplifier	2500 Mu. V. Signal	6	221			8	1.68	7	-6.2	7.5		At maximum
			No Signal	6	191	_	<u>/</u>	8	2.6	7	-1.0	11.1	_	contrast
			2500 Mu. V. Signal	6	189	-		8	2.75	7	-2.6	12.5	_	At minimum
			No Signal	6	188		_	8	2.69	7	0.4	12.3	_	contrast
V107 Ā	12AU7	D-C Rest. & Sync Sep.	2500 Mu. V. Signal	1	4.6		_	3	48.0	2	-6.2	<0.1		At maximum
			No Signal	1	2.8	_		3	4.6	2	0.3	<0.1		contrast

VOLTAGE CHART

Tube	Tube		Omerating	E.	Plate	E. S	creen	E. C	Cathode	E	. Grid	I		Notes on
No.	Туре	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	I Screen (ma.)	Notes on Measurements
V107 B	12AU7	Snyc Sep. & Amplifier	2500 Mu. V. Signal	6	44.1			8	5.9	7	5.69	2.47	_	
			No Signal	6	42.8	_		8	6.1	7	6.1	2.58		
V108	12LP4	Kinescope	2500 Mu. V. Signal	Сар	•10,000	10	405	11	69	2	34	0.075		* Average Brightness
			No Signal	Сар	*10,000	10	405	11	40	2	9.5	0.04		*Average Brightness
V109	6AV6	Vertical Oscillator	2500 Mu. V. Signal	7	93	14-070		2	0	1	-11.2	0.15		
			No Signal	7	93			2	0	1	-11.1	0.15		
V110	6AQ5	Vertical Output	2500 Mu. V. Signal	5	250	6	250	2	19.0	1	0	13.9	1.20	
	00217		No Signal	5	248	6	248	2	18.8	1	0	13.8	1.20	
V 111	6SN7 GT	Horizontal Osc. Control	2500 Mu. V. Signal No	2	185	_		3	25.0	1	-2.0	.33		
	6SN7	Horizontal	No Signal 2500 Mu. V.	2	181			3	16.3	1	-2.9	.31		
V 111	GT	Oscillator	2500 Mu. V. Signal No	5	161			6	0	4	-53	1.35		
			Signal	5	158	_		6	0	4	-54	1.35		
V112	6AU5 GT	Horizontal Output	2500 Mu. V. Signal	5	•440	8	189	3	19.0	1	-8.0	77.0	11.2	*5000 volt
			No Signal	5	•435	8	185	3	18.6	1	-7.4	75.0	11.0	pulse present
V113	1B3GT /8016	H. V. Rectifier	Brightness Min.	Сар	٠			2&7	•10,100			0.075		*10,100 volt
			Brightness Average	Сар		_	—	2 & 7	•10,100			0.040	_	pulse present
V114	6W4 GT	Damper	2500 Mu. V. Signal	5	269	_	_	3	•430	_		88		*3000 volt
			No Signal	5	264	_	_	3	•429			87		pulse present
V115	6AU6	lst Sound I-F. Amp.	2500 Mu. V. Signal	5	234	6	168	7	0.98	1	0	8.1	3.24	
			No Signal	5	231	6	165	7	0.95	1	0	7.9	3.30	
V116	6AU6	2d Sound I-F Amp.	2500 Mu. V. Signal	5	200	6	73	7	0	1	-0.45	3.73	1.37	
			No Signal	5	198	6	75	7	0	1	-0.53	3.64	1.28	
V117	6AL5	Sound Discrim.	2500 Mu. V. Signal	2	-0.6			5	0.1		_	_		
			No Signal	2	-1.52	_	_	5	1.5			•		
V118	6A V 6	lst Audio Amplifier	2500 Mu. V. Signal	7	96	<u>_</u>		2	0	1	-0.87	0.54		
			No Signal	7	95	_		2	0	1	-0.86	0.52	_	
7119	6AQ5	Audio Output	2500 Mu. V. Signal	5	257	6	271	2	19.8	7	0	28.5	1.97	
			No Signal	5	251	6	268	2	19.2	7	0	28.2	1.92	
SR101		Rectifier	2500 Mu. V. Signal		0		200		141		_	226		
,		1100111101	No Signal		0				141			245		
SR 102		Rectifier	2500 Mu. V. Signal	_	141		a		282			243		
		Nacanal	No Signal	_	141		Auronto Nationalia		280	_		245		

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R-F UNIT WIRING DIAGRAM

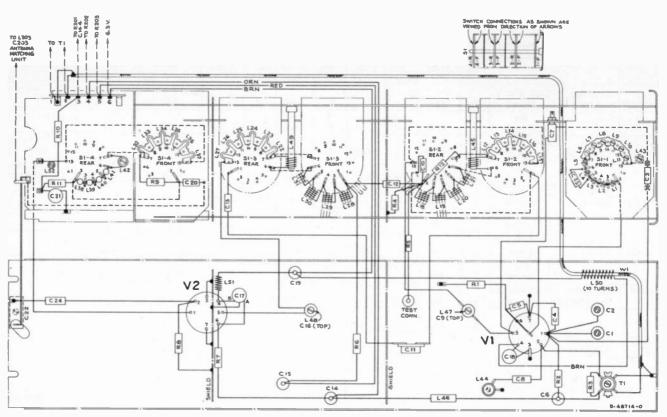


Figure 66-R-F Unit Wiring Diagram

CRITICAL LEAD DRESS:

- All leads in the picture and sound i-f circuits must be dressed as short and direct as possible with the exception of C107, C11 and C117 which are to be dressed with enough slack so as not to have to move the body of the capacitor to align that particular stage.
- 2. Dress the yellow lead from pin 3 of V106 socket up in the air and away from V105 socket.
- 3. Dress all components connected to V106 socket up and away from the chassis except L103.
- Keep the body and coded end of L103 as close to pin 2 of V105 socket as possible.
- Keep the bus from pin 5 of V105 socket to L102 as short as possible and employ sleeving to prevent shorting.
- Dress the red lead from kinescope socket away from V105 and V106 sockets and on power transformer side of terminal boards.
- 7. Dress the yellow lead from the kinescope socket along the rear apron between T107 and V111 socket, up between V107 socket and the power transformer to the terminal board.
- The green lead from the kinescope socket should be dressed away from all other leads and components and away from V106.
- 9. Pin 7 of V116 socket should be soldered to the chassis as short as possible.
- Dress fuse in high voltage compartment so as not to short circuit to ground.
- Dress the two filament leads away from the T108 high voltage winding by pulling them up through hole so as to have all slack on the transformer side of the insulating board.

- 12. Keep V113 filament leads away from the metal side of the high voltage compartment shield.
- 13. Dress C158 on high voltage rectifier socket so as to keep the hot end of the capacitor away from the metal side of the high voltage compartment.
- 14. Keep all leads away from R177 for heat reasons.
- 15. Dress R210 and R211 away from all components on account of their heat.
- Dress AC leads at S102 away from audio components on R194.
- 17. Clamp W105 in cable lance provided on rear apron.
- 18. Keep leads on C182 and C183 as short as possible.
- 19. Keep C133 dressed above leads.
- 20. Dress the body of C131 away from the chassis.
- 21. Keep C150 dressed away from the chassis.
- 22. Dress the orange lead from C160-C on the power transformer side of the terminal boards and around the rear apron side of V106 socket.
- Dress the body of R119 as close to pin 5 on V104 socket as possible.
- Dress the body of R124 as close to pin 2 on V105 socket as possible.
- Keep the leads of C122 and C125 as short and direct as possible.
- 26. Keep the leads of C126 as short as possible.
- 27. Dress the leads of the AGC switch S105 next to the base in the chassis and away from sound components.
- Solder terminal on can of C160 to bracket along with C134.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES	75176	Screw—#4-40 x %" fillister head screw for adju- ing L5
	KRK9	75177	Screw-#4-40 x 5/16" fillister head screw for adjus
10705	Ball-Steel ball for detent (%2 dia.)	a.c.a.	ing L1, L2, L3, L4, L43
75188	Board—Terminal board, 5 contact and ground	74575	Screw—#4.40 x .359" adjusting screw for L42
75067	Bracket—Vertical bracket for holding oscillator tube shield	73640	Screw $-$ #4-40 x $\frac{7}{16}$ " adjusting screw for L52
75201	Cable—75 ohms, coax cable (71/4") complete with	75159	Shaft—Channel selector shaft and plate
	coil (W1, L50)		Shaft—Fine tuning shaft and cam Shield—Oscillator and convertor sections shield f
75186	Capacitor—Ceramic, variable, for fine tuning— plunger type (C2)	75168	r-f unit—snap-on type
75289	Capacitor-Ceramic, 4 mmf., ±0.5 mmf. (C4)	75193	
75189	Capacitor—Adjustable, 7-30 mmf. (C22)	75192	
75200	Capacitor—Ceramic, 12 mmf. (C24)	75088	Socket—Tube socket, 7 contact, miniature, cerami saddle mounted
45465	Capacitor—Ceramic, 15 mmf. (C3)	75191	Spacer—Insulating spacer for front plate (4 req
75196	Capacitor—Ceramic, 39 mmf. (C5)	75163	Spring-Friction spring (formed) for fine tuning ca
75174	Capacitor—Ceramic, trimmer, 50-75 mmf. (C11)	75068	Spring-Retaining spring for oscillator tube shie
75199	Capacitor-Ceramic, 270 mmf. (C12, C13, C20)	74578	Spring-Retaining spring for adjusting screws
75641	Capacitor—Ceramic, 390 mmf. (C10)	73457	Spring-Return spring for tuning control
75166	Capacitor—Ceramic, 1500 mmf. (C6, C14, 15, C19)	30340	Spring-Hair pin spring for fine tuning link
75089	Capacitor—Ceramic, dual, 1500 mmf. (C17A, C17B)	75175	
73748	Capacitor-Ceramic, 1500 mmf. (C18)	/01/0	segment, coils, adjusting screws and capacito
73473	Capacitor—Ceramic, 5000 mmf. (C21)		C3, and C23 (S1-1, C3, C23, L1, L2, L3, L4, L5, 1 L7, L8, L9, L10, L11, L43)
75172	Capacitor—Tubular, steatite, adjustable, 0.8-1.4 mmf. (C7)	75178	Stator—Convertor stator complete with rotor, coi
71504	CapacitorCeramic, 0.68 mmf. (C23)		capacitors (C10 and C12) and resistors. (R4 and R5) (S1-2, C10, C12, L12, L13, L14, L15, L16, L1
75184	Capacitor—Ceramic, adjustable, 0.75-4 mmf., com-		L18, L19, L20, L21, L45, R4, R5, R12)
	plete with adjusting stud (C1)	75179	Stator—R-F amplifier stator complete with rota coils, capacitor (C13) and resistor (R6) (S1-3, C1
75197	Capacitor—Ceramic, 6.8 mmf. (C8)		L22, L23, L24, L25, L26, L27, L28, L29, L30, L3
75167	Clip—Tubular clip for mounting stand-off capacitors		L49, R6)
75182	Coil—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw adjust- ment) for convertor section (C9, L47)	75180	Stator—Antenna stator complete with rotor, coi capacitors (C20 and C21) and resistors (R9, R1 R11) (S-4, C20, C21, L32, L33, L34, L35, L36, L3 L38, L39, L40, L41, L42, L52, R9, R10, R11)
75183	Coil—Trimmer coil (3 turns) with adjustable inductance core and capacitor stud (screw adjust-	75169	
	ment) for r-f section (L48, C16)	75170	
75185	CoilConvertor plate loading coil (L44)	75171	
75202	Coil-Choke coil .56 muh (L46)	/51/1	less trimmer C7
73477	Coil-Choke coil (L51)	75173	Stud-#6-32 x ¹³ /16" adjusting stud for C7 trimm
75187	Core—Adjustable core for fine tuning capacitor C2	75446	Stud-Capacitor stud-brass-#4-40 x ¹³ /16" wi
75162	Detent-Detent mechanism and fibre shaft		³ / ₁₄ " screw driver slot for trimmer coils L47, L
73453	Form-Coil form for L45 and L49	75447	and capacitor Cl uncoded and coded "ER" Stud Capacitor stud brass #4.40 x 134a" wi
75165	Link—Link assembly for fine tuning	75447	$\frac{3}{64}$ " screw driver slot for trimmer coils L47, L
14343	Retainer—Fine tuning shaft retaining ring		and capacitor C1 coded numerically and "Hi (
	Resistor—Fixed, composition:	75181	Transformer—Convertor transformer
	27 ohms, ±10%, ½ watt (R8)	75190	Washer—Insulating washer (neoprene) for capacit
	150 ohms, ±20%, ½ watt (R10)		C7
	3300 ohms, ±10%, ½ watt (R6)	73466	Washer—Insulating washer (round)
	3900 ohms, ±10%, ½ watt (R9, R11)		CHASSIS ASSEMBLIES
	8200 ohms, ±10%, ½ watt (R12)		KCS 45-Model 2T51
	10,000 ohms, ±5%, ½ watt (R3)		KCS45A-Model 2T60
	10,000 ohms, $\pm 20\%$, $\frac{1}{2}$ writt (R2)	75235	Board-Hi-voltage shield terminal board (3 contact
	22.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R7)	75228	Bracket—Focus magnet mounting bracket—upper
	100,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R1, R4, R5)	75229	Bracket—Focus magnet mounting bracket—lower Bracket—Kinescope mounting bracket—on fro
75164		75217	apron of chassis Capacitor—Mica trimmer, dual, 10-160 mmf. (C143.
			· · · · · · · · · · · · · · · · · · ·

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REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
75450 74726	Capacitor—Ceramic, 39 mmf. (C203) Capacitor—Mica, 39 mmf. (C135)	73596	Capacitor—Tubular, moulded paper, oil imp nated, .033 mfd., 1000 volts (C156)
71924	Capacitor—Ceramic, 56 mmf. (C135)	73553	Capacitor—Tubular, paper, oil impregnated,
75247	Capacitor—Mica, 75 mmf. (C144)	75071	mfd., 400 volts (C145, C192) Capacitor—Tubular, moulded paper, .047 mfd.,
75437	Capacitor—Ceramic, 100 mmf. (C202)	,	volts (C163, C164)
45469	Capacitor—Ceramic, 100 mmf. (C119)	73592	Capacitor—Tubular, paper, oil impregnated, míd., 600 volts (C141)
39396	Capacitor—Ceramic, 100 mmf. (C125)	73597	Capacitor—Tubular, paper, oil impregnated,
75248	Capacitor—Mica, 220 mmf. (C149)		mfd., 1000 volts (C123, C154)
75244	Capacitor—Ceramic, 270 mmf. (C172)	73551	Capacitor—Tubular, paper, oil impregnated, mfd., 400 volts (C131, C133, C134, C146, C18
73091	Capacitor-Mica, 270 mmf. (C107, C111, C117, C122)	73557	Capacitor—Tubular, paper, oil impregnated,
73094	CapacitorMica, 390 mmf. (C188)	73560	mfd., 600 volts (C142) Congritor Tubular names oil imprograted
74250	Capacitor—Mica, 560 mmf. (C152)	/3360	Capacitor—Tubular, paper, oil impregnated, míd., 200 volts (C153)
75166	Capacitor—Ceramic, 1500 mmf. (C166, C168, C190, C191)	73787	Capacitor—Tubular, paper, oil impregnated, mid., 200 volts (C136, C148, C187)
75089	Capacitor—Ceramic, dual, 1500 mmf. (C102A, C102B, C108A, C108B, C112A, C112B, C121A, C121B)	73154	Choke-Filter for KCS45 (L114)
73748	Capacitor—Ceramic, 1500 mmf. (C103, C104, C115, C116, C124, C128, C165, C184, C185, C186)	75224	Clip—Mounting clip for electrolytic #75220 Clip—Tubular clip for mounting stand-off capa #75166
73473 75877	Capacitor—Ceramic, 5000 mmf. (C182, C183, C189) Capacitor—Ceramic, dual, 10,000 mmf. (C105Å,	75210	Coil—Fifth pix, i-f coil complete with adjust core (L102)
/00//	C105B, C110A, C110B)	71449	Coil—Horizontal linearity coil (L113)
73960	Capacitor—Ceramic, 10,000 mmf. (C194, C195, C197)	73591	Coil—Antenna matching coil (2 req'd) (Part of 1
73747	Capacitor—Electrolytic, 2 mfd., 50 volts (C127)	75241	Coil—Antenna shunt coil (L202)
75218		73477	Coil—Filament choke coil (L101, L115)
	mfd., 350 volts, 1 section of 5 mfd., 350 volts, and 1 section of 150 mfd., 50 volts (C132A, C132B,	71793	Coil—Peaking coil (36 muh) (L107)
	C132C)	75299	Coil—Peaking coil (36 muh) (L103)
75219	* * * *	76011	Coil—Peaking coil—(36 muh) (L116)
	mfd., 450 volts. 1 section of 100 mfd., 350 volts. 1 section of 10 mfd., 350 volts, and 1 section of	75253	Coil—Peaking coil (120 muh) (L104, L108)
	20 mfd., 25 volts (C160A, C160B, C160C, C160D)	75252	Coil—Peaking coil (500 muh) (L106)
75220	Capacitor—Electrolytic, 150 mfd., 200 volts (C161, C162)	35787	Connector—Single contact phono input conne (J102)
75250	CapacitorTubular, moulded paper, mineral oil im- pregnated, .00025 mid., 12,500 volts (C158)	74594	cable
73801	Capacitor—Tubular, paper, oil impregnated, .001 mfd., 600 volts (C140)	38853	tenna transformer (J200)
75249	Capacitor—Tubular, moulded paper, oil impreg- nated, .001 mid., 600 volts (C151)		Connector—4 contact female connector for spe cable for KCS45A-(P101)
75344		71789	
73598		5119	cable for KCS45 (P101)
73595		75215	Control—Horizontal and vertical hold control (F R168)
73795	mfd., 600 volts (C137, C173, C193) Capacitor—Tubular, paper, oil impregnated, .0033	75216	Control—Picture and brightness control (R129, I Control—Vertical linearity control (R157)
	míd., 600 volts (C178)	71440	Control—Height control (R153)
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 600 volts (C138, C139, C174, C179)	74945	Control-Width control (R178)
73561		75237	ControlVolume control and power switch (I S102)
73594		71498	Core—Adjustable core and stud for F.M. #75449 (part of Transformer #75214)
74727		72772	Cover—Insulating cover for electrolytic #7522 Cushion—Rubber cushion for deflection yoke
73562		74839	(2 req'd) Fastener—Push fastener to mount ceramic
73798		73600	socket (2 req'd) Fuse-0.25 amp; 250 volts (F101)
75345		37396	Grommet—Rubber grommet for mounting cer tube socket (2 req'd)

DESCRIPTION

	REPLACEMENT	PARTS	(Continued)
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351

2T51, 2T60

2T51, 2T60

352

add b, b, b, d,	STOCK DESCRIPTION	DESCRIPTION STOCK No.	DESCRIPTION
Approx - Apple			lact male connector for antenna
$ \begin{array}{c} 1,100 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	75205 Magnet—Focus magnet comp	-Sound discriminator transformer (T111, 75474 Connector-Single	contact male connector for an-
make display T202 Part-Balary gold is mostly as a stategy of ne (0) 1900 dial. ac 20%, were difful Part Balary gold is mostly as a stategy of ne (0) 1900 dial. ac 20%, were difful Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly part Balary gold is mostly part Balary gold is mostly as a stategy of ne (0) Part Balary gold is mostly		lennd interconne	ecting cable (2 req'd)
		/Hu/ Cold_Fower cold	
		h antenna connector if and FM trans	
and the transformation of the transformation of transformat			Sushion for back of safety glass
$ \frac{1}{100} 1$	75147 Plate—Hi-voltage transformer m lite) complete with tube soc	—Antenna matching transformer com- 75471 Cushion—Rubber a	cushion for front of safety glass
$ \frac{2}{2200} \qquad (3.6) = \sqrt{2} + \sqrt{2} +$			
mat. go van (16.7) mat. van (16.7)	#75220	D2, C203, J200, L200, L201, L202, L203) 75479 Decal—Control fun- nut instruments (action decal for mahogany or wal-
$ \begin{array}{c} \begin{tikzpic} matrix matrix$		-Hi-voltage transformer (T108) 75480 Decal-Control fun	nction decal for oak instruments
$ \begin{array}{c} 1^{2} \text{ chas} - 250^{2}, the second rank stars of a second rank stars of ra rank stars of rank stars of$		d trap (T105, C120) (Model 2T60)	
International Log Visit (C14) C147 International L100 Visit (C14) Visit (C14) C147 International L100 Visit (C14) Visit (-		ction decal (Model 2T51)
Calas—Tables, tor K.254 (L10) (10 0 Ahm. 210%, tor well R028, 1000)		74009 Emblem - ACA VI	
110 0.000 1.0000 1.0000 1.0000 1.0000 1.0000 0.000 <	100 ohms, ±20%, ½ watt (R20	(202) / /5499 Escutcheon-Chann	nel marker escutcheon-dark-
Disputsion Disputsion <thdisputsion< th=""> Disputsion Disputsi</thdisputsion<>	120 ohms, ±10%, ½ watt (R1	alated tubing for kinescope straps	r walnut instruments (Model 2T60) ments (Model 2T51)
$ \begin{array}{c} c_{ab} - c_{bb} \ c_{b$		75501 Provide and Charles	nel marker escutcheon—light—
Conserve (LD2) 1.1 megalim. ±10%, 1 werd (R16) 1.1 megalim. ±10%, 1 werd (R16) 1.1 megalim. ±10%, 1 werd (R16) 7.88 Clause 7.88		cition yoke (L103, L110, L111, L112, for ork instrume)	nts (Model 2T60)
CadMonsen Linearity out $[1,10]$ ($1,10$, $1,00$, $1,100$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,00$, $1,00$ ($1,100$, $1,000$ ($1,100$, $1,000$ </td <td></td> <td>75478 Glass—Safety glass</td> <td></td>		75478 Glass—Safety glass	
Cull-Ansame and thinking wald (2 my/d) Part of 1200 121 morphin, ±10%, if wend (115) 2.1 morphin, ±10%, if wend (115) 2.1 morphin, ±10%, if wend (115) 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 7418 Cana-Ansame and thinking wald (2 my/d) Part of 1200 </td <td></td> <td>fortoo Giuss Guery gius</td> <td></td>		fortoo Giuss Guery gius	
Cold-Amazon askur edit (202) 1000 chms. 2:0%, 14 wett (113) 1100 chms. 2:1%, 14 wett (113) 110 msplan. 2:0%, 14 wett (113) 110 msplan. 2:0%, 14 wett (113) 7411 Commetter and the connector for speaker 74111 Commetter and t		74555 KHOD-TINE TUNING	control knob-maroon-for ma-
Call—Planes the set 100 , 1150 R.158, R.15, R.10 1.59 , R.15, R.10 1.59 , R.15, R.10 1.50 , R.10, R.103 7410 Consector -3 contect note contects for specker 7410 Consector -3 contect note contect for contect for specker 7410			nut instruments (Model 2T60) or nts (Model 2T51) (outer)
Cold—Pecking oil (05 mub) (L107)Cold—Pecking oil (05 mub) (L105)Cold—Pecking oil (05 mub) (L105)Cold—Pecking oil (05 mub) (L105)Cold—Pecking oil (05 mub) (L105)Cold—Pecking oil (16	R159, R185, R216)		control knob-beige-for oak in-
Call—Peaking out (150 muk) (110)Call—Peaking out (25 muk) (110)Call—Peaking out (25 muk) (110)Call—Peaking out (25 muk) (110)Call—Peaking out (25 muk) (110)Call—Peaking out (110) <th< td=""><td></td><td>struments (outer)</td><td>(Model 2T60)</td></th<>		struments (outer)	(Model 2T60)
Call-Peaking coll-06 mah (116)7508Specker- S^* r T M specker complete with core and head scaw for complete scale complete with core and head scaw for complete scale complete with core and head scaw for complete scale complete with core and head scaw for complete scale complete with core and head scaw for complete scale complete scale complete with core and head scaw for complete scale complete complete scale complete complete scale complete compl		ker grille cloth 74960 Knob-Channel se	elector knob-maroon-for ma-
$ \begin{array}{c} \ \ \ \ \ \ \ \ \ \ \ \ \ $		x / LM speaker complete with cone	nut instruments (Model 2T60) or hts (Model 2T51) (inner)
4700 ohms, $\pm 10\%$, 4 word (R107) 4700 ohms, $\pm 10\%$, 4 word (R117) 74602 $5rew - 21632$, 14% cross rescales droub laced 71413 Transforms - Output transforms (T112) 74622 $5rew - 21632$, 14% cross rescales droub laced 6000 ohms, $\pm 10\%$, 1 word (R110) 75023 $5rew - 21632$, 14% cross rescales droub laced 71413 Transforms - Output transforms (T112) 74622 6000 ohms, $\pm 10\%$, 1 word (R112) 75023 $5rew - 21632$, 14% cross rescale droub laced 71413 Transforms - Output transforms (T112) 74622 6000 ohms, $\pm 10\%$, 1 word (R112) 75023 $5rew - 21632$, 14% cross rescale droub laced 71413 Transforms - Output transforms (T112) 74622 6000 ohms, $\pm 10\%$, 1 word (R112) 75223 $5rew - 21632$, 14% cross rescale droub laced 71413 Transforms - Output transforms (T112) 74622 6000 ohms, $\pm 10\%$, 1 word (R112) 75223 $5rew - 21632$, 14% cross rescale droub 71413 71413 71413 6000 ohms, $\pm 10\%$, 1 word (R112) 75223 $5rew - 21632$, 14% cross rescale droub 71413 <td></td> <td>cou (3.2 onms) less output transformer 75462 Knob—Channel sel</td> <td>lector knob-beige-for oak in-</td>		cou (3.2 onms) less output transformer 75462 Knob—Channel sel	lector knob-beige-for oak in-
$d_{100} = d_{100} $		Struments (inner)	(Model 2T60)
$ \begin{array}{ $	4700 ohms, ±10%, 1 watt (R111	74962 Knob-Brightness of	control or vertical hold control for mahogany instruments (Model
Conscion-2 contact male connector for power cableSolid Amb $\pm 10\%$, 1 wort (R181)7354Shield-Tube shield for V104 and V116RRRSolidThe SolidThe So			instruments (Model 2T51) (outer)
Consider 7522 Shield—R ² unit hield 7522		75463 Knob-Brightness of	control or vertical hold control
Connector—4 contact female connector for an- tenant transformer (2000) $5600 \ hmm, \pm 25\%, 4y \ wortt (R107)$ $7522 \ Socket—Tube socket, ctal, ceramic, plote mounted(7311)7502 \ Con—Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Con=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Con=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Con=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cole coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (2, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7602 \ Cone=Cone conplete with cone coll (7, 0, hmm)(7602)7$		knob-beige-for	r oak instruments (outer) (Model
Tennel transformer (2000)8200 ohms, ±10%, ½ wott (R107)73117Socket-Tube socket, 7 pin, mindture75024Cone-Cone complete with voice coll (3.2 ohma)marcon-M(dode 275)Consetor-Ancde connector for specker9200 ohms, ±10%, ½ wott (R140)75223Socket-Tube socket, 9 pin, mindture5703Cone-Cone complete with voice coll (3.2 ohma)7403Consetor-Ancde connector10,000 ohms, ±10%, ½ wott (R143)75223Socket-Tube socket, 6 contact, moulded for7502Specker-a®' PM specker complete with cone ond voice coll less plug and transformer7403Knob-Veitu voice coll less plug and transformer7403Consetor-Ancde connector12,000 ohms, ±10%, ½ wott (R143)7483Socket-Tube socket, 6 contact, stacitie for socket-Tube socket of KCS45 P(10)7523Socket-Tube socket of KCS45 P(10)7523Socket-Tube socket of KCS45 P(10)Control-Horizontal and vertical hold control (R149, 115,000 ohms, ±10%, ½ wott (R113)7483Socket-Tube socket of KCS45 P(10)NOTE-II stamping on specker in instruments does not agree with above specker and full dutament.7523Spring-Compression spring for focus magnet ad- justment.7523Spring-Compression spring for focus magnet ad- justment.7524Knob-Pictu marcon7544Knob-Pictu MISEControl-Width control (R179)18,000 ohms, ±10%, ½ wott (R142, R145)7523Spring-Suspension spring for fodu anode lead (2 rod)MISELLANEOUS7547Mack-King 2760Control-Width control (R179)22.000 ohms, ±10%, ½ wott (R148)7523Spring-Suspension spring for deflection yoke hood (2 red)75472S			ntrol and power switch knob-
Connector—4 contact famelle connector for speaker colle for KCS45 (PI01)2800 chans, $\pm 10\%$, $4'$ wortt (R146, R147, R189)7522 for Socket—Tube socket, β jni, minintume5039 for Nobe-Vention (Nobe-Vention)Connector-4 contact famelle connector (101) M' wortt (R146, R147, R189)Consector—A coale connector10,000 ohms, $\pm 10\%$, $4'$ wortt (R140)7150Socket—Tube socket, β contact, moulded for IB/001675500Knob-Vention beige-Tube socket - for contact famelle connector (112)75500Knob-Vention beige-Tube socket - for contact, steatile for GAUSCI7 6 EW40T75500Knob-Vention beige-Tube socket - for contact, steatile for GAUSCI7 6 EW40T75500Knob-Vention beige-Tube socket - for contact, steatile for GAUSCI7 6 EW40T75500Knob-Vention runnets contact, steatile for GAUSCIA F (PI01)7484SocketKinescope socket75500Knob-Vention runnets contact, steatile for GAUSCIA F (PI01)75500Knob-Vention runnets contact, steati		complete with voice coil (3.2 ohms) marcon—for mar	hogany or walnut instruments
Consector10.000 ohms. ±10%, ½ wortt (R140)71508Socket — Tube socket, 6 contact, moulded for 1B/8001675022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75022Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75023Specker - 0° PM specker complexe omneadormer voic coll leas plug and instruments ofter and control (R143)75023Specker - 0° PM specker complexe omneadormer macroom (Model 276)Control - Picture and brightness control (R129, R134)Control - Misca - Lines cope secket 18,000 ohms, ±10%, ½ wort (R182)7523Spring - Compression spring for focus anogene tad- justment7502Specker - 0° PM specker complexe omneadormer macroom (Model 276)Control - Height control (R178)18,000 ohms, ±10%, ½ wort (R182)7523Spring - Net specker7522Spring - Net specker7523Spring - Net speckerCon		contact male connector (J101) (Model 2760) or p	plastic instruments (Model 2T51)
ConnectorInternational transformerThe by fourtsThe by fourts<			ntrol and power switch knob
Control-Vertical linearity control (R153)Catter (R143)Control-Vertical linearity control (R153)Control-Vertical linearity control (R153)Control-Vertical linearity control (R153)Control-Vertical linearity control (R164)NOTE-II is control on specker in umber, order re- placement by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R164)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R153)The instrument is construction in truments does placement path by referring to model and brightness control (R164)The instrument is construction in truments does placement path by referring to model and brightness control (R153)Control-Vertical linearity control (R153)1000 ohms, ±10%, ½ wortt (R164)75226Strap-Kinescope retaining strap (metal)-upper75502Back-Cabine back complete with power cord and terminal board for Model 2T6075477MaskKine 27500Control-Vertical indegraduate ble core and stud for f.M. trap #75449 (part of Transformer #7524		Output transformer (T112) 74963 Knob—Picture control	rol or horizontal hold control knob
Control—Horizontal and vertical hold control (R149, R168)12,000 ohms, ±10%, ½ watt (R130)7483Socket—Kinescope socketNot cir=-in stating on speaker in instruments does placement parts by referring to model number, of instrument, number, vident re- placement parts by referring to model number, of instrument instruments doesNot cir=-in stating on speaker in instruments does instrument instruments doesNot cir=-in stating on speaker in instruments does instrument instruments doesControl—Picture and brightness control (R129, R134)12,000 ohms, ±10%, ½ watt (R130)7483Socket—Filot lamp socket for KCS45AControl—Vertical linearity control (R157)18,000 ohms, ±10%, ½ watt (R1212)75233Spring—Compression spring for focus magnet ad- justmentControl—Height control (R153)22,000 ohms, ±10%, ½ watt (R120, R211)75233Spring—Suspension spring for 2nd. anode lead Strop—Kinescope retaining strap (metal)—lowerMISCELLANEOUS75471Control—Volume control (R178)22,000 ohms, ±10%, ½ watt (R142, R145)75226Strop—Mounting strap (metal)—lower75502Control—Volume control (R178)22,000 ohms, ±10%, ½ watt (R189)75231Strop—Mounting strap (metal)—lower75472Control—Volume control (R178)22,000 ohms, ±10%, ½ watt (R189)75231Strop—Mounting strap (metal)—lower75472Control—Volume control (R178)22,000 ohms, ±10%, ½ watt (R189)75231Strop—Mounting strap for deflection yoke hood (2 reqi)75472Control—Volume control (R178)22,000 ohms, ±10%, ½ watt (R180)7543133481Switch—TV-phon" witch (S103)75473Core—Adjustable core		-maroon-for m	ahogany or walnut instruments
R169) 15,000 ohms, ±10%, ½ watt [R133) 31364 Socket—Pilot lamp socket for KCS45A placement parts by referring to model number of instrument, number stamped on specker and full description of part required. 75464 Knob—Picture and brightness control (R129, R134) Control—Vetrical linearity control (R157) 18,000 ohms, ±10%, ½ watt (R119, R123, R209) 18,000 ohms, ±10%, ½ watt (R1212) 75233 Spring—Cumpression spring for focus magnet adjescription of part required. 75464 Knob—Picture and brightness control (R157) Control—Vetrical linearity control (R153) 22,000 ohms, ±10%, ½ watt (R142, R145) 75233 Spring—Suspension spring for 2nd. anode lead 75233 Spring—Suspension spring for 2nd. anode lead 11765 Lamp—Pilot Control—With control (R178) 22,000 ohms, ±10%, ½ watt (R142, R145) 75235 Strap—Kinescope retaining strap (metal)—upper 7547 Mask—Kine 27500 7547 Mask—Kine 2750 Control—Volume control and power switch (R194, S102) 27,000 ohms, ±10%, ½ watt (R169) 7521 Strap—Mounting strap for deflection yoke hood (2 req'd) 75473 Back—Cabinet back complete with power cord and terminal board 75473 Socket—Filot lamp bracket (Model 2751) 33225 33225 75473 Socket—Filot lamp bracket (Model 2751) 33225 75473 Socket—Filot lamp bracket (Model 2760) 75473 Soc		Imping on speaker in instruments does (Model 2160) and (inner)	plastic instruments (Model 2T51)
Control—Picture and brightness control (R129, R134) 18.000 ohms, ±10%, ½ watt (R119, R123, R209) 7523 Spring—Compression spring for focus magnet adjustment, number stamped on speaker and full (scription of part required. Instrument, number stamped on speaker and full (scription of part required. Control—Vertical linearity control (R157) 18.000 ohms, ±10%, ½ watt (R119, R123, R209) 7523 Spring—Compression spring for focus magnet adjustment. Instrument, number stamped on speaker and full (scription of part required. Control—Weight control (R153) Control—Width control (R178) 7523 Spring—Cinearity (metal)—upper 75226 Strap—Kinescope retaining strap (metal)—upper 7527 Strap—Kinescope retaining strap (metal)—lower 11765 Lamp—Pilot Control—Volume control and power switch (R194, S10%) 22.000 ohms, ±10%, ½ watt (R184) 7521 Strap—Kinescope retaining strap (metal)—lower 75473 Back—Cabinet back complete with power cord and (2 reful dow) terminal board for Model 2T51 75469 MissE=LANEOUS 75469 75473 Core—Adjustable core and stud for F.M. trap 7520 Sudt (R103, R105) 7520 Switch—AGC switch (S105) 75473 Bacd—Cabinet back (Model 2T60) 75469 75473 Core—Insulting cover for electrolytic #75220 33.000 ohms, ±10%, ½ watt (R103, R105) 75207 Transformer—Power transformer 117 volts, 60 cycle <td></td> <td>arts by referring to model number of 75464 Knob—Picture cont</td> <td>trol or horizontal hold control</td>		arts by referring to model number of 75464 Knob—Picture cont	trol or horizontal hold control
Control—Vertical linearity control (R157)18,000 ohms, $\pm 10\%$, 1 watt (R212)75239Spring—Suspension spring for 2nd, anode lead11765Lamp—PilotControl—Height control (R153)18,000 ohms, $\pm 10\%$, 2 watts (R210, R211)75239Spring—Suspension spring for 2nd, anode lead11765Lamp—PilotControl—Width control (R178)22,000 ohms, $\pm 10\%$, ½ watt (R142, R145)75226Strap—Kinescope retaining strap (metal)—lower75502Back—Cabinet back complete with power cord and terminal board for Model 2T6075479Mask—Kine 2T60Control—Volume control and power switch (R194, S102)22,000 ohms, $\pm 10\%$, ½ watt (R169)75213Strap—Mounting strap for deflection yoke hood (2 req'd)75472Back—Cabinet back complete with power cord and terminal board for Model 2T507547333225Nut—Speed fastenCore—Adjustable core and stud for F.M. trap #75449 (part of Transformer #75214)27,000 ohms, $\pm 10\%$, ½ watt (R103, R105)75629Switch—"TV-phono" switch (S103)75473Board—"An" terminal board fasten33225Nut—Speed fastenCover—Insulating cover for electrolytic #7522033,000 ohms, $\pm 10\%$, ½ watt (R103, R105)75207Transformer 117 volts, 60 cycle7510972845Spring—Ret		number stamped on speaker and full knob-beige-for	oak instruments (inner) (Model
Control—Height control (R153)18,000 ohms, $\pm 10\%$, 2 watts (R1210, R211)75226Strap—Kinescope retaining strap (metal)—upper75226Strap—Kinescope retaining strap (metal)—upperControl—Width control (R178)22,000 ohms, $\pm 10\%$, ½ watt (R142, R145)75227Strap—Kinescope retaining strap (metal)—lower7526Strap—Kinescope retaining strap (metal)—lowerControl—Volume control and power switch (R194, S102)22,000 ohms, $\pm 10\%$, ½ watt (R169)7527Strap—Mounting strap for deflection yoke hood (2 req'd)75473Back—Cabinet back complete with power cord and terminal board for Model 2T6075469Mask—Kine 2T60)Core—Adjustable core and stud for F.M. trap #75449 (part of Transformer #75214)27,000 ohms, $\pm 10\%$, ½ watt (R103, R105)33491Switch—"TV-phono" switch (S103)75473Board—"Ant" terminal board for Model 2T6072845Spring—RetCover—Insulating cover for electrolytic #7522033,000 ohms, $\pm 20\%$, ½ watt (R103, R105)7520720013103Cap—Pilot lamp cap for Model 2T6014270Spring—Ret	18,000 ohms, ±10%, 1 watt (R2	11765 I gmp_ Pilot Igmp	Manda for Model 2750
Control—Width control (R178) 22,000 ohms, ±10%, ½ watt (R142, R145) 75227 Strap—Kinescope retaining strap (metal)—lower Control—Volume control and power switch (R194, S10%) 22,000 ohms, ±10%, ½ watt (R192) 75227 Strap—Mounting strap for deflection yoke hood (2 req'd) 75227 Strap—Mounting strap for deflection yoke hood (2 req'd) 75469 Mask—Kine (2 req'd) Core—Adjustable core and stud for F.M. trap #75449 (part of Transformer #75214) 27,000 ohms, ±10%, ½ watt (R103, R105) 33,000 ohms, ±10%, ½ watt (R103, R105) 33,000 ohms, ±10%, ½ watt (R103, R105) 33,000 ohms, ±10%, ½ watt (R114, R124) 75473 Board—''Ant'' terminal board % for Model 2T60) % for Mod			masking panel (metal) (Model
Control—Volume control and power switch (R194, S102) $22,000$ ohms, $\pm 10\%$, 1 watt (R169) 75469 Mask—Kine (2 req'd)Core—Adjustable core and stud for F.M. trap $\#75449$ (part of Transformer $\#75214$) 75472 Strap—Mounting strap for deflection yoke hood (2 req'd) 75472 Strap—Mounting strap for deflection yoke hood (2 req'd) 75472 Strap—Mounting strap for deflection yoke hood (2 req'd)Core—Adjustable core and stud for F.M. trap $\#75449$ (part of Transformer $\#75214$) 75473 Board—"Ant" terminal board for Model 2T50 33491 Core—Insulating cover for electrolytic $\#75220$ $33,000$ ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R114, R124) 75472 Strap—Mounting strap for deflection yoke hood (2 req'd) 75473 Core—Insulating cover for electrolytic $\#75220$ $33,000$ ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R114, R124) 75485 Spring—Ret (100)		et back complete with power cord and 2T60)	
S102) $22,000$ ohms, $\pm 10\%$, 1 watt (R163) 210% , 1 watt (R163) 22151 Core—Adjustable core and stud for F.M. trap $\#75449$ (part of Transformer $\#75214$) $27,000$ ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R103, R105) 33491 <td></td> <td>13405 Mask—Kinescope</td> <td>masking panel (metal) (Model</td>		13405 Mask—Kinescope	masking panel (metal) (Model
$ \begin{array}{c} Core - Adjustable \ core \ and \ stud \ for \ F.M. \ trap \\ \#75449 \ (part \ of \ Transformer \ \#75214) \\ Cover - Insulating \ cover \ for \ electrolytic \ \#75220 \end{array} \qquad \begin{array}{c} 27,000 \ ohms, \ \pm 10\%, \ 1 \ watt \ (R150) \\ 33,000 \ ohms, \ \pm 20\%, \ 2 \ watt \ (R114, \ R124) \end{array} \qquad \begin{array}{c} 75473 \ Switch - \ 1 \ vphonol \ switch \ (S105) \\ 75629 \ Switch - \ AGC \ switch \ (S105) \\ 71599 \ Bracket - Pilot \ lamp \ bracket \ (Model \ 2T60) \\ 13103 \ Cap - Pilot \ lamp \ cap \ for \ Model \ 2T60 \end{array} \qquad \begin{array}{c} 6 \ switch \ (S105) \\ 72845 \ Spring - Ret \ (T100) \\ 72845 \ Spring - Ret \ (T100) \end{array}$			factor antenna in achieve an e
$\frac{1}{75449} (part of Transformer \#75214) $ $33,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R103, R105) $ $33,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt} (R114, R124) $ $33,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt} (R114, R124) $ $71599 \text{ Bracket-Pilot lamp bracket} (Model 2T60) $ $72845 \text{ Spring-Ret} \\ 75207 \text{ Transformer-Power transformer 117 volts, 60 cycle} $ $71599 \text{ Bracket-Pilot lamp bracket} (Model 2T60) $ $72845 \text{ Spring-Ret} \\ 75207 \text{ Transformer-Power transformer 117 volts, 60 cycle} $		" terminal board fasten masking po	anel to cabinet (Model 2T51)
Cover—Insulating cover for electrolytic #75220 33,000 ohms, ±20%, ½ watt (R114, R124) 33,000 ohms, ±20%, ½ watt (R114, R124) 13103 Cap—Pilot lamp cap for Model 2T60 14270 Spring—Ret		ot lamp bracket (Model 2T60) 72845 Spring—Retaining s	pring for knobs 74959 and 75461
	33.000 ohms, ±20%, ½ watt (R1	amp cap for Model 2T60 14270 Spring—Retaining a	spring for knobs 74960 74962
Cushion—Rubber cushion for deflection yoke hood 33,000 ohms, ±10%, 2 watts (R139) 75208 Transformer (T106) 74969, 75-		clip for channel marker escutcheon 74969, 75462, 754	
$39,000 \text{ ohms}, \pm 10\%, 1 \text{ watt} (R202)$ 74589 Transformer (T101, C101,			pring for knobs 74963 and 75464
Fastener—Plah fastener to mount ceramic tube 47,000 ohms, ±10%, ½ watt (R138, R193, R217) R101)			9 4
socket (2 req d) 47,000 ohms, ±20%, ½ watt (R109) 74590 Transformer — Second pix, i-f transformer (T102, C106) Fuse 0.25 amp; 250 volts (F101) 56,000 ohms, ±10%, ½ watt (R154, R187, R188, C106) To obtain resistors for which no stock number is given, order by stating type, value of		for which no stock number is given order by station time and the t	
Grommet—Rubber grommet for mounting ceramic 75209 Transformer (T103, C113)	R214)	to which ho slock humber is given, order by stating type, value of resistar	ice, tolerance and wattage.
68,000 ohms, ±20%, ½ watt (R200, R201) 73574 Transformer (T104, C118)	68,000 ohms, ±20%, ½ watt (R2	APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT	

REPLACEMENT PARTS (Continued)

1		

RIST VERT LIN RI53 HEIGHT RITS 00) DiTAL 60 14 2 YEL TO KINE TERM II SOCKET TERM I TERM 12 TERM 10 V106 BRN -R191 BLK-V105 V104 SPIOZ TO KINE EE47853 MULTIPLIER OLERANCE T109 VOLTAG (C 103) OUTER FOIL END 22 1106 DIGITS MULTIPLIER CAPACITY VALUE IN MMF SRN -COLOR DIGITS MULTIPLIER BLACK 0 1 BROWN 10 1 RED 100 2 ORANGE 1,000 3 YELLOW 4 10,000 GREEN 5 5102 BLUE 6 RI34 BRIGHTNESS VIOLET

CHASSIS WIRING DIAGRAM

Figure 67-Chassis Wiring Diagram

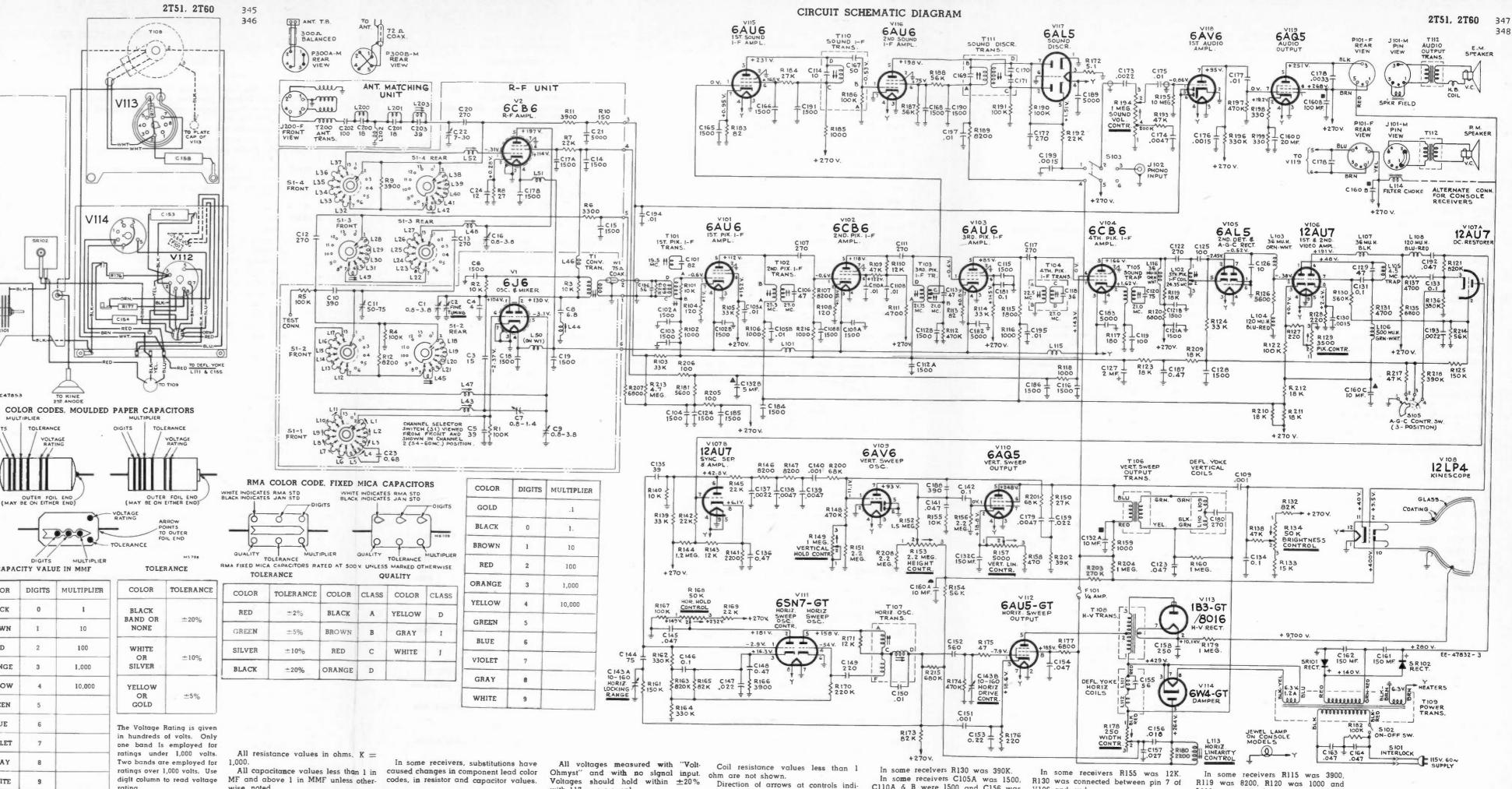
22

GRAY

WHITE

1

9



wise noted.

with 117 v. a-c supply.

Direction of arrows at controls indicates clockwise rotation.

C110A & B were 1500 and C156 was V106 and gnd. 033 In some receivers R219 was omitted. were omitted.

In some receivers C197 and C199

R119 was 8200, R120 was 1000 and L116 was omitted. T104 bottom was tuned to 24.35 mc. and L102 was tuned to 22.5 mc.

Figure 68-Circuit Schematic Diagram





TELEVISION, RADIO PHONOGRAPH COMBINATION MODEL 2T81

Chassis Nos. KCS46 and RC1090 Record Changers RP168 or RP190 and 960282

— Mfr. No. 274 —

SERVICE DATA

— 1950 No. T13 —

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 2781 is a $12\frac{1}{2}$ -inch television radio phonograph combination. Two record changers are provided to play 78, $33\frac{1}{3}$ and 45 RPM records. The instrument employs 23 tubes plus 4 rectifiers and a 12LP4 kinescope.

"Somervell"

Model 2T81, Walnut, Mahogany or Limed Oak

Features of the television unit are full twelve channel cov-

erage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc band width for picture channel and reduced hazard high voltage supply.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 Fine Tuning Range±250 kc. on chan. Picture Carrier Frequency Sound Carrier Frequency	2, ±650	kc. on cl	han. 13 . 50 mc .
RADIO TUNING RANGE		540-1,	6 00 k c.
Radio Intermediate Frequency	• • • • • • •		455 kc.
POWER SUPPLY RATING 115 vol	lts, 60 cy	cles, 235	i watts
AUDIO POWER OUTPUT RATING	• • • • • • •	6.0 watt	s max.
CHASSIS DESIGNATIONS			
Television Chassis		• • • • • • • •	KCS46
Radio Chassis		1	RC1090
33 ¹ / ₃ /78 RPM Record Changer			960282
45 RPM Record Changer		RP168 or	RP190
Refer to Service Data 960282 and RP16 tion on the record changers.	8 or RP1	190 for in	nforma-
LOUDSPEAKER-92569-9 (RL111-14)	12-inc	h PM D	ynamic
Voice Coil Impedance	3.2 ohm	us αt 400	cycles
WEIGHT			
Chassis with Tubes in Cabinet			148 lbs.
Shipping Weight		• • • • • • •	182 lbs.
DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)	3334	341/4	233/8

RECEIVER ANTENNA INPUT IMPEDANCE. . 300 ohms balanced

If necessary, the television chassis may be fed separately from either a 300-ohm balanced line or a 72-ohm co-ax.

Eunction

RCA TUBE COMPLEMENT

e Used Function	
(Television Chassis)	
6CB6 R-F Amplifier	
6J6 R-F Oscillator and Mixer	
6AU6 Ist Sound I-F Amplifier	
6AU6 2nd Sound I-F Amplifier	
6AL5 Sound Discriminator	
6AU6 Ist Picture I-F Amplifier	
6CB6 2nd Picture I-F Amplifier	
6AU6 3rd Picture I-F Amplifier	
6CB6 4th Picture I-F Amplifier	
6AL5 Picture 2nd Detector and AGC Detector	
12AU7 1st and 2nd Video Amplifier	
12AU7 DC Restorer and Sync Separator	
6AV6 Vertical Sweep Oscillator	
6AQ5 Vertical Sweep Output	
6SN7GT Horizontal Sweep Oscillator and Control	
6AU5GT Horizontal Sweep Output	
6W4GT Damper	
1B3-GT/8016 High Voltage Rectifier	
12LP4 Kinescope	
	e Used Function (Television Chassis) 6CB6 6CB6 R-F Amplifier 6AU6 1st Sound I-F Amplifier 6AU6 2nd Sound I-F Amplifier 6AU6 1st Picture I-F Amplifier 6AU6 1st Picture I-F Amplifier 6AU6 1st Picture I-F Amplifier 6AU6 3rd Picture I-F Amplifier 6AU5 Vertical Sweep Oxellator 12AU7 DC Restorer and Sync Separator 6AV6 Vertical Sweep Output 6AV6 Vertical Sweep Output 6AV6 Vertical Sweep Output 6AV5 Vertical Sweep Output 6AV5 Horizontal Sweep Output 6AV5 Damper 1B3-GT/8016 High Voltage Rectifier 12LP4 Kinescope

(Radio Chassis)

(1) RCA	6BE6 Converter
(2) RCA	6BA6 I-F Amplifier
(3) RCA	6AV6 Detector and 1st Audio
(4) RCA	6C4 Phase Inverter
(5) RCA	6V6GT (2 tubes) Audio Output
(6) RCA	6X5GT Rectifier

Specifications continued on page 2

201/4

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

PICTURE INTERMEDIATE PREQUENCIES		FOCUS.
Picture Carrier Frequency	25.50 mc.	
Adjacent Channel Sound Trap	27.00 mc.	SWEEP
Accompanying Sound Traps	21.00 mc.	
Adjacent Channel Picture Carrier Trap	19.50 mc.	SCANNI
SOUND INTERMEDIATE FREQUENCIES		HORIZO

SOUND INTERMEDIATE FREQUENCIES

UDE INTERMEDIATE ERCOURNORS

Sound	Carrier Frequency	<u>r</u>			21.00 mc;
Sound	Discriminator Ban	d Width	between	peaks	. 400 kc.
VIDEO	RESPONSE				To 4 mc.

 FOCUS.
 Magnetic

 SWEEP DEFLECTION.
 Magnetic

 SCANNING.
 Interlaced, 525 line

 HORIZONTAL SWEEP FREQUENCY.
 15,750 cps

 VERTICAL SWEEP FREQUENCY.
 60 cps

 FRAME FREQUENCY (Picture Repetition Rate)
 30 cps

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

1. Turn the radio FUNCTION switch to TV.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

 ${\bf 4.}$ Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME

control for suitable volume. 5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZON-TAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and brightness controls for suitable picture contrast and brightness.

9. After the receiver has been on for some time. it may be necessary to read-

OLUME Ò ρ Q 0 RADIO TONE STATION SPEED CONTROL VERTICAL BRIGHTNESS HOLD OPERATING CONTROL HORIZONTAL PICTURE ESCUTCHEON FINE HOLD

ON-OF

Figure 1—Receiver Operating Controls

just the FINE TUNING control slightly for improved sound fidelity.

10. In switching from one channel to another, it may be necessary to repeat steps 4 and 8.

11. When the set is turned on again after an idle period it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step No. 4 is generally sufficient.

> FUNCTION SWITCH

12. If the positions of the controls have been changed, it may be necessary to repeat steps 1 through 8.

RADIO OPERATION

1. Turn the radio FUNC-TION switch to AM.

2. Tune in the desired station with the TUNING control.

PHONOGRAPH OPERATION

1. Turn the radio FUNC-TION switch to 78-33 for operation of the 78/33!₃₁ RPM changer or to 45 for operation of the 45 RPM changer.

2. Place a record on the appropriate changer and slip the changer power switch to "ON."

REFER TO MODELS 2T51 AND 2T60 (PAGES 327 TO 341) FOR INSTALLATION IN-STRUCTIONS, TELEVISION ALIGNMENT AND WAVEFORM PHOTOGRAPHS.

THE TELEVISION OF MODEL 2781 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS 2751 AND 2760. WHEN REFERRING TO MODELS 2751 AND 2760 IT SHOULD BE NOTED THAT V118 (6AV6 1st Audio) AND V119 (6AQ5 Audio Output) ARE NOT USED IN MODEL 2781.

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

2

2T81

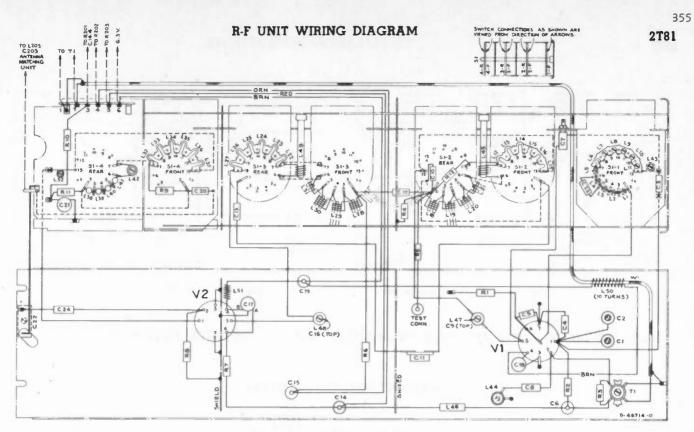


Figure 2—R.F Unit Wiring Diagram TELEVISION CHASSIS TOP VIEW

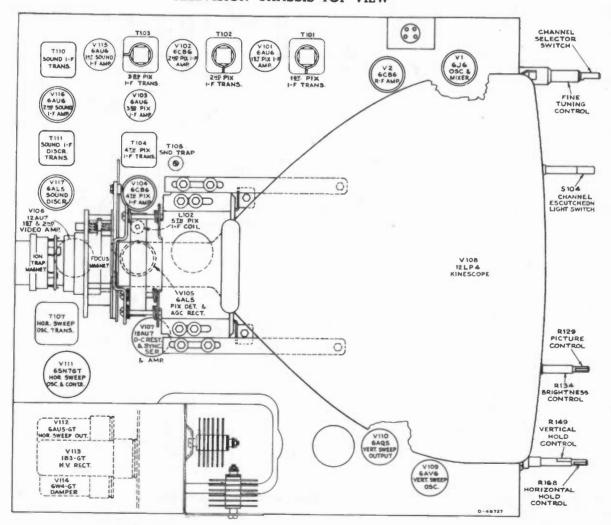
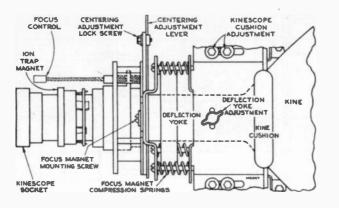


Figure 3-Chassis Top View



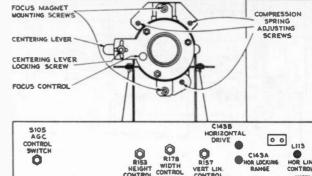
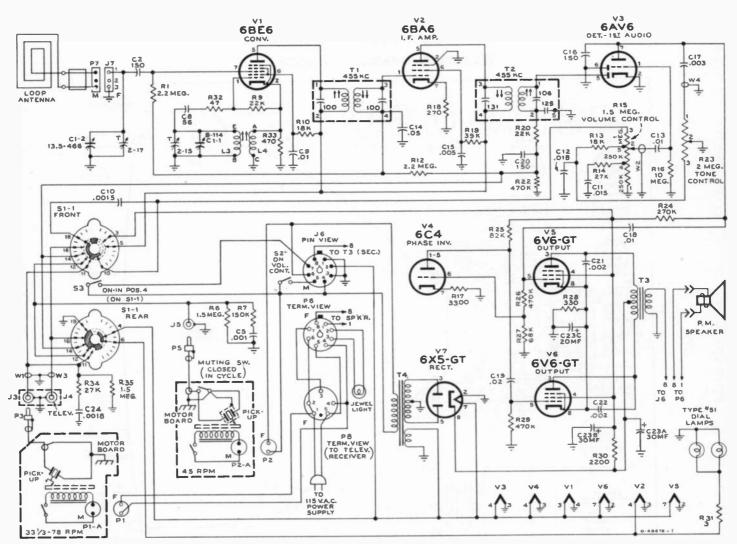


Figure 4-Yoke and Focus Magnet Adjustments

Figure 5-Rear Chassis Adjustments

REFER TO MODELS 2T51 AND 2T60 ON PAGES 327 AND 328 FOR INSTALLATION PROCEDURE.



RADIO SCHEMATIC DIAGRAM

In some receivers R34 was 100K and was connected between SI-1 rear terminal 7 and 13. C24 was .0015 and was connected between SI-1 rear terminal 7 and gnd. In some receivers R35 was omitted. Figure 6-Radio Schematic Diagram

In some receivers R17 was 2700 and R25 was 120K.

2**T**81

RADIO ALIGNMENT PROCEDURE

Test-Oscillator. — For all alignment operations, connect low side of the test-osc. to the receiver chassis, and keep the osc. output as low as possible to avoid a-v-c action. Output Meter. — Connect the meter across the speaker voice coil, and turn the receiver volume control to max. If any lead dressing is necessary, it should be done before aligning the receiver.

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to—	Function Switch	Turn Radio Dial to	Adjust the following
1	Stator of C1-2 in series with .01 mfd.	455 kc. Modulated	AM	Low Freq. end of Dial	†Top and bot. cores of T1 and T2 (For max. voltage across voice coil.)
2	Short wire placed	1.620 kc.	AM	Min. capacity	Osc. Cl-l for maximum output
3	near loop for	1,400 kc.	AM	Tune to signal	Ant. C1-2 for maximum output
4	radiated signal	600 kc.	AM	600 kc.	+Osc. L3 for maximum output
5	Repeat steps 2, 3 and 4 for n	aximum output.			

*†*First peak T1 and T2 for maximum output. Then, starting with T2 use alternate loading. Connect a 47,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 47,000-ohm resistor while the plate winding is being peaked. *†t*"Rock" the gang condenser and adjust L3 for maximum output.

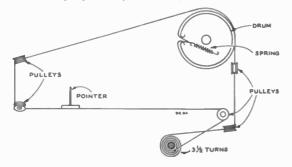


Figure 7-Dial Cord and Drive Assembly

CRITICAL LEAD DRESS

- Dress all filament wiring down to the chassis and away from the audio coupling capacitors.
- 2. Dress the a-c power-switch leads away from all audio circuit components.
- 3. Dress all uninsulated bus wire so as to avoid short circuits.

VOLTAGE CHART

Tube	Туре	Pin No.	Radio	Phono
V 1	6BE6	Plate, Pin 5	208	-
	Converter	Screen, Pin 6	88	-
		Cathode, Pin 2	0	
		Grid, Pin 7	77	<u> </u>
V2	6BA6	Plate, Pin 5	208	_
	I-F Amp.	Screen, Pin 6	118	
		Cathode, Pin 7	2.42	-
		Grid, Pin 1	68	
V3	6AV6	Plate, Pin 7	84	94
	Audio Amp.	Grid, Pin 1	86	84
V4	6C4	Plate, Pins 1 & 5	70	83
	Inverter	Cathode, Pin 7	2.95	3.6
		Grid, Pin 6	.01	.04
V 5	6V6GT	Plate, Pin 3	250	255
V6	Audio	Screen, Pin 4	208	250
	Output	Cathode, Pin 8	13.1	17.3
		Grid, Pin 5	0	0
V7	6X5GT			
	Rectifier	Cathode, Pin 8	255	260

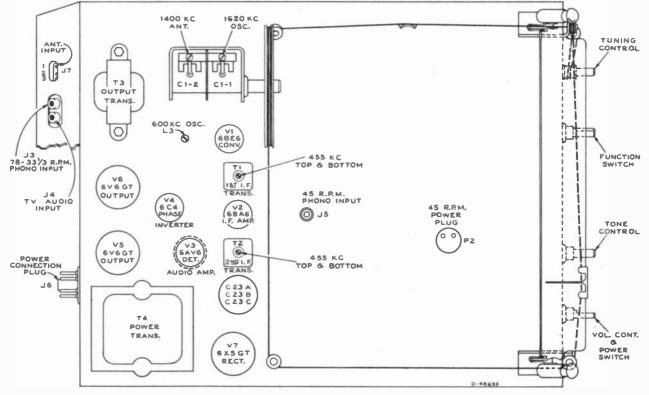


Figure 8----Chassis, Top View, Showing Adjustments

2T81

	Notes on	Measurements			. Average Brightness	. Average Brightness	• Maximum Brightness									. 5000 volt	pulse present	* 10.100 volt	pulse present	13000 volt	pulse present											
	I	8-7	1	1	1	I	1	I	l	1.20	1.20	1	1	1	1	11.2	11.0	1		1	1	3.24	3.30	1.37	1.28	1	1		1		L	L
	-	Plate (mar.)	2.47	2.58	0.075	0.04	0.10	0.15	0.15	13.9	13.8	.33	16.	1.35	1.35	77.0	75.0	0.075	0.040	88	87	8.1	7.9	3.73	3.64		1	000	226	245	226	245
	E. Grid	Volts	5.69	6.1	ş	9.5	32.5	-11.2	-11.1	0	0	-2.0	-2.9	-53	-54	-8.0	-7.4	1	1	1	l	0	•	-0.45	-0.53	1	L		1	I	L	1
	ы	No. No.	-	-	м	61	7	1	-	7	-	-	-	-	4	-	-	I	1	1	I	-	-	-	-	1	l		1	1	1	I
	E. Cathode	Volta	5.9	6.1	69	40	65	0	•	19.0	18.8	25.0	16.3	•	•	19.0	18.6	~ 10,100	.10,100	.430	.429	0.38	0.95	•	0	0.1	1.5		141	140	282	280
	ы ы	Me P			Ξ	п	11	61	м	61	61			ف	ø			267	267			-	-	-	-	s,	s.		I	I	I	-1
	E. Screen	Volte	1	l	405	405	405	I	1	250	248	1		1	l	189	185	l	1	l	L I	168	165	73	75		1		I	L	ι	1
	ᆆ	Pla No.	1	l	10	10	10	-		9	60	t	1	1	l		60	1	1	l	1	ي	9	ي	و	1	Ţ		I	1	1	1
	E. Plate	Volta	46.1	42.8	• 10,000	10,000	.9,700	69	83	250	248	185	181	161	158	.440	.435			269	264	234	231	200	198	9.9	-1.52	•	•	0	141	140
		No.	60	ي	Cop	Cap	Cap	7	4	s	s.	61	19	ŝ	s	s	s.	C	di di	s.	s.	ŝ	s	s	ŝ	6	61		1	1	1	I
	Operating	Condition	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Bignal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	Brightness Min.	Brightness Åverage	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V. Signal	No Signal	2500 Mu. V.	Signal	Signal	2500 Mu. V. Signal	No Signal
		Function	Sync Sep. 6 Amplifier		Kinescope			Vertical Oeciliator		Vertical Output		Horizontal Osc. Control		Horisontal Oscillator		Horizontal Output		H. V. Rectifier	1	Damper		lst Sound I-F Amp.		2d Sound I-F Amp.		Sound Diacrim.			Rectifier		Rectifier	
		Type	12AU7		12LP4			6AV6		6AQ5		6SN7 GT		6SN7 GT		6AUS GT		1 B3GT /8016		6W4 GT		6AU6		6A UG		6ALS						
aceiver.	ircuiting	groupo No.			V108			v109 6		V110		1111 A		VIII V		V112		V113 1		V114		V115 6		V116 6	-	V117	-		SRIOI		SR102	
- A	1 1 1	8																														
mal was fed into t	and leads and she	I Verterindu dona co	Notes on	Measurements			Depending	upon channel															At maximum contrast		At minimum contrast	•	At maximum contrast		At minimum	contrast	At moximum	contrast
therm signal work feed into 1	be antenna leads and sho	mancaried Verminali and Ch		Screen Measurements (ma.)		1	- Depending	upon channel	0.13	2.35	0.52	2.8	0.8	2.5	0.55	2.98	2.7	2.4	l	l		1	At maximum contrast		At minimum contrast	·	At maximum contrast		At minimum	contrast	At mortimum	contrast
it test pottern sional was fed jato the receiver.	moving the unternal leads and short circuiting	een ine inchcaied terminal and a					1	4.6 upon chanel	0.44 0.13	8.6 2.35	1.32 0.52	6.8 2.8	4.4 0.8	9.8 2.5	1.28 0.55	6.5 2.98	9.3 2.7	0.42 2.4	8.2	<0.1	0.12 -	<0.1		2.7	0.69 At minimum controst		7.5 At moximum contrast		12.5 — At minimum			<0.1 contrant
	d by removing the antenna leads and sho	A between the ladicated verminal and ch		Screen (mg.)	+ .	7.1	6 4.83													- <0.1		- <0.1	i	1	1	9.0	7.5				1	1
	obicined by removing the unternal leads and sho	e W V3/A between the inducated terminal and ch se than.		Plate Screen (ma.) (ma.)	7.4	-3.1 7.1	-4.16 4.83	4.6	0.44	8.6	1.32	89	4.4	8.6	1.28	6.5	6.9	0.42	8.2	- <0.1	0.12	<0.1 -	3.8	2.7	0.69	-0.38 0.6	-8.2 7.5	+	12.5	12.3	<0.1	<0.1
	an avoid of the formation of the unitaria of the formation of the second and about the formation of the second of	yst" type WV3/A between ine indicated terminati and an eans lees than.	E. Crid	Volta (mc.) (mc.)	-3.25 7.4	s -3.1 7.1	6 -4.16 4.83 -	2.37 4.6	-4.45 0.44	-0.31 8.6	-5.8 1.32	-0.6	-5.8 4.4	-0.6 9.8	-0.6 1.28	0 6.5	0 9.3	0 0.42	8.2	0 <0.1	0.12	I	-2.4 3.8	0.38 2.7	-2.9 0.69	20.38 0.6	1 7 -8.2 7.5	-1.0	-2.6 12.5	-0.4 12.3	-6.2 < 0.1	-1.0 <0.1
	condition was obtained by removing the antenna leads and sha	olichamyat" type WV37A between ine indicated terminal and the control of the means less than.	Grid I I	Pin	5 -3.25 7.4	s -3.1 7.1	0 6 -4.16 4.83 -	6 *-2.37 4.6	1 -4.45 0.44	10.31 8.6	1 -5.8 1.32	1 -0.6 6.8	1 -5.8 4.4	10.6 9.8	1 -0.6 1.28	1 0 6.5	1 0 9.3	1 0 0.42		1	0.12	1	2 -2.4 3.8	20.38 2.7	2 -2.9 0.69	20.38 0.6	1.68 7 -6.2 7.5	7 -1.0	7 -2.6 12.5	7 -0.4 12.3 -	2 -6.2 <0.1	2 -1.0 <0.1
	second condition was obtained by removing the mitence leads and aba	sentor Voltohanyat' type WV87A between ine inducated terminati and as s symbol < means less tham.	E. Cathodo E. Grid I	Volte No. Volta (mc.) (mc.)	0 5 -3.25 7.4	0 \$ -3.1 7.1	0 6 -4.16 4.83 -	0 6 -2.37 4.6	<0.1 1 -4.45 0.44	0.28 10.31 8.6	0.15 1 ~5.8 1.32	1.0 10.6 6.8	0.5 1 ~5.8 4.4	1.38 1 ~0.6 9.8	0.2 1 -0.6 1.28	1.8 1 0 6.5	1.8 1 0 9.3	1.62 1 0 0.42	0 - 8.2	-	0 0.12	 0	1.0 2 -2.4 3.8	0.7 2 -0.38 2.7	9.1 2 -2.9 0.69	5.9 10.38 0.8	1.68 7 -6.2 7.5	2.6 7 -1.0	2.75 7 -2.6 12.5	2.69 7 -0.4 12.3 -	48.0 2 -6.2 <0.1	4.6 2 -1.0 <0.1
	id. The second condition was obtained by removing the antenna leads and sha id. The second conditions was obtained by removing the antenna leads and sha	with "sentor VoltOhanyst" type WV97A between he indicated termisal and the c. The symbol < means less than.	E. Crid	Pin	7 0 5 -3.25	7 0 5 -3.1 7.1	0 6 -4.16 4.83 -	0 6 -2.37 4.6	2 <0.1 1 -4.45 0.44	2 0.28 1 -0.31 8.6	7 0.15 1 ~5.8 1.32	7 1.0 1 -0.6 6.8	2 0.5 1 -5.8 4.4	2 1.38 1 -0.6 9.8	7 0.2 1 -0.6 1.28	7 1.8 1 0 6.5	2 1.8 1 0 9.3	2 1.62 1 0 0.42	5 0	-	1 0 0.12	 	1.0 2 -2.4 3.8	3 0.7 2 -0.38 2.7	3 9.1 2 -2.9 0.69	5.9 D.8 D.8	1.68 7 -6.2 7.5	2.6 7 -1.0	2.75 7 -2.6 12.5	8 2.63 7 -0.4 12.3	48.0 2 -6.2 <0.1	4.6 2 -1.0 <0.1
of conditions. In the first condition of 2500-microsoft test	adjusted. The second condition was obtained by removing phenoteneous and she adjusted. The second condition was obtained by the material and she was a second condition of the second	rrs read with "Sentor VoltOhnyst" type WV97A between he indicated termisal and th cycles, a.c. The symbol < means less tham.	E. Screen E. Cathode E. Grid I	Pla Pla Pla Pla Plan Plan Screen Volta No. Volta No. Volta No. Volta (2002)	- 7 0 5 -3.25 7.4	7 0 5 -3.1 7.1	7 0 6 -4.16 4.83	- 7 0 6 -2.37 4.6	173 2 <0.1 1 -4.45 0.44	114 2 0.28 1 -0.31 8.6	332 7 0.15 1 -5.8 1.32	152 7 1.0 1 ~0.6 6.8	205 2 0.5 15.8 4.4	122 2 1.38 1 ~0.6 9.8	228 7 0.2 1 -0.6 1.28	145 7 1.8 1 0 6.5	148 2 1.8 1 0 9.3	143 2 1.62 1 0 0.42	- 5 0 8.2	- 2	- 1 0 - 0.12	 0	3 1.0 22.4 3.8	- 3 0.7 2 -0.38 2.7	3 9.1 2 -2.9 0.69	0.38 0.8	1.68 7 -6.2 7.5	- 8 2.6 7 -1.0	8 2.75 7 -2.6 12.5	8 2.69 7 -0.4 12.3	- 3 48.0 2 -6.2 <0.1	- 3 4.6 2 -1.0 <0.1
of conditions. In the first condition of 2500-microsoft test	vogerty adjusted. The second condition was obtined by removing the antenna leads and sho vogerty adjusted. The second condition was obtined by removing the antenna leads and sho	bown are read with "Seator VoltOhmysi" type WVYA between he ladacated termisal and as olis, 60 cycles, ac. The symbol < means less than.	E. Plate E. Screen E. Cathode E. Grid I	Pia	2 135 7 0 5 -3.25 7.4	130 - 7 0 5 -3.1 7.1	119 - 7 0 6 -4.16 4.83 -	- 7 0 6 -2.37 4.6	6 173 2 <0.1 1 -4.45 0.44	6 114 2 0.28 10.31 8.6	5 205 6 232 7 0.15 1 5.8 1.32	6 152 7 1.0 1 -0.6 8.8	5 192 6 205 2 0.5 1 5.8 4.4	6 122 2 1.36 1 -0.6 9.8	5 190 6 228 7 0.2 1 -0.8 1.28	6 145 7 1.8 1 0 6.5	5 159 6 148 2 1.8 1 0 9.3	5 166 6 143 2 1.62 1 0 0.42	2 -2.3 - 5 0 - 8.2	2 -0.52 5 0	7 -9.0 1 0 0.12	7 -2.45 1 0	1 100 3 1.0 2 -2.4 3.8	1 48 3 0.7 2 -0.38 2.7	1 180 3 9.1 2 -2.9 0.69	1 100 0.38 0.8 	6 221 6 1.68 7 -6.2 7.5	6 191 8 2.6 71.0	6 189 8 2.75 7 -2.6 12.5	6 188 - 8 2.63 7 -0.4 12.3 -	1 4.6 - 3 48.0 2 -6.2 <0.1 ·	1 2.8 3 4.6 2 -1.0 <0.1
turo ada of conditions. In the first condition of 2 500 mirroroofs tant	appresent two are to construct in the second condition was obtained by removing the antenna leads and sho 3C control property adjusted. The second condition was obtained by removing the antenna leads and sho	. Voltoges shown are read with "Seator VoltOkmyst" type WVYA between the ladacated termisal and as 19 on 117 volts, 60 cycles, ac. The symbol < means less than.	E. Plate E. Screen E. Cathode E. Grid I	Volte W.o. Volte W.o. Volte N.o. Volte M.o. Volte Kondi (mat.)	135 7 0 5 -3.25 7.4	2 130 - 7 0 5 -3.1 7.1	7. 1 119 - 7 0 6 -4.16 4.83 -	1 104 7 0 62.37 4.6	243 6 173 2 <0.1 1 -4.45 0.44	197 6 114 2 0.26 10.31 8.6	205 6 232 7 0.15 1 -5.8 1.32	112 6 152 7 1.0 1 -0.6 6.8	192 6 205 2 0.5 1 -5.8 4.4	118 6 122 2 1.36 1 -0.6 9.8	190 6 228 7 0.2 1 -0.6 1.28	85 6 145 7 1.8 1 0 6.5	1. V. 5 159 6 148 2 1.8 1 0 9.3	5 166 6 143 2 1.62 1 0 0.42	.V. 2 -2.3 5 0 6.2	2 -0.52 5 0	1 7 -9.0 1 0 0.12	7 -2.45 1 0	100 3 1.0 2 -2.4 3.8	ii 1 48 3 0.7 2 -0.38 2.7	1 180 3 9.1 2 -2.9 0.69	1 1 100 3 5.9 2 -0.38 0.8 .V.	6 221 6 1.68 7 -6.2 7.5	6 191 8 2.6 71.0	189 8 2.75 7 -2.6 12.5	6 188 - 8 2.63 7 -0.4 12.3 -	2500 Mu. V. 1 4.6 3 48.0 2 -6.2 <0.1 -	No 1 2.8 3 4.6 2 -1.0 <0.1 -
turo ada of conditions. In the first condition of 2 500 mirroroofs tant	ed and the AGC control property adjusted. The second condition was obtained by removing the antenna leads and she will be the AGC control property adjusted. The second condition was obtained by removing the antenna leads and sh	sand termincia. Voltages shown ars read with "Sentor VoltOhanyst" type W V37A between the maacared termined and ab ceiver operating an 117 volts. 60 cycles, a.c. The symbol < means lean.	E. Plate E. Screen E. Cathode E. Grid I	Pia	V. 2 135 - 7 0 5 -3.25 7.4	Stendo 2 130 - 7 0 5 -3.1 7.1	1 119 - 7 0 6 -4.83 -	No 1 104 - 7 0 6 -2.37 4.8 -	5 243 6 173 2 <0.1 1 -4.45 0.44	No 5 197 6 114 2 0.28 1 -0.31 8.6	5 205 6 232 7 0.15 1 5.8 1.32	5 112 6 152 7 1.0 1 -0.6 6.8	5 192 6 205 2 0.5 1 5.8 4.4	No Signoil 5 118 6 122 2 1.36 1 -0.6 9.8	5 190 6 228 7 0.2 1 -0.8 1.28	No 5 85 6 145 7 1.8 1 0 6.5	5 159 6 148 2 1.8 1 0 9.3	No 5 166 6 143 2 1.62 1 0 0.42	2 -2.3 - 5 0 - 8.3	No	7 -9.0 1 0 0.12	Signal 7 -2.45 1 0	1 100 3 1.0 2 -2.4 3.8	1 48 3 0.7 2 -0.38 2.7	1 180 3 9.1 2 -2.9 0.69	Signal 1 100 3 5.9 20.38 0.8 2500 Mu. V.	6 221 6 1.68 7 -6.2 7.5	6 191 8 2.6 71.0	6 189 8 2.75 7 -2.6 12.5	6 188 - 8 2.63 7 -0.4 12.3 -	4.6 - 3 48.0 2 -6.2 <0.1	No 1 2.8 3 4.6 2 -1.0 <0.1 -
turo ada of conditions. In the first condition of 2 500 mirroroofs tant	the picture synchronized in the AGC control property adjusted. The second condition was contained by removing the antenna leade and she the picture synched and the AGC control property adjusted. The second condition was contained by removing the antenna leade and she was a second and the AGC control property adjusted.	the sectiver antenna terminatia. Voltages shown are read with "sentor VoltOknyst" type WV97A between its inducated termination and around the sectiver operating on 117 volts. 60 cycles, a.c. The symbol < means than.	E. Plote E. Screen E. Cathode E. Grid I	Condition Pia	2500 Mu. V. 2 135 - 7 0 5 -3.25 7.4 .	No Signed 2 130 7 0 5 -3.1 7.1	2500 Mu. V. 1 119 - 7 0 6 -4.16 4.83 -	No 1 104 7 0 6 2.37 4.6	2500 Mu. V. 5 243 6 173 2 <0.1 1 -4.45 0.44	No 5 197 6 114 2 0.28 1 -0.31 8.6	2500 Mu. V. 5 205 6 232 7 0.15 1 -5.8 1.32 5.30 d.	5 112 6 152 7 1.0 1 -0.6 6.8	2500 Mu. V. 5 192 6 205 2 0.5 15.8 4.4	No Signoil 5 118 6 122 2 1.36 1 -0.6 9.8	2500 Mu. V. 5 190 6 228 7 0.2 1 -0.6 1.28	No 5 85 6 145 7 1.8 1 0 6.5	2500 Mu. V. 5 159 6 148 2 1.8 1 0 9.3 Signed	No 5 166 6 143 2 1.62 1 0 0.42	2500 Mu. V. 2 -2.3 5 0 8.2	No	2500 Mat. V. 7 -9.0 1 0 0.12	Signal 7 -2.45 1 0	2500 Mu. V. 1 100 3 1.0 2 -2.4 3.8 N. 2.4 3.8	1 48 3 0.7 2 -0.38 2.7	1 180 3 9.1 2 -2.9 0.69	Signal 1 100 3 5.9 20.38 0.8 2500 Mu. V.	Signal 6 221 2 1.68 7 -6.2 7.5 No	6 191 8 2.6 71.0	6 189 8 2.75 7 -2.6 12.5	6 188 - 8 2.63 7 -0.4 12.3 -	2500 Mu. V. 1 4.6 3 48.0 2 -6.2 <0.1 -	No 1 2.8 3 4.6 2 -1.0 <0.1 -

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VOLTAGE CHART

VOLTAGE CHART

REPLACEMENT PARTS

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2T81

REPLACEMENT PARTS (Continued)

		T T	
STOCE No.	DESCRIPTION	STOCK No.	
73595	Capacitor—Tubular, paper, oil impregnated, .0022 mfd, 600 volts (C137, C193)		100 ohms, ±20% 120 ohms, ±10%
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mfd, 600 volts (C138, C139, C179)		180 ohms, ±10%
73594	Capacitor—Tubular, moulded paper, oil impregnated, .01		220 ohms. ±10%
74727	mfd, 600 volts (C150) Capacitor—Tubular moulded paper, oil impregnated, .018		220 ohms, ±10% 470 ohms, ±20%
73562	mfd, 1,000 volts (C156) Capacitor—Tubular, paper, oil impregnated, .022 mfd,		680 ohms, ±10%
	400 volts (C147)		1,000 ohms, ±203 R159, R185, R2
73798	Capacitor—Tubular, paper, oil impregnated, .022 mfd, 600 volts (C159)		1,800 ohms, ±103 2,200 ohms, ±203
75345	Capacitor—Tubular, moulded paper, oil impregnated, .027 mfd, 600 volts (C157)		2,200 ohms, ±209
73553	Capacitor—Tubular, paper, oil impregnated, .047 mfd, 400 volts (C145, C192)		3,900 ohms, $\pm 10^{\circ}$ 4,700 ohms, $\pm 5\%$
75071	Capacitor—Tubular, moulded paper, .047 mfd, 400 volts (C163, C164)		4,700 ohms, ±10
73592	Capacitor—Tubular, paper, oil impregnated, .047 mfd, 600 volts (C141)		4.700 ohms, ±109 5.500 ohms, ±5%
73597	Capacitor—Tubular, paper, oil impregnated, .047 mfd, 1,000 volts (C123, C154)		5,600 ohms, ±100 6,800 ohms, ±100
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd, 403 volts (C131, C133, C134, C146, C181)		6,800 ohms, ±10
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd, 600 volts (C142)		6.800 ohms, ±20° 8.200 ohms, ±5%
73560	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd, 200 volts (C153)		8.200 ohms, ±10 10,000 ohms, ±53
73787	Capacitor—Tubular, paper, oil impregnated, 0.47 mfd, 200 volts (C136, C148, C187)		10,000 ohms, ±10
73154	Choke-Filter choke (L114)		12,000 ohms, ±59 12,000 ohms, ±10
75167	Clip—Tubular clip for mounting stand-off capacitor 75166 Clip—Mounting clip for electrolytic 75220		12,000 ohms, ±50
75210	Coil—Fifth pix i-f coil complete with adjustable core (L102)		15,000 ohms, ±10 18,000 ohms, ±10
71449	Coil—Horizontal linearity coil (L113)		18,000 ohms, ±10
73591	Coil—Antenna matching coil (2 required) (Part of T200)		18,000 ohms, ± 10
75241	Coil—Antenna shunt coil (L202)		22,000 ohms, ±10 22,000 ohms, ±20
73477 75299	Coil—Filament choke coil (L101, L115) Coil—Peaking coil (36 muh) (L103)		22,000 ohms, ±10
76011	Coil—Peaking coil (36 muh) (L116)		27,000 ohms, ±10
71793	Coil—Peaking coil (36 muh) (L107)		27,000 ohms, ±10
75253	Coil—Peaking coil (120 muh) (L104, L108)		33,000 ohms, ±10
75252	Coil—Peaking coil (500 muh) (L106)		33,000 ohms, ±20
35787	Connector—Single contact audio output connector		33,000 ohms, ± 1
74594	Connector—2 contact male connector for power cable Connector—4 contact female connector for antenna trans-		39,000 ohms, ±10 47,000 ohms, ±10
	former (J200)		47,000 ohms, ±20
71789	Connector—Anode connector		56,000 ohms, ±10
75215	Control—Horizontal and vertical hold control (R149, R168)		68,000 ohms, ±20
75216 71441	Control—Picture and brightness control (R129, R134) Control—Vertical linearity control (R157)		82,000 ohms, ± 10
71440	Control—Height control (R153)		82,000 ohms, ±10 100,000 ohms, ±1
74945	Control-Width control (R178)		100,000 ohms, ±1
71498	Core—Adjustable core and stud for F-M trap 75449 (part of transformer 75214)		100.000 ohms, ±2
72772	Cover—Insulating cover for electrolytic 75220		150,000 ohms, ±1
73590	Cushion-Rubber cushion for deflection yoke hood (2 re-		150,000 ohms, ±2
74839	quired)		220,000 ohms, ±3 270,000 ohms, ±3
73600	Fastener—Push fastener to mount ceramic tube socket Fuse—0.25 amp., 250 volts (F101)		330,000 ohms, ±
37396	Grommet-Rubber grommet to mount ceramic tube socket		330,000 ohms, ±
16058	Grommet—Rubber grommet for 2nd anode lead exit		390,000 ohms, \pm
75206	Hood—Deflection yoke hood complete with cushions		470,000 ohms, ±
75205	Magnet—Focus magnet complete with adjustable plate and stud		470,000 ohms, ±1 560,000 ohms, ±1
74148	Magnet—Ion trap magnet (P.M. type)		680,000 ohms, ±1
75225	Pad—Rubber pad to mount kinescope (4 required)		820,000 ohms, ±1
75234	Pad—Rubber pad (3" long) for junction of kinescope straps		1 megohm, ±109 1 megohm, ±209
75147	Plate—Hi-voltage transformer mounting plate (bakelite) complete with tube socket less transformer		1 megohm, ±20%
18469	Plate—Bakelite mounting plate for electrolytic 75220		1.2 megohm, ±10 1.5 megohm, ±10
75221	Rectifier-Selenium rectifier (SR101, SR102)		2.2 megohm, ±10
72067	Resistor—Wire wound, 5.1 ohms, 1/2 watt (R172) Resistor—Fixed, composition:		2.2 megohm, ±20
	47 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R175)	74416	4.7 megohm, ±10 Screw—No. 10-32
	82 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R113, R183)	/1410	scope straps to
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BTOCK		STOCK	
No.	DESCRIPTION	No.	DESCRIPTION
10705	RF UNIT ASSEMBLIES KRK8 BallSteel ball for detent (5/32 dia.)	7\$175	Stator—Oscillator section stator complete with rotor, seg- ment, coils, adjusting screws and capacitors C3 and C23 (S1-1, C3, C23, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L43)
75188	Board—Terminal board, 5 contact and ground	75178	Stator—Convertor stator complete with rotor, coils, ca-
75067	Bracket—Vertical bracket for holding oscillator tube shield		pacitors (C10 and C12) and resistors (R4 and R5) (S1-2, C10, C12, L12, L13, L14, L15, L16, L17, L18, L19,
75201	Cable—75 ohms, coax cable (71/4") complete with coil (W1, L50)		L20, L21, L45, R4 R5, R12)
75186	(wi, Loo) Capacitor-Ceramic, variable, for fine tuning — plunger type (C2)	75179	Stator—R-F amplifier stator complete with rotor, coils, capacitor (Cl3) and resistor (R6) (Sl-3, Cl3, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L49, R6)
75289	CapacitorCeramic, 4 mmf., ±0.5 mmf. (C4)	75180	Stator—Antenna stator complete with rotor, coils, capaci-
75189	Capacitor-Adjustable, 7-30 mmf. (C22)		tors (C20 and C21) and resistors (R9, R10, R11) (S1-4, C20, C21, L32, L33, L34, L35, L36, L37, L38, L39, L40, L42, L42, L42, L42, L43, L43, L44, L44, L44, L44, L44, L44
45465	Capacitor—Ceramic, 12 mmf. (C24) Capacitor—Ceramic, 15 mmf. (C3)	75169	L41, L42, L52, R9, R10, R11) Strip—Coil segment mounting strip—RH center
75196	Capacitor—Ceramic, 39 mmf. (C5)	75170	Strip—Coil segment mounting strip—LH lower
75174	Capacitor—Ceramic, trimmer, 50-75 mmf. (C11)	75171	Strip-Coil segment mounting strip-LH upperless trim-
75199	Capacitor—Ceramic, 270 mmf. (C12, C13, C20)	75173	mer C7 Stud—No. 6-32 x 13/16" adjusting stud for C7 trimmer
75641	Capacitor—Ceramic, 390 mmf. (C10)	75446	Stud-Capacitor stud-brass-No. 4-40 x 13/16" with
75166	Capacitor—Ceramic, 1,500 mmf. (C6,C14, C15, C19)		3/64" screwdriver slot for trimmer coils L47, L48 and capacitor Cl uncoded and coded "ER"
75089	Capacitor—Ceramic, dual, 1,500 mmf, (C17A, C17B)	75447	Stud—Capacitor stud—brass—No. 4-40 x 13/16" with
73748	Capacitor-Ceramic, 1,500 mmf. (C18)		3/64" screwdriver slot for trimmer coils L47, L48 and capacitor Cl coded numerically and "Hi Q"
73473	Capacitor—Ceramic, 5,000 mmf. (C21)	75181	Transformer—I-F convertor transformer
75172 71504	Capacitor—Tubular, steatite, adjustable, 0.8-1.4 mmf. (C7) Capacitor—Ceramic, 0.68 mmf. (C23)	73466	Washer—Insulating washer (round)
75184	Capacitor—Ceramic, adjustable, 0.75-4 mmf., complete with adjusting stud (Cl)	75190	Washer—Insulating washer (neoprene) for capacitor C7
75197	Capacitor-Ceramic, 6.8 mmf. (C8)		TELEVISION CHASSIS ASSEMBLY
75167	Clip—Tubular clip for mounting stand-off capacitors	75235	KCS 46
75182	Cail—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw adjustment) for con- vertor section (C9, L47)	75228	Board—Hi-voltage shield terminal board (3 contact) Bracket—Focus magnet mounting bracket—upper Bracket Focus
75183	CoilTrimmer coil (3 turns) with adjustable inductance core and capacitor stud (screw adjustment) for r-f sec- tion (L48, C16)	75230	Bracket—Focus magnet mounting bracket—lower Bracket—Kinescope mounting bracket—on front apron of chassis
75185	Coil-Convertor plate loading coil (L44)	75591	Bracket—Indicator lamp bracket
75202	Coil-Choke coil, .56 muh (L46)	53511	Capacitor—Ceramic, 10 mmf. (C126)
73477	Coil—Choke coil (L51)	75217	Capacitor—Mica trimmer, dual, 10-160 mmf. (C143A, C143B)
75187	Core—Adjustable core for fine tuning capacitor C2	75450	Capacitor—Ceramic, 39 mmf. (C203) Capacitor—Mica, 39 mmf. (C135)
75162	Detent—Detent mechanism and fibre shaft	71924	Capacitor—Ceramic, 56 mmf. (C135)
73453 75165	Form—Coil form for L45 and L49	75247	Capacitor—Mica, 75 mmf. (C144)
14343	Link—Link assembly for fine tuning Retainer—Fine tuning shaft retaining ring	75437	Capacitor—Ceramic, 100 mmf. (C202)
11010	Resistor—Fixed, composition:	45469	Capacitor—Ceramic, 100 mmf. (C119)
	27 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R8)	39396	Capacitor—Ceramic, 100 mmf. (C125)
	150 ohms, ±20%, 1/2 watt (R10)	75248	Capacitor—Mica, 220 mmf. (C149)
	3,300 ohms, ±10%, ½ watt (R6)	75244	Capacitor—Ceramic, 270 mmf. (C172)
	3,900 ohms, ±10%, ½ watt (R9, R11)	73091	Capacitor—Mica, 270 mmf. (C107, C111, C117, C122) Capacitor—Mica, 390 mmf. (C188)
	8.200 ohms, ±10%, ½ watt (R12)	74250	Capacitor—Mica, 560 mmi. (C152)
	10,000 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R3)	75166	Capacitor—Ceramic, 1,500 mmf. (C166, C169, C190, C191)
	10,000 ohms, ±20%, ½ watt (R2) 22,000 ohms, ±10%, ½ watt (R7)	75089	Capacitor—Ceramic, dual, 1,500 mmf. (C102A, C102B, C108A, C108B, C112A, C112B, C121A, C121B)
75164	100,000 ohms, ±20%, ½ watt (R1, R4, R5) Rod—Actuating plunger rod (fibre) for fine tuning link	73748	Capacitor-Ceramic, 1,500 mmf. (Cl03, Cl04, Cl15, Cl16, Cl24, Cl28, Cl55, Cl84, Cl85, Cl86)
71476	Screw-No. 4-40 x 1/4" binder head machine screw for	73473	Capacitor—Ceramic, 5,000 mmf. (C182, C183, C189)
	adjusting L6, L7, L8, L9, L10, L11	73360	Capacitor—Ceramic, 10,000 mmf. (C194, C195, C197)
75176	Screw—No. 4-40 x 3/8" fillister head screw for adjusting L5 Screw—No. 4-40 x 5/16" fillister head screw for adjusting	75877	Capacitor—Ceramic, dual, 10,000 mmf. (C105A, C105B, C110A, C110B)
15411	Screw—No. 4-40 x 5/16" fillister head screw for adjusting L1, L2, L3, L4, L43	73747	Capacitor-Electrolytic, 2 mfd, 50 volts (C127)
74575	Screw—No. 4-40 x .359" adjusting screw for L42	75218	Capacitor—Electrolytic, comprising 1 section of 10 mfd, 350 volts, 1 section of 5 mfd, 350 volts, and 1 section
73640	Screw—No. 4-40 x 7/16" adjusting screw for L52		of 150 mfd, 50 volts (C132A, C132B, C132C)
75159	Shait—Channel selector shaft and plate	75219	Capacitor—Electrolytic, comprising 1 section of 10 mfd, 450 volts, 1 section of 100 mfd, 350 volts, 1 section of
75160 75168	Shaft—Fine tuning shaft and cam Shield—Oscillator and convertor sections shield for r-f unit—snap-on type		10 mfd, 350 volts, and 1 section of 20 mfd, 25 volts (C160A, C160B, C160C)
75193	Shield—Tube shield for V1	BEAAC	NOTE: 20 mfd, 25 volts section not used.
75192	Shield-Tube shield for V2	75220	Capacitor—Electrolytic, 150 mfd, 200 volts (C161, C162) Capacitor—Tubular, moulded paper, mineral oil impreg-
75088	Socket-Tube socket, 7 contact, miniature, ceramic, saddle mounted	73801	nated, .00025 mfd, 12,500 volts (C158) Capacitor—Tubular, paper, oil impregnated, .001 mfd,
75191 75163	Spacer—Insulating spacer for front plate (4 required) Spring—Friction spring (formed) for fine tuning cam	75249	600 volts (C140, C199) Capacitor—Tubular, moulded paper, oil impregnated, .001
75068	Spring—Retaining spring for oscillator tube shield	75344	mfd, 600 volts (C151) Capacitor—Tubular, moulded paper, oil impregnated, .001
74578 73457	Spring—Retaining spring for adjusting screws Spring—Return spring for fine tuning control		mfd, 1,000 volts (C109)
30340	Spring—Return spring for fine tuning control Spring—Hair pin spring for fine tuning link	73598	CapacitorTubular, paper, oil impregnated, .0015 mfd, 600 volts (C130)

T81

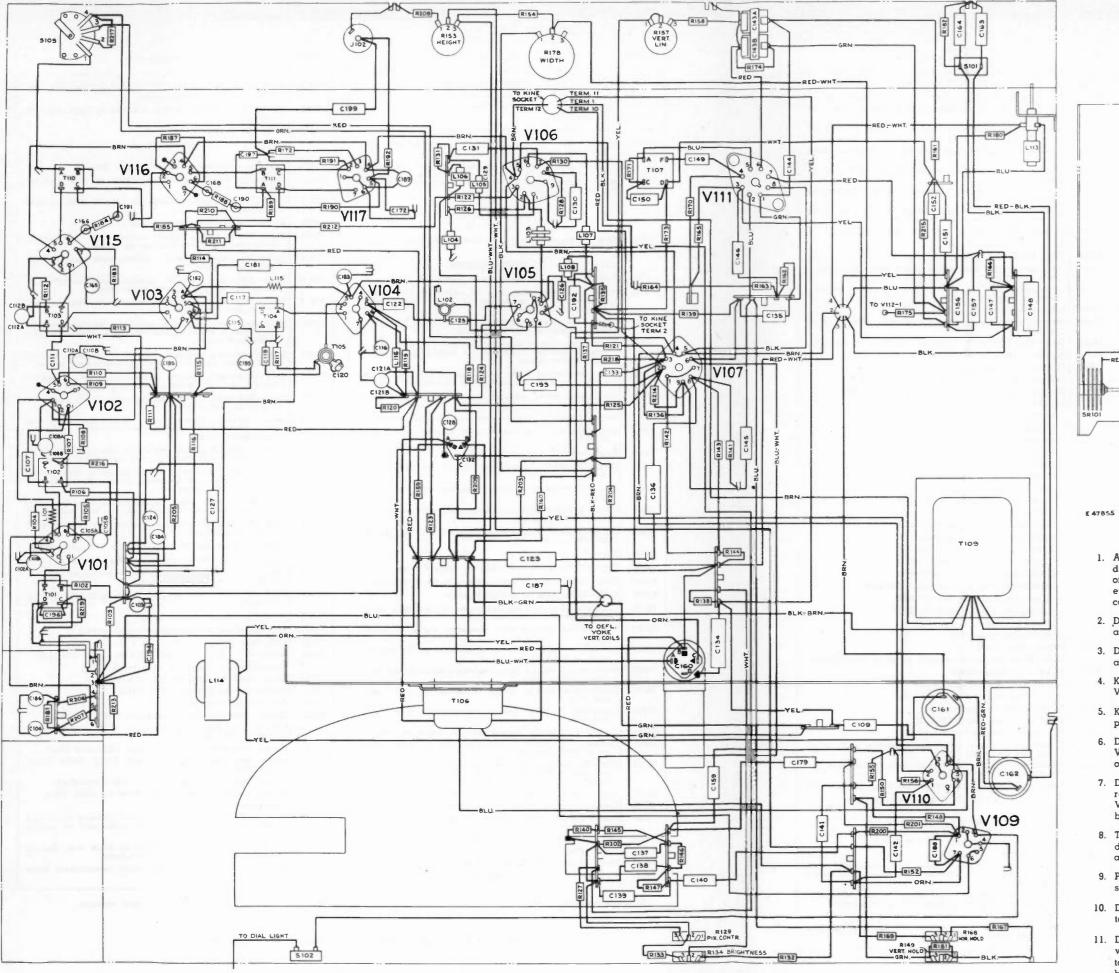
REPLACEMENT PARTS (Continued)

2T81

T81

(Continued)									
X DESCRIPTION	BTOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
$100 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt} (R205, R206)$	75083	Screw-No. 8-32 x 1/4" wing screw to mount deflection	73935	Clip—Mounting clip for i-f transformer			SPEAKER ASSEMBLY	75455	Escutcheon—Channel marker escutcheon—dark—for mg-
120 ohms, ±10%, ½ watt (R104, R108)		yoke		Clip—Clip for main cable—on rear apron of chassis			92569-9W RMA 274		hogany or walnut instruments
180 ohms, ±10%, ½ watt (R117)	74602	Screw—No. 10-32 x 1¾" cross-recessed round head screw for focus magnet adjustment	75485	Coil—Oscillator coil complete with adjustable core and stud (L3, L4)		13867	RL 111-14 Cap—Dust cap	75456	Escutcheon—Channel marker escutcheon—light—for oak
220 ohms. ±10%, 1⁄2 watt (R127, R128)	75236	Screw-No. 8-32 x 3/8" cross-recessed binder head screw	35787	Connector—Single contact female connector for 45 RPM			Cone—Cone and voice coil assembly	75889	Glass—Safety glass
220 ohms, ±10%. 2 watts (R176)	73521	to mount focus magnet Shield—Tube shield for V104 and V105		pickup cable (J5)			Speaker—12" P.M. speaker (3.16 oz.) complete with cone		Grommet-Rubber grommet for mounting speaker (4 re-
470 ohms, ±20%, 1/2 watt (R158)		Shield—Tube shield for V117 and V118	75542	Connector—8 contact male connector for power input cable (J6)			and voice coil (3.2 ohms)		quired)
680 ohms, ±10%, ½ watt (R219) 1,000 ohms, ±20%, ½ watt (R102, R106, R116, R119,	75232	Shield—R-F unit shield	75543	Connector—2 contact female connector for 45 RPM motor			NOTE: If stamping on speaker does not agree with above number, order replacement parts by reterring to		Grommet—Power cord strain relief (1 set)
R159, R185, R216)	75222	Socket-Tube socket, octal, ceramic, plate mounted		cable (P2)			model number of instrument, number stamped on speaker	75697	Grommet—Rubber grommet to mount 45 RPM changer (3 required)
1.800 ohms, ±10%, ½ watt (R115)	73117	Socket—Tube socket, 7 pin, miniature	74879	Connector—Two contact (polarized) female connector for antenna leads ()7)			and full description of part required.	75551	Handle—Metal pullout handle for 33½/78 RPM changer
2,200 ohms, ±20%, 1/2 watt (R141)		Socket—Tube socket, 9 pin, miniature	33514	Connector—Dual two contact female connector for 33/78			SPEAKER ASSEMBLY		mounting frame
2,200 ohms, ±20%, 1 watt (R180)		Socket-Tube socket, 6 contact, moulded for 1B3/8016		RPM pickup cable and television cable (J3, J4)			92569-9B	74308	Hinge-Cabinet door hinge (1 set)
3,900 ohms, ±10%, ½ watt (R166)	60942	Socket—Tube socket, 6 contact, steatite for V112 and V114	75537	Control-Volume control and power switch (R15, S2)		75875	Cone—Cone and voice coil assembly (3.2 ohms)	74959	Knob-Television fine tuning control knob-marcon-for
4.700 ohms, ±5%, ½ watt (R131) 4.700 ohms, ±10%, ½ watt (R137)	75718	Socket—Socket and clamp complete with 7" lead for channel indicator lamp	75538	Control—Tone control (R23) Cord—Drive cord (approx. 60" overall)				20005	mahogany or walnut instruments (outer)
4.700 ohms, $\pm 10\%$, 4% watt (R137) 4.700 ohms, $\pm 10\%$, 1 watt (R111)	74834	Socket-Kinescope socket	72933	Grommet—Rubber grommet to mount slides to bottom			MISCELLANEOUS	13992	Knob—Television fine tuning control knob—tan—for oak instruments (outer)
5,500 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R126)	75233	Spring—Compression spring for focus magnet adjustment	10017	rear (2 required)		75706	Antenna—Radio antenna loop complete, less cable	73996	Knob-Television channel selector knob-marcon-for
5,600 ohms, ±10%, 2 watts (R181)		Spring—Suspension spring for 2nd anode lead	75548	Grommet-Rubber grommet to mount slides to bottom-		75692	Back-Back cover-marcon-for radio-45 RPM phono	1	mahogany or walnut instruments (inner)
6,800 ohms, ±10%, 1 watt (R120)	75226	Strap—Kinescope retaining strap (metal)—upper	11765	front (2 required) Lamp—Dial lamp—Mazda No. 51			compartment for mahogany or walnut instruments— assembled to rollout	73997	Knob—Television channel selector knob—tan—for oak
6,800 ohms, ±10%, 2 watts (R135, R177)	75227	Strap—Kinescope retaining strap (metal)—lower	75544	Nut-Rivnut to fasten screw for mounting chassis (4 re-		75693	Back-Back cover-light brown-for radio-45 RPM phono	74962	Knob—Television brightness control or television vertical
6,800 ohms, ±20%. 2 watts (R207)	75231	Strap—Mounting strap for deflection yoke hood (2 re- quired)		quired)			compartment for oak instruments		hold control knob-maroon-for mahogany or walnut
8.200 ohms, ±5%, ½ watt (R107)	75590	Switch—Indicator light switch (S104)	75535	Plate—Dial back plate complete with three (3) pulleys		757 98	Back—Back cover—marcon—for 33½/78 RPM phono compartment for mahogany or walnut instruments—		instruments (outer)
8.200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R146, R147, R189)	75629	Switch-AGC switch (S105)	75536	Pointer-Station selector pointer			assembled to rollout	73999	Knob—Television brightness control or television vertical hold control knob—tan—for oak instruments (outer)
10,000 ohms, ±5%, ½ watt (R155) 10,000 ohms, ±10%, ½ watt (R140)	75207	Transformer—Power transformer, 115 volt, 60 cycle (T109)	72602	Pulley—Drive cord pulley		75799	Back—Back cover—light brown—for 33½/78 RPM phono	74969	Knob—Television channel marker light switch knob—
12,000 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R171)	75208	Transformer—Vertical output transformer (T106)	72323	Resistor—Wire wound, 3 ohms, 1/2 watt (R31) Resistor—Wire wound, 2,200 ohms, 5 watts (R30)			compartment for oak instruments-assembled to rollout		maroon-for mahogany or walnut instruments
12,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R143)	74589	Transformer—First pix, i-f transformer (T101, C101, R101)	/ 000/	Resistor—Fixed, composition:		75800	Back—Back cover complete with terminal board and power cord for television chassis	74003	Knob—Television channel marker light switch knob—tan —for oak instruments
12,000 ohms, ±5%, 1 watt (R110)	74590	Transformer—Second pix, i-f transformer (T102, C106) Transformer—Third pix, i-f transformer (T103, C113)		47 ohms, ±20%, 1/2 watt (R32)		75473	Board-Television antenna terminal board (2 contact)	74963	Knob—Television picture control or television horizontal
15.000 ohms, ±10%, ½ watt (R133)	73574	Transformer—Fourth pix, i-f transformer (T104, C118)		270 ohms, ±10%, ½ watt (R18)		75694	Bracket—Rollout mechanism stop bracket less rubber	/1000	hold control knob-marcon-for mahogany or walnut
18.000 ohms, ±10%, ½ watt (R119, R123, R209)	75211	Transformer—Sound i-f transformer (T110, C114, C167,		330 ohms, ±10%, 1 watt (R28)			bumper		instruments (inner)
18.000 ohms, $\pm 10\%$. 1 watt (R212)		R186)		470 ohms, ±20%, 1/2 watt (R33)			Bracket—Pilot lamp bracket	74001	Knob—Television picture control or television horizontal hold control knob—tan—for oak instruments (inner)
18,000 ohms, $\pm 10\%$, 2 watts (R210, R211)	75212	Transformer—Sound discriminator transformer (T111, C169, C170, C171)		3,300 ohms, ±5%, ½ watt (R17)		75696	Bumper—Rubber bumper for rollout mechanism stop bracket	75712	Knob-Radio tone control, tuning control or volume con-
22,000 ohms, ±10%, ½ watt (R142, R145) 22,000 ohms, ±20%, ½ watt (R192)	75213	Transformer—Horizontal oscillator transformer (T107)		18,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13) 18,000 ohms, $\pm 10\%$, 1 watt (R10)		72447	Cable—Shielded audio cable complete with two (2) pin		trol and power switch knob-marcon-for mahogany or walnut instruments
22,000 ohms, $\pm 10\%$, 1 watt (R169)	75214	Transformer—Antenna matching transformer complete,		22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R9, R20)			plugs	75713	Knob-Radio tone control, tuning control or volume con-
27,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R184)		including antenna connector, i-f traps and antenna shunt coil (T200, _200, C201, C202, C203, J200, L200,		27,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R14, R34)	1	74296	Cable—Shielded pickup cable complete with pin plug for		trol and power switch knob-tan-for oak instruments
$27,000 \text{ ohms}_{0} \pm 10\%, 1 \text{ watt (R150)}$		L201, L202, L203)		39,000 ohms, ±10%, ½ watt (R19)			33½/78 RPM changer	75714	Knob-Function switch knob-maroon-for mahogany or
33,000 ohms, ±10%, ½ watt (R103, R105)	75240	Transformer—Hi-voltage transformer (T108)		68,000 ohms, $\pm 10\%$. $\frac{1}{2}$ watt (R27)		72437	Cable—Shielded pickup cable complete with pin plug for 45 RPM changer	25215	walnut instruments
33,000 ohms, ±20%, ½ watt (R114, R124)	71778	Trap—Sound trap (T105, C120)		82,000 ohms, ±10%, ½ watt (R25)		13103	Cap-Pilot lamp cap	1	Knob-Function switch knob-tan-for oak instruments
33,000 ohms, \pm 10%, 2 watts (R139)		Trap—I-F trap (L200, L201, C200, C201)		150,000 ohms, ±10%, ½ watt (R7)		71892	Catch—Bullet catch and strike for cabinet doors		Lamp—Pilot or channel indicator lamp—Mazda 51
39,000 ohms, $\pm 10\%$, 1 watt (R202)	75449	Trap—F-M trap complete with adjustable core and stud (L203, C203)		270,000 ohms, ±10%, ½ watt (R24)		X3144	Cloth—Grille cloth for mahogany or walnut instruments	/ 3933	Mask—Channel indicator light mask—burgundy—for ma- hogany or walnut instruments
47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R138, R217) 47,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R109)	75251	Trap-4.5 mc trap (L105, C129)		470,000 ohms, ±10%, ½ watt (R22, R26, R29) 1.5 megohm, ±10%, ½ watt (R6, R35)			Cloth-Grille cloth for oak instruments	75460	Mask—Channel indicator light mask—gold—for oak in-
56,000 ohms, ±10%, ½ watt (R154, R187, R188, R214)		Tubing—Insulated tubing for kinescope straps (303/4")		2.2 megohm, ±20%, ½ watt (Rl, Rl2)	[75703	Connector—5 contact male connector for television power		struments
$68,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt (R200, R201)}$		Yoke-Deflection yoke (L109, L110, L111, L112, C155,		10 megohm, $\pm 20\%$, $\frac{1}{2}$ watt (R16)			cord assembly, less shell		Mask—Kinescope masking panel
82,000 ohms, ±10%, ½ watt (R132)		C180)	75540	Shaft—Tuning knob shaft		39153	Connector—4 contact male connector for T-V antenna cable		Nut-Speed nut for speaker mounting screws
82,000 ohms, ±10%, 1 watt (R165, R173)			73584	Shield—Tube shield		75474	Connector—Single contact male connector for T-V antenna		Pull—Door pull Screw—No. 8-32 x ¾" trimit head screw for door pull
100.000 ohms, ±5%, ½ watt (R190, R191)		RADIO CHASSIS ASSEMBLIES	75546	Slide—Slide mechanism complete for radio chassis bottom		-	cable or for speaker		Shell—Shell for connector, RCA 75703
100,000 ohms, \pm 10%, 1 watt (R122, R167)		RC 1090	31364	Socket—Dial lamp socket		74882	Connector—2 contact (polarized) male connector for radio antenna loop cable		Shell—Shell for connector for RCA 75703
100.000 ohms, $\pm 20\%$, 1 watt (R182) 150.000 ohms, $\pm 10\%$, 14 watt (R181)	75541	Bracket-Pulley bracket complete with drive cord and	31251	Socket-Tube socket, octal, wafer		75709	Connector—8 contact female connector for main cable,		Shell-Shell for connector, RCA 75710
150,000 ohms, ±10%, ½ watt (R161) 150,000 ohms, ±20%, ½ watt (R125)	75534	pulley Capacitor—Variable tuning capacitor complete with	73117	Socket—Tube socket, 7 pin, miniature Spring—Drive cord spring		75710	less shell	1	Socket—Pilot lamp socket
220,000 ohms, $\pm 5\%$, 1 watt (R170)	75554	drive drum (Cl-1, Cl-2)	75539	Switch—Function switch (SI-1, \$3)		75710	Connector—5 contact female connector for main cable, less shell		Spring—Retaining spring for knobs 73995 and 74959
270.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R203)	71924	Capacitor—Ceramic, 56 mmf. (C8)	73636	Transformer—Output transformer (T3)		30868	Connector—2 contact female connector for main cable	14270	Spring—Retaining spring for knobs 73996, 73997, 73999, 74003, 74962 and 74969
330,000 ohms, ±5%, ½ watt (R162)	39632	Capacitor-Mica, 150 mmf. (C2, C16, C20)	75486	Transformer—First i-f transformer complete with adjust-		30870	Connector-2 contact male connector for AC power cable	30330	Spring—Retaining spring for knobs 74001 and 74963
330,000 ohms, ±5%, 1 watt (R164)	73372	Capacitor—Electrolytic, comprising 1 section of 30 mfd, 350 volts, 1 section of 30 mfd, 300 volts and 1 section	35.408	able core and stude (T1)		75702	for 45 RPM changer		Spring—Retaining spring for knobs 75712, 75713, 75714,
390,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R136, R218)		of 20 mfd, 25 volts (C23A, C23B, C23C)	75487	Transformer—Second i-f transformer complete with ad- justable core and studs (T2)		/3/02	Cord—Television power cord complete with two (2) con- tact female connector, less five (5) contact male con-		and 75715
470,000 ohms, ±5%, ½ watt (R148)	73801	Capacitor-Tubular, paper, .001 mfd, 400 volts (C5)	70127	Transformer—Power transformer, 115 volts, 60 cycle (T4)		20000	nector		Spring—Spring clip for channel marker escutcheon
470,000 ohms, ±10%, ½ watt (R112, R174) 560,000 ohms, ±10%, ½ watt (R130)	71394	Capacitor—Tubular, paper, .0015 mfd, 600 volts (C10)	33726	Washer—"C" washer for tuning knob shaft	1		Cord—Power cord and plug—part of main cable		Spring—Suspension spring (coil type) for main cable Stop—Door stop
$680,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R215)$	73851	Capacitor—Tubular, paper, oil impregnated, .0018 mfd, 1,600 volts (C24)					Cushion—Vinylite cushion for masking panel Decal—Control function decal for mahogany or walnut	1	Washer—Felt washer—dark brown—between knob and
820,000 ohms, ±10%, ½ watt (R121, R163)	73803	Capacitor—Tubular, paper, .002 mfd, 1,000 volts (C21,		RADIO ROLLOUT CARRIAGE			instruments		channel marker escutcheon for mahogany or walnut
1 megohm, ±10%, ½ watt (R204)		CZZ)	75552	Decal—Function decal for radio controls			Decal-Control function decal for oak instruments	75523	instruments Washer—Felt washer—tan—between knob and channel
$1 \text{ megohm}, \pm 20\%, \frac{1}{2} \text{ watt} (R160)$	70603	Capacitor—Tubular, paper, .003 mid, 400 volts (C17) Capacitor—Tubular, paper, .005 mid, 400 volts (C15)	75550	Dial—Polystyrene dial scale			Decal—Trade mark decal (RCA Victor)	,0023	marker escutcheon for oak instruments
l megohm, ±20%, l watt (R179) l.2 megohm, ±10%, l watt (R144)	73561	Capacitor—Tubular, paper, .005 mid, 400 volts (C15) Capacitor—Tubular, paper, .01 mid, 400 volts (C9, C13,	75549	Frame-Moulded frame (maroon) for mounting radio chassis and 45 RPM changer for mahogany or walnut			Decal—Trade mark decal (Victrola)	75500	Washer—Felt washer for television compartment back
1.2 megohm, ±10%, 1 watt (R144) 1.5 megohm, ±10%, ½ watt (R152)		C18)		chassis and 45 KPM changer for manogany or walnut instruments		74809	EmblemRCA Victor'' emblem		cover
2.2 megohm, ±10%, 1/2 watt (R156)		Capacitor-Tubular, paper, .015 mfd, 400 volts (C11)	75683	Frame-Moulded frame (light brown) for mounting radio		Total	tein sesisters for which an atop and the test		
2.2 megohm, ±20%, ½ watt (R151, R208)	58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd, 400 volts (C12)	75553	chassis and 45 RPM changer for oak instruments		IO OD	tain resistors for which no stock number is given, order by s	tating type	, value of resistance, tolerance and wattage.
4.7 megohm, ±10%, ½ watt (R213)	73562	Capacitor—Tubular, paper, .02 mfd, 400 volts (C19)	75551	Handle—Metal pull-out handle for mounting frame Screw—No. 8-32 x 5/8" cross recessed pan head machine					
Screw—No. 10-32 x 13/4" hex head screw to hold kine- scope straps together		Capacitor-Tubular, paper, .05 mfd, 400 volts (C14)	, 3333	screw to mount radio chassis (4 required)			APPLY TO YOUR RCA DISTRIBUTOR FO	R PRICES	OF REDIACEMENT DIDTE
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REPLACEMENT PARTS (Continued)



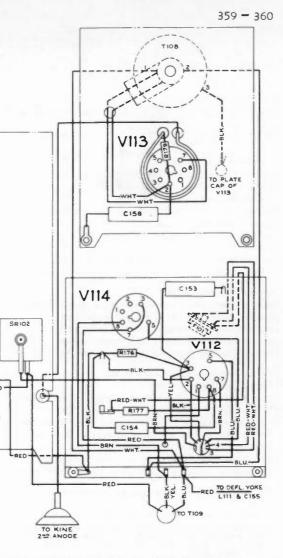
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Figure 6-Chassis Wiring Diagram

TELEVISION CHASSIS WIRING DIAGRAM

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- 2. Dress the yellow lead from pin 3 of V106 socket up in the air and away from V105 socket.
- 3. Dress all components connected to V106 socket up and away from the chassis except L103.
- 4. Keep the body and coded end of L103 as close to pin 2 of V105 socket as possible.
- 5. Keep the bus from pin 5 of V105 socket to L102 as short as possible and employ sleeving to prevent shorting.
- 6. Dress the red lead from the kinescope socket away from V105 and V106 sockets and on the power transformer side of the terminal boards.
- 7. Dress the yellow lead from the kinescope socket along the rear apron between T107 and V111 socket, up between V107 socket and the power transformer to the terminal board.
- 8. The green lead from the kinescope socket should be dressed away from all other leads and components and away from V106.
- 9. Pin 7 of V116 socket should be soldered to the chassis as short as possible.
- 10. Dress the fuse in the high voltage compartment so as not to short circuit to ground.
- 11. Dress the two filament leads away from the T108 high voltage winding by pulling them up through the hole so as to have all slack on the transformer side of the insulating board.



ANT TO

P300A-M REAR VIEW

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S1-3

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J200-F FRONT VIEW

S1-4 135

R5 100 K

P3008-

ANT MATCHING

120

SI-4 REAL

SI-3 REAR

0.8-3.8

6CB6

C16

C. & MIXER

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C 18 1

C 20

FINE

CHANNEL SELECTOR SW. (S1) VIEWED FROM C5 SKI PRONT AND SMOWN 39 CO IN CHANNEL NO. 2 (54-60 MC.) POSITION.

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T200 C202 C200 N C201 C203 ANT 100 18 0 18 39 TRANS.

201 L1

19100

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possible.

possible.

possible.

LONG

3- - L2

39/13

12. Keep the V113 filament leads away from the metal side of

13. Dress C158 on the high voltage rectifier socket so as to

15. Dress R210 and R211 away from all components on account

20. Dress the orange lead from C160C on the power trans-

21. Dress the body of R119 as close to pin 5 of V104 socket as

22. Dress the body of R124 as close to pin 2 of V105 socket as

23. Keep the leads of C122 and C125 as short and direct as

25. Dress the leads of the AGC switch S105 next to the base

26. Solder terminal on can of C160 to bracket along with C134.

in the chassis and away from sound components.

former side of the terminal boards and around the rear

16. Keep the leads at C182 and C183 as short as possible.

keep the hot end of the capacitor away from the metal

L7 CAUPALA - C23

the high voltage compartment shield.

side of the high voltage compartment.

17. Keep C133 dressed above leads.

apron side of V106 socket.

14. Keep all leads away from R177 for heat reasons.

18. Dress the body of C131 away from the chassis.

19. Keep C150 dressed away from the chassis.

24. Keep the leads at C126 as short as possible.

TELEVISION CRITICAL LEAD DRESS

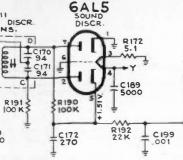
1. All leads in the picture and sound i-f circuits must be dressed as short and direct as possible with the exception of C107, C111 and C117 which are to be dressed with enough slack so as not to have to move the body of the capacitor to align that particular stage.

6AUG TRANS TRANS. R-F UNIT R180 RIC R189 4197V +270V +270 V. GAUG SAUG T 1500 TRANS AMPL C10 TIO2 2ND. PIX. I-F TRANS. 19.5 412 1500 ++++ R106 - C1058 R216 - C1088 C1084 C103 R102 +270V ++m ------R103 R206 33K 100 C 112 A m LC 132 R181 \$ R205 R201 6800 C 104 T C124 C185 R213 4.7 MEG. C7 0.8-1.4 C9 C9 C9 C9 C9 C9 1 1 1 +2701 L C 194 12AU7 6AV6 SYNC SE C135 R146 R147 C140 R200 8200 8200 .001 68K + 42-8 V. -----R145 C 188 1 C 142 R140 +6. R139 & R142 m R144 R143 R141 R 153 2.2 MEG HEIGHT CONTR. +270 V. C 160A R 168 65N7-GT RIGT CONTROL R169 HORIZ OSC. +149 V. 21 -+ 232 V. +270 V. 41811 E AISA C145 R 175 TT R162 C146 R166 HORIZ C 150 + + CONTR ... R164 C151 R173 82 K +270V-In some receivers, R130 was 390K. In some receivers, R219 was omitted. C110 A and B were 1500 and C156 V106 and gnd.

was .033.

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2**T**81



TELEVISION CIRCUIT SCHEMATIC DIAGRAM

All resistance values in ohms. K = Coil resistance values less than 1000

All capacitance values less than 1 in Direction of arrows at controls indi-MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

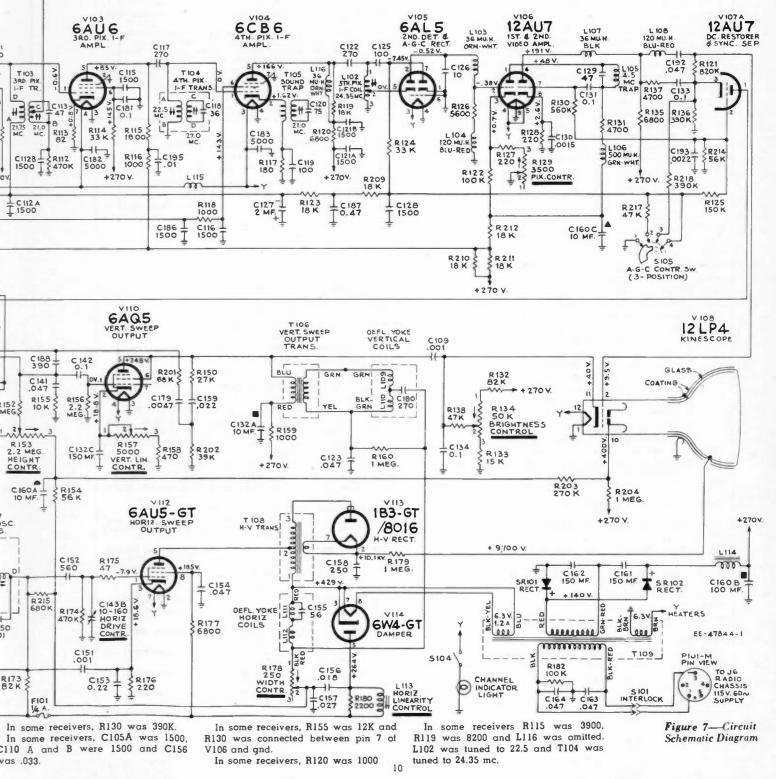
AUDIO OUTPUT

CHASSIS

All voltages measured with "Volt-117 v. a-c supply.

ohm are not shown.

In some receivers, substitutions have Ohmyst" and with no signal input. caused changes in component lead color Voltages should hold within $\pm 20\%$ with codes and in resistor and capacitor values.





Model 6T53 "Neuport" Mahogany Finish Metal



Model 6T64 "Kingibury" Walnut, Muhoguny, Limed Oak



Model 6T71 ''Fairfield'' Walnut, Mahogany, Limed Oak



Model 6T54 "Kent" Mahogany Finish Metal



Model 6T65 "Highland" Walnis, Mahogany, Limed Oak



Model 6T74 "Regency" Walnut, Mahogany



TELEVISION RECEIVERS MODELS 6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

Chassis Nos. KCS47, KCS47T, KCS47A or KCS47AT

— Mfr. No. 274 —

SERVICE DATA

— 1950 No. T14 —

PREPARED BY RCA SERVICE CO., INC. FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.



Model 6T75 ''Modern' Walnut, Mahogany, Limed Oak



Model 6T76 "Provincial" Mahogany, Natural Walnut, Maple

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE......146 square inches on a 16GP4 Kinescope TELEVISION R-F FREQUENCY RANGE All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc.

POWER SUPPLY RATING.....115 volts, 60 cycles, 205 watts AUDIO POWER OUTPUT RATING......3.5 watts max.

CHASSIS DESIGNATIONS

KCS47 or KCS47T..... In Models 6T53 and 6T54 KCS47A or KCS47AT.. In 6T64, 6T65, 6T71, 6T74, 6T75 and 6T76

LOUDSPEAKERS

KCS47 or KCS47T..... (92580-4) 8" PM Dynamic, 3.2 ohms KCS47A or KCS47AT.. (92569-11) 12" PM Dynamic, 3.2 ohms

WEIGHT AND DIMENSIONS (inches)

	Net S	Shipping			
Model V	Veight	Weight	Width	Height	Depth
6T53	92	. 117	211/2	21	20
6T54	106	. 139	211/2	37 %	20
6T64	88	. 107	23¾	363/4	191/4
6T65	94	. 112	271/4	373/4	191⁄2
6T71	108	. 131	28	36¾	. 221/4
6T74	113	. 131	27¼	36¾	21 1/2
6T75	122	. 144	231/2	41	. 21
6T76	109	. 132	28	37	. 211/2

RECEIVER ANTENNA INPUT IMPEDANCE Choice: 300 ohms balanced or 72 ohms unbalanced.

RCA TUBE COMPLEMENT

Tul	be Used	Function
(1) RCA	6CB6	R-F Amplifier
(2) RCA	6J6 R-1	F Oscillator and Mixer
(3) RCA	6AU6 1	st Sound I-F Amplifier
(4) RCA	6AU6 2m	d Sound I-F Amplifier
(5) RCA	6AL5	. Sound Discriminator
(6) RCA	6AV6	. 1st Audio Amplifier
(7) RCA	6K6GT	Audio Output
(8) RCA	6AU6 ls	t Picture I-F Amplifier
(9) RCA	6CB6 2n	d Picture I-F Amplifier
(10) RCA	6AU6 3r	d Picture I-F Amplifier
(11) RCA	6CB6 4tl	Picture I-F Amplifier
(12) RCA	6AL5 Picture 2nd Detect	tor and AGC Detector
(13) RCA	12AU7 1st and	d 2nd Video Amplifier
(14) RCA	12AU7 DC Restor	er and Sync Separator
(15) RCA	6J5 Ver	tical Sweep Oscillator
or RCA	6SN7GT Sync Separator an	d Vertical Sweep Osc.
(16) RCA	6K6GT	Vertical Sweep Output
(17) RCA	6SN7GT Horizontal Sweep	Oscillator and Control
(18) RCA	6BG6G Hor	izontal Sweep Output
(19) RCA	6W4GT	Damper
(20) RCA	1B3-GT/8016	High Voltage Rectifier
(21) RCA	16GP4, 16GP4A, 16GP4B or 160	GP4CKinescope
(22) RCA	5U4G	Rectifier

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6T53, 6T54, 6T64, 6T65,

6T71, 6T74, 6T75, 6T76 ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE	INTERMEDIATE	FREQUENCIES
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Picture Carrier Frequency	25.50 mc.
Adjacent Channel Sound Trap	27.00 mc.
Accompanying Sound Traps	21.00 mc.
Adjacent Channel Picture Carrier Trap	19.50 mc.

SOUND INTERMEDIATE FREQUENCIES

VIDEO RESPONSE
FOCUS Magnetic
SWEEP DEFLECTION Magnetic
SCANNING Interlaced, 525 line
HORIZONTAL SWEEP FREQUENCY 15,750 cps
VERTICAL SWEEP FREQUENCY
FRAME FREQUENCY (Picture Repetition Rate)

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED. IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT REMOVE THE RECEIVER CHASSIS, INSTALL, REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINE-SCOPE AWAY FROM THE BODY WHILE HANDLING.

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

l. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR

to the destred channel.

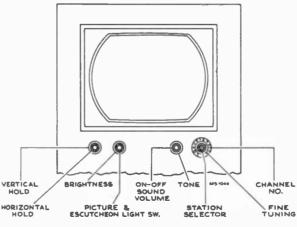
4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and BRIGHTNESS controls for suitable picture contrast and brightness.



9. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

10. In switching from one channel to another, it may be necessary to repeat steps 4 and 8.

11. When the set is turned on again after an idle period it

should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

12. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 8.

13. To use a record player, plug the record-player output cable into the PHONO jack on the rear apron, and set the TV-PH switch to "PH."

14. On console type receivers, to turn on station escutcheon light, pull out on picture control knob, and push in to turn off.

Figure 1-Receiver Operating Controls

INSTALLATION INSTRUCTIONS

6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

Check to see that the kinescope high voltage lead clip is in place.

Connect the antenna transmission line to the receiver antenna terminals. Plug a power cord into the 115 volt ac power source and into the receiver interlock receptacle. Turn the receiver power switch to the "on" position, the brightness control fully clockwise, and the picture control counter-clockwise.

ION TRAP MAGNET ADJUSTMENT. — Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Turn the focus control (shown in Figure 2) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum clockwise position with which good line focus can be maintained.

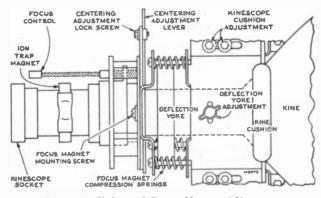


Figure 2—Yoke and Focus Magnet Adjustments

DEFLECTION YOKE ADJUSTMENT. — If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS. — It will now be necessary to obtain a test pattern picture in order to make further adjustments.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn S106 on the rear apron (see Figure 3) counter-clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT. — Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull-in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Magnet Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR. — If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments. Horizontal Frequency Adjustment — Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T108 harizontal frequency adjustment on top of the chassis until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horisontal Locking Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. The picture may remain in sync. If so turn the T108 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer Cl47A slightly clockwise. If less than 2 bars are present, adjust Cl47A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure on page 9. For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

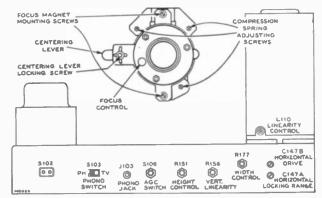


Figure 3—Rear Chassis Adjustments

FOCUS MAGNET ADJUSTMENT. — The focus coil should be adjusted so that there is approximately three-eighths inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus magnet. This spacing gives best average focus over the face of the tube.

The axis of the hole through the magnet should be parallel with the axis of the kinescope neck with the kinescope neck through the middle.

CENTERING ADJUSTMENT. — No electrical centering controls are provided. Centering is accomplished by means of a separate plate on the focus magnet. Some centering plates include a locking screw which must be lossened before centering, and others are held in adjustment by friction. Up and down adjustment of the plate moves the picture side to side and sidewise adjustment moves the picture up and down.

If a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by adjustment of the focus magnet plate. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In some cases it may be necessary to shift the position of the focus magnet in order to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS. — Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage, hence the brightest and best focused picture, adjust horizontal drive counter-clockwise as far as possible without stretching the left side of the picture. As a first adjustment, set the horizontal drive trimmer C147B one-half turn out from maximum capacity.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained.

Adjust the width control R177 to obtain correct picture width.

A slight readjustment of these three controls may be necessary to obtain the best linearity.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R151 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R156 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

FOCUS. — Adjust the focus magnet for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

On focus magnets using two shunts, the one with the cable is the "fine adjustment" and the other is the "focus range" adjustment. In general, the two shunts should be adjusted to approximately equal positions.

Recheck the position of the ion trap magnet to make sure that maximum brightness is obtained.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

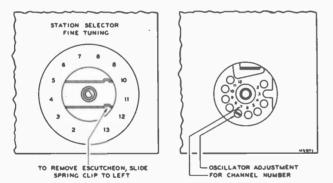


Figure 4—R-F Oscillator Adjustments

CHECK OF R-F OSCILLATOR ADJUSTMENTS. — Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 10. The adjustments for channels 2 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment of channel 13 is on top of the chassis.

AGC CONTROL. — The AGC control switch is provided as an installation adjustment. The normal position for strong signal areas is with the switch in the number 1 or counterclockwise position. If impulse type of interference is experienced, turn the switch to the number 2 or center position. In very weak signal areas in which impulse type interference is experienced, turn the switch to position number 3 or fully clockwise. In this position, all AGC is removed and the receiver will overload if the input signal exceeds 200 microvolts. However, for signals under 200 microvolts, this position of the AGC control switch gives best noise immunity of sync.

FM TRAP ADJUSTMENT. — In some instances interference may be encountered from a strong FM station signal. A trap is provided to eliminate this type of interference. To adjust the trap tune in the station on which the interference is observed and adjust the L203 core on top of the r-f unit for minimum interference in the picture.

INSTALLATION INSTRUCTIONS

CAUTION. — In some receivers, the FM trap L203 will tune down into channel 6 or even into channel 5. Needless to say, such an adjustment will cause greatly reduced sensitivity on these channels. If channels 5 or 6 are to be received, check L203 to make sure that it does not affect sensitivity at these two channels.

Replace the cabinet back and reconnect the antenna leads to the cabinet back.

CABINET ANTENNA. — A cabinet antenna is provided in all except model 6T53 and 6T54 receivers and the leads are brought out near the antenna terminal board. The cabinet antenna may be employed in place of the outdoor antenna in areas where the signals are strong and no reflections are experienced.

VENTILATION CAUTION. — The receiver is provided with adequate ventilation holes in the bottom and back of the cabinet. Care should be taken not to allow these holes to be covered or ventilation to be impeded in any way.

If the receiver is to be operated with the back of the cabinet near a wall, at least a two-inch clearance should be maintained between cabinet and wall.

CHASSIS REMOVAL. — To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the pilot light cable on console models, the yoke and high voltage cable. Remove the yoke frame grounding strap on the wooden cabinet models. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

KINESCOPE HANDLING PRECAUTION. — Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus magnet as an assembly.

INSTALLATION OF KINESCOPE. — Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection coil and focus magnet. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten.

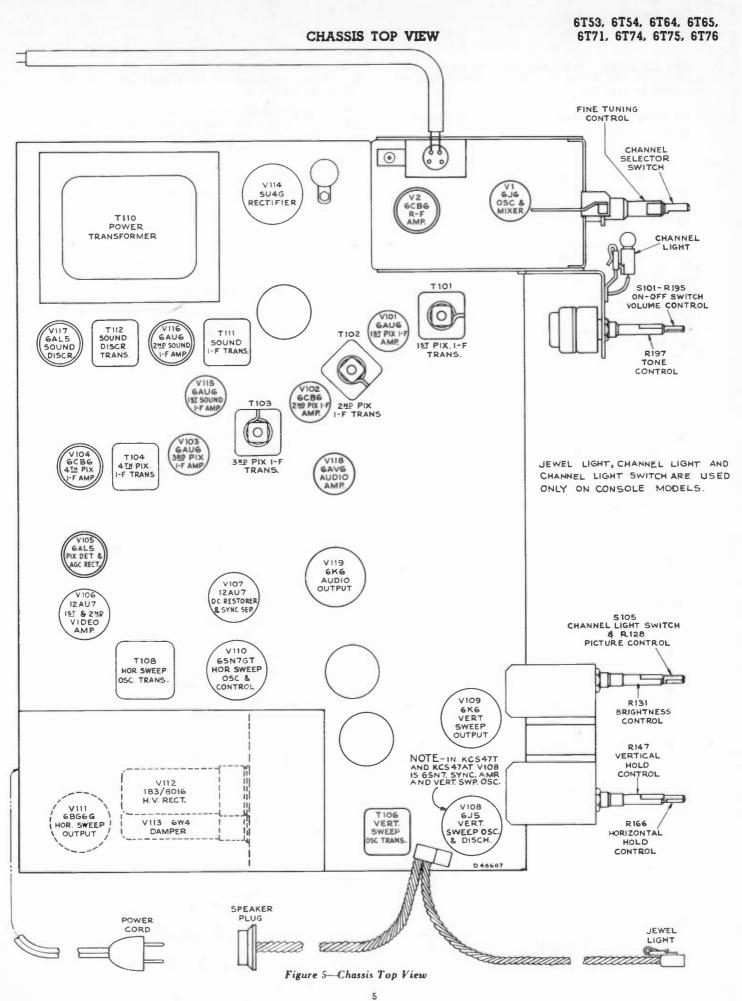
Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possible. If this is not done, difficulty will be encountered in adjusting the ion trap and focus magnet becquee of shadows on the corner of the raster.

Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and connect the high voltage lead from the rim of the kinescope into the high voltage bushing on the high voltage compartment.

Reconnect all other cables. Do not forget to replace the yoke frame grounding strap. Perform the entire set-up procedure beginning with Ion Trap Magnet Adjustment.



ALIGNMENT PROCEDURE

TEST EQUIPMENT. — To properly service the television chassis of this receiver, it is recommended that the following test equipment be available:

R-F Sweep Generator meeting the following requirements:

- (a) Frequency Ranges
 - 20 to 30 mc., 1 mc. and 10 mc. sweep width
 - 50 to 90 mc., sweep width
 - 170 to 225 mc., 10 mc. sweep width
- (b) Output adjustable with at least .1 volt maximum.
- (c) Output constant on all ranges.
- (d) "Flat" output on all attenuator positions.

Cathode-Ray Oscilloscope. -- For alignment purposes, the oscilloscope employed must have excellent low frequency and phase response, and should be capable of passing a 60-cycle square wave without appreciable distortion. While this requirement is not met by many commercial instruments, RCA Oscilloscopes, types WO-55A, WO-58A, WO-79A, and WO-60C fill the requirement and any of these may be employed.

For video and sync waveform observations, the oscilloscope must have excellent frequency and phase response from 10 cycles to at least two megacycles in all positions of the gain control. The RCA types WO-58A and WO-79A are ideally suited for this purpose.

Signal Generator to provide the following frequencies with crystal accuracy.

(a) Intermediate frequencies

- 19.50 mc. adjacent channel picture trap
- 21.00 mc. sound i-f and sound traps
- 22.3 and 25.4 mc. conv. and first pix i-f trans.
- 25.3 mc. second picture i-f transformer
- 22.5 mc. fourth picture i-f transformer
- 21.75 mc. third picture i-f transformer
- 24.35 mc. fifth picture i-f coil
- 25.50 mc. picture carrier

27.00 mc. adjacent channel sound trap

(b) Radio frequencies

Channel Number	Picture Carrier Freq. Mc.	Sound Carrier Freq. Mc.
2	55.25	59.75
3	61.25	65.75
4	67.25	71.75
5	77.25	81.75
6		87.75
7	175.25	179.75
8	181.25	185.75
9	187.25	191.75
10	193.25	197.75
11	199.25	203.75
12	205.25	209.75
13	211.25	215.75

(c) Output of these ranges should be adjustable and at least .1 volt maximum.

Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

Electronic Voltmeter of Junior or Senior "VoltOhmyst" type and a high voltage multiplier probe for use with this meter to permit measurements up to 15 kv.

Service Precautions. - If possible, the chassis should be serviced without the kinescope. However, if it is necessary to view the raster during servicing, it would be a great convenience to have a set of yoke, focus coil, kinescope socket, high voltage and speaker extension cables.

CAUTION. - Do not short the kinescope second anode lead. Its short circuit current presents a considerable overload on the high voltage rectifier V112.

Adjustments Required. - Normally, only the r-f oscillator and mixer lines will require the attention of the service technician. All other circuits are either broad or very stable and hence will seldom require readjustment.

ORDER OF ALIGNMENT. - When a complete receiver alignment is necessary, it can be most conveniently performed in the following order:

- (1) Sound discrimingtor
- (2) Sound i-f transformers
- (3) Picture i-f traps
- (7) Horizontal oscillator (4) Picture i-f transformers
 - (8) Sensitivity check

(6) Overall picture i-f

(5) R.F. unit

SOUND DISCRIMINATOR ALIGNMENT. - Set the signal generator for approximately .1 volt output at 21.00 mc. and connect it to the second sound i-f grid, pin 1 of V116.

Detune T112 secondary (bottom) to the extreme counterclockwise position.

Set the "VoltOhmyst" on the 3-volt scale.

Connect the meter, in series with a 1-megohm resistor, to pin 7 of V117.

Adjust the primary of T112 (top) for maximum output on the meter.

Connect the "VoltOhmyst" to the junction of R192 and S103. Adjust T112 secondary (bottom). It will be found that it is possible to produce a positive or negative voltage on the meter dependent upon this adjustment. Obviously to pass from a positive to a negative voltage, the voltage must go through zero. T112 (bottom) should be adjusted so that the meter indicates zero output as the voltage swings from positive to negative. This point will be called discriminator zero output.

Connect the sweep oscillator to the grid of the second sound i-f amplifier, pin 1 to V116.

Adjust the sweep band width to approximately 1 mc. with the center frequency at approximately 21.00 mc. and with an output of approximately .1 volt.

Connect the oscilloscope to the junction of R192 and S103. The pattern obtained should be similar to that shown in Figure 12. If it is not, adjust T112 (top) until the wave form is symmetrical.

The peak-to-peak band width of the discriminator should be approximately 400 kc. and the trace should be linear from 20.925 mc. to 21.075 mc.

Note. - The bottom core and stud in the discriminator transformer are at plus B potential.

SOUND I-F ALIGNMENT. - Connect the sweep oscillator to the first sound if amplifier grid, pin 1 of V115.

Insert a 21.00 mc. marker signal from the signal generator into the first sound i-f grid.

With the oscilloscope connected as above, adjust T111 for maximum gain and symmetry about the 21.00 mc. marker on the discriminator pattern. The pattern obtained should be similar to that shown in Figure 12.

The output level from the sweep should be set to produce approximately 1.0 volt peak-to-peak at the junction of R192 and S103, when the final touches on the above adjustment are made. It is necessary that the sweep output voltage should not exceed the specified values otherwise the response curve will be broadened, permitting slight misadjustment to pass unnoticed and possibly causing distortion on weak signals.

The band width at 70% response from the first sound i-f grid to the second i-f grid should be approximately 530 kc.

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PICTURE I-F TRAP ADJUSTMENT. — Connect the "Volt-Ohmyst" to the junction of R102 and R201.

Obtain a 7.5 volt battery capable of withstanding appreciable current drain and connect the ends of a 1,000 ohm potentiometer across it. Connect the battery positive terminal to chassis and the potentiometer arm to the junction of R102 and R201. Adjust the potentiometer for -3.0 volts indication on the "VoltOhmyst."

Set the channel switch to the blank position between channels number 2 and 13.

Connect the "VoltOhmyst" to pin 2 of V106 and to ground.

Connect the output of the signal generator to terminal D of T101.

Set the generator to each of the following frequencies and with a thin fiber screwdriver tune the specified adjustment for minimum indication on the "VoltOhmyst." In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

(1) 21.00 mc.—T103 (top)	(4) 27.00 mc.—T104 (top)
(2) 21.00 mc.—T105 (top)	(5) 19.50 mc.—T101 (top)
(3) 27.00 mc.—T102 (top)	

In the above transformers using threaded cores, it is possible to run the cores completely through the coils and secure two peaks or nulls. The correct position is with the cores in the outside ends of the coils. If the cores are not in the correct position, the coupling will be incorrect and it will be impossible to secure the correct response.

PICTURE I-F TRANSFORMER ADJUSTMENTS. — Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the "Volt-Ohmyst." During alignment, reduce the input signal if necessary to prevent overloading.

^{24.35} mc.—L103	21.75 mc T103 (bottom)
*22.5 mcT104 (bottom)	25.3 mc.—T102 (bottom)
^o In some receivers R113 was 3,900, omitted, T104 (bottom) was tuned to to 22.5 mc.	

R-F UNIT ALIGNMENT. — Disconnect the co-ax link from terminal 2 of the r-f unit terminal board and connect a 39 ohm composition resistor between lugs 1 and 2.

Detune T1 by backing the core all the way out of the coil.

In early production units in which L44 is adjustable, back the L44 core all the way out. Back L203 core all the way out.

In order to align the r-f tuner, it will first be necessary to set the channel-13 oscillator to frequency. The shield over the bottom of the r-f unit must be in place when making any adjustments.

The oscillator may be aligned by adjusting it to beat with a crystal-calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available. Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, couple the meter probe leosely to the receiver oscillator.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier signal, connect the signal generator to the receiver antenna terminals. Connect the "VoltOhmyst" to the sound discriminator output (junction of R192 and S103). Also couple the link loosely to lug 2 of the r-f unit terminal board so as to permit measurement of sound discriminator.

Set the channel selector switch to 13.

Adjust the frequency standard to the correct frequency (236.75 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator.

Set the fine tuning control to the middle of its range.

Adjust Cl for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Now that the channel-13 oscillator is set to frequency, we may proceed with the r-f alignment.

Turn the AGC control to the counter-clockwise position.

Connect the bias box to terminal 3 of the r-f unit terminal board and adjust the bias box potentiometer for -3.5 volts.

Connect the oscilloscope to the test connection at R5 on top of the r-f unit.

Connect the r-f sweep oscillator to the receiver antenna terminals. The method of connection depends upon the output impedance of the sweep. The P300 connections for 300-ohm balanced or 72-ohm single-ended input are shown in the circuit schematic diagram. If the sweep oscillator has a 50-ohm singleended output, 300-ohm balanced output can be obtained by connecting as shown in Figure 7.

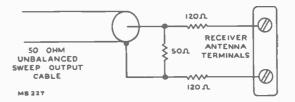


Figure 7—Unbalanced Sweep Cable Termination

Connect the signal generator loosely to the receiver antenna terminals.

Set the receiver channel switch to channel 8.

Set the sweep oscillator to cover channel 8.

Insert markers of channel 8 picture carrier and sound carrier, 181.25 mc. and 185.75 mc.

Adjust C9, C11, C16 and C22 for approximately correct curve shape, frequency, and band width as shown in Figure 15.

The correct adjustment of C22 is indicated by maximum amplitude of the curve midway between the markers. C16 tunes the r-f amplifier plate circuit and affects the frequency of the curve most noticeably. C9 tunes the converter grid circuit and affects the tilt of the curve most noticeably (assuming that C22 has been properly adjusted). C11 is the coupling adjustment and hence primarily affects the response band width.

Set the receiver channel switch to channel 6.

Adjust the frequency standard to the correct frequency (108.75 mc. for heterodyne frequency meter or 87.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range.

Adjust L5 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Set the sweep generator to channel 6.

From the signal generator, insert channel 6 sound and picture carrier markers, 83.25 mc. and 87.75 mc.

Adjust L42, L45 and L49 for proper response as shown in Figure 15.

L42 is adjusted to give maximum amplitude of the curve between the markers. L45 primarily affects the tilt of the curve. L49 primarily affects the frequency of response.

Connect the "VoltOhmyst" to the r-f unit test point at R5.

Adjust C7 for -3.0 volts at the test point.

Retouch L42, L45 and L49 for proper response if necessary. If necessary, retouch C11 for proper band width on channel 6. Continue these retouching adjustments until proper response is obtained and -3.0 volts of oscillator injection are present at the test point.

Set the receiver channel selector switch to channel 8 and readjust C1 for proper oscillator frequency.

Set the sweep oscillator and signal generator to channel 8. Readjust C9, C16 and C22 for correct curve shape, frequency and band width. Readjust C11 only if necessary.

Switch the receiver, the sweep oscillator and signal generator to channel 13. 374

6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

ALIGNMENT PROCEDURE

Adjust L52 for maximum amplitude of the curve midway between markers and then overshoot the adjustment by turning the slug in the same direction from the initial setting a little more than the amount of turning required to reach maximum amplitude of response.

Adjust C22 for maximum amplitude of response.

Turn off the sweep generator. Adjust the L43 core for correct channel 13 oscillator frequency, then overshoot the adjustment by turning the slug a little more in the same direction from the initial setting. Reset the oscillator to proper frequency by adjustment of C1.

Turn the sweep oscillator back on.

Check the response of channels 7 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observing the response and oscillator injection obtained. See Figure 15 for typical response curves. It should be found that all these channels have the proper shaped response with the markers above 80% response.

If the markers do not fall within this requirement, switch to channel 8 and readjust C9, C11, C16 and C22 as necessary. If C22 required adjustment, the adjustment should be overshot a small amount and corrected by adjustment of L52 to give maximum amplitude of response between the sound and picture carrier markers. The antenna circuit (L52, C22) is broad so that tracking is not particularly critical.

If the valley in the top of the selectivity curves for the high channels is deeper than normal, the curve can be flattened somewhat by decreasing the inductance of L44 by turning the core stud in. Be sure to check for undesirable resonant suckouts on channels 7 and 8 if this is done. In later production units, L44 may be fixed and not require adjustment.

Turn the sweep oscillator off and check the receiver channel 8 r-f oscillator frequency. If the oscillator is off frequency overshoot the adjustment of C1 and correct by adjusting L43.

Turn the receiver channel selector switch to channel 6. Adjust L5 for correct oscillator frequency.

Turn the sweep oscillator on and to channel 6 and observe the response curve. If necessary readjust L42, L45 and L49. It should not be necessary to touch C11.

Check the oscillator injection voltage at the test point. If necessary adjust C7 to give -3 volts injection. If C7 is adjusted, switch to channel 8, and readjust C9 for proper curve shape, then recheck channel 6.

Switch the receiver through channel 6 down through channel 2 and check for normal response curve shapes and oscillator injection voltage.

Likewise check channels 7 through 13, stopping on 13 for the next step.

With the receiver on channel 13, check the receiver oscillator frequency. Correct by adjustment of C1 if necessary.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator trimmer for the specified indication. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning control in the middle third of its range.

÷			R-F Osc.	
Number	Freq. Mc.	Freq. Mc.	Freq. Mc.	Adjustment
2	55.25	59.75	80.750	L1
3	61.25	65.75	86.750	L2
4	67.25	71.75	92.750	L3
5	77.25	81.75	102.750	L4
6	83.25	87.75	108.750	L5
7	175.25	. 179.75	200.750	L6
8			206.750	L7
9	187.25		212.750	L8
10	193.25	197.75	218.750	L9
11	199.25	203.75	224.750	L10
12	205.25	209.75	230.750	L11
13	211.25	215.75	236.750	Cl

Switch to channel 8 and observe the response.

Adjust Tl clockwise while watching the change in response. When Tl is properly adjusted, the selectivity curve will be slightly wider with a slightly deeper valley in its top.

Switch through all channels and observe response, oscillator injection and r-f oscillator frequency. Minor touch-ups of adjustments may be made at this time. However, if C7 or C9 are changed appreciably, then a recheck of the oscillator frequency on all channels should be made.

Reconnect the link from T101 to terminal 2 of the r-f unit terminal board.

Since Tl was adjusted during the r-f unit alignment it will be necessary to sweep the overall i-f response.

R-F UNIT TUBE CHANGES. — Since most of the circuits are low capacitance circuits the r-f unit may require readjustments when the tubes are changed.

If the 6CB6 r-f amplifier tube is changed, it may be necessary to readjust C16 and C22.

If the 6J6 oscillator and mixer tube is changed, then more extensive adjustments are required.

For good conversion efficiency, the oscillator injection to a triode mixer must be held reasonably close to the optimum value. Although there is some latitude in this level, it is nearly expended in the normal variation in injection from channel to channel. Consequently, the adjustment of C7 is limited primarily to establishing the conditions for good conversion. Since changes in oscillator injection affect conversion gain, it also affects the input capacity of the mixer, thus also affecting tracking of the mixer grid circuit. These tube variations with their consequent effect on circuit alignment thereby require readjustment of the r-f unit if maximum conversion efficiency is to be retained after the 6]6 tube is changed. It may be possible, however, to try several 6]6 tubes and select one which gives satisfactory performance without realignment.

SWEEP ALIGNMENT OF PIX I-F. — Set the r-f unit bias to -3.5 volts.

Connect a 47 ohm resistor across the link circuit at T101 terminals C and D.

Remove the second picture i-f tube.

With the oscilloscope connected to the r-f unit test connection and the sweep oscillator connected to the antenna terminals, set the sweep output to give 0.1 volt peak-to-peak on the oscilloscope.

Switch through the channels and select one that is essentially flat and with the two carriers at 90% response or higher. Channel 6 is usually the most desirable for this test.

Remove the 47 ohm resistor and replace V102.

Connect the oscilloscope to terminal 2 of V106 socket.

Clip 330 ohm resistors across R106, R108, R113 and R119.

Connect the bias box to the junction of R102 and R201. Adjust the box for -1 volt.

Adjust the sweep oscillator output to give 0.5 volt peak-topeak on the oscilloscope.

Connect the signal generator loosely to the i-f amplifier.

Adjust T1 and T101 bottom core to obtain the response curve shown in Figure 13.

Remove the 330 ohm resistors across R106, R108, R113 and R119.

Set the i-f bias to -4.5 volts.

Adjust the sweep output to give 3 volts peak-to-peak on the oscilloscope.

Retouch T1, T101 bottom, T102 bottom, T103 bottom, T104 bottom and L103 to obtain the response curve shown in Figure 14.

ALIGNMENT PROCEDURE

HORIZONTAL OSCILLATOR ADJUSTMENT. — Normally the adjustment of the horizontal oscillator is not considered to be a part of the alignment procedure, but since the oscillator waveform adjustment requires the use of an oscilloscope, it can not be done conveniently in the field. The waveform adjustment is made at the factory and normally should not require readjustment in the field. However, the waveform adjustment should be checked whenever the receiver is aligned or whenever the horizontal oscillator operation is improper.

Horizontal Frequency Adjustment. — With a clip lead, short circuit the coil between terminals C and D of the horizontal oscillator transformer T108. Tune in a television station and sync the picture if possible.

A.— Turn the horizontal hold control R166 to the extreme clockwise position. Adjust the T108 Frequency Adjustment (atop the chassis) so that the picture is just out of sync and the horizontal blanking appears in the picture as a vertical bar. The position of the bar is unimportant.

B.—Turn the hold control approximately one-quarter of a turn from the extreme clockwise position and examine the width and linearity of the picture. If picture width or linearity is incorrect, adjust the horizontal drive control C147B, the width control R177 and the linearity control L110 until the picture is correct. If C147B, R177 or L110 were adjusted, repeat step A above.

Horizontal Locking Range Adjustment. — Turn the horizontal hold control fully counter-clockwise. The picture may remain in sync. If so, turn the T108 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 9 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C147A slightly clockwise. If less than 7 bars are present, adjust C147A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 7 to 9 bars are present.

Horizontal Oscillator Waveform Adjustment. — Remove the shorting clip from terminals C and D of T108. Turn the horizontal hold control to the extreme clockwise position. With a thin fibre screwdriver, adjust the Oscillator Waveform Ad ustment Core of T108 (under the chassis) until the horizontal blanking bar appears in the center.

A. — Connect the low capacity probe of an oscilloscope to terminal C of T108. Turn the horizontal hold control one-quarter turn from the clockwise position so that the picture is in sync. The pattern on the oscilloscope should be as shown in Figure 16. Adjust the Oscillator Waveform Adjustment Core of T108 until the two peaks are at the same height. During this adjustment, the picture must be kept in sync by readjusting the hold control if necessary.

This adjustment is very important for correct operation of the circuit. If the broad peak of the wave on the oscilloscope is lower than the sharp peak, the noise immunity becomes poorer, the stabilizing effect of the tuned circuit is reduced and drift of the oscillator becomes more serious. On the other hand, if the broad peak is higher than the sharp peak, the oscillator is overstabilized, the pull-in range becomes inadequate and the broad peak can cause double triggering of the oscillator when the hold control approaches the clockwise position.

Remove the oscilloscope upon completion of this adjustment.

Check of Horizontal Oscillator Adjustments. — Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync. If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer Cl47A slightly clockwise. If less than 2 bars are present, adjust Cl47A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Turn the horizontal hold control to the maximum clockwise position. The picture should be just out of sync to the extent that the horizontal blanking bar appears as a single vertical or diagonal bar in the picture. Adjust the T108 Frequency Adjustment until this condition is fulfilled.

SENSITIVITY CHECK. — A comparative sensitivity check can be made by operating the receiver on a weak signal from a television station and comparing the picture and sound obtained to that obtained on other receivers under the same . conditions.

This weak signal can be obtained by connecting the shop antenna to the receiver through a ladder type attenuator pad. The number of stages in the pad depends upon the signal strength available at the antenna. A sufficient number of stages should be inserted so that a somewhat less than normal contrast picture is obtained when the picture control is at the maximum clockwise position. Only carbon type resistors should be used to construct the pad.

RESPONSE CURVES. — The response curves shown on page 12 and referred to throughout the alignment procedure were taken from a production set. Although these curves are typical, some variations can be expected.

The response curves are shown in the classical manner of presentation, that is with "response up" and low frequency to the left. The manner in which they will be seen in a given test set-up will depend upon the characteristics of the oscilloscope and the sweep generator. The curves may be seen inverted and/or switched from left to right depending on the deflection polarity of the oscilloscope and the phasing of the sweep generator.

NOTES ON R-F UNIT ALIGNMENT. - Because of the frequency spectrum involved and the nature of the device, many of the r-f unit leads and components are critical in some respects. Even the power supply leads form loops which couple to the tuned circuits, and if resonant at any of the frequencies involved in the performance of the tuner, may cause serious departures from the desired characteristics. In the design of the receiver these undesirable resonant loops have been shifted far enough away in frequency to allow reasonable latitude in their components and physical arrangement without being troublesome. When the r-f unit is aligned in the receiver, no trouble from resonant loops should be experienced. However, if the unit is aligned in a jig separate from the receiver, attention should be paid to insure that unwanted resonances do not exist which might present a faulty representation of r-f unit alignment.

A resonant circuit exists between the r-f tuner chassis and the outer shield box, which couples into the antenna and r-f plate circuits. The frequency of this resonance depends on the physical structure of the shield box, and the capacitance between the tuner chassis and the front plate. In the KRK8 units, this resonance should fall between 120 and 135 mc. and is controlled in the design by using insulating washers of different thicknesses (in the front plate to tuner chassis mounting) to compensate for differences in the shield boxes of different models of receivers. The performance of the tuner, particularly on channels 7 and 8 will be impaired if the proper washers for the particular shield box involved are not used. Obviously then, if the r-f unit is removed for service, the washers should be replaced in the correct order when the unit is replaced.

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ALIGNMENT TABLE

THE DETAILED ALIGNMENT PROCEDURE BEGINNING ON PAGE 6 SHOULD BE READ BEFORE ALIGNMENT BY USE OF THE TABLE IS ATTEMPTED

STEP No.	SIGNAL	CONNECT SIGNAL CONNECT SIGNAL GEN. SWEEP GENERATOR FREQ. GENERATOR TO MC. TO		P	GEN. FREQ. MC.	CONN OSCILLO TC	SCOPE	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER	
					DIS	CRIMIN	ATOR AND	SOUND	I-F ALIGNMENT			
1	2nd sound i- (pin 1, V116)		21.00 l volt output	Not used			Not used		In series with 1 meg. to pin 7 of V117	Meter on 3 volt scale	Detune T112 (bot.) Adjust T112 (top) for max. on meter	Fig. 12 Fig. 9 Fig. 8
2			"	"			"		Junction of R192 & S103	Meter on 3 volt scale	T112 (bottom) for zero on meter	Fig. 12 Fig. 9
3			"	2nd sound (pin 1, Vit	6)	21.00 center l mc. wide l v. out	Junction o S103	f R192 &	Not used	Check for symmetry form (positive & ne adjust T112 (top) un	ical response wave- gative). If not equal til they are equal.	Fig. 12 Fig. 9
4	lst sound i-f (pin 1, V115)	d	21.00 re- luced output	lst sound (pin I, VII	5) re	21.00 educed output				Sweep output re- duced to provide 1.0 volt p-to-p on scope	Till for max. gain and symmetry at 21.00 mc.	Fig. 12 Fig. 10 Fig. 9 Fig. 8
						PICTU	RE I-F AND	TRAP A	DJUSTMENT	a second second		
5	Not used			Not used		-	Not used		Junction of R102 & R201		for -3.0 volts on	Fig. 10
6	Terminal I T101	to of	21.00			-	.,		Pin 2 of V106 and to ground	Meter on 3 volt scale. Receiver be- tween 2 & 13	T103 (top) for min. on meter	Fig. 10 Fig. 8
7	"		21.00			-			"		T105 (top) for min.	Fig. 8
8			27.00 27.00								T102 (top) for min.	
10	"		19.50							,,	T104 (top) for min.	
11	"		24.35			-			"		L103 (top) for min.	
12	"	2	22.5	"		-					T104 (bot.) for max.	-
13			21.75			-			"		T103 (bot.) for max.	Fig. 9
	200						R-F UNIT	ALIGNM	ENT			
STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.		ONNECT SWEEP NERATOR TO	SWEEP GEN. FREQ. MC.	HETE	NNECT RODYNE METER TO	HET. METER FREQ, MC.	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
14	permit measu	rement one core of	adjuste at soun all the	d discrimina way out of t	tor. In eache coil. In	rly proc order	d carrier bi duction unit to align the	gnal, cou is in wh r-f tunes	ich L44 is adjustat r, it will first be new	y to lug 2 of the r-f	between lugs 1 and unit terminal board e all the way out. D nnel 13 oscillator to fr	so as t
15	Antenna terminals	215.75 mc.	Not u	ised			y coupled oscillator	236.75 mc.	& S103 for signal	Fine tuning centered. Receiver on channel 13. Het. freq. meter coupled to osc. if used.	or beat on het, frea.	Fig. 10 Fig. 8
16									Ohmyst" to ter- minal 3 of the r-f unit terminal	Turn AGC control counter - clockwise. Connect bias box to termInal 3 of r-f unit term. board.	potentiometer for - 3.5	Fig. 10
17	Antenna terminal (loosely)	181.25 185.75	Anter termi (see cauti	nals text for pre-	Sweeping channel 8	Not use	•d	-		Rec. on chan. 8. Co test connection at R5 Adjust C9. C11. C1 curve shape, frequen C22 is adjusted to between markers. C9 and C16 primarily a of response. C11 a band width.	on top the r-f unit. 6 and C22. Correct cy, and band width. give max. amplitude primarily affects tilt flects the frequency	Fig. 15 (8)
18	"	87.75		"	Not used		coupled scillator	108.75	Junction of R192 & S103 for signal gen. method only		L5 for zero on meter or beat on het, freq, meter	Fig. 8 Fig. 10 Fig. 11
19		83.25 87.75		"	Channel 6	Not use	d	1	1111	Rec. on chan. 6. Adju for proper response. give max. amplitude L45 primarily affect marily affects freq. o sary, retouch Cl1 for	L42 is adjusted to between markers, s tilt and L49 pri- f response. If neces-	Fig. 15 (6)
	Not used	-	Not u	sed	-	Not use	d	-	Connect "Volt- Ohmyst" to r-i unit test point R5	Rec. on channel 6	Adjust C7 for 3.0 volts at the test	Fig. 8 Fig. 9
20									ant test point no		point	
20 21	Repeat steps	18. 19 ai	nd 20 u	intil the spec	cified cond	ltions a	re obtained		unit test point its		point	

Figure 2, shows the schematic of the same circuits of the 16" and 19" combination instruments (chassis KCS60).

Figure 3, shows the modified sync, D.C. restorer and vertical oscillator circuits, which are the same for both straight television instruments and combinations.

Comparing figure 1 with figure 3, it will be noted that V107, which was originally used as a D.C. restorer, sync separator and amplifier, is reconnected with the first half of the tube as D.C. restorer and horizontal sync separator, and with the second half connected as a vertical sync separator. V108, which was a 6J5 type used as a vertical sweep oscillator and discharge tube, is replaced by a 6SN7 type, half of which is used as the vertical sweep oscillator and discharge tube, while the remaining half is used as a sync amplifier.

If the changes covered by these schematics are warranted, the following parts are required:

Quantity	Stock No.	Symbol	Description
1*	6SN7	V108	Tube
1**	6AV6	V118	Tube
1	30733	R235	3300 ohm resistor, ½ watt
1	30494	R230	4700 ohm resistor, ½ watt
2	3078	R229, R236	10 K resistor, ½ watt
1	30650	R234	56 K resistor, ½ watt
1	3252	R233	100 K resistor, ½ watt
1	30180	R142	120 K resistor, ½ watt
4	14583	R134, R223,	
		R231, R232	220 K resistor, ½ watt
1	73094	C215	390 mmf. mica capacitor
1	73595	C216	.0022 mid. capacitor
1	75252	L115	550 muh. peaking coil
1	76010	S106	A. G. C. switch
1**	73117	*****	7-pin miniature tube
			socket
1	********	*******	4 lug terminal strip
1	********	****	l lug terminal strip
		quired for con	bingtion instruments.

** Only required in combination models.

The additional tube and socket are required in the 16" and 19" combination models since the portion of the 6SN7 tube V108 which was formerly used as a bias-clamp is reconnected as a sync amplifier, and it is necessary to install a separate bias-clamp tube. The connections for the additional biasclamp are shown in figure 4. Although type 6AV6 is recommended for this bias-clamp application, any of the following tubes may be used with the same socket connections, 6BA6, 6BF6, 6AT6, 6AQ6, 6AK6, 6AR5, 6AG5, 6AU6, 6BI6 or 6CB6. The additional tube can be installed in the existing hole near the center of the chassis.

AGC CONTROL SWITCH IN "T" CHASSIS

The AGC switch used in these chassis is a four-contact, threeposition rotary type. It is very similar to that used in the earlier production 16" and 19" models, the difference being that the new rotor is longer, and contacts terminal 4 when the switch is in the center (number 2) position. In addition, the leads to terminals 3 and 4 are reversed.

The correct setting for the AGC switch can be determined as follows:

- 1. POSITION #1 (ccw when viewed from rear) Maximum AGC voltage is used in this position. It is the correct position for strong signals.
- 2. POSITION #2 (center) In this position, the rotor contacts terminals 1, 2, and 4 of the AGC switch. This reduces the AGC voltage and changes the time constant of the AGC system to allow quicker recovery of the AGC from any tendency to "set up" on noise. In addition, improved noise immunity results from the change in cathode resistance of the D.C. restorer. This position of the AGC switch should be used when receiving medium to weak signals.
- 3. POSITION #3 (cw) In this position, the AGC voltage is completely shorted out. The receiver operates at maximum gain and maximum noise immunity. This position should only be used on very weak signals.

In some fringe areas it may be desirable to leave this switch in the No. 3 (clockwise) position for best signal-to-noise ratio. In this event, the customer should be instructed that daily or seasonal variations in signal intensity or difference in signal strength between channels may cause overload of the receiver. and he should turn this switch to No. 2 (center) position for the channel which is too strong.

POOR SOUND

When investigating the causes of weak or poor sound, do not overlook the possibility of defective 94 mmfd. capacitors contained within the sound discriminator transformer

Also, check for loose slug adjustments in this transformer Vibration over a period of time can cause detuning through physical movement of the slugs. If any loose slugs are encountered, the adjusting screw may be lightly cemented after proper alignment.

Poor or weak sound can result from leakage, opening or shorting of Capacitors C171 and C172.

PICTURE BEND

Under certain critical signal conditions a bending may occur in the picture which may be corrected by the following suggestions:

- 1. R142 may be changed to 390K, and connected to +120 volts instead of ± 250 volts.
- 2. Certain conditions of intermittent picture bending can result from improper ground connections to R8, Pins 3 and 7 of V2, and the base of V2 tube shield.

KCS47T, KCS47AT, KCS48T, KCS49T, KCS49AT, KCS60T

PICTURE "SMEAR"

Smear is generally intepreted as an extension or washing out of white or black trailing edges so that the trailing edge is not sharply defined, but is smeared out toward the right side of the screen.

This type of smear may result from incorrect:

- 1. R-F unit response in the receiver.
- 2. I-F amplifier response in the receiver.
- 3. Overall R-F—I-F amplifier response in the receiver.
- 4. High frequency response in the video amplifier in the receiver.
- 5. High frequency response in station transmission.
- 6. High frequency response due to relayed or cabled transmission.

If smear is encountered, the initial step in correction is to make certain that the R-F and I-F alignment is correct as indicated in service data. Particular care should be taken to have the 26.25 mc., 25.50 mc., and 24.75 mc. markers at the proper location on the overall R-F-I-F response curve.

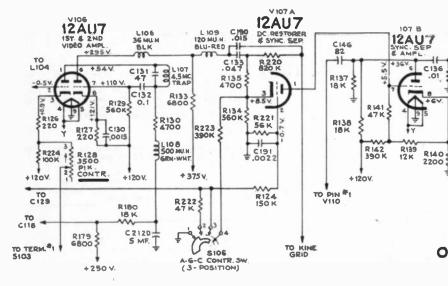
Additional peaking of the high video frequencies can be obtained in the video amplifier in 16" and 19" models by the following:

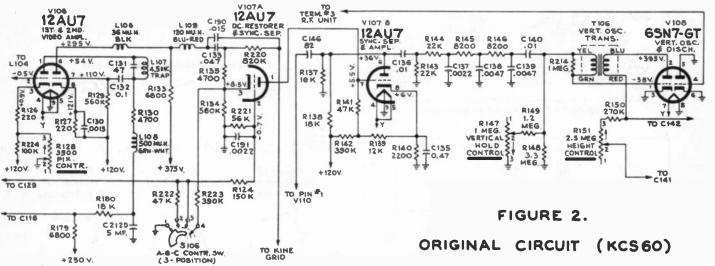
- 1. Add 1500 mmfd. across R126 (cathode of first video amplifier).
- 2. Add 100 mmid. from the junction of R126 and R224 to ground.
- 3. Change L105 (grid circuit of first video amplifier) from 120 muh. to 500 muh. (Use Stock #75252.)
- 4. Capacitors C190, C132, and C133 should be dressed away from each other to reduce coupling.

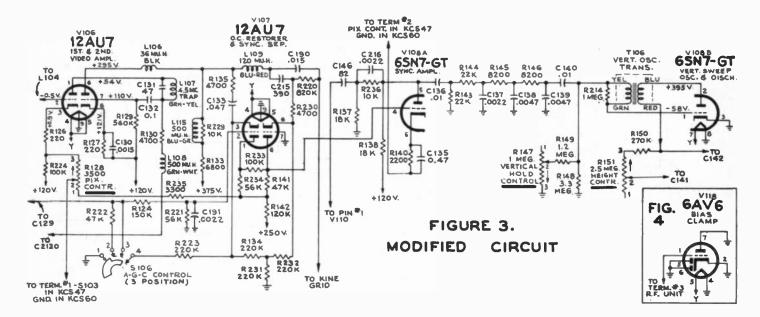
INCREASED SOUND AND PICTURE GAIN

The following changes, which have been incorporated in production, are suggested where necessary to provide additional sound and picture gain on very weak signals.

- 1. Change the first and second picture I-F cathode resistors (R103 and R107) from 120 ohms to 82 ohms. This provides additional gain through these stages.
- 2. Move the point of sound take-off (connection C) on the trap of T103 up two turns on the coil. This provides additional 21 mc. sound voltage to the sound I-F amplifier.
- 3. After the above changes, it will be necessary to accurately realign the sound and picture I-F amplifiers.







380

381

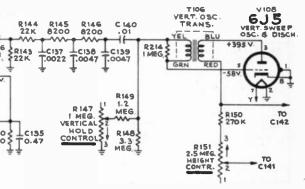


FIGURE 1.

ORIGINAL CIRCUIT (KCS47)

6T71, 6T74, 6T75, 6T76

RESPONSE AND WAVEFORM PHOTOGRAPHS Taken from RCA WO58A Oscilloscope

PICTURE I-F RESPONSE. - At times it may be desirable to observe the individual i-f stage response. This can be achieved by the following method:

Shunt all i-f transformers and coils with a 330 ohm carbon resistor except the one whose response is to be observed.

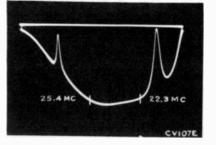


Figure 17-Response of Converter and First Pix 1-F Transformer

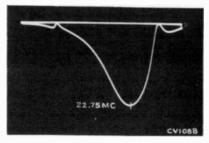


Figure 20-Response of Fourth Pix I-F Transformer

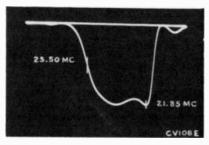
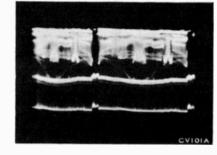
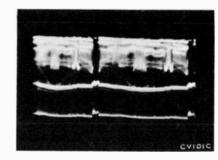


Figure 23—Overall Pix I.F Response





Connect a wide band sweep generator to the converter grid and adjust it to sweep from 18 mc. to 30 mc.

Connect the oscilloscope across the picture detector load resistor and observe the overall response. The response obtained will be essentially that of the unshunted stage. The effects of the various traps are also visible on the stage response.

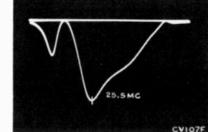


Figure 18—Response of Second Pix I-F Transformer

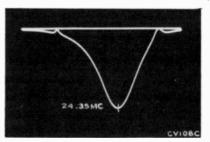


Figure 21-Response of Fifth Pix I.F Coil

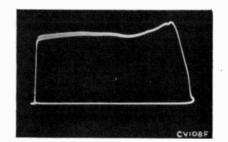


Figure 24-Video Response at Average Contrast

Plate of Picture Detector (Pin 7 of V105) (6AL5)

Figure 26-Vertical (Oscilloscope Synced to $\frac{1}{2}$ of Vertical Sweep Rate) (5.5 Volts PP) ---

Figure 27-Horizontal (Oscilloscope Synced to 1/2 of Horizontal Sweep Rate) (5.5 Volts PP) -bible---

Grid of 1st Video Amplifier (Pin 2 of V106) (12AU7)

Figure 28— Vertical (5.3 Volts PP)

Figure 29—-Horizontal (5.3 Volts PP)

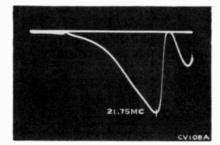


Figure 19-Response of Third Pix I-F Transformer

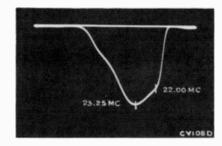


Figure 22-Response from First Pix I.F Grid to Pix Det.

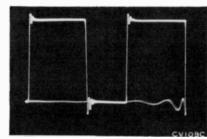
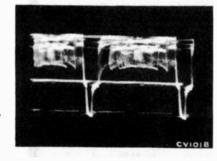
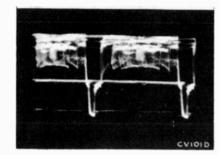


Figure 25-Video Response at Minimum Contrast





ALIGNMENT TABLE

6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

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CONNECT

SIGNAL GENERATOR

STEP No.

SIGNAL

GEN. FREQ. MC.

CONNECT

SWEEP GENERATOR

ALIGNMENT TABLE

CONNECT

OSCILLOSCOPE

SWEEP

GEN. FREQ.

TEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT HETERODYNE FREQ. METER TO	HET. METER FREQ. MC.	Connect "Voltohmyst" To	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
23	Antenna terminal (loosely)	181.25 185.75	Antenna terminals (see text for pre- caution)	Sweeping channel 8	Not used	-	Not used	C22 for correct cur	eadjust C9, C16 and ve shape, frequency leadjust C11 only if	Fig. 8 Fig. 9 Fig. 15 (8)
24	"	211.25 215.75		Sweeping channel 12	Not used		Not used	amplitude between overshoot a little m of turning required	Adjust L52 for max. markers and then ore than the amount to reach max. re- 22 to regain max. se.	Fig. 9 Fig. 15 (13)
25	**	215.75	Not used	-	Loosely coupled to r-f oscillator	236.75	& S103 for signal	13. Adjust L43 for co	d. Receiver on chan. prrect channel 13 osc. t. Reset the osc. to istment of Cl.	Fig. 8 Fig. 11
26		205.25 209.75	Antenna terminals	channel 12	Not used	-	Connect "Volt- Ohmyst" to r-f unit test point at R5	Rec. on channel 12	Check to see that re- sponse is correct and -3.0 volts of osc. in- jection is present	Fig. 10 Fig. 15
27		199.25 203.75	(see text for pre- caution)	channel 11	40	-		Rec. on channel 11	00	Fig. 15 (11)
28		193.25 197.75		channel 10	80	-		Rec. on channel 10	00	Fig. 15 (10)
29	4.0	187.25 191.75	**	channel 9		-	60	Rec. on channel 9	00	Fig. 15 (9)
30	67	181.25 185.75	80	channel 8	<i>be</i>	-	"	Rec. on channel \$	68	Fig. 15 (8)
31	**	175.25 179.75	88	channel 7	**	-	e e e e e e e e e e e e e e e e e e e	Rec. on channel 7	**	Flg. 15 (7)
32 33 34	to pull respon a small amou Repeat step 2	nt and co 22. If the	the low channel	yet maintanent of L52	in correct respons to give maximum vershoot the adjust	on cha amplitud	nnel 8. If C22 require of response betw	aired adjustment, the ween the sound and ;	Cll, Cl6 and C22 as r adjustment should be picture carrier markers	oversho
35	Antenna terminals (loosely)	87.75	Not used	-	Loosely coupled to r-f oscillator	108.75	Junction of R192 & S103 for sig. gen. method only	Rec. on channel 6	L5 for zero on meter or beat on het. freq. meter	Fig. 10 Fig. 10
36	##	\$3.25 \$7.75	Ant. terminals (see text for pre- caution)	Sweeping channel 6	Not used	-	Not used	Observe response. 1 L42, L45 and L49. It sary to touch C11,	f necessary readjust should not be neces-	Fig. 8 Fig. 9 Fig. 15
37	Not used		Not used	-	Not used	-	Ohmyst" to the	C7 to give -3 volts	If necessary adjust If C7 is adjusted, and readjust C9 for repeat step 38.	Fig. 9 Fig. 10
38	Antenna terminals (loosely)	77.25 81.75 67.25	Ant. terminals (see text for pre- caution)	channel 5	<i>64</i>	-		Rec. on channel 5	Check to see that re- sponse is correct and -3.0 volts of osc. in- jection is present	Fig. 15 (5)
39 40		71.75		4 channel	80		80	Rec. on channel 3		Fig. 15 (9)
		65.75 55.25		3 channel			40	Rec. on channel 2	00	Fig. 15 (3) Flg. 15
		59.75	1	2	in store 21 back	Ahranah				(2)
42 13	Likewise chec Antenna terminals	215.75	Not used		Loosely coupled to r-f oscillator	236.75	Junction of R192	Receiver on channel	Cl for zero on meter or beat on het. dreq. meter	Fig. 8 Fig. 10
44		209.75		—	**	230.75	**	Rec. on channel 12	Lll as above	Fig. 11
5		203.75			**	224.75		Rec. on channel 11	L10 as above	Fig. 11
6	**	197.75		_	88 	218.75	**	Rec. on channel 10	L9 as above	Fig. 11
7	"	191.75	00 40	-	80 00	212.75		Rec. on channel 9	L8 as above	Fig. 11
8	00 00	185.75	**			206.75		Rec. on channel 8	L7 as above	Fig. 11
9	00 00	179.75		-	00	200.75	**	Rec. on channel 7 Rec. on channel 6	L6 as above	Fig. 11
0		87.75		-		108.75	88	Rec. on channel 5	L3 as above	Fig. 11 Fig. 11
1		81.75 71.75				92.75	**	Rec. on channel 4	L3 as above	Fig. 11
2		65.75	**	_		86.75	**	Rec. on channel 3	L2 as above	Fig. 11
i4		59.75		-	80	80.75	**	Rec. on channel 2	Ll as above	Fig. 11
55	Repeat stere		h 54 as a check.						-	
56	Antenna terminals	181.25 185.75	_	Sweeping channel 8	Not used	-		point. Adjust T1 clo erly adjusted, curv	cilloscope at R5 test ckwise. When prop- e will be slightly ly deeper valley in	Fig. 15 (8)
						4	š	cy. Minor touch-ups		

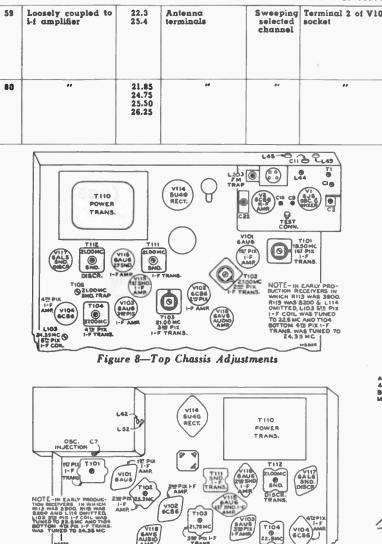


Figure 9-Bottom Chassis Adjustments

VIII BAVE AUBIO AMR

5AUS 312 Pix 1-7 Aug

104 2.5MC

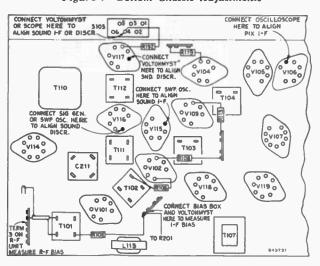
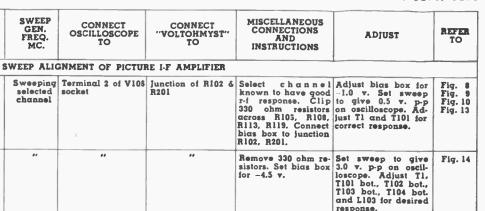


Figure 10-Test Connection Points



6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76



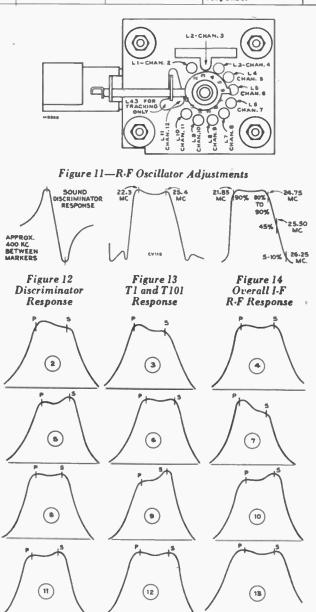


Figure 15-R.F Response

CVIIO



Figure 16-Horizontal Oscillator Waveforms

- 6T53, -54, -64, -65, -71, -74, -75, -76 (Chassis No. KCS47, KCS47A, KCS47T, KCS47AT)
- 6T84, 6T86, 6T87 (Chassis No. KCS48, KCS48T)
- 9T57, 9T77, 9T79 (Chassis No. KCS49, KCS49A, KCS49T, KCS49AT)

9T89 (Chassis No. KCS60, KCS60T)

Numerous changes have been made in the chassis used in the above models. Some changes apply only to chassis without "T" in the chassis identification number, some are the difference between chassis without "T" and with "T" and some apply only to chassis with "T" in the chassis number. They are so segregated in the information contained on this and the following two pages (13, 14 and 15).

KCS47, KCS47A, KCS48, KCS49, KCS49A, KCS60

WIDTH CONTROL (STOCK #75516)

Some failure of this control has been reported as a result of excessive dissipation when the control is in certain positions of adjustment.

To overcome this difficulty, the factory has reversed the leads on terminals 1 and 3 of this control (R177) so that a greater portion of the control is used, giving greater heat dissipation capacity. With this change, the control will give maximum width in the counterclockwise position. All chassis modified as above are marked with a small "w" adjacent to the width control on the rear apron, and a small "w" has been added under the serial number on the carton.

WIDTH & HORIZONTAL LINEARITY

In order to improve these items, the following parts and wiring changes are suggested:

- 1. C160 (.022 mfd.) is changed to .018 mfd. 1000 V-Stock #74727.
- 2. R176 (8200 ohms) is changed to 6800 ohms, 1 watt-Stock # 38887.
- 3. The blue and blue/yellow leads of V113 (6W4) should be twisted approximately one turn per inch to reduce capacity to chassis.
- 4. The lead from Pin 4 of J101 (F) should be dressed away from all metal.

THE FOLLOWING CHANGES ARE SUGGESTED IN THE EVENT ANY OF THE LISTED SERVICE PROBLEMS ARE ENCOUNTERED IN THE ABOVE MODELS:

1. Noise in Sound-(Fringe Areas)

- a. Add .0015 mfd. capacitor (Stock #73598) from connection point of R192 on TV-Phono switch to ground. (All models except Combinations.)
- b. Properly align sound I.F. and discriminator circuits.
- c. Thoroughly check 1500 mmf. "plug-in type" capacitors for open and leakage. (A number of these capacitors have been found in this condition and contribute to weak and noisy sound.)
- d. Check 6AU6 second sound I-F tube. Some of these tubes have been found to have remote cut-off characteristics and cause insufficient limiting in this circuit.

2. Picture Bending (Top of Picture)

- a. Change cathode resistor R134 of DC restorer tube to 560K.
- NOTE: This should only be done in strong signal areas where bending of the top of picture usually occurs. Changing this resistor in weak signal areas may decrease the noise immunity of the restorer circuit.

- 3. Picture Bending (Bottom of Picture)
- a. Change third picture I-F plate load resistor R113 from 3900 to 1800 ohms.
- b. Change fourth picture I-F plate load resistor R119 from 8200 to 18K ohms. Shunt this resistor with a 36 muh. peaking coil Stock #75299. It is important that this stock number coil be used because of its distributed capacity. Do not use any other 36 muh. coil.
- c. Retune the fourth picture I.F. (T104) to 22.5 mcs. Retune the fifth picture I.F. (L103) to 24,25 mcs.
- NOTE: It is important that I.F.'s be "peak" aligned so these two circuits will be tuned to the exact new frequencies before the overall I.F/R.F. response is "touched up" to obtain a good response curve.

4. Insufficient Width

a. Add a 4.7 mmf. capacitor (Stock #75646) in shunt with the present 4.7 mmf. capacitor (C198). This should give a considerable increase in width.

5. Picture Flashing

- This is due to "set up" of capacitor C133 on strong burst of noise.
- a. Change connection of C190 (.015) from junction of R230 (820K) and C133 (.047) to the junction of L109 and C133. The end of C190 connection to the kinescope grid is not changed.

6. To Improve Focus

Some increase in range of focus magnet shunt can be obtained by the following modification. This is most effective if the present adjustment just misses good focus.

- a. Remove "C" washer from rear end of focus control screw. This allows control screw to be unscrewed from shunt
- b. Unscrew focus control screw from shunt.
- c. Remove spacers from focus control screw
- d. Re-assemble focus control screw in shunt and replace "C" washer in place.
- e. Move focus magnet as close to the rear end of yoke as possible by tightening the three screws in the compression springs.

With the spacers removed and the focus magnet moved forward, better focus can be obtained with the increased range of the magnet shunt.

This modification cannot be applied to ALL magnets used with these models. Some magnets do not allow the spacers to be removed from the shunt control screw. The only remedy, if this type magnet is encountered, is to replace the magnet with one which has more magnetism.

7. Overload of Receiver on Strong Signals

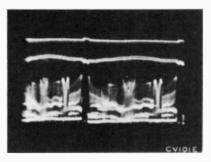
Several cases have been reported where L103 has been installed in reverse position. Wiring this I-F coil correctly has eliminated the trouble.

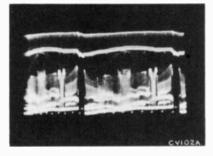
CHASSIS NO'S. WITHOUT "T" VS. CHASSIS NO'S. WITH "T"

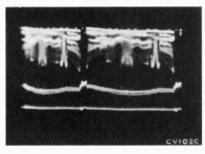
FRINGE AREA RECEPTION

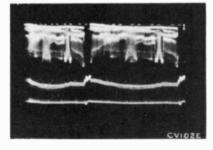
Out beyond their normal ranges, the reception from television transmitters becomes spotty, is more subject to interference, and may vary with the weather, season, and time of day. Television is becoming so popular that people farther away from transmitting stations are buying receivers. Not too long ago, locations 35 to 40 miles from the transmitting station were often regarded as fringe areas. Today, people are attempting to obtain television reception at distances up to 100 to 125 miles from transmitting stations. This has resulted in an increase in fringe area problems. Chief among these is perhaps the ability of a receiver to hold sync. RCA Victor engineers have developed a means for increasing sync stability in low signal strength, high noise level areas. This can be applied to any of the above 16" or 19" receivers.

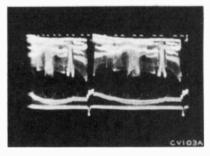
Figure 1 (page 15), shows the conventional 16" and 19" table model and console (chassis KCS47) sync separator, D.C. restorer, sync amplifier and vertical oscillator circuits.

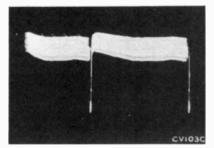












WAVEFORM PHOTOGRAPHS

Taken from RCA WO58A Oscilloscope

Plate of 1st Video Amplifier (Pin 1 of V106) (12AU7) Voltage depends on setting of picture control

Figure 30—Vertical (3-18 Volts PP)

Figure 31—Horizontal (3-18 Volts PP) →→→

Grid of 2nd Video Amplifier (Pin 7 of V106) (12AU7) Voltage depends on setting of picture control

Figure 32—Vertical (3-18 Volts PP)

Figure 33—Horizontal (3-18 Volts PP) ↔

Plate of 2nd Video Amplifier (Picture Max.) (Pin 6 of V106) (12AU7) Voltage depends on setting of picture control

Figure 34---Vertical (25-90 Volts PP)

Figure 35—Horizontal (25-90 Volts PP) ↔

Cathode of Sync Separator (Pin 8 of V107B) (KCS47 or KCS47A) (Pin 6 of V108A) (KCS47T or KCS47AT)

Figure 36—Vertical (25-90 Volts PP)

Figure 37—Horizontal (25-90 Volts PP) →

Cathode of D-C Restorer (Pin 3 of V107) (12AU7) Voltage depends on setting of picture control

Figure 38—Vertical (20-80 Volts PP)

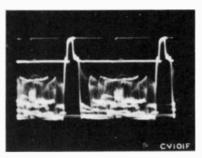
Figure 39—Horizontal (20-80 Volts PP)

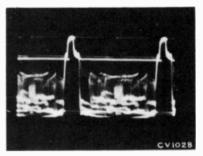
Grid of D-C Restorer (Pin 2 of V107) (12AU7) Voltage depends on setting of picture control

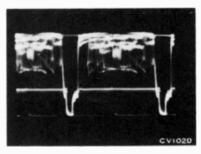
Figure 40—Vertical (3-10 Volts PP)

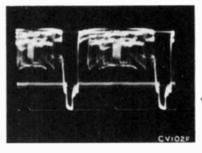
Figure 41—Horizontal (3-10 Volts PP) →

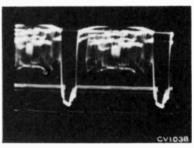
6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

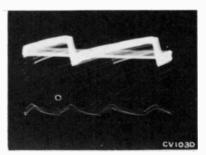


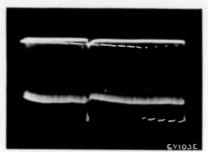


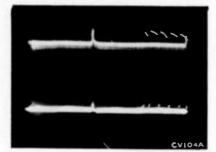


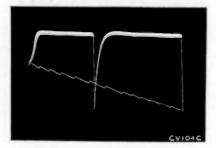


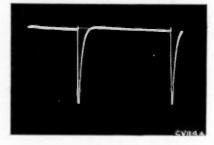


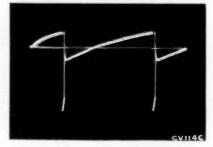


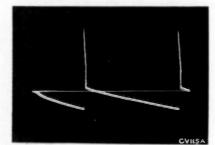












WAVEFORM PHOTOGRAPHS

Taken from RCA WO58A Oscilloscope

Grid of Sync Separator (Pin 7 of V107B) (KCS47 or KCS47A) (Pin 4 of V108A) (KCS47T or KCS47AT) Voltage depends on setting of picture control

Figure 42—-Vertical (6-8 Volts PP)

Figure 43—Horizontal (6-8 Volts PP) →→→

Plate of Sync Separator (Pin 6 of V107B) (KCS47 or KCS47A) (Pin 5 of V108A) (KCS47T or KCS47AT) Voltage depends on setting of picture control

Figure 44-Vertical (14-16 Volts PP)

Figure 45—Horizontal (14-16 Volts PP)

Cathode of Sync Separator (Pin 8 of V107B) (KCS47 or KCS47A) (Pin 6 of V108A) (KCS47T or KCS47AT) Voltage depends on setting of picture control

Figure 46—Vertical (.8-1.0 Volt PP)

Figure 47—-Horizontal (.8-1.0 Volt PP)

Figure 48—Output of Integrating Network (Junction of C139, C140 and R146) (45 Volts PP)

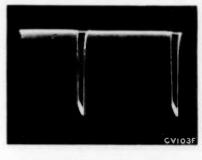
Figure 49—Grid of Vertical Oscillator (Pin 5 of V108) (KCS47 or KCS47A) (Pin 1 of V108B) (KCS47T or KCS47AT) (180 Volts PP)

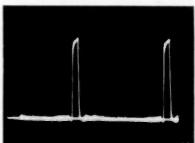
Figure 50—Plate of Vertical Oscillator (Pin 3 of V108) (KCS47 or KCS47A) (Pin 2 of V108B) (KCS47T or KCS47AT) (120 Volts PP)

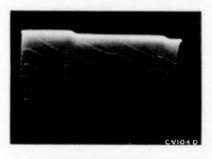
Figure 51—Grid of Vertical Output (190 Volts PP) (Pin 5 of V109) (6K6GT)

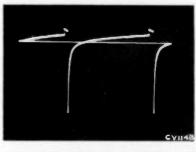
Figure 52—Plate of Vertical Output (1300 Volts PP) (Pin 3 of V109) (6K6GT)

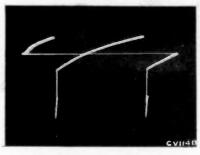
Figure 53—Input of Vertical Deflection Coils (15 Volts PP) (Voltage Across Pins 1 and 2 of J101F)

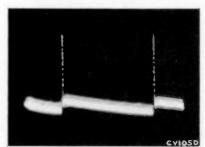


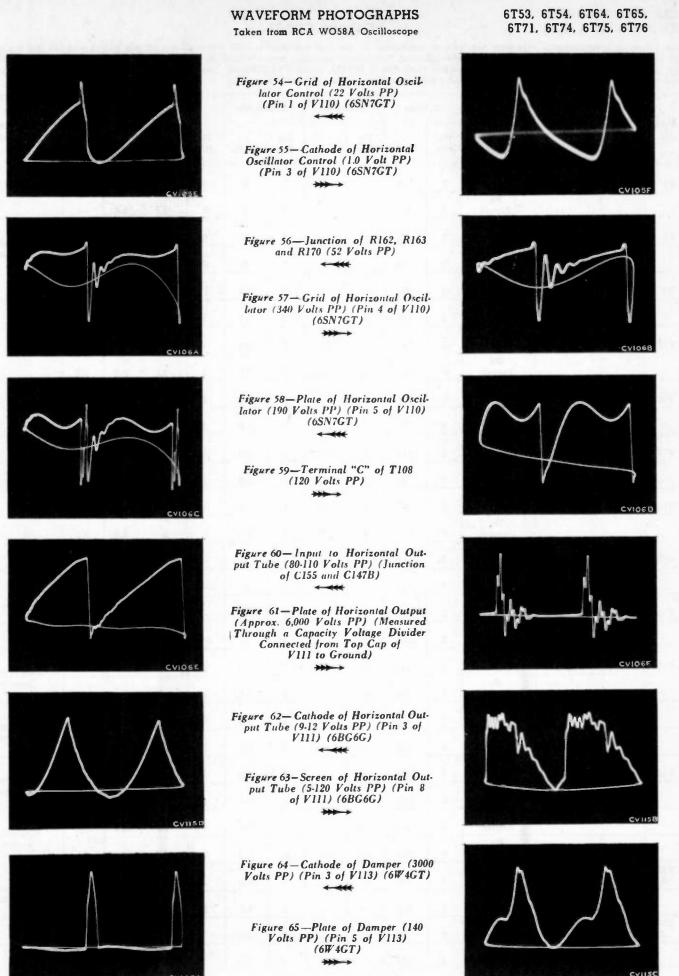












VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition, a 2500 microvolt test pattern signal was fed into the receiver, the picture synced and the AGC control properly adjusted. The second condition was obtained by removing the antenna leads and short circuiting the receiver antenna terminals. Voltages shown are read with a WV97A Senior "VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles, a-c. The symbol < means less than.

		1		E . 1	Plate	E. S	icreen	E.C	athode	E.	Grid	1	I	
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurements
v 1	6]6	Mixer	2500 Mu. V. Signal	2	144	_	_	7	0	5	-2.3	6.6	_	¢
			No Signal	2	135	_	_	7	0	5	-2.1	5.6	_	
V1	6]6	R-F Oscillator	2500 Mu. V. Signal	1	100	-		7	0	6	-3.0	4.0	_	
• -	010		No Signal	1	96			7	0	6	-2.7	3.9		Depending upon channel
V2	6AG5	R-F Amplifier	2500 Mu. V. Signal	5	250	6	130	2	0.1	1	-3.4	3.0	0.6	
• 24	01100	mpmer	No Signal	5	166	6	84	2	0.4	1	-0.2	10.3	2.3	
7101	6ĀU6	lst Pix. I-F Amplifier	2500 Mu. V. Signal	5	195	6	222	7	0.3	1	-5.0	1.7	0.8	I
V 101	6406	Ampluter	No Signal	5	121	6	135	7	0.8	1	-0.8	5.2	2.2	
V102	6CB6	2nd Pix. I-F Amplifier	2500 Mu. V. Signal	5	222	6	203	2	0.8	1	-5.0	2.0	0.7	
102	00.00	Ampliner	No Signal	5	124	6	112	2	0.8	1	-0.8	5.5	1.6	
V103	6AU6	3rd Pix, I-F Amplifier	2500 Mu. V. Signal	5	185	6	225	7	0.0	1	-5.0	1.7	0.7	
¥105	ONOO	Ampiner	No Signal	5	94	6	132	7	0.5	1	-0.75	4.9	2.0	
V104	6CB6	4th Pix, I-F Amplifier	2500 Mu. V. Signal	5	165	6	142	2	2.25	1	0	9.6	3.1	
		p	No Signal	5	118	6	132	2	2.1	1	0	9.0	3.1	
V 105	6AL5	Picture 2nd Det.	2500 Mu. V. Signal	7	-2.0	_	_	1	0	-	_	0.3		
			No Signal	7	-0.5	-	_	1	0		_	<0.1	_	
V 105	6AL5	AGC Rectifier	2500 Mu. V. Signal	2	-9.5		-	5	0	_	_	< 0.1	_	
			No Signal	2	-2.0	-		5	0	_	-	< 0.1	_	
V106	12AU7	lst Video Amplifier	2500 Mu. V. Signal	1	100	_	_	3	1.2	2	-2.3	3.6	_	At maximum
			No Signal	1	54	_	-	3	0.9	2	0.5	2.6	_	contrast
			2500 Mu. V. Signal	1	190	_		3	9.0	7	-2.6	0.9	_	At minimum
			No Signal	1	122		_	3	6.9	7	-0.5	0.6	-	contrast
V106	12AU7	2nd Video Amplifier	2500 Mu. V. Signal	6	330	_	_	8	125	2	118	9.3	-	At maximum
			No Signal	6	295	_	_	8	121	2	110	13.6	_	contrast
			2500 Mu. V. Signal	6	300	-	_	8	131	7	120	12.9	`	At minimum
			No Signal	6	295	-	_	8	121	7	110	13.6	_	contrast
V107 Ā	12AU7 KCS47	D-C Rest. & Sync Sep.	2500 Mu. V. Signal	1	5.0	_	_	3	45,5	2	-4.7	<0.1	_	
	KCS47		No Signal	1	5.5	-	_	3	8.5	2	-0.7	<0.1	·	contrast
V107 B	12AU7 KCS47	Sync Sep. & Amplifier	2500 Mu. V. Signal	6	36	-	_	8	6.0	7	4.7 -	4.0	_	
	KCS47		No Signal	6	36	_	_	8	6.0	7	5.5	2.8	_	

0

VOLTAGE CHART

6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

P _1 1				E. Pla		Plate E. S		E.C	athode	E	. Grid	г	I	
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Plate (ma.)	Screen (ma.)	Notes on Measurements
V107	12AU7 KCS47T	DC Rest. & Sync. Sep.	2500 Mu. V. Signal	1	10	_		3	45	2	-4.5	_		At maximum contrast
	VCCART		No		8		1	3	1.7	2				
	KCS47T		Signal 2500 Mu. V.	1	8		-	3	1.7	4	0.4		-	
	KCS47T		Signal No	6	7.2			8	54	7	0		-	
	KCS47T		Signal	6	7.0		-	8	-	7	0	-	-	
/108 A	6SN7 KCS47T	Sync. Amplifier	2500 Mu. V. Signal	5	50			6	7.8	4	7.4		_	
	KCS47T		No Signal	5	46	_		6	7.0	4	7.0	_		
V 108	6SN7 or 6J5	Vertical Oscillator	2500 Mu. V. Signal	2 or 3	*345	-		3 or 8	0	1 or 5	*58	0.4		'Depends on
		5	No Signal	2 or 3	*395			3 or 8	0	1 or 5	•58	0.4	_	setting of height control
V109	6K6GT	Vertical Output	2500 Mu. V. Signal	3	370	4	370	8	51	5	0	11.5	1.9	
			No Signal	3	365	4	365	8.	51	5	0	11.4	1.9	
V 110	6SN7 GT	Horizontal Osc. Control	2500 Mu. V. Signal	2 •	•160			3	•-4.6	1	•-14.6	0.32		*Depends on
			No Signal	2	•152	_		3	•-4.4	1	•-3.5	0.28	-	setting of hold control
V110	6SN7 GT	Horizontal Oscillator	2500 Mu. V. Signal	5	230	_	_	6	0	4	-82	1.8	_	
		Ostinator	No Signal	5	225			6	0	4	-85	1.8		
V 111	6BG6G	Horizontal Output	2500 Mu. V. Signal	5	*630	8	335	3	7.2	5	-33	67	-	
V 1 1 1	00000	Output	No Signal	5	*630	8	329	3	7.2	5	-33	67.1	5.0 4.9	*6000 volt pulse present
V 112	1B3GT /8016	H. V. Rectifier	Brightness Min.	Cαp		-		2 & 7	*11,000	-		0		
	/ 0010	recurer	Brightness Maximum	Сар	•	_		267	*12,200			0.1	-	*12,000 volt pulse present
V113	6W4 CT	Damper	2500 Mu. V. Signal	5	387			3	*391	_		69		
		Damper	No	5	380			3	*387			70		*3000 volt pulse present
			Signal 2500 Mu. V.							-				*AC measured
V114	5U4G	Rectifier	Signal No	4 & 6	*368			2 & 8	391	-		185		with AC voltmeter
		lst Sound	Signal 2500 Mu. V.	4 & 6	*367		-	2 & 8	387	-		199	-	
V115	6AU6	I-F Amp.	Signal No	5	120	6	120	7	0.8	1	-0.2	6.8	2.9	
		2nd Sound	Signal 2500 Mu. V.	5	108	6	108	7	0.8	1	-0.1	6.2	2.8	
V 116	6AU6	I-F Amp.	Signal No	5	118	6	87	7	0	1	-1.3	4.9	2.8	
		Coursel	Signal	5	110	6	76	7	0	1	-0.5	6.9	3.1	
V117	6AL5	Sound Discrim.	2500 Mu. V. Signal	2	-7.2			5	0	-		<0.1	-	
			No Signal	2	-10.0	-	-	5	0	-		<0.1	_	
V 118	6AV6	lst Äudio Amplifier	2500 Mu. V. Signal	7	95	_	_	2	0	1	-0.5	0.5	_	
			No Signal	7	84	_		2	0	1	-0.4	0.4	_	
V 119	6K6GT	Audio Output	2500 Mu. V. Signal	3	352	4	368	8	131	5	112	28.7	4.3	
			No Signal	3	348	4	360	8	134	5	108	28.8	4.2	
V120	16GP4	Kinescope	2500 Mu. V. Signal	Cone	11,000	10	384	11	100	2	46	< 0.1	<0.1	
			No Signal	Cone	12,200	10	375	11	74	2	8.3	<0.1	<0.1	

R-F UNIT WIRING DIAGRAM

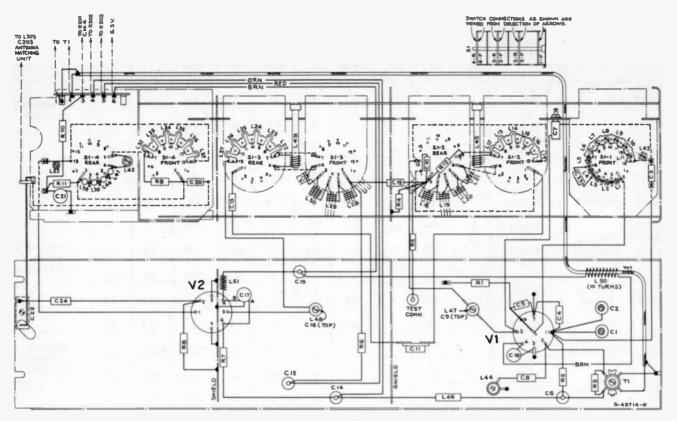
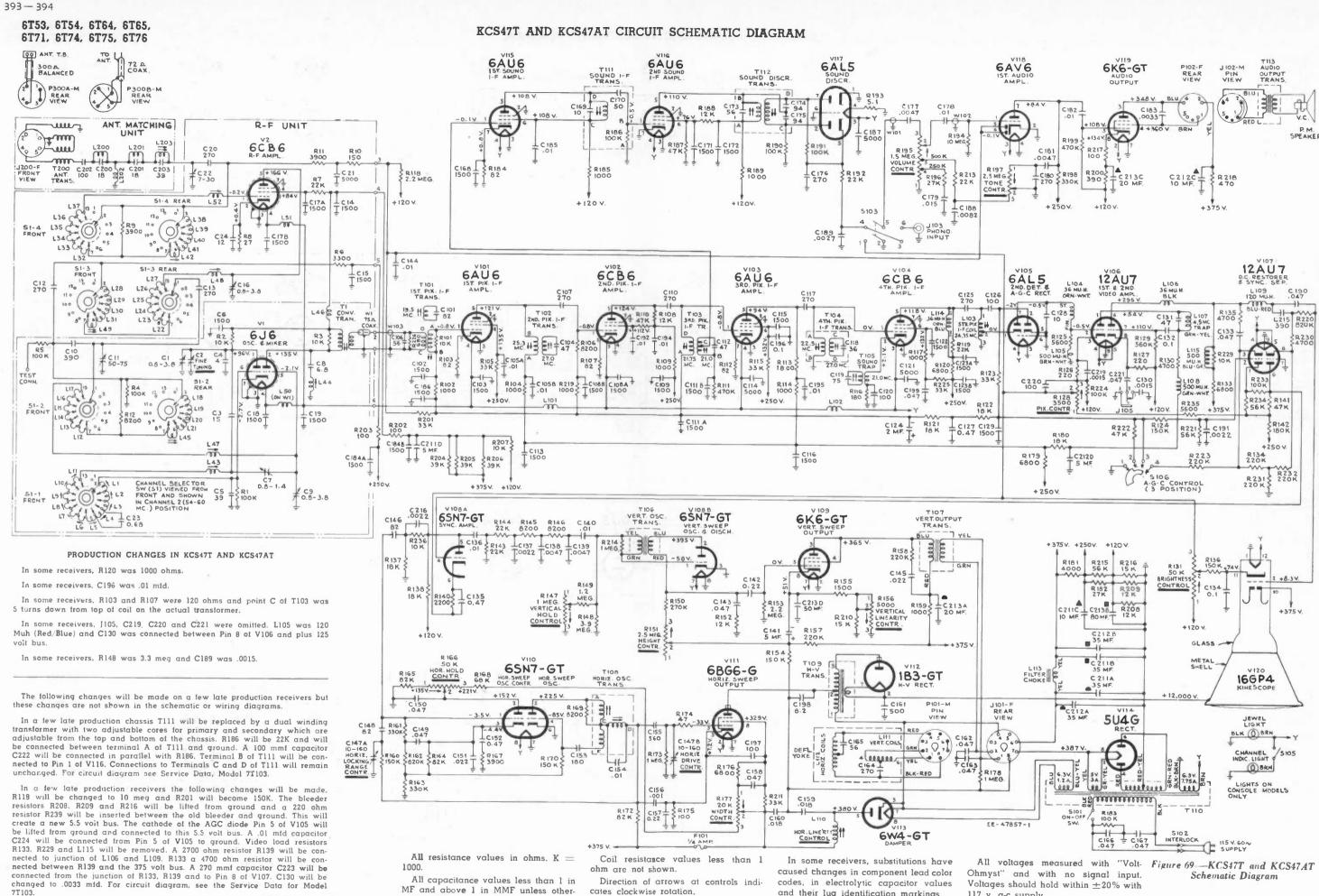


Figure 66-R.F Unit Wiring Diagram

CRITICAL LEAD DRESS:

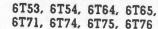
- 1. All leads in the picture and sound i-f circuits must be dressed as short and direct as possible with the exception of C106, C107, C110 and C117, which are to be dressed with enough slack so as not to have to move the body of the capacitor to align that particular stage.
- 2. Dress all 1,500 mmf, .005 mfd and .01 mfd capacitors in the i-f section with leads as short as possible.
- 3. Dress all wires between T101 and the r-f unit in clamp.
- Dress C185 to act as shield for lead between pin 5 of V115 socket to T111D and picture 1-f circuits.
- Dress the bodies of resistors R106, R108, R113, R119, R191, R192 and capacitor C176 as close to tube pin as possible.
- Dress L114 with coded end as close to pin 2 of U105 socket as possible.
- 7. The length of the bus wire from pin 2 of V116 to ground should not be shortened or rerouted.
- 8. Dress R194 as close to chassis with leads as short as possible.
- 9. Dress C199 with leads as short as possible and away from S106.
- 10. Keep the leads on Cl26 as short and direct as possible.
- 11. Dress all components connected to V106 socket up and away from the chassis except L104.
- Keep the body and coded end of L104 as close to pin 2 of V105 socket as possible.
- 13. Dress the 4.5 mc. trap L107 up and away from the chassis base.
- 14. Dress C132 up in the air and towards V105 socket.
- 15. Dress R125 with body as close as possible to pin 2 of U106 socket.
- Keep body of R123 as close as possible to pin 2 of V105 socket.
- 17. Dress C133 and C190 away from C132, C151 and C153.

- 18. Dress the white wire from picture control R128-3 away from the chassis.
- Dress all slack on kinescope socket leads under chassis. Dress brown wire away from any components associated with V105 or V106.
- The green lead from the kinescope socket should be dressed away from all other leads and components and away from V106.
- 21. Dress R133 towards chassis rear apron.
- Dress all leads in clamps on rear apron away from V117, V104, V105, V108 sockets and S103.
- 23. Dress green wire from C147A up and away from chassis.
- 24. Dress blue wire of T107 toward front apron of chassis.
- 25. Dress C153 down next to the chassis base.
- Dress blue/white wire from height control R151-3 under R180.
- Dress R161, R162, R163, R164 and R170 up and away from the chassis and with a half-inch clearance from the soldering point.
- 28. Dress the yellow wire from pin 3 of V110 socket over C153.
- 29. Dress both leads of C198 away from the body of the capacitor.
- 30. Dress fuse in high voltage compartment so as not to short circuit to ground.
- 31. Dress blue and blue/yellow wire from power transformer in 3 clamps on chassis base and away from S103 and video section.
- 32. Dress both wires on S106 away from blue/yellow damper leads of T110.
- Dress the brown wire from pin 8 of V114 socket away from V118 socket.
- 34. Dress all 2 watt resistors away from each other and away from all wires and other components.



MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

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Schematic Diagram and their lug identification markings. 117 v. a-c supply.

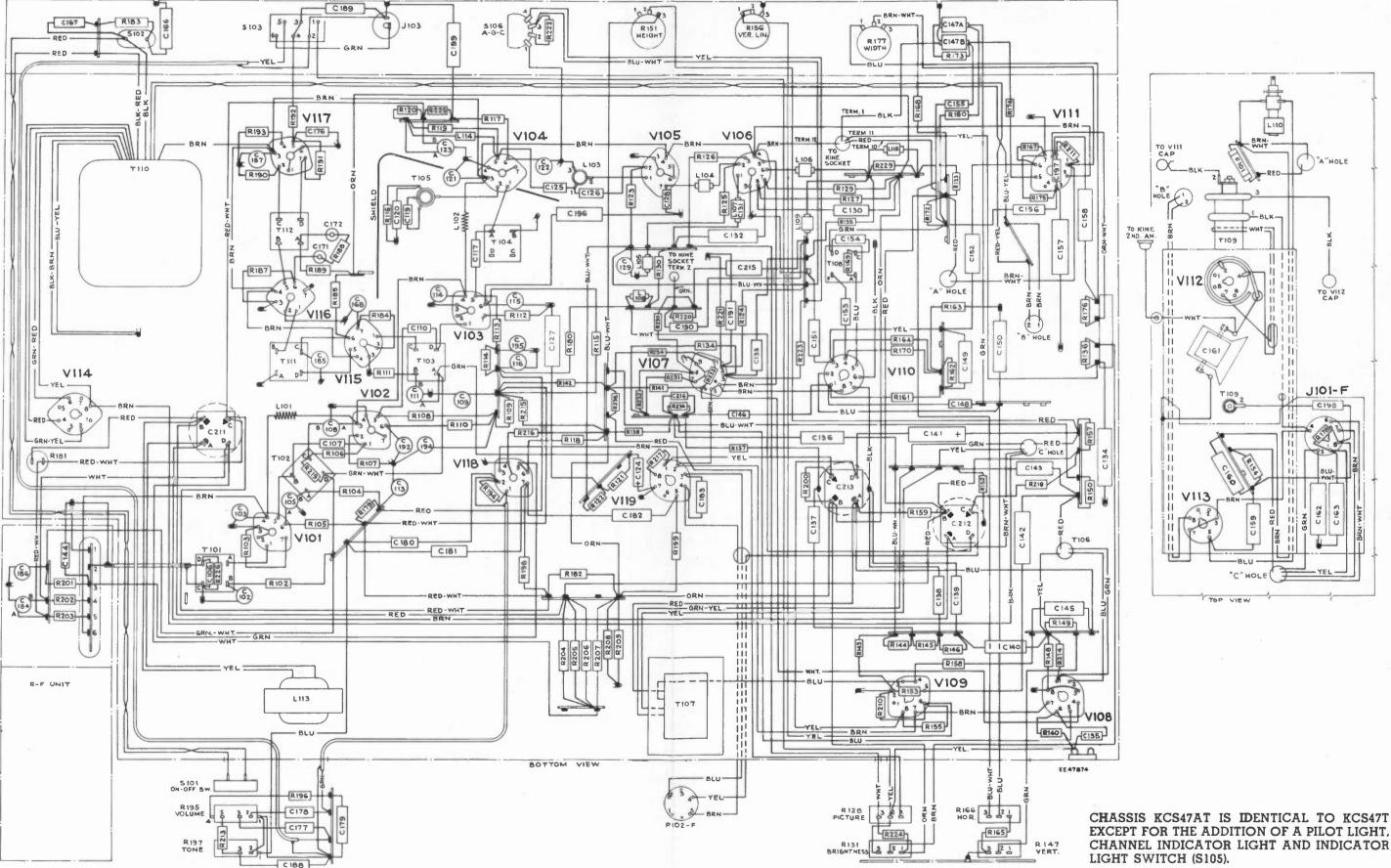
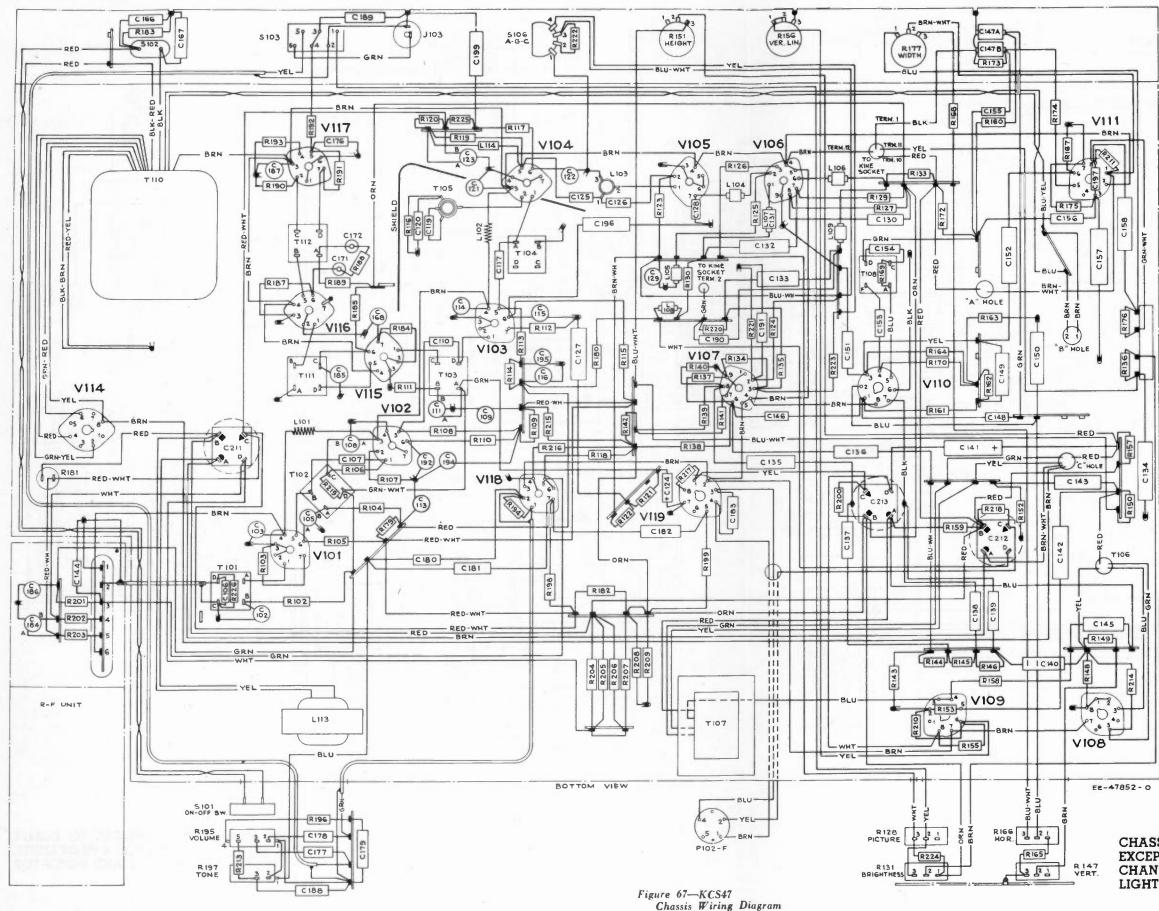


Figure 70-KCS47T Chassis Wiring Diagram

KCS47T AND KCS47AT CHASSIS WIRING DIAGRAM

EXCEPT FOR THE ADDITION OF A PILOT LIGHT, CHANNEL INDICATOR LIGHT AND INDICATOR

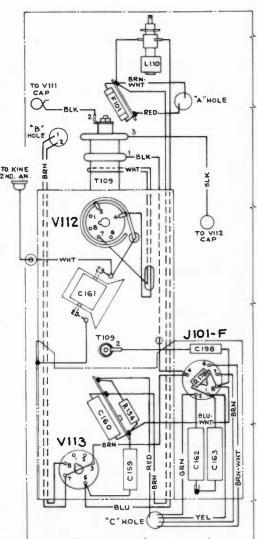
KCS47, KCS47A CHASSIS WIRING DIAGRAM



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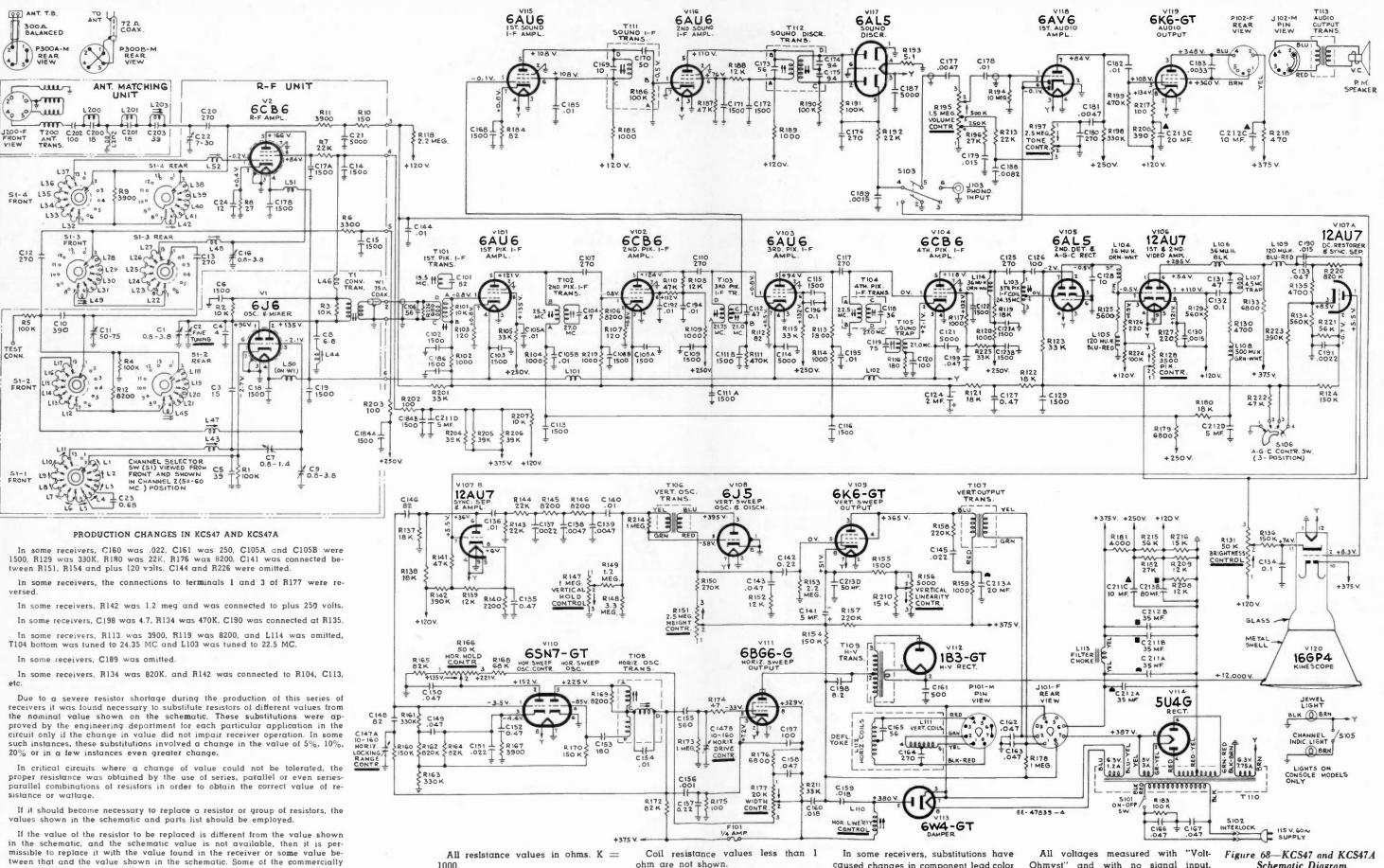
389 - 390

6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76



TOP VIEW

CHASSIS KCS47A IS IDENTICAL TO KCS47 EXCEPT FOR THE ADDITION OF A PILOT LIGHT, CHANNEL INDICATOR LIGHT AND INDICATOR LIGHT SWITCH (S105).



MF and above 1 in MMF unless other- cates clockwise rotation.

ohm are not shown.

wise noted.

All capacitance values less than 1 in Direction of arrows at controls indi-

available, low resistance value, molded body types are of wire wound con-

struction. Such resistors should not be employed in the r-1 unit, i-1 or video sections as the inductive affect of these resistors may impair circuit operation. 6T53, 6T54, 6T64, 6T65, 6T71, 6T74, 6T75, 6T76

and their lug identification markings. 117 v. a-c supply.

caused changes in component lead color Ohmyst" and with no signal input. codes, in electrolytic capacitor values Voltages should hold within $\pm 20\%$ with Schematic Diagram

REPLACEMENT PARTS

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TOCK No.	DESCRIPTION		DESCRIPTION		
e diality i	R-F UNIT ASSEMBLIES	75191	Spacer—Insulating spacer for front plate (4 required		
	KRK8B	75163			
an la t	KIIKOD		Spring—Friction spring (formed) for fine tuning car		
10705	Ball—Steel ball for detent (5/32 dia.)	75068	Spring—Retaining spring for oscillator tube shield		
75188	Board—Terminal board, 5 contact and ground	74578	Spring—Retaining spring for adjusting screws		
75067	Bracket—Vertical bracket for holding oscillator tube	73457	Spring-Return spring for fine tuning control		
100	shield	30340	Spring—Hair pin spring for fine tuning link		
75201	Cable—75 ohms, coax cable $(7^{1/4})$ complete with	75175	Stator-Oscillator section stator complete with roto		
/0201			segment, coils, adjusting screws and capacitor		
75100	coil (W1, L50)	1	C3 and C23 (S1-1, C3, C23, L1, L2, L3, L4, L5, L		
75186	Capacitor-Ceramic, variable, for fine tuning-		L7, L8, L9, L10, L11, L43)		
	plunger type (C2)	75178	Stator-Convertor stator complete with rotor, coil		
75289	Capacitor—Ceramic, 4 mmf., ± 0.5 mmf. (C4)	/01/0	capacitors (C10 and C12) and resistors (R4 and		
75189	Capacitor—Adjustable, 7-30 mmf. (C22)	1946 1944			
75200	Capacitor—Ceramic, 12 mmf. (C24)		R5) (S1-2, C10, C12, L12, L13, L14, L15, L16, L1		
15465	Capacitor—Ceramic, 15 mmf. (C3)	75170	L18, L19, L20, L21, L45, R4, R5, R12)		
5196	Capacitor — Ceramic, 39 mmf. (C5)	75179	Stator-R-F amplifier stator complete with roto		
13. La 14. La			coils, capacitor (C13) and resistor (R6) (S1-3, C1		
5174	Capacitor—Ceramic, trimmer, 50-75 mmf. (C11)		L22, L23, L24, L25, L26, L27, L28, L29, L30, L3		
5199	Capacitor—Ceramic, 270 mmf. (C12, C13, C20)	5 (SDD)	L49, R6)		
5641	Capacitor—Ceramic, 390 mmf. (C10)	75180	Stator—Antenna stator complete with rotor, coil		
5166	Capacitor—Ceramic, 1,500 mmf. (C6, C14, C15, C19)	10000 100	capacitors (C20 and C21) and resistors (R9, R1		
5089	Capacitor—Ceramic, dual, 1,500 mmf. (C17A, C17B)		R11) (S1-4, C20, C21, L32, L33, L34, L35, L36, L3		
3748		A STALL SHA	L38, L39, L40, L41, L42, L52, R9, R10, R11)		
	Capacitor—Ceramic, 1,500 mmf. (C18)	75169	Strip-Coil segment mounting strip-RH center		
3473	Capacitor—Ceramic, 5,000 mmf. (C21)	75170	Strip—Coil segment mounting strip—LH lower		
5172	Capacitor—Tubular, steatite, adjustable, 0.8-1.4 mmf.				
	(C7)	75171	Strip-Coil segment mounting strip-LH upper-les		
1504	Capacitor—Ceramic, 0.68 mmf. (C23)		trimmer C7		
5184	Capacitor-Ceramic, adjustable, 0.75-4 mmf., com-	75173	Stud-No. 6-32 x 13/16" adjusting stud for C		
	plete with adjusting stud (C1)	- sender-	irimmer		
5197	Capacitor—Ceramic, 6.8 mmf. (C8)	75446	Stud-Capacitor stud-brass-No. 4-40 x 13/16" with		
	(a) The second s	1 210 1 6-3	3/64" screw driver slot for trimmer coils L47, L4		
5167	Clip—Tubular clip for mounting stand-off capacitors		and capacitor C1, uncoded and coded "ER"		
5182	Coil—Trimmer coil (1½ turns) with adjustable in-	75447	Stud-Capacitor stud-brass-No. 4-40 x 13/16" with		
	ductance core and capacitor stud (screw adjust-	,	3/64" screw driver slot for trimmer coils L47, L4		
	ment) for convertor section (C9, L47)	1000000000	and capacitor Cl, coded numerically and "Hi G		
5183	Coil—Trimmer coil (3 turns) with adjustable in-	751/81			
	ductance core and capacitor stud (screw adjust-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Transformer-Convertor transformer		
dina di	ment) for r-f section (L48, C16)	75190	Washer—Insulating washer (neoprene) for capac		
15105			tor C7		
5185	Coil—Convertor plate loading coil (L44)	75607	Washer-Insulating washer (hex)		
5202	Coil—Choke coil, .56 muh (L46)	1			
3477	Coil—Choke coil (L51)	1	CHASSIS ASSEMBLIES		
5187	Core—Adjustable core for fine tuning capacitor C2		KCS47 or KCS47T—Table Model		
5162	Detent—Detent mechanism and fibre shaft	- PULTER I	KCS47A or KCS47AT—Console Model		
3453	Form—Coil form for L45 and L49	75228	Bracket Forma magnet mounting bracket		
5165	Link—Link assembly for fine tuning		Bracket-Focus magnet mounting bracket-upper		
4343		75229	Bracket-Focus magnet mounting bracket-lower		
4343	Retainer—Fine tuning shaft retaining ring	75515	Bracket-Channel indicator lamp bracket for KCS47.		
	Resistor—Fixed, composition:	1.50 2.31	and KCS47AT)		
	27 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R8)	76009	Capacitor-Ceramic, 8.2 mmf., 5,000 volts (C198)		
	150 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R10)	75217	Capacitor-Mica trimmer, dual, 10-160 mmf. (C147)		
	3,300 ohms, ±10%, ½ watt (R6)		C147B)		
	$3,900 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R9, R11)}$	52511			
		53511	Capacitor—Ceramic, 10 mmf. (C128)		
7 A.	$8,200 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R12)}$	75450	Capacitor—Ceramic, 39 mmf. (C203)		
	10,000 ohms, ±5%, ½ watt (R3)	71924	Capacitor—Ceramic, 56 mmf. (C106)		
	10,000 ohms, ±20%, ½ watt (R2)	73090	Capacitor—Mica, 82 mmf. (C146, C148)		
	22,000 ohms, ±10%, ½ watt (R7)	75437	Capacitor-Ceramic, 100 mmf. (C202)		
	100,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R1, R4, R5)	1.0100.000	Capacitor—Ceramic, 100 mmf. (C120)		
5164	Rod-Actuating plunger rod (fibre) for fine tuning	45469			
5104		39396	Capacitor-Ceramic, 100 mmf. (C126, C197, C22		
1470	link	1	C222)		
1476	Screw-No. 4-40 x ¹ /4" binder head machine screw	73102	Capacitor—Mica, 180 mmf. (C153)		
	for adjusting L6, L7, L8, L9, L10, L11	75244	Capacitor-Ceramic, 270 mmf. (C176)		
5176	Screw—No. 4-40 x ¾" fillister head screw for ad-	39638	Capacitor—Mica, 270 mmf. (C180)		
1.1.1.1	justing L5				
5177	Screw—No. 4-40 x 5/16" fillister head screw for ad-	73091	Capacitor—Mica, 270 mmf. (C107, C110, C117, C12		
	justing L1, L2, L3, L4, L43	73094	Capacitor-Mica, 390 mmf. (C215) (in KCS47T an		
4575	Screw—No. 4-40 x .359" adjusting screw for L42		KCS47AT)		
3640	Screw—No. 4-40 x $7/16''$ adjusting screw for L52	74947	Capacitor-Ceramic, 500 mmf., 20,000 volts (C161)		
		74250	Capacitor – Mica, 560 mmf. (C155)		
5159	Shaft—Channel selector shaft and plate	75166	Capacitor—Ceramic, 1,500 mmf. (C171, C172)		
5160	Shaft—Fine tuning shaft and cam				
5168	Shield—Oscillator and convertor sections shield for	73748	Capacitor—Ceramic, 1,500 mmf. (C102, C103, C10		
	r-f unit—snap-on type		C113, C115, C116, C122, C129, C168, C186)		
5193	Shield—Tube shield for V1	75089	Capacitor—Ceramic, dual, 1,500 mmf. (C108A, C108		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		horses could	C111A, C111B, C123A, C123B, C184A, C184B)		
5192	Shield—Tube shield for V2	73473	Capacitor—Ceramic, 5,000 mmf. (C114, C121, C187)		
		and a state of the last of the			
75088	Socket—Tube socket, 7 contact, miniature, ceramic, saddle mounted	73960	Capacitor-Ceremic, 10,000 mmf. (C144, C185, C19		

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
75877	Capacitor—Ceramic, dual, 10,000 mmf. (C105A, C105B)	5040	Connector—4 contact female connector for speaker cable (P102)
73747	Capacitor-Electrolytic, 2 mfd, 50 volts (C124)	35383	Connector-8 contact male connector-part of de-
28417	Capacitor—Electrolytic, 5 mfd, 450 volts (C141) Capacitor—Electrolytic, comprising 1 section of 20	68592	flection yoke (P101) Connector—8 contact female connector for deflec-
////	míd, 450 volts, l section of 80 míd, 200 volts,	00032	tion yoke leads (J101)
	1 section of 20 mfd, 200 volts, and 1 section of	75517	Contact—Anode connector assembly contact only
75510	50 mfd, 50 volts (C213A, C213B, C213C, C213D) Capacitor—Electrolytic, comprising 2 sections of 35	75215	Control—Horizontal and vertical hold control (R147, R166)
	mfd., 450 volts, 1 section of 10 mfd, 450 volts, and	75513	Control—Tone control, volume control and power
1	l section of 5 mfd, 450 volts (C211A, C211B, C211B, C211B, C211B, C212B,	_	switch (R195, R197, S101)
75643	C211C, C211D, C212A, C212B, C212C, C212D) Capacitor—Tubular, moulded paper, oil impreg-	71441	Control-Vertical linearity control (R156)
	nated, .001 mfd, 1,000 volts (C156)	75514	Control—Height control (R15f) Control—Picture control, brightness control and
73598	Capacitor—Tubular, paper, oil impregnated, .0015		channel light switch for KCS47A and KCS47AT)
73595	mid. 600 volts (C130, C219) Capacitor—Tubular, paper, oil impregnated, .0022	75216	(R128, R131, S105) Control—Picture and brightness control for KCS47
	mfd, 600 volts (C137, C191) (C216 in KCS47T)	/ 5210	and KCS47T (R128, R131)
73599	Capacitor—Tubular, paper, oil impregnated, .0027	75516	Control—Width control (R177)
73795	míd, 600 volts (C189) Capacitor—Tubular, paper, oil impregnated, .0033	71498	Core—Adjustable core and stud for F-M trap No. 75449
	míd, 600 volts (C183)	74956	Cushion—Rubber cushion for deflection yoke hood
73920	Capacitor—Tubular, paper, oil impregnated, .0047		(2 required)
73808	míd, 600 volts (C138, C139, C177, C181) Capacitor—Tubular, paper, oil impregnated, .0082.	74839	Fastener—Push fastener to mount ceramic tube socket (2 required)
	mfd, 1,000 volts (C188)	73600	Fuse-0.25 ampere, 250 volts (F101)
73561	Capacitor—Tubular, paper, oil impregnated, .01 mfd,	16058	Grommet—Rubber grommet for 2nd anode lead exit
73594	400 volts (C136, C178, C182) Capacitor—Tubular, moulded paper, oil impreg-	37396	Grommet—Rubber grommet to mount ceramic tube
	nated, .01 mfd, 600 volts (C140, C154)	75445	socket (2 required) Hood—Deflection yoke hood less rubber cushions
73797	Capacitor—Tubular, paper, oil impregnated, .015	75644	Insulator-2nd anode insulator assembly
74727	mfd, 600 volts (C179) Capacitor—Tubular, paper, oil impregnated, .018	35787	Jack—Phono input jack (J103)
	mfd, 1,000 volts (C159, C160)	75482 74953	Jack—Video jack (J106) Magnet—Ion trap magnet (P.M.)
73562	Capacitor—Tubular, paper, oil impregnated, .022	75504	Magnet—Focus magnet complete with adjustable
73553	mfd, 400 volts (C145, C151) Capacitor—Tubular, paper, oil impregnated, .047		plate and stud
	mfd, 400 volts (C149, C199, C221)	75518	PlateHi-voltage plate-bakelite-less transformer, capacitor and tube socket
75071	Capacitor—Tubular, moulded paper, .047 mfd, 400 volts (C166, C167)	72067	Resistor—Wire wound, 5.1 ohms, ½ watt (R193)
73592	Capacitor—Tubular, paper, oil impregnated, .047	75512	Resistor—Wire wound, 4,000 chms, 10 watts (R181)
	míd, 600 volts (C133, C150, C190)		Resistors—Fixed, composition:
73597	Capacitor—Tubular, moulded paper, oil impreg- nated, .047 mfd, 1,000 volts (C143, C158, C162,		47 ohms, ±20%, ½ watt (R174) 82 ohms, ± 10%, ½ watt (R103, R107, R112, R184)
	C163)	1	$100 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R217)$
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd, 400 volts (C132, C196)		100 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R202, R203)
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mid,		100 ohms, ±10%, 2 watts (R175) 180 ohms, ±10%, ½ watt (R116)
	600 volts (C134)		220 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R126, R127)
73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd, 400 volts (C157)		390 ohms, $\pm 10\%$, 1 watt (R200)
74957	Capacitor—Tubular, paper, oil impregnated, 0.22		470 ohms, $\pm 10\%$, 1 watt (R218) 680 ohms, $\pm 10\%$, ½ watt (R226)
	míd, 600 volts (C142)		$1,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt} (R102, R104, R109, 1)$
73787	Capacitor—Tubular, moulded paper, 0.47 mfd, 200 volts (C127, C135, C152)		R114, R117, R159, R185, R189, R219)
73154	Choke—Filter choke (L113)		1,500 ohms, ±10%, 1 watt (R155) 1,800 ohms, ±10%, ½ watt (R113)
75167	Clip—Tubular clip for mounting stand-off capacitor		2,200 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R140)
75210	No. 75166 Coil—Fifth pix, i-f coil complete with adjustable core		3,900 ohms, ± 10%, ½ watt (R167)
10210	(L103)		4.700 ohms, ±5%, ½ watt (R130) 4.700 ohms, ±10%, ½ watt (R135) (R230 in KCS47T,
71449	Coil—Horizontal linearity control coil (L110)		4,700 0nms, <u>+</u> 10%, ³ 2 wdt (R135) (R230 in RCS471, KCS47AT)
73591	Coil—Antenna matching coil (2 required) (Part of T200)		5,600 ohms, ±5%, ½ watt (R125)
75241	Coil-Antenna shunt coil (L202)		5,600 ohms, ± 10%, ½ watt (R235) (in KCS47T, KCS47AT)
73477	CoilChoke coil (L101, L102)		$6,800 \text{ ohms}, \pm 10\%, 1 \text{ watt} (R120, R176)$
71793 75299	Coil—Peaking coil (36 muh) (L106)		$6,800 \text{ ohms}, \pm 10\%, 2 \text{ watts} (R133, R179)$
75299	Coil—Peaking coil (36 muh) (L104) Coil—Peaking coil (36 muh) (L114, R119)		8,200 ohms, ±5%, ½ watt (R106, R169) 8,200 ohms, ±10%, ½ watt (R145, R146)
75253	Coil—Peaking coil (120 muh) (L109)		$10,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt}$ (R143, R143) 10,000 ohms, $\pm 10\%, \frac{1}{2} \text{ watt}$ (R236) (in KCS47T,
75252	Coil—Peaking coil (500 muh) (L105, L108)		KCS47AT)
76132	Coil—Peaking coil (500 muh) (L115) (in KCS47Ť, KCS47ĂT)		10,000 ohms, $\pm 10\%$, 2 watts (R207) 12,000 ohms, $\pm 5\%$, ½ watt (R152)
74594	Connector—2 contact male connector for power cord		12,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R152) 12,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R188) (R139 in KCS47
38853	Connector-4 contact female connector for antenna		and KCS47A)
	transformer (J200)		12,000 ohms, ±5%, 1 watt (R108)

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REPLACEMENT PARTS (Continued)

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STOCK No.	DESCRIPTION	STOCK No.	DE
	12,000 ohms, ±10%, 2 watts (R208, R209)	75211	Transformer-Sound i
	15,000 ohms, ±10%, ½ watt (R210) 15,000 ohms, ±10%, 2 watts (R216)		(T111, C169, C170, I
	$18,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R121, R122, R137)$	71424	Transformer—Sound (T111, C169, C170)
	18,000 ohms, ±10%, 1 watt (R138, R180)	74589	Transformer—First pi
	22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R143, R144, R186,		R101)
	R213) 22.000 ohms, ±20%, ½ watt (R192)	74590	Transformer—Second
	$27,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R196)$	76264	Transformer—Third pi
	27,000 ohms, ±10%, 2 watts (R182)	73574	Transformer—Fourth
	33,000 ohms, ±10%, ½ watt (R105, R115, R201, R211, R225)	75212	Transformer-Sound a C173, C174, C175)
	33,000 ohms, ±20%, ½ watt (R123)	75213	Transformer—Horizont
	39,000 ohms, ±10%, 2 watts (R204, R205, R206) 47,000 ohms, ±10%, ½ watt (R141, R187, R222)	75509	Transformer-Antenno
	$47,000 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt (R110)}$		plete with antenno and shunt coil (12
	56,000 ohms, ±10%, ½ watt (R221) (R234 in KCS47T	1	J200, L200, L201, L2
	and KCS47AT)	75519	Transformer - Hi-volta
	56,000 ohms, ±10%, 1 watt (R215) 68,000 ohms, ±10%, 1 watt (R168)	71778	Trap-Sound trap (T)
	$82,000 \text{ ohms}, \pm 5\%, 1 \text{ watt (R172)}$	75242	Trap-I-F trap (L200,
	82,000 ohms, $\pm 10\%$, 1 watt (R164, R165)	75449	Trap-FM trap compl
	100,000 ohms, ±10%, ½ watt (R224) (R233 in	75051	stud (L203, C203)
	KCS47T and KCS47AT)	75251	Trap4.5 mc trap (L)
	100,000 ohms, ±5%, ½ watt (R190, R191) 100,000 ohms, ±20%, 2 watts (R183)	/4552	Yoke—Deflection yoke nector (L111, L112, (
	150,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R136, R154, R160)		
	150.000 ohms, ±20%, ½ watt (R124) 150.000 ohms, ±5%, 1 watt (R170)		SPEAK
	180,000 ohms, ± 10%, ½ watt (R142) (in KCS47T		(For Models
	and KCS47ÅT)	75023	Cap-Dust cap
	220,000 ohms, ±10%, ½ watt (R157, R158) (R134, R223, R231, R232 in KCS47T and KCS47AT)	75024	Cone – Cone complete
	$270,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R150)}$	5039	Connector_4 contact
	330,000 ohms, ±10%, ½ watt (R161, R198)	75022	Speaker- 8" P.M. spe
	330,000 ohms, $\pm 5\%$, 1 watt (R163)	75520	voice coil less plug Transformer—Output
	390,000 ohms, ±10%, ½ watt (R142, R223 in KCS47 and KCS47A)	10020	NOTE: If stamping of
	470,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R111)		not agree with abov
	470,000 ohms, ± 20%, ½ watt (R199)		placement parts by
	560,000 ohms, ± 10%, ½ watt (R129) (R134 in KCS47		instrument, number s
	and KCS47A) 820,000 chms, ±10%, ½ watt (R162, R220)		description of part re
	$1 \text{ megohm}, \pm 10\%, \frac{1}{2} \text{ watt} (R173)$		SPEAK
	1 megohm. ±20%, ½ watt (R178, R214)		9 R
	1.2 megohm, ±5%, ½ watt (R149)		(For Models 6T6
	2.2 megohm, ±10%, ½ watt (R118, R153) 3.9 megohm, ±5%, ½ watt (R148)	13867	Cap-Dust cap
	10 megohm, ±20%, ½ watt (R194)	74901	Cone - Cone and voic
083	Screw-No. 8-32 x 1/4" wing screw for mounting de-	5039	Connector-4 contact
000	flection yoke		(J102)
236	Screw—No. 8-32 x 3/5" binder head brass machine screw to mount focus magnet (2 required)	74974	Speaker -12" P.M. sp
502	Screw-No. 10.32 x 134" round head machine screw	75520	voice coil less outp Transformer—Output
-	for focus magnet adjustment (3 required)	/0320	NOTE: If stamping of
584	Shield—Tube shield		not agree with abov
834	Socket-Kinescope socket		placement parts by
251	Socket Tube socket, octal, wafer		instrument, number a
3117	Socket—Tube socket, 7 pin, ininiature		description of part rea
223	Socket—Tube socket, 9 pin, miniature Socket—Tube socket, octal, ceramic, plate mounted		SPEAKI
1319	Socket—Tube socket, octal, ceramic, plate mounted Socket—Tube socket, octal, moulded		(For Models 6T6)
508	Socket-Tube socket, for 1B3/8016		
8592	Socket-Tube socket, 6 contact, moulded, for V113	75875	Cone-Cone and voic
1364	Socket-Pilot light socket		SPEAK
5718	SocketChannel indicator light socket		
5233	Spring—Compression spring for focus magnet ad- justment (3 required)		(For Models 6T65
5506	Support—Bakelite support only—part of hi-voltage shield	75642	Cone-Cone and voic
3491	Switch—"TV-Phono" switch (S103)		MODE
5010	SwitchAGC switch (S106)		(Used wit)
5508	Transformer—Power transformer, 115 volt, 60 cycle (T110)	76008 76094	Caster—Caster and so Pull—Door pull
4950 4144	Transformer—Vertical output transformer (T107) Transformer—Vertical oscillator transformer (T106)	74307	Screw-No. 8-32 x 11

2	DESCRIPTION
	Transformer—Sound i-f transformer, single winding (T111, C169, C170, R186)
	Transformer—Sound i-f transformer, dual winding (T111, C169, C170)
	Transformer—First pix, i-f transformer (T101, C101, R101)
	Transformer—Second pix, i-f transformer (T102, C104) Transformer—Third pix, i-f transformer (T103, C112) Transformer—Fourth pix, i-f transformer (T104, C118) Transformer—Sound discriminator transformer (T112, C173, C174, C175)
	Transformer—Horizontal oscillator transformer (T108) Transformer—Antenna matching transformer com- plete with antenna connector, i-f and FM traps and shunt coil (T200, C200, C201, C202, C203, J200, L200, L201, L202, L203)
	Transformer—Hi-voltage transformer (T109) Trap—Sound trap (T105, C119)
	 Trap—I-F trap (L200, C200, L201, C201) Trap—FM trap complete with adjustable core and stud (L203, C203) Trap-4.5 mc trap (L107, C131)
	Yoke—Deflection yoke complete with cable and con- nector (L111, L112, C164, C165, P101)
	SPEAKER ASSEMBLIES 92580-4
	(For Models 6T53, 6T54 and 6T64)
	Cap-Dust cap
	Cone-Cone complete with voice coil (3.2 ohms) Connector_4 contact male connector (J101)
	Speaker— 8" P.M. speaker complete with cone and voice coil less plug and transformer
	Transformer—Output transformer (T112) NOTE: If stamping on speaker in instruments does not agree with above speaker number, order re- placement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	SPEAKER ASSEMBLIES 92569-11W RL 111 A2 (For Models 6T65, 6T71, 6T74, 6T75, 6T76)
	Cap — Dust cap
	Cone - Cone and voice coil assembly (3.2 ohms) Connector - 4 contact male connector for speaker
	(J102) Speaker -12" P.M. speaker complete with cone and voice coil less output transformer and connector Transformer-Output transformer (T113) NOTE: If stamping on speaker in instruments does not agree with above speaker number, order re- placement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	SPEAKER ASSEMBLIES 92569-11B (For Models 6T65, 6T71, 6T74, 6T75, 6T76)
	Cone—Cone and voice coil assembly (3.2 ohms)
	SPEAKER ASSEMBLIES 92569-11K RMA-252
	(For Models 6765, 6771, 6774, 6775, 6776)

ice coil assembly (3.2 ohms)

EL 6CB1 STAND ith 6T54 Instrument)

socket assembly

1/s" trimit head screw for door 1

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCE No.
	MISCELLANEOUS	74959
75521	BackCabinet back complete with power cord and terminal board for Models 6T64 and 6T75	73995
75522	Back—Cabinet back complete with power cord and terminal board for Models 6T65, 6T71, 6T74 and 6T76	75461
75525	Back—Cabinet back complete with power cord and terminal board for Models 6T53, 6T54	74960
75473	Board"Ant" terminal board	74961
71599	Bracket-Pilot lamp bracket (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76)	75462
13103	Cap—Pilot lamp cap (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76)	74962
71892	Catch—Cabinet doors bullet catch and strike (Models 6T71, 6T74, 6T75, 6T76)	73999
X3120	ClothGrille cloth for mahogany or walnut instru- ments (Model 6771)	
X3123	Cloth—Grille cloth for mahogany or walnut instru- ments (Models 6T64, 6T74, 6T65)	75463
X3090	Cloth—Grille cloth for oak instruments (Models 6T64, 6T65, 6T71, 6T74)	74963
X3129	Cloth-Grille cloth (Model 6T75)	
X3130	Cloth—Grille cloth (Model 6776)	
39153 75474	Connector—4 contact male connector for antenna cable Connector—Single contact male connector for an-	7400
71457	tenna cable (2 required) Cord—Power cord and plug	75464
75531	Cover—Control cover assembly, including drop panel hinges and emblem	1176
75608	Cushion—Dust seal cushion (rubber)	75400
75440	Decal—Control panel function decal for mahogany or walnut instruments (Models 6T64, 6T65, 6T71, 6T74, 6T76).	75460
75441	Decal—Control panel function decal for oak instru- ments or maple instruments (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76) and walnut instruments	73634
	(Model 6T75)	75520
71984	Decal-Trade mark decal (Models 6T74 and 6T75)	7543
71768 71910	Decal—Trade mark decal (Model 6776) Decal—Trade mark decal (Model 6771)	7552
75532	Decal-Control panel function decal (Models 6T53,	7552
76003	6754) Decal—Decorative decal (3 gold stripes) for front of	7553
74809	6754 cabinet Emblem — "RCA Victor" emblem (Models 6764, 6765,	71450
	6T71, 6T74, 6T75, 6T76)	74303
73180	Emblem"RCA Victor" emblem (Models 6T53, 6T54)	73643
75455	Escutcheon—Channel marker escutcheon — dark — for mahogany or walnut cabinets (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76)	7284
75456	Escutcheon—Channel marker escutcheon — light — for oak or maple cabinets (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76)	3033
75499	Escutcheon—Channel marker escutcheon — dark — for metal cabinet (Models 6T53, 6T54)	7496
74889	Feet—Felt feet for metal cabinet (Models 6T53, 6T54)	7293
74606	Glass.—Safety glass (Models 6T64, 6T65, 6T71, 6T74, 6T75, 6T76)	7545
75530 75439	Glass—Safety glass (Models 6T53, 6T54) Grille—Metal grille (Model 6T71)	7552:
37396	Grommet—Rubber grommet for speaker mounting (4 required) for Models 6765, 6771, 6774, 6775	7352.
	and 6T76 Hinge—Cabinet door hinge (1 set) (Models 6T71,	7545
74308	Dinge-Cobinet door hinge (L soi) (Models 677)	

STOCK No.	DESCRIPTION
74959	Knob—Fine tuning knob—maroon—for mahogany, walnut or metal instruments (outer)
73995	Knob-Fine tuning knob - tan - for maple instru- ments (outer)
75461	Knob—Fine tuning knob — beige — for oak instru- ments (outer)
74960	Knob—Channel selector knob — marcon — for ma- hogany, walnut or metal instruments (inner)
74961	Knob—Channel selector knob — tan — for maple instruments (inner)
75462	Knob—Channel selector knob — beige — for oak in- struments (inner)
74962	Knob—Tone control, brightness control or vertical hold control knob—maroon—for mahogany, wal- nut or metal instruments (outer)
73999	Knob—Tone control, brightness control or vertical hold control knob — tan — for maple instruments (outer)
75463	Knob—Tone control, brightness control or vertical hold control knob—beige—for oak instruments (outer)
74963	Knob—Picture control, horizontal hold control or volume control and power switch knob—maroon —for mahogany, walnut or metal instruments (inner)
74001	Knob—Picture control, horizontal hold control or volume control and power switch knob—tan—for maple instruments (inner)
75464	Knob—Picture control, horizontal hold control or volume control and power switch knob—beige— for oak instruments (inner)
11765	Lamp—Pilot or channel indicator lamp—Mazda 51 (Models 6764, 6765, 6771, 6774, 6775, 6776)
75460	MaskLight mask—gold—for oak or maple instru- ments
75459	Mask—Light mask — burgundy — for mahogany or walnut instruments
73634	NutSpeed nut for speaker mounting screws (4 re- quired) (Models 6T65, 6T71, 6T74, 6T75, 6T76)
75526	Pull—Cabinet door pull (center of door) (Model 6174)
75438	Pull—Door pull (Model 6T71)
75527	Pull—Cabinet door pull (top of door) (Model 6T74)
75528	Pull-Cabinet door pull-R.H. (Model 6T76)
75529	Pull-Cabinet door pull-L.H. (Model 6T76)
75533	Retainer—Snap-on moulding and retainer for safety glass (Models 6T53, 6T54)
71456	Screw—No. 8-32 x 7/16" wing screw for deflection yoke and focus magnet mounting support
74307	Screw-No. 8-32 x 1 ¹ /4" trimit head screw for door pull (Model 6T71)
73643 72845	Spring—Spring clip for channel marker escutcheon Spring—Retaining spring for knobs Nos. 73995, 74959 and 75461
14270	Spring—Retaining spring for knobs Nos. 73999, 74960, 74961, 74962, 75462 and 75463
30330	Spring—Retaining spring for knobs Nos. 74001, 74963 and 75465
74966	Spring—Formed spring for kinescope masking panel
72936	Stop—Cabinet door stop (Models 6T71, 6T74, 6T75, 6T76)
75457	Washer—Felt washer—dark brown between knob and channel marker escutcheon for mahogany or walnut instruments
75523	Washer—Felt washer — tan — between knob and channel marker escutcheon for maple instruments (Model 6T76)
75458	Washer—Felt washer—beige—between knob and channel marker escutcheon for oak instruments
75500	Washer—Felt washer for cabinet back screws

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Model 6T72 Walnut, Mahogany or Oak RCAVICTOR

TELEVISION RECEIVER MODEL 6T72

Chassis No. KCS40B — Mfr. No. 274 —

SERVICE DATA

-1950 No. T10-

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 6T72 is a console type television receiver in a choice of three cabinet finishes. The chassis employs twenty-one tubes plus two rectifiers and a 16GP4 kinescope.

Features of the television unit are: full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C: A-F-C horizontal hold: stabilized vertical hold: two stages of video amplification: noise saturation circuits: improved sync separator and clipper; four mc. band width for picture channel and reduced hazard high voltage supply. An auxiliary audio input jack is provided to permit the use of an external record playing attachment.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE......146 square inches on a 16GP4 Kinescope

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc. Fine Tuning Range.. \pm 250 kc. on chan. 2, \pm 650 kc. on chan. 13

RECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

PICTURE INTERMEDIATE FREQUENCIES

Picture Carrier Frequency	25.50	Mc.
Adjacent Channel Sound Trap	27.00	Mc.
Accompanying Sound Traps	21.00	Mc.
Adjacent Channel Picture Carrier Trap	19.50	Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound	Carrier Frequ	lency.	• • • • • •			21.00 Mc.
Sound	Discriminator	Band	Width	between	peaks	350 kc

VIDEO RESPONSE	To 4 Mc.
FOCUS	Magnetic
SWEEP DEFLECTION	Magnetic
SCANNING Interlaced,	525 line
HORIZONTAL SWEEP FREQUENCY	5,750 срв

VERTICAL	SWEEP	FREQUENCY	 60	срв

POWER SUPPLY RATING

KCS40B..... 115 volts, 60 cycles, 250 watts

AUDIO POWER OUTPUT RATING...... 3.5 watts max.

LOUDSPEAKERS

KCS40B..... 92569-10W 12" PM Dynamic, 3.2 ohms

(1)	RCA	6AG5 R-F Amplifier
(2)	RCA	6AG5 Converter
(3)	RCA	6J6 R-F Oscillator
(4)	RCA	6AU6 1st Sound I-F Amplifier
(5)	RCA	6AU6 2nd Sound I-F Amplifier
(6)	RCA	6AL5 Sound Discriminator
(7)	RCA	6AV6 lst Audio Amplifier
(8)	RCA	6K6GT Audio Output
(9)	RCA	6BA6 1st Picture I-F Amplifier
(10)	RCA	6AG5 2nd Picture I-F Amplifier
(11)	RCA	6BA6 3rd Picture I-F Amplifier
(12)	RCA	6AG5 4th Picture I-F Amplifier
(13)	RCA	6AL5 Picture 2nd Detector & Sync Limiter
(14)	RCA	12AU7 1st and 2nd Video Amplifier.
(15)	RCA	6SN7GTAGC Amplifier & Vertical Sweep Oscillator
(16)	RCA	6SN7GT AGC Rectifier & 1st Sync Separator
(17)	RCA	6SN7GT Sync Amplifier & 2nd Sync Separator
(18)	RCA	6K6GT Vertical Sweep Output
(19)	RCĀ	6SN7GT Horizontal Sweep Oscillator & Control
(20)	RCĀ	6BG6G Horizontal Sweep Output
(21)	RCA	6W4GT Damper
(22)	RCA	1B3-GT/8016 High Voltage Rectifier
(23)	RCA	5U4G Power Supply Rectifier
(24)	RCA	16GP4 Kinescope
WEI	HT	

WEIGHT

Chassis with Tubes in Cabinet...... 116 lbs.

DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)		37 ¼	233⁄a
Chassis (overall)		11	181⁄2

Tube Used

RCA TUBE COMPLEMENT

Function

The following adjustments are necessary when turning the receiver on for the first time:

l. See that the TV-PH switch on the rear apron is in the "TV" position.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately midposition.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control counter-clockwise until the retrace lines just disappear. VERTICAL BRIGHTNESS HORIZONTAL MORIZONTAL BRIGHTNESS PICTURE CONTROL 6 ESCUTCHEON DO GF-ON STATION STATION

Figure 1—Receiver Operating Controls

INSTALLATION INSTRUCTIONS

Connect the antenna transmission line to the receiver antenna terminals. Plug the receiver power cord into a 115 volt a-c power source. Turn the receiver power switch to the "on" position, the brightness control fully clockwise, and the picture control counter-clockwise.

WARNING. — The high voltage supply in this receiver delivers 12,000 volts! A.C. interlocks are provided at the back of the set so that when the back is removed — so is the power.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2, and with the part number on magnet towards the rear of the chassis. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet

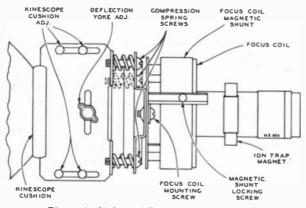


Figure 2—Yoke and Focus Coil Adjustments

for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained. 9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

> 11. In switching from one station to another, it may be necessary to repeat steps 4, 8 and 9.

> 12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

13. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 9.

14. To use the instrument with a record player, plug the recordplayer output cable into the PHONO jack on the rear apron, and set the TV-PH switch on "PH." Set the TV-PH switch back to TV on completion of the record program.

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Usually the picture will remain in sync. Turn the control clockwise slowly. If the picture did fall out of sync upon removal of the signal, the number of aiagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. The picture should remain in sync for approximately 180 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR. — If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 180 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the T109 sine wave core (on the outside of the apron) all the way out of the coil. Set the locking range trimmer C153A one-half turn out from maximum capacity.

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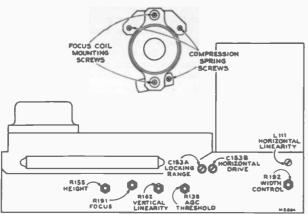


Figure 3—Rear Chassis Adjustments

Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and turn the frequency wave core of T109 under the chassis until the picture syncs and the sync bar just begins to move into the picture.

Note.—Occasionally, a tube may be found which does not respond to this alignment procedure since it may not be possible to sync the picture by means of the frequency core when the sine wave core is all the way out of the coil. Yet, the tube may work perfectly well when the circuit is properly aligned. In such a case, it may be necessary to turn the sine wave core in slightly, and readjust the frequency core to obtain sync.

Turn the sine wave core of T109 in until the blanking bar begins to move off to the left of the picture. Alternately turn the sine wave core in and the frequency out, keeping the picture in sync and the blanking bar showing in the picture.

Continue alternate adjustments until the picture falls from sync into a parasitic oscillation as indicated by a non-synchronized pattern which flickers in width and centering with possibly a light ragged vertical bar through the center of the screen.

Turn the sine wave core out $\frac{1}{2}$ turn. Adjust the frequency core in until the picture is in sync and horizontal blanking appears as a vertical bar in the picture.

Check of Pull-in Range.—Turn the horizontal hold control fully counter-clockwise. Connect a 270K ohm resistor across C156. Momentarily switch off channel and back; the picture will then be out of sync. Turn the hold control clockwise slowly and observe the minimum number of bars obtained just before the picture pulls into sync.

The picture should snap in from two complete blanking bars. If two bars are not obtained, turn the locking range trimmer C153A in to obtain less bars or out to obtain more bars.

If C153A was adjusted, remove the 270K resistor, turn the horizontal hold control fully clockwise and adjust the T109 frequency core until horizontal blanking appears as a vertical bar in the synced picture. Then repeat the entire check of pull-in range to this point.

Repeat the adjustments under "Check of Pull-in Range" until the conditions specified are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If the oscillator does not hold sync properly at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure on page 11.

FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately one-quarter inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. The axis of the hole through the focus coil should be parallel with the axis of the kinescope neck.

The focus coil is provided with a magnetic shunt in the form of a metal sleeve as shown in Figure 2. If the receiver focuses with the focus control near the end of its range, lossen the shunt locking screw and slide the shunt backward or forward until focus occurs in the center range of the focus control.

CENTERING ADJUSTMENT. — No electrical centering controls are provided. Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If the focus coil was appreciably changed in position or if a corner of the raster is shadowed, check the position oi the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by sliding the coil. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In extreme cases it may be necessary to adjust one or more of the three focus coil compression spring screws to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST. MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture, adjust horizontal drive counter-clockwise as far as possible without losing tension on trimmer.

Set the width control to minimum picture width.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained. Do not run tl.e core in beyond the point of maximum linearity change, us the current drawn by the 6BG6G then becomes excessive.

Adjust the width control for the proper picture width.

Readjust linearity, but again not beyond the point of maximum linearity change. If necessary adjust the drive control for best linearity.

If at very high line voltage, the picture width is excessive even with the width control set at minimum, turn the linearity coil out to obtain the proper width. On high line voltage, excessive width generally will be accompanied by good linearity, without retouching the drive.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R155 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R162 on rear apron) until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust the focus coil to align the picture with the mask.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC threshold control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

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CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 10. The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well. See Figures 8 and 9 for their location.

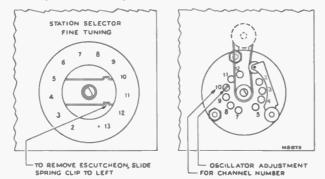


Figure 4—R.F Oscillator Adjustments

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390ohm resistor R14 which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs, the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the pilot light cable, the yoke and focus coil cable. Remove the yoke frame grounding strap and the interlock switch. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus coil as an assembly.

INSTALLATION OF KINESCOPE.—Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten. Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possikie. If this is not done, difficulty will be encountered in adjusting the ion trap magnet and focus coil because of shadows on the corner of the raster.

Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and slip the high voltage lead clip between the rim of the kinescope and the mask.

Reconnect all other cables. Do not forget to replace the yoke frame grounding strap. Perform the entire set-up procedure beginning with Ion Trap Magnet Adjustment.

ANTENNAS.—The finest television receiver built may be said to be only as good as the antenna design and installation. It is therefore important to select the proper antenna to suit local conditions, to install it properly and orient it correctly.

CABINET ANTENNA.—A cabinet antenna is provided which may be employed in strong signal areas in which no reflections are experienced. The antenna leads are brought out near the receiver antenna terminal board.

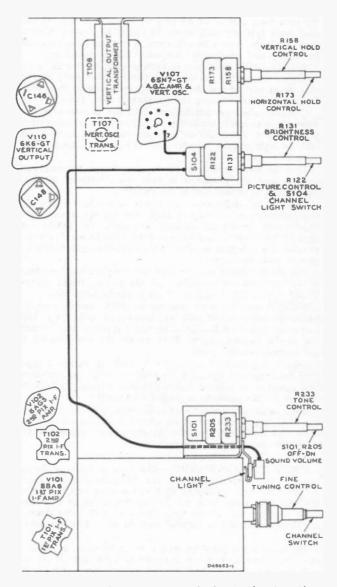


Figure 5—Partial Bottom View of Chassis Showing Channel Light and Channel Light Switch (Chassis is otherwise identical to KCS40A used in Models TC165, TC166, TC167 and TC168)

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THE CHASSIS USED IN MODEL 6772 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS T164, TC165, ETC. THE DIFFERENCE BEING IN THE ADDITION OF A CHANNEL INDICATOR LIGHT SWITCH (S104) IN MODEL 6772.

THE ALIGNMENT PROCEDURE IS IDENTICAL TO THAT GIVEN FOR MODELS T164, TC165, ETC., ON PAGES 267 TO 273 EXCEPT FOR A SLIGHT DIFFERENCE IN THE ALIGNMENT FREQUENCIES.

(EARLY PRODUCTION OF MODEL 6772 WAS ALIGNED AT THE SAME FRE-QUENCIES AS MODEL T164. THE CHANGE WAS MADE TO REDUCE 1-F HARMONIC INTERFERENCE.)

REFER TO MODELS T164, TC165, ETC., ON PAGES 261 TO 288 FOR ADDITIONAL SERVICE INFORMA-TION.

ALIGNMENT PROCEDURE

Service Precautions. — If possible, the chassis should be serviced without the kinescope. However, if it is necessary to view the raster during servicing, it would be a great convenience to have a set of yoke, focus coil, kinescope socket, high voltage and speaker extension cables.

CAUTION: Do not short the kinescope second-anode lead. Its short circuit current represents a considerable overload on the high voltage rectifier V113.

TEST EQUIPMENT. — To service properly the television chassis of this receiver, it is recommended that the following test equipment be available:

R-F Sweep Generator meeting the following requirements:

- (a) Frequency Ranges
 - 20 to 30 mc., 1 mc. and 10 mc. sweep width
 - 50 to 90 mc., 10 mc. sweep width
 - 170 to 225 mc., 10 mc. sweep width

(b) Output adjustable with at least .1 volt maximum.

(c) Output constant on all ranges.

(d) "Flat" output on all attenuator positions.

Cathode-Ray Oscilloscope. — For alignment purposes, the oscilloscope employed must have excellent low frequency and phase response, and should be capable of passing a 60-cycle square wave without appreciable distortion. While this requirement is not met by many commercial instruments, RCA Oscilloscope, types WO-55A, WO-58A, WO-79A, and WO-60C fill the requirement and any of these may be employed.

Electronic Voltmeter of Junior "VoltOhmyst" type and a high voltage multiplier probe for use with this meter to permit measurements up to 15 kv.

Signal Generator to provide the following frequencies with crystal accuracy.

(a) Intermediate frequencies

19.50 mc. adjacent channel picture trap 21.00 mc. sound i-f and sound traps 22.05 and 24.75 mc. conv. and first pix i-f trans. 25.3 mc. second picture i-f transformer 24.35 mc. fourth picture i-f transformer 21.75 mc. third picture i-f transformer 22.5 mc. fifth picture i-f transformer

25.50 mc. picture carrier

27.00 mc. adjacent channel sound trap

(b) Radio frequencies

	Picture	Sound
Channel	Carrier	Carrier
Number	Freq. Mc.	Freq. Mc.
2	55.25	59.75
3	61.25	65.75
4	67.25	71.75
5	77.25	81.75
6	83.25	87.75
7,	175.25	179.75
8		. 185.75
9		. 191.75
10	193.25	. 197.75
11	199.25	.203.75
12	205.25	.209.75
13		.215.75

(c) Output on these ranges should be adjustable and at least .1 volt maximum.

Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

Adjustments Required. — Normally, only the r-f oscillator line will require the attention of the service technician. All other circuits are either broad or very stable and hence will seldom require readjustment.

The oscillator line is relatively non-critical. When oscillator tubes are changed, in all probability it will be necessary to adjust only C6 in order to bring the entire line into adjustment.

ORDER OF ALIGNMENT. — When a complete receiver alignment is necessary, it can be most conveniently performed in the following order:

- (1) Sound discriminator
 - (5) R-F and converter lines
- (2) Sound i-f transformers(3) Picture i-f traps
- (6) R-F oscillator line
- (7) 4.5 mc. video trap(8) Sensitivity check

(4) Picture i-f transformers

SOUND DISCRIMINATOR ALIGNMENT. — Set the signal generator for approximately .1 volt output at 21.00 mc. and connect it to the second sound i-f grid.

Detune T113 secondary (bottom).

Set the "VoltOhmyst" on the 3-volt scale.

Connect the meter, in series with a 1-megohm resistor, to the junction of diode resistors R203 and R204.

continued on page 9

ALIGNMENT TABLE

THE DETAILED ALIGNMENT PROCEDURE BEGINNING ON PAGE 5 SHOULD BE READ BEFORE ALIGNMENT BY USE OF THE TABLE IS ATTEMPTED.

No.	CONNECT SIGNAL GENERATOR TO	'SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
			DIS	CRIMINATO	R AND SOUND 1-F	ALIGNMENT			
1	2nd sound i-f grid (pin 1, V117)	21.00 .1 volt output	Not used		Not used	In series with 1 meg. to junction of R203 & R204		Detune T113(bot.) Adjust T113 (top) for max. on meter	Fig. 8 Fig. 9 Fig. 10
2	<i>\$\$</i>	40				Junct. of C183 & R203	Meter on 3 volt scale	T113 (bottom) for zero on meter	Fig. 9 Fig. 10
3	<i>at</i>	20	2nd sound i-f grid (pin 1, V117)	21.25 center l mc. wide .l v. out	Junction of C183 & R203	Not used	Check for symm waveform (positiv not equal adjust they are equal	re & negative). If	Fig. 10 Fig. 12
4	lst sound i-f grid (pin 1, V116)	21.00 reduced output	lst sound i-f grid	21.25 reduced output	Terminal A, T112 in series with a 33,000 ohm resistor	**	Sweep output re- duced to provide .3 volt p-to-p on scope	T112 (top 6 bot.) for max.gain and symmetry at 21.00 mc.	Fig. 8 Fig. 9 Fig. 10 Fig. 13
		·		PICTURE I	F AND TRAP ADJU	STMENT			
5	Not used		Not used		Not used	Junction of R135 & C190	Remove V107. Connect potenti- ometer between pins 5 & 6 of V107 socket	Adjust pot. for meter reading of -12 volts	Fig. 10
6	Converter grid (pin 1, V2)	21.00	<i>90</i>		80	Across R119	Meter on 3 volt scale. Receiver between 2 and 13	T103 (top) for min. on meter	Fig. 8
7		21.00	**		**			T105 (top) for min.	
8	4.0	27.00	88		80		00	T102 (top) for min.	
9	20	27.00	**			**	**	T104 (top) for min.	**
10	<i>er</i>	19.50	**		"	"	<i>q</i> q	T106 (top) for min.	
11	28	19.50	•		**	89	0.0	T101 (top) for min.	"
12	88	22.5	н					T106 (bottom) for max. on meter	Fig. 9
13	60	24.35	40		40	85	**	T104 (bottom) for max.	
14	80	21.75	00		##		40	T103 (bottom) for max.	
15	00	25.3	87		00	a g	00	T102 (bottom) for max.	01
16	**	22.05 24.75	Converter grid (pin 1, V2)	Sweep- ing 20 to 30 mc.	Pin 1, V106	Junction of R135 & C190	Shunt 330 ohms across pri. T102, T103, T104, T106, Set bias -2 V. Set swp. gen. for 4 V. P-P on scope.	Adjust Tl (top) and Tl01 (bot- tom) for proper response	Fig. 8 Fig. 9 Fig. 14
17	<i>aa</i>			<i>p1</i>			Remove shunt re- sistors. Set bias to give 15 volts P to P on scope.	Adjust T1 (top), T101, T102, T103, T104, T106 (bot.) for proper resp.	Fig. 8 Fig. 9 Fig. 15
			ANTER	INA, R-F A	ND CONVERTER LI	NE ALIGNMENT			
18	Antenna terminals	215.75	Not used		Not used	Junction of C183 & R203 for signal gen. method only	Fine tuning cen- tered. Receiver on channel 13. Het- erodyne meter coupled to oscil- lator if used.	C6 for zero on meter or beat on het. freq. meter	Fig. 8 Fig. 10
19						Junction of R135 6 L117	Remove V101	Potentiometer for 3.5 volts on meter	Fig. 8 Fig. 10
20	Antenna terminal (loosely)	175.25 & 179.75	Antenna terminals (see text for precaution)	Sweep- ing channel 7	Test Connection R13	Not used	Receiver on chan- nel 7	L6, C10, C11 6 C14 for flat top response between markers. Markers above 90%.	Fig. 8 Fig. 9 Fig. 16 (7)
21	88	205.25 209.75		channel 12		**	Receiver on chan- nel 12	L6 for max. re- sponse and min. slope of top of curve	Fig. 8 Fig. 16 (12)
22	60 	175.25 179.75	**	channel 7	<i>01</i>	40	Receiver on chan- nel 7	Check to see that response is as above	Fig. 16 (7)
23	<i>81</i>	181.25 185.75	<i>\$</i> 7	channel 8	**	00	Receiver on chan- nel 8	00	Fig. 16 (8)
24	00	187.25 191.75	** ~	channel 9	00	63	Receiver on chan- nel 9	80	Fig. 16 (9)
25	00	193.25 197.75	28	channel 10	**	00	Receiver on chan- nel 10	**	Fig. 16 (10)

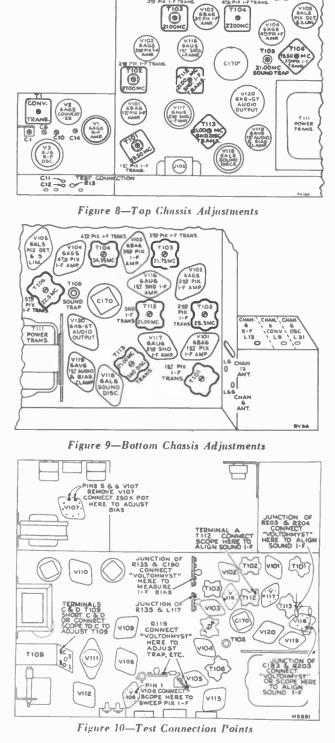
407

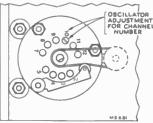
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ALIGNMENT PROCEDURE

				TTHICHT!	MENT PROCEI	JOIL			617
STEP No.	CONNECT SIGNAL GENERATOR TO	SIGNAL GEN. FREQ. MC.	CONNECT SWEEP GENERATOR TO	SWEEP GEN. FREQ. MC.	CONNECT OSCILLOSCOPE TO	CONNECT "VOLTOHMYST" TO	MISCELLANEOUS CONNECTIONS AND INSTRUCTIONS	ADJUST	REFER TO
			ANTÉNNA,)	R-F AND CO	NVERTER LINE AL	IGNMENT (Continue	id)		1
26	*#	199.25 203.75	89	channel 11	"	80	Receiver on chan- nel 11	**	Fig. 16 (11)
27	**	205.25 209.75		channel 12	**	88	Receiver on chan- nel 12	18	Fig. 16 (12)
28	67	211.25 215.75	**	channel 13	22	**	Receiver on chan- nel 13	60	Fig. 16 (13)
29	If the response or pull response up	n any chanr on that char	nel (steps 22 throu nel. Then recheck	gh 28) is b steps 22 th	elow 80% at eithe brough 28.	r marker, switch to	thut channel and	adjust L6, C10, C1	
30	Antenna terminals (loosely)	83.25 87.75	Ant. terminals (see text for precaution)	Sweep- ing chan. 6	Test Connection R13	Not used	Receiver on chan- nel 6	L9, L13, L66 & C12 for response as above	Fig. 16 (6)
31	**	77.25 81.75	**	channel 5	**	11	Receiver on chan- nel 5	Check to see that response is as above	Fig. 16 (5)
32	20	67.25 71.75	**	channel 4		"	Receiver on chun- nel 4	**	Fig. 16 (4)
33	17	61.25 65.75		channel 3	"	17	Receiver on chan- nel 3	**	Fig. 16 (3)
34	80	55.25 59.75		channel 2	**	99	Receiver on chan- nel 2	**	Fig. 16 (2)
TEP No.	CONNECT SIGNAL GENERATOR	SIGNAL GEN. FREQ.	CONNECT HETERODYNE FREQ. METER	R-F OSC HET. METER FREQ.	CILLATOR ALIGNMI CONNECT OSCILLOSCOPE	ect the bias pot. a	hat channel and nd replace Vl01 ar MISCELLANEOUS CONNECTIONS AND	ADJUST	REFER
36	TO Antenna terminals	MC. 215.75	TO Loosely coupled to r-f osc.	MC. 236.75	Not used	Junction of C183 & R203 for sig.	INSTRUCTIONS Fine tuning con- tered. Receiver	C6 for zero on meter or beat on	Fig. 8 Fig. 10
37	88	209.75	80	230.75		gen. method only	on channel 13 Rec. on chan. 12	het. freq. meter L14 as above	Fig. 11
38	**	203.75	58	224.75	••	**	Rec. on chan. 11	L15 as above	Fig. 11
39	**	197.75	10	218.75	**		Rec. on chan. 10	L16 as above	
40	**	191.75	**	212.75	12	4.8	Rec. on chan. 9	L17 as above	**
41	**	185.75	0.0	206.75	81	t#	Rec. on chan. 8	L18 as above	
42	<i></i>	179.75		200.75	**	88	Rec. on chan. 7	L19 as above	
43	<i>68</i>	87.75	**	108.75	**	**	Rec. on chan. 6	L31 as above	Fig. 9
44 /	88	81.75		102.75		**	Rec. on chan. 5	L21 as above	Fig. 11
45	30	71.75	**	92.75		<i></i>	Rec. on chan. 4	L22 as above	**
46	88	65.75	**	86.75	e4	**	Rec. on chan. 3		**
47		59.75		80.75	**	**	Rec. on chan. 2	L24 as above	**
48	Repeat steps 36 t	hrough 47 c	is α check.						
			I	AGC TH	RESHOLD ADJUSTM	IENT			
49	Not used		Not used		Pin 1, V106	Not used	Tune in station, clockwise. Adjus gain without clipp	t R138 for max.	Fig. 10 Fig. 17
			ŀ	IORIZONTAL	OSCILLATOR ADJ	USTMENT			
50	Short circuit termin	als C and D	of T109. Tune in c	station. Set	locking range trim	mer C153A 1/2 turn	out from maximum	3.	
51	Turn hold control	fully clockwi	ise. Adjust T109 F	requency Ac	ijustment until hori	zontal blanking ba	r appears in the pi	cture.	
52	Turn hold control 1 Repeat step 51, the	turn from proceed w	clockwise to sync ith step 53.	picture. Adj	ust width (R192), li	inearity (L111) and	drive (C153B) con	trols until picture	is correc
53	bidiking bar uppe	ars in pictur	e with core in out	er of two po	ssible positions.		Scillator Waveform		
54	unin broud und sh	urp peaks of	wave on oscillosc	ope are sam	e height while kee	ping picture in syn	Waveform Adjustm c. Remove oscillosco	ope.	
55	redst indiabel of bi	ris petote b	an-in. Adjust Locki	ng Range C	ontrol (CI53A) for	2 bar pull-in.	signal. Turn hold		
56	furn hold control	fully clocky	wise. Adjust T109				ears as single ver	tical or diagonal b	ar in pi
	Tune in a strong s	tation. Short	T103 trap. If a 4		appears in picture		p (L110) until beat	is eliminated.	
57									
57				SE	NSITIVITY CHECK				

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OSCILLATOR ADJUSTMENT FOR CHANNEL 13 IS ON TOP OF R-F UNIT AND CHANNEL 6 IS ON SIDE. Figure 11-R-F Oscillator Adjustments

ALIGNMENT DATA

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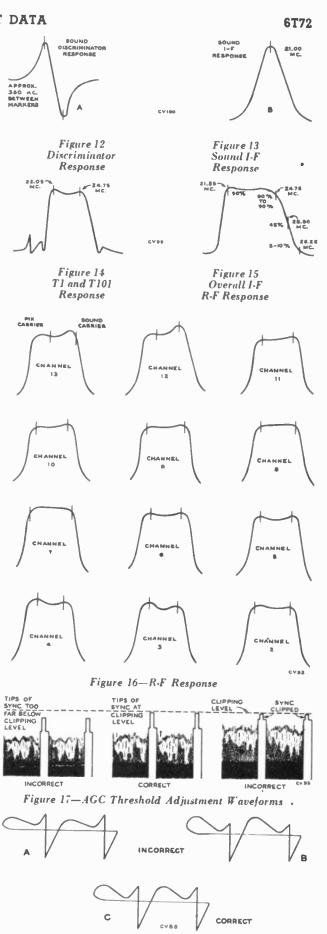


Figure 18—Horizontal Oscillator Waveforms

an output of approximately .1 volt.

21.150 mc. to 21.300 mc.

the first sound i-f amplifier grid.

into the first sound i-f grid.

be similar to that shown in Figure 13.

meter.

i-f amplifier.

metrical.

resistor

Adjust the primary of T113 (top) for maximum output on the

Connect the "VcltOhmyst" to the junction of C183 and R203.

Adjust T113 secondary (bottom). It will be found that it is

possible to produce a positive or negative voltage on the meter

dependent upon this adjustment. Obviously to pass from a

positive to a negative voltage, the voltage must go through

zero. T113 (bottom) should be adjusted so that the meter indi-

cates zero output as the voltage swings from positive to nega-

Connect the sweep oscillator to the grid of the second sound

Adjust the sweep band width to approximately 1 mc. with

Connect the oscilloscope to the junction of C183 and R203.

The pattern obtained should be similar to that shown in Figure

12. If it is not, adjust T113 (top) until the waveform is sym-

The peak-to-peak band width of the discriminator should be

SOUND I-F ALIGNMENT. - Connect the sweep oscillator to

Connect the oscilloscope to the second sound i-f grid return

Insert a 21.25 mc. marker signal from the signal generator

Adjust T112 (top and bottom) for maximum gain and sym-

The output level from the sweep should be set to produce

approximately .3 volt peak-to-peak at the second sound i-f grid

return when the final touches on the above adjustment are

made. It is necessary that the sweep output voltage should not

metry about the 21.00 mc. marker. The pattern obtained should

(terminal A of T112) in series with a 33,000-ohm isolating

approximately 350 kc. and the trace should be linear from

the center frequency at approximately 21.00 mc. and with

tive. This point will be called discriminator zero output.

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Since channel 7 has the narrowest response of any of the tion is encountered, it is sometimes possible to stop oscillation by adjusting the transformers approximately to frequency by high frequency channels, it should be adjusted first. setting the adjustment cores of T101, T102, T103, T104, T105 Set the receiver channel switch to channel 7. and T106 to be approximately equal to those of another re-Set the sweep oscillator to cover channel 7. ceiver known to be in proper alignment. If this does not have Insert markers of channel 7 picture carrier and sound carrier, the desired effect, it may now be possible to stop oscillation 175.25 mc. and 179.75 mc. by increasing the grid bias. If so, it should then be possible to align the transformers by the usual method. Once aligned Adjust Cl0 and Cl4 until the curve falls symmetrically bein this manner, the i-f amplifier should be stable with reduced tween the sound and picture carrier markers. Adjust C11 to give the proper band width. Roughly peak L6 in conjunction with slight adjustments of C10 and C14 for a flat-topped response curve with the sound and picture carriers at 90% to 95% response points on this curve. See Figure 16, channel 7.

If the oscillation cannot be stopped in the above manner, shunt the grids of the first three pix i-f amplifiers to ground with 1,000 mmf. capacitors. Connect the signal generator to the fourth pix i-f grid and align T106 to frequency. Progressively remove the shunt from each grid and align the plate coil of that stage to frequency.

If this does not stop the oscillation, the difficulty is not due to i-f misalignment as the i-f section is stable when properly aligned. Check all i-f by-pass condensers, transformer shunting resistors, tubes, socket voltages, etc.

ANTENNA, R-F AND CONVERTER LINE ADJUSTMENT. --- In order to align the r-f tuner, it will first be necessary to set the channel-13 oscillator to frequency. The shield over the bottom of the r-f unit must be in place when making any adjustments.

The channel-13 oscillator may be aligned by adjusting it to beat with a crystal-calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discriminator. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available. Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated.

If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, couple the meter probe loosely to the receiver oscillator.

If the receiver oscillator is adjusted by feeding in the r-f sound carrier signal, connect the signal generator to the receiver antenna terminals. Connect the "VoltOhmyst" to the sound discriminator output (junction of C183 and R203).

Set the receiver switch to 13.

Adjust the frequency standard to the correct frequency 236.75 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator.

Now that the channel-13 oscillator is set to frequency, we may proceed with the r-f alignment.

Connect the "VoltOhmyst" to the junction of R135 and L117. Adjust the 250K pot, for -3.5 volts on the meter.

Remove the first pix i-f amplifier tube V101.

Connect the oscilloscope to the test connection at R13 in the r-f tuning unit.

Connect the r-f sweep oscillator to the receiver antenna terminals. The method of connection depends upon the output impedance of the sweep. The P102 connections for 300-ohm balanced or 72-ohm single-ended input are shown in the circuit If the sweep oscillator has a 50-ohm diagrams single-ended output, 300-ohm balanced output can be obtained by connecting as shown in Figure 7.

120.0 RECEIVER ANTENNA 50 OHM 50A UNBALANCED SWEEP OUTPUT CABLE 1201 MS 227

Figure 7-Unbalanced Sweep Cable Termination

Connect the signal generator loosely to the receiver antenna terminals.

In the above transformers using threaded cores, it is possible to run the cores completely through the coils and secure two peaks or nulls. The correct position is with the cores in the outside ends of the coils. If the cores are not in the correct position, the coupling will be incorrect and it will be impossible to secure the correct response.

PICTURE I-F TRANSFORMER ADJUSTMENTS. - Set the signal generator to each of the following frequencies and peak the specified adjustment for maximum indication on the "Volt-Ohmyst." During alignment, reduce the input signal if necessary to prevent overloading.

22.5	mc	(bottom)
24.35	mcT104	(bottom)
21.75	mcT103	(bottom)
25.3	mcT102	(bottom)

TI and T101 are coupled by a link and in combination constitute an overcoupled transformer. The characteristics of such a transformer are such that it is impossible to adjust it to a single frequency.

To sweep align T1 and T101, connect a 330-ohm composition resistor across the primary coils of T102, T103, T104 and T106.

Connect the "VoltOhmyst" to the junction of R135 and C190. Adjust the 250,000-ohm variable resistor for -2.0 volts on the motor

Connect the oscilloscope to the plate of the first video amplifier, pin 1 of V106.

Connect a sweep generator to the converter grid through a 1,500 mmf capacitor. Set the generator to sweep from 20.0 mc. to 30.0 mc. and adjust the output to provide a 4-volt peakto-peak signal on the scope.

Connect the signal generator loosely to the converter grid and tune it to provide markers at 22.05 mc. and 24.75 mc.

Adjust T1 (top) and T101 (bottom) to obtain the response shown in Figure 14. The T1 core must penetrate to the terminal-board end of the coil in order to obtain the correct response.

Remove the 330-ohm resistors from across T102, T103, T104 and T106.

Adjust the 250,000-ohm potentiometer for a 15-volt peak-topeak signal at the plate of the first video amplifier. The bias as measured by the "VoltOhmyst" should be -12 volts or less.

Observe and analyze the response curve obtained. The response will not be ideal and the i-f adjustments must be retouched in order to obtain the desired curve. See Figure 15.

On final adjustment the picture carrier marker must be at approximately 45% response. The curve must be approximately flat topped, with the 21.85 mc, marker at approximately 90% response and the 24.75 mc. marker below 90% response. A 26.25 mc. marker must fall between 5 and 10% response.

The most important consideration in making the i-f adjustments is to get the picture carrier at the 45% response point. If the nicture carrier operates too low on the response curve loss of low frequency video response, of picture brilliance, of blanking, and of sync may occur. If the picture carrier operates too high on the response curve, the picture becomes smeared. In making these adjustments, care should be taken to see that no two transformers are tuned to the same frequency as i-f oscillation may result.

Remove the converter tube and take off the clip to pin number 1. Replace the tube in the socket.

Picture I-F Oscillation. - If the receiver will operate without oscillating with the test equipment disconnected but breaks into oscillation or becomes unstable with the equipment connected, it may become necessary to establish a ground plane. Cover the test bench with a sheet of copper and set the chassis on the sheet. Set all the test equipment except the "Volt-Ohmyst" on the sheet and bond or bypass them to it. A Junior "VoltOhmyst" should not be bonded to the sheet since the negative test probe is not always connected to ground during alignment. If the receiver is badly misaligned and two or more of the i-i transformers are tuned to the same frequency, the receiver may fall into i-f oscillation. I-F oscillation shows up as a voltage across the picture detector load resistor that is unaffected by r-f signal input. If such a condi-

exceed the specified values otherwise the response curve will be broadened, permitting slight misadjustment to pass unnoticed and possibly causing distortion on weak signals. The band width at 70% response from the first sound i-f grid to the second i-f grid should be approximately 200 kc.

PICTURE I-F TRAP ADJUSTMENT. - Connect the "Volt-Ohmyst" to the junction of R135 and C190.

Remove the 6SN7GT AGC Amplifier tube V107. Connect a 250,000-ohm potentiometer between pins 5 and 6 of the V107 socket. Adjust the potentiometer until the "VoltOhmyst" reads approximately -12 volts.

Set the channel switch to the blank position between channels number 2 and 13.

Connect the "VoltOhmyst" across the picture detector load resistor R119. Under this condition, both leads of the meter are at approximately -120 volts. In making this connection. care should be taken not to touch the case of the meter or to permit the meter case to become grounded.

Connect the output of the signal generator to the grid of the converter tube V2. To do this, remove the tube from the socket and fashion a clip by twisting one end of a small piece of wire around pin number 1. Replace the tube in the socket leaving the end of the wire protruding from under the tube. Connect the signal generator to this wire through a 1,500 mmf capacitor keeping the leads as short as possible.

Set the generator to each of the following frequencies and with a thin fiber screwdriver tune the specified adjustment for minimum indication on the "VoltOhmyst." In each instance the generator should be checked against a crystal calibrator to insure that the generator is exactly on frequency.

(1)	21.00 mcT103 (top)	(4)	27.00 mc.—T104 (top)
(2)	21.00 mcT105 (top)	(5)	19.50 mc.—T106 (top)
(3)	27.00 mc.—T102 (top)	(6)	19.50 mcT101 (top)

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Switch to channel 12 and adjust L6 for maximum response and minimum top slope of the curve.

Check the response of channels 7 through 13 by switching the receiver channel switch, sweep oscillator and marker oscillator to each of these channels and observing the response obtained. See Figure 16 for typical response curves. It should be found that all these channels have the proper shaped response with the markers above 80% response. If the markers do not fall within this requirement on one or more high frequency channels, since there are no individual channel adjustments, it will be necessary to readjust L6, C10, C11 and C14, and possibly compromise some channel slightly in order to get the markers up on other channels. Normally, however, no difficulty of this type should be experienced since the higher frequency channels are comparatively broad and the markers easily fall within the required range.

Channel 6 is next aligned in the same manner.

Set the receiver to channel 6.

Set the sweep oscillator to cover channel 6.

Set the marker oscillator to channel 6 picture and sound carrier frequencies.

Adjust L9, L13, L66, and C12 for an approximately flattopped response curve located symmetrically between the markers. L9, L13 and L66 are the center frequency adjustments. C12 is the band-width adjustment

Check channels 5 down through channel 2 by switching the receiver, sweep oscillator and marker oscillator to each channel and observing the response obtained. In all cases, the markers should be above the 80% response point. If this is not the case, L9, L13, L66 and C12 should be retouched. On final adjustment, all channels must be within the 80% specification.

Disconnect the 250K pot., and replace V107 and V101.

Following an r-f alignment, the oscillator alignment must be checked.

R-F OSCILLATOR LINE ADJUSTMENT. - The r-f oscillator line may be aligned by adjusting it to beat with a crystal calibrated heterodyne frequency meter, or by feeding a signal into the receiver at the r-f sound carrier frequency and adjusting the oscillator for zero output from the sound discrimingtor. In this latter case the sound discriminator must first have been aligned to exact frequency. Either method of adjustment will produce the same results. The method used will depend upon the type of test equipment available.

Regardless of which method of oscillator alignment is used, the frequency standard must be crystal controlled or calibrated. If the receiver oscillator is to be adjusted by the heterodyne frequency meter method, the calibration frequency listed under R-F Osc. Freq. must be available.

Channel Sumber	Receiver R-F Osc. Freq. Mc.	R-F Sound Carrier Freq. Mc.	Oscillator
2	80.750	59.75	L24
3	86.750	65.75	L23
4	92.750	71.75	L22
5		81.75	L21
6		87.75	L31
7		179.75	L19
8			L18
9		191.75	L17
10		197.75	L16
11			L15
12			L14
13	236.750	215.75	C6

If the receiver oscillator is adjusted by feeding in the r-f sound carrier frequency, the frequencies listed under Sound Carrier Freq. must be available.

If the heterodyne frequency meter method is used, couple the meter probe loosely to the receiver oscillator.

If the r-f sound carrier method is used, connect the "Volt-Ohmyst" to the sound discriminator output (junction of C183 and R203) and connect the signal generator to the receiver antenna terminals. The order of alignment remains the same regardless of which method is used.

If the r-f unit is removed from the receiver for service and is aligned separately, the shield over the bottom of the r-f unit must be in place when making adjustments.

Since the lower frequencies are obtained by adding steps of inductance, it is necessary to align channel 13 first and continue in reverse numerical order.

Set the receiver channel switch to 13.

1

Adjust the frequency standard to the correct frequency 236.75 mc. for heterodyne frequency meter or 215.75 mc. for the signal generator).

Set the fine tuning control to the middle of its range while making the adjustment.

Adjust C6 for an audible beat on the heterodyne frequency meter or zero voltage from sound discriminator. Oscillator adjustments L1 and L2 shown on the schematic are factory control adjustments and should not be touched in the field.

Switch the receiver to channel 12.

Set the frequency standard to the proper frequency as listed in the alignment table.

Adjust L14 for indications as above.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator trimmer for the specified indication. It should be possible to adjust the oscillator to the correct frequency on all channels with the fine tuning control in the middle third of its range.

After the oscillator has been set on all channels, start back at channel 13 and recheck to make sure that all adjustments are correct.

AGC THRESHOLD ADJUSTMENT. — The AGC threshold adjustment can be made by the method outlined in the Installation Instructions. However, a more accurate adjustment can be obtained by the use of an oscilloscope.

Tune in a station and advance the picture control to the maximum clockwise position. Connect the low capacity probe from the oscilloscope to the plate of the first video amplifier, pin 1 of V106. Adjust the oscilloscope to observe the horizontal sync pulse.

Turn the AGC threshold control R138 fully clockwise, then slowly counter-clockwise. As the control is turned counterclockwise, the receiver gain will increase slowly, increasing the size of the pattern on the oscilloscope. R138 should be turned counter-clockwise until the receiver begins to overload as indicated by clipping of the sync. The control should be left in the maximum gain position in which no clipping of sync is observed. See Figure 17 for proper waveforms.

HORIZONTAL OSCILLATOR ADJUSTMENT. — Normally the adjustment of the horizontal oscillator is not considered to be a part of the alignment procedure, but since the oscillator waveform adjustment requires the use of an oscilloscope, it can not be done conventently in the field. The waveform adjustment is made at the factory and normally should not require readjustment in the field. However, the waveform adjustment should be checked whenever the receiver is aligned or whenever the horizontal oscillator operation is improper.

Horizontal Frequency Adjustment.—Set the locking range trimmer one half turn out from maximum capacity. With a clip lead, short circuit the coil between terminals C and D of the horizontal oscillator transformer T109. Tune in a television station and sync the picture if possible.

A. — Turn the horizontal hold control R173 to the extreme clockwise position. Adjust the T109 Frequency Adjustment (under the chassis) so that the picture is just out of sync and the horizontal blanking appears in the picture as a vertical bar. The position of the bar is unimportant.

Note.—Occasionally a tube may be found which does not respond to step " \mathbb{A} " above, since it may not be possible to sync the picture by means of the frequency core when the sine wave coil is shorted out. Yet, the tube may work perfectly well when the circuit is properly aligned. In such a case it may be necessary to remove the short then turn the sine wave core out then in until it is possible to obtain sync by adjustment of the frequency core.

B. — Turn the hold control approximately one-quarter of a turn from the extreme clockwise position and examine the width and linearity of the picture. If picture width or linearity is incorrect, adjust the horizontal drive control C153B, the width control R192 and the linearity control L111 until the picture is correct. If C153B was adjusted, repeat step "A" and note above.

Horizontal Oscillator Waveform Adjustment. — Remove the shorting clip from terminals C and D of T109. Turn the horizontal hold control to the extreme clockwise position. With a thin fibre screwdriver, if necessary, adjust the Oscillator Waveform Adjustment Core of T109 (on the outside of the chassis) until the horizontal blanking bar appears in the raster. The waveform adjustment core will sync the picture in two positions. The core should be in the position nearest the outside of the chassis.

A. — Connect the low capacity probe of an oscilloscope to terminal C of T109. Alternately adjust the waveform and frequency cores of T109 until the peak of the sine wave is equal in amplitude to the peak of the saw tooth, on the oscilloscope as shown in Figure 18, while maintaining the picture in synchronization. Then adjust the frequency core until horizontal blanking shows as a vertical bar in the picture.

This adjustment is very important for correct operation of the circuit. If the broad peak of the wave on the oscilloscope is lower than the sharp peak, the noise immunity becomes poorer, the stabilizing effect of the tuned circuit is reduced and drift of the oscillator becomes more serious. On the other hand, if the broad peak is higher than the sharp peak, the oscillator is overstabilized, the pull-in range becomes inadequate and the broad peak can cause double triggering of the oscillator when the hold control approaches the clockwise position.

Remove the oscilloscope upon completion of this adjustment.

Check of Oscillator Pull-in Range.—Set the horizontal hold control to the full counter-clockwise position.

Connect a 270K ohm resistor across C156.

Momentarily switch off channel and back. The picture will then be out of sync.

Turn the hold control clockwise slowly and observe the minimum number of bars obtained just before the picture pulls into sync. The picture should snap in from two complete blanking bars. If two bars are not obtained turn the locking range trimmer C153Å in to obtain less bars or out to obtain more bars.

After adjustment of C153A, remove the 270K resistor, turn the horizontal hold control fully clockwise and readjust the frequency core of T109 until the picture is in sync and the horizontal blanking bar begins to move in the picture. Then repeat the entire "Check of Pull-in Range" procedure to this point. Repeat this procedure until two bar pull-in is obtained.

Turn the horizontal hold control to the maximum clockwise position. The picture should be just out of sync to the extent that the horizontal blanking bar appears as a single vertical or diagonal bar in the picture. Adjust the T109 Frequency Adjustment until this condition is fulfilled.

4.5 MC. VIDEO TRAP. — With a strong input from a station, detune the receiver from the correct fine tuning point. With a very short clip lead, short the trap winding of T103. Observe the picture for the appearance of a 4.5 mc. beat. If the beat appears in the picture, adjust L110 until the beat is eliminated.

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REPLACEMENT PARTS

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES	75456	Escutcheon—Channel marker escutcheon — light — for oak instruments
	KRK 5B	74606	Glass—Safety glass
	Same as listed on page 285	75439	Grille—Metal grille
	TELEVISION CHASSIS ASSEMBLIES KCS 40B	37396	Grommet—Rubber grommet to mount speaker (4 required)
	Same as listed for KCS 40A on page 285 except for	74308	Hinge—Cabinet door hinge (1 set)
	the following:	74959	Knob—Fine tuning knob—maroon—for mahogany
75453	Bracket—Channel indicator lamp bracket		or walnut instruments (outer)
75452	Control—Picture control, brightness control and channel light switch (R122, R131, S104) Socket—Indicator lamp socket complete with lead	75461	Knob—Fine tuning knob—beige—for oak instru- ments (outer)
70101	(1214")	74960	Knob—Channel selector knob — maroon — for ma- hogany or walnut instruments (inner)
	SPEAKER ASSEMBLIES	75462	Knob—Channel selector knob—beige—for oak In- struments (inner)
	92569-10W RL 111-16 RMA 274	74962	Knob—Tone control, brightness control or vertical hold control knob — maroon — for mahogany or walnut instruments (outer)
13867 74901	Cap—Dust cap Cone—Cone and voice coil assembly (3.2 ohms)	75463	Knob—Tone control, brightness control or vertical hold control knob — beige — for oak instruments (outer)
5039	Connector—4 contact male connector for speaker	74963	Knob—Picture control, horizontal hold control or vol-
75035	(J101) Speaker—12" P.M. speaker complete with cone and voice coil less output transformer and plug		ume control and power switch knob—maroon— for mahogany of walnut instruments (inner)
75036	Transformer—Output transformer (T114)	75464	Knob—Picture control, horizontal hold control or vol- ume control and power switch knob—beige—for oak instruments (inner)
	SPEAKER ASSEMBLIES	11765	Lamp—Pilot or channel indicator lamp—Mazda 51
75875	92569-10B Cone—Cone and voice coil assembly (3.2 ohms)	75460	Mask—Light mask—gold for channel marker es- cutcheon for oak instruments
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order re-	75459	Mask—Light mask—burgundy for channel marker escutcheon for mahogany or walnut instruments
	placement parts by referring to model number of instrument, number stamped on speaker and full	74162	Plate—Mounting plate for interlock switch
	description of part required.	75438	Pull—Door pull
	MISCELLANEOUS	71456	Screw—No. 8-32 x 7/16" wing screw for deflection yoke and focus magnet mounting support
75020	Back-Cabinet back	74307	Screw-No. 8-32 x $1\frac{1}{4}$ " trimit head screw for door
71599	Bracket—Pilot lamp bracket	80040	pull
13103	Cap—Pilot lamp cap	73643	Spring-Spring clip for channel marker escutcheon
71892	Catch—Bullet catch and strike	74966	Spring—Formed spring for kinescope masking panel (8 required)
X3120	Cloth—Grille cloth for mahogany or walnut instru- ments	30330	Spring—Retaining spring for knobs 74963 and 75464
X3090	Cloth—Grille cloth for oak instruments	72845	Spring—Retaining spring for knobs 74959 and 75461
75608	Cushion—Dust seal cushion	14270	Spring—Retaining spring for knobs 74960, 74962,
71910	Decal—Trade mark decal	80000	75462 and 75463
75440	Decal-Control panel function decal for mahogany or walnut instruments	72936	Stop—Cabinet door stop Stud—Locating stud for back (2 required)
75441	Decal—Control panel function decal for oak instru- ments	75457	Washer—Felt washer—dark brown—between knob
74809	Emblem—"RCA Victor" emblem		and channel marker escutcheon for mahogany or walnut instruments
75455	Escutcheon-Channel marker escutcheon-dark-for walnut or mahogany instruments	75458	Washer—Felt washer—beige—between knob and channel marker escutcheon for oak instruments

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

412

6T72





6T84 "Fairfax" Walnut, Mabogany or Oak



RCAVICTOR

TELEVISION, RADIO PHONOGRAPH COMBINATIONS MODELS 6T84, 6T86, 6T87

Chassis Nos. KCS48 or KCS48T and RC1090 or RC1092 45 Record Changer RP168 or RP190 331/3/78 Record Changer 960282 or 960284

— Mfr. No. 274 —

SERVICE DATA

- 1950 No. T15 -

PREPARED BY RCA SERVICE CO., INC.

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Models 6T84, 6T86 and 6T87 are 16-inch television radio phonograph combinations. Two record changers are provided to play 78, $33\frac{1}{3}$ and 45 RPM records.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

RCA TUBE COMPLEMENT

(1) RCA 6CB6 R-F 'Amplifier
(2) RCA 6J6 R-F Oscillator and Mixer
(3) RCA 6AU6 lst Sound I-F Amplifier
(4) RCA 6AU6
(5) RCA 6AL5
(6) RCA 6AV6 (KCS48T only) Bias Clamp
(7) RCA 6AU6 1st Picture I-F Amplifier
(8) RCA 6CB6 2nd Picture I-F Amplifier
(9) RCA 6AU6 3rd Picture I-F Amplifier
(10) RCA 6CB6 4th Picture I-F Amplifier
(11) RCA 6AL5 Picture 2nd Detector and AGC Detector
(12) RCA 12AU7 1st and 2nd Video Amplifier
(13) RCA 12AU7 DC Restorer and Sync Separator
(14) RCA 6SN7GT (KCS48)Vert. Sweep Osc, & Bias Clamp
or RCA 6SN7GT (KCS48T)Svnc. Amp. & Vert. Sween Oec
(15) RCA 6KSGTVertical Sweep Output
(16) HCA 6SN/GT Horizontal Sweep Oscillator and Control
(17) RCA 6BG6G Horizontal Sweep Output
(18) RCA 6W4GT
(19) RCA 183-G1/8016 High Voltage Rectifier
(20) RCA 16GP4, 16GP4A, 16GP4B, 16GP4C Kinescope
(21) RCA 5U4G Rectifier

(RC1090 Radio Chassis)

(1)	RCA	6BE6 Converter
(2)	RÇA	6BA6
(3)	RCA	6AV6 Detector and 1st Audio
(4)	RCA	6C4 Phase Inverter
(5)	RCA	6V6GT (2 tubes) Audio Output
(6)	RCA	6X5GT Rectifier

(RC1092 Radio Chassis)

(1) RCA (2) RCA	6CB6R-F Amplifier 6J6Oscillator and Mixer
(3) RCA	6BA6 I-F Amplifier
(4) RCA	6AV6 Driver
(5) RCA	6AL5 Ratio Detector
(6) RCA	6AV6 AM Det., AVC and Audio Amplifier
(7) RCA	6C4 Phase Inverter
(8) RCA	6V6GT (2 tubes) Audio Output
(9) RCA	5Y3GT Rectifier

Model 6T86 "Rutland" Walnut, Mahogany or Oak Model 6T87 "Hartford" Walnut, Mabogany or Oak

PICTURE SIZE......146 square inches on a 16GP4 kinescope

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc. Fine Tuning Range, ± 250 kc. on chan. 2, ± 650 kc. on chan. 13

RADIO TUNING RANGE

RC1090					
AUDIO POWER OUTPUT RC1090 6 watts maxRC	C1092—11 watts max.				
POWER SUPPLY RATING					
CHASSIS DESIGNATIONS Television Chassis					
LOUDSPEAKER-92569					
Voice Coil Impedance 3.2	-				
WEIGHT Net Weight 6T84 162 6T86 177 6T87 200					
DIMENSIONS (Cabinet Outside)	Width Height Depth				
6784					
6T86					

RECEIVER ANTENNA INPUT IMPEDANCE 300 ohms balanced.

If necessary, the television chassis may be fed separately from either a 300-ohm balanced line or a 72-ohm co-ax.

Specifications continued on page 2

ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

WIDEO DEGDONGE

PICTURE INTERMEDIATE FREQUENCIES

6T84, 6T86, 6T87

Picture Carrier Frequency	25.50	Mc.
Adjacent Channel Sound Trap	27.00	Mc.
Accompanying Sound Traps	21.00	Mc.
Adjacent Channel Picture Carrier Trap	19.50	Mc.
SOUND INTERMEDIATE FREQUENCIES		

Sound Discriminator Band Width between peaks 400 kc.

VIDEO RESPONSE	Mc.
FOCUS	metic
SWEEP DEFLECTION Mag	netic
SCANNING Interlaced, 525	iline
HORIZONTAL SWEEP FREQUENCY 15,750) cps
VERTICAL SWEEP FREQUENCY 60) cps
FRAME FREQUENCY (Picture Repetition Rate)	срв

THE TELEVISION CHASSIS USED IN MODELS 6T84, 6T86 AND 6T87 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS 6T53, 6T64, 6T71, ETC. REFER TO PAGES 372 TO 385 FOR TELEVISION ALIGNMENT DATA AND WAVEFORM PHOTOGRAPHS.

THE RADIO CHASSIS (RC-1090) USED IN MODEL 6T84 IS IDENTICAL TO THE RADIO CHASSIS USED IN MODEL 2781. REFER TO PAGES 356 AND 357 FOR SERVICE INFORMATION ON RADIO CHASSIS RC-1090.

OPERATING INSTRUCTIONS

ON-OFF SOUND

Ò Ω Ó Q O

N6 RC 1090

BC 1092

TOME

TONE (ON RC 1092 ONLY)

FUNCTION RCIG

CC.

RECORD CHANGER

CONTROL SWITCH

The following adjustments are necessary when turning the receiver on for the first time:

1. Turn the radio FUNCTION switch to TV.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZON-TAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and BRIGHTNESS controls for suitable picture contrast and brightness.

9. After the receiver has been on for some time, it may be necessary to read-

10. In switching irom one channel to another, it may be necessary to repeat steps 4 and 8.

should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step No. 4 is generally sufficient.

> 12. If the positions of the controls have been changed, it may be necessary to repeat steps 1 through 8.

> > **RADIO OPERATION**

1. Turn the radio FUNC-TION switch to AM.

2. Tune in the desired station with the TUNING control.

PHONOGRAPH OPERATION

1. Turn the radio FUNC-TION switch to 78-33 for operation of the 78/331/3 RPM changer or to 45 for operation of the 45 RPM changer.

2. Place a record on the appropriate changer and slip the changer power switch to "ON."

Figure 1-Receiver Operating Controls HIGH VOLTAGE WARNING

TUNING

STATION

ESCUTCHEON

BRIGHTNESS

PICTURE-

HOLO

HORIZONTAL

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

just the FINE TUNING control slightly for improved sound fidelity.

11. When the set is turned on again after an idle period it

Connect the antenna transmission line to the receiver antenna terminals. Plug a power cord into the 115-volt a-c power source and into the receiver interlock receptacle. Turn the receiver power switch to the "on" position, the brightness control fully clockwise, and the picture control counterclockwise.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Turn the focus control (shown in Figure 2) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum clockwise position with which good line focus can be maintained.

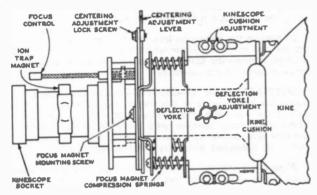


Figure 2-Yoke and Focus Magnet Adjustments

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the voke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn S105 on the rear apron (see Figure 3) counter-clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.— Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced, and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull-in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Magnet Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments.

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television

station and adjust the T108 horizontal frequency adjustment on top of the chassis until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Locking Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. The picture may remain in sync. If so turn the T108 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C147A slightly clockwise. If less than 2 bars are present, adjust C147A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure. For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

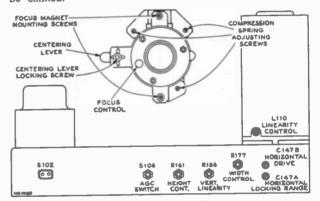


Figure 3-Rear Chassis Adjustments

FOCUS MAGNET ADJUSTMENT.—The focus coil should be adjusted so that there is approximately three-eighths inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus magnet. This spacing gives best average focus over the face of the tube.

The axis of the hole through the magnet should be parallel with the axis of the kinescope neck with the kinescope neck through the middle.

CENTERING ADJUSTMENT.—No electrical centering controls are provided. Centering is accomplished by means of a separate plate on the focus magnet. Some centering plates include a locking screw which must be loosened before centering, and others are held in adjustment by friction. Up and down adjustment of the plate moves the picture side to side and sidewise adjustment moves the picture up and down.

If a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by adjustment of the focus magnet plate. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In some cases it may be necessary to shift the position of the focus magnet in order to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best

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6T84, 6T86, 6T87

INSTALLATION INSTRUCTIONS

focused picture, adjust horizontal drive counter-clockwise as far as possible without stretching the left side of the picture. As a first adjustment, set the horizontal drive trimmer C143B one-half turn out from maximum capacity.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained.

Adjust the width control R177 to obtain correct picture width.

A slight readjustment of these three controls may be necessary to obtain the best linearity.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R151 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R156 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

FOCUS.—Adjust the focus magnet for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

On focus magnets using two shunts, the one with the cable is the "fine adjustment" and the other is the "focus range" adjustment. In general, the two shunts should be adjusted to approximately equal positions.

Recheck the position of the ion trap magnet to make sure that maximum brightness is obtained.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

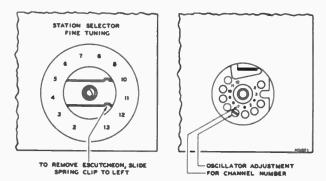


Figure 4-R-F Oscillator Adjustments

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure. The adjustments for channels 2 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment of channel 13 is on top of the chassis.

AGC CONTROL.—The AGC control switch is provided as an installation adjustment. The normal position for strong signal areas is with the switch in the number 1 or counterclockwise position. If impulse type of interference is experienced, turn the switch to the number 2 or center position. In very weak signal areas in which impulse type interference is experienced, turn the switch to position number 3 or fully clockwise. In this position, all AGC is removed and the receiver will overload if the input signal exceeds 200 microvolts. However, for signals under 200 microvolts, this position of the AGC control switch gives best noise immunity of sync.

FM TRAP ADJUSTMENT.—In some instances interference may be encountered from a strong FM station signal. A trap is provided to eliminate this type of interference. To adjust the trap tune in the station on which the interference is observed and adjust the L203 core on top of the r-f unit for minimum interference in the picture.

CAUTION.—In some receivers, the FM trap L203 will tune down into channel 6 or even into channel 5. Needless to say, such an adjustment will cause greatly reduced sensitivity on these channels. If channels 5 or 6 are to be received, check L203 to make sure that it does not affect sensitivity on these two channels. **VENTILATION CAUTION.**—The receiver is provided with adequate ventilation holes in the bottom and back of the cabinet. Care should be taken not to allow these holes to be covered or ventilation to be impeded in any way.

If the receiver is to be operated with the back of the cabinet near a wall, at least a two-inch clearance should be maintained between cabinet and wall.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs, the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the yoke and high voltage cable. Remove the yoke frame grounding strap and the interlock switch. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

EINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus magnet as an assembly.

INSTALLATION OF KINESCOPE.—Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection coil and focus magnet. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten.

Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possible. If this is not done, difficulty will be encountered in adjusting the ion trap and focus magnets because of shadows on the corner of the raster.

Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and connect the high voltage lead clip from the rim of the kinescope into the high voltage bushing on the high voltage compartment.

Reconnect all other cables. Perform the entire set-up procedure beginning with ion Trap Magnet Adjustment.

RADIO OPERATION.—Turn the receiver function switch to the positions and check the radio for proper operation. In switching from radio to television or from television to radio, approximately 30 seconds warm-up time is required.

RECORD CHANGER OPERATION.—Turn the receiver function switch to each phono position and check each record player for proper operation.

Replace the cabinet back and connect the receiver antenna leads to the cabinet back. Make sure that the screws holding it are up tight, otherwise it may rattle or buzz when the receiver is operated at high volume.

CABINET ANTENNA.—A cabinet antenna is provided for use in strong signal areas in which no reflections are experienced. The leads from the antenna are brought out near the receiver antenna terminal board. To connect the cabinet antenna, attach the leads to the terminal board. If reception is satisfactory, no other antenna is necessary. However, if reception is unsatisfactory, it will be necessary to employ an outdoor antenna or an indoor antenna which can be oriented.

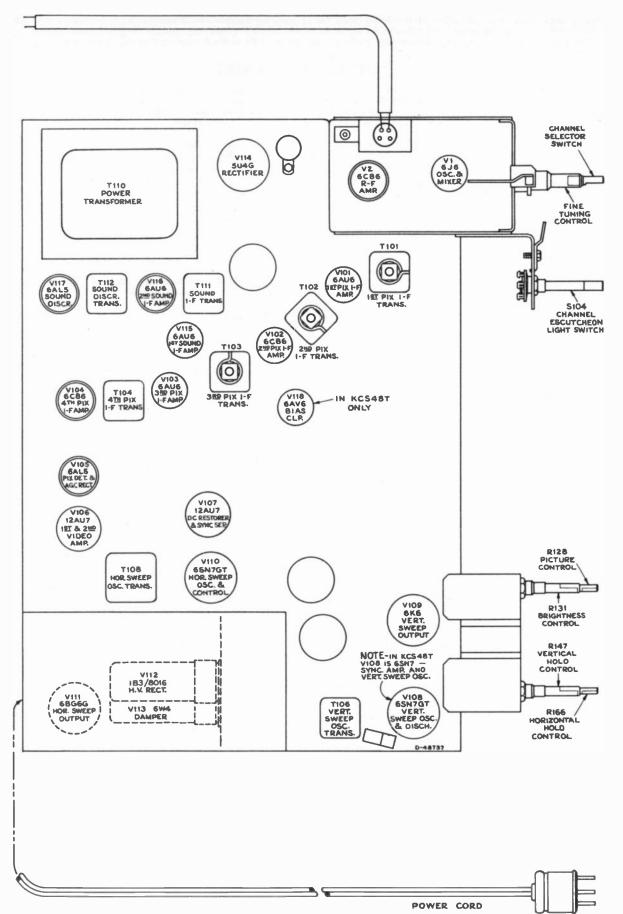


Figure 5 - Chassis Top View

RC1092 RADIO ALIGNMENT PROCEDURE

6T84, 6T86, 6T87

If any lead dressing is necessary, it should be done before aligning the receiver. When making a complete alignment follow the table below in sequence. If only a portion of the circuit is to be aligned select the portion required and follow with the remaining steps in the section. Any adjustments made on the 455 kc. I-F's make it necessary to adjust the 10.7 mc. I-F's.

"AM" R-F—I-F ALIGNMENT

Test-Oscillator.—For all alignment operations, connect low side of the test-osc. to the receiver chassis, and keep the osc. output as low as possible to avoid a-v-c action. Output Meter.—Connect the meter across the speaker voice coil, and turn the receiver volume control to max. Turn tone controls for maximum highs and maximum lows. Before aligning set, completely mesh the gang and set the dial pointer to the mechanical max. calibration point at extreme left end of dial.

Steps	Connect the High Side of the Test Osc. to—	Tune Test Osc. to—	Function Switch	Turn Radio Dial to—	Adjust the following
1	Stator of C1-4	455 kc. Modulated	AM	Low Freq. end of Dial	†Top and bot. cores of T4 and T2. (For max. voltage across voice coil.)
2		1,620 kc.	AM	Min. capacity	Osc. C1-2T for maximum output.
3	Ant. terminal through	1,400 kc.	AM	Tune to signal	Cl-4T and Cl-5T for max. output.
4	dummy ant. of 200 mmis.	600 kc.	AM	600 kc.	Osc. L5 and R-FL7.
5	Repeat steps 2, 3 and 4 fo	r maximum output a	t 600 kc. and	1.400 kc.	

[†] First peak T2 and T4 then starting with T4, use alternate loading. Connect a 47,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 47,000-ohm resistor while the plate winding is being peaked.

1 With a 10,000-ohm resistor clipped across C1-4, peak the oscillator core L5, simultaneously "rocking" the gang condenser for maximum output. Then, remove the 10,000-ohm shunt resistor and peak L7 for maximum output.

FM ALIGNMENT PROCEDURE

Connect probe of "VoltOhmyst" to negative side of C40 and low side to chassis. Connect output meter across speaker voice coil. Turn the tone controls for maximum highs and lows.

Steps	Connect the High side of the Test Osc. to-	Tune Test Osc. to—	Function Switch	Radio Diàl Tuned to—	Adjust
6	Pin No. 1 of 6AU6 (V4) in series with .01 mfd.	10.7 mc.	FM		Top of Driver Trans. T5 for maximum DC on "VoltOhmyst."
7	Pin No. 1 of 6AU6 (V4) in series with .01 mfd.	30% AM Modulated	FM		Bottom of Driver Trans. T5 for minimum audio output on meter.
6	Repeat steps 6 and 7 as d-c on "VoltOhmyst."	necessary making	final adjustme	ont with r-f input le	vel set to give approximately -4.0 volta
9	Through 470 ohms to stator. of Cl-3, gang at max. Con- nect gnd. of cable close to V2 cathode ground on r-f shelf.	10.7 mc.	FM	88 mc.	*T3 then T1 for max. with r-f input set to give -3 volts on "VoltOhmyst" con- nected across C40.
10	Connect cable to antenna	90 mc.	FM	90 mc.	OSC. L8 for max. voltage across C40.
11	terminals through 120 ohms in each side of line.	106 mc.	FM	Tune to signal	ANT, Cl-3 and R-F Cl-6 for max. volt- age across C40.
12		90 mc.	FM	Tune to signal	ANT, L1 and R-F L2 for max. voltage across C40.
13	Repeat steps 10, 11 and 1	2 as required.			· · · · · · · · · · · · · · · · · · ·
14					h side of line. Connect an oscilloscope to peak separation should not be less than

[•] Use a 680-ohm resistor to load the plate winding while the grid winding of the same transformer is being peaked. Then the grid winding is loaded with 680-ohm resistor while the plate winding is being peaked. When windings are loaded, it is necessary to increase the 10.7 mc. input, since gain will decrease and voltage across C40 will be less.

CRITICAL LEAD DRESS:

- 1. The 2.2 meg. mixer grid resistor should have a minimum practicable amount of lead extending on the grid end.
- 2. The first AM and first FM i-f plate leads should be dressed away from the range switch wafer.
- 3. The ground strap between the r-f shelf and the main chassis should be well soldered and kept as short as practicable.
- Arrange wiring to prevent the filament wire between mixer and 1st i-f tubes from passing near the mixer grid, or the AVC wiring.
- 5. Dress filament wires away from 1st audio and inverter coupling condensers.
- Dress ac power switch wires away from the audio coupling condenser which is wired to the volume control.
- 7. Dress the mixer grid coupling condenser away from the lugs on the front range switch wafer.
- 8. The 1st i-f tube AVC and screen by-pass condensers should ground at same point as cathode neutralizing loop.
- 9. The discriminator tube plate and screen by-pass condensers should ground at the same point as the neutralizing loop.

- The mixer plate by-pass should ground as close to the r-f shelf ground strap as practicable.
- 11. The shielded audio leads connecting to the front function switch wafer should have a min. of exposed lead on the function switch end.

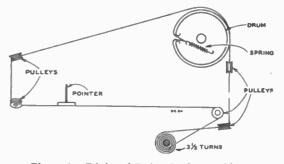


Figure 6-Dial and Drive Cord Assembly

6T84, 6T86, 6T87

RC1092

TUBE AND TRIMMER LOCATIONS-VOLTAGE DATA

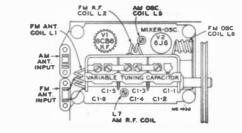
Voltages measured with Chanalyst or VoltOhmyst and should hold within $\pm 20\%$ with rated line voltage. Tuning condenser closed—no signal input.

			Voltage	
Tube	Terminal	Phono	А.М.	F.M.
V1 6CB6	Plate 5		203	132
R.F. Amp.	Screen 6		48	39
	Cathode 2		0.2	0.2
	Grid l	_	-1.1	-0.9
V2 6J6	Plate 2		55	51
Mixer and	Grid 5	-	-1.4	-1.2
Osc.	Plate 1	_	33	27
	Grid 6	-	-2.1	-1.9
V3 6BA6	Plate 5	_	192	188
LF. Amp.	Screen 6		106	101
	Cathode 7		0.9	
	Grid 1	-	-1.1	-0.35
V4 6AU6	Plate 5		186	180
Driver	Screen 6	_	122	120
	Cathode 7	-	1.05	1.07
V5 6AL5 Ratio Det.		-	-	
V6 6AV6	Plate 7	112	94	94
A.F. Amp.	Grid 1	-0.7	-0.7	-0.7
V7 6C4	Plate 1-5	125	87	85
Ph.	Grid 6	-19.2	-16	-16
Inverter	Cathode 7	-11.1	-11.4	-11.4
V8 6V6GT	Plate 3	305	295	298
or Output	Screen 4	299	208	204
V9	Grid 5	-19.2	-16	-16
V10 5Y36T Rectifier	Filament 2	314	313	313

Cathode Currents (Ma.)

Tube	Terminal	Phono	A.M.	F.M
V1 6CB6	2		3	3
V2 6J6	7		2.6	2.6
V3 68A6	7	_	13.2	14.7
V4 6AU6	7		9.3	9
V5 6AL5	1 & 5	_		_
V6 6AV6	2	0.8	0.5	0.5
V7 6C4	7	2.2	1.5	1.5
V8 6V6GT	8	35.6	17.8	17.7
V9 6V6GT	8	35.6	17.8	17.7
10 5Y3GT	2	74.2	73.6	74.2

.



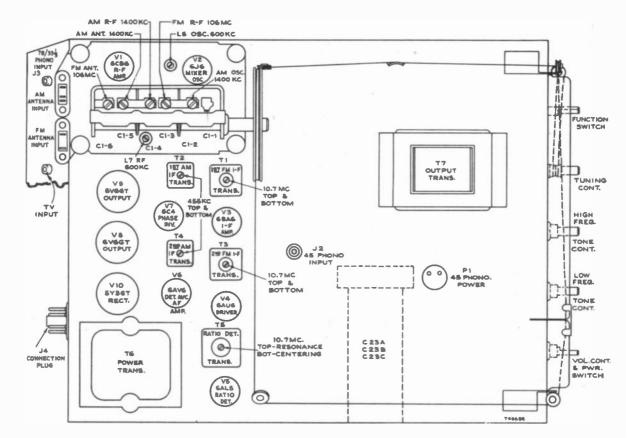


Figure 7-

F. M. Coil

Locations

Figure 8-Chassis, Top View, Showing Adjustments

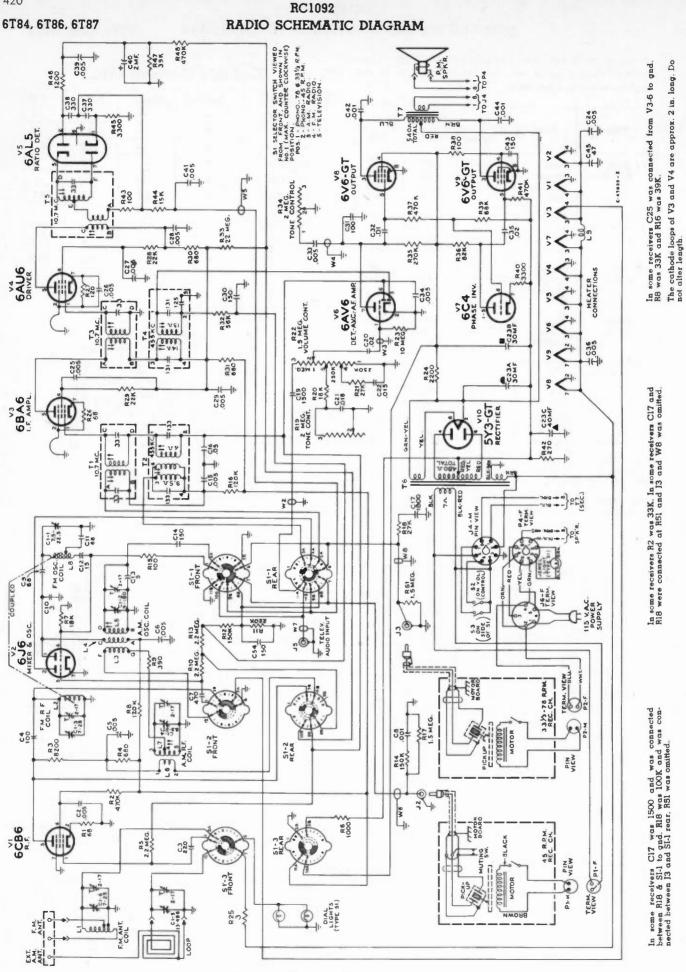


Figure 9-RC1092 Radio Schematic Diagram

RC1092 SIMPLIFIED RADIO SCHEMATIC DIAGRAM 421

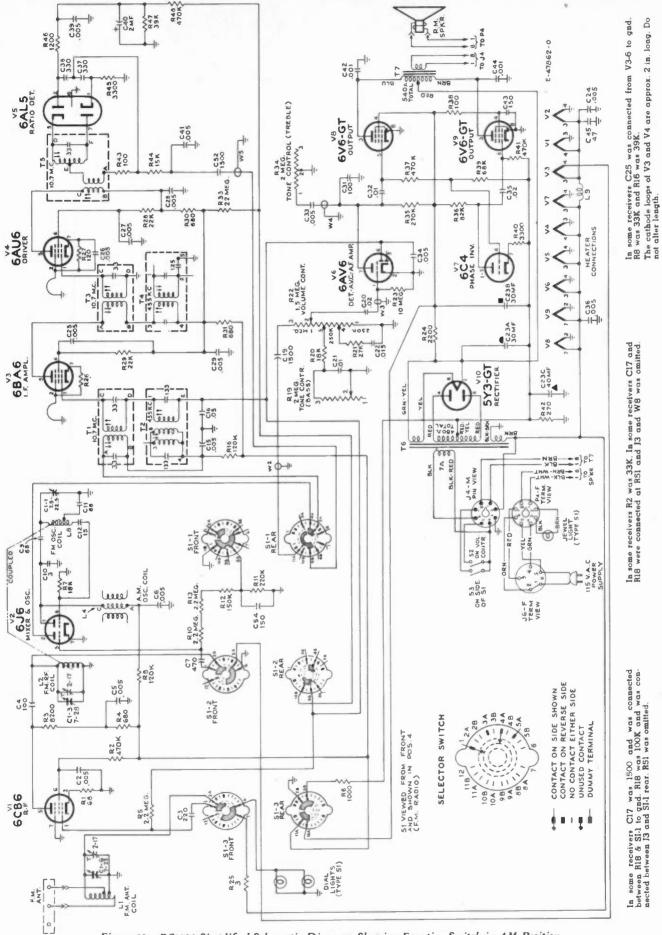
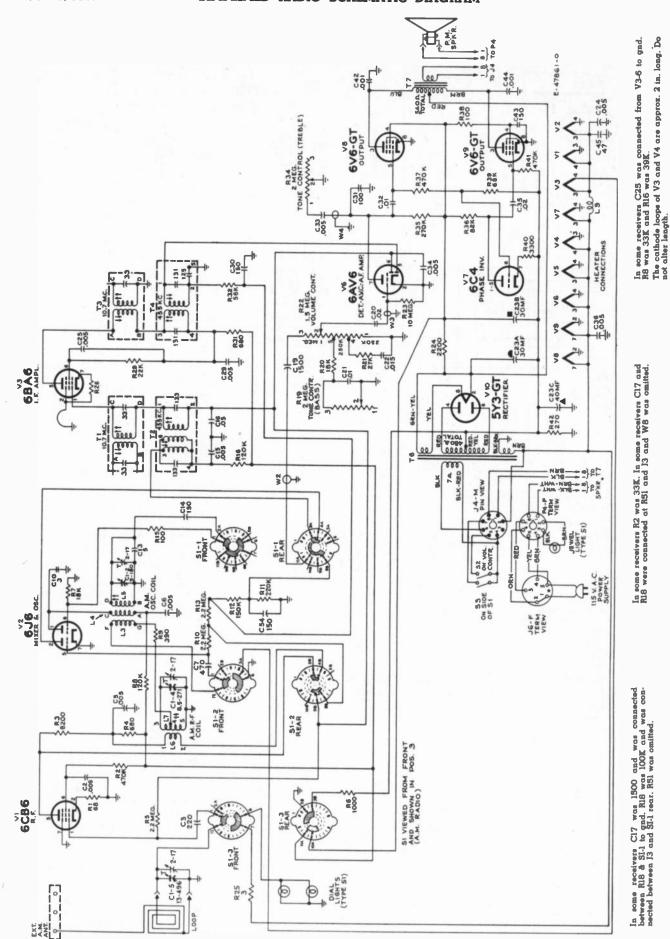


Figure 10-RC1092 Simplified Schematic Diagram Showing Function Switch in AM Position



422

Figure 11-Simplified Radio Schematic Diagram Showing Function Switch in FM Position

VOLTAGE CHART

VOLTAGE CHART

conversents represent two sets of conditions. In the first condition, a 2500 microvolt test partern signal was fed into the receiver,	second condition was obtained by removing the antenna leads and short circuiting	the receiver antenna terminade. Voltages shown are read with a type WV97A sentor "VoltOhmyst" between the indicated terminal and chastis	
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d bei		term	
	led	lcated	
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attern	the G	reen t	
ă Tă		, betw	ń
volt 1	Ten .	myst'	tha
micr		VoltO	ua les
2500	obtair	lior "	
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condit	dition	WV97	E A
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nents	victure synced and the AGC control properly adjusted. The se	prining	ground and with the receiver operating on 117 volts, 60 cycles, α -c. The symbol $<$ means less than.
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A S	PTRCet.	r ante	with
llowla	cture (ceiver	pap p
The following me	the ph	the re	ground

Pa				Т	ł															
Volts	Volta No.	No Pr	Operating Condition	Function	Type	No.							E. Grid	Grid	E. Cathode E. Grid	Cathode E. Grid	E. Screen E. Cathode E. Grid	E. Plate E. Screen E. Cathode E. Grid	E. Plate E. Screen E. Cathode E. Grid	E. Plate E. Screen E. Cathode E. Grid
3 45	10 -	- N	2500	DC Rest & Sync Sep	12AU7 ECS46T	V107		Note	I Notes on creen Mecsurements (mα.)	Screen (mc.)		Pin Volta (ma.) (ma.)	Volta (mc.) (mc.)	Pin Volta (ma.) (ma.)	Volts No. Volts (mg.) (mg.)	Pin Pin Pin Pin Pin Pin Pice Screen	Volta P.o. Volta No. Volta	Pin Pin Pin Pin Pin Pin Volta No. Volta No. Volta (mo.) (mo.)	Volta P.o. Volta No. Volta	Pin Pin Pin Pin Pin Pin Volta No. Volta No. Volta (mo.) (mo.)
- 3 1.7 2	1	-	Signed	- L	KCS467					_									Ň	2500 Mu. V.
- 8 54 7	7.2	۲. 8	2500 Mu. Signal	-	KCS46T				1		8	-2.3	5 -2.3	0 5 -2.3	0 2.3			144 7 0 5 -2.3 6.6	2 144 7 0 5 -2.3 6.8	2 144 7 0 5 -2.3 6.8
- 8 -	7.0		Signat							5.6	+	-2.1	2.1	0 5 -2.1	0 5 -2.1			2 135 7 0 5 -2.1	135 7 0 5 -2.1	Z 135 7 0 52.1 V.
- 6 7.8 4	- 1	s.	2500 Mu. Signal	Sync Amp	A BUNT	VROTA	*Depending V		o noqu		4:0	-3.0 4.0	6 -3.0 4.0	0 6	0 6 -3.0 4.0	7 0 6 1			1 100 7 0 6 1	Signal 1 100 7 0 63.0 4.0 1 No
- 6 7.0 4	46	5			- +				1	+	8.	-2.7 3.9	-2.7 3.9	7 0 6 -27 3.9	7 0 6 -27 3.9				96 7 0 62.7 3.9	V. 1 96 7 0 6 -27 3.9
3	- 395	۲. ۲	22 22 23 23 24 24 25 25 26 26 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27	Vertical	CT CT		>		0.8	+-	3.0	-3.4 3.0	1 -3.4 3.0	2 0.1 1 -3.4 3.0	2 0.1 1 -3.4 3.0	6 130 Z 0.1 13.4 3.0	6 130 2 0.1 13.4 3.0	250 6 130 2 0.1 1 -3.4 3.0	5 250 6 130 2 0.1 1 -3.4 3.0	Signed 5 250 6 130 2 0.1 1 -34 3.0 No
3	395	69		+		00170			2.3	+	10.3	-0.2 10.3	1 -0.2 10.3	2 0.4 1 -0.2 10.3	2 0.4 1 -0.2 10.3	6 84 2 0.4 1 -0.2 10.3	6 84 2 0.4 1 -0.2 10.3	5 166 6 84 2 0.4 1 -0.3 10.3	Signel 5 166 6 84 2 0.4 1 -0.2 10.3 2500 Mu. V	5 166 6 84 2 0.4 1 -0.3 10.3
370 6 S1 5	370 4	•	Signal No	Output					2.2	1.7 0.6 5.2 2.2		5.2	-0.8 5.2	7 0.8 1 -0.8 5.2	0.6 1 -5.0 1.7	6 222 7 0.3 1 -3.0 1.7 6 135 7 0.6 1 -0.8 5.2	135 7 0.6 1 -0.8 1.7	5 121 6 135 7 0.6 1 -5.0 1.7 5 121 6 135 7 0.6 1 -0.8 5.2	Signed 5 195 6 242 7 0.3 1 -5.0 1.7 No. 5 121 6 135 7 0.8 1 -0.8 5.2	Signed 5 195 6 242 7 0.3 1 -5.0 1.7 No. 5 121 6 135 7 0.8 1 -0.8 5.2
385 e 51 5 0		۲. 3	2500	Rorisontal Our Control	GTT	V110			0.7		2.0	2.0	1 -5.0 2.0	1 -5.0 2.0	2 0.3 1 -5.0 2.0	203 2 0.3 1 -5.0 2.0	6 203 2 0.3 1 -5.0 2.0	5 222 6 203 2 0.3 1 -5.0 2.0	2500 Mu. V. 5 222 6 203 2 0.3 1 -5.0 2.0	V. 5 222 6 203 2 0.3 1 -5.0 2.0
	8	-	No	š	5				1.6	5.5 1.6		5.5	-0.6 5.5	2 0.6 1 -0.6 5.5	0.6 1 -0.6 5.5	2 0.6 1 -0.6 5.5	112 2 0.8 1 -0.6 5.5	6 112 2 0.6 1 -0.8 5.5	124 6 112 2 0.6 1 -0.6 5.5	5 124 6 112 2 0.6 1 -0.6 5.5
-	230		35	Horisontal Oscillator	6SN7 GT	V110	1>		0.7	i.7 0.7		1.7	-5.0 1.7	1 -5.0 1.7	0.2 1 -5.0 1:7	6 225 7 0.2 1 -5.0 1.7	225 7 0.2 1 -5.0 1.7	5 185 6 225 7 0.2 1 -5.0 1.7	185 6 225 7 0.2 1 -5.0 1.7	V. 5 185 6 225 7 0.2 1 -5.0 1.7
•	225	-							2.0	4.9 2.0		4.9	-0.75 4.9	1 -0.75 4.9	0.5 1 -0.75 4.9	7 0.5 1 -0.75 4.9	132 7 0.5 1 -0.75 4.9	5 84 6 132 7 0.5 1 -0.75 4.9	No 5 84 6 132 7 0.5 1 -0.75 4.9	No 5 84 6 132 7 0.5 1 -0.75 4.9
335 3 7.2 5	8 009.	V. 5	250	Hortsontol Output	59063	1114			3.1	9.6 3.1		1 0 9.6	9.6	2 2.25 1 0 9.6	2.25 1 0 9.6	6 142 2 2.25 1 0 9.6	142 2 2.25 1 0 9.6	5 165 6 142 2 3.25 1 0 9.6	2500 Mu. V. 5 165 6 142 2 2.25 1 0 9.6	V. 5 165 6 142 2 2.25 1 0 9.6
329 3 7.2 5	8 069.	5	No Signal						3.1	9.0 3.1		8.0	0 8:0	2 2.1 1 0 9.0	2.1 1 0 9.0	6 132 2 2.1 1 0 9.0	132 2 2.1 1 0 9.0	6 132 2 2.1 1 0 8.0	118 6 132 2 2.1 1 0 9.0	5 118 6 132 2 2.1 1 0 9.0
- 2 6 7 11,000	•	e C n	Brightness Min.	H. V. Rectifier	1B3GT /8018	V112	>			0.3	- 0.3	- 0.3 -	0 - 0.3 -		- 0	1	- 0	7 2.0 - 1 - 1	-2.0 - 1 0	V. 7 -2.0 - 1 0
- 2 6 7 12,200 -	•		Brightness Max.						1	<0.1	- <0.1 -	- <0.1	0 - <0.1		- 0	1 0	- 0	1 0	-0.5 1 0	7 -0.5 - 1 0
•	387 -	5		Damper	6W4 GT	V113				<0.1 -	- <0.1 -	- <0.1 -	0 - <0.1 -	1			- 5 0	2 -9.5 - 5 0	V. 2 -9.5 - 5 0	V. 2 -9.5 - 5 0
- -	300	cu t	No Signal							<0.1	- <0.1	- <0.1	0 - <0.1 -]	0	s 0	0	s 0	-2.0 - 5 0	2 -2.0 - 5 0
- 2 & 8 391	- 886.	V. 466	2500 2500	Rectifier	504G	1114			- At moximum	3.6 — At man	1	3.6	-2.3 3.6	2 -2.3 3.6 -	1.2 2 -2.3 3.6 -	3 1.2 2 -2.3 3.6	1.2 2 -2.3 3.6 -	1 100 3 1.2 2 -2.3 3.6	100 - 3 1.2 2 -2.3 3.6 -	V. 1 100 3 1.2 2 -2.3 3.6 -
- 2 & 8 387 -	- 367 -	4 & 6	- 1				Į	contront	-	2.6 - contro		2.6 -	-0.5 2.6 -	2 -0.5 2.6 -	0.8 2 -0.5 2.6 -	3 0.8 2 -0.5 2.6 -	0.8 2 -0.5 2.6 -	3 0.8 2 -0.5 2.6 -	S4 3 0.9 2 -0.5 2.6 -	1 54 - 3 0.9 2 -0.5 2.6 -
120 7 0.6 1	120 6	۷. 5	3200 7200	1st Sound 1-F. Amp.	6AU6	V115		At min	At minimum	0.9 At min	ľ	0.9	-2.6 0.9	2 -2.6 0.9	9.0 2 -2.6 0.9		9.0 2 -2.6 0.9	1 190 — 3 9.0 2 <u>-2.6</u> 0.9 <u>-</u>	190 3 9.0 2 -3.6 0.9	V. 1 190 3 9.0 2 -2.6 0.9
108 7 0.8 1	109 6	w					Ħ	controat	- contre	0.6 - contr		0.6	-0.5 0.6	2 -0.5 0.6 -	6.9 2 -0.5 0.6 -	3 6.8 2 -0.5 0.6 -	6.9 2 -0.5 0.6 -	1 122 3 6.9 2 -0.5 0.6 -	1 122 3 6.9 2 -0.5 0.6 -	1 122 3 6.9 2 -0.5 0.6 -
87 7 0 1	118 6	V. 5	2500 2500	2d Sound I-F Amp.	6AU6	V116		At max	- At modmum	9.3 — At more	1	7 118 9.3	118 9.3	8 125 7 118 9.3 -	125 7 118 9.3	8 125 7 118 9.3	- 8 125 7 118 9.3 -	V. 6 330 8 125 7 118 9.3	330 8 125 7 118 9.3	V. 6 330 8 125 7 118 9.3
76 7 0 1	110 6	s					1	contri	contri	13.6 contr		7 110 13.6	110 13.6	8 121 7 110 13.6	121 7 110 13.6	8 121 7 110 13.6	8 121 7 110 13.6	6 295 8 121 7 110 13.6	6 295 8 121 7 110 13.6	6 295 8 121 7 110 13.6
- 5	-7.2	V. 2	2500 Mu.	Sound Discrim.	6ALS	V117		At mini	At minimum	12.9 At mini		7 120 12.9	120 12.9	7 120 12.9	131 7 120 12.9	8 131 7 120 12.9	300 6 131 7 120 12.9	V. 6 300 6 131 7 120 12.9	300 6 131 7 120 12.9	V. 6 300 6 131 7 120 12.9
 	-10.0	61	No Signal				18	controat		13.8 — contr		7 110 13.8	110 13.8	7 110 13.8	121 7 110 13.8 -	6 121 7 210 13.8 -	121 7 110 13.8 -	6 121 7 210 13.8 -	235 - 6 121 7 110 13.8 -	6 235 8 121 7 110 13.8 -
- 2 0 1	0	V. 7	32	T Clomp	6AV6 ECS48T	N118			At mortmum	<0.1 - At mon	1	2 -4.7 <0.1	-4.7 <0.1	2 -4.7 <0.1	45.5 2 -4.7 <0.1	3 45.5 2 -4.7 <0.1	45.5 2 -4.7 <0.1	1 5.0 3 45.5 2 -4.7 <0.1	2500 Mu. V. 1 5.0 3 45.5 2 4.7 <0.1 -	V. 1 5.0 3 45.5 2 4.7 <0.1 -
- - -	-	2			KCS48T		rcuet	contrast	coat		-0.7 <0.1 coat	2 -0.7 <0.1 -	-0.7 <0.1	2 -0.7 <0.1 -	8.5 2 -0.7 <0.1 -	3 8.5 2 -0.7 <0.1 -	5.5 - - 3 8.5 2 -0.7 <0.1	1 8.5 - 3 8.5 2 -0.7 <0.1 -	1 8.5 - 3 8.5 2 -0.7 <0.1 -	1 8.5 - 3 8.5 2 -0.7 <0.1 -
100	=	V. Cone	8	Kinescope		V120				4.0	4.7 4.0	+	4.7	7 4.7	6.0 7 4.7	8 6.0 7 4.7	36 8 6.0 7 4.7	V. 6 36 8 6.0 7 4.7	2500 Mu. V. 6 36 - 8 6.0 7 4.7	Sync Sep. 2500 Mu. V. 6 36 8 6.0 7 4.7
375 11 74 2	Come 12 686 10		No								_	1	6							TC548

11

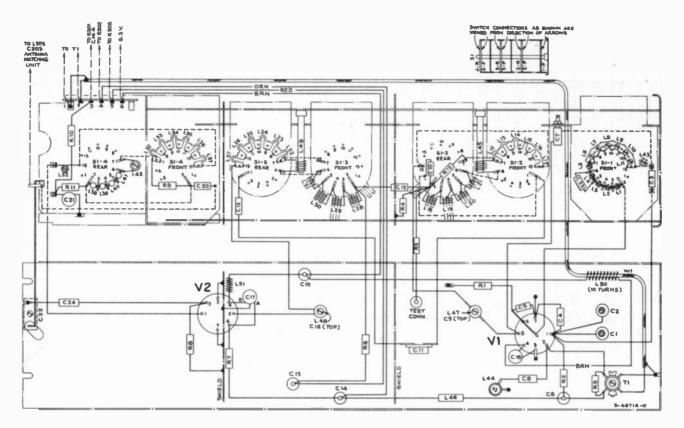


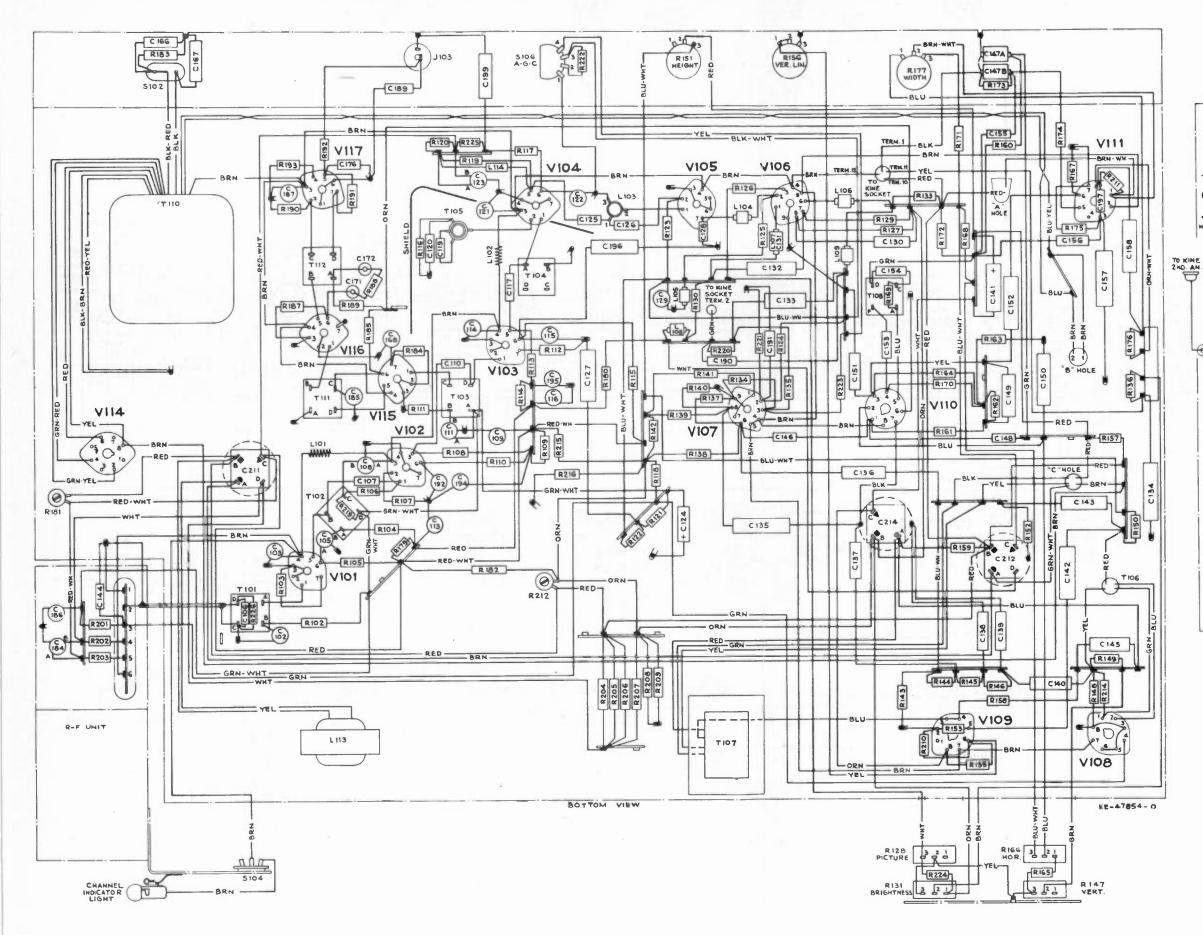
Figure 12-Television R-F Unit Wiring Diagram

TELEVISION CRITICAL LEAD DRESS

- All leads in the picture and sound if circuits must be dressed as short and direct as possible with the exception of C106, C107, C110 and C117 which are to be dressed with enough slack so as not to have to move the body of the capacitor to align that particular stage.
- Dress all 1500 mmf .005 mfd and .01 mfd capacitors in the i-f section with leads as short as possible.
- 3. Dress all wires between T101 and the r-f unit in clamp.
- Dress C185 to act as shield for lead between pin 5 of V115 socket to T111D and picture i-f circuits.
- 5. Dress the bodies of resistors R106, R108, R113, R119, R191, R192 and capacitor C176 as close to tube pin as possible.
- 6. Dress L114 with coded end as close to pin 2 of U105 socket as possible.
- 7. The length of the bus wire from pin 2 of V116 to ground should not be shortened or rerouted.
- 8. Dress R194 as close to chassis with leads as short as possible.
- 9. Keep the leads on C126 as short and direct as possible.
- Dress all components connected to V106 socket up and away from the chassis except L104.
- Keep the body and coded end of L104 as close to pin 2 of V105 socket as possible.
- 12. Dress the 4.5 mc. trap L107 up and away from the chassis base.
- 13. Dress C132 up in the air and towards V105 socket.
- Dress R125 with body as close as possible to pin 2 of V106 socket.
- Keep body of R123 as close as possible to pin 2 of V105 socket.
- 16. Dress C133 and C190 away from C132, C151 and C153.

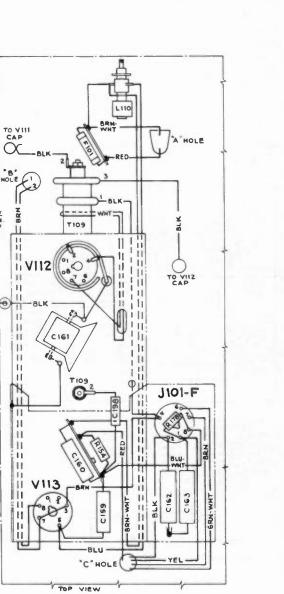
- Dress the white wire from picture control R128-3 away irom the chassis.
- Dress all slack on kine socket leads under chassis. Dress brown wire away from any components associated with V105 or V106.
- The green lead from the kinescope socket should be dressed away from all other leads and components and away from V106.
- 20. Dress R133 towards chassis rear apron.
- Dress all leads in clamps on rear apron away from V117, V104, V105, V106 sockets and S103.
- 22. Dress green wire from C147A up and away from chassis.
- 23. Dress blue wire of T107 toward front apron of chassis.
- 24. Dress C153 down next to the chassis base.
- Dress blue/white wire from height control R151-3 under R180.
- 26. Dress R161, R162, R163, R164 and R170 up and away from the chassis and with a half inch clearance from the soldering point.
- 27. Dress the yellow wire from pin 3 of V110 socket over C153.
- Dress both leads of C198 away from the body of the capacitor.
- 29. Dress fuse in high voltage compartment so as not to short circuit to ground.
- 30. Dress blue and blue/yellow wire from power transformer in 3 clamps on chassis base and away from S103 and video section.
- Dress both wires on S106 away from blue/yellow damper leads of T110.
- 32. Dress all 2 watt resistors away from each other and away from all wires and other components.

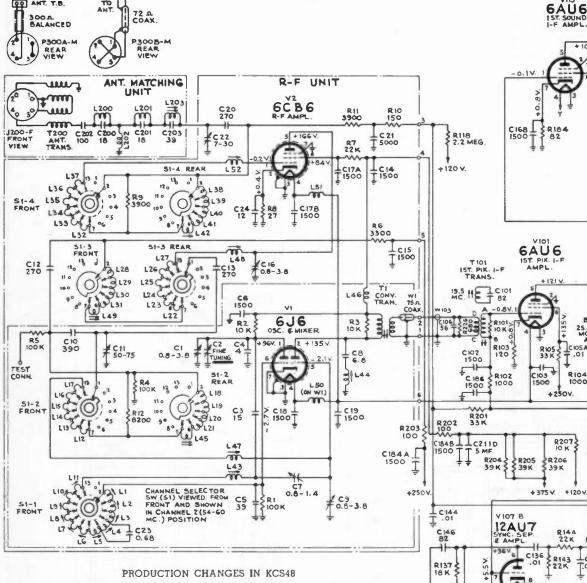
6T84, 6T86, 6T87



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ANT. T.B.





In some receivers Cl60 was 022, Cl61 was 250, Cl05A and Cl05B were 1500, Rl29 was 390 k, Rl80 was 22 k, Rl76 was 8200, Cl41 was connected between Rl51, Rl54 and plus 120 volts. Cl44 and R226 were omitted.

In some receivers the connections to terminals 1 and 3 of R177 were reversed.

In some receivers R142 was 1.2 meg and was connected to plus 250 volts.

In some receivers C198 was 4.7, R134 was 470 k, C190 was con-nected at R135.

In some receivers R113 was 3900, R119 was 8200, and L114 was omitted, T104 bottom was tuned to 24.35 MC and L103 was tuned to 22.5 MC.

In some receivers C189 was omitted.

In some receivers R134 was £20 k, and R142 was connected to R104, C113, etc.

Due to a severe resistor shortoge during the production of this series of receivers It was found necessary to substitute resistors of different values from the nominal value shown on the schematic. These substi-tutions were approved by the engineering department for each par-ticular application in the circuit only if the change in value did not impair receiver operation. In some such instances, these substitutions involved a change in value of 5%, 10%, 20% or in a few instances even greater change.

In critical circuits where a change of value could not be tolerated, the proper resistance was obtained by the use of series, parallel or even series-parallel combinations of resistors in order to obtain the

correct value of resistance or wattage. If it should become necessary to replace a resistor or group of resistors, the values shown in the schematic and parts list should be employed.

If the value of the resistor to be replaced is different from the value If the value of the resistor to be replaced is different from the value shown in the schematic, and the schematic value is not available, then it is permissable to replace it with the value found in the receiver or some value between that and the value shown in the schematic. Some of the commercially available, low resistance value, molded body types are of wire wound construction. Such resistors should not be employed in the r-f unit, if or video sections as the inductive affect of tese resistors may impair circuit operation.

R190 R184 R185 +120 V. GAUG CB6 2ND. PIX. I-F SAUS BRD. PIX. 1-1 270 +94 V. +121 V. T 102 CI14 R114 5000 1000 +250 V. LC1088 C108A C111 B R111 1500 470K +250V. +250V L 111 A R207 R204 R205 R206 + 375 V +120 V 65N7-6T TRANS. R145 R146 C140 R144 C143 + R142 390 K HOLD CONTROL R152 C141 + 120 R154 6BG6-G 6SN7-GT R165 R171 - 10 MF. R174 C147A CONTR. R172 C157 R175 WIDTH +375 V.

All resistance values in ohms. K=1000. All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted.

Coil resistance values less than 1 ohm are not shown.

Direction of arrows at controls indicates

Figure 13 -KCS48 Chassis Wiring Diagram

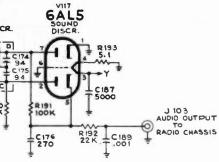
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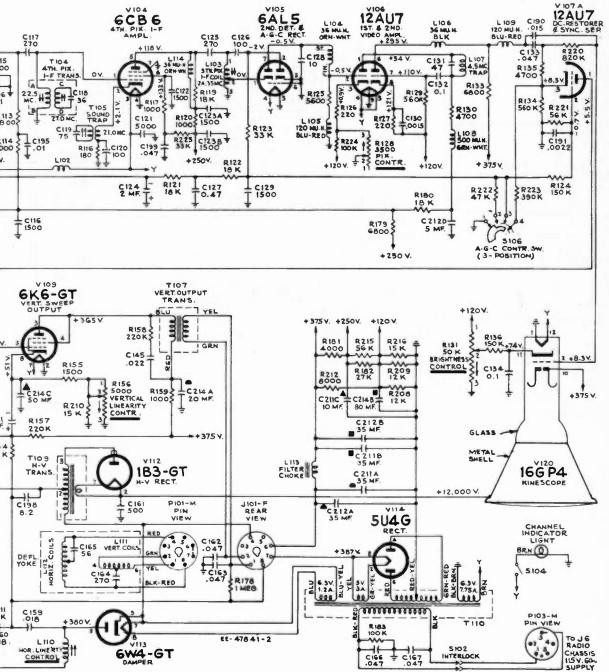
LOCKIN RANGI CONTE

clockwise rotation.

6T84, 6T86, 6T87

427 - 428

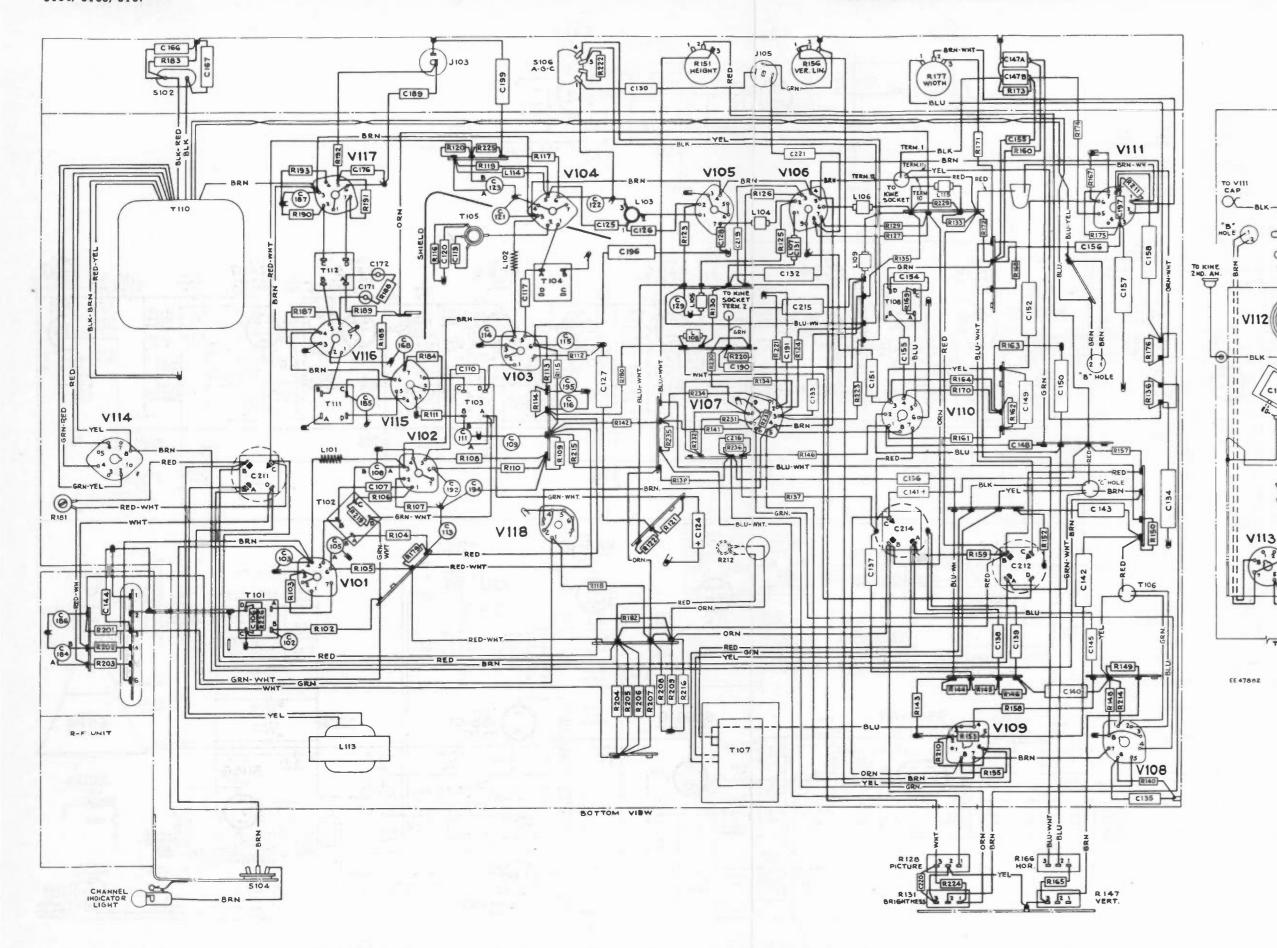




In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values and their lug identification markings. All voltages measured with "Volt-Ohmyst" and with no signal input. Voltages should hold within $\pm 20\%$ with 117 v. a-c supply.

Figure 14:-Circuit Schematic Diagram KCS48 chassis

KCS48T CHASSIS WIRING DIAGRAM

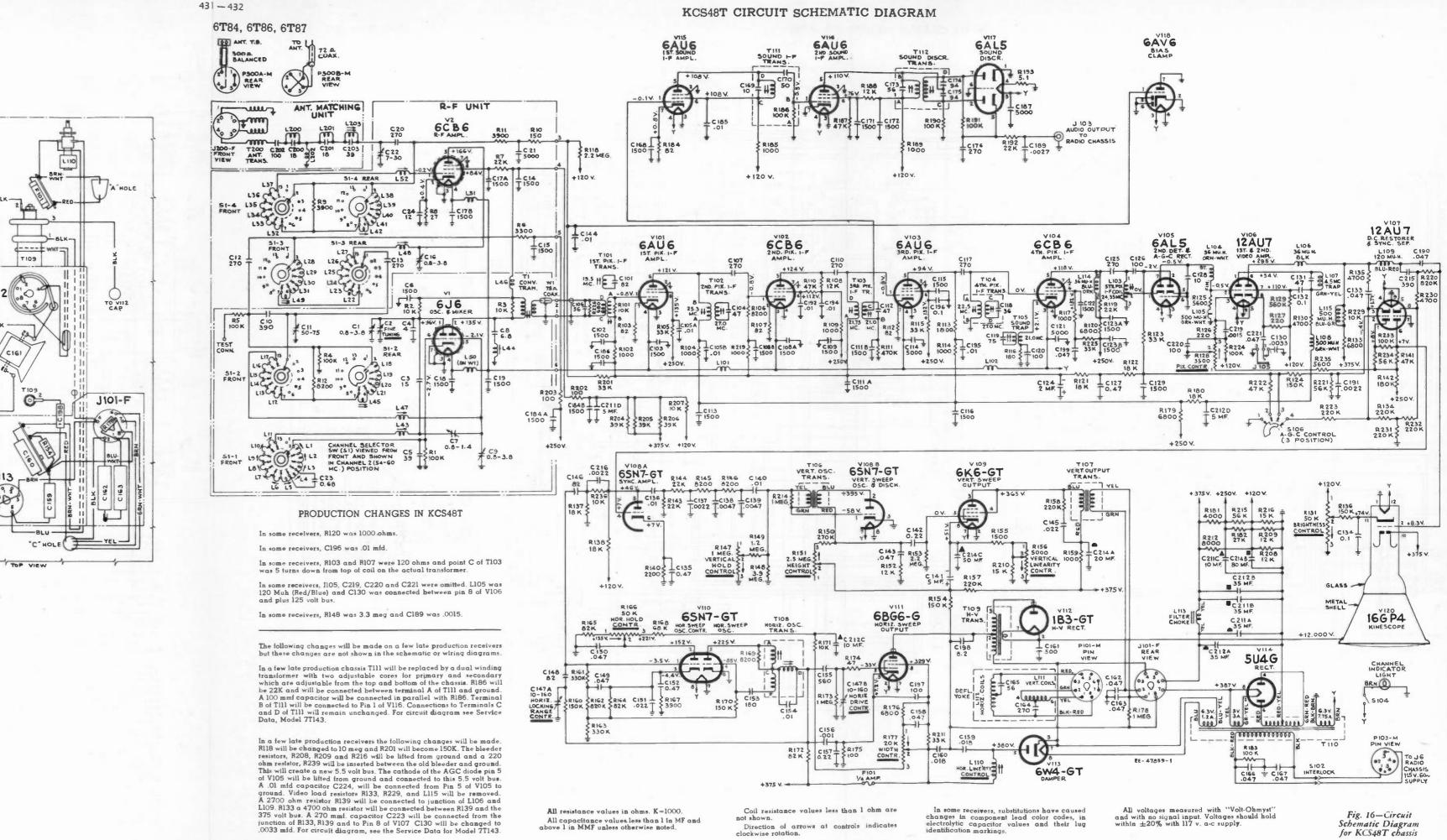


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18

TO VIII

EE 47882



All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted.

Direction of arrows at controls indicates clockwise rotation.

changes in component lead color codes, in electrolytic capacitor values and their lug identification markings.

and with no signal input. Voltages should hold within $\pm 20\%$ with 117 v. a-c supply.

Fig. 16-Circuit Schematic Diagram for KCS48T chassis

REPLACEMENT PARTS

6T84, 6T86, 6T87

	STOCK	DESCRIPTION	STOCK	
		R-F UNIT ASSEMBLIES KRK8B	75447	Stud—Capacito screw driver sl
				Cl coded nun
	10705	Ball-Steel ball for detent (5/32 dia.)	75181	Transformer-I
1	75188	Board-Terminal board, 5 contact and ground.	75190	Washer-Insula
Ì	75067	Bracket—Vertical bracket for holding oscillator tube shield	75607	Washer-Insula
1	75201	Cable -75 ohms, coax cable (71/4") complete with coil		TELI
	15001	(W), L50)		
	75186	Capacitor-Ceramic, variable, for fine tuning-plunger		
		type (C2)	75515	Bracket-Chan
1	75289	Capacitor—Ceramic, $4 \text{ mmf.} \pm 0.5 \text{ mmf.}$ (C4)	75228	Bracket-Focus
	75189	Capacitor—Adjustable, 7-30 mmf. (C22) Capacitor—Ceramic, 12 mmf. (C24)	75229	Bracket-Focus
	75200 45465	Capacitor-Ceramic, 15 mmf. (C3)	76009	Capacitor-Cer
	75196	Capacitor-Ceramic, 39 mmf. (C5)	75217	Capacitor-Mic
	75174	CapacitorCeramic, trimmer, 50-75 mmf. (C11)	82611	C147B) Capacitor—Cer
	75199	Capacitor-Ceramic, 270 mmf. (C12, C13, C20)	53511 75450	Capacitor-Cer
	75641	Capacitor-Ceramic, 390 mmf. (C10)	71924	Capacitor—Cer
	75166	Capacitor-Ceramic, 1500 mmf. (C6, C14, C15, C19)	73090	Capacitor-Mic
Į	75089	Capacitor-Ceramic, dual, 1500 mmf. (C17A, C17B)	75437	Capacitor-Cer
Į	73748	Capacitor—Ceramic, 1500 mmf. (C18) Capacitor—Ceramic, 5000 mmf. (C21)	45469	Capacitor-Cer
	73473 75172	Capacitor—Tubular, steatite, adjustable, 0.8-1.4 mmf.	39396	Capacitor-Cer
	12116	(C7)	73102	Capacitor-Mic
	71504	Capacitor-Ceramic, 0.88 mmf. (C23)	74947 75244	Capacitor—Cer Capacitor—Cer
	75184	Capacitor-Ceramic, adjustable, 0.75-4 mmf., complete	73091	Capacitor-Mic
	75197	with adjusting stud (C1) Capacitor—Ceramic, 6.8 mmf. (C8)	73094	Capacitor-Mic
	75197	Clip—Tubular clip for mounting stand-off capacitors	74250	Capacitor-Mic
	75182	Cail Thimmer coil (11/2 turns) with adjustable inductance	75166	Capacitor-Cer
		core and capacitor stud (screw adjustment) for con-	73748	Capacitor-Cer
		vertor section (C9, L47)	88000	C115, C116, C Capacitor—Cer
	75183	Coil – Trimmer coil (3 turns) with adjustable inductance core and capacitor stud (screw adjustment) for r-f sec-	75089	ClillA, ClilB
		tion (L48, C16)	73473	Capacitor-Cer
	75185	Coil—Convertor plate loading coil (L44)	73960	Capacitor-Cer
	75202	Coil-Choke coil .56 muh (L46)	20022	Č194, C195)
	73477	Coil -Choke coil (L51)	73877	Capacitor—Cere Capacitor—Elec
	75187	Core—Adjustable core for fine tuning capacitor C2 Detent—Detent mechanism and fibre shaft	28417	Capacitor-Elec
	75162 73453	Form-Coil form for L45 and L49	75592	Capacitor-Elec 450 volts, 1 set
	75165	Link—Link assembly for fine tuning		50 mfd., 50 vo
1	14343	Retainer-Fine tuning shaft retaining ring	75510	Capacitor-Elec
		Distance Final composition :		450 volts, 1 see 5 mfd., 450 vo
		27 ohms, ± 10%, ½ watt (R8)		C212B, C212C
		$3300 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R6)}$	75643	Capacitor-Tub
		3900 ohms, ± 10%, ½ watt (R9, R11)	73598	.001 mfd., 100 Capacitor—Tub
1		$8200 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R12)$		600 volts (C13
		Resistor - rised, compositor: 27 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R8) 150 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R10) 3300 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R6) 3900 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R9, R11) 8200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R12) 10,000 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R2) 10,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R2) 22,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R7) 100,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R1, R4, R5) Red. Setupting lungs rod (fibre) for fine tuning link	73595	Capacitor-Tub
		$22,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt} (R7)$	73599	600 volts (C13 Capacitor—Tul
	75164	Rod—Actuating plunger rod (fibre) for fine tuning link		600 volts (C18
	71467	Screw - No. 4.40 x 1/4" binder head machine screw for	73920	Capacitor-Tul
	11401	Screw – No. 4.40 x 1/4" binder head machine screw for adjusting L6, L7, L8, L9, L10, L11	73561	600 volts (Cl3 Capacitor—Tul
	75167	Screw—No. 4-40 x 3/1" fillister head screw for adjusting LD	1	400 volts (C13
	75177	ScrewNo. 4-40 x 5/16" fillister head screw for adjusting	73594	Capacitor-Tul .01 mfd., 600
	74575	L1, L2, L3, L4, L43 Screw-No. 4-40 x .359" adjusting screw for L42	73797	Capacitor-Tul
	73640	Screw-No. 4-40 x 7/16" adjusting screw for L52		600 volts (C19
	75159	Shaft-Channel selector shaft and plate	74727	Capacitor-Tul 1000 volts (Cl
	75160	Shaft-Fine tuning shaft and cam	73562	Capacitor-Tul
	75168	Shield – Oscillator and convertor sections shield for r-f		400 volts (C14
	75193	unit—snap-on type Shield—Tube shield for Vl	73553	Capacitor-Tul 400 volts (Cl4
	75193	Shield-Tube shield for V2	75071	Capacitor-Tu
	75088	Socket—Tube socket, 7 contact, miniature, ceramic,	72502	(C166, C167) Capacitor-Tu
		saddle mounted	73592	600 volts (Cl3
	75191	Space ² –Insulating spacer for front plate (4 required) Spring—Friction spring (formed) for fine tuning cam	73597	CapacitorTu
	75163	Spring—Retaining spring for oscillator tube shield	70551	.047 mfd., 10 Capacitor—Tu
	74578	Spring-Retaining spring for adjusting screws	73551	400 volts (C13
	73457	Spring-Return spring for fine tuning control	73557	Capacitor-Tu
	30340	Spring—Hair pin spring for fine tuning link	73794	600 volts (Cl. Capacitor-Tu
	75175	Stator-Oscillator section stator complete with rotor, seg- ment, coils, adjusting screws and capacitors C3 and	13134	400 volts (C1
		C23 (S1-1, C3, C23, L1, L2, L3, L4, L5, L6, L7, L8, L9,	74957	Capacitor-Tu
		L10, L11, L43)	73787	600 volts (Cl Capacitor—Tu
	75178	Stator-Convertor stator complete with rotor, coils, ca-		(C127, C135,
		Stator Convertor stator compute with rotar, cold., cold	73154	Choke—Filter Clip—Tubular
		L21, L45, R4, R5, R12)	75167	75166
	75179	Stator -R-F amplifier stator complete with rotor, coils, capacitor (C13) and resistor (R6) (S1-3, C13, L22, L23,	75210	Coil-Fifth piz
		1.24 1.25 1.26 1.27 1.28 L29 L30 L31 L49 R6	71449	Coil-Horisont
	75180	Stator-Antenna stator complete with rotor, coils, capaci-	73591	Coil-Antenna
		Anna (C20 and C21) and resistors (NY, KUU, KUU QL*9)	75241	Coil-Antenna
		C20, C21, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L52, R9, R10, R11)	73477	Coil—Choke co
	75169	Strip—Coil segment mounting strip—RH center	75299	Coil-Peaking
	75170	Strip-Coil segment mounting strip-LH lower	76285	Coil-Peaking
	75171	Strip-Coil segment mounting strip-LH upper-less	75253	Coil-Peaking
	75173	trimmer C7 Stud—No. 6-32 x 13/16" adjusting stud for C7 trimmer	75252	Coil-Peaking
	75446	Stud_Connecitor stud_bross_No. 4-40 x 13/16" with 3/64"	76132	Coil—Peaking
		screw driver slot for trimmer colls 647, 648 and capacitor	35787	Connector-Siz
		Cl uncoded and coded "ER"		
	1			

or stud—brass—No. 4-40 x 13/16" with 3/64" slot for trimmer coils L47, L48 and capacitor merically and "Hi Q" I-F convertor transformer ating washer (neoprene) for capacitor C7 ating washer (hex) EVISION CHASSIS ASSEMBLIES KCS48 nnel indicator lamp bracket a magnet mounting bracket upper s magnet mounting bracket—lower ramic, 8.2 mmf. (C198) ca trimmer, dual, 10-160 mmf. (C147A, ramic, 10 mmf. (C128) ramic, 39 mmf. (C203) ramic, 56 mmf. (C106) ca, 82 mmf. (C146, C148) ramic, 100 mmf. (C202) ramic, 100 mmf. (C120) ramic, 100 mmf. (C126, C197, C220, C222) ramic, 100 mmfr. (C120, C131, C220), C2 ica, 180 mmf. (C153) ramic, 500 mmf., 20,000 volts (C161) ramic, 270 mmf. (C107, C10, C117, C125) ica, 270 mmf. (C107, C10, C117, C125) ca, 390 mmf. (C215) ica, 560 mmf. (C155) iramic, 1500 mmf. (C171, C172) iramic, 1500 mmf. (C102, C103, C109, C113, C122, C129, C168, C186) C122, C129, C168, C188) rramic, dual, 1500 mmf. (C108A, C108B, B, C123A, C123B, C184A, C184B) pramic, 5000 mmf. (C114, C121, C187) pramic, 10,000 mmf. (C144, C185, C192, ramic, dual, 10,000 mmf. (C105A, C105B) ectrolytic, 2 mfd., 50 volts (C124) ectrolytic, 5 mfd., 450 volts (C124) ectrolytic, 5 mfd., 450 volts (C141) ectrolytic, comprising 1 section of 20 mfd., ection of 80 mfd., 200 volts and 1 section of volts (C214A, C214B, C214C) ectrolytic, comprising 2 sections of 35 mfd., section of 10 mfd., 450 volts and 1 section of volts (C211A, C211B, C211C, C211D, C212A, C, C212D) ibular, moulded paper, ail impresented C, C212D) ibular, moulded paper, oil impregnated, JOD volts (C156) ibular, paper, oil impregnated, .0015 mfd., I30, C219) ibular, paper, oil impregnated, .0022 mfd., 37, C191, C216) ibular, paper, oil impregnated, .0027 mft. ubular, paper, oil impregnated, .0027 mfd., 89) ow) hular, paper, oil impregnated, .0047 mfd., 38, C139) hular, paper, oil impregnated, .01 mfd., 36) 136) abular, moulded paper, oil impregnated, 0 volts (Cl40, Cl54) abular, paper, oil impregnated, .015 mfd., 190) 150) ubular, paper, oil impregnated, .018 mfd., 2159, C160) Jbular, paper, oil impregnated, .022 mfd., 145, C151) bular, paper, oil impregnated, .047 mfd., 49, C199, C221) bular, moulded paper, .047 mfd., 400 volts) ubular, paper, oil impregnated, .047 mfd., 133, C150, C190) ubular, moulded paper, oil impregnated, 000 volts (C143, C158, C162, C163) ubular, paper, oil impregnated, 0.1 mfd., 132, C196) ubular, paper, oil impregnated, 0.1 mfd., 134)

DESCRIPTION

- 34) ubular, paper, oil impregnated, 0.22 mfd.,
- 157) ubular, paper, oil impregnated, 0.22 mfd., 142)
- ubular, moulded paper, 0.47 mfd., 200 volts , C152)
- choke (L113) choke (L113) clip for mounting stand-off capacitor i-f coil complete with adjustable core (L103)
- a r-1 con complete with adjustable core (L103) tal linearity control coil (L110) a matching coil (2 reg'd) (Part of T200) a shunt coil (L202) coil (L101, L102)

- coil (36 muh) (L104) coil (36 muh) (L106)
- coil (36 muh) (L114, R119)
- g coil (120 muh) (L109) g coil (500 muh) (L105, L108)
- g coil (500 muh) (L115) (In KCS48T) onnector—Single contact female connector for audio cable (J103) 35787

6T84, 6T86, 6T87 REPLACEMENT PARTS (Continued)

STOCK	DESCRIPTION
74594 38853	Connector – 2 contact male connector for power cord Connector – 4 contact female connector for antenna trans-
35383	Connector - 8 contact male connector part of deflection
68592	yoke (P101) Connector 8 contact female connector for deflection yoke leads (J101)
75517	Contact Anode connector assembly contact only
75215	Control Horizontal and vertical hold control (R147, R166)
75216	Control Picture and brightness control (R128, R131) Control Vertical linearity control (R156)
71440	Control Height control (R151)
75516	Control Width control (R177)
71498 74956	Core Adjustable core and stud for F-M trap 75449 Cushion Rubber cushion for deflection yoke hood (2 reg'd)
74839	Fastener Push fastener to mount ceramic tube socket (2 reg'd)
73600	Fuse .25 amp., 250 volts (F101)
16058 37396	Grommet Rubber grommet for 2nd. anode lead exit Grommet Rubber grommet to mount ceramic tube socket (2 reg ⁻¹ d)
75445	Hood Deflection yoke hood less rubber cushions
75644	Insulator 2nd. anode insulator
75842 75504	Jack Video jack (J105)
74953	Magnet Focus magnet complete with adjustable plate and stud
75518	Magnet Ion trap magnet (P.M.) Plate Hi-voltage plate bakelite less transformer, ca-
72067	pacitor and tube socket Resistor -Wire wound, 5.1 ohms, ½ watt (R193)'
75512	Resistor Wire wound, 4000 ohms, 10 watts (R181)
75593	
	Resistor Fixed, composition:
	82 ohms, ±10%, 1/2 watt (R103, R107, R112, R184)
	100 ohms, ± 20%, ½ watt (R202, R203) 100 ohms, ± 10%, 2 watts (R175)
	180 ohms, ± 10%, ½ watt (R116)
	680 ohms, ±10%, ½ watt (R126, R127)
	1000 ohms, ±20%, ½ watt (R102, R104, R109, R114, R117, R159, R185, R189, R219)
	1500 ohms, ± 10%, 1 watt (R155)
	$2200 \text{ ohms}, \pm 20\%, \frac{1}{2} \text{ watt (R113)}$
	3900 ohms, ±10%, ½ watt (R167) 4700 ohms, ±5% 14 watt (R130)
	4700 ohms, ± 10%, 1/2 watt (R135) (R230 in KCS48T)
	5600 ohms, ± 5%, ½ watt (R125) 5600 ohms, ± 10%, ½ watt (R235 in KCS48T)
	6800 ohms, ±10%, 1 watt (R120, R176)
	8200 ohms, ± 5%, ½ watt (R106, R169)
	Resistor - Wire wound, 8000 ohms, 15 watts (R212) Resistor Fixed, composition:
	10,000 ohms, ± 10%, 2 watts (R207)
	12,000 ohms, ± 10%, ½ watt (R182) 12,000 ohms, ± 10%, ½ watt (R188) (R139 in KCS48)
	12,000 ohms, ±5%, 1 watt (R108) 12,000 ohms, ±10%, 2 watts (R208, R209)
	15,000 ohms, + 10%, 1/2 watt (R210)
	18.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watte (R216) 18.000 ohms, $\pm 10\%$, $\frac{1}{2}$ watte (R119, R121, R122, R137)
	66.URI ohme. + 10% % wott (R143 R144 R198)
	22,000 ohms, ± 20%, ½ watt (R192) 27,000 ohms, ± 10%, 2 watts (R182) 33,000 ohms, ± 10%, 2 watts (R182)
	$33,000$ ohms, $\pm 10\%$, 2 watts (R182) $33,000$ ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R105, R115, R201, R211,
	R225) 33.000 ohms. + 20%. ¹ / ₂ watt (R123)
	39,000 ohms, ±10%, 2 watts (R204, R205, R206) 47,000 ohms, ±10%, 14 watts (R141, R187, R203)
	R225) 33,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R123) 39,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watts (R204, R205, R206) 47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watts (R141, R187, R222) 47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R141, R187, R222) 47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R120) 56,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R213) 68,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R123) 88,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R168) 82,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R172) 82,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R180, R181) 100,000 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R190, R191) 100,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R183, R154, R160) 150,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R124) 150,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R172) 180,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R177, R158) (R134, R223, R231, R232 in KC548T) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R187, R158) (R134, R223, R231, R232 in KC548T) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R180) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R180) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R190) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R191) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R191) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R191) 200,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R191)
	56,000 ohms, ± 10%, ½ watt (R221) (R234 in KCS48T) 56,000 ohms, ± 10%, 1 watt (R215)
	68,000 ohms, ± 10%, 1 watt (R168)
	82,000 ohms, ±10%, 1 watt (R164, R165)
	100,000 ohms, ± 5%, ½ watt (R190, R191) 100,000 ohms, ± 10%, ½ watt (R224) (R233 in KCS48T)
	100,000 ohms, ±20%, 2 watts (R183)
	$150,000 \text{ ohms.} \pm 20\%, \frac{1}{2} \text{ watt} (R136, R154, R160)$
	150,000 ohms, ±5%, l watt (R170) 180,000 ohms, ±10%, ¼ watt (R142 in KCS48T)
	220,000 ohms, ± 10%, ½ watt (R157, R158) (R134, R223,
	270,000 ohms, ± 10%, ½ watt (R150)
	330,000 BRMS, ± 10%, ½ Watt (R101)
	390,000 ohms, ± 10%, ½ watt (R142, R223 in KCS48)
	560,000 ohms, ±10%, ½ watt (R129) (R134 in KCS48)
	820,000 ohms, ± 10%, ½ watt (R162, R220)
	1 megohm, ±20%, ½ watt (R178)
	2.2 megohm, ± 10%, ½ watt (R118, R153)
75083	330.000 ohms, ±5%, 1 watt (R163) 390.000 ohms, ±10%, 1/2 watt (R142, R223 in KCS48) 470.000 ohms, ±10%, 1/2 watt (R129) (R134 in KCS48) 820.000 ohms, ±10%, 1/2 watt (R128) (R134 in KCS48) 1 megohm, ±10%, 1/2 watt (R128, R220) 1 megohm, ±0%, 1/2 watt (R173) 1 megohm, ±0%, 1/2 watt (R178) 1.2 megohm, ±5%, 1/2 watt (R148) 2.2 megohm, ±5%, 1/2 watt (R148, R153) 3.9 megohm, ±5%, 1/2 watt (R148) Screw No. 8-32 x 1/4" wing screw for mounting deflec- tion yoke
75236	Screw No. 8-32 x 3%" pan head machine screw (brass) for focus magnet mounting (2 reg'd)

STOCK No.	DESCRIPTION
74602	Screw-No. 10-32 x 13/" round head machine screw for
73584	focus magnet adjustment (3 reg'd) Shield—Tube shield
31251 73249	Socket—Tube socket, octal, wafer Socket—Tube, octal, ceramic, plate mounted
31319	Socket-Tube socket, octal, moulded
73117 75223	Socket—Tube, socket, 7 pin, miniature Socket—Tube socket, 9 pin, miniature
68592	Socket-Tube socket, 9 pin, miniature Socket-Tube socket, 6 contact, moulded for V113
71508 74834	Socket-Tube socket, 6 contact, moulded for V113 Socket-Tube socket for 1B3/8016
75718	Socket—Kinescope socket Socket—Channel indicator light socket
75233	Spring—Compression spring for focus magnet adjust- ment (3 reg'd)
75594	Support—Bakelite support only—part of hi-voltage shield Switch—Indicator light switch (S104)
76010 75508	Switch—AGC switch (\$106)
74950	Transformer—Power transformer 115 volts, 60 cycle (T110) Transformer—Vertical output transformer (T107)
74144 74589	Transformer—Vertical oscillator transformer (T106)
74590	Transformer—First pix, i-f transformer (T101, C101, R101) Transformer—Second pix, i-f transformer (T102, C104)
76264 73574	Transformer—Third pix, i-f transformer (T103, C112)
75211	Transformer-Fourth pix. i-f transformer (T104, C118) Transformer-Sound i-f transformer (simple winding
	type) (T111, C169, C170, R186)
71424	Transformer—Sound i-f transformer (dual winding type) (T111, C169, C170)
75212	Transformer—Sound discriminator transformer (T112, C173, C174, C175)
75213	Transformer—Horizontal oscillator transformer (T108)
	Transformer—Antenna matching transformer complete with antenna connector, I-F and F-M traps and shunt coil (T200, C200, C201, C202, C203, J200, L200, L201, 1992 (1992)
75519	L202, L203) Transformer—Hi-voltage transformer (T109)
71778	Trap—Sound trap (T105, C119)
75242 75449	Trap—I-F trap (L200 (C200), L201 (C201)
	Trap—F-M trap complete with adjustable core and stud _(L203, C203)
75251	Trap—4.5 mc trap (L107, L131)
74952	Yoke-Deflection yoke (L111, L112, C164, C165, P101)
	RADIO CHASSIS ASSEMBLIES RC 1090-Model 6T84
75541	Bracket—Pulley bracket complete with drive cord and pulley
75534	Capacitor—Variable tuning capacitor complete with drive
71924	drum (Cl-1, Cl-2)
39632	Capacitor—Ceramic, 56 mmf. (C8) Capacitor—Mica, 150 mmf. (C2, C16, C20)
73372	Capacitor-Electrolytic comprising 1 section of 30 mfd
	350 volts, 1 section of 30 mfd., 300 volts and 1 section of
73801	20 mfd., 25 volts (C23A, C23B, C23C) Capacitor—Tubular, paper, .001 mfd., 400 volts (C5)
71394	Capacitor—Tubular, paper, .001 mfd., 400 volts (C5) Capacitor—Tubular, paper, .0015 mfd., 600 volts (C10)
73851	Capacitor—Tubular, paper, oil impregnated, .018 mfd
73803	1600 volts (C24) Capacitor—Tubular, paper, .002 mfd., 1000 volts (C21, C22)
70603	Capacitor-Tubular, paper, .003 mfd., 400 volts (C17)
73920	Capacitor—Tubular, paper, .005 mfd., 400 volts (C15)
73561	Capacitor-Tubular, paper, .01 mfd., 400 volts (C9, C13, C18)
70572	Capacitor-Tubular, paper, .015 mfd., 400 volts (C11)
58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd
	400 volts (C12)
73553	Capacitor—Tubular, paper, .02 mfd., 400 volts (C19) Capacitor—Tubular, paper, .05 mfd., 400 volts (C14)
73935	Clip—Mounting clip for I-F transformer
75627	Clip-Clip for main cable-on rear apron of chassis
75485	Coil—Oscillator coil complete with adjustable core and stud (L3, L4)
	Connector—Single contact female connector for 45 RPM pickup cable (J5)
75542	Connector—8 contact male connector for power input
75543	cable (J6) Connector—2 contact female connector for 45 RPM motor
	Connector—Two contact (polarized) female connector for
	antenna leads (J7)
33514	Connector—Dual two contact female connector for 33/78 RPM pickup cable and television cable (J3, J4)
75537	Control—Volume control and power switch (R15, S2)
	Control-Tone control (R23)
	Cord—Drive cord (approx. 60" overall) Grommet—Rubber grommet to mount slides to bottom—
	rear (2 reg'd)
75548	Grommet-Rubber grommet to mount slides to bottom
	—front (2 reg'd) Lamp—Dial lamp—Mazda No. 51
11765	Nut—Rivnutto fasten screw for mounting chassis (4 reg'd)
	Plate—Dial back plate complete with three (3) pulleys
7 5544 75535	
75544 75535 75536	Pointer—Station selector pointer
75544 75535 75536 72602 72323	Pointer—Station selector pointer Pulley—Drive cord pulley Resistor—Wire wound, 3 chms. 14 watt (R31)
75544 75535 75536 72602 72323 73637	Pointer—Station selector pointer Pulley—Drive cord pulley Resistor—Wire wound, 3 ohms, ½ watt (R31) Resistor—Wire wound, 2200 ohms, 5 matts (R30)
75544 75535 75536 72602 72323 73637	Pointer—Station selector pointer Pulley—Drive cord pulley Resistor—Wire wound, 3 ohms, ½ watt (R31) Resistor—Wire wound, 2200 ohms, 5 matts (R30)
75544 75535 75536 72602 72323 73837	Pointer—Station selector pointer Pulley—Drive cord pulley Resistor—Wire wound, 3 ohms, ½ watt (R31) Resistor—Wire wound, 2200 ohms, 5 matts (R30)
75544 75535 75536 72602 72323 73637	Pointer—Station selector pointer Pulley—Drive cord pulley Resistor—Wire wound, 3 chms. 14 watt (R31)

REPLACEMENT PARTS (Continued)

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STOCK No.DESCRIPTIONSTOCK No.DESCRIPTION3300 ohms. ± 5%, ½ watt (R13) 18,000 ohms. ± 10%, ½ watt (R13) 27,000 ohms. ± 10%, ½ watt (R14, R34) 27,000 ohms. ± 10%, ½ watt (R14, R34) 38,000 ohms. ± 10%, ½ watt (R25) 185,000 ohms. ± 10%, ½ watt (R25) 185,000 ohms. ± 10%, ½ watt (R25) 195,000 ohms. ± 10%, ½ watt (R25) 195,000 ohms. ± 10%, ½ watt (R25) 100 ohms. ± 10%, ½ watt (R26) 22,000 ohms. ± 10%, ½ watt (R27) 22,000 ohms. ± 10%, ½ watt (R26) 100 ohms. ± 10%, ½ watt (R27) 22,000 ohms. ± 10%, ½ watt (R28) 23,2 magohm. ± 20%, ½ watt (R18) 100 magohm. ± 20%, ½ watt (R18) 113281 Bocket-Tube socket, otal, wafer 131381 Bocket-Tube socket, otal, wafer 131384 Bocket-Tube socket, otal, wafer 1313786 Bocket-Tube socket, otal, wafer 1313786 Wahter-Uning knob shaft 1313786 Cransformer-Dutput transformer (T3) 178477 Transformer-Dutput transformer (T3) 178477 178477 Transformer-Dutput transformer (T3) 178477 Transformer-Dutput transformer complete with adjust- adjustable core and stude (T1) 178477 Transformer-Dutput transformer (T3) 178477 Transformer-Dutput transformer (T3) 178477 Transformer-Dutput transformer (T3) 178477 Transformer-Dutput transformer (T3) 178477 Transformer-Cutput transformer (T3) 178477 Transformer-Dutput transformer (T3) 17848 17848 Bried-Tube socket, otal, watt (R48, R21) 220,000 ohms. ± 10%, ½ watt (R48, R21) 2300 ohms. ± 10%, ½ watt (R4	
18.000 ohms. ± 10%. ½ watt (R13)78536Plate—Dial back plate complete with three (318.000 ohms. ± 10%. ½ watt (R4, R34)78536Pointer—Station selector pointer22.000 ohms. ± 10%. ½ watt (R47)78536Pointer—Station selector pointer82.000 ohms. ± 10%. ½ watt (R47)78637Resistor—Wire wound, 200 ohms. ½ watt (R42)19.000 ohms. ± 10%. ½ watt (R47)78637Resistor—Wire wound, 200 ohms. ½ watt (R42)19.000 ohms. ± 10%. ½ watt (R42)78637Resistor—Wire wound, 200 ohms. ½ watt (R42)19.000 ohms. ± 10%. ½ watt (R42)78637Resistor—Wire wound, 200 ohms. ½ watt (R42)19.000 ohms. ± 10%. ½ watt (R42)78647Solut, ½ watt (R41)10 megohm. ± 20%. ½ watt (R1, R12)100 ohms. ± 10%. ½ watt (R41)860 ohms. ± 10%. ½ watt (R41)10 megohm. ± 20%. ½ watt (R1, R12)380 ohms. ± 10%. ½ watt (R41)860 ohms. ± 10%. ½ watt (R41)78546Shield—Tube socket, cotal, wafer18,000 ohms. ± 10%. ½ watt (R42)1800 ohms. ± 10%. ½ watt (R41)78547Transformer—Output transformer (T3)18,000 ohms. ± 10%. ½ watt (R41)180,000 ohms. ± 10%. ½ watt (R42)78547Transformer—Output transformer (T3)120,000 ohms. ± 10%. ½ watt (R42)120,000 ohms. ± 10%. ½ watt (R43)78547Capacitor—Variable tuning capacitor complete with drive drum (C1-1, C1-2, C1-4, C1-5, C1-6)785407854078547Capacitor—Ceramic, 3 mmf. (C13)78540Shaft—Tuning knob shaft78549Capacitor—Ceramic, 13 mmf. (C45)78540Shaft—Tuning knob shaft78540Capacitor—Ceramic, 6 mmf. (C13)78540	
22,000 ohms. ± 10%, 'y watt (R4, R34) 39,000 ohms. ± 10%, 'y watt (R2)72802Pulley—Drive cord pulley72300Space of the second of the se	
 Iso,000 ohms. ±10%, ½ watt (R27) Iso,000 ohms. ±10%, ½ watt (R27) Iso,000 ohms. ±10%, ½ watt (R27) Iso,000 ohms. ±10%, ½ watt (R22, R28, R29) Isomohm. ±10%, ½ watt (R18, R38) Isomohm. ±10%, ½ watt (R30, R31) Isomohm. ±10%, ½ watt (R44) Sockst-Tube sockst, ottal, wafer Sockst-Tube sockst, Ip in, miniature Sockst-Tube sockst, Ip in, miniature Sockst-Tube sockst, Ip in, miniature Spring-Drive cord spring Transformer-Output transformer (T3) Transformer-Second if transformer complete with adjust- adjuatoble core and studs (T1) Transformer-Ower transformer 115 volts, 60 cycle (T4) Washer-''C'' washer for tuning knob shaft CHASSIS ASSEMBLIES CC 1092-Models 6786, 6787 Capacitor-Veramic, 3 mmf. (C10) Transformer-Ceramic, 3 mmf. (C13) Capacitor-Ceramic, 15 mmf. (C13) Capacitor-Ceramic, 15 mmf. (C13) Capacitor-Ceramic, 6 mmf. (C45) Sockst-Tube sockst, ottal, wafer Sockst-Tube sockst, ottal, wafer Sockst-Tube sockst, ottal, wafer Sockst-Tube sockst, 7 in, miniature Sockst	18)
International systemInternational system190,000 ohms.110%, 1% watt (R2)190,000 ohms.110%, 1% watt (R2)210,000 ohms.110%, 1% watt (R2)210,000 ohms.110%, 1% watt (R2)1.5 megohm.120%, 1% watt (R1, R12)1.5 megohm.120%, 1% watt (R1, R12)10 megohm.120%, 1% watt (R1, R12)10 megohm.20%, 1% watt (R1, R12)10 megohm.120%, 1% watt (R3)117 Sockst-Tube sockst, otal, wafe1181000 ohms.11710% ohms.1181000 ohms.11910%, 1% watt (R2, R29)1200 ohms.110%, 1% watt (R44)1312711171208110%, 1% watt (R2, R29)1217Transformer-Output transformer (T3)17840Transformer-Ower transformer (T2)17847Transformer-Ower transformer 115 volts.17848C1092-Models 6786, 678717844Capacitor-Ceramic, 3 mmf. (C10)17841Capacitor-Ceramic, 3 mmf. (C13)17842Capacitor-Ceramic, 5 mmf. (C13)17843Capacitor-Ceramic, 6 mmf. (C45)17844Shield-Tube soket, 7 in, miniature17842Capacitor-Ceramic, 6 mmf. (C45)17842 <td>18)</td>	18)
International systemInternational system190,000 ohms.110%, 1% watt (R2)190,000 ohms.110%, 1% watt (R2)210,000 ohms.110%, 1% watt (R2)210,000 ohms.110%, 1% watt (R2)1.5 megohm.120%, 1% watt (R1, R12)1.5 megohm.120%, 1% watt (R1, R12)10 megohm.120%, 1% watt (R1, R12)10 megohm.20%, 1% watt (R1, R12)10 megohm.120%, 1% watt (R3)117 Sockst-Tube sockst, otal, wafe1181000 ohms.11710% ohms.1181000 ohms.11910%, 1% watt (R2, R29)1200 ohms.110%, 1% watt (R44)1312711171208110%, 1% watt (R2, R29)1217Transformer-Output transformer (T3)17840Transformer-Ower transformer (T2)17847Transformer-Ower transformer 115 volts.17848C1092-Models 6786, 678717844Capacitor-Ceramic, 3 mmf. (C10)17841Capacitor-Ceramic, 3 mmf. (C13)17842Capacitor-Ceramic, 5 mmf. (C13)17843Capacitor-Ceramic, 6 mmf. (C45)17844Shield-Tube soket, 7 in, miniature17842Capacitor-Ceramic, 6 mmf. (C45)17842 <td>18)</td>	18)
470,000 ohms. ± 10%, ½ watt (Ré, R33) 1.5 megohm. ± 20%, ½ watt (Ré, R33) 2.2 megohm. ± 20%, ½ watt (R1, R12) 10 megohm. ± 20%, ½ watt (R1, R12) 10 megohm. ± 20%, ½ watt (R16) 75840 Sheid—Tube shield 73834 Shied—Tube shield 73834 Shied—Tube scket. 31364 Socket—Dial lamp socket Socket—Tube socket, octal, wafer 73834 603 903 8pring—Drive cord spring 75848 Transformer—First-fransformer complete with adjust- adjustable core and stude (T1) 75487 75487 Capacitor—Variable tuning capacitor complete with drive drum (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6) 75423 75587 Capacitor—Ceramic, 5 mmf. (C13) 339044 39044 20apacitor—Ceramic, 64 mmf. (C45) 75612 Capacitor—Ceramic, 54 mmf. (C13) 390044 Capacitor—Ceramic, 64 mmf. (C45) 75812 Capacitor—Ceramic, 64 mmf. (C13) <td< td=""><td>18)</td></td<>	18)
470,000 ohms, ± 10%, ½ watt (R&R, R&B) 1.5 megohm, ± 20%, ½ watt (R&R, RB) 2.2 megohm, ± 20%, ½ watt (R, RB) 2.3 megohm, ± 20%, ½ watt (R, RB) 10 megohm, ± 20%, ½ watt (RB) 78540 Sheid—Tube shield 73584 Shield—Tube shield 73584 Shiele—Tube socket, octal, wafer 73117 Socket—Tube socket, octal, wafer 73117 Socket—Tube socket, octal, wafer 73534 8 mided—Tube socket, octal, wafer 73537 9 witch—Function switch (B-1, S3) 73638 73638 73639 73639 73639 73630 73630 73631 73632 73633 73634 73634 73635 73636 73637 73638 73638 73639 73648 73648 74207 74207 75567 Capacitor—Ceramic, 3 mmf. (C19	18)
2.2 megohm, ±20%, ½ watt (R1, K12) 10 megohm, ±20%, ½ watt (R1, K12) 73540 Shaft—Tuning knob shaft 73584 Shiel—Tube shield 73584 Slide—Slide mechanism complete for radio chassis bottom 31261 Socket—Tube socket, oral, wafer Socket—Tube socket, 7 pin, miniature 4038 Spring—Drive cord spring 755407 Transformer—Output transformer (T3) 75488 Transformer—Firsti-ftransformer complete with adjust- adjustable core and studs (T2) 75587 Capacitor—Variable tuning capacitor complete with drive drum (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6) 75613 75613 Capacitor—Ceramic, 3 mmf. (C13) 75613 75613 Capacitor—Ceramic, 3 mmf. (C13) 75613 75614 Capacitor—Ceramic, 3 mmf. (C13) 75613 Capacitor—Ceramic, 3 mmf. (C13) 75614 Capacitor—Ceramic, 47 mmf. (C45) 75612 Capacitor—Ceramic, 3 mmf. (C13) 75613 Capacitor—Ceramic, 47 mmf. (C45) </td <td>18)</td>	18)
10 megohm, ± 20%, ½ watt (R18) 73540 Shaft-Tuing knob shaft 73546 Shide-Slide mechanism complete for radio chassis bottom 31364 Socket-Dial lamp socket 31321 Socket-Tube socket, ortal, wafer 31231 Socket-Tube socket, 7 pin, miniature 4038 Spring-Drive cord spring 73539 Switch-Function switch (S1-1, S3) 73636 Transformer-Output transformer (T3) 73637 Transformer-Second i-f transformer complete with adjust- able core and stude (T1) 73127 Sweather -''C'' washer for tuning knob shaft CHASSIS ASSEMBLIES RC 1092-Models 6756, 6787 75567 Capacitor-Caramic, 3 mmf. (C13) 75613 Capacitor-Ceramic, 3 mmf. (C13) 75614 Capacitor-Ceramic, 47 mmf. (C45) 75867 Capacitor-Ceramic, 3 mmf. (C12) 75867 Capacitor-Ceramic, 3 mmf. (C13) 78613 Capacitor-Ceramic, 47 mmf. (C45) 78562 Capacitor-Ceramic, 48 mmf. (C45) 78561 Capacitor-Ceramic, 47 mmf. (C45) 78562 Capacitor-Ceramic, 47 mmf. (C45) 78564 Capacitor-Ceramic, 47 mmf. (C45) 78567 Capacitor-Ceramic, 18 mmf. (C1	18)
 1200 ohms. ± 5%, ½ watt (R46) 131364 Socket—Dial lamp socket Socket—Tube socket, ortal, wafer 13261 Socket—Tube socket, ortal, wafer 131375 Socket—Tube socket, 7 pin, miniature 4038 Spring—Drive cord spring 75539 Switch—Function switch (S1-1, S3) Transformer—First i-ftransformer complete with adjustable core and stude (T1) 75487 Transformer—Power transformer 115 volts, 60 cycle (T4) 33726 Washer—'C'' washer for tuning knob shaft CHASSIS ASSEMBLIES Capacitor—Ceramic, 3 mmf. (C12) Capacitor—Ceramic, 5 mmf. (C12) Capacitor—Ceramic, 15 mmf. (C12) Capacitor—Ceramic, 47 mmf. (C45) T5602 Capacitor—Ceramic, 47 mmf. (C45) T5612 Capacitor—Ceramic, 48 mmf. (C2, C11) T5612 Capacitor—Ceramic, 47 mmf. (C45) T5620 Capacitor—Ceramic, 47 mmf. (C45) Capacitor—Ceramic, 48 mmf. (C45) T5640 Capacitor—Ceramic, 48 mmf. (C2) Capacitor—Ceramic, 48 mmf. (C45) T5640 Shaft—Extension shaft for function switch Shaft—Statement and socket, 7 pin, miniature Socket—Tube socket, 7 pin, miniature Socket—Tube socket, 7 pin, miniature Socket—Tube socket, 7 pin, miniature 	18)
31231 Socket—Tube socket, octal, water 73117 Socket—Tube socket, octal, water 4038 Spring—Drive cord spring 73117 Socket—Tube socket, octal, water 4038 Spring—Drive cord spring 73539 Switch—Function switch (S1-1, S3) 73636 Transformer—Output transformer (T3) 73547 Transformer—First i-ftransformer complete with adjustable core and studs (T1) 7587 Transformer—Power transformer 115 volts, 60 cycle (T4) 33726 Washer—''C'' washer for tuning knob shaft 62,000 ohms, ± 10%, ½ watt (R1, R1) 220,000 ohms, ± 10%, ½ watt (R2, R16) 130,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R2, R14) 230,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R1, R51) 220,000 ohms, ± 10%, ½ watt (R1, R51) 220,000 ohms, ± 20%, ½ watt (R2, R37, R41, R 15. megohm, ± 20%, ½ watt (R2, R17, R41, R 220,000 ohms, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R18, R16) 10 megohm, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R17, R51) <tr< td=""><td>18)</td></tr<>	18)
31231 Socket—Tube socket, octal, water 73117 Socket—Tube socket, octal, water 4038 Spring—Drive cord spring 73117 Socket—Tube socket, octal, water 4038 Spring—Drive cord spring 73539 Switch—Function switch (S1-1, S3) 73636 Transformer—Output transformer (T3) 73547 Transformer—First i-ftransformer complete with adjustable core and studs (T1) 7587 Transformer—Power transformer 115 volts, 60 cycle (T4) 33726 Washer—''C'' washer for tuning knob shaft 62,000 ohms, ± 10%, ½ watt (R1, R1) 220,000 ohms, ± 10%, ½ watt (R2, R16) 130,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R2, R14) 230,000 ohms, ± 10%, ½ watt (R12, R14) 230,000 ohms, ± 10%, ½ watt (R1, R51) 220,000 ohms, ± 10%, ½ watt (R1, R51) 220,000 ohms, ± 20%, ½ watt (R2, R37, R41, R 15. megohm, ± 20%, ½ watt (R2, R17, R41, R 220,000 ohms, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R18, R16) 10 megohm, ± 20%, ½ watt (R17, R51) 22 megohm, ± 20%, ½ watt (R17, R51) <tr< td=""><td>18)</td></tr<>	18)
73636Transformer - Output transformer (T3)73636Transformer - Output transformer (T3)73636Transformer - First i-ftransformer complete with adjust- able core and studs (T1)73647Transformer - Second i-f transformer complete with adjustable core and studs (T2)70127Transformer - Power transformer 115 volts, 60 cycle (T4)33726Washer ''C'' washer for tuning knob shaft70127Transformer - Power transformer 115 volts, 60 cycle (T4)33726CAPACINE - C'C'' washer for tuning knob shaft75567Capacitor - Variable tuning capacitor complete with drive drum (Cl-1, Cl-2, Cl-3, Cl-4, Cl-5, Cl-6)76423Capacitor - Ceramic, 5 mmf. (Cl0)75813Capacitor - Ceramic, 5 mmf. (Cl3)39044Capacitor - Ceramic, 15 mmf. (Cl2)75812Capacitor - Ceramic, 68 mmf. (C8)75812Capacitor - Ceramic, 68 mmf. (C9, C11)75812Capacitor - Ceramic, 68 mmf. (C9, C11)75812Capacitor - Ceramic, 68 mmf. (C9, C11)75812Capacitor - Ceramic, 68 mmf. (C9, C11)75813Socket - Tube socket, otal, wafer 3128175814Shiel - Tube socket, 7 pin, miniature 30044	18)
73636Transformer - Output transformer (T3)73636Transformer - Output transformer (T3)73636Transformer - First i-ftransformer complete with adjust- able core and stude (T1)73647Transformer - Second i-f transformer complete with adjustable core and stude (T2)70127Transformer - Power transformer 115 volts, 60 cycle (T4)33726Washer ''C'' washer for tuning knob shaft20,000 ohms, ± 10%, ½ watt (R8, R16)20,000 ohms, ± 10%, ½ watt (R12, R14)20,000 ohms, ± 10%, ½ watt (R12, R14)20,000 ohms, ± 10%, ½ watt (R11)20,000 ohms, ± 10%, ½ watt (R12, R14)20,000 ohms, ± 10%, ½ watt (R11, R51)220,000 ohms, ± 10%, ½ watt (R12, R37, R41, R0Capacitor - Variable tuning capacitor complete with drive drum (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6)7642376423Capacitor - Ceramic, 5 mmf. (C10)7861378613390443904478612786127861278612786127861378614786147861578615786167861278612786137861478614786157861278612786147861278614786147861578616786167861278613786147861478615786167861678617 <td>18)</td>	18)
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75613 Capacitor-Ceramic, 5 mmf. (Cl3) 75546 Slide-Slide mechanism complete for radio chass 39044 Capacitor-Ceramic, 15 mmf. (Cl2) 75546 Slide-Slide mechanism complete for radio chass 75609 Capacitor-Ceramic, 67 mmf. (Cd5) 31251 Socket-Tube socket, octal, wafer 75612 Capacitor-Ceramic, 68 mmf. (C9, Cl1) 74179 Socket-Tube socket, 7 pin, miniature for V	
75609 Capacitor-Ceramic, 47 mmf. (C45) 71501 Cocket-Tube socket, 7 pin, miniature 75612 Capacitor-Ceramic, 68 mmf. (C9, C11) 74179 Socket-Tube socket, 7 pin, miniature for V	s bottom
75612 Capacitor-Ceramic, 68 mmf. (C9, C11) 20106 Constitute Country 100 mmf. (C4)	
	and V2
75437 Capacitor-Ceramic, 100 mmf. (C31) 75563 Spring-Retaining spring for function switce	h exten-
75614 Gapacitor—Geramic, 150 mmf. (C14, C30, C43, C54) Bpring - Actining spring for function switch	a waterre
75611 Capacitor—Ceramic, 220 mmf. (C3) 76332 Spring—Drive cord tension spring 39640 Capacitor—Mica, 330 mmf. (C37, C38) 74847 Support—Polystyrene support for FM, oscill	ton coil
72571 Capacitor—Mica, 470 mmf. (C7) complete with mounting bracket	1101 0011
75610 Capacitor—Ceramic, 1500 mmf. (C19) 75568 Switch—Function'switch (S1-1, S1-2, S1-3, S3) 74850 Capacitor—Ceramic, 1800 mmf. (C17) 75557 Transformer—Output transformer (T7)	
73473 Capacitor-Ceramic, 5000 mmf. (C2, C5, C6, C15, C24.) 73743 Transformer-Radio detector transformer (T5)	
C25, C27, C28, C29, C34, C36) 73920 Capacitor—Tubular, paper, .005 mfd., 400 volts (C33) 75558 Transformer—First i-f transformer (AM) comp adjustable screws (T2)	lete with
73747 Capacitor—Electrolytic, 2 mfd., 50 volts (CO4) 75559 Transformer—First i-f transformer (FM) comp	lete with
72052 Capacitor—Electrolytic, comprising 1 section of 30 mfd., 450 volts, 1 section of 30 mfd., 350 volts, and 1 section 73037 Transformer—Second i-ftransformer (AM) comp	lete with
of 40 mfd., 25 volts (C23A, C23B, C23C) adjustable screws (T4)	
73801 Capacitor—Tubular, paper, .001 mfd., 400 volts (C8) 70842 Capacitor—Tubular, paper, .001 mfd., 1000 volts (C42, C44) 75560 Transformer—Second i-ftransformer (FM) comp adjustable cores (T3)	lete with
71928 Capacitor-Tubular, paper, .005 mfd., 200 volts (C28, 75566 Transformer-Power transformer 115 volts, 60 (ycle (T6)
C39, C41) 71925 Capacitor-Tubular, paper, .01 mfd., 400 volts (C32) 33726 Washer-''C'' for tuning knob shaft	
72120 Capacitor-Tubular, paper, .015 mfd., 200 volts (C22) RADIO ROLLOUT CARRIAGE	
58476 Capacitor—Tubular, paper, oil impregnated, .018 mfd., 400 volts (C21) 75552 Decal—Function decal for radio controls—Me	del 6T84
74010 Capacitor-Tubular, paper, .02 mfd., 400 volts (C20, C38) 75573 Decal-Function decal for radio controls-Mo	
75550 Dial-Polystyrene dial scale-Model 6T84	1 00007
75627 Clip-Clip for main cable-on rear of chassis 75571 Frame-Moulded frame (marcon) for mount	ng radio
75569 Coil-Oscillator coil-AM-complete with adjustable chassis and 45 RPM changer for mahogany of instrument-Models 6786 and 6787	r walnut
78570 Coil-R-F coil-AM-complete with adjusting screws 75549 Frame-Moulded frame (marcon) for mount	
75815 Coil—Antenna coil—FM (L1)	
71942 Coil—Filament choke coil (L9) 74817 Coil—Oscillator coil—FM (L8) 74817 Coil—Oscillator coil—FM (L8)	ing radio iments—
74817 Coil—Oscillator coil—FM (L8) 74815 Coil—R-F coil—FM (L2) 75684 Frame—Moulded frame (light brown) for mount	
35787 Connector Single contact female connector for record chassis and 45 RPM changer for oak instr	
75542 [Connector—8 contact male connector for power input] 75551 [Handle—Metal pull-out handle for mounting fr	ame
cable (J4) 75553 Screw—No. 8-32 x % cross recessed pan head screw to mount radio chassis (4 reg'd)	machine
cable (Pl)	
74879 Connector—2 contact female connector for antenna leads SPEAKER ASSEMBLY 75537 Control—Volume control and power switch (R22, S2) Model 8784	
75537 Control—Volume control and power switch (R22, S2) Model 6784 75561 Control—Tone control—L.F. (R19) 92569-9 WRMA 274	
75562 Control—Tone control—H.F. (R34) RL 111—14	
72953 Cord—Drive cord (approx. 66" overall) 13867 Cap—Dust cap 75564 Coupling—Spring coupling for function switch extension 74901 Cone—Cone and voice coil assembly	
shaft 74974 Speaker-12" P.M. speaker (3.16 oz.) complete t	tab.
75556 Cover—insulating cover for electrolytic and voice coil (3.2 ohms) 74839 Fastener—Push fastener for mounting r-f shelf (4 reg'd) SPEAKER ASSEMBLY	ith cone
16058 Grommet-Rubber grommet for mounting r-f shelf 23569-9B	NER CORE
(4 reg'd) 75547 Grommet-Rubber grommet to mount slides to bottom- Model 6784	NUL CONS
rear (2 reg'd) 75548 Grommet-Rubber grommet to mount slides to bottom- Note: If stamping on speaker does not agree w	NER CORO
front (2 reg'd) number, order replacement parts by referring	
11765 Lamp—Dial lamp—Masda 51 78544 Nut—Rivnut to fasten screw for mounting chassis (4 req'd) and full description of part required.	e th above to model
	e th above to model

6T84, 6T86, 6T87

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REPLACEMENT PARTS (Continued)

13867 75682	SPEAKER ASSEMBLY Models 6786 and 6787	75680	
		13000	Decal-Television controls function decal for oak instru- ments
	92569-12W RMA 274	74809 75455	Emblem—"RCA Victor" emblem
75682	RL 111-A1 Cap—Dust cap	75456	mahogany or walnut instruments Escutcheon—Channel marker escutcheon—light—for oak
75681	Cone—Cone and voice coil assembly (3.2 ohms) Speaker—12" P.M. speaker complete with cone and voice	74606	instruments Glass—Safety Glass
1	coil (3.2 ohms) Note: If stamping on speaker does not agree with above	37396	Grommet-Rubber grommet to mount speaker (4 reg'd) Grommet-Power cord strain relief (1 set)
	number, order replacement parts by referring to model number of instrument, number stamped on speaker	75697	Grommet-Rubber grommet to mount 45 RPM changer
	and full description of part required.	75551	
	MISCELLANEOUS	74308	Hinge—Cabinet door hinge (1 set)
75705	Antenna—Radio antenna loop complete less cable for	36817	6T84)
	Models 6786 and 6787 Antenna-Radio antenna loop complete less cable for	74959	mahogany or walnut instruments (outer)
	Model 6784 Back—Cabinet back cover for radio-phono (45 RPM)	73995	Knob—Television fine tuning control knob—tan—for oak
	compartment—assembled to cabinet (Model 6T84)	73996	Knob-Television channel selector knob-marcon-for
	Back—Cabinet back cover for radio-phono (45 RPM) compartment—assembled to cabinet (Model 6787)	73997	Knob-Television channel selector knob-tan-for oak instruments (inner)
	Back—Cabinet back cover for radio-phono (45 RPM) compartment—assembled to cabinet (Model 6786)	74962	Knob-Television brightness control or vertical hold con- trol knob-marcon-for mahogany or walnut instru-
75700 1	Back—Back cover complete with terminal board and power cord for television chassis (Models 6T84 and	73999	ments (outer) Knob-Television brightness control or vertical hold con-
75701 1	6T86) Back—Back cover complete with terminal board and	74969	trol knob-tan-for oak instruments (outer)
	power cord for television chassis (Model 6787) Back—Back cover-marcon—for 33 1/3/78 phono com-	74003	Knob-Television channel marker escutcheon light switch knob-maroon-for mahogany or walnut instruments
	partment for mahogany or walnut instruments— assembled to rollout (Model 6784)		Knob—Television channel marker escutcheon light switch knob—tan—for oak instruments
75689 1	Back—Back cover—marcon—for radio—45 RPM phono compartment for mahogany or walnut instruments—	74963	Knob-Television picture control or horizontal hold con- trol knob-marcon-for mahogany or walnut instru-
75692 19	assembled to rollout (Model 6784) Back—Back cover—maroon—for radio—45 RPM phono	74001	Knob-Television picture control or horizontal hold con-
	compartment for mahogany or walnut instruments— assembled to rollout (Models 6786 and 6787)	75712	trol—tan—tor oak instruments (inner) Knob—Radio tone control, tuning control or volume con-
75699 I	Back—Back cover-marcon for 33 1/3/78 RPM phono compartment for mahogany or walnut instruments—		trol and power switch knob—maroon—for mahogany or walnut instruments
75687 1	assembled to rollout (Model 6786) Back—Back cover—light brown—for 33 1/3/78 phono	75713	Knob—Radio tone control. tuning control or volume con- trol and power switch knob—tan—for oak instruments
13001	compartment for oak instruments—assembled to roll-	75714	Knob—Function switch knob—maroon—for mahogany or walnut instruments
75690 E	out (Model 6784) Back—Back cover—light brown—for radio—45 RPM	11765	Knob—Function switch knob—tan—for oak instruments Lamp—Pilot or channel indicator lamp—Mazda No. 51
	phono compartment for oak instruments—assembled to rollout (Model 6784)	75459	Mask-Channel indicator light mask-burgundy-for
75693 E	Back—Back cover—light brown—for radio—45 RPM phono compartment for oak instruments—assembled to	75460	mahogany or walnut instruments Mask—Channel indicator light mask -gold—for oak
75473 E	rollout (Models 6786 and 6787) Board—Television antenna terminal board (2 contact)	73634	instruments Nuit—Speed nut for speaker mounting screws (4 reg'd)
	Board—F-M antenna terminal board (3 contact) for (Models 6786 and 6787)	75884	Nut—Speed nut for 33 1/3/78 RPM phono mounting screw (Model 6T86)
	Bracket—Radio—45 RPM phono rollout mechanism stop bracket less rubber bumper	75675	Pull-Cabinet door pull (Model 6784) Pull-Cabinet door pull for lower doors (Model 6786)
1	Bracket—33 1/3/78 RPM phono rollout mechanism stop bracket less rubber bumper (Models 6784 and 6786)	75678	Pull-Cabinet door pull for upper doors (Model 6T86)
	Bracket—Pilot lamp bracket Bumper—Rubber bumper for rollout mechanism stop	75679 74451	Pull-Cabinet door.pull for upper doors (Model 6T87) Pull-Cabinet door pull for lower doors (Model 6T87)
74545 0	bracket Cable—Shielded pickup cable complete with pin plug for	71458	Screw-No. 8-32 x 7/16" wing screw for deflection yoke
74296 0	33 1/3/78 RPM changer (Models 6T86 and 6T87) Cable—Shielded pickup cable complete with pin plug for	75883	Screw-No. 10-24 x 21/4" round head machine screw to mount 33 1/3/78 RPM phono (Model 6T86)
72447 0	33 1/3/78 RPM phono (Model 6T84) Cable—Shielded audio cable complete with two (2)	75377	Screw-1/4-28 x 1%" round head machine screw to mount 33 1/3/78 RPM changer (Model 6787)
72437 0	pin plugs Cable—Shielded pickup cable complete with pin plug for	75676	Screw-No. 8-32 x 1/4" trimit head screw for door pull (Model 6T84)
13103 0	45 RPM phono Cap—Pilot lamp cap	74269	Screw-No. 8-32 x 3/4" trimit head screw for door pulls (Model 6T86)
71892 C	Catch—Bullet catch and strike for cabinet door Cloth—Grille cloth for mahogany or walnut instruments	75623	Screw—No. 8-32 x 5/2" trimit head screw for door pulls for upper doors (Model 6787)
	(Model 6T84) Cloth—Grille cloth for oak instruments (Model 6T84	74113	Screw—No. 8-32 x 1" trimit head screw for door pulls for lower doors (Model 6T87)
1	and 6T87) Cloth—Grille cloth for mahogany or walnut instruments	75704	Shell-Shell for connector RCA 75703
	(Models 6786 and 6787) Connector—2 contact male connector for motor leads for	75711	Shell—Shell for connector RCA 75709 Shell—Shell for connector RCA 75710
	45 RPM phono Connector—5 contact male connector for television power	74736	Slide—Slide mechanism only for 33 1/3/78 phono com- partment drawer (Model 6787)
	cord assembly less shell Connector—2 contact (polarised) male connector for radio	75546	Slide—Slide mechanism assembly for 33 1/3/78 RPM phono mounting frame (Models 6784 and 6786)
1	antenna loop cable Connector—2 contact male connector for F-M antenna	31364 72845	Socket—Pilot lamp socket Spring—Retaining spring for knobs 73995 and 74959
	cable Connector2 contact female connector for main cable	14270	Spring—Retaining spring for knobs 73996, 73997, 73989, 74003, 74962 and 74969
	Connector—Single contact male connector for speaker (on main cable) (2 reg'd)	30330	Spring—Retaining spring for knobs 74001 and 74963
75709 C	Connector—8 contact female connector for main cable less shell (P6 (RC1090) P4 (RC1092)	74734	Spring-Retaining spring for knobs 75712, 75713, 75714 and 75715
75710 C	less shell (P8 (RC1090) J6 (RC1092)	73643 74966	Spring—Spring clip for channel marker escutcheons Spring—Formed spring for kinescope masking panel
39153 C	Connector—4 contact male connector for television	75691 72936	Spring—Suspension spring (coil type) for main cable Stop—Cabinet door stop
75702 C	antenna cable Cord—Television power cord complete with two (2) contact	75457	Washer-Felt washer-dark brown-between knob and channel marker escutcheon for mahogany or walnut
70392	female connector less 5 contact male connector Cord—Power cord and plug—part of main cable	75523	instruments Washer—Felt washer—tan—between knob and channel
75608 C	Cushion—Dust seal cushion (rubber) for kinescope mask Decal—Trade mark decal (Victrola)	75500	marker escutcheon for oak instruments
71984 E	Decal—Trade mark decal (RCA Victor)		Washer—Felt washer for television compartment back cover
75640 D	Decal—Television controls function decal for mahogany or walnut instruments	75146	Washer—''C'' washer for 33 1/3/78 RPM phone (Model 6T87)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



"York" Mabogany, Walnut or Oak



TELEVISION RECEIVERS MODELS 9T57, 9T77, 9T79

Chassis Nos. KCS49, KCS49T, KCS49A or KCS49AT

-Mfr. No. 274-

SERVICE DATA

- 1950 No. T16-

PREPARED BY RCA SERVICE CO., INC. FOR

RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 9T57, 9T77 and 9T79 receivers are deluxe "19 inch" television receivers. The receivers are identical except for cabinets, jewel lights and speakers.

Features of the television unit are: full twelve channel coverage; FM sound system; improved picture brilliance; picture A-G-C; A-F-C horizontal hold; stabilized vertical hold; two stages of video amplification; noise saturation circuits; improved sync separator and clipper; four mc. band width for picture channel and reduced hazard high voltage supply. An auxiliary audio input jack is provided to permit the use of an external record playing attachment.





Model 9T77 "Hillsdale" Walnut, Mahogany or Oak

Model 9T79 "Northampton" Walnut, Mabogany or Oak

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE204 square inches on a 19AP4A Kinescope TELEVISION R.F. FREQUENCY RANGE

TELEVISION N.F. FREQUENCI RANGE	
All 12 television channels, 54 mc. to 88 mc., 174 mc. to	
Fine Tuning Range ± 250 kc. on chan. 2, ± 650 kc. on c	
Picture Carrier Frequency	
Sound Carrier Frequency21	1.00 mc.
VIDEO RESPONSE	o 4 mc.
SWEEP DEFLECTION	Magnetic
FOCUS	Magnetic
POWER SUPPLY RATING115 volts, 60 cycles, 20	05 watts
AUDIO POWER OUTPUT RATING	tts max.
CHASSIS DESIGNATIONS	
KCS49 or KCS49T In Mod	del 9T57
KCS49A or KCS49AT In Models 9T77 at	
RCDIAR OF RCDIART	nd 9179
LOUDSPEAKERS	nd 9179
LOUDSPEAKERS	3.2 ohms
LOUDSPEAKERS KCS49(92580-4) 8" PM Dynamic, 3	3.2 ohms 3.2 ohms
LOUDSPEAKERS KCS49	3.2 ohms 3.2 ohms Depth
LOUDSPEAKERS KCS49	3.2 ohms 3.2 ohms Depth 25
LOUDSPEAKERS KCS49	 3.2 ohms 3.2 ohms Depth 25 26¹/₄
LOUDSPEAKERS KCS49	3.2 ohms 3.2 ohms Depth 25 26 ¹ / ₄ 26 ¹ / ₄
LOUDSPEAKERS KCS49	 3.2 ohms 3.2 ohms Depth 25 26¹/₄
LOUDSPEAKERS KCS49	3.2 ohms 3.2 ohms Depth 25 26 ¹ / ₄ 26 ¹ / ₄ Shipping Weight
LOUDSPEAKERS KCS49	3.2 ohms 3.2 ohms Depth 25 26 ¹ / ₄ 26 ¹ / ₄ Shipping Weight 154

RECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

RCA TUBE COMPLEMENT

Tube Used Function	
(1) RCA 6CB6 R-F Ampl	ifier
(2) RCA 6J6 R-F Oscillator and M	ixer
(3) RCA 6AU6 1st Sound I-F Ampl	ifier
(4) RCA 6AU6 2nd Sound I-F Ampl	ifier
(5) RCA 6AL5 Sound Discrimin	ator
(6) RCA 6AV6 lst Audio Ampl	ifier
(7) RCA 6K6GT Audio Ou	-
(8) RCA 6AU6 1st Picture I-F Ampl	ifier
(9) RCA 6CB62nd Picture I-F Ampl	ifier
(10) RCA 6AU6 3rd Picture I-F Ampl	ifier
(11) RCA 6CB6 4th Picture I-F Ampl	ifier
(12) RCA 6AL5 Picture 2nd Detector and AGC Dete	ctor
(13) RCA 12AU7 1st and 2nd Video Ampl	ifier
(14) RCA 12AU7 DC Restorer and Sync Separ	ator
(15) RCA 6J5 Vertical Sweep Oscill	ator
or RCA 6SN7GT Sync Separator and Vertical Sweep Oscill	ator
(16) RCA 6K6GT Vertical Sweep Ou	tput
(17) RCA 6SN7GT Horizontal Sweep Oscillator and Con	ntrol
(18) RCA 6BG6G Horizontal Sweep Ou	tput
(19) RCA 6W4GT	aper
(20) RCA 1B3-GT/8016 High Voltage Rec	ifier
(21) RCA 19AP4A Kineso	
(22) RCA 5U4G Rec	ifier

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9T57, 9T77, 9T79

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

PICTURE INTERMEDIATE FREQUENCIES

Picture Carrier Frequency	25.50	Mc.
Adjacent Channel Sound Trap	27.00	Mc.
Accompanying Sound Traps	21.00	Mc.
Adjacent Channel Picture Carrier Trap	19.50	Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound	Carrier	Freq	uency	•••••			21	.00 1	Mc.
Sound	Discrimi	nator	Band	Width	between	peaks		400	kc

The following adjustments are necessary when turning the receiver on for the first time:

1. See that the TV-PH switch on the rear apron is in the $^{\prime\prime}\mathrm{TV}^{\prime\prime}$ position.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

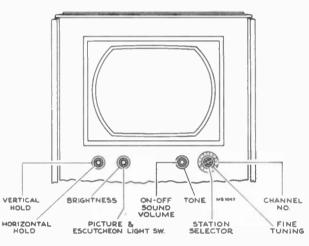
4. Adjust the FINE TUNING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and ^{VI} BRIGHTNESS controls for suitable picture contrast and brightness. He



OPERATING INSTRUCTIONS

Figure 1-Receiver Operating Controls

VIDEO RESPONSE
FOCUS Magnetic
SWEEP DEFLECTION Magnetic
SCANNING Interlaced, 525 line
HORIZONTAL SWEEP FREQUENCY 15,750 cps
VERTICAL SWEEP FREQUENCY 60 cps
FRAME FREQUENCY (Picture Repetition Rate)

9. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

10. In switching from one channel to another, it may be necessary to repeat steps 4 and 8.

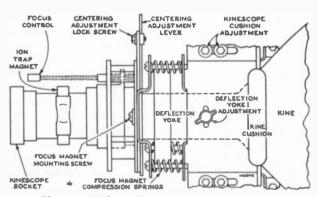
11. When the set is turned on again after an idle period it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

12. If the positions of the controls have been changed, it may be necessary to repeat steps 2 through 8.

13. To use a record player, plug the record player output cable into the PHONO jack on the rear apron, and set the TV-PH switch to "PH."

14. On console type receivers, to turn on station escutcheon light, pull out on picture control knob, and push in to turn off.

THE CHASSIS USED IN MODELS 9T57. 9T77 AND 9179 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS 6T53. 6T64. 6T71. ETC. REFER TO PAGES 368 TO 385 FOR INSTALLATION INSTRUCTIONS, ALIGNMENT DATA AND WAVE FORM PHOTOGRAPHS.





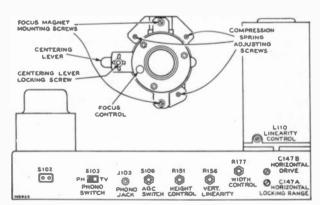


Figure 3-Rear Chassis Adjustments

CHASSIS TOP VIEW

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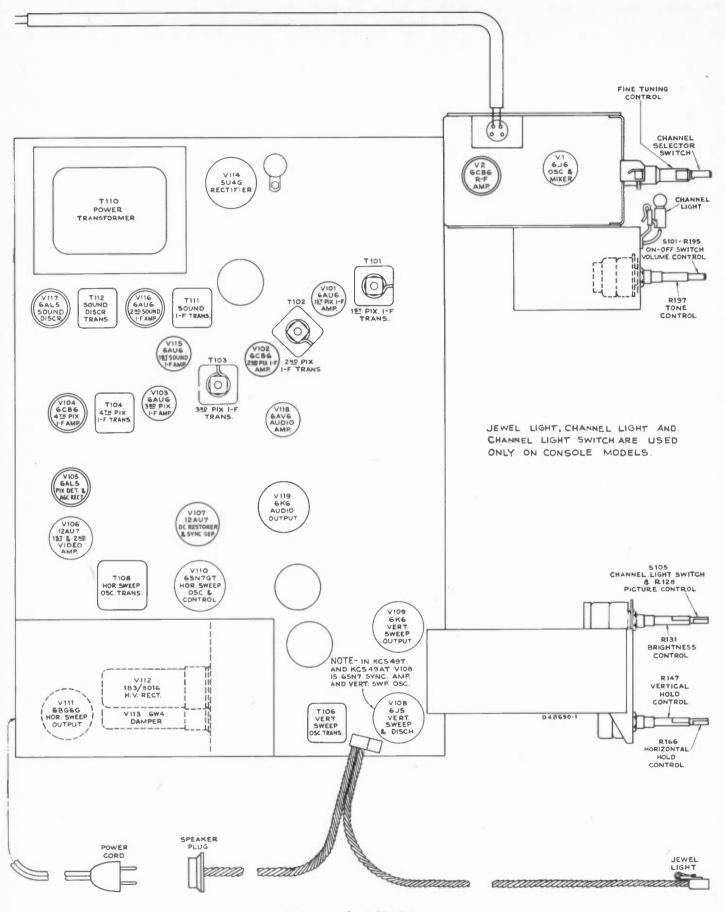


Figure 4-Chassis Top View

9T57, 9T77, 9T79

VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition, a 2500 microvolt test pattern signal was fed into the receiver, the picture synced and the AGC control properly adjusted. The second condition was obtained by removing the antenna leads and short circuiting the receiver antenna terminals. Voltages shown are read with a type WV79Å senior "VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles, a-c. The symbol < means less than.

Tuba	The base											E. 1	Plate	E. 5	Screen	E. C	athode	E	. Grid			
Tube No.	Tube Type		Operating Condition	Pin No.	Volta	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	I Plate (ma.)	I Screen (ma.)	Notes on Measurements								
V1	6]6	Mixer	2500 Mu. V. Signal	2	144		_	7	0	5	-2.3	6.6										
			No Signal	2	135		_	7	0	5	-2.1	5.6										
		R-F	2500 Mu. V.					<u> </u>				3.0										
V1	6]6	Oscillator	Signal No	1	100			7	0	6	•_3.0	4.0		*Depending upon channel								
V2	6AG5	R-F Amplifier	Signal 2500 Mu. V. Signal	1	96 250	6	130	7	0	6	-2.7	3.9	0.6									
			No								<u> </u>		0.6									
		lst Pix. I-F	Signal 2500 Mu. V.	5	166	6	84	2	0.4	1		10.3	2.3									
V101	6AU6	Amplifier	Signal No	5	195	6	222	7	0.3	1	-5.0	1.7	0.8									
	<u> </u>		Signal	5	121	6	135	7	0.8	1	-0.8	5.2	. 2.2									
V102	6CB6	2nd Pix. I-F Amplifier	2500 Mu. V. Signal	5	222	6	203	2	0.3	1	-5.0	2.0	0.7									
			No Signal	5	124	6	112	2	0.8	1	-0.8	5.5	1.6									
V103	6AU6	3d Pix. I-F Amplifier	2500 Mu. V. Signal	5	185	6	225	7	0.2	1	-5.0	1.7	0.7									
			No Signal	5	94	6	132	7	0.5	1	-0.75	4.9	2.0									
V104	6CB6	4th Pix. I-F Amplifier	2500 Mu. V. Signal	5	165	6	142	2	2.25	1	0	9.6	3.1									
			No Signal	5	118	6	132	2	2.1	1	0	9.0										
V105	6AL5	Picture 2d Det.	2500 Mu. V. Signal	7	-2.0			1	0	1		0.3	3.1									
			No Signal	7	-0.5			1	0		h	<0.1										
V 105	6AL5	AGC Rectifier	2500 Mu. V. Signal	2	-9.5			5	0			<0.1	_									
			No Signal	2	-2.0			5	0													
V106	12AU7	lst Video Amplifier	2500 Mu. V. Signal	1	100			3	1.2	2	-2.3	<0.1 3.6										
			No Signal	1	54									At maximum contrast								
			2500 Mu. V.					3	0.9	2	-0.5	2.6										
			Signal No Signal	1	190		. —	3	9.0	2	-2.6	0.9		At minimum contrast								
		2d Video	2500 Mu. V.	1	122			3	6.9	2	-0.5	0.6	here-m									
V106	12AU7	Amplifier	Signal No	6	330			8	125	7	118	9.3	(per cut)	At maximum contrast								
			Signal 2500 Mu. V.	6	295	-		8	121	7	110	13.6										
			Signal No	6	300			8	131	7	120	12.9		At minimum contrast								
V107	12AU7	D-C Rest.	Signal 2500 Mu. V.	6	295			8	121	7	110	13.6										
A	KCS49	& Sync Sep.	Signal No	1	5.0			3	45.5	2	-4.7	<0.1		At maximum contrast								
\$71.07	KCS49	Cours - C	Signal	1	5.5			3	8.5	2	-0.7	<0.1		contrast								
V107 B	12AU7 KCS49	Sync Sep. & Amplifier	2500 Mu. V. Signal	6	36			8	6.0	7	4.7	4.0										
	KCS49		No Signal	6	36			8	6.0	7	5.5	2.8										

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VOLTAGE CHART

9T57, 9T77, 9T79

				E.	Plate	E. 5	Screen	E.C	athode	E	. Grid	I	I	
Tube No.	Tube Type	Function	Operating Condition	Pin No.	Volts	Pin No.	Volta	Pin No.	Volta	Pin No.	Volta	Plate (ma.)	Screen (ma.)	Notes on
V107	12AU7 KCS49T	DC Rest Sync Sep.	2500 Mu. V Signal	1	10	+	-	3	45	2	-4.5	- (md.)	(ma.)	At maximum
	KCS49T		No Signal	1	8	_		3	1.7	2	-0.4			contrast
	KCS49T		2500 Mu. V Signal	6	7.2	_	_	- 8	54	7	0			
	KCS49T		No Signal	6	7.0	_		- 8		7	0			
V108A	6SN7 GT	Sync Amplifier	2500 Mu. V. Signal	5	50	-		- 6	7.8	4	7.4			
	KCS49T		No Signal	5	46	_		- 6	7.0	4	7.0	<u> </u>		
V108	6SN7 or 6J5	Vertical Oscillator	2500 Mu. V. Signal	2 or 3	*395	-	_	3 or 8	0	1 or 5	•-58	0.4		*Depends on
			No Signal	2 or 3	*395		_	3 or 8	0	1 or 5	•-58	0.4		Setting of height control
V109	6K6GT	Vertical Output	250 Mu. V. Signal	3	370	4	370	8	51	5	0	11.5	1.9	
			No Signal	3	365	4	365		51	5	0	11.4	1.9	
V110	6SN7 GT	Horizontal Osc. Control	2500 Mu. V. Signal	2	*160			3	•_4.6	1	•-14.6		1.5	*Depends on
			No Signal	2	•152	-		3	•-4.4	1	•- 3.5		<u> </u>	Setting of hold control
V110	6SN7 GT	Horizontal Oscillator	2500 Mu. V. Signal	5	230	<u> </u>		6	0	4	-82	1.8		
			No Signal	5	225	_		6	0	4	-85	1.8		
V111	6BG6G	Horizontal Output	2500 Mu. V. Signal	5	•630	8	335	3	7.2	5	-33	67	5.0	
			No Signal	5	•630	8	329	3	7.2	5	33	67.1	4.9	*6000 volt pulse present
V112	1B3GT /8016	H. V. Rectifier	Brightness Min.	Сар		_		2 & 7	*14500			0	4.3	
			Brightness Maximum	Сар		_		2 & 7	• 12700			0.1		*14500 volt pulse present
/113	6W4 GT	Damper	2500 Mu. V. Signal	5	387			3	*391			69		
			No Signal	5	380	_		3	*387		_	70		*3000 volt pulse present
7114	5U4G	Rectifier	2500 Mu. V. Signal	4 & 6	*368			2 & 8	391			185		'AC measured
			No Sigaal	4 & 6	*367	_		2 & 8	387	_		199		with AC Voltmeter
7115	6AU6	lst Sound I-F Amp.	2500 Mu. V. Signal	5	120	6	120	7	0.8	1	-0.2	6.8	*2.9	
			No Signal	5	108	6	108	7	0.8	1	-0.1	6.2	2.8	
/116	6AU6	2d Sound I-F Amp.	2500 Mu.V. Signal	5	118	6	87	7	0	1	-1.3	4.9	2.8	
			No Signal	5	110	6	76	7	0	1	-0.5	6.9	3.1	
7117	6AL5	Sound Discrim.	2500 Mu. V. Signal	2	-7.2	_		5	0			<0.1		
			No Signal	2	-10.0			5	0		_	<0.1		
7118	6AV6	lst Audio Amplifier	2500 Mu. V. Signal	7	95	_		2	0	1	-0.5	0.5		
			No Signal	7	84	_		2	0	1	-0.4	0.4		
/119	6K6GT	Audio Output	2500 Mu. V. Signal	3	352	4	368	8	131	5	112	28.7	4.3	
			No Signal	3	348	4	360	8	134	5	108	28.8	4.2	
120	19AP4	Kinescope	2500 Mu. V. Signal	Cone	14,000	10	384	11	100	2	46	<0.1	<0.1	
			No Signal	Cone	13,500	10	375	11	74	2	8.3	<0.1	<0.1	

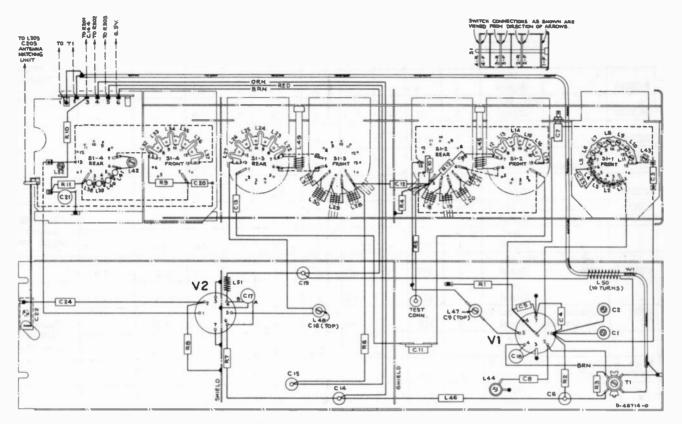
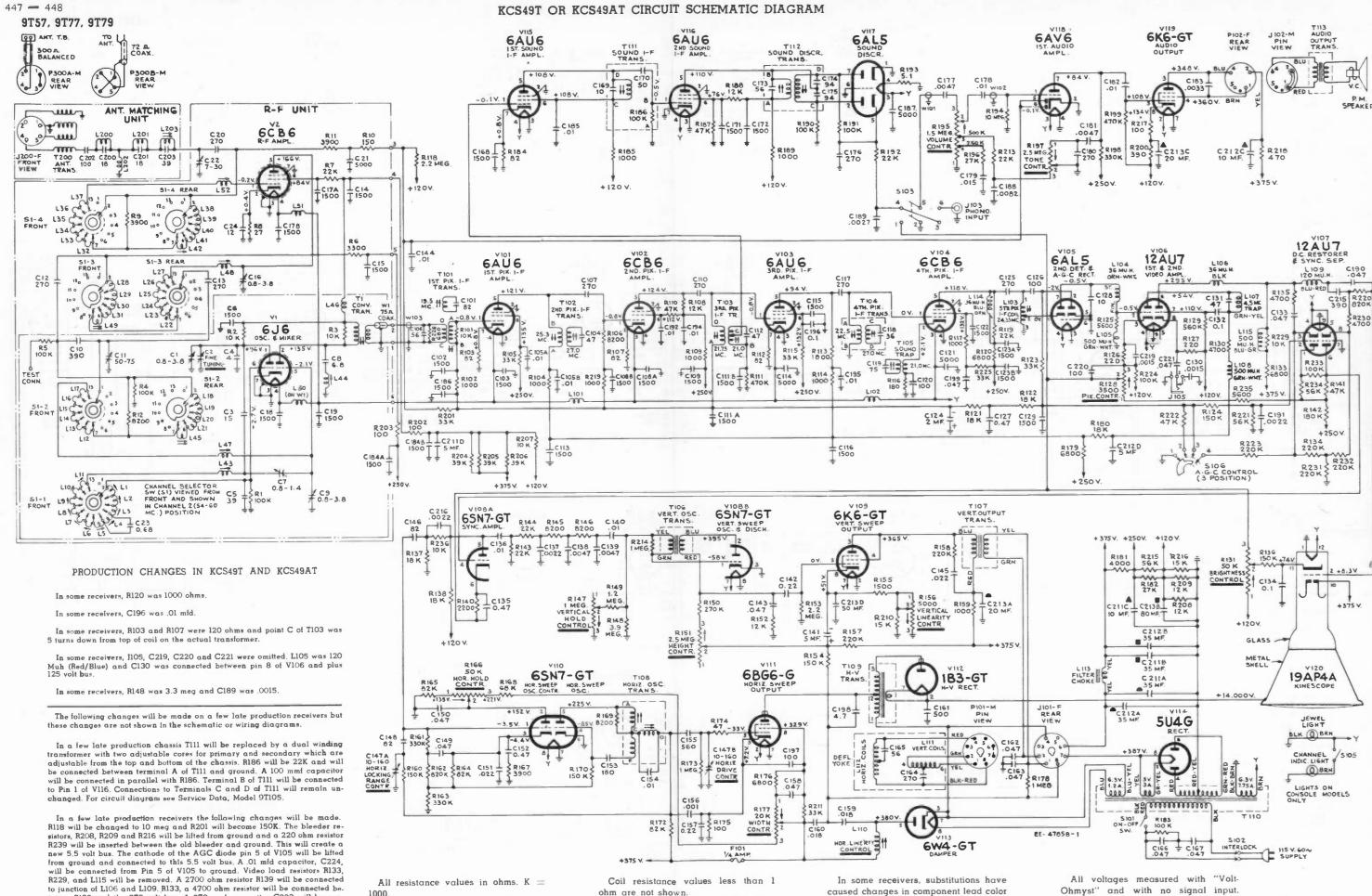


Figure 5-R-F Unit Wiring Diagram

CRITICAL LEAD DRESS:

- All leads in the picture and sound i-f circuits must be dressed as short and direct as possible with the exception of C106, C107, C110 and C117 which are to be dressed with enough slack so as not to have to move the body of the capacitor to align that particular stage.
- Dress all 1500 mmf .005 mfd and .01 mfd capacitors in the i-f section with leads as short as possible.
- 3. Dress all wires between T101 and the r-f unit in clamp.
- 4. Dress C185 to act as shield for lead between pin 5 of V115 socket to T111D and picture i-f circuits.
- Dress the bodies of resistors R106, R108, R113, R119, R191, R192 and capacitor C176 as close to tube pin as possible.
- 6. Dress L114 with coded end as close to pin 2 of U105 socket as possible.
- 7. The length of the bus wire from pin 2 of V116 to ground should not be shortened or rerouted.
- 8. Dress R194 as close to chassis with leads as short as possible.
- 9. Dress C199 with leads as short as possible and away from S106.
- 10. Keep the leads on C126 as short and direct as possible.
- 11. Dress all components connected to V106 socket up and away from the chassis except L104.
- Keep the body and coded end of L104 as close to pin 2 of V105 socket as possible.
- 13. Dress the 4.5 mc trap L107 up and away from the chassis base.
- 14. Dress C132 up in the air and towards V105 socket.
- Dress R125 with body as close as possible to pin 2 of V106 socket.
- Keep body of R123 as close as possible to pin 2 of V105 socket.
- 17. Dress C133 and C190 away from C132, C151 and C153.
- Dress the white wire from picture control R128-3 away from the chassis.

- Dress all slack on kine socket leads under chassis, Dress brown wire away from any components associated with V105 or V106.
- The green lead from the kinescope socket should be dressed away from all other leads and components and away from V106.
- 21. Dress R133 towards chassis rear apron.
- Dress all leads in clamps on rear apron away from V117, V104, V105, V106 sockets and S103.
- 23. Dress green wire from C147A up and away from chassis.
- 24. Dress blue wire of T107 toward front apron of chassis.
- 25. Dress C153 down next to the chassis base.
- Dress blue/white wire from height control R151-3 under R180.
- Dress R161, R162, R163, R164 and R170 up and away from the chassis and with a half inch clearance from the soldering point.
- Dress the yellow wire from pin 3 of V110 socket over C153.
- 29. Dress both leads of C198 away from the body of the capacitor.
- Dress fuse in high voltage compartment so as not to short circuit to ground.
- Dress blue and blue/yellow wire from power transformer in 3 clamps on chassis base and away from S103 and video section.
- 32. Dress both wires on S106 away from blue/yellow damper leads of T110.
- Dress the brown wire from pin 8 of V114 socket away from V118 socket.
- 34. Dress all 2 watt resistors away from each other and away from all wires and other components.



All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted.

ohm are not shown.

Direction of arrows at controls indicates clockwise rotation.

and their lug identification markings.

codes, in electrolytic capacitor values

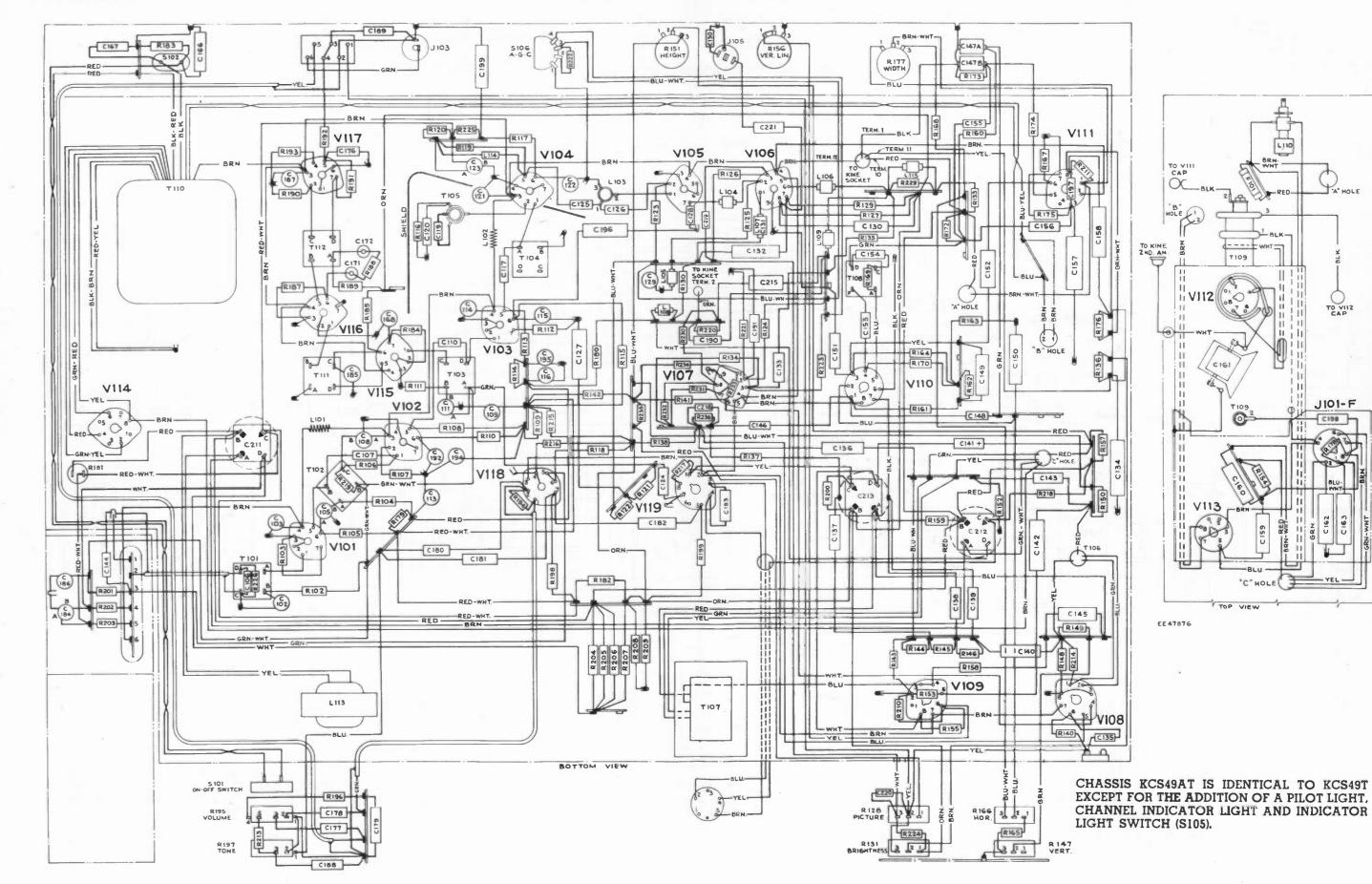
tween R139 and the 375 volt bus. A 270 mmf. capacitor C223 will be con-nected from the junction of R133, R139 and to Pin 8 of V107. C130 will be

changed to .0033 mfd. For circuit diagram, see the Service Data for Model 9T105.



9T57, 9T77, 9T79

KCS49T OR KCS49AT CHASSIS WIRING DIAGRAM

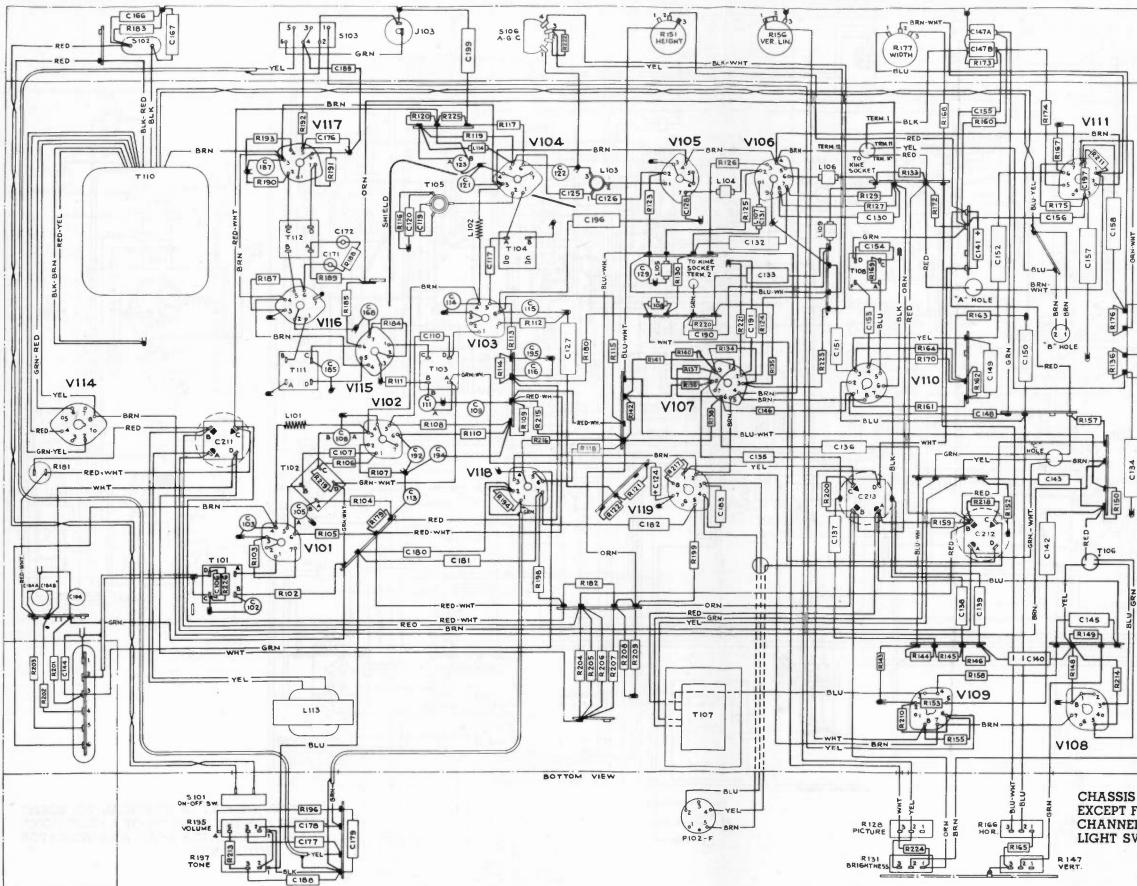


Ohmyst" and with no signal input. Voltages should hold within ±20% with 117 v. a-c supply.

Figure 8-Circuit Schematic Diagram KCS49T or KCS49AT "C"HOLE

TOP VIEW

KCS49 OR KCS49A CHASSIS WIRING DIAGRAM





9T57, 9T77, 9T79

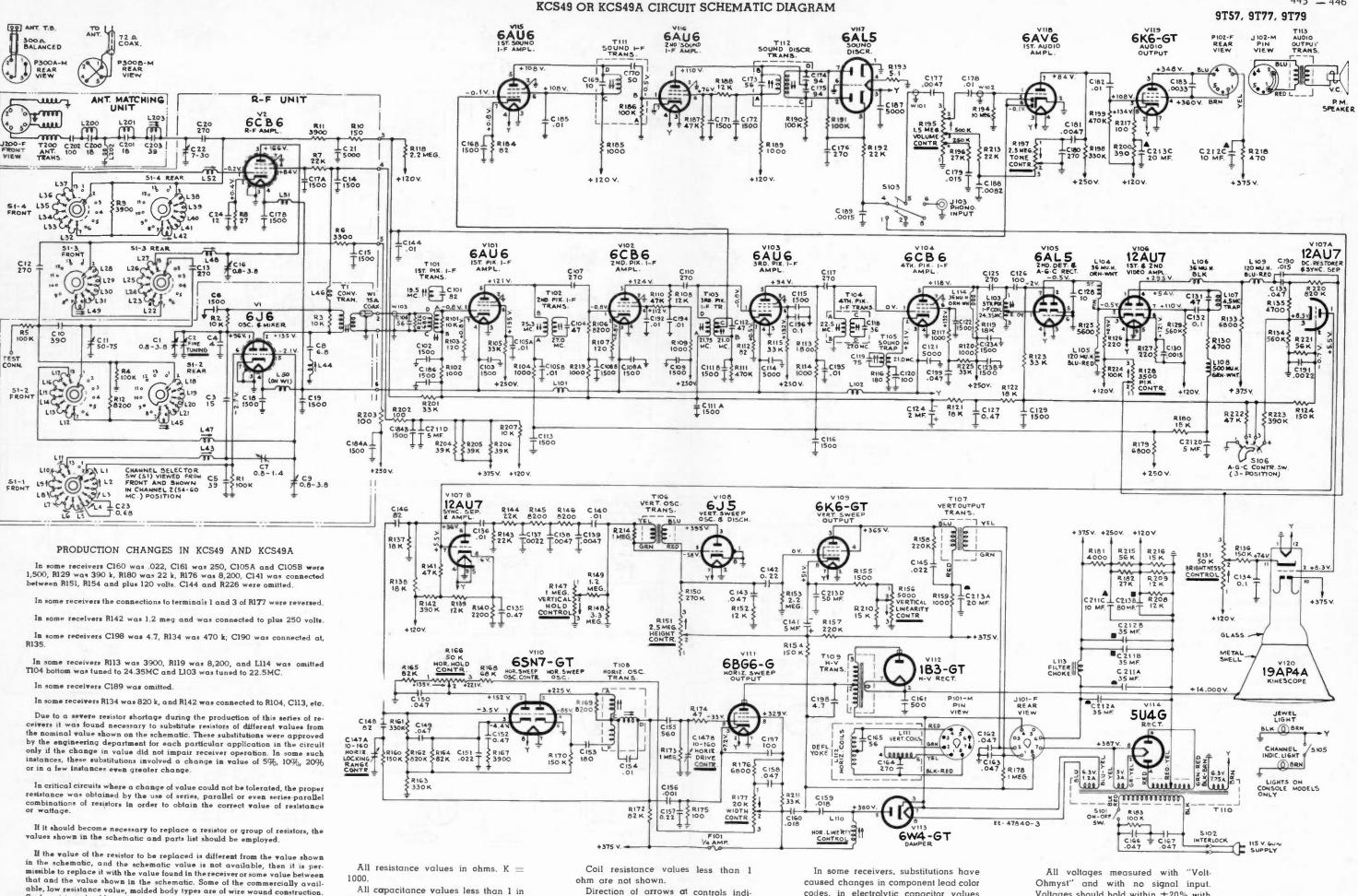
L110 BRN TO VIII -----T109 V112 TO VIIZ C161 .1101-F 0-C198 "C"HOLE

TOP VIEW

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CHASSIS KCS49A IS IDENTICAL TO KCS49 EXCEPT FOR THE ADDITION OF A PILOT LIGHT. CHANNEL INDICATOR LIGHT AND INDICATOR LIGHT SWITCH (S105).

> Figure 6- KCS49 Chassis Wiring Diagram



All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted.

Direction of arrows at controls indicates clockwise rotation.

Such resistors should not be employed in the r-f unit, i-f or video sections as

the inductive effect of these resistors may impair circuit operation.



caused changes in component lead color codes, in electrolytic capacitor values and their lug identification markings.

Ohmyst" and with no signal input. Voltages should hold within $\pm 20\%$ with 117 v. a-c supply.

Figure 7 --- Circuit Schematic Diagram KCS49 or KCS49A

REPLACEMENT PARTS

9T57, 9T77, 9T79

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES	74575	Screw—No. 4-40 x .359" adjusting screw for L42
	KRK 8B	73640	Screw—No. 4-40 x 7/16" adjusting screw for L52
10705	Ball—Steel ball for detent (8/32 dia.)	75159	Shaft—Channel selector shaft and plate
75188	Board—Terminal board, 5 contact and ground	75160	Shaft—Fine tuning shaft and cam
75067	Bracket—Vertical bracket for holding oscillator tube shield	75168	Shield—Oscillator and converter sections shield for Ri unit—snap-on type
75201	Cable-75 ohms, coax cable (71/4") complete with coil (W1, L50)	75193	Shield-Tube shield for V1
75186	Capacitor—Ceramic, variable, for fine tuning—plunger type (C2)	75192	Shield-Tube shield for V2
75289	Capacitor—Ceramic, 4 mmf., ±0.5 mmf. (C4)	75088	Socket—Tube socket, 7 contact, miniature, ceramic saddle mounted
75189	Capacitor—Adjustable, 7-30 mmf. (C22)	75191	Spacer—Insulating spacer for front plate (4 required)
75200	Capacitor—Ceramic, 12 mmf. (C24)	75163	Spring—Friction spring (formed) for fine tuning cam
45465	Capacitor—Ceramic, 15 mmf. (C3)	75068	Spring—Retaining spring for oscillator tube shield
75196	Capacitor—Ceramic, 39 mmf. (C5)	74578	Spring-Retaining spring for adjusting screws
75174	Capacitor-Ceramic, trimmer, 50-75 mmf, (C11)	73457	Spring—Return spring for fine tuning control
75199	Capacitor—Ceramic, 270 mmf. (C12, C13, C20)	30340	Spring—Hairpin spring for fine tuning link
	Capacitor—Ceramic, 390 mmf. (C10)	75175	Stator-Oscillator section stator complete with roto
	Capacitor—Ceramic, 1500 mmf. (C6, C14, C15, C19)		segment, coils, adjusting screws and capacitors C and C23 (S1-1, C3, C23, L ¹ , L2, L3, L4, L5, L6, L7, L4 L9, L10, L11, L43)
75089	Capacitor—Ceramic, dual, 1500 mmf. (C17A, C17B)	75178	Stator—Convertor stator complete with rotor, coils, co
73748	Capacitor—Ceramic, 1500 mmf. (C18)		pacitors (C10 and C12) and resistors (R4 and R5) (81-7 C10, C12, L12, L13, L14, L15, L16, L17, L18, L19, L20
73473	Capacitor—Ceramic, 5000 mmf. (C21)		L21, L45, R4, R5, R12)
75172	Capacitor—Tubular, steatite, adjustable, 0.8—1.4 mmf. (C7)	75179	Stator—R-F amplifier stator complete with rotor, collicapacitor (C13) and resistor (R6) (S1-3, C13, L22, L22, L24, L25, L26, L27, L26, L29, L30, L31, L49, R6)
71504	Capacitor—Ceramic, 0.68 mmf. (C23)	75180	Stator—Antenna stator complete with rotor, coils, capaci
75184	Capacitor—Ceramic, adjustable, 0.75-4 mmf., complete with adjusting stud (C1)		tors (C20 and C21) and resistors (R9, R10, R11) (S1-4 C20, C21, L32, L33, L34, L35, L36, L37, L38, L39, L40 L41, L42, L52, R9, R10, R11)
75197	Capacitor—Ceramic, 6.8 mmf. (C8)	75189	Strip—Coil segment mounting strip—RH center
75167	Clip—Tubular clip for mounting stand-off capacitors (C8)	75170	Strip—Coil segment mounting strip—LH lower
75182	Coil—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw adjustment) for convertor section (C9, L47)	75171	Strip—Coil segment mounting strip—LH upper—less trimmer C7
75183	Coil—Trimmer coil (3 turns) with adjustable inductance	75173	Stud—No. 6-32 x 13/16" adjusting stud for C7 trimmer
10105	core and capacitor stud (screw adjustment) for r-f sec- tion (L48, C16)	75446	Stud—Capacitor stud—brass—No. 4-40 x 13/16" with 3/64 screw driver slot for trimmer coils L47. L48 and capac
75185	Coil—Convertor plate loading coil (L44)		tor Cl uncoded and coded "ER"
75202	Coil-Choke coil .56 muh (L46)	75447	Stud—Capacitor stud—brass—No. 4-40 x 13/16" with 3/64 screw driver slot for trimmer coils L47, L48 and capac
73477	Coil-Choke coil (L51)		tor Cl coded numerically and "Hi Q"
75187	Core—Adjustable core for fine tuning capacitor C2	75181	Transformer—I-F convertor transformer
75162	Detent—Detent mechanism and fibre shaft	75190	Washer—Insulating washer (neoprene) for capacitor C
73453	Form—Coil form for L45 and L49	75607	Washer—Insulating washer (hex)
75165	Link-Link assembly for fine tuning		
14343	Retainer—Fine tuning shaft retaining ring		
	Resistor-Fixed, composition:-		CHASSIS ASSEMBLIES
	27 ohms, ±10%, ½ watt (R8)		KCS 49 OR KCS 49T-MODEL 9T57
	150 ohms, ±20%, ½ watt (R10)		KCS 49A OR KCS 49AT-MODELS 9T77-9T79
	3300 ohms, ±10%, ½ watt (R6)	75515	Bracket—Channel indicator lamp bracket
	3900 ohms, ±10%, ½ watt (R9, R11)	75228	Bracket—Focus magnet mounting bracket—upper
	8200 ohms, ±10%, ½ watt (R12)	75229	Bracket—Focus magnet mounting bracket—lower
	10,000 ohms, ± 5%, ½ watt (R3)	75646	Capacitor—Ceramic, 4.7 mmf., 5000 volts (C198)
	10,000 ohms, ± 20%, ½ watt (R2)	75217	Capacitor—Mica trimmer, dual, 10-160 mmf. (C1477 C147B)
	22,000 ohms, ± 10%, 1/2 watt (R7)	53511	Capacitor-Ceramic, 10 mmf. (C128)
	100,000 chms, ±20%, ½ watt (R1, R4, R8)	75450	Capacitor-Ceramic, 39 mmf, (C203)
75164	Rod-Actuating plunger rod (fibre) for fine tuning link	71924	Capacitor-Ceramic, 56 mmf. (C108)
71478	Screw-No. 4-40 x 1/4" binder head machine screw for	73090	Capacitor-Mica, 82 mmf. (C148, C148)
	adjusting L6, L7, L8, L9, L10, L11	75437	Capacitor-Ceramic, 100 mmf. (C202)
75176 75177	Screw-No. 4-40 x 3/5" fillister head screw for adjusting L5	45469	Capacitor-Ceramic, 100 mmf. (C120)

9T57, 9T77, 9T79

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REPLACEMENT PARTS (Continued)

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STOCK	DESCRIPTION		STOCK No.	DESCRIPTION
73102	Capacitor—Mica, 180 mmf. (C153)		75210	Coil-Fifth piz, i-f coil complete with adjustable core
75244	Capacitor—Ceramic, 270 mmf. (176)		71449	(L103) Coil—Horizontal linearity coil (L110)
39638	Capacitor—Mica, 270 mmf. (C180)		73591	Coil—Antenna matching coil (2 required) (Part of T200)
73091	Capacitor—Mica, 270 mmf. (C107, C110, C117, C125)		75241	Coil—Antenna shunt coil (L202)
73094	Capacitor—Mica, 390 mmf. (C215) (in KCS49T and KCS49AT)		73477	Coil—Choke coil (L101, L102)
74947	Capacitor—Ceramic, 500 mmf., 20,000 volts (C181)		75299	Coil—Peaking coil (36 muh) (L104)
74250	Capacitor—Mica, 560 mmf. (C155)		71793	Coil—Peaking coil (36 muh) (L106)
75166	Capacitor—Ceramic, 1500 mmf. (C171, C172)		76285	Coil—Peaking coil (36 muh) (L114, R119)
73748	Capacitor—Ceramic, 1500 mmf. (C102, C103, C109, C113, C115, C116, C122, C129, C168, C188)		75253	Coil—Peaking coil (120 muh) (L109)
75089	Capacitor—Ceramic, dual, 1500 mmf. (C108A, C108B, C111A, C111B, C123A, C123B, C184A, C184B)		75252 76132	Coil—Peaking coil (500 muh) (L105, L108) Coil—Peaking coil (500 muh) (L115 in KCS49T and KCS49AT)
73473	Capacitor-Ceramic, 5000 mmf. (C114, C121, C187)		74594	Connector—2 contact male connector for power cord
73960	Capacitor—Ceramic, 10,000 mmf. (C144, C185, C192, C194, C195)		38853	Connector-4 contact female connector for antenna trans-
75877	Capacitor—Ceramic, dual, 10,000 mmf. (C105A, C105B)		5040	former (J200)
73747	Capacitor—Electrolytic, 2 mfd., 50 volts (C124)		35383	Connector—4 contact female connector for speaker cable Connector—8 contact male connector—part of deflection
28417	Capacitor—Electrolytic, 5 mfd., 450 volts (C141)			yoke (P101)
75511	Capacitor-Electrolytic, comprising 1 section of 20 mfd., 450 volts, 1 section of 80 mfd., 200 volts, 1 section of 20 mfd., 200 volts and 1 section of 50 mfd., 50 volts (C213A,		68592	Connector—8 contact female connector for deflection yoke leads (J101)
	C213B, C213C, C213D)		75517	Contact—Anode connector assembly contact only
75510	Capacitor—Electrolytic, comprising 2 sections of 35 mfd., 450 volts, 1 section of 10 mfd., 450 volts and 1 section of 5 mfd., 450 volts (C211A, C211B, C211C, C211D, C212A,		75215	Control—Horizontal and vertical hold control (R147, R166) Control—Picture and brightness control for Model 9757
75643	C212B, C212C, C212D) Capacitor—Tubular, moulded paper, oil impregnated.		75514	(R128, R131) Control—Picture control, brightness control and channel
73598	.001 mfd., 1000 volts (C156) Capacitor—Tubular, paper, oil impregnated, .0015 mfd.,		75513	light switch for Models 9777 & 9779, (R128, R131, S105) Control—Tone control, volume control and power switch
73595	600 volts (C130, C219) Capacitor—Tubular, paper, oil impregnated, .0022 mfd.,		71441	(R195, R197, S101) Control-Vertical linearity control (R156)
	600 volts (C137, C191) (C216 in KCS49T and KCS49AT)	Į	71440	Control—Height control (R151)
73599	Capacitor—Tubular, paper, oil impregnated, .0027 mfd., 600 volts (Cl89)		75516	Control-Width control (R177)
73795	Capacitor-Tubular, paper, oil impregnated, .0033 mfd.,	ł	71498	Core—Adjustable core and stud for F-M trap No. 75449
73920	600 volts (C183) Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 600 volts (C138, C139, C177, C181)		74956	Cushion-Rubber cushion for deflection yoke hood (2 required)
73808	Capacitor—Tubular, paper, oil impregnated, .0082 mfd., 1000 volts (C188)		74839	Fastener—Push fastener to mount ceramic tube socket (2 required)
73561	Capacitor—Tubular, paper, oil impregnated, .01 mfd.,		73600	Fuse
73594	400 volts (Cl36, Cl78, Cl82) Capacitor—Tubular, moulded paper, oil impregnated,		16058	Grommet—Rubber grommet for 2nd. anode lead exit
73797	.01 mfd., 600 volts (C140, C154)		37396	Grommet—Rubber grommet to mount ceramic tube socket (2 required)
	Capacitor—Tubular, paper, oil impregnated, .015 mfd., 600 volts (C179)		75445	Hood-Deflection yoke hood less rubber cushions
74727	Capacitor—Tubular, paper, oil impregnated, .018 mfd., 1000 volts (C159, C160)		75644	Insulator—2nd. anode insulator
73562	Capacitor—Tubular, paper, oil impregnated, .022 mfd., 400 volts (C145, C151)		35787 75482	Jack—Phono input jack (J103) Jack—Video jack (J105)
73553	Capacitor—Tubular, paper, oil impregnated, .047 mid., 400 volts (C149, C199, C221)		75504	Magnet—Focus magnet complete with adjustable plate
75071	Capacitor—Tubular, moulded paper, .047 mfd., 400 volts (Cl68, Cl87)		75935	and stud for standard 19AP4A tubes Magnet—Focus magnet complete with adjustable plate and stud for special 19AP4A tubes coded with a dot of
73592	Capacitor—Tubular, paper, oil impregnated, .047 mfd., 600 volts (C133, C150, C190)		70000	green paint
73597	Capacitor—Tubular, moulded paper, oil impregnated, .047 mfd., 1000 volts (C143, C158, C162, C163)		78322 75518	Magnet—Ion trap magnet (P.M.) Plate—Hi-voltage plate—bakelite less transformer, ca-
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts (C132, C196)		72067	pacitor and tube socket Resistor—Wire wound, 5.1 ohms, ½ watt (R193)
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 600 volts (C134)		75512	Resistor—Wire wound, 4000 ohms, 10 watts (R181)
73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd., 400 volts (C157)		1	Resistor—Fized, composition:— 47 ohms, ± 20%, ½ watt (R174) 82 ohms, ± 10%, ½ watt (R103, R107, R112, R184)
74957	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd., b00 volts (Cl42)			100 ohms, ± 10%, ½ watt (R20, R10, R112, R184) 100 ohms, ± 20%, ½ watt (R217)
73787	Capacitor—Tubular, moulded paper, 0.47 mfd., 200 volts (Cl27, Cl35, Cl52)			100 ohms, ±10%. 2 watts (R175) 180 ohms, ±10%, ½ watt (R116)
73154	Choke—Filter choke (L113)			220 ohms, ±10%, ½ watt (R126, R127) 390 ohms, ±10%, 1 watt (R200)
75167	Clip—Tubular clip for mounting stand-off capacitor No. 75166			470 ohms, ± 10%, 1 watt (R218) 680 ohms, ± 10%, ½ watt (R228)

REPLACEMENT PARTS (Continued)

T57, 9**T**77, 9**T**79

STOCK No.	DESCRIPTION	ST
	1000 ohms, ±20%, 1/2 watt (R102, R104, R109, R114,	
	R117, R159, R185, R189, R219)	
	1500 ohms, ±10%, 1 watt (R155)	
	1800 ohms, ± 10%, ½ watt (R113) 2200 ohms, ± 20%, ½ watt (R140)	
	3900 ohms, ±10%, ½ watt (R167)	
	4700 ohms, ± 5%, ½ watt (R130)	7
	4700 ohms, ± 10%, ½ watt (R135) (R230 in KC849T and KC849AT)	7
	5600 ohms, ± 5%, ½ watt (R125)	7
	5600 ohms, ±10%, ½ watt (R235) (in KCS49T and KCS49AT)	7
	6800 chms, ±10%, 1 watt (R120, R176)	3
	6800 ohms, ± 10%, 2 watts (R133, R179)	7
	8200 chms, ± 5%, ½ watt (R106, R169)	7
	8200 ohms, ± 10%, ½ watt (R145, R146) 10,000 ohms, ± 10%, ½ watt (R236) (in KCS49T and	7
	KCS49AT)	3
	10,000 ohms, ±10%, 2 watts (R207)	7
	12,000 ohms, ± 5%, ½ watt (R152)	6
	12,000 ohms, ±10%, ½ watt (R188) (R139 in KCS47 and KCS47A)	7
	12,000 ohms, ±5%, 1 watt (R108)	3
	12,000 ohms, ±10%, 2 watts (R208, R209)	7
	15,000 ohms, ± 10%, ½ watt (R210)	7
	15,000 ohms, ± 10%, 2 watts (R216) 18,000 ohms, ± 10%, ½ watt (R121, R122, R137)	
	18,000 ohms, ±10%, 1 watt (R138, R180)	7
	22,000 ohms, ±10%, ½ watt (R143, R144, R186, R213)	7
	22,000 ohms, ±20%, ½ watt (R192)	3
	27,000 ohms, ±10%, ½ watt (R196)	7
	27,000 ohms, ±10%, 2 watts (R182)	7
	33,000 ohms, ±10%, ½ watt (R105, R115, R201, R211, R225)	7
	33,000 ohms, ±20%, ½ watt (R123)	7
	39,000 ohms, ±10%, 2 watts (R204, R205, R206)	7
	47,000 ohms, ±10%, ½ watt (R141, R187, R222)	2
	47,000 ohms, ±20%, ½ watt (R110)	7
	56,000 ohms, ±10%, ½ watt (R221) (R234 in KCS49T and KCS49AT) 56,000 ohms, ±10%, 1 watt (R215)	7
	68,000 ohms, ±10%, 1 watt (R168)	2
	82,000 ohms, ±5%, 1 watt (R172)	7
	82,000 ohms, ±10%, 1 watt (R164, R165)	1 2
	100,000 ohms, ±5%, ½ watt (R190, R191)	7
	100,000 ohms, ±10%, ½ watt (R224) (R233 in KCS49T and KCS49AT)	
	100,000 ohms, $\pm 20\%$, 2 watts (R183)	7
	150,000 ohms, ± 10%, ½ watt (R136, R154, R160) 150,000 ohms, ± 20%, ½ watt (R124)	7
	150,000 ohms, ±5%, 1 watt (R170)	7
	180,000 ohms, \pm 10%, $\frac{1}{2}$ watt (R142 in KCS49T and KCS49AT)	7
	220,000 ohms, ± 10%, ½ watt (R157, R158) (R134, R223, R231, R232 in KC849T and KC849AT)	7
	270,000 ohms. ± 10%, ½ watt (R150)	7
	330,000 ohms, ±10%, ½ watt (R161, R198)	
	330,000 ohms, ±5%, l watt (R183) 390,000 ohms, ±10%, ½ watt (R142, R223 in KCB49 and KCS49A)	
	470,000 ohms, ±10%, ½ watt (R111)	7
	470,000 ohms, ± 20%, ½ watt (R199)	7
	560,000 ohms, ±10%, ½ watt (R129) (R134 in KCS49 and KCS49A)	
	820,000 ohms, ± 10%, ½ watt (R162, R220)	7

TOCK	DESCRIPTION
	1 megohm, ±10%, ½ watt (R173)
	1 megohm, ± 20%, ½ watt (R178, R214)
	1.2 megohm, ±5%, ½ watt (R149)
	2.2 megohm, ± 10%, ½ watt (R118, R153) 3.9 megohm, ± 5%, ½ watt (R148)
	10 megohm, ±20%, ½ watt (R194)
74802	Screw—No. 10-32 x 1¾" round head machine screw for focus magnet adjustment (3 required)
75236	Screw—No. 8-32 x ½" pan head screw (brass) to mount focus magnet (2 required)
75083	Screw—No. 8-32 x 1/4" wing screw for mounting deflection yoke
73584	Shield—Tube shield
31251	Socket-Tube socket, octal, wafer
73117	Socket—Tube socket, 7 pin, miniature
75223	Socket—Tube socket, 9 pin, miniature
73249	Socket—Tube socket, octal, ceramic, plate mounted
31319	Socket—Tube socket, octal, moulded
71508	Socket-Tube socket for 1B3/8016
68592	Socket—Tube socket, 6 contact, moulded for V113
74834	Socket-Kinescope socket
31364	Socket-Pilot light socket (Models 9777 & 9779)
75718	Socket—Channel indicator light socket (Mod 9T77 & 9T79)
75233	Spring—Compression spring for focus magnet adjust- ment (3 required)
75506	Support—Bakelite support only—part of hi-voltage shield
76010	Switch—AGC switch (5106)
33491	Switch—"TV Phono" switch (S103)
75508	Transformer—Power transformer 115 volts, 60 cycle (T110)
74950	Transformer—Vertical output transformer (T107)
74144	Transformer-Vertical oscillator transformer (T106)
74589	Transformer—First pix, i-f transformer (T101, C101, R101)
74590	Transformer—Second pix, i-ftransformer (T102, C104)
76264	Transformer—Third pix, i-f transformer (T103, C112)
73574	Transformer—Fourth pix, i-f transformer (T104, C118)
75211	Transformer—Sound i-f transformer, single winding type (T111, C169, C170, R186) Transformer—Sound i-f transformer, dual winding type
71424	(T111, C169, C170) Transformer—Sound discriminator transformer (T112,
	Cl73, Cl74, Cl75) Transformer—Horizontal oscillator transformer (T108)
75213	m (
75509	with antenna connector, i-f and F-M traps and shunt coil (T200, C200, C201, C202, C203, J200, L200, L201, L202, L203)
75585	Transformer—Hi-voltage transformer (T109)
71778	Trap—Sound trap (T105, C119)
75251	Trap-4.5 mc trap (L107, C131)
75242	Trap—I-F trap (L200, L201, C200, C201)
75449	Trap—F-M trap complete with adjustable core and stud (L203, C203)
74952	Yoke—Deflection yoke complete with cable and connector (L111, L112, C164, C165, P101)
	SPEAKER ASSEMBLIES 92580-4 (For Model 9757) ·
75023	Cap-Dust cap
75023	Cone-Cone complete with voice coil (3.2 ohms)
5039	Connector—4 contact male connector (J101)
75022	Speaker-8" P.M. speaker complete with cone and voice
	coil less plug and transformer

9T57, 9T77, 9T79

454

REPLACEMENT PARTS (Continued)

8

1 Т

STOCK No.	DESCRIPTION		STOCK	DESCRIPTION
75520	Transformer—Output transformer (T112)		75455	Escutcheon—Channel marker escutcheon—dark—for mahogany or walnut instruments (Models 9777 & 9779)
	NOTE:—If stamping on speaker in instruments does not agree with above speaker number, order replacement parts by referring to model number of instrument, num- ber stamped on speaker and full description of part re-		75456	Escutcheon—Channel marker escutcheon—light—for oak instruments (Models 9777 & 9779)
	quired.	ł	72113	Foot-Rubber foot (Model 9757)
	SPEAKER ASSEMBLIES		75619	Glass—Safety glass
	92569-11W RL 111 A2		37396	Grommet—Rubber grommet for mounting speaker (4 required) (Models 9777 & 9779)
13867	(For Models 9T77, 9T79) Cap—Dust cap		756.1	Hinge—Control panel hinges (1 set) (Model 9757)
74901	Cone—Cone and voice coil assembly (3.2 ohms)	[74308	Hin 3e—Cabinet door hinge (1 set) (Models 9777 & 9779)
5039 74974	Connector-4 contact male connector for speaker (J102)		74959	Knob-Fine tuning knob-marcon-for mahogany or
75520	Speaker—12" P.M. speaker complete with cone and voice coil less output transformer and connector Transformer—Output transformer (T113)		75461	walnut instruments (outer) Knob—Fine tuning knob—beige—for oak instruments
	NOTE:-If stamping on speaker in instruments does			(outer)
	not agree with above speaker number, order replacement parts by referring to model number of instrument, num- ber stamped on speaker and full description of part re-		74960	Knob—Channel selector knob—maroon—for mahogany or walnut instruments (inner)
	guired. SPEAKER ASSEMBLIES		75462	Knob—Channel selector knob—beige—fo'r oak instru- ments (inner)
	92569-11B (For Models 9777, 9779)		74962	Knob—Tone control, brightness control or vertical hold control knob—marcon—for mahogany or walnut in- struments (outer)
75875	Cone—Cone and voice coil assembly (3.2 ohms)		75463	Knob—Tone control, brightness control or vertical hold control knob—beige—for oak instruments (outer)
	SPEAKER ASSEMBLIES 92569-11 K RMA-252		74963	Knob—Picture control, horisontal hold control or volume control and power switch knob—maroon—for mahog- any or walnut instruments (inner)
75642	(For Models 9777, 9779) Cone—Cone and voice coil assembly (3.2 ohms)		75464	Knob—Picture control, horizontal hold control or volume control and power switch knob—beige—for oak instru-
76008	MODEL 9CBI STAND (Used with 9T57 Instrument) Caster—Caster and socket assembly		11765	ments (inner) Lamp-Pilot or channel indicator lamp-Mazda 51
76097	Catch—Door catch and strike (1 set)		77.400	(Models 9777 & 9779)
76096	Hinge—Door hinge (1 set) Pull—Door pull		75459	Mask—Channel indicator light mask—burgundy—for mahogany or walnut instruments (Models 9777 & 9779)
74113	Screw-No. 8-32 x 1" trimit head screw for door pull		75460	Mask—Channel indicator light mask—gold—for oak instruments (Models 9777 & 9779)
75586	MISCELLANEOUS Back-Cabinet back complete with power cord and ter-		73634	Nut-Speed nut for speaker mounting screws (4 required) (Models 9777 & 9779)
75589	minal board (Model 9757) Back—Cabinet back complete with power cord and ter- minal board (Models 9777 & 9779)		75622	Pull-Door pull (Model 9T77)
75473	Board—''Ant'' terminal board		75624	Pull—Door pull for lower doors (Model 9T79)
75465	Bracket—Mounting brackets for deflection yoke and focus magnet support assembly (Models 9T57 & 9T77)		75625	Pull—Door pull for upper doors (Model 9T79)
75524	Bracket—Mounting bracket for deflection yoke and focus magnet support assembly (Model 9779)		71456	Screw—No. 8-32 x 7/16" wing screw for deflection yoke and focus magnet mounting support
71599 13103	Bracket—Pilot lamp bracket (Models 9T77 & 9T79) Cap—Pilot lamp cap (Models 9T77 & 9T79)		71623	Screw-No. 8-32 x 5%" trimit head screw for door pull (Model 9T77)
71892 X1917	Catch—Bullet catch and strike for doors (Models 9777 & 9779) Cloth—Grille cloth for mahogany or walnut instruments		74113	Screw—No. 8-32 x 1" trimit head screw for door pull on lower doors (Model 9779)
X 1918	(Model 9T57) Cloth—Grille cloth for oak instruments (Model 9T57)		75626	Screw—No. 8-32 x 1¼" trimit head screw for door pull on upper doors (Model 9779)
X3093	Cloth—Grille cloth for oak instruments (Models 9T77 & 9T79)		73643	Spring—Spring clip for channel marker escutcheons
X3144 39153	Cloth—Grille cloth for mahogany or walnut instruments (Models 9777 & 9779) Connector—4 contact male connector for antenna cable		75587	Spring—Formed spring for mounting Kinescope masking panel
75474	Connector-Single contact male connector for antenna cable cable (2 required)		72845	Spring—Retaining spring for knobs 74959 & 75461
71457	Cord—Power cord and plug		14270	Spring—Retaining spring for knobs 74960, 74962, 75462 & 75463
75608	Cushion—Dust seal cushion—rubber Decal—''RCA Victor'' decal (Models 9T57 & 9T77)		30330	
75618	Decal-Control function decal (Model 9757)			Spring—Retaining spring for knobs 74963 & 7546
75440	Decal—Control function decal for mahogany or walnut instruments (Models 9777 & 9779)		72936	Stop—Cabinet door stop (Models 9T77 & 9T79)
75441	Decal-Control function decal for oak instruments (Model		75500	Washer-Felt washer for cabinet back screws
74809	9T77) Emblem—''RCA Victor'' emblem		75457	Washer—Felt washer—dark brown—between knob and channel marker escutcheon for mahogany or walnut
75499	Escutcheon-Channel marker escutcheon-dark-for			instruments (Models 9T77 & 9T79)
75501	mahogany or walnut instruments (Model 9757) Escutcheon—Channel marker escutcheon—light—for oak instruments (Model 9757)		75458	Washer—Felt washer—beige—between knob and channel marker escutcheon for oak instruments (Models 9T77 & 9T79)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS



Model 9T89 "Sedgwick" Walnut, Mahogany or Oak



TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION MODEL 9T89

Chassis Nos. KCS60 or KCS60T and RC1092 Record Changers RP168 or RP190 and 960284

— Mfr. No. 274 —

SERVICE DATA

- 1950 No. T17-

PREPARED BY RCA SERVICE CO., INC.

FOR RADIO CORPORATION OF AMERICA RCA VICTOR DIVISION CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 9789 is a deluxe television—AM-FM radio phonograph combination. The receiver employs 26 tubes plus 3 rectifiers and a 19 inch kinescope. Two record changers are provided to play 45 and 78/331/3 RPM records.

The receiver is provided with cabinet antennas for AM, FM and TV where local conditions permit their use.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

TELEVISION R-F FREQUENCY RANGE

All 12 television channels	s, 54 mc. to 88 mc., 174 mc. to 216 m
Fine Tuning Range±250	0 kc. on chan. 2, \pm 650 kc. on chan. 1
Picture Carrier Frequency	7
Sound Carrier Frequency	

RADIO TUNING RANGE

Broadcast	 KC.
Frequency Modulation	 mc.
Intermediate Frequency-AM	 kc.
Intermediate Frequency-FM	 mc.

POWER SUPPLY RATING115 volts, 60 cycles, 315 watts

CHASSIS DESIGNATIONS

Television Chassis
Radio Chassis
78/3313 RPM Record Changer
45 RPM Record Changer
Refer to Service Data 960284 or RP168 or RP190 for information on the record changers.
LOUDSPEAKER-92569-12

Voice Coil Impedance	.3.2 ohn	ns at 400	cycles
WEIGHT Chassis with Tubes in Cabinet Shipping Weight			
DIMENSIONS (inches) Cabinet (outside)		Height	Depth 27 1/4
TV Chassis (Overall)			

RECEIVER ANTENNA INPUT IMPEDANCE

Choice: 300 ohms balanced or 72 ohms unbalanced.

RCA TUBE COMPLEMENT

	Tube Used	Television	Chassis	Function
(1) RCA	6CB6			R-F Amplifier
(2) RCA	616		R-F Osci	llator and Mixer
(3) RCA	6AU6		1st Sou	and I-F Ampliner
(4) RCĀ	6AU6		2nd Sou	and I-F Amplifier
(5) RCA	6AL5		Sou	nd Discriminator
(6) RCA	6AV6 (KCS60T)			Bias Clamp
(7) RCA	6AU6		Ist Pict	ure I-F Amplifier
(8) RCA	6CB6		2nd Pict	ure I-F Amplifier
(9) RCA	6AU6		3rd Pict	ure I-F Amplifier
(10) RCA	6CB6		4th Pict	ire I-F Amplifier
(11) RCA	6AL5 P	Picture 2nd	Detector ar	nd AGC Detector
(12) RCĀ	12AU7		st and 2nd	Video Amplifier
(13) RCĀ	12AU7	DC R	estorer and	Sync Separator
(14) RCA	6SN7 (KCS60)	Vert	. Sweep Os	ic. & Bias Clamp
or R	CA 6SN7GT	Sy:	nc. Amp. s	Vert. Swp. Osc.
(15) RCĀ	6K6GT		Vertico	I Sweep Output
(16) RCA	6SN7GT Ho	orizontal Sv	veep Oscill	ator and Control
(17) RCĀ	6BG6G		. Horizonto	I Sweep Output
(18) RCĀ	6W4GT			Damper
(19) RCA	1B3-GT/8016			Voltage Rectifier
(20) RCA	19AP4A			Kinescope
(21) RCA	5U4G			Rectifier

(RC1092 Radio Chassis)

(1)	RCA	6CB6 R-F Amplifier
(2)	RCA	6J6 Oscillator and Mixed
		6BA6 I-F Amplifier
(4)	RCA	6AV6 Drive
(5)	RCA	6AL5 Ratio Detector
		6AV6 AM Det., AVC and Audio Amplifier
(7)	RCA	6C4 Phase Inverter
(8)	RCA	6V6GT (2 tubes) Audio Outpu
(9)	RCA	5Y3GT Rectifie

Specifications continued on page 2

VODCOT

ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE INTERMEDIATE FREQUENCIES

Picture Carrier Frequency	25.50	Mc.
Adjacent Channel Sound Trap	27.00	Mc.
Accompanying Sound Traps	21.00	Mc.
Adjacent Channel Picture Carrier Traps	19.50	Mc.

SOUND INTERMEDIATE FREQUENCIES

Sound Carrier Frequency		21.00 Mc.
Sound Discriminator Band	Width between peaks	400 kc.

VIDEO RESPONSE
FOCUS
SWEEP DEFLECTION
SCANNING Interlaced, 525 line
HORIZONTAL SWEEP FREQUENCY 15,750 cps
VERTICAL SWEEP FREQUENCY
FRAME FREQUENCY (Picture Repetition Rate)

OPERATING INSTRUCTIONS

The following adjustments are necessary when turning the receiver on for the first time:

1. Turn the radio FUNCTION switch to TV.

2. Turn the receiver "ON" and advance the SOUND VOL-UME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUN-ING control for best sound fidelity and the SOUND VOLUME control for suitable volume.

5. Turn the BRIGHTNESS control fully counter-clockwise, then clockwise until a light pattern appears on the screen.

6. Adjust the VERTICAL hold control until the pattern stops vertical movement.

7. Adjust the HORIZON-TAL hold control until a picture is obtained and centered.

8. Adjust the PICTURE and BRIGHTNESS controls for suitable picture contrast and brightness.

9. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

10. In switching from one channel to another, it may be necessary to repeat steps 4 and 8.

11. When the set is turned on again after an idle period it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment

is necessary, step No. 4 is generally sufficient.

12. If the positions of the controls have been changed, it may be necessary to repeat steps 1 through 8.

RADIO OPERATION

1. Turn the radio FUNC-TION switch to AM.

2. Tune in the desired station with the TUNING control.

PHONOGRAPH OPERATION

1. Turn the radio FUNC-TION/switch to 78-33 for operation of the 78/331/3 RPM changer or to 45 for operation of the 45 RPM changer.

2. Place a record on the appropriate changer and slip the changer power switch to "ON."

THE TELEVISION CHASSIS USED IN MODEL 9789 IS VERY SIMILAR TO THE CHASSIS USED IN MODELS 6T53, 6T64, 6T71, ETC. REFER TO PAGES 372 TO 385 FOR TELEVISION ALIGNMENT DATA AND WAVEFORM PHOTOGRAPHS.

THE RADIO CHASSIS USED IN MODEL 9789 IS IDENTICAL TO THE RADIO CHASSIS (RC-1092) USED IN MODELS 6T86 AND 6T87. REFER TO PAGES 418, 419, 420, 421 AND 422 FOR SERVICE INFORMA-TION ON CHASSIS NO. RC-1092.

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, IN-VOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRE-CAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT SHIELD REMOVED.

9T89

SOUND VOLUME RADIO BASS TONE h. 0 O C 0 FUNCTION TON SWITCH 0 6 п VERTICAL BRIGHTNESS STATION RECORD CHANGER HOLD SELECTOR CONTROL SWITCH HORIZONTAL PICTURE MS 1049 ESCUTCHEON FINE LIGHT SW TUNING

Figure 1-Receiver Operating Controls

Connect the antenna transmission line to the receiver antenna terminals. Plug a power cord into the 115-volt a-c power source and into the receiver interlock receptacle. Turn the receiver power switch to the "on" position, the brightness control fully clockwise, and the picture control counter-clockwise.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Turn the focus control (shown in Figure 2) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches of this adjustment should be made with the brightness control at the maximum clockwise position with which good line focus can be maintained.

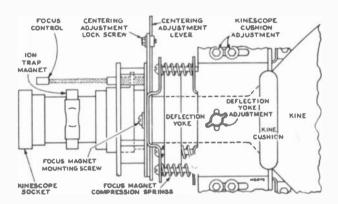


Figure 2—Yoke and Focus Magnet Adjustments

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

 PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments.

If the Horizontal Oscillator and AGC System are operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn S106 on the rear apron (see Figure 3) counter-clockwise until the set operates normally and the picture can be synced.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.— Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 2 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull-in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Magnet Adjustment."

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments. Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T108 horizontal frequency adjustment on top of the chassis until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the raster.

Horizontal Locking Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. The picture may remain in sync. If so turn the T108 top core slightly and momentarily switch off channel. Repeat until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 2 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C147A slightly clockwise. If less than 2 bars are present, adjust C147A slightly counter-clockwise. Turn the horizontal hold control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull-in point. Repeat this procedure until 2 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure. For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

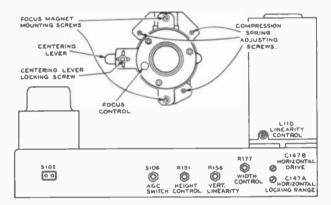


Figure 3—Rear Chussis Adjustments

FOCUS MAGNET ADJUSTMENT.—The focus coil should be adjusted so that there is approximately three-eighths inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus magnet. This spacing gives best average focus over the face of the tube.

The axis of the hole through the magnet should be parallel with the axis of the kinescope neck with the kinescope neck through the middle.

CENTERING ADJUSTMENT.—No electrical centering controls are provided. Centering is accomplished by means of a separate plate on the focus magnet. Some centering plates include a locking screw which must be loosened before centering, and others are held in adjustment by friction. Up and down adjustment of the plate moves the picture side to side and sidewise adjustment moves the picture up and down.

If a corner of the raster is shadowed, check the position of the ion trap magnet. Reposition the magnet within the range of maximum raster brightness to eliminate the shadow and recenter the picture by adjustment of the focus magnet plate. In no case should the magnet be adjusted to cause any loss of brightness since such operation may cause immediate or eventual damage to the tube. In some cases it may be necessary to shift the position of the focus magnet in order to eliminate a corner shadow.

WIDTH. DRIVE AND HORIZONTAL LINEARITY ADJUST-MENTS.—Adjustment of the horizontal drive control affects the high voltage applied to the kinescope. In order to obtain the highest possible voltage hence the brightest and best focused picture, adjust horizontal drive counter-clockwise as far as possible without stretching the left side of the picture As a first adjustment, set the horizontal drive trimmer C147B one-half turn out from maximum capacity.

Turn the horizontal linearity coil out until appreciable loss in width occurs, then in until nearly maximum width and the best linearity is obtained.

Adjust the width control R177 to obtain correct picture width.

A slight readjustment of these three controls may be necessary to obtain the best linearity.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control (R151 on chassis rear apron) until the picture fills the mask vertically. Adjust vertical linearity (R156 on rear apron), until the test pattern is symmetrical from top to bottom. Adjustment of either control will require a readjustment of the other. Adjust centering to align the picture with the mask.

FOCUS.—Adjust the focus magnet for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

On focus magnets using two shunts, the one with the cable is the "fine adjustment" and the other is the "focus range" adjustment. In general, the two shunts should be adjusted to approximately equal positions.

Recheck the position of the ion trap magnet to make sure that maximum brightness is obtained.

Check to see that the cushion and yoke thumbscrews and the focus coil mounting screws are tight.

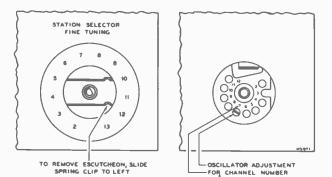


Figure 4---R-F Oscillator Adjustments

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure. The adjustments for channels 2 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment of channel 13 is on top of the chassis.

AGC CONTROL.—The AGC control switch is provided as an installation adjustment. The normal position for strong signal areas is with the switch in the number 1 or counterclockwise position. If impulse type of interference is experienced, turn the switch to the number 2 or center position. In very weak signal areas in which impulse type interference is experienced, turn the switch to position number 3 or fully clockwise. In this position, all AGC is removed and the receiver will overlcad if the input signal exceeds 200 microvolts. However, for signals under 200 microvolts, this position of the AGC control switch gives best noise immunity of sync.

FM TRAP ADJUSTMENT.—In some instances interference may be encountered from a strong FM station signal. A trap is provided to eliminate this type of interference. To adjust the trap tune in the station on which the interference is observed and adjust the L203 core on top of the r-f unit for minimum interference in the picture. CAUTION.—In some receivers, the FM trap L203 will tune down into channel 6 or even into channel 5. Needless to say, such an adjustment will cause greatly reduced sensitivity on these channels. If channels 5 or 6 are to be received, check L203 to make sure that it does not affect sensitivity on these two channels.

Replace the cabinet back and reconnect the receiver antenna leads to the cabinet back. Tighten the back retaining screws securely otherwise the back may rattle or buzz when the receiver is operated at high volume.

RADIO OPERATION.—Turn the receiver function switch to the AM and FM positions and check the radio for proper operation. In switching from radio to television or from television to radio, approximately 30 seconds warm-up time is required.

RECORD CHANGER OPERATION.—Turn the receiver function switch to each phono position and check each record player for proper operation.

CABINET ANTENNA.—A cabinet antenna is provided for use in strong signal areas in which no reflections are experienced. The leads from the antenna are brought out near the receiver antenna terminal board. To connect the cabinet antenna, attach the leads to the terminal board. If reception is satisfactory, no other antenna is necessary. However, if reception is unsatisfactory, it will be necessary to employ an outdoor antenna or an indoor antenna which can be oriented

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the control knobs, the cabinet back, unplug the speaker cable, the kinescope socket, the antenna cable, the yoke and high voltage cabie. Remove the yoke frame grounding strap. Take out the six chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope from the cabinet, take out the four screws and one wing screw which hold the yoke frame to the cabinet. Remove the kinescope, the yoke frame with yoke and focus magnet as an assembly.

INSTALLATION OF KINESCOPE.—Handle this tube by the metal rim at the edge of the screen. Do not cover the glass bell of the tube with fingermarks as it will produce leakage paths which may interfere with reception. If this portion of the tube has inadvertently been handled, wipe it clean with a soft cloth moistened with "dry" carbon tetrachloride.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and fingermarks with a soft cloth moistened with "Windex" or similar cleaning agent.

Turn the tube so that the key on the base of the tube will be down and insert the neck of the kinescope through the deflection coil and focus magnet. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Replace the kinescope and yoke frame assembly in the cabinet. Insert the four screws and wing screw and tighten.

Slip the kinescope as far forward as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wing screws. Slide the deflection yoke as far forward as possible. If this is not done, difficulty will be encountered in adjusting the ion trap and focus magnets because of shadows on the corner of the raster.

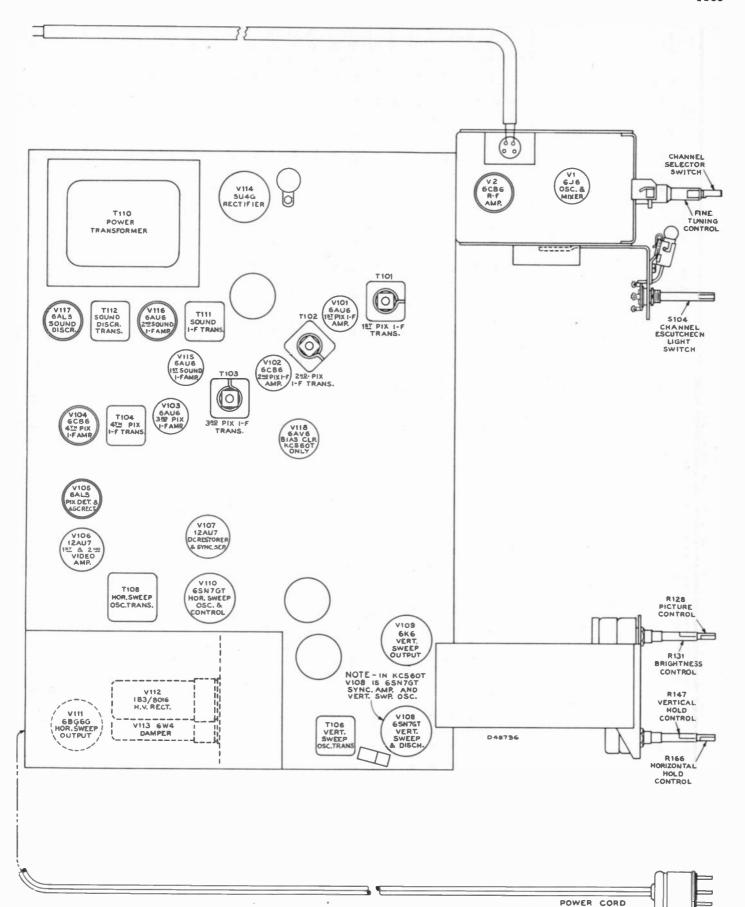
Slide the chassis into the cabinet, then insert and tighten the six chassis bolts.

Slip the ion trap magnet over the neck of the kinescope.

Connect the kinescope socket to the tube base and connect the high voltage lead clip from the rim of the kinescope into the high voltage bushing on the high voltage compartment.

Reconnect all other cables. Perform the entire set-up procedure beginning with Ion Trap Magnet Adjustment.

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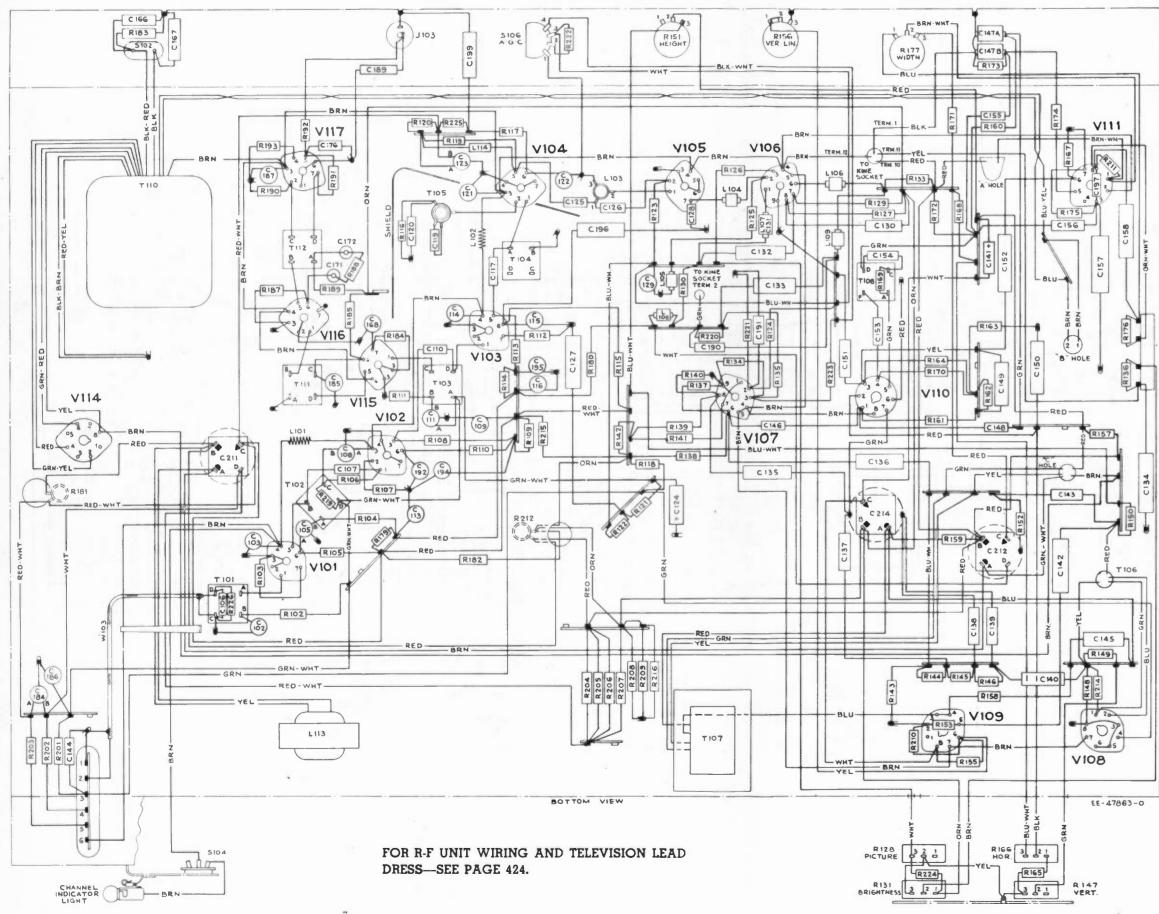
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VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition, a 2500 microvolt test partern signad was fed into the receiver, the picture synced and the AGC control properly adjusted. The second condition was obtained by removale the anter an entrol and about drauting the receiver contanal methods. Valoges abover are read with a WV97A Seator "VoltAmayet" between the indicated terminal and chassis ground and with the receiver constrine on all? volts. S0 credes for The second conditions have an the advanced terminal and chassis ground and with the receiver constrine on all? volts. S0 credes for The above a leas than.

		the receiver	antenna term		Voltages	shows	are re	had with	h a WV	97A Se	whor "Vo	hohmyst	" betwee	the receiver antenna terminate. Voltages shown are read with a WV97A Seniar "VoltAmyst" between the indicated terminal and chastis ground	minai a	nd chom	rie ground		1	Plate	20	Screen	E. Cothode	thode	0 เม	Grid		-	
		and with the	e receiver ope	rating c	w 117 w	olta. 60	cydes.	ų b	The sym	V R	neons la	as thom.			Tube	Tube		Operating Condition	5	121	A P	V.Ali	Pin	V olte	Pin	P	Plate Bate (Date	Screen (mg.)	Notes on Mecsurements
															ġ	19affy		2500 Min V	\rightarrow		:								
1	<u> </u>		Constant		Plate	х ы	Screen	บั เม่	Cathode		Grid			Notes on	V107	KCS60T	6 SyncSep.	Skind	-	2	1	1		45	61	4.5	1	1	At moximum contrast
No.		Function	Condition	No.	Volta	Pla No.	Volta	Pin No	Volta	No.	Volte	Picte (jing)	Screen (mc)	Measurements		XCS60T		No Signal	-1	60	1	I	e	1.7	•	9 .4	1	ī	
12	616	Mixer	2500 Mu. V. Signal	~	144	1		-	•	s	-2.3	8.8	1			KCS60T		2500 Mu. V. Signal	••	7.2	I	1		5	2	0	1	1	
			No	Ļ	135	I	1	-	•	so.	-2.1	5.6	1			XCS60T		No Signoi	G	7.0	1	I	60		-	0	1	t	
5	ele	R-F Onestilator	2500 Mu. V.		001	ł	I	-	0		0.6	4.0	1	Demending	001A	6SN7 KSC60T	Sync Amplifier	2500 Mu. V. Signal	5	8	I	1	9	7.6	-	7.4	1	1	
			No		58	1		-	•		-2.7	3.9	1	upon channel		XCS60T		No Signal	ŝ	46	I	I	6	7.0	4	7.0			
73	6AG5	R-F Amolifier	2500 Mu. V.		250	60	130		0.1	-	3.6	3.0	0.6		A108	6SN7 GT	Vertical Oscillator	2500 Mu. V. Signal	64	-385		1	e	0	-	37 	0.4	1	*Depends on
!		+	No Signal		166		10	~	0.4	-	-0.3	10.3	1					No Signal	8	395	I	1		0	-	85	0.4	-	height control
V101	6AU6	lat Pix. I-F Amolifier	2500 Mu. V. Sigmal		195	60	223	-	0.3	-	-5.0	1.7	0.8		V109	6SN7 GT	Vertical Output	2500 Mu. V. Signal	e	370	-	370		51	s	0	11.5	1.9	
	<u> </u>	 	No	<u> </u>	121		135	-	8.0	-	9.0 1	5.2	2.2					No Signal	e	365	4	365		51	ŝ	0	11.4	1.9	
V102	ectes	2nd Pix. I-F Amnittier	33	-	333		503	6	0.3	-	-5.0	3.0	0.7		0110	6K6 GT	Horisontal Osc. Control	C4	64	.160	1	I	e	25.0	-	14.6 2.0	0.32	I	Depends on
	+				124		112	69	8.0	-	-0.6	5.5	1.6					No Signal	3	152	ł	1		16.3	•	-3.5	0.2£	1	hold control
V103	6AU6	3d Pix. I-F Amblifter	2500 Mu. V. Signal		185	60	225	-	0.3	-	-5.0	1.7	0.7		0117	CT CT	Rortsontol Oscillator	2500 Mu. V. Signal	s	230	I	1	9	0	4	-83	1.8		
	<u> </u>	 	No Signal		8	-	132	-	0.5	1	-0.75	4.9	2.0					No Signal	'n	225	I	1	60	0	4	-85	1.6		
100 A	ec Be	4th Piz. I-F Amplifier	2500 Mu. V. Signal	-	165		142	. 61	2.25	-	•	8.8	3.1		NII	6BG6G	Hortsontal Output	2500 Mu. V. Signal	ŝ	009.	-	325		7.2	ŝ	-33	67	5.0	100 volt
			No Signal	ŝ	116	60	132	64	2.1	1	0	9.0	3.1					No Signal	ŝ	063.		329		7.2	ŝ	8	67.1	4.9	puise present
V105	6AL5	Picture 2d Det.	2500 Mu. V. Signal		-2.0	1	-1	-	0	1	I	0.3	I		V112	1 B3GT /8016	H. V. Rectifier	Brightness Min.	Cap	•	1	ł	267	14.500	1	1	0		14,500 volt
			No Signal	2	-0.5	1	I	-	•	I	1	<0.1	1					Brightness Maximum	Con Con	•	I	I	267	12.700	1	I	0.1		pulse present
V105	6ALS	AGC Rectifier	2500 Mu. V. Signal	64	-8.S	I	1	ŝ	0	1	I	<0.1	1		V113	6W4 GT	Domper	2500 Mu. V. Signal		387	I	1	9	•	1	1	68		-3000 volt
			No Signal	64	-2.0	1	I	ŝ	0	1	I	<0.1	I					No Signal	ŝ	380	1	1		•		1	70	-	pulse present
V106	j2AU7	lat Video Amplifier	2500 Mu. V. Signal	-	100	I	l		1.2	~	-2.3	3.6	I	At motimum	VII4	504G	Rectifier	2500 Mu. V. Signal	4 & 6 8	890.	1	I	2 & 25	391	1	=	185		AC measured
			No Signal	-	S4	1	I		6.0	64	-0.5	2.6	1	contrast				No Signal	4 & 6	-36-	1	I	3 & 8	387			199		voltmeter
			2500 Mu. V. Signal	1	190	ļ	I	e	9.0	61	-2.6	0.9	I	At minimum	V115	GAUG	lst Sound I-F. Amp.	2500 Mu. V. Signal	s	120	60	120	-	9.0	-	-0.2	6.8	2.9	
			No Signal	-	122	I	1		6.9	64	-0.5 S	9.6	I	contrast				No Signal	en l	106	69	106	2	0.6	-	-0.1 1	6.2	2.8	
V106	12AU7	2d Video Amplifier	2500 Mu. V. Signal		330	1	Ţ	60	125	2	116	9.3	1	At maximum	VIIB	GAUG	2d Sound I-F Amp.	2500 Mu. V. Signal	n	116	69	67		0	-	-1.3	4.9	2.0	
			No Signal	60	295	I	1	60	121	2	110	13.6	I	contrast				No Signal	w.	110	60	76	5	0		-0.5	6.9	3.1	
			2500 Mu. V. Signal	60	300	1	ł		131	2	120	12.9	I	At minimum	V117	6ALS	Sound Discrim.	2500 Mu. V. Signal	64	-7.2	I	I	ŝ	0	1	1	<0.i		
			No Signal	60	295	I	1		121	4	110	13.6	1	contrast				No Signal	*	-10.0	1	I	ŝ	0	1		<0.1		
V107	12AU7 KCS60	D-C Rest. 4 Sync Sep.	2500 Mu. V. Signal	-	5.0	1	I	•	45.5	64	-4.7	<0.1	I	At marimum	VII8	6AV6 KCS60T	Bics Clomp	2500 Mu. V. Signal	2	0	1	1	64	•	-	3.4	- 		
	KCS60		No Signal	-	S.S	ł	Ι	•	8.5	64	-0.7	<0.1	I	contrast		KCS607		No Signal	2	0	I	I		0	-	-0.3	-	_	
V107	12AU7 KCS60	V. Sep. 6 Amplifier	2500 Mu. V. Signal	6	8	1	I		6.0	-	4.7	4.0	I		V120	19AP4	Kinecope	2500 Mu. V. Signal	Come	14.000	9	304	:	100	•	46	<0.1	<0.1	
	RCS60		No Signal	۵	38	1	I	•	8.0	2	5.5	2.8	I					Signal	Cone	Cone 13.500	10	375	=	74	6	8.3	< 0.1	< 0.1	

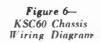
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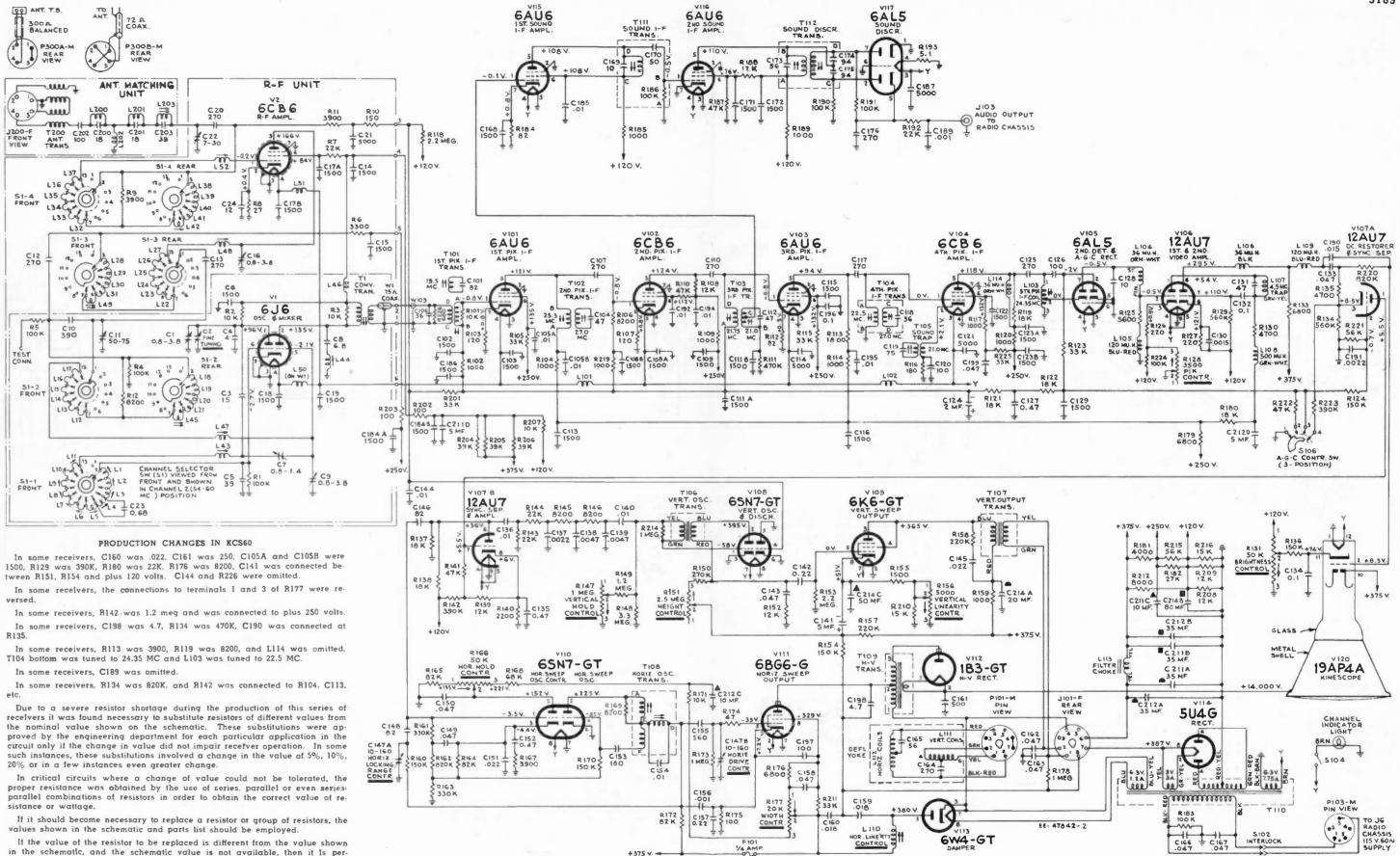


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TOP VIEW





proper resistance was obtained by the use of series, parallel or even seriesparallel combinations of resistors in order to obtain the correct value of resistance or wattage.

versed.

R135.

in the schematic, and the schematic value is not available, then it is permissible to replace it with the value found in the receiver or some value between that and the value shown in the schematic. Some of the commercially available, low resistance value, molded body types are of wire wound construction. Such resistors should not be employed in the r-f unit, i-f or video sections as the inductive affect of these resistors may impair circuit operation.

All resistance values in ohms. K = Coil resistance values less than 1 1000

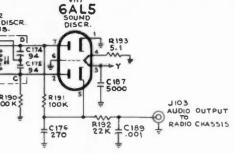
All capacitance values less than 1 in Direction of arrows at controls indi-MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

ohm are not shown.

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KCS60 CIRCUIT SCHEMATIC DIAGRAM

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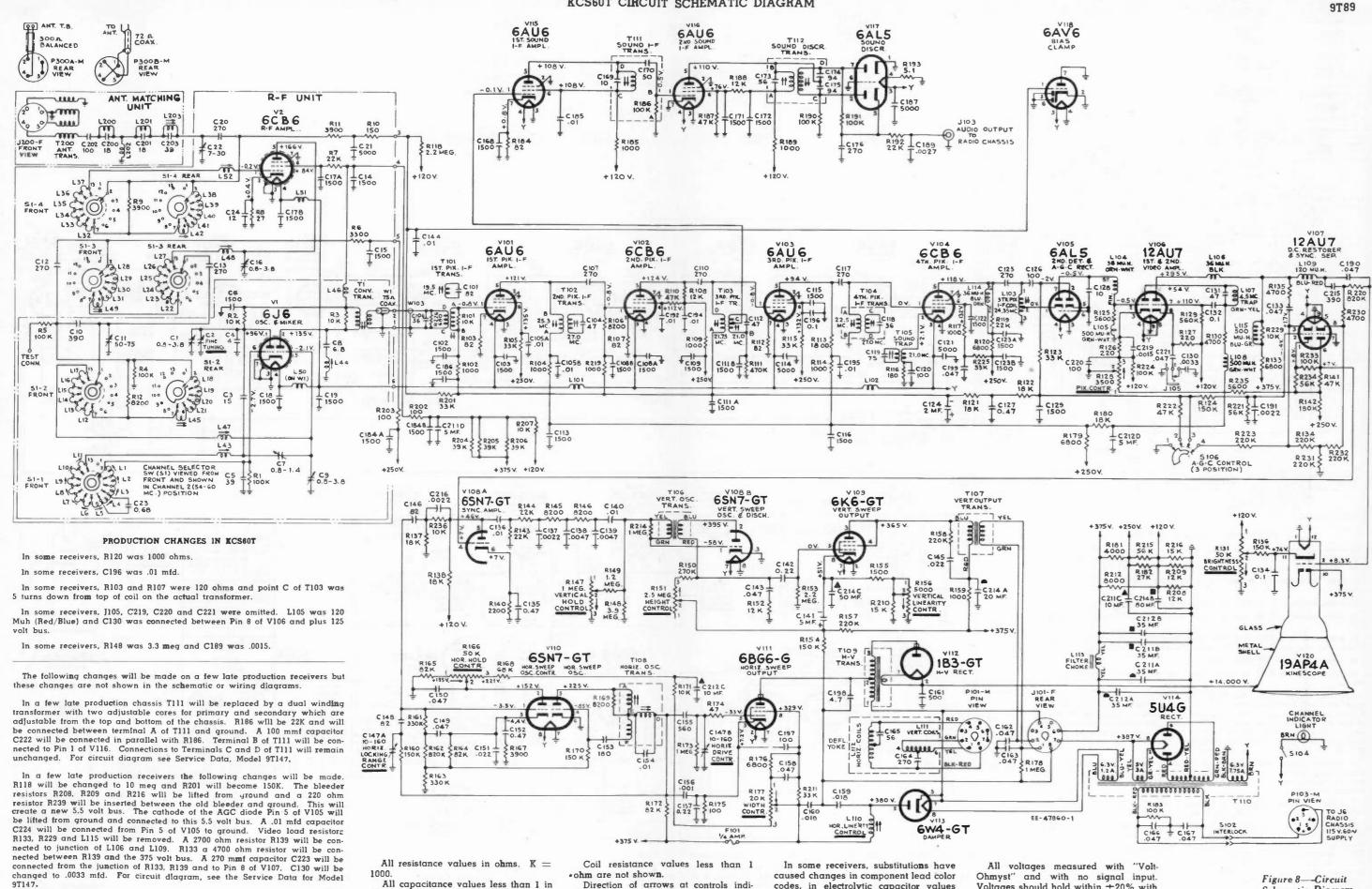


In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values and their lug identification markings.

All voltages measured with "Volt-Ohmyst" and with no signal input. Voltages should hold within $\pm 20\%$ with 117 v. a-c supply.

Figure 7—Circuit Schematic Diagram for KCS60 chassis

KCS60T CIRCUIT SCHEMATIC DIAGRAM



MF and above 1 in MMF unless other- cates clockwise rotation. wise noted.

11

•ohm are not shown.

All capacitance values less than 1 in Direction of arrows at controls indi-

In some receivers, substitutions have caused changes in component lead color Ohmyst" and with no signal input. codes, in electrolytic capacitor values Voltages should hold within $\pm 20\%$ with and their lug identification markings.

117 v. a-c supply.

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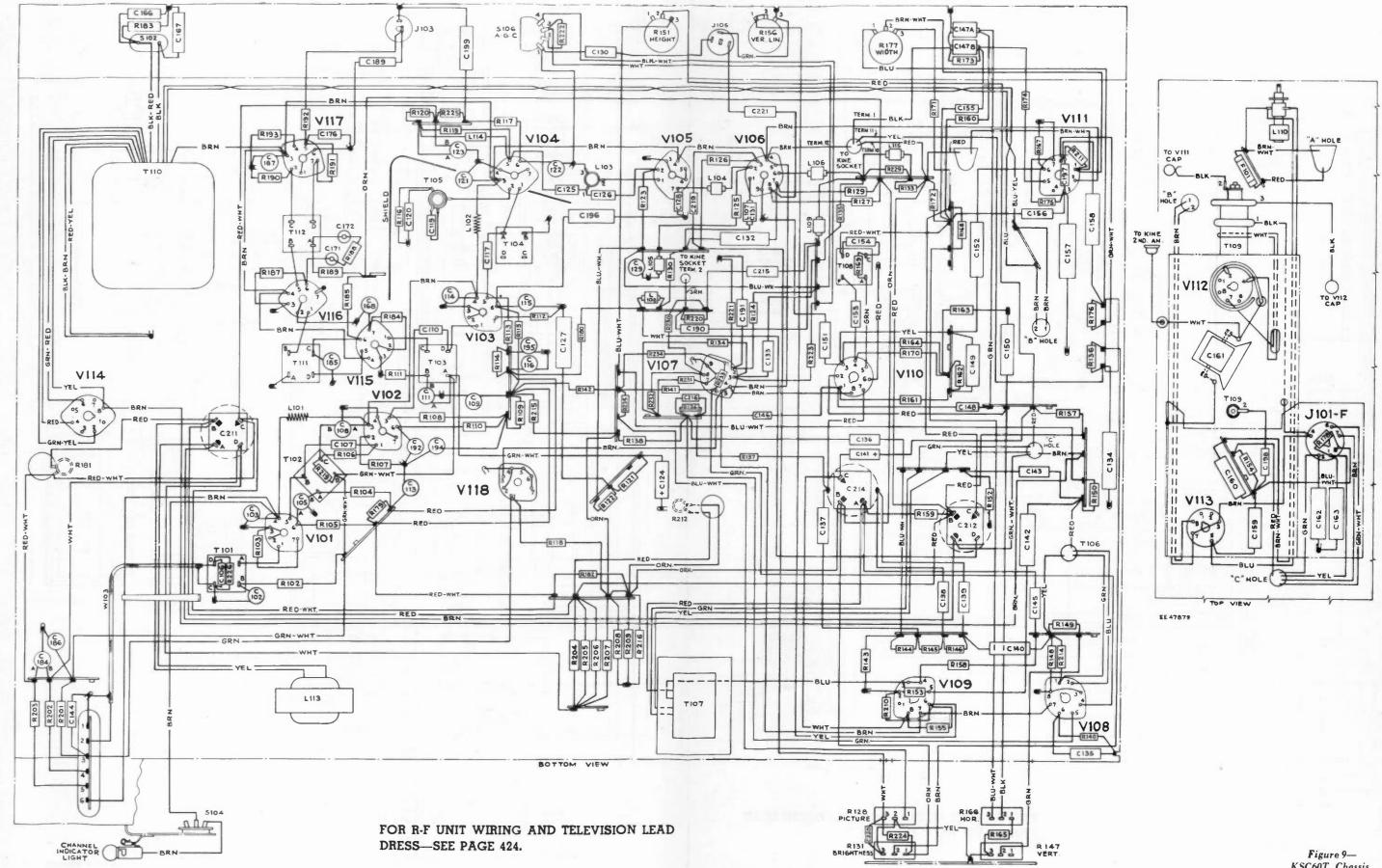


Figure 8—-Circuit Schematic Diagram for KCS60T chassis

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KSC60T Chassis Wiring Diagram

STOCK	DECODIDION
No.	DESCRIPTION
	R-F UNIT ASSEMBLIES KRK8B
10705	Ball—Steel ball for detent $(\frac{5}{32})^{\prime\prime}$ dia.)
75188	Board—Terminal board, 5 contact and ground
7 5067	Bracket—Vertical bracket for holding oscillator
75201	tube shield Cable—75 ohms, coax cable (7¼″) complete with
/ 5401	coil (W1, L50)
75186	Capacitor-Ceramic, variable, for fine tuning-
75289	plunger type (C2)
75189	Capacitor-Ceramic, 4 mmf., 70.5 mmf. (C4) Capacitor-Adjustable, 7-30 mmf. (C22)
75200	Capacitor-Ceramic, 12 mmf. (C24)
45465	Capacitor—Ceramic, 15 mmf. (C3)
75196	Capacitor—Ceramic, 39 mmf. (C5) Capacitor—Ceramic, trimmer, 50-75 mmf. (C11)
75199	Capacitor—Ceramic, 270 mmi. (C12, C13, C20)
75641	Capacitor—Ceramic, 390 mmf. (C10)
75166	Capacitor—Ceramic, 1500 mmf. (C6, C14, C15, C19)
75089	Capacitor—Ceramic, dual, 1500 mmf. (C17A, C17B) Capacitor—Ceramic, 1500 mmf. (C18)
73473	Capacitor—Ceramic, 5000 mmf. (C21)
75172	Capacitor—Tubular, steatite, adjustable, 0.8-1.4
71504	mmí. (C7) Capacitor-Ceramic, 0.68 mmí. (C23)
75184	Capacitor—Ceramic, 0.65 mmi. (C23) Capacitor—Ceramic, adjustable, 0.75-4 mmi., com-
	plete with adjusting stud (C1)
75197 75167	Capacitor—Ceramic, 6.8 mmf. (C8) Clip—Tubular, clip for mounting stand-off capaci-
/310/	tors
75182	Coil—Trimmer coil (1½ turns) with adjustable in-
	ductance core and capacitor stud (screw adjust-
75183	ment) for convertor section (C9, L47) Coil—Trimmer coil (3 turns) with adjustable in-
/0100	ductance core and capacitor stud (screw adjust-
	ment) for r-f section (L48, C16)
75185 75202	Coil—Converter plate loading coil (L44) Coil—Choke coil .56 muh. (L46)
73477	Coil—Choke coil (L51)
75187	Core—Adjustable core for fine tuning capacitor
75162	C2 Detent—Detent mechanism and fibre shaft
73453	Form-Coil form for L45 and L49
75165	Link—Link assembly for fine tuning
14343	Retainer—Fine tuning shaft retaining ring
	Resistor—Fixed, composition: 27 ohms, ±10%, ½ watt (R8)
	150 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R10)
	3300 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R6)
	3900 ohms, ±10%, ½ watt (R9, R11) 8200 ohms, ±10%, ½ matt (R9, R12)
	8200 ohms, ±10%, ½ watt (R12) 10.000 ohms, ±5%, ½ watt (R3)
	10.000 ohms, ±20%, ½ watt (R2)
	22.000 ohms, ±10%, ½ watt (R7) 100,000 ohms, ±20%, ½ watt (R1, R4, R5)
75164	Rod—Actuating plunger rod (fibre) for fine tuning
	link
71476	Screw—No. 4-40 x ¹ / ₄ " binder head machine screw for adjusting 16, 17, 18, 19, 110, 111
75176	Screw-No. 4-40 x ³ 6" fillister head screw for
	adjusting L5
75177	Screw—No. 4-40 x 5/16" fillister head screw for adjusting L1, L2, L3, L4, L43
74575	Screw—No. 4-40 x .359" adjusting screw for L42
73640	Screw-No. 4-40 x 7/16" adjusting screw for L52
75159	Shaft—Channel selector shaft and plate
75160	Shaft—Fine tuning shaft and cam Shield—Oscillator and convertor sections shield
.0100	for R-F unitsnap-on type
75193	Shield—Tube shield for V1
75192	Shield—Tube shield for V2 Socket—Tube socket. 7 contact, miniature, ceramic
10000	saddle mounted
75191	Spacer—Insulating spacer for front plate (4 reg'd)
75163	Spring—Friction spring (formed) for fine tuning
75068	cam Spring—Retaining spring for oscillator tube shield
74578	Spring-Retaining spring for adjusting screws
73457 30340	Spring—Return spring for fine tuning control
75175	Spring—Hair pin spring for fine tuning link Stator—Oscillator section stator complete with ro-
	tor, segment, coils, adjusting screws and capaci-
	tors C3 and C23 (S1-1, C3, C23, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L43)
	,,, _, _, _, _, _, _, _, _, _, _, _, _

STOCK No.	DESCRIPTION
75178	Stator—Convertor stator complete with rotor, coils, capacitors (C10 and C12) and resistors (R4 and R5) (S1-2, C10, C12, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L45, R4, R5, R12)
75179	Stator—R-F amplifier stator complete with rotor, coils, capacitor (C13) and resistor (R6) (S1-3, C13, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L49, R6)
75180	Stator—Antenna stator complete with rotor, coils, capacitors (C20 and C21) and resistors (R9, R10, R11) (S1-4, C20, C21, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L52, R9, R10, R11)
75169	Strip-Coil segment mounting strip-RH center
75170 75171	Strip—Coil segment mounting strip—LH lower Strip—Coil segment mounting strip—LH upper— less trimmer C7
75173	Stud—No. 6-32 » ¹³ / ₁₆ " adjusting stud for C7 trim- mer
75446	Stud—Capacitor stud—brass—No. 4.40 x ¹ % ₁₆ " with % _{U4} " screw driver slot for trimmer coils L47, L48 and capacitor C1 uncoded and coded "ER"
75447	Stud—Capacitor stud—brass—No. 4-40 x 1 γ_{16} " with γ_{04} " screw driver slot for trimmer coils L47. L48 and capacitor C1 coded numerically and "Hi Q"
75181 75190	Transformer—Convertor transformer Washer—Insulating washer (neoprene) for capaci-
75607	tor C7 Washer—Insulating washer (hex)
	TELEVISION CHASSIS ASSEMBLIES
75515	KCS60
75515	Bracket—Channel indicator lamp bracket
75228	Bracket-Focus magnet mounting bracket-upper
75229	Bracket-Focus magnet mounting bracket-lower
53511	Capacitor—Ceramic, 4.7 mmi., 5000 volts (C198) Capacitor—Ceramic, 10 mmi. (C128)
75217	Capacitor—Mica trimmer, dual 10-160 mmf. (C147A, C147B)
75450	Capacitor—Ceramic, 39 mmi. (C203)
71924	Capacitor—Ceramic, 56 mmf. (C106)
73090	Capacitor-Mica, 82 mmf. (C146, C148)
75437	Capacitor-Ceramic, 100 mmf. (C202)
45469	Capacitor—Ceramic, 100 mmf. (C120)
39396	Capacitor—Ceramic, 100 mmf. (C126, C197, C220)
73102	Capacitor—Mica, 180 mmf. (C153)
75244 73091	Capacitor—Ceramic, 270 mmf. (C176) Capacitor—Mica, 270 mmf. (C107, C110, C117, C125)
73094	Capacitor-Mica, 390 mmf. (C215 in KCS60T)
74947	Capacitor—Ceramic, 500 mmf. 20,000 volts (C161)
74250	Capacitor—Mica, 560 mmf. (C155)
75166 73748	Capacitor—Ceramic, 1500 mmf. (C171, C172) Capacitor—Ceramic, 1500 mmf. (C102, C103, C109, C113, C115, C116, C122, C129, C168, C186)
75089	Capacitor—Ceramic, dual, 1500 mmf. (C108A, C108B, C111A, C111B, C123A, C123B, C184A, C184B)
73473 73960	Capacitor—Ceramic, 5000 mmf. (C114, C121, C187) Capacitor—Ceramic, 10,000 mmf. (C144, C185, C192, C194, C195)
75877	Capacitor—Ceramic, dual. 10,000 mmf. (C105A, C105B)
73747	Capacitor—Electrolytic, 2 mfd., 50 volts (C124)
28417 75592	Capacitor—Electrolytic, 5 mfd., 450 volts (C141) Capacitor—Electrolytic comprising 1 section of 20 mfd., 450 volts, 1 section of 80 mfd., 200 volts and 1 section of 50 mfd., 50 volts (C214A, C214B, C214C)
75510	Capacitor—Electrolytic comprising 2 sections of 35 mid., 450 volts, 1 section of 10 mid., 450 volts and 1 section of 5 mid., 450 volts (C211A, C211B, C211C, C211D, C212A, C212B, C212C, C212D)
75643	Capacitor—Tubular, moulded paper, oil impreg- nated, .001 mfd., 1000 volts (C156)
73598	Capacitor—Tubular, paper, oil impregnated, .0015 míd., 600 volts (C130, C219)
73595	Capacitor—Tubular, paper, oil impregnated, .0022 mfd., 600 volts (C137, C191, C216 in KCS60T)
73599	Capacitor—Tubular, paper, oil impregnated, .0027 mid., 600 volts (C189)
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mid., 600 volts (Cl38, Cl39)
73561	Capacitor—Tubular, paper, oil impregnated01 mfd., 400 volts (C136)

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REPLACEMENT PARTS (Continued)

91.89	REPLACEMENT	PAR	12 (CC	DI
STOCK No.	DESCRIPTION		STOCK No.	
73594	Capacitor-Tubular, moulded paper, oil impreg-			T
74727	nated, .01 mid., 600 volts (C140, C154) Capacitor—Tubular, paper, oil impregnated, .018			
73562	mfd., 1000 volts (C159, C160) Capacitor—Tubular, paper, oil impregnated, .022 mfd., 400 volts (C145, C151)			
73553	CapacitorTubular, paper, oil impregnated, .047 míd., 400 volts (C149, C199, C221)			
75071	Capacitor—Tubular, moulded paper, .047 mfd., 400 volts (C166, C167)			
73592	Capacitor—Tubular, paper, oil impregnated, .047 mid., 600 volts (C133, C150, C190)			
73597	Capacitor—Tubular, moulded paper, oil impreg- nated, .047 mfd., 1000 volts (C143)			
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts (C132, C196)			
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 600 volts (C134)			
73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd., 400 volts (C157)			
74957	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd., 600 volts (C142)			
73787	Capacitor—Tubular, moulded paper, 0.47 mfd., 200 volts (C127, C135, C152)			
73154 75167	Choke—Filter choke (L113) Clip—Tubular, clip for mounting stand-off capaci-			
75210	tor 75166 Coil—Fifth pix, i-f coil complete with adjustable core (L103)			
71449	Coil—Horizontal linearity coil (L110)			
73591	Coil—Antenna matching coil (2 req'd) (Part of T200)			
75241 73477	Coil—Antenna shunt coil (L202) Coil—Choke coil (L101, L102)			
75299	Coil—Pecking coil (36 muh) (L104)			
71793	Coil—Peaking coil (36 muh) (L106)			
76285	Coil—Peaking coil (36 muh) (L114, R119)			1
75253	Coil—Peaking coil (120 muh) (L109)			
75252	Coil—Peaking coil (500 muh) (L105, L108)			
76132	Coil—Peaking coil (500 muh) (L115 in KCS60T)			
35787 74594	Connector—Single contact female connector for audio cable (J103) Connector—2 contact male connector for power			
35383	cord Connector—8 contact male connector—part of de-			
68592	flection yoke (P101) Connector—8 contact female connector for deflec-			
38853	tion yoke leads (J101) Connector—4 contact female connector for an-			
75517	tenna transformer (J200) Contact—Anode connector contact only			
75215	Control—Horizontal and vertical hold control (R147, R166) Control—Picture and brightness control (R128,			
75216 71441	R131) Control—Vertical linearity control (R156)			
71440	Control—Height control (R151)			
75516	Control-Width control (R177)			
71498 74956	Core—Adjustable core and stud for FM trap 75449 Cushion—Rubber cushion for deflection yoke hood (2 reg'd)			
74839	(2 reg d) Fastener—Push fastener for mounting ceramic tube socket (2 reg'd)			
73600	Fuse			
16058	Grommet—Rubber grommet for 2nd anode lead exit			
37396	Grommet—Rubber grommet to mount ceramic tube socket (2 reg'd)			
75445	Hood-Deflection yoke hood less rubber cushions			
75644 75482	Insulator—2nd anode insulator assembly Jack—Video jack (J105)			
76322	Magnet—Ion trap magnet (P.M.)			
75504	Magnet—Focus magnet complete with adjustable plate and stud for standard 19AP4A tubes			
75935	Magnet—Focus magnet complete with adjustable plate and stud for special 19AP4A tubes coded with a dot of green paint		75083	3
75518	coded with a dot of green paint Plate—Hi-voltage plate—bakelite—less transform- er, capacitor and tube socket		75236	6
72067	Resistor-Wire wound, 5.1 ohms, ½ watt (R193)		74602	2
75512 75593	Resistor-Wire wound, 4000 ohms, 10 watts (R181) Resistor-Wire wound, 8000 ohms, 15 watts (R212)		73584	
	Resistor—Fixed composition:		31251	
				9

TOCK No.	DESCRIPTION
	82 ohms, ±10%, ½ watt (R103, R107, R112,
	R184) 100 ohms. ±20%, ½ watt (R202, R203)
	100 ohms, ±10%, 2 watts (R175) 180 ohms, ±10%, ½ watt (R116)
	220 ohms. ±10%, ½ watt (R126, R127)
	680 ohms. ±10%. ½ watt (R226) 1000 ohms. ±20%. ½ watt (R102, R104, R109,
	R114, R117, R159, R185, R189, R219) 1500 ohms, ±10%, 1 watt (R155)
	1800 ohms, ±10%, ½ watt (R113)
	2200 ohms, ±20%, ½ watt (R140) 3900 ohms, ±10%, ½ watt (R167)
	4700 ohms, ±5%, ½ watt (R130)
	4700 ohms, ±10%, ½ watt (R135) (R230 in KCS60T)
	5600 ohms, ±5%, ½ watt (R125) 5600 ohms, ±10%, ½ watt (R235 in KCS60T)
	6800 ohms, $\pm 10\%$, 1 watt (R120, R176)
	6850 ohms, ±10%, 2 watts (R133, R179) 8200 ohms, ±5%, ½ watt (R106, R169)
	8200 ohms, ±10%, ½ watt (R145, R146)
	10,000 ohms, ±10%, ½ watt (R171) (R236 in KCS60T)
	10.000 ohms. ±10%, 2 watts (R207) 12.000 ohms. ±5%, ½ watt (R152)
	12,000 ohms, ±10%, ½ watt (R188) (R139 in
	KCS60) 12.000 ohms, ±5%, 1 watt (R108)
	12,000 ohms, ±10%, 2 watts (R208, R209)
	15.000 ohms. ±10%, ½ watt (R210) 15.000 ohms. ±10%, 2 watts (R216)
	18.000 ohms. ±10%, ½ watt (R121, R122, R137) 18.000 ohms. ±10%, 1 watt (R138, R180)
	22,000 ohms, ±10%, ½ watt (R143, R144)
	22,000 ohms. ±20%, ½ watt (R192) 27,000 ohms. ±10%, 2 watts (R182)
	33,000 ohms, ±10%, ½ watt (R105, R115, R201,
	R211, R225) 33,000 ohms, ±20%, ½ watt (R123)
	39.000 ohms. ±10%, 2 watts (R204, R205, R206) 47.000 ohms. ±10%, ½ watt (R141, R187, R222)
	47,000 ohms, ±20%, ½ watt (R110)
	56,000 chms, ±10%, ½ watt (R221) (R234 in KCS60T)
	56,000 chms, ±10%, 1 watt (R215) 68,000 chms, ±10%, 1 watt (R168)
	82.000 ohms, ±5%, 1 watt (R172)
	82.000 ohms, ±10%, 1 watt (R164, R165) 100.000 ohms, ±5%, ½ watt (R190, R191)
	100,000 ohms, ±10%, ½ watt (R224) (R233 in KCS60T)
	100,000 ohms, ±20%, 2 watts (R183)
	150,000 ohms, ±10%, ½ watt (R136, R154, R160) 150,000 ohms, ±20%, ½ watt (R124)
	150.000 chms, ±5%, 1 watt (R170) 180.000 chm3, ±10%, ½ watt (R142 in
	KCS60T)
	220,000 ohms, ±10%, ½ watt (R157, R158) (R134, R223, R231, R232 in KCS60T)
	270.000 ohms. ±10%, ½ watt (R150) 330.000 ohms. ±10%, ½ watt (R161)
	330,000 ohms, ±5%, 1 watt (R163)
	390,000 ohms, ±10%, ½ watt (R142, R223 in KCS60)
	470,000 ohms, ±10%, ½ watt (R111)
	560,000 ohms, ±10%, ½ watt (R129) (R134 in KCS60)
	820,000 ohms, ±10%, ½ watt (R162, R220)
	1 megohm, ±10%, ½ watt (R173) 1 megohm, ±20%, ½ watt (R178, R214)
	1.2 megohm, ±5%, ½ watt (R149)
	2.2 megohm, ±10%, ½ watt (R118, R153) 3.9 megohm, ±5%, ½ watt (R148)
75083	Screw-No. 8-32 x 1/4" wing screw for mounting
75236	deflection yoke Screw—No. 8-32 x ¾" pan head screw (brass)
	to mount focus magnet (2 req'd) ScrewNo, 10-32 x 1 ³ 4" round head machine
74602	screw for focus magnet adjustment (3 req'd)
73584 31251	Shield—Tube shield Socket—Tube socket, octal, wafer
31319	Socket-Tube socket, octal moulded

REPLACEMENT PARTS (Continued)

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	REPLACEMENT	: PAF
STOCK No.	DESCRIPTION	
73117	Socket-Tube socket, 7 pin, miniature	
75223	Socket—Tube socket, 9 pin, miniature	
73249	Socket—Tube socket, octal, ceramic, plate mounted	
71508 68592	Socket—Tube socket for 1B3/8016 Socket—Tube socket, 6 contact, moulded for V113	
74834	Socket-Tube socket, a contact, moulded for 4113	
75718	Socket-Channel indicator lamp socket	
75233	Spring-Compression spring for focus magnet ad-	
	justment (3 req'd)	
75508	Support—Bakelite support only—part of hi-voltage	
75594	shield Switch—Channel indicator lamp switch (\$104)	
76010	Switch—AGC switch (S106)	
75508	Transformer—Power transformer 115 volt, 60 cycle	
	(T110)	
74950	Transformer—Vertical output transformer (T107)	
74144	Transformer—Vertical oscillator transformer (T106) Transformer—First pix, i-f transformer (T101, C101,	
/9303	R101)	
74590	Transformer—Second pix, i-f transformer (T102,	
	C104)	
76264	Transformer—Third pix, i-f transformer (T103, C112)	
73574	Transformer—Fourth pix, i-f transformer (T104, C118)	
75211	Transformer-Sound i-f transformer, single wind-	
	ing type (T111, C169, C170, R186)	
71424	Transformer-Sound i-f transformer-dual wind-	
75212	ing type (T111, C169, C170) Transformer—Sound discriminator transformer	
75212	(T112, C173, C174, C175)	
75213	Transformer—Horizontal oscillator transformer	
	(T108)	
75509	Transformer-Antenna matching transformer com-	
	plete with antenna connector, i-f and FM traps and shunt coil (T200, C200, C201, C202, C203,	
	J200, L200, L201, L202, L203)	
75585	Transformer—Hi-voltage transformer (T109)	
71778	Trap-Sound trap (T105, C119)	
75242	Trap-i-i trap (L200, C200, L201, C201)	
75449	Trap—FM trap complete with adjustable core and stud (L203, C203)	
75251	Trap-4.5 mc. trap (L107, C131)	
74952	Yoke-Deflection yoke complete with cable and	
	connector (L111, L112, C164, C165, P101)	
	RADIO CHASSIS ASSEMBLIES RC 1092	
75567	Capacitor—Variable tuning capacitor complete	
	with drive drum (C1-1, C1-2, C1-3, C1-4, C1-5, C1-6)	
76423	C1-6) Capacitor—Ceramic, 3 mmi. (C10)	
75613	Capacitor-Ceramic, 5 mmf. (C13)	
39044	Capacitor—Ceramic, 15 mmf. (C12)	
75609	Capacitor—Ceramic, 47 mmf. (C45)	
75612	Capacitor-Ceramic, 68 mmf. (C9, C11)	
39396	Capacitor—Ceramic, 100 mmf. (C4) Capacitor—Ceramic, 100 mmf. (C31)	
75437	Capacitor—Ceramic, 100 mml. (C31) Capacitor—Ceramic, 150 mmf. (C14. C30, C43, C54)	
75611	Capacitor—Ceramic, 220 mmf. (C3)	
39640	Capacitor-Mica, 330 mmf. (C37, C38)	
72571	Capacitor-Mica, 470 mmf. (C7)	
75610	Capacitor-Ceramic, 1500 mmf. (C19)	
74850	Capacitor—Ceramic, 1800 mmf. (C17) Capacitor—Ceramic, 5000 mmf. (C2, C5, C6, C15,	
73473	Capacitor—Ceramic, 5000 mmi. (C2, C3, C5, C13, C24, C25, C27, C28, C29, C34, C36)	
73920	Capacitor—Tubular, paper, .005 mid., 400 volts (C33)	
73747	Capacitor-Electrolytic, 2 mid., 50 volts (C40)	
72052	Capacitor-Electrolytic, comprising 1 section of 30	
	mid., 450 volts, 1 section of 30 mid., 350 volts, and 1 section of 40 mid., 25 volts (C23A, C23B,	
70001	C23C) Capacitor—Tubular, paper, .001 mfd., 400 volts	
73801	(C8)	
70642	Capacitor—Tubular, paper, .001 mfd., 1000 volts (C42, C44)	
71926	Capacitor-Tubular, paper, .005 mid., 200 volts (C26, C39, C41)	
71925	Capacitor—Tubular, paper, .01 mfd., 400 volts (C32)	
72120	Capacitor—Tubular, paper, .015 mfd., 200 volts (C22)	
58476	Capacitor—Tubular, paper, oil impregnated, .018 mfd., 400 volts (C21)	
74010	Capacitor—Tubular, paper02 mid., 400 volts (C20, C35)	
	(060, 030)	

STOCK No.	DESCRIPTION
73553	Capacitor—Tubular, paper, .05 mfd., 400 volts
73935	(C18) Clip—Mounting clip for AM i-i transformer
75627 75569	Clip—Clip for main cable—on rear of chassis Coil—Oscillator coil—AM—complete with adjust-
75570	able screws (L3, L4, L5) Coil—R-F coil — AM — complete with adjusting screws (L8, L7)
75615	Coil—FM antenna coil (L1)
71942 74817	Coil—Filament choke coil (L9) Coil—FM oscillator coil (L8)
74815 35787	Coil—FM r.f coil (L2) Connector—Single contact female connector for record changer's pickup cables and television
75542	(J2, J3, J5) Connector—8 contact male connector for power input cable (J4)
75543	Connector—2 contact female connector for 45 RPM motor cable (P1)
74879	Connector-2 contact female connector for antenna leads
75537	Control—Volume control and power switch (R22, S2)
75561	Control-Tone control-L.F. (R19)
75562 72953	Control—Tone control—H.F. (R34) Cord—Drive cord—250 ft. (approx. 66″ overali
75564	length required) Coupling—Spring coupling for function switch ex-
75556	tension shaft Cover—Insulating cover for electrolytic
74839	Fastener—Push fastener for mounting R-F shelf (4 req'd)
16058	Grommet—Rubber grommet for mounting R-F shelf (4 req'd)
75547	Grommet—Rubber grommet to mount slides to bot- tom—rear (2 req'd)
75548	Grommet—Rubber grommet to mount slides to bot- tom—front (2 req'd)
11765 75544	Lamp—Dial lamp—Masda 51 Nut—Rivnut to fasten screw for mounting chassis
18469 75535	(4 req'd) Plate—Bakelite mounting plate for electrolytic Plate—Dial back plate complete with three (3)
75536	pulleys PointerStation selector pointer
72602 72323	Pulley—Drive cord pulley Resistor—Wire wound, 3 ohms, ½ watt (R25)
73637	Resistor—Wire wound, 2200 ohms, 5 watts (R24) Resistor—Fixed, composition:
	68 chms. ±10%, ½ watt (R1. R26) 100 chms. ±10%, ½ watt (R15. R38. R43)
	120 ohms, ±10%, ½ watt (R27) 270 ohms, ±5%, 2 watts (R42)
	390 ohms, ±10%, ½ watt (R9) 680 ohms, ±10%, ½ watt (R4)
	680 ohms, ±20%, ½ watt (R30, R31)
	1000 ohms, ±10%, ½ watt (R6) 1200 ohms, ±5%, ½ watt (R46)
	3300 ohms, ±5%, ½ watt (R40, R45) 8200 ohms, ±10%, 1 watt (R3)
	15.000 ohms, ±10%, ½ watt (R44)
	18.000 ohms, ±10%, ½ watt (R7, R20) 22.000 ohms, ±10%, ½ watt (R28, R29)
	27,000 ohms, ±10%, ½ watt (R18, R21) 39,000 ohms, ±5%, ½ watt (R47)
	56,000 ohms, ±10%, ½ watt (R32) 68,000 ohms, ±10%, ½ wott (R39)
	82,000 ohms, ±10%, ½ watt (R36)
	120,000 ohms, ±10%, ½ watt (R8, R16) 150,000 ohms, ±10%, ½ watt (R12, R14)
	150,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R12, R14) 220,000 ohms, $\pm 20\%$, $\frac{1}{2}$ watt (R11) 270,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R35)
	470,000 ohms, ±10%, ½ wott (R2, R37, R41, R48)
	1.5 megohm, ±10%, ½ watt (R17, R51) 2.2 megohm, ±20%, ½ watt (R5, R10, R13)
	10 megohm, ±20%, ½ watt (R23) 22 megohm, ±20%, ½ watt (R33)
75540	Shaft—Tuning knob shaft Shaft—Extension shaft for function switch
75565 73584	Shield—Tube shield
75546	Slide—Slide mechanism complete for radio chas- sis bottom
31251 73117	Socket—Tube socket, octal, wafer Socket—Tube socket, 7 pin, miniature

REPLACEMENT PARTS (Continued)

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STOCK No.	DESCRIPTION	S	TO
74179	Socket-Tube socket, 7 pin, miniature for V1 and V2		308
31364 755 6 3	Socket—Dial lamp socket Spring—Retaining spring for function switch ex-		754
76332	tension shaft Spring—Drive cord tension spring		747
74847	Support—Polystyrone support for FM oscillator coll complete with mounting bracket		391
75568	Switch-Function switch (S1-1, S1-2, S1-3, S3)	1	757
75557	Transformer—Output transformer (T7)	1.	
73743	Transformer—Radio detector transformer (T5) Transformer—First i-f transformer (AM) complete with adjustable cores (T2)		703 756
75559	Transformer—First i-f transformer (FM) complete with adjustable cores (T1)		7 42 719
73037	Transformer—Second i-f transformer (AM) com- plete with adjustable cores (T4)	·	756 748
75560	Transformer-Second i-i transformer (FM) com- plete with adjustable cores (T3)		754
75566	Transformer—Power transformer 117 volts, 60		748
33726	cycles (T6) Washer—"C" washer for tuning knob shaft		373
	RADIO ROLLOUT CARRIAGE		7 5 E
75573	Decal—Function decal for radio controls		743
75572	Dial—Polystyrene dial scale		
75571	Frame—Moulded frame (marcon) for mounting radio chassis and 45 RPM changer for mahog-		368
75551	any or walnut instruments Handle—Metal pull-out handle for mounting frame Screw—No. 8-32 x ½ ross recessed pan head		756
/ 3333	machine screw to mount radio chassis (4 req'd)		75e
	SPEAKER ASSEMBLY 92369-12W RMA 274		749
13867	RL 111-A1 Cap—Dust cap		739
75682 75681	Cone—Cone and voice coil assembly (3.2 ohms) Speaker—12" P.M. speaker complete with cone		749
	and voice coil (3.2 ohms) NOTE: If stamping on speaker does not agree with		749
	above number, order replacement parts by re- ferring to model number of instrument, number		749
	stamped on speaker and full description of part required.		757
	MISCELLANEOUS		757
75705	Anienna—Antenna loop less cable		117
75688	Back—Back cover for radio—45 RPM phono com- partment—assembled to cabinet		754
75692	Back-Back cover for radio-45 RMP phono com-		736
73034	partment—assembled to rollout		75E
75772	Back—Back complete with terminal board, power		756
	cord and connector for television chassis com- partment		714
75473	Board—TV antenna terminal board (2 contact) part of back		756
75707	Board—"A—F-M" antenna terminal board (3 con- tact)		742
75694	Bracket—Stop bracket less rubber bumper for ra- dio—45 RPM phono rollout mechanism		751 751
71599	BracketLamp bracket		75
75696	Bumper—Rubber bumper for radio — 45 RPM phono rollout stop bracket		747
72447	Cable—Shielded audio cable complete with two (2) pin plugs		31: 72
74545	Cable—Shielded pickup cable complete with pin plug for 33/78 RPM phono		142
72437	Coble—Shielded pickup cable complete with pin plug for 45 RPM phono		30:
13103	Cap—Pilot lamp cap		75
71892 X3188	Catch—Bullet catch and strike for doors Cloth—Grille cloth		74
75703	Connector—5 contact male connector — part of back assembly		75
74882	Connector-2 contact (polarized) male connector for radio antenna loop cable		72
75709	Connector—8 contact female connector—part of main cable—less shell		75
75710	Connector—5 contact female connector—part of main cable—less shell		75
30868	Connector-2 contact female connector-part of main cable		75

OCK DESCRIPTION o. 870 Connector-2 contact male connector for motor leads for 45 RPM phono Connector-Single contact male connector for tele-474 vision antenna or speaker cable 752 Connector-2 contact male connector for F-M antenna leads 153 Connector-4 contact male connector for television antenna cable 702 Cord-Power cord and two contact female connector less 5 contact male connector 392 Cord—Power cord and plug—pari of main cable 608 Cushion—Dust seal cushion (rubber) for kinescope mask 273 Decal-Trade mark decal (Victrola) Decal-Trade mark decal (RCA Victor) 984 Decal—Television controls function decal 640 809 Emblem---"RCA Victor" emblem i455 Escutcheon-Channel marker escutcheon 619 Glass-Safety glass 838 Grommet-Power cord strain relief (1 set) 396 Grommet-Rubber grommet for mounting speaker (4 req'd) 5697 Grommet-Rubber grommet for mounting 45 RPM phono (3 req'd) 308 Hinge-Cabinet door hinge (1 set) for radio-phono compartment, television compartment (L.H. door) or record storage compartments 817 Hinge-Cabinet door hinge (1 set) for television compartment (R.H. door) 636 Hinge-Cabinet door hinge (1 set) for speaker compartment-R.H. 637 Hinge-Cabinet door hinge (1 set) for speaker compartment---L.H. 959 Knob-Television fine tuning control knob-maroon (outer) 996 Knob-Television channel selector knob-maroon (inner) 962 Knob-Television brightness control or vertical hold control knob-maroon (outer) 969 Knob—Television channel marker light switch knob-maroon Knob—Television picture control or horizontal hold 963 control knob-maroon (inner) 5712 Knob-Radio tone control, tuning control or volume control and power switch knob-maroon 714 Knob—Function switch knob—maroon 765 Lamp—Pilot or channel indicator lamp—Mazda 51 5459 Mask—Channel indicator light mask 3634 Nut-Speed nut for speaker mounting screws 638 Pull-Door pull for upper doors Pull-Door pull for lower doors 5639 Screw-No. 8-32 x $\frac{7}{16}''$ wing screw for deflection 456 yoke and focus magnet mounting support Screw—No. 8-32 x %" trimit head screw for door i623 pull 1279 Screw-No. 8-32 x 7/8" trimit head screw for door null 5704 Shell-Shell for 5 contact male connector 75703 5708 Shell-Shell for 8 contact female connector 75709 5711 Shell-Shell for 5 contact female connector 75710 1736 Slide—Slide mechanism complete for 33/78 RPM changer drawer 364 Socket-Pilot lamp stocket Spring-Retaining spring for knob 74959 2845 Spring-Retaining spring for knobs 73996, 74962 1270 and 74969 0330 Spring-Retaining spring for knob 74963 Spring—Spring clip for channel marker escutcheon 3643 5587 Spring—Formed spring for kinescope masking panel 4734 Spring—Retaining spring for knobs 75712 and 75714 5691 Spring-Suspension spring (coil type) for main cable 2936 Stop-Door stop Washer-Felt washer for television chassis back 5500 assembly Washer—"C" washer for 331/3/78 RPM changer

75146 Washer—"C" washer for 331/3/78 RPM changer mounting

5457 Washer—Felt washer between knob and channel marker escutcheon

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

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