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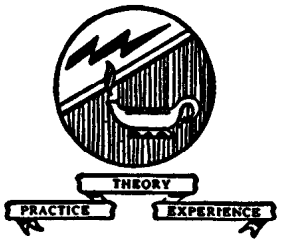
1966

Volume R-26

RADIO DIAGRAMS

and Servicing Information



Compiled by

M. N. BEITMAN

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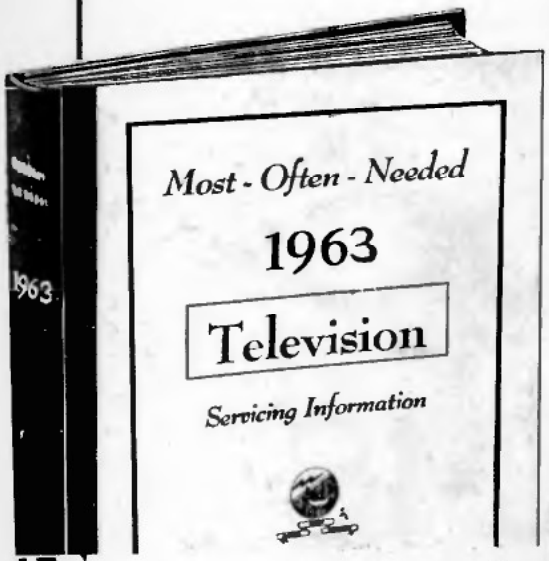

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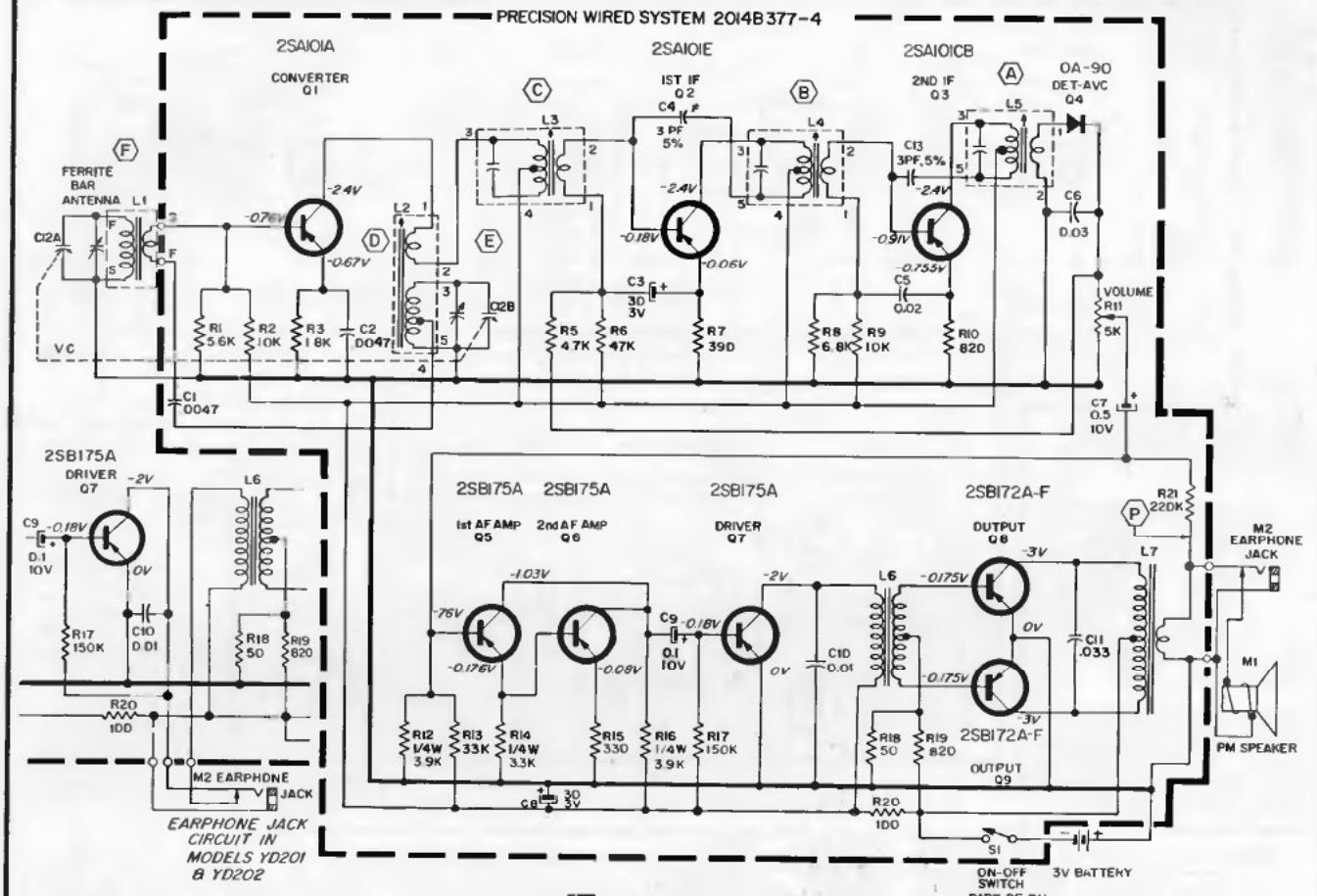
Chassis 8K4, Models YD201GP, A, YD202GP, A



EARPHONE JACK CIRCUIT IN MODELS YD201 & YD202

IF 455 KC.

← COMMON PRECISION W.REC. GROUND

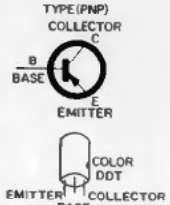
IF=455KC UNLESS OTHERWISE SPECIFIED

CAPACITOR VALUES IN MICROFARADS; RESISTOR VALUES IN OHMS 1/2WATT, 10% VOLTAGE AND CURRENT READINGS TAKEN WITH FRESH BATTERY, NO SIGNAL, VOLUME CONTROL AT MINIMUM.

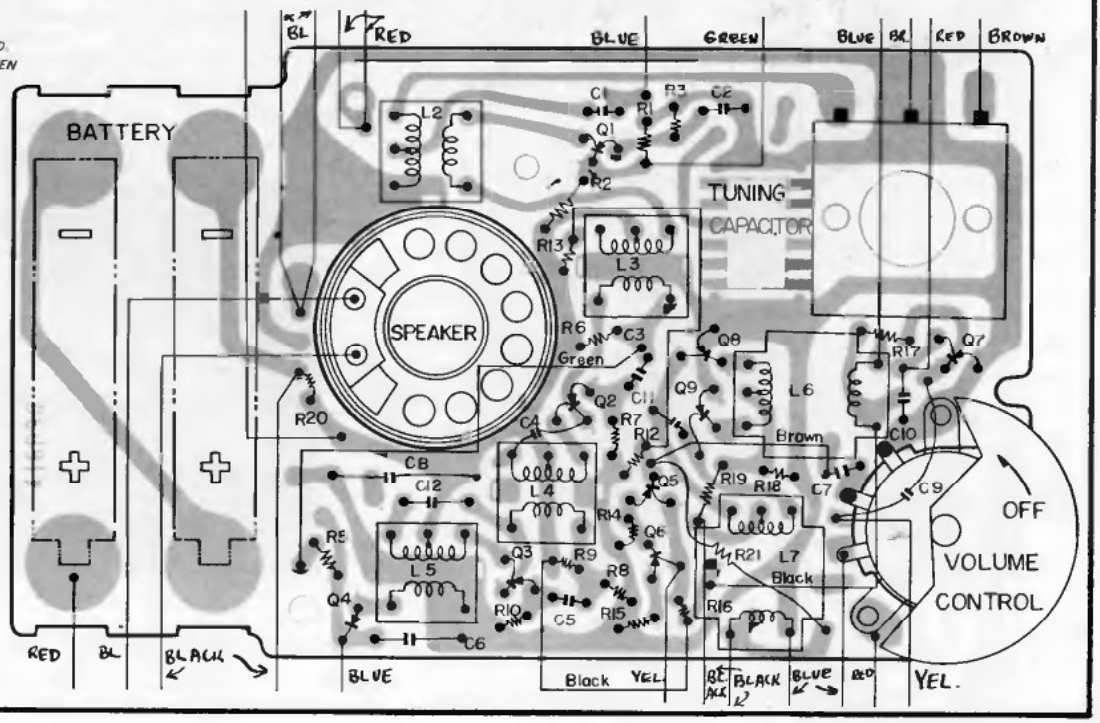
CURRENT DRAIN=17MA.

#NOT MOUNTED ON CIRCUIT BOARD.

VOLTAGES TAKEN WITH VTVM BETWEEN POINTS INDICATED AND COMMON GROUND (POSITIVE).



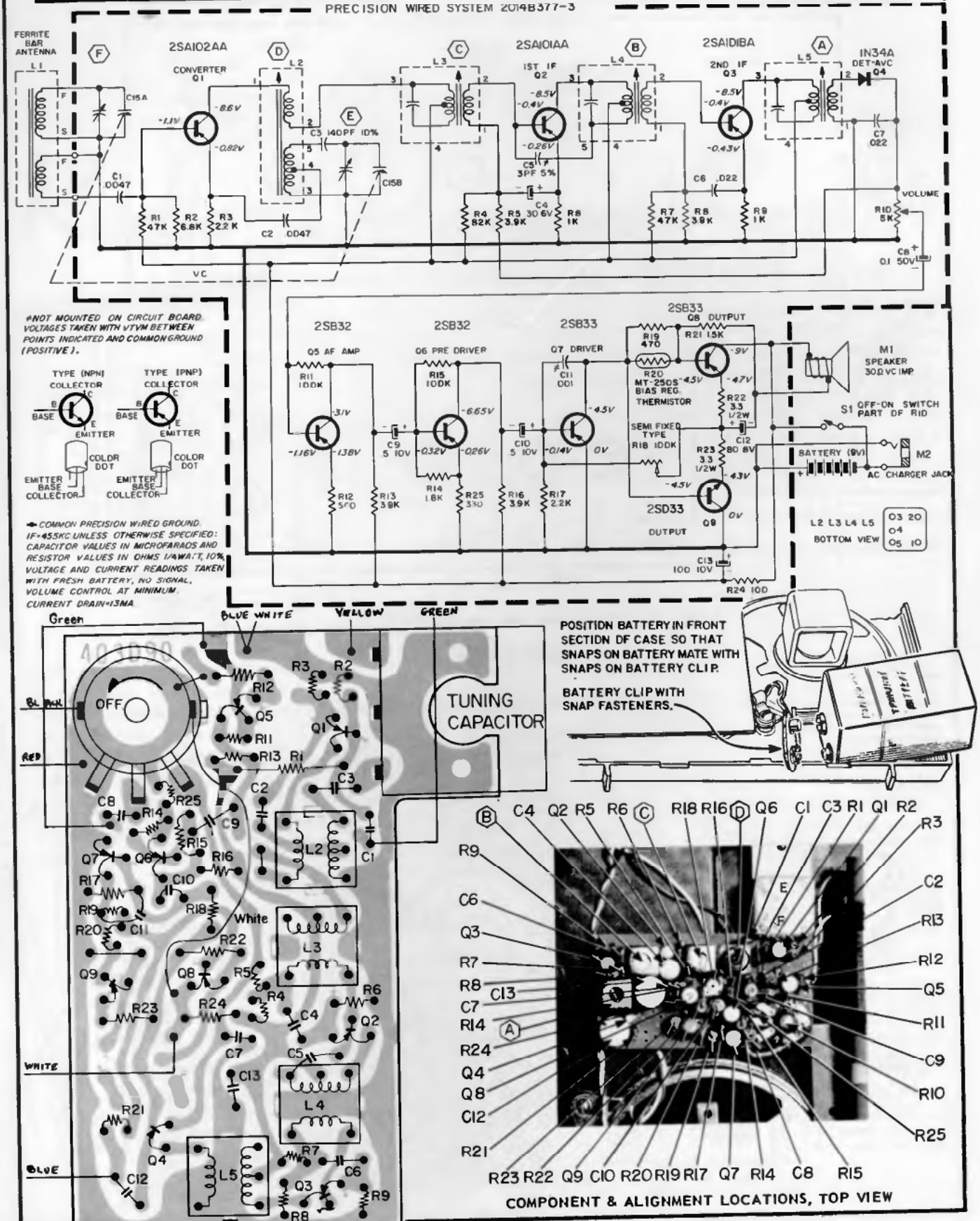
COMPONENT CONNECTIONS TO BACK OF BOARD AND WIRING



Admiral®

Chassis 8F3, Models YD242, YD243

PRECISION WIRED SYSTEM 2014B377-3



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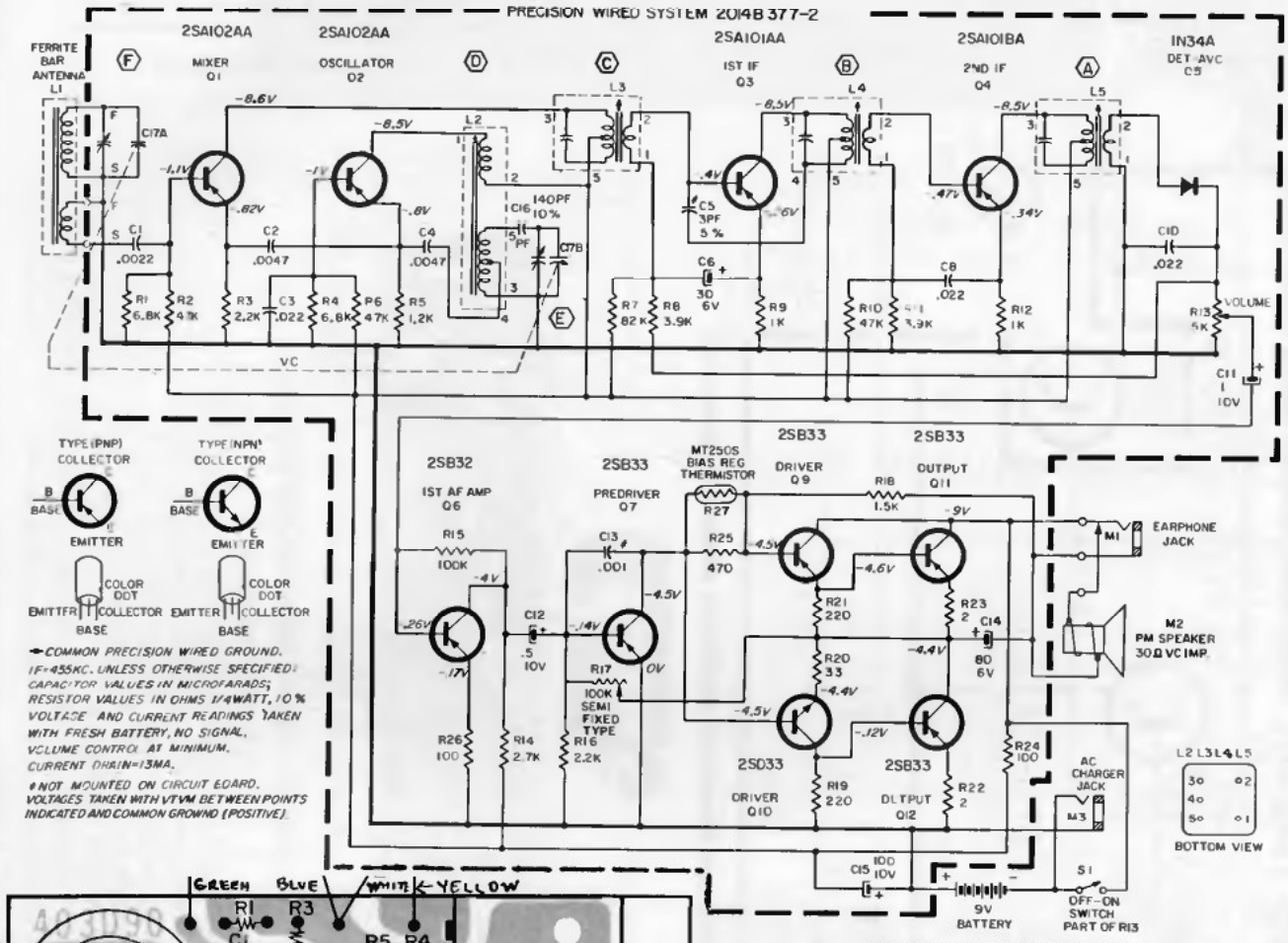
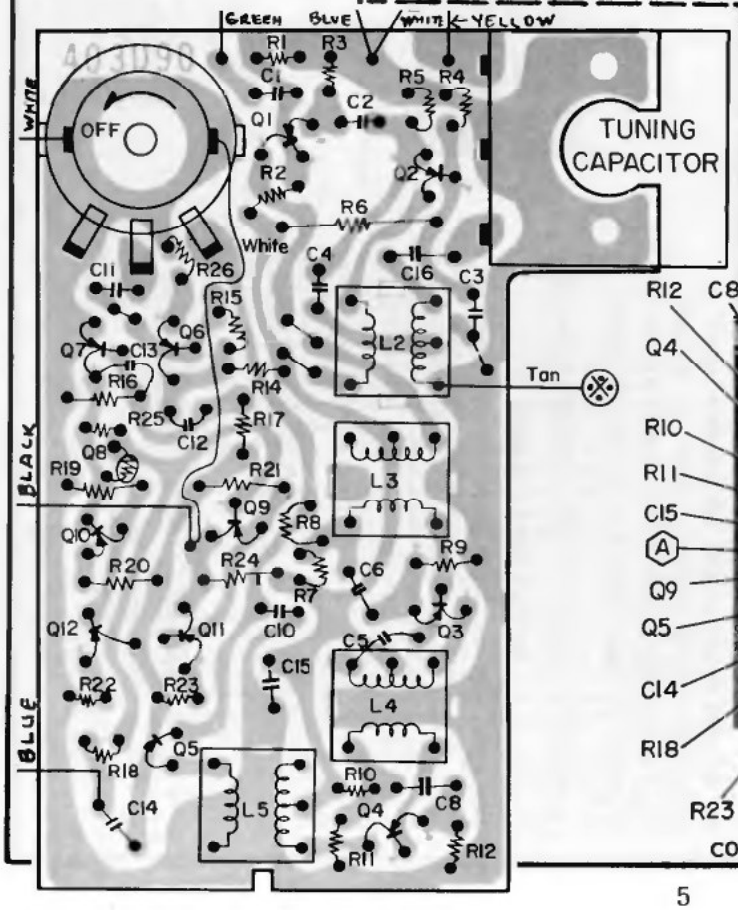
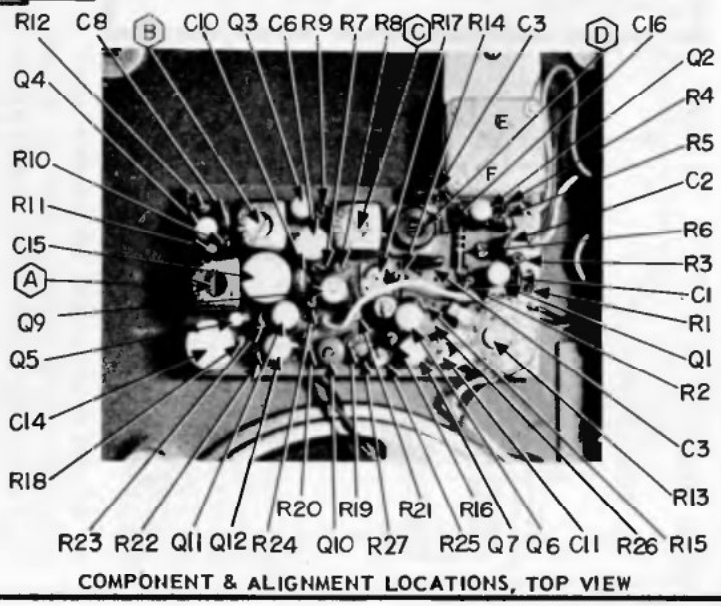
Chassis 10J1, Model YD257



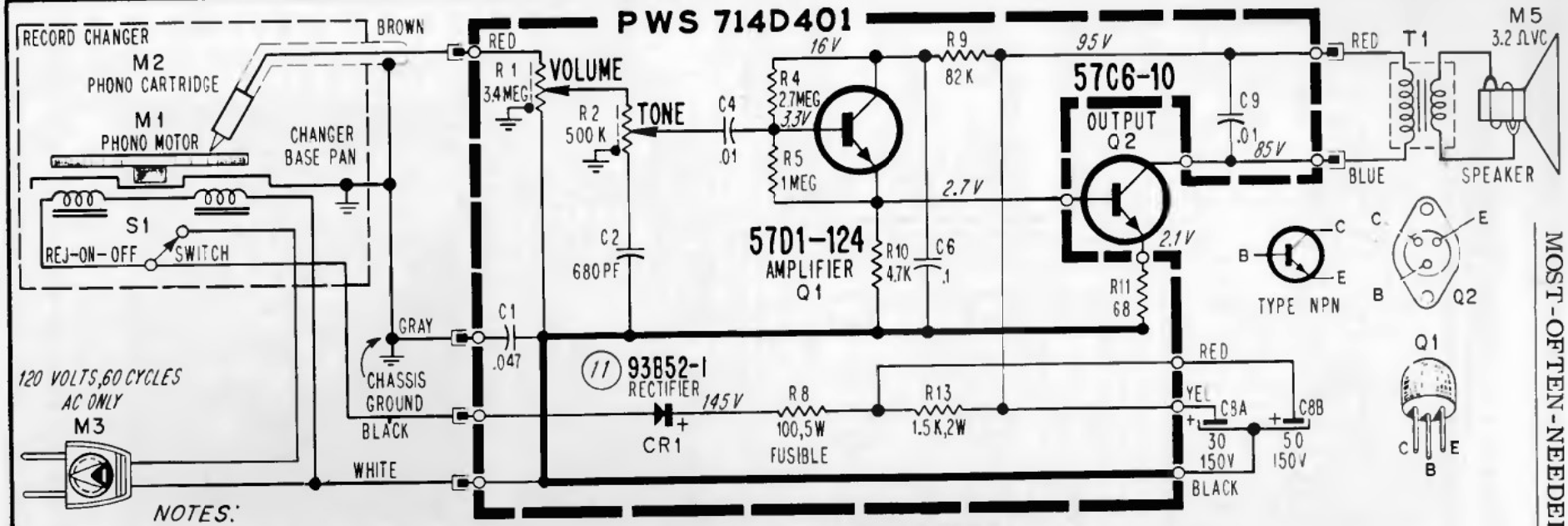


AC CHARGER OPERATION

Plug the AC Charger into the jack on the radio and into a wall outlet and the radio operates from ordinary AC house current—little battery drain. After using radio outdoors (from battery), plug in the AC charger with radio turned "OFF" and the AC Charger will restore power to the radio battery. The AC Charger will extend the useful life of the transistor radio battery many times its normal expectancy.



COMPONENT & ALIGNMENT LOCATIONS, TOP VIEW



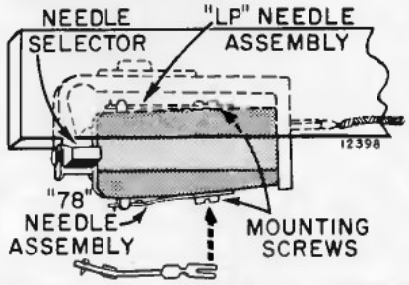
NOTES:

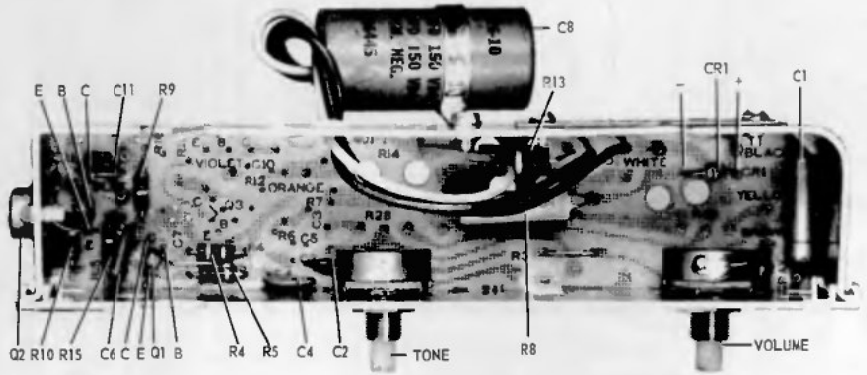
ALL RESISTOR VALUES IN OHMS AND CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SHOWN. ALL VOLTAGES TAKEN WITH A VACUUM TUBE VOLTMETER WITH RESPECT TO COMMON B- ⏚ COMMON B- ⏚ CHASSIS GROUND

⏚ DENOTES FRAME OF CONTROL IS GROUNDED TO CHASSIS

NEEDLE REPLACEMENT

Turn Needle Selector handle so that desired needle number ("LP" or "78") faces up. Corresponding needle will be pointing down. Loosen screw at base of needle assembly and slide assembly forward and remove from cartridge. To install new needle assembly, slide lugs of assembly under screw and tighten securely. Needle shaft must rest in centering notch. Be sure new needles are mounted to correct sides of turn-over cartridge.





VIEW OF CHASSIS SHOWING COMPONENTS

CHASSIS REMOVAL

1. Remove the four turntable hold-down screws.
2. Raise turntable front edge for access to chassis.
3. For chassis removal: Pull off knobs.
4. Remove the nuts on the tone and loudness shafts, while supporting escutcheon.
5. Set escutcheon and control cups off.
6. Pull "plug-in" wire connectors to chassis off.
7. Remove chassis.

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Chassis 2B2, Models YG1027, YG1029, YG1037, YG1047, YG1057

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MODEL IDENTIFICATION CHART

MODEL	FINISH	RECORD CHANGER	CHASSIS
YG1571	Walnut	RC7F5M-71AN or RC7W5Q-71AN or RC7W5Q-87AN	22C5A
YG8001	Walnut	RC7F4E-70AN	*20C5
YG8002	Mahogany		
YG8001M	Walnut	RC7W4N-94AN or	
YG8002M	Mahogany	RC7W4N-70AN	
YG8011	Walnut	RC7F4E-70AN	22C5
YG8012	Mahogany		
YG8025	Maple		
YG8031	Walnut	RC7F4F-87AN or RC7F4F-71AN	
YG8045	Maple		
YG8051	Walnut		
YG8061	Walnut		
YG8075	Maple		
YG8011M	Walnut	RC7W4N-94AN or	22C5
YG8012M	Mahogany	RC7W4N-70AN	
YG8025M	Maple	RC7W4N-70AN or RC7W4N-86AN	
YG8031M	Walnut	RC7W4P-87AN or RC7W4P-71AN	
YG8045M	Maple		
YG8051M	Walnut		
YG8061M	Walnut		
YG8075M	Maple		
Radio Information for the Following Stereo Theater Models			
SMG3001	Walnut	RC7F4F-71AN or	22C5
SMG3002	Mahogany	RC7F4F-87AN	
SMG3701	Walnut	RC7W4P-71AN or RC7W4P-87AN	22C5A
SMG3705	Maple		
SMG3711	Walnut		
SRG2201	Walnut	RC7W4P-71AN or	*20C5A
SMG2201	Walnut		22C5A
SMG2205	Maple	RC7W4P-87AN	

*FM-AM, no provisions for FM Stereo

GENERAL

Model YG1571 is a table or wall mount unit, while the others are console models of walnut, mahogany or maple finish. An 11" turntable, 4-speed automatic phonograph with a complete system shut-off is used in each model.

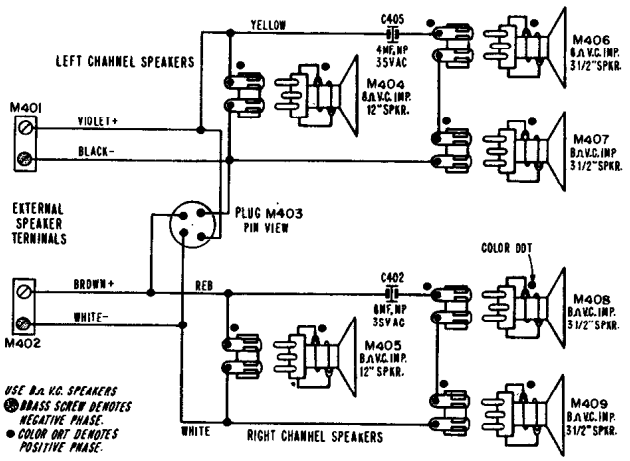
The various chassis are completely transistorized and are in one unit. The chassis are basically identical except that the 20C5 and 20C5A chassis do not have FM stereo circuits. No provisions are available for adding this service to the 20C5 and 20C5A chassis. The 22C5 and 22C5A chassis include the necessary circuitry for FM stereo.

The FM and AM, RF and IF sections are all on one precision wired board. FM Stereo and stereo audio circuits are on a second precision wired board. The FM circuit consists of RF, mixer, oscillator, three IF and a ratio detector stage. The AM consists of an auto-dyne converter, two IF and a diode detector stage. The FM stereo section consists of a 19KC amplifier, 38KC doubler, indicator control stage, and four diodes for FM Stereo detection. Six transistors are used for each stereo audio amplifier section. Attenuator type bass and treble controls along with loudness and balance controls are part of each stereo amplifier. The last three stages are direct coupled for both AC and DC current. Negative feedback is provided from the output to the base of the predriver. The output circuit is complimentary symmetry type.

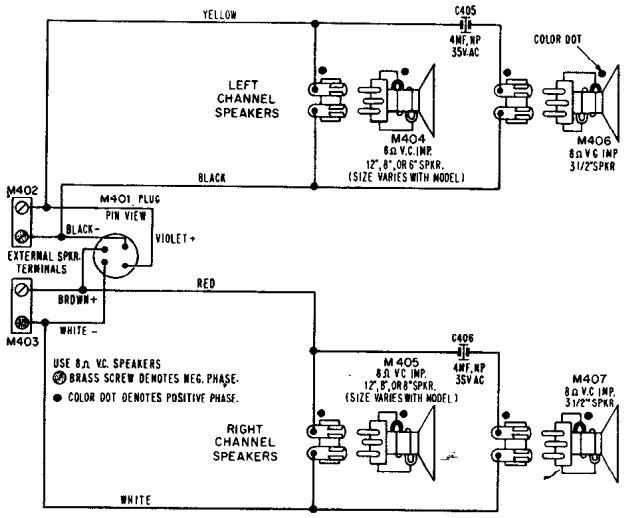
Chassis 22C5, A, 20C5, A

Circuit diagram on pages 8 and 9;
other service material on page 10.

SPEAKER WIRING SCHEMATICS



SPEAKER WIRING FOR 'G8031 & M, 45 & M, 51 & M, 61 & M, 75 & M.



SPEAKER WIRING FOR YG1571, YG800 & M, YG8010 & M, YG8020 & M SERIES.

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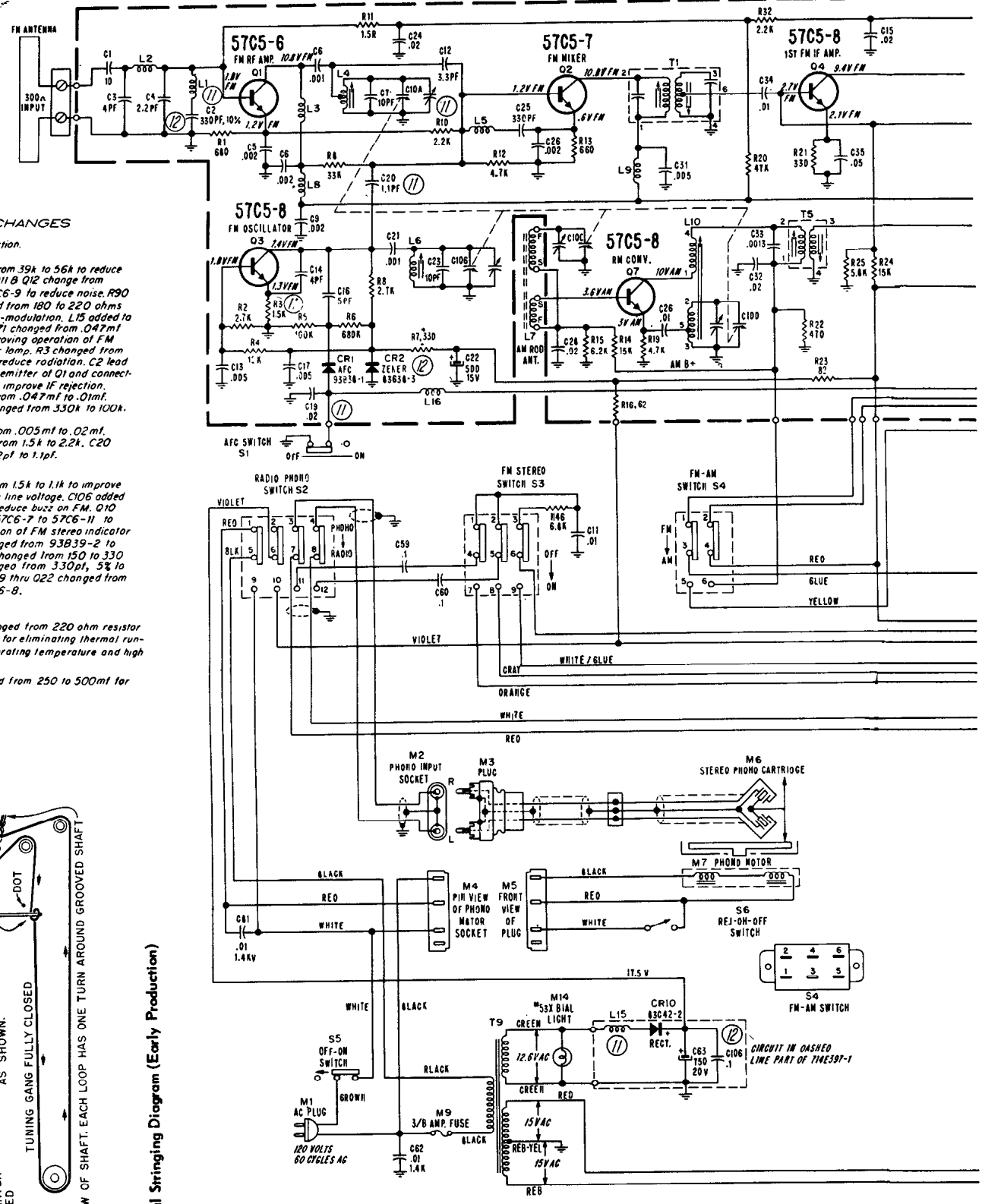
Chassis 22C5, A, Schematic Diagram
(Chassis 20C5, A, are similar less FM stereo)



RUN CHANGES

(10) Start of production.

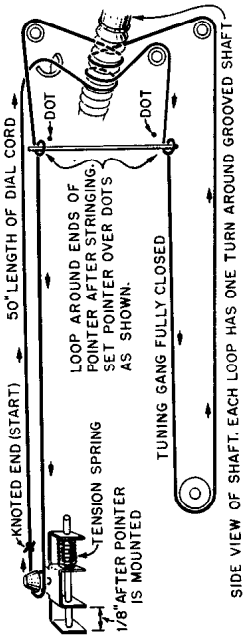
(11) R29 changed from 39k to 56k to reduce noise on AM. Q11 & Q12 change from 57C6-4 to 57C6-9 to reduce noise. R90 & R95 changed from 180 to 220 ohms to reduce cross-modulation. L15 added to reduce buzz. C71 changed from .047mf to .1mf for improving operation of FM stereo indicator lamp. R3 changed from 2.7k to 1.5k to reduce radiation. C2 lead removed from emitter of Q1 and connected to ground to improve IF rejection. C47 changed from .047mf to .01mf. R59 & R61 changed from 330k to 100k.

C19 changed from .005mf to .02mf. R10 changed from 1.5k to 2.2k. C20 changed from 2pf to 1.1pf.

(12) R3 changed from 1.5k to 1.1k to improve operation at low line voltage. C106 added across C93 to reduce buzz on FM. Q10 changed from 57C6-7 to 57C6-11 to improve operation of FM stereo indicator lamp. CR2 changed from 93B39-2 to 93B39-3. R7 changed from 150 to 330 ohms. C2 changed from 330pf, 5% to 330pf, 10%. Q19 thru Q22 changed from 57C6-2 to 57C6-8.

(13) R90 & R95 changed from 220 ohm resistor to a Thermistor, for eliminating thermal runaway at high operating temperature and high line voltage

(14) C96 was changed from 250 to 500mf for reducing hum.

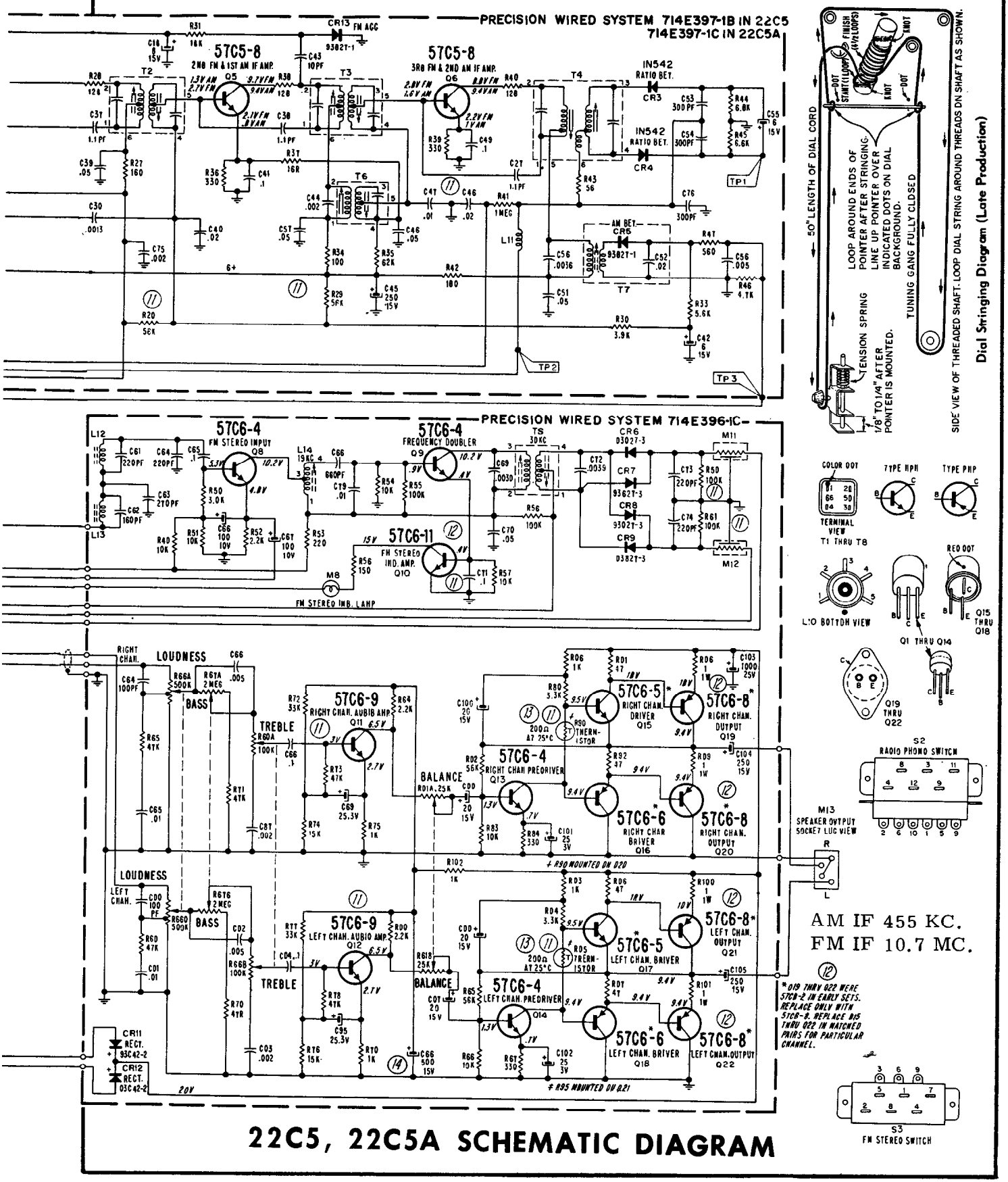


Dial Stringing Diagram (Early Production)

NOTES:

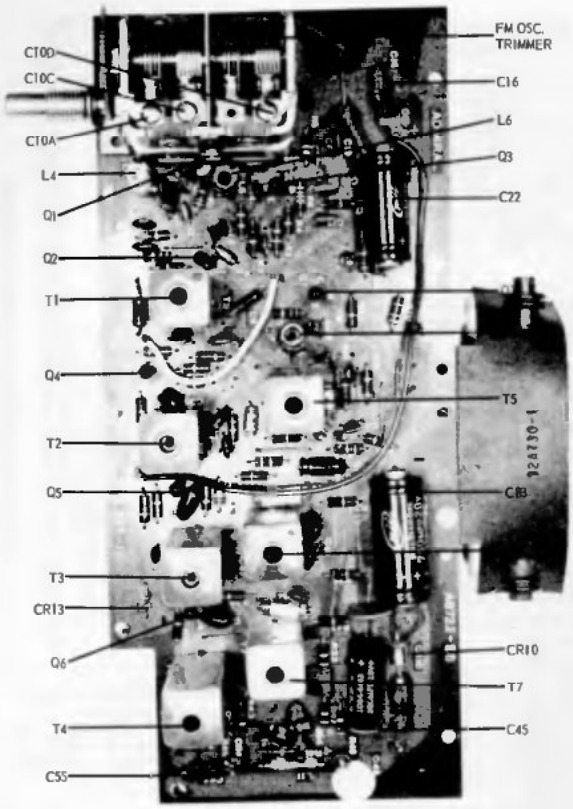
1. VOLTAGES MEASURED WITH VTVM WITH RESPECT TO CHASSIS GROUND. NO SIGNAL. 120VAC LINE. VOLTAGES AT FM RF MIXER, IF & MX STAGES TAKEN WITH REFERENCE VOLTAGE OF 10.4 AT GR2. VOLTAGE MAY VARY BY 10%.
2. UNLESS OTHERWISE SPECIFIED CAPACITOR VALUES IN MICROFARADS.
3. MOUNT IF & MULTIPLEX TRANSFORMER SO DIMPLE OR RED DOT ON CANS FACE REAR OF CHASSIS.
4. GREEN DOT OR DOT TOP OF IF & MULTIPLEX TRANSFORMER CASES INDICATES PIN 1.
5. ALL RESISTORS ARE 1/2 WATT, 10% EXCEPT AS SPECIFIED.

ADMIRAL Chassis 22C5, A, Schematic Diagram, Continued

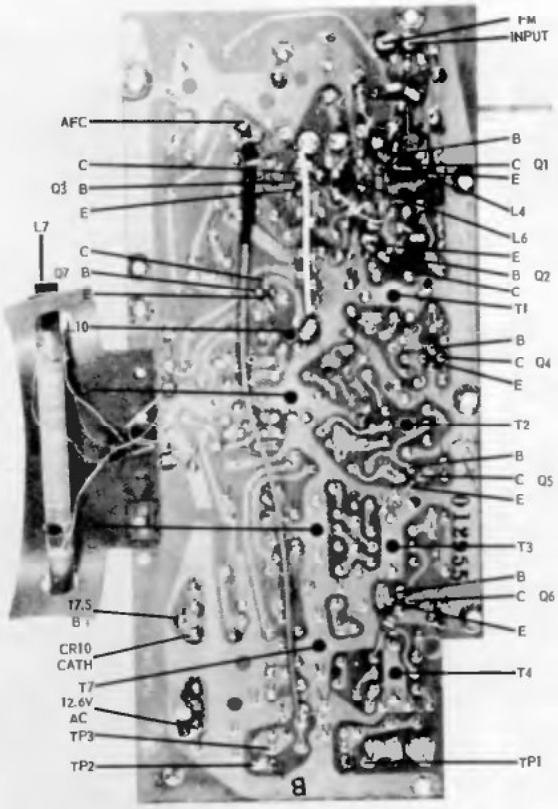


22C5, 22C5A SCHEMATIC DIAGRAM

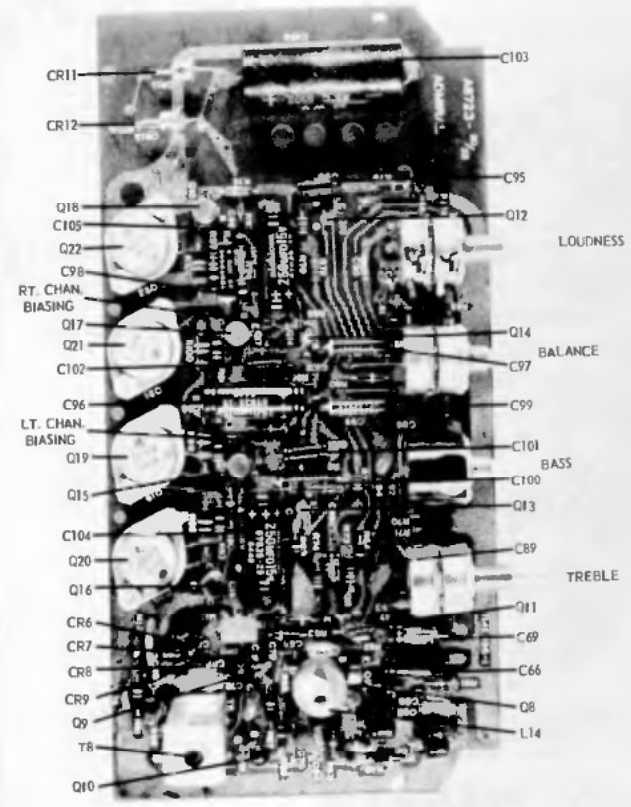
ADMIRAL Chassis 20C5, A, 22C5, A, Service Information, Continued



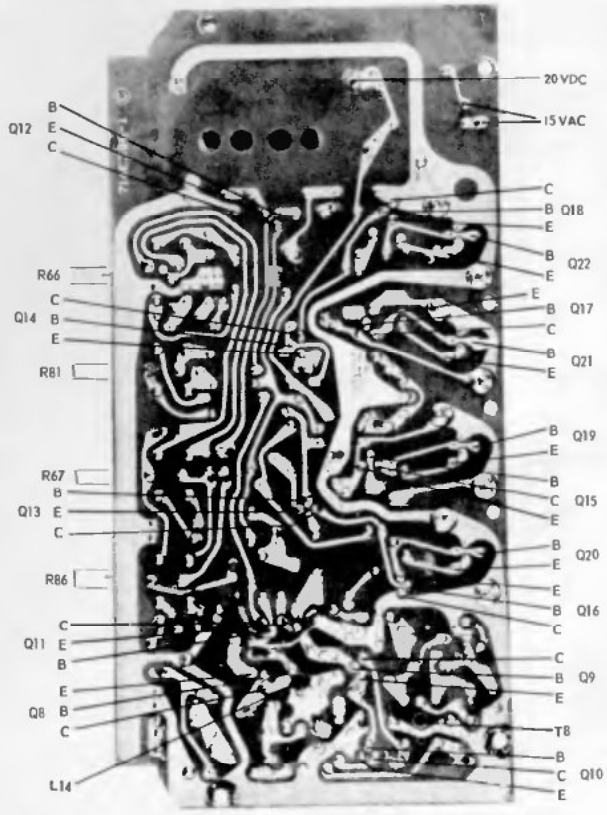
Top View of FM-AM, RF & IF Section



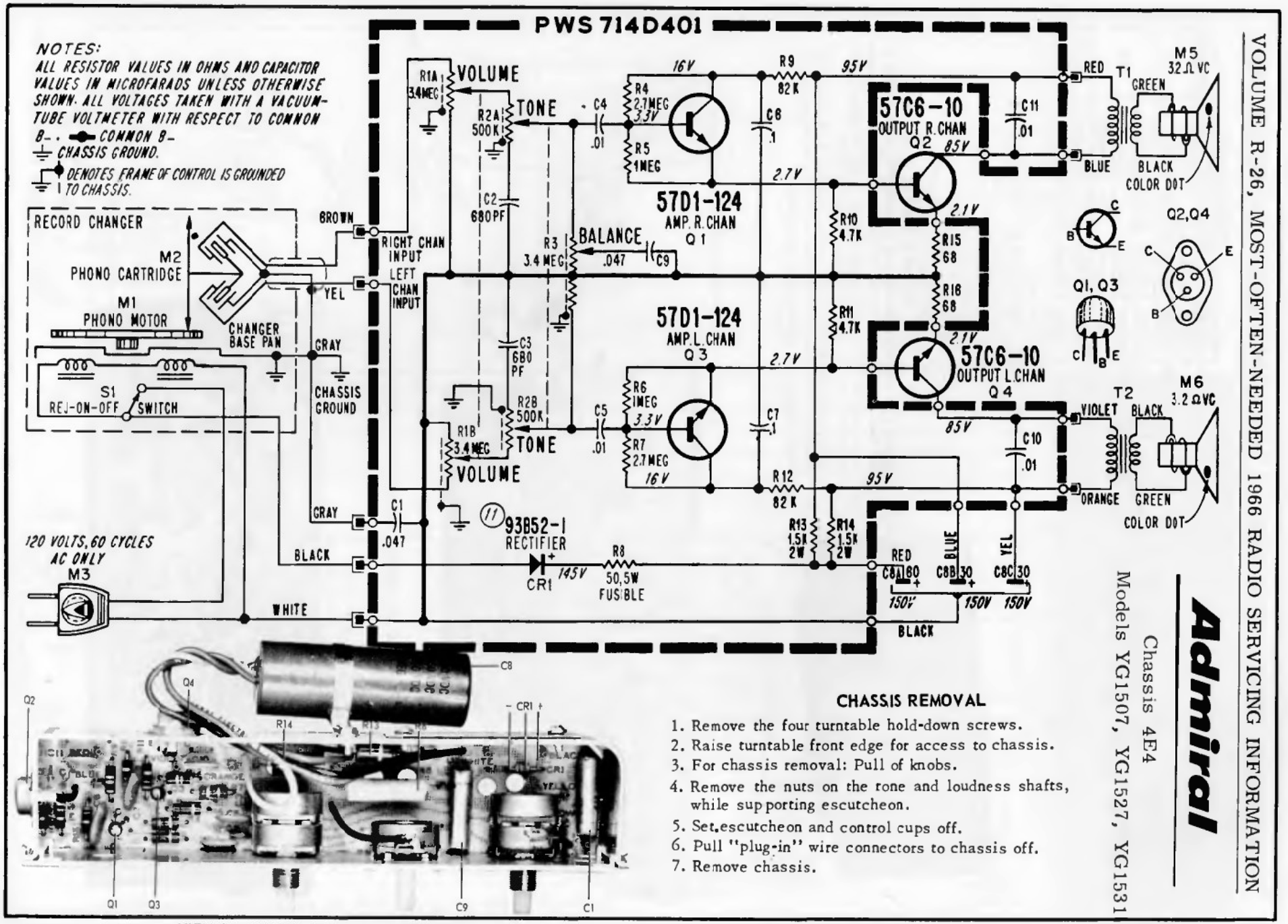
Bottom View of FM-AM, RF & IF Section



Top View of FM Stereo and Stereo Amp Section



Bottom View of FM Stereo and Stereo Amp Section



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3. For chassis removal: Pull of knobs.
4. Remove the nuts on the tone and loudness shafts, while supporting escutcheon.
5. Set escutcheon and control cups off.
6. Pull "plug-in" wire connectors to chassis off.
7. Remove chassis.

Admiral

Chassis 4E4

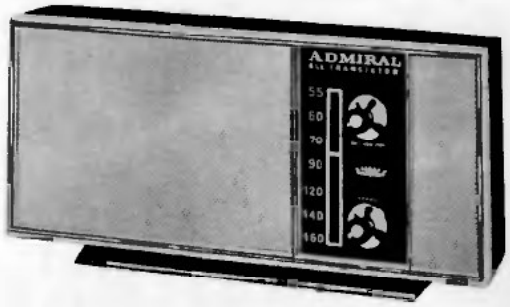
Models YG1507, YG1527, YG1531

Admiral

MODEL CHART

MODEL	NAME	FINISH	CHASSIS
YG827	Kimberly	Tan	5V6A
YG829	Kimberly	Charcoal	
YG837	Dunbar	Brown	5V6
YG839	Dunbar	Charcoal	
YG841	Aurora	Walnut	
YG851	Galaxy	Walnut	5V6A
YG861	Golden Classic	Walnut	5W6

(For circuit diagram see next page, directly at right)

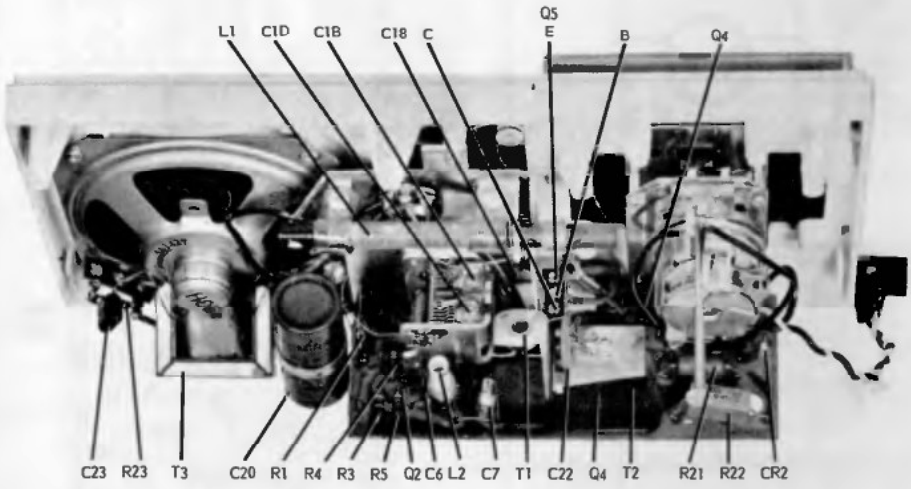


YG830 SERIES

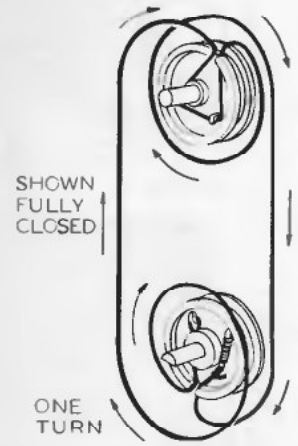
SERVICE HINT

Severe hum on these chassis can be caused by a breakdown of the Output Transistor Q5, No. 57C6-14. Should this be encountered, replace the transistor and change R19, 24 ohm, ½ watt resistor to 36 ohm ½ watt for increased reliability.

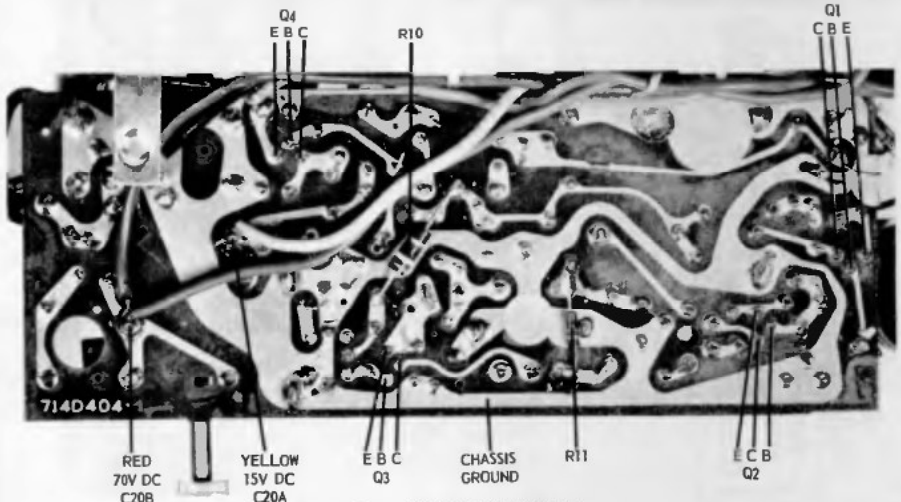
When servicing the chassis for other reasons, R19 should be changed to 36 ohms to avoid the possibility of damaging Q5. Some chassis will already have this change.



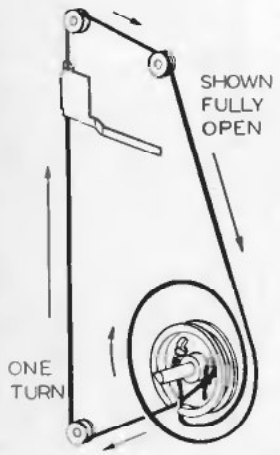
TOP VIEW OF CHASSIS SHOWING ALIGNMENT POINTS AND COMPONENTS



DIAL STRINGING DIAGRAM, 5W6

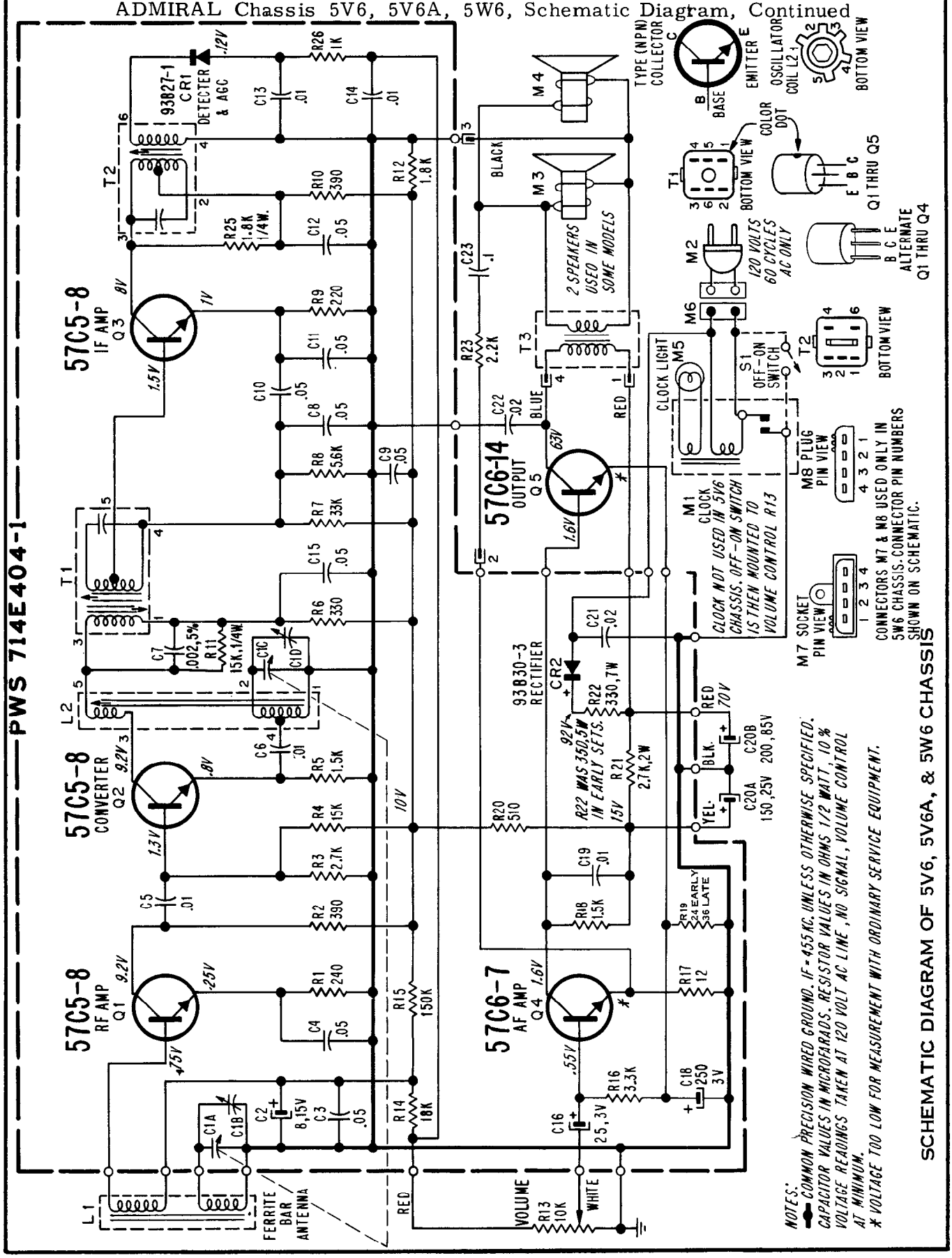


BOTTOM VIEW OF CHASSIS

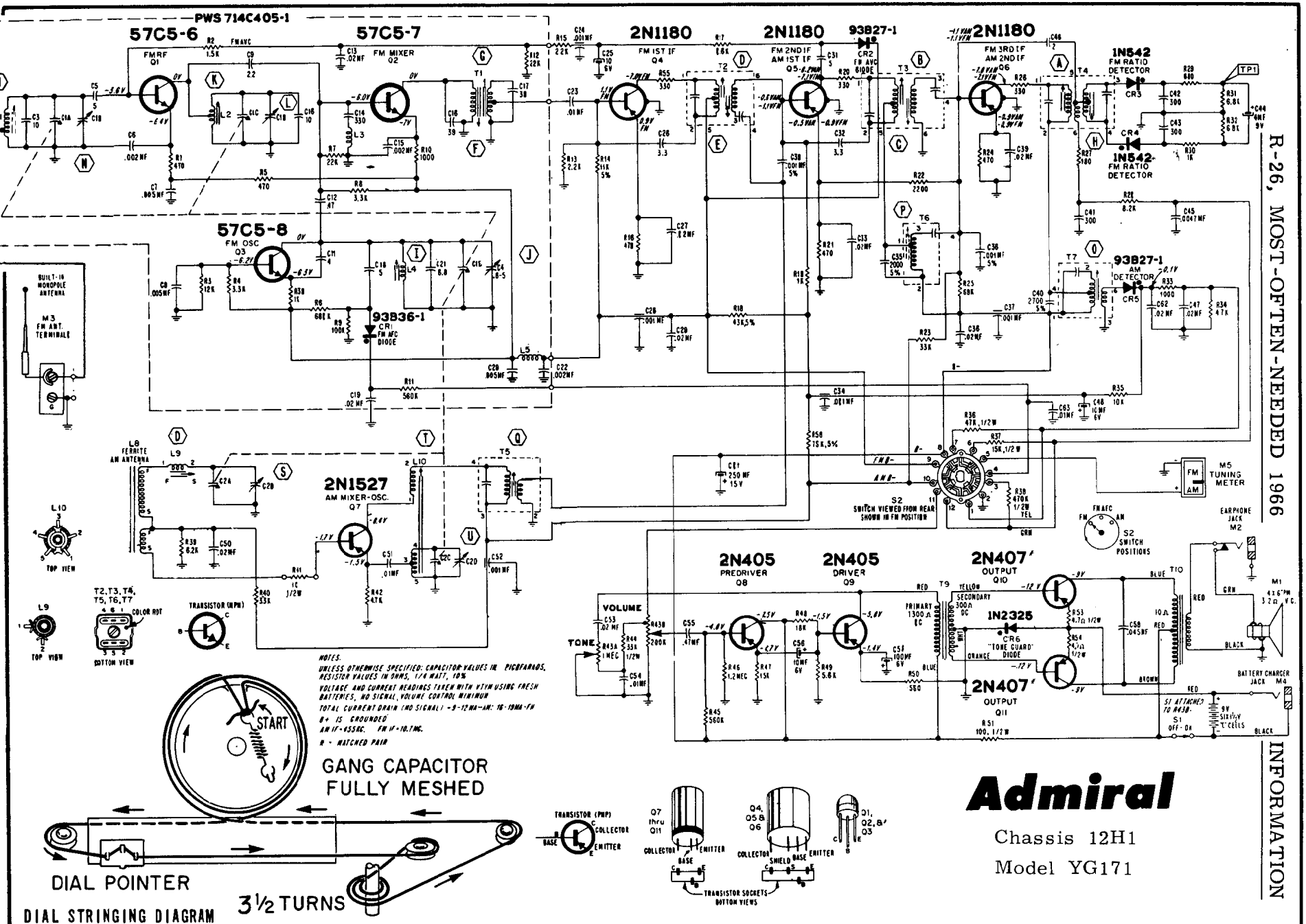


DIAL STRINGING DIAGRAM, 5V6, 5V6A

ADMIRAL Chassis 5V6, 5V6A, 5W6, Schematic Diagram, Continued

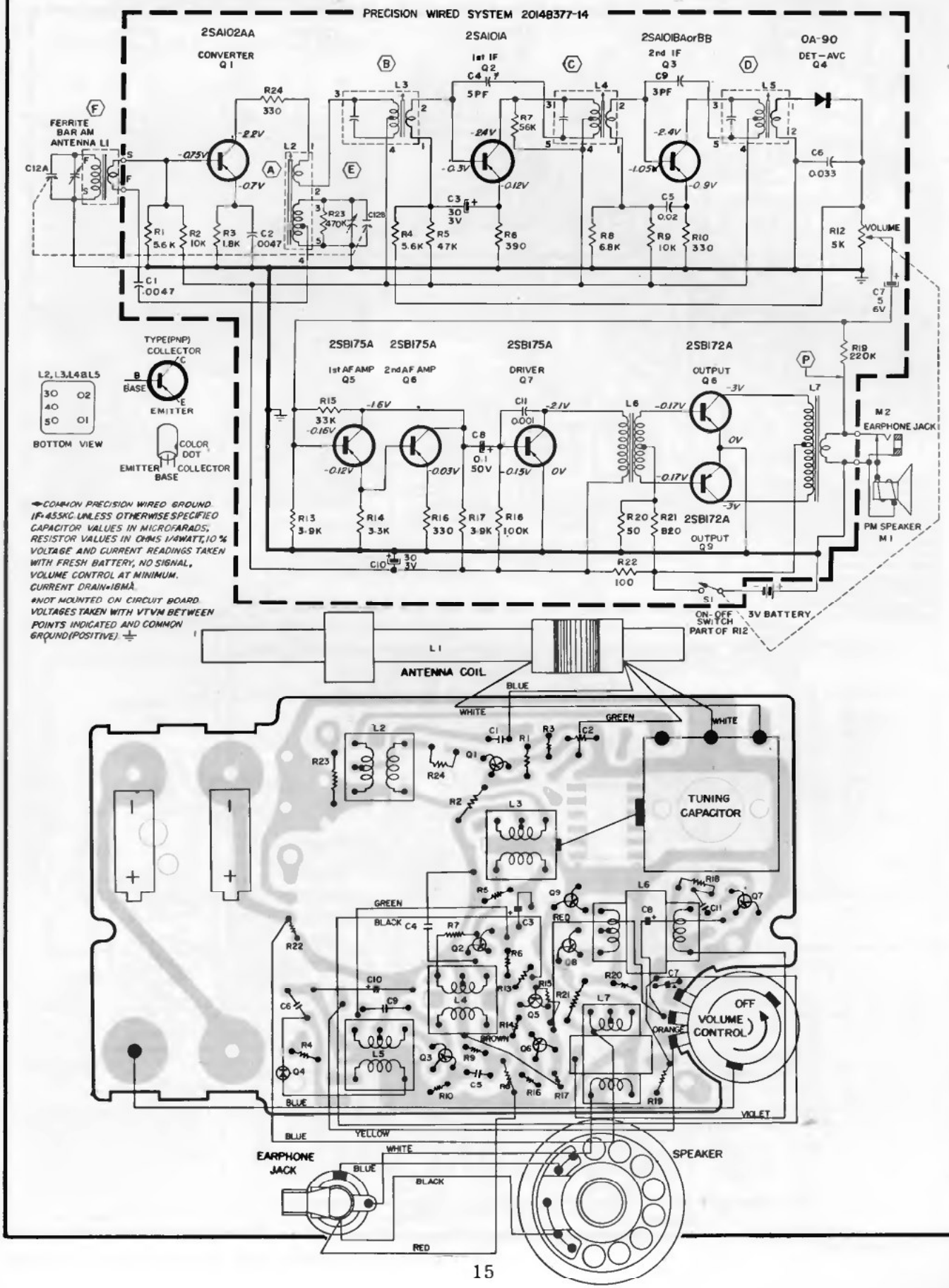


SCHEMATIC DIAGRAM OF 5V6, 5V6A, & 5W6 CHASSIS


PWS 714C405-1
57C5-6
57C5-7
57C5-8
2N1180
2N1180
93827-1
2N1180
1N542
1N542
93827-1
93836-1
2N1527
2N405
2N405
2N407
2N407
1N2325
VOLUME
TONE
DIAL POINTER
3½ TURNS
GANG CAPACITOR FULLY MESHED
DIAL STRINGING DIAGRAM
Admiral
Chassis 12H1
Model YG171

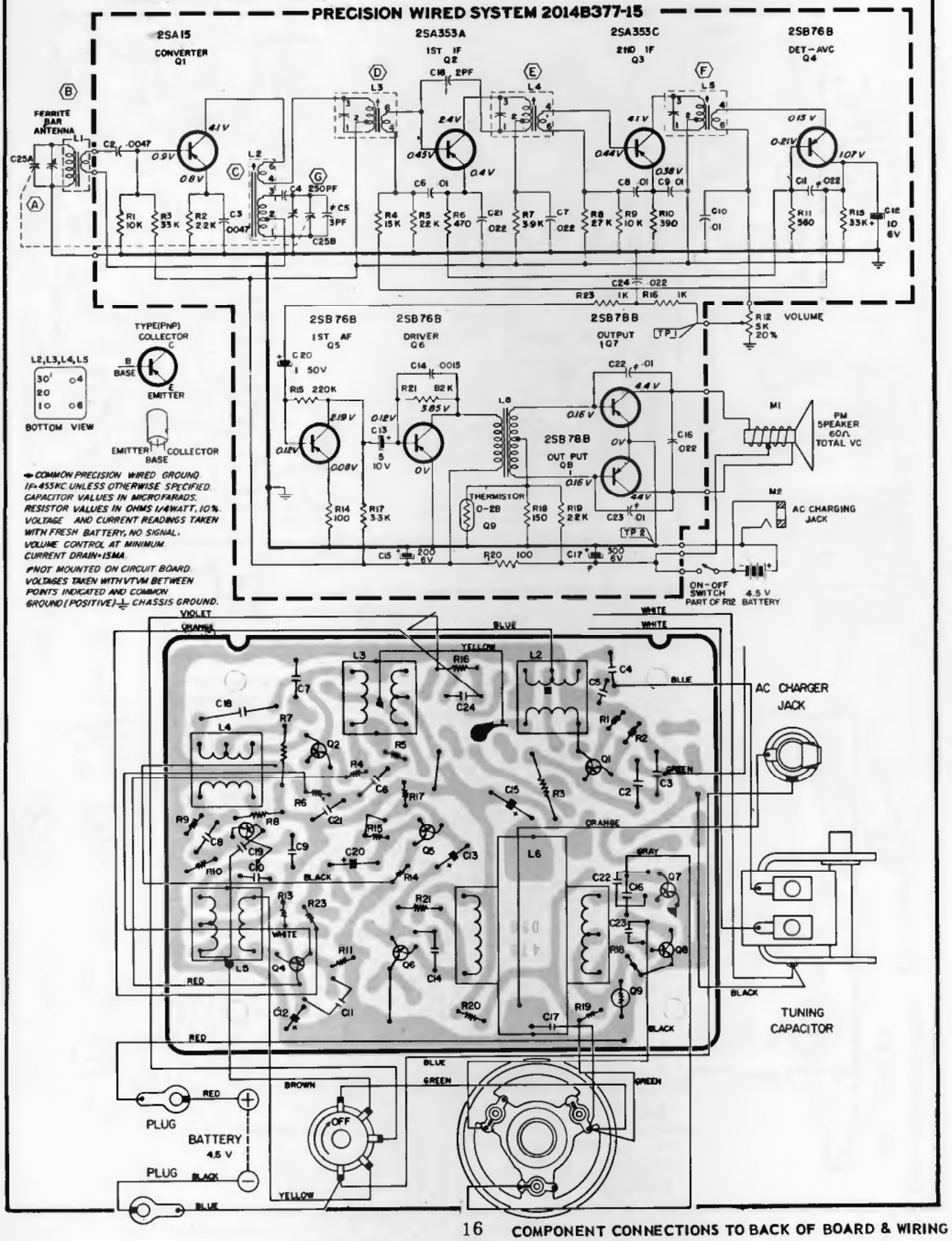
Admiral

Chassis 8A4, Models YH301GP, YH302GP



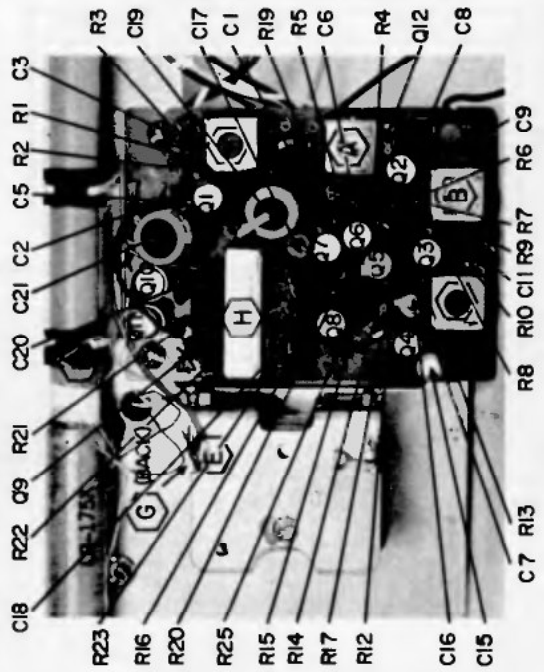
Admiral

Chassis 8B4, Models YH312, YH313

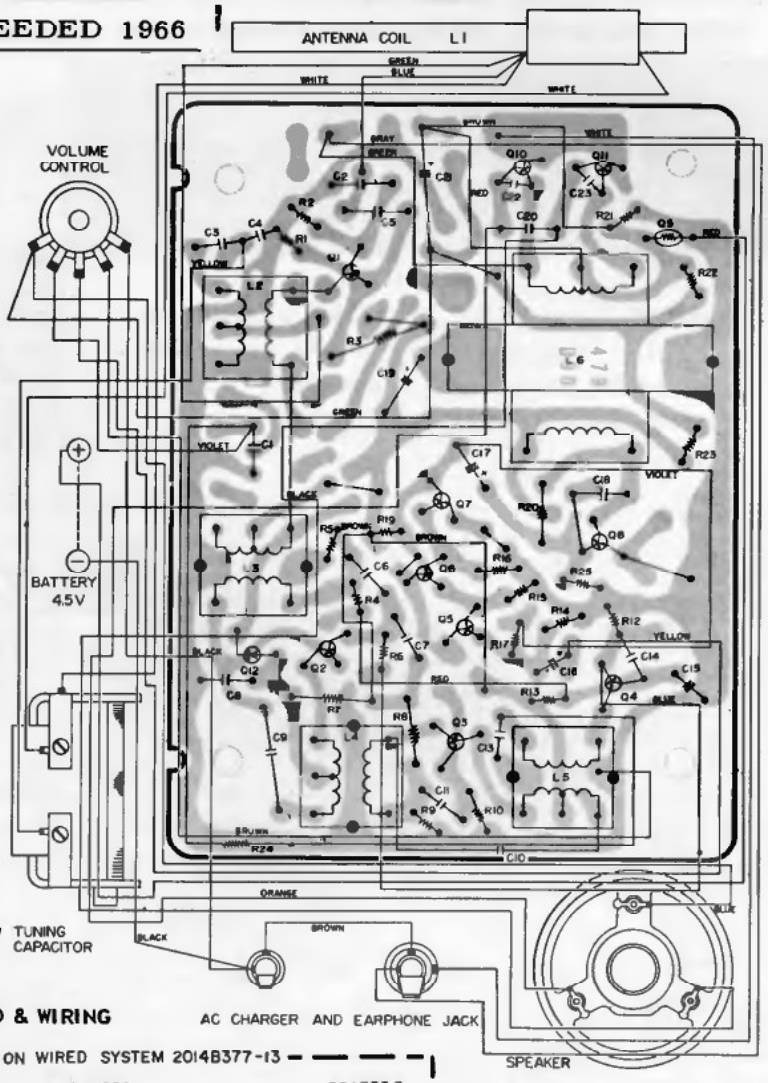


Admiral

Chassis 10A2, Model YH321



COMPONENT & ALIGNMENT LOCATIONS, TOP VIEW



COMPONENT CONNECTIONS TO BACK OF BOARD & WIRING

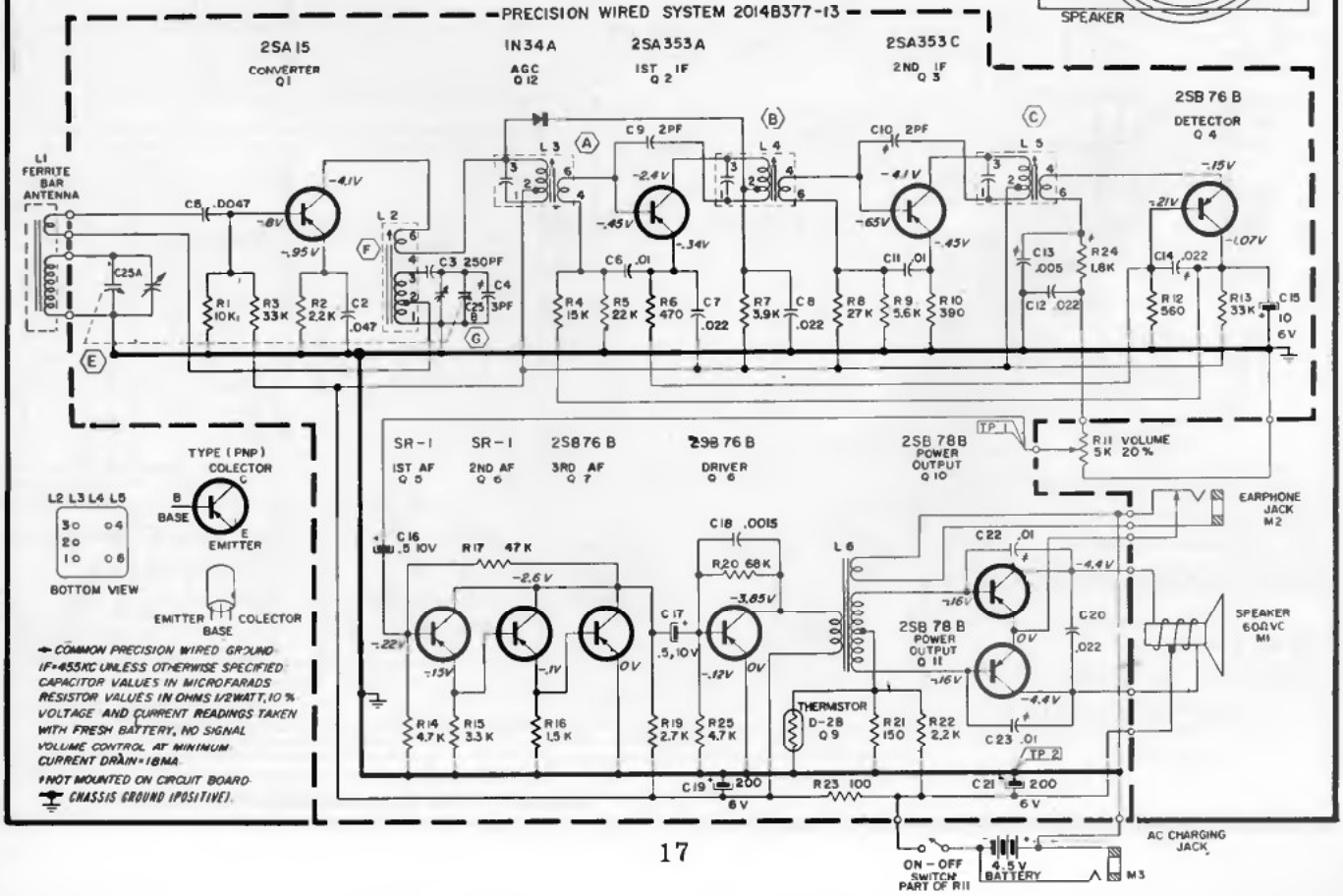


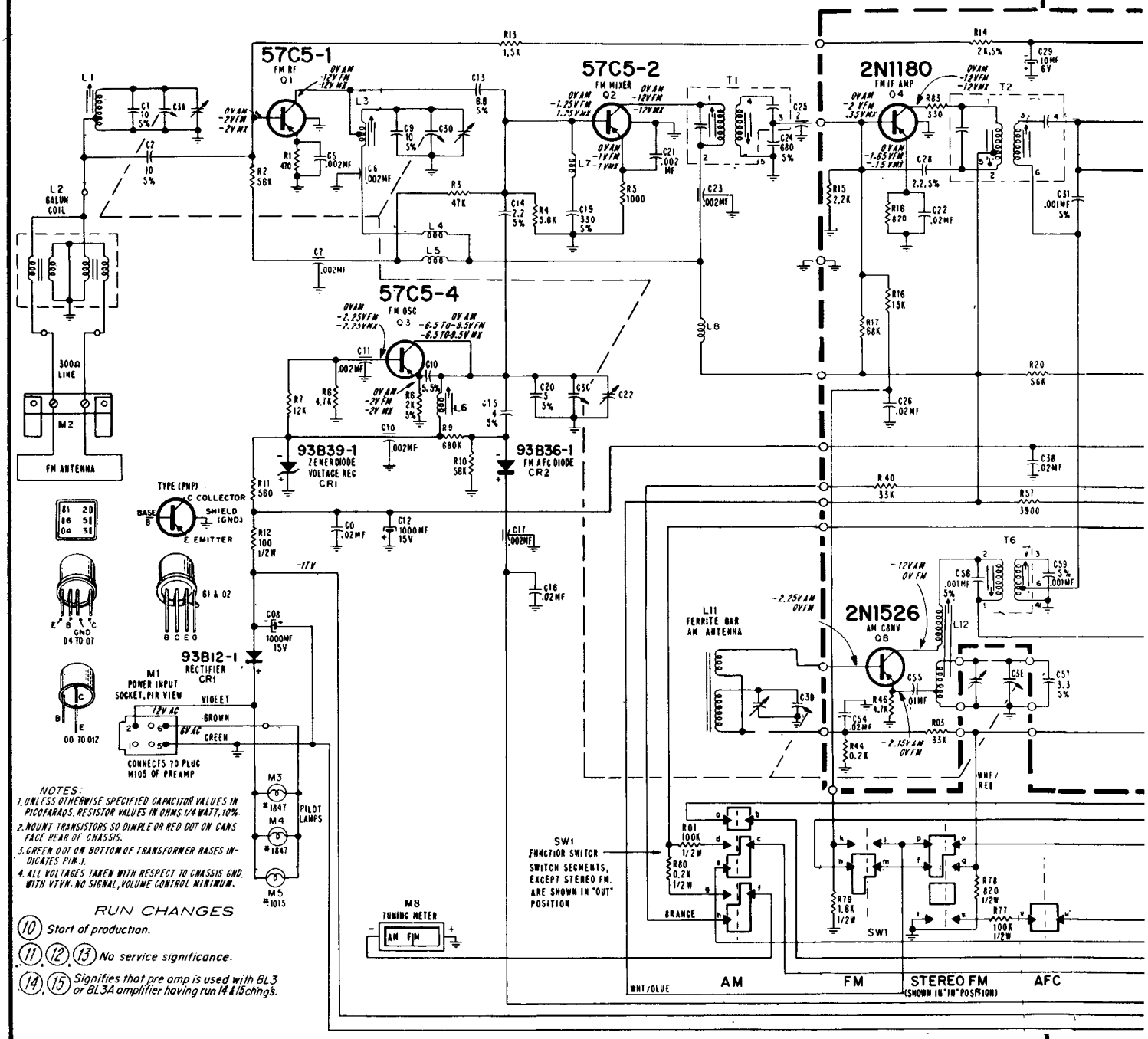
Diagram of 12B2 Tuner across pages 18-19. See page 20 for 4F4 pre-amp and 8L3 power unit diagrams. List of models in chart at right.

MODEL CHART

MODEL	NAME	FINISH	CHASSIS
YG8201	Brookshire	Walnut	12B2, 4F4, 8L3 RC7K4K-93AZ
YG8215	Dunhill	Maple	
YG8229	Marseilles	Cherrywood	

YG411 IDENTIFICATION CHART

MODEL	TYPE	FINISH	CHASSIS
TM441	Tuner	Walnut	12B2
PA451	Pre-amplifier	Walnut	4F4A
PS461	Power Unit	Walnut	8L3A
SS1501A	Speaker	Walnut	2 enclosures
RP471	Record Changer	Walnut	RC7K4K-93AZ
YG411	Complete Unit	Walnut	All above



NOTES:
1. UNLESS OTHERWISE SPECIFIED CAPACITOR VALUES IN PICOFARADS. RESISTOR VALUES IN OHMS. 1/4 WATT, 10%.
2. MOUNT TRANSISTORS SO DIMPLE OR RED DOT ON CANS FACE REAR OF CHASSIS.
3. GREEN DOT ON BOTTOM OF TRANSFORMER BASES INDICATES PIN 1.
4. ALL VOLTAGES TAKEN WITH RESPECT TO CHASSIS GND. WITH VTVM. NO SIGNAL, VOLUME CONTROL MINIMUM.

RUN CHANGES

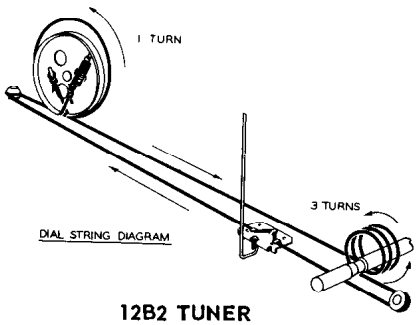
(10) Start of production.

(11) (12) (13) No service significance.

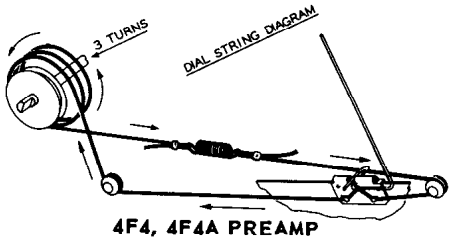
(14) (15) Signifies that pre amp is used with 8L3 or 8L3A amplifier having run 14 & 15 chngs.

SCHEMATIC FOR 12B2 AM-FM-MX TUNER CHASSIS

ADMIRAL Chassis 12B2 Tuner Schematic Diagram (Continued)



12B2 TUNER

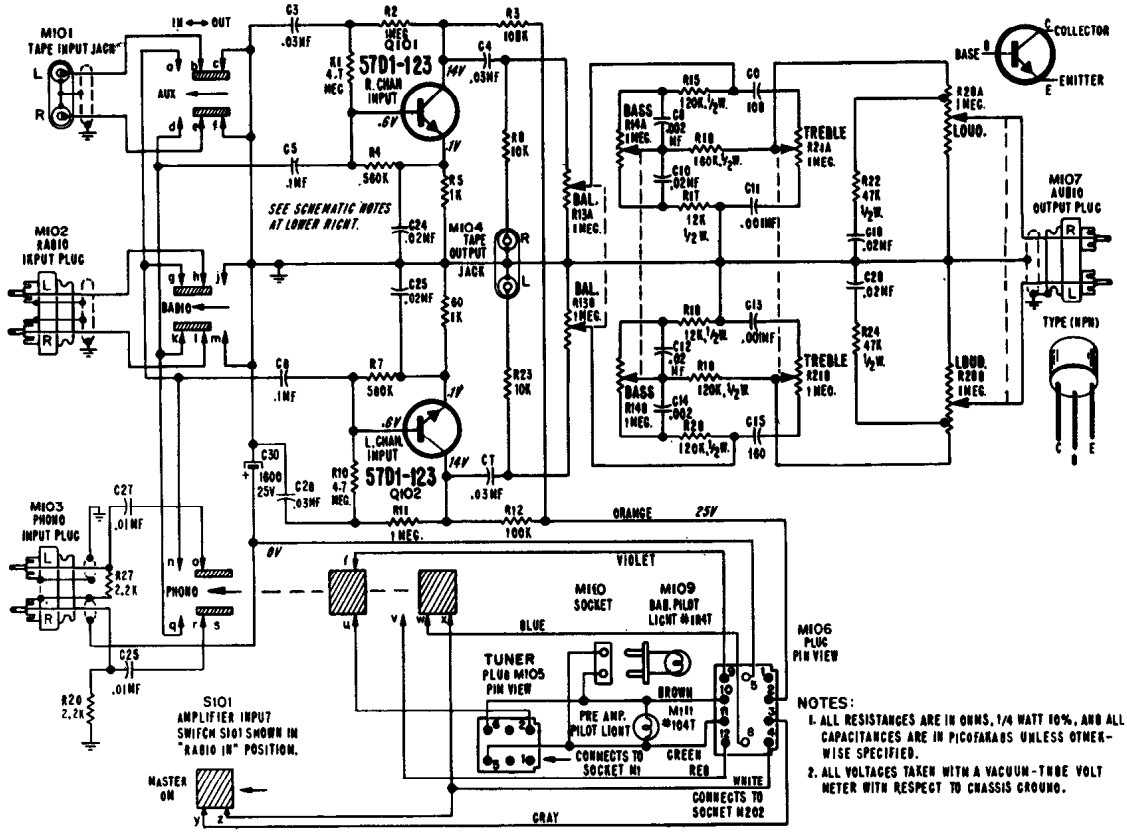


4F4, 4F4A PREAMP

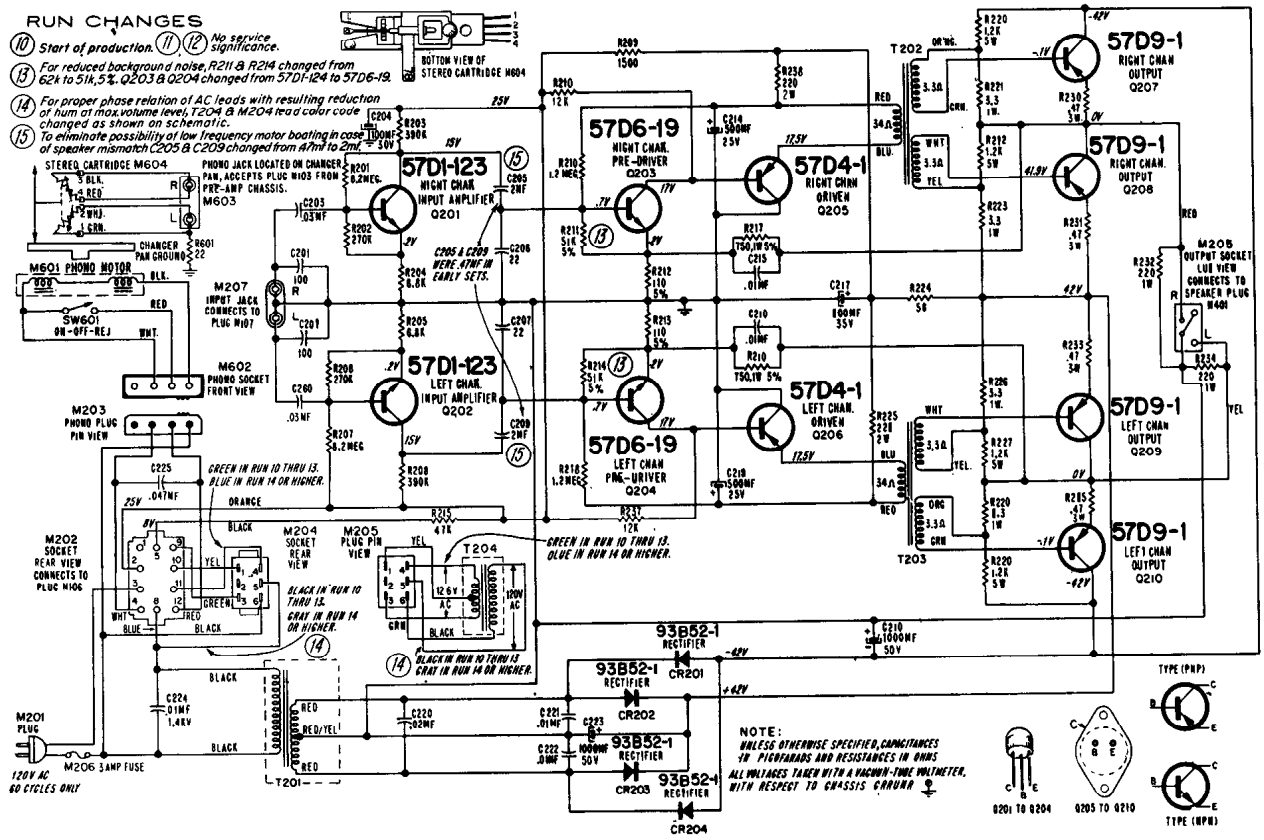
AM IF 455 KC.
FM IF 10.7 MC.

PRECISION WIRED SYSTEM 714E366-1

ADMIRAL 4F4, A, Pre-Amp, and 8L3, A, Power Unit, Continued



SCHEMATIC FOR 4F4, 4F4A PRE-AMP CHASSIS

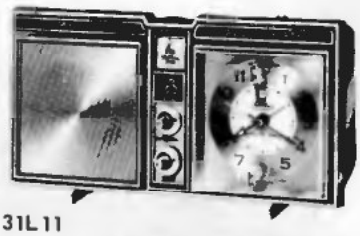


SCHEMATIC FOR 8L3, 8L3A AMPLIFIER – POWER SUPPLY CHASSIS

Emerson Radio

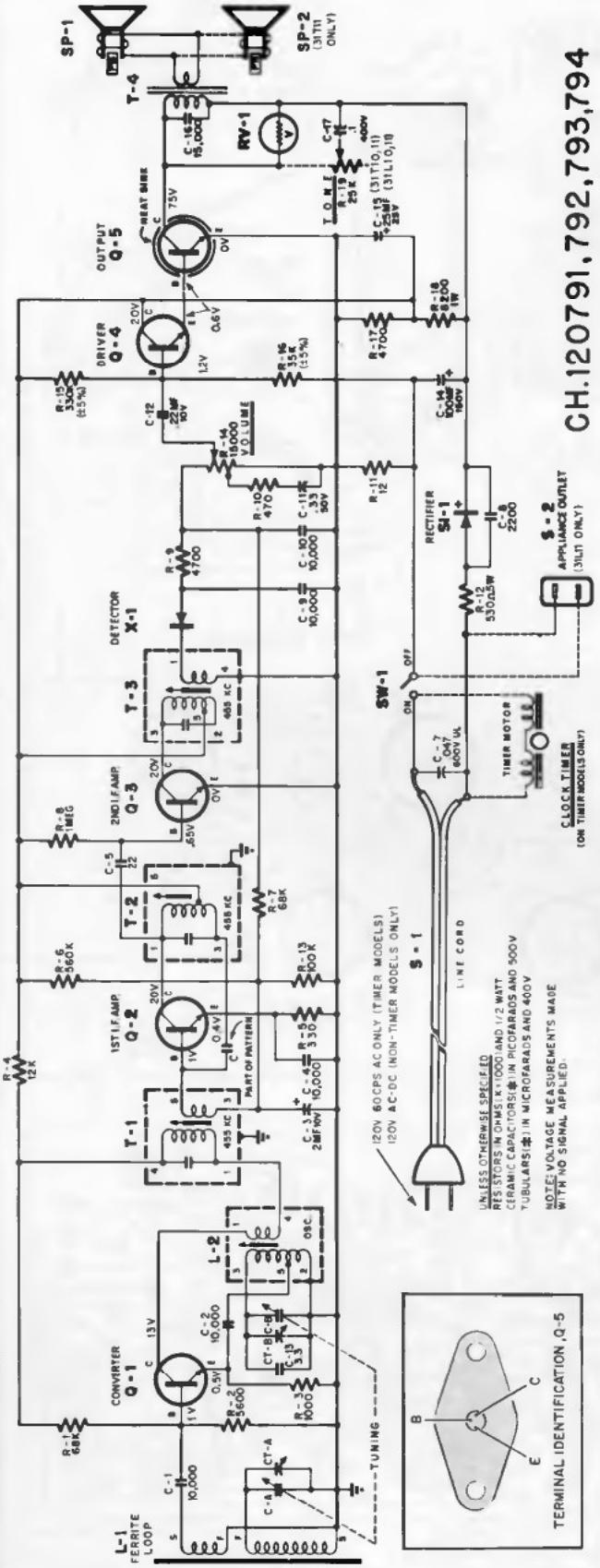
MODELS:
31T09, 31T10, 31T11
31L09, 31L10, 31L11

Chassis 120791, 120792, 120793, 120794. Similar Chassis 120826, 120828, are also used in some of these models.

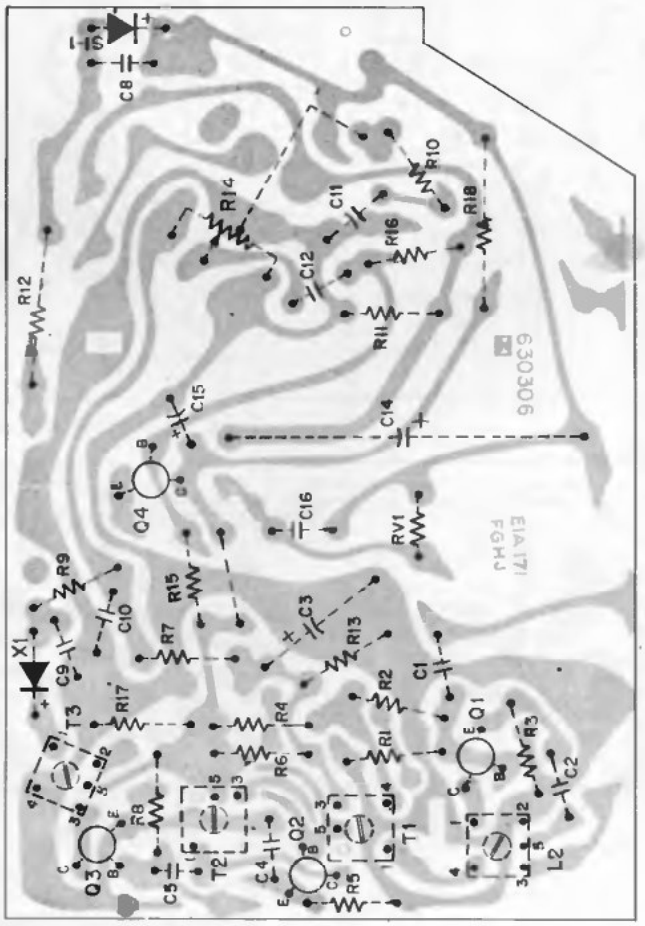


31L11

CH.120791,792,793,794



TERMINAL IDENTIFICATION, Q-5



ETCHED CIRCUIT BOARD (BOTTOM VIEW)

SERVICING PRECAUTIONS

1) Do not operate the chassis without a loudspeaker or suitable dummy load connected to the secondary of the audio output transformer, since this may result in damage to the audio output transistors.

2) Note that B – (chassis ground) is connected to one side of the power line through R-11. For this reason, an isolation transformer must be used whenever servicing procedures require that a signal be conductively (by direct connection) injected into the receiver, otherwise damage to the chassis may result.

EMERSON Chassis 120789, Models 31L07, 31L08

(See adjacent page at right for schematic diagram)

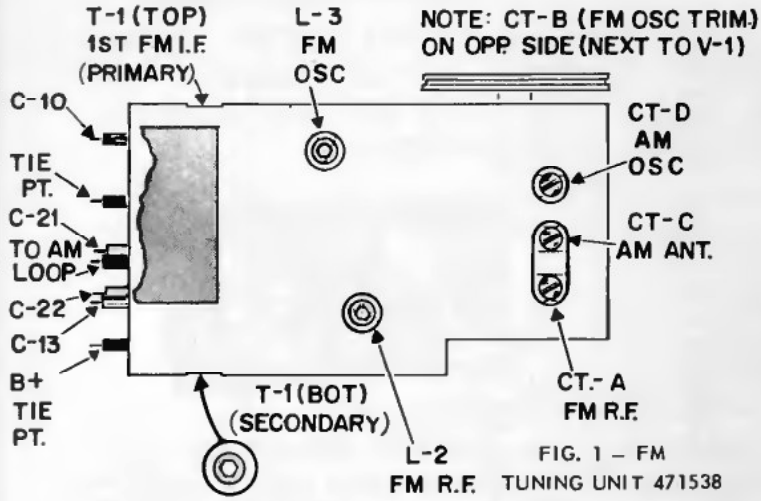
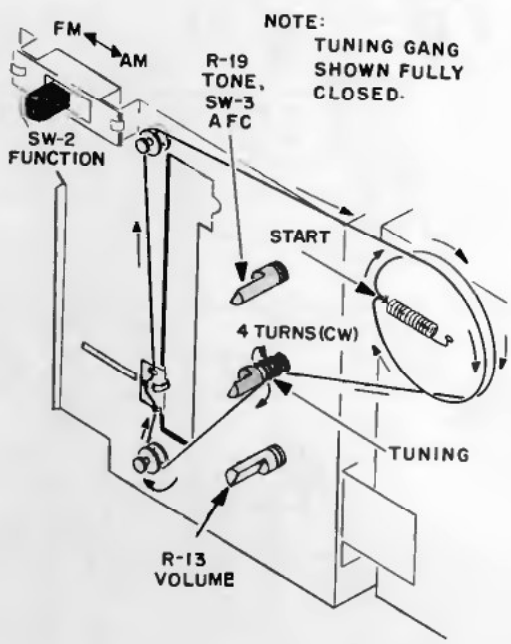


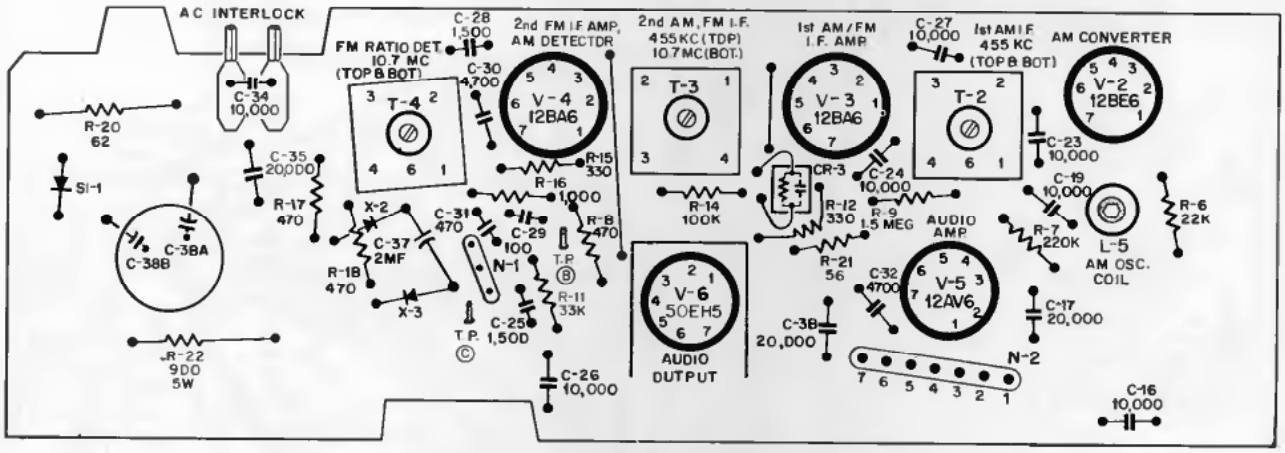
FIG. 1 – FM TUNING UNIT 471538



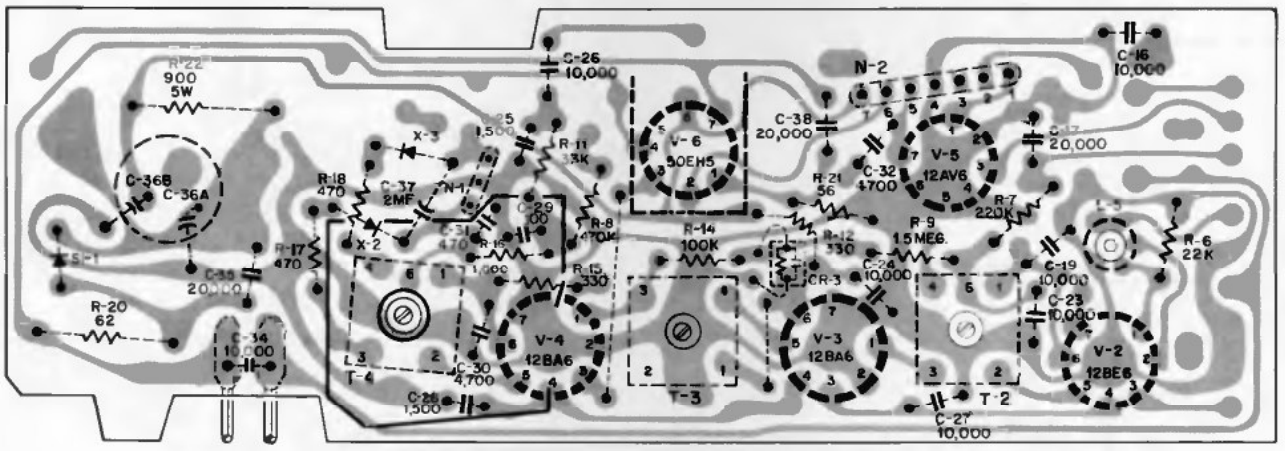
DIAL STRINGING

REPLACEMENT INFORMATION FM TUNING UNIT 471538

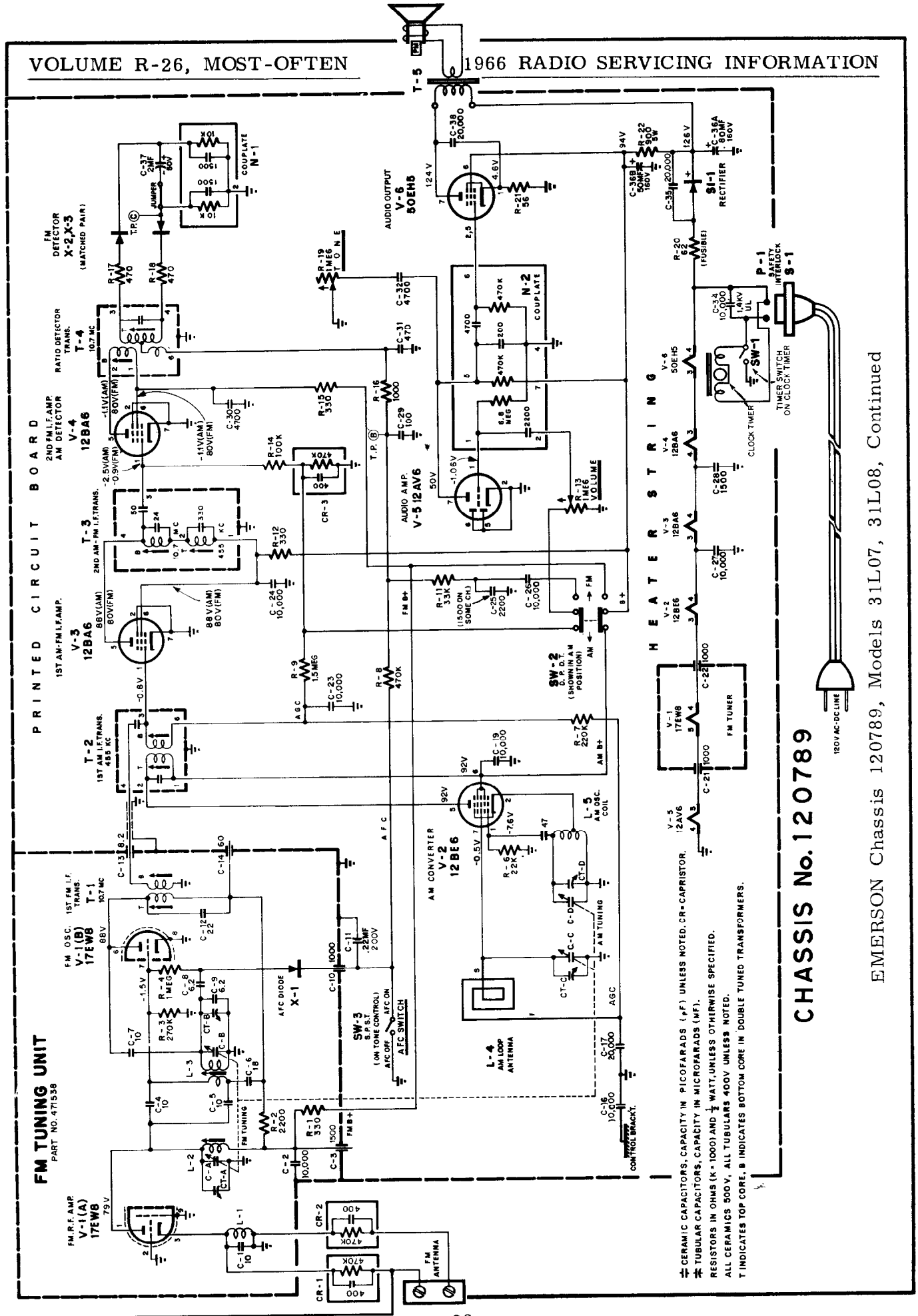
When removing the FM tuning unit for exchange or replacement, be sure to retain the dial string pulley, associated mounting parts and rubber grommets. New units are supplied by the factory complete with metal cover and vacuum tube, but less the items noted above.



TUBE LOCATIONS AND ALIGNMENT POINTS



ETCHED CIRCUIT CHASSIS (BOTTOM VIEW)

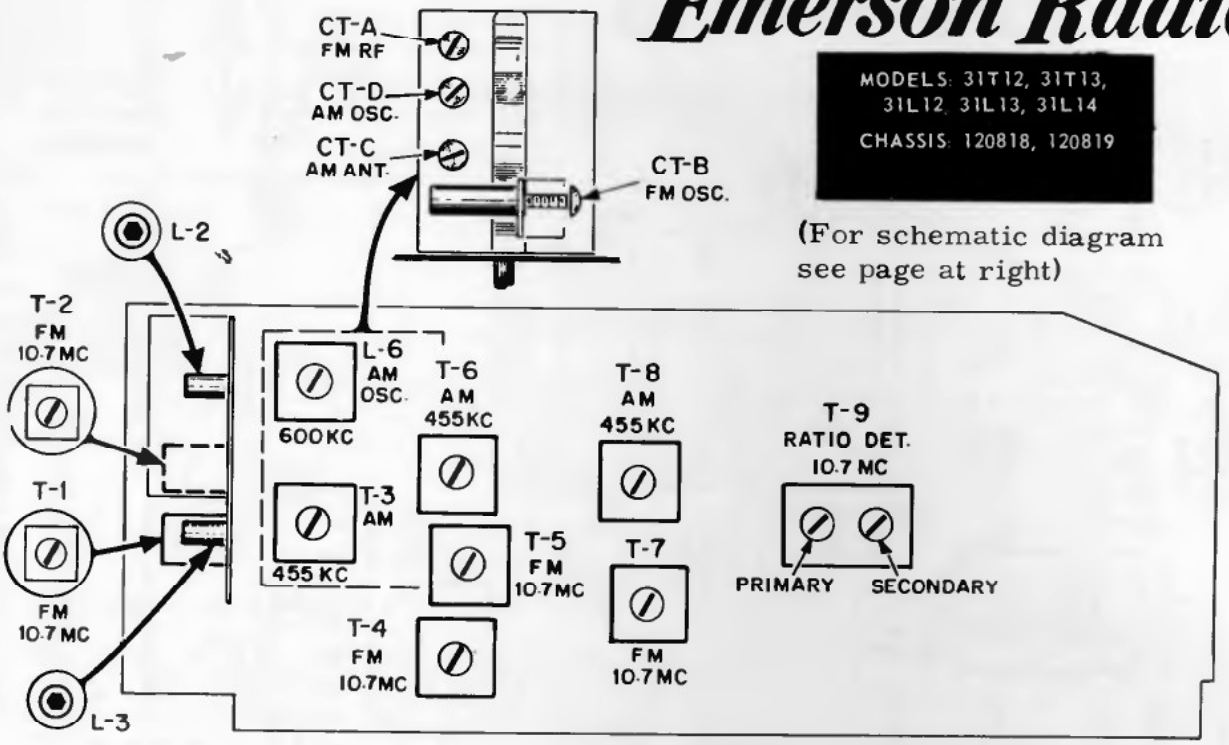


≠ CERAMIC CAPACITORS, CAPACITY IN PICOFARADS (μF) UNLESS NOTED. CR = CAPRISTOR.
≠ TUBULAR CAPACITORS, CAPACITY IN MICROFARADS (MF).
RESISTORS IN OHMS (K = 1000) AND ½ WATT, UNLESS OTHERWISE SPECIFIED.
ALL CERAMICS 500 V, ALL TUBULARS 400V UNLESS NOTED.
T INDICATES TOP CORE, B INDICATES BOTTOM CORE IN DOUBLE TUNED TRANSFORMERS.

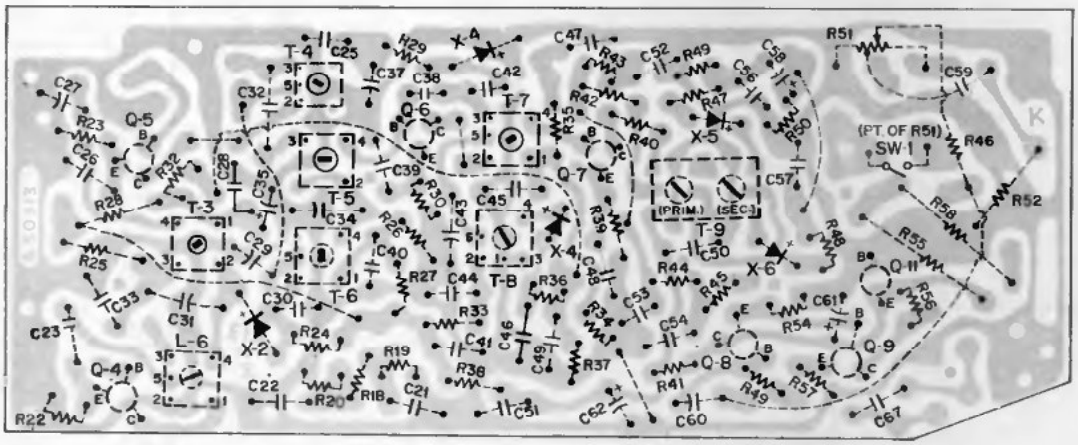
Emerson Radio

MODELS: 31T12, 31T13, 31L12, 31L13, 31L14
CHASSIS: 120818, 120819

(For schematic diagram see page at right)

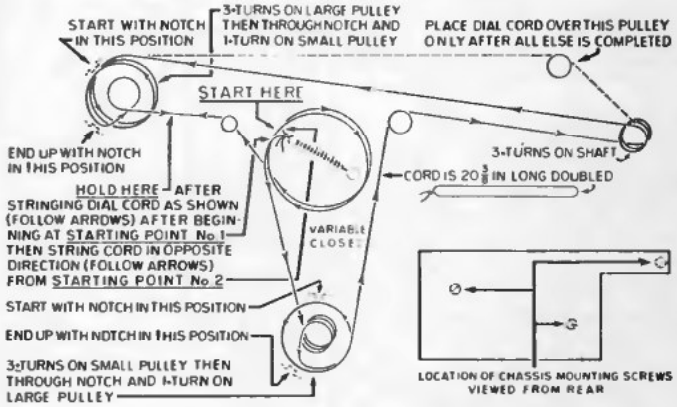


ALIGNMENT POINTS



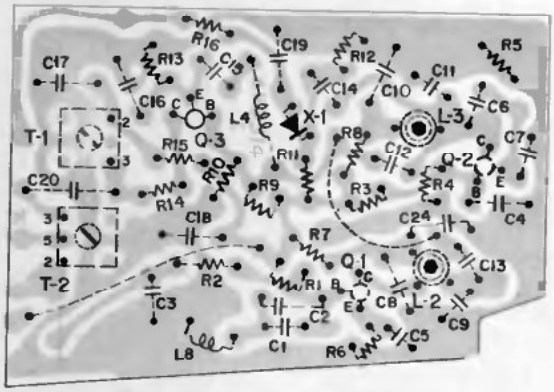
ETCHED CIRCUIT BOARD – MAIN CHASSIS SECTION (BOTTOM VIEW)

DIAL-CORD STRINGING VIEWED FRDM FRDNT



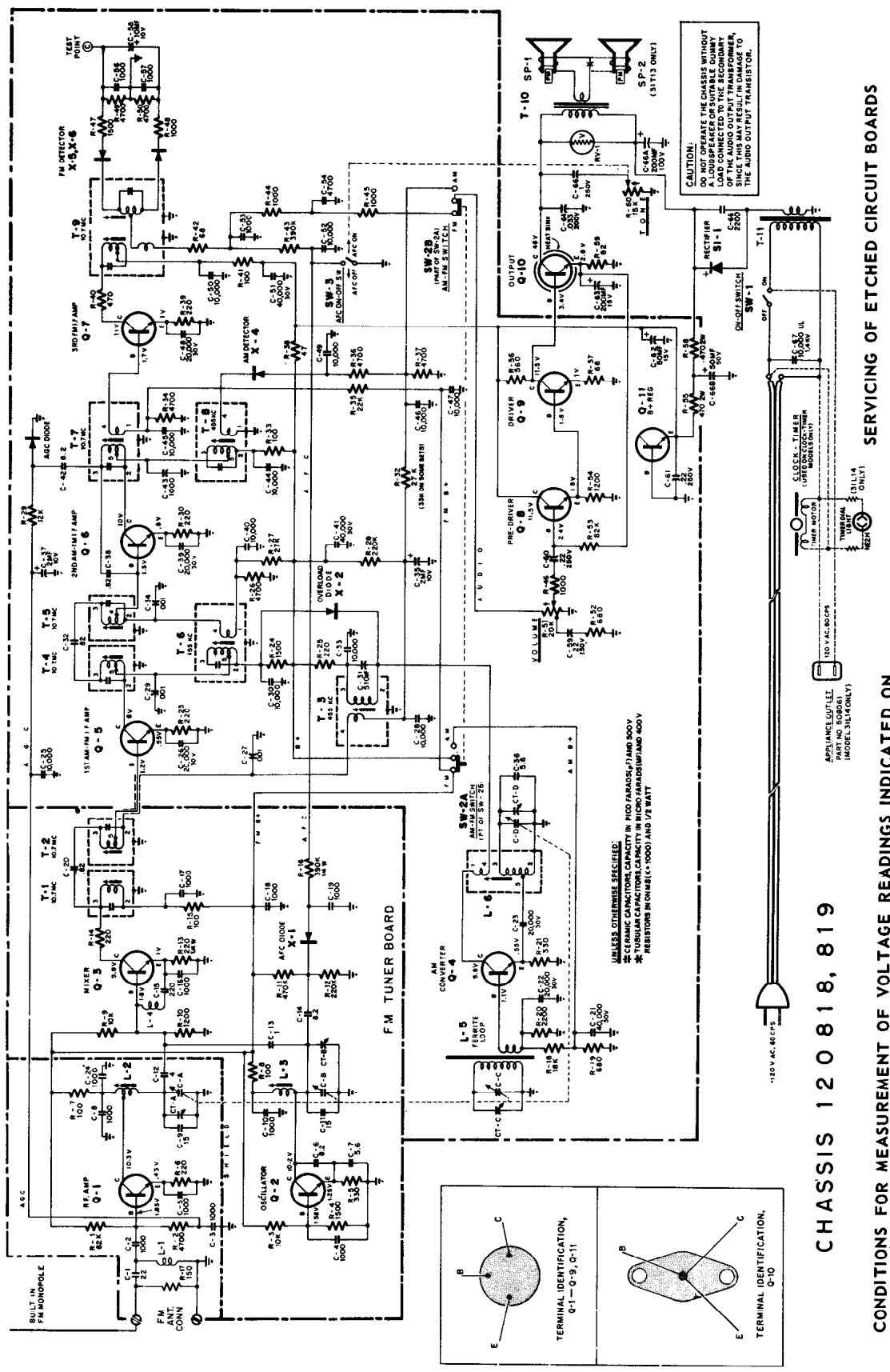
NOTE. WHEN REMOVING OR REPLACING CHASSIS, IT IS RECOMMENDED THAT LEAD DRESSING AND CAPTIVATION BE MAINTAINED.

DIAL STRINGING



ETCHED CIRCUIT BOARD – TUNING SECTION (BOTTOM VIEW)

EMERSON Chassis 120818, 120819, Models 31L12, 31L13, 31L14, 31T12, and 31T13, continued from page at left

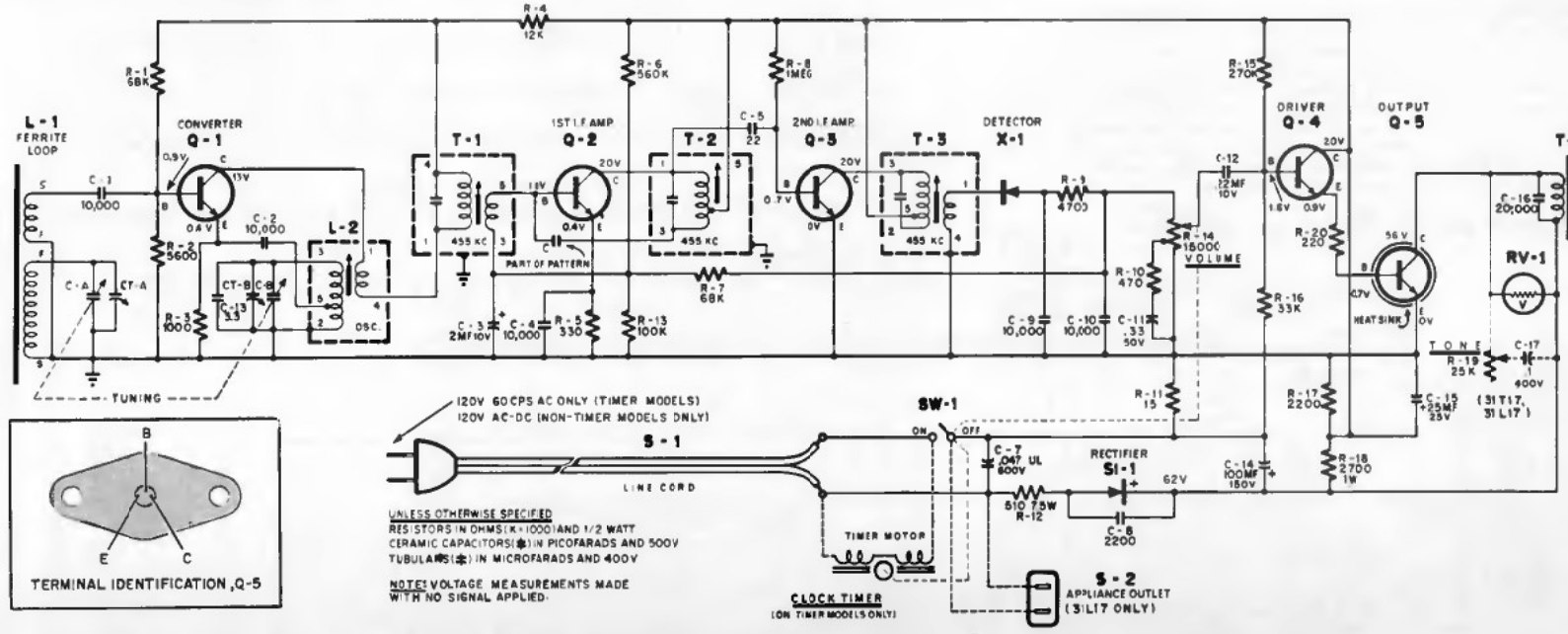


CONDITIONS FOR MEASUREMENT OF VOLTAGE READINGS INDICATED ON SCHEMATIC DIAGRAM

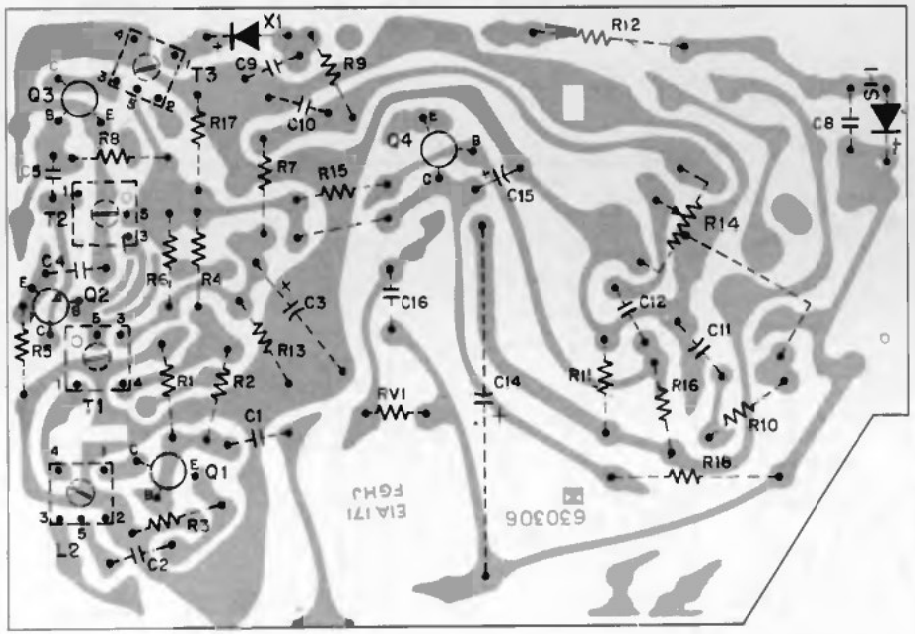
1) Voltage measurements are positive DC, taken between points indicated and common terminal of electrolytic capacitor C-66.
2) Volume control set for minimum volume and tuning capacitor fully open with no signal applied.
3) Measurements taken with SW-2 in following positions: Q-1, 2, 3, 7 (FM) Q-4 (AM) Q-5, 6, 8, 9, 10, 11 (AM or FM)

SERVICING OF ETCHED CIRCUIT BOARDS

When servicing etched circuit boards, it is recommended that a low-wattage soldering iron (approximately 20 to 30 watts) be utilized. Under no circumstances should an excessive amount of heat be applied to the etched foil, since this will result in the etched wiring becoming unbonded from the circuit board. Broken foil leads, if encountered, may be repaired by soldering a piece of stiff hook-up wire across the break. When soldering, a small stiff-bristled brush should be used to wipe away melted solder before it has a chance to accumulate or drip into adjacent wiring or components.



TERMINAL IDENTIFICATION, Q-5



ETCHED CIRCUIT BOARD (BOTTOM VIEW)

Emerson Radio

CH.120795,796,797,798

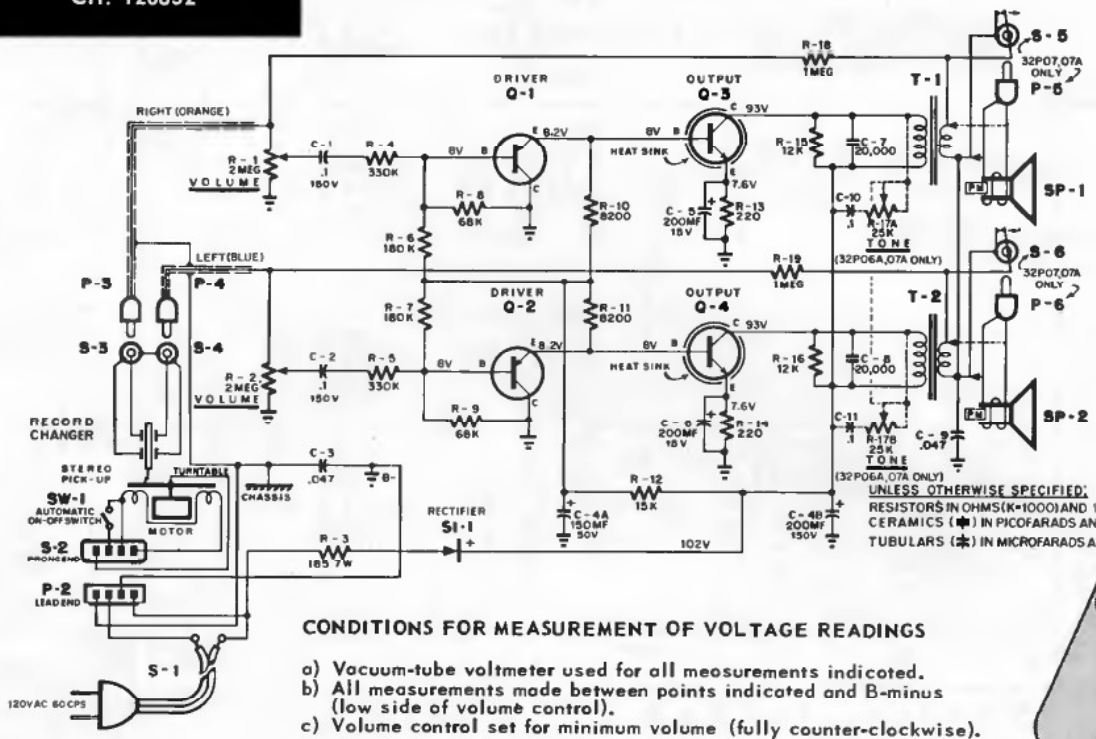
MODEL	CHASSIS
31L15	120797
31L17	120798
31T15	120795
31T17	120796

ALIGNMENT INSTRUCTIONS

STEP	SIGNAL GENERATOR		RADIO DIAL SETTING	OUTPUT METER	ADJUST.
	COUPLING	FREQUENCY			
1	Form loop of several turns and radiate signal into receiver.	455 KC	Variable condenser fully open.	Across voice coil.	T-3 T-2 T-1
2	As above	600 KC	600 KC	As above	L-2
3	As above	1638 KC	Variable condenser fully open.	As above	Trimmer CT-B (Osc.)
4	As above	1420 KC	Tune for maximum output.	As above	Trimmer CT-A (Ant.)

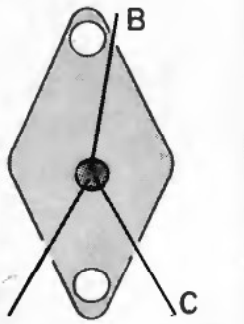
32P06, 32P07
CH. 120815
32P06A, 32P07A
CH. 120832

Emerson Radio



CONDITIONS FOR MEASUREMENT OF VOLTAGE READINGS

a) Vacuum-tube voltmeter used for all measurements indicated.
b) All measurements made between points indicated and B-minus (low side of volume control).
c) Volume control set for minimum volume (fully counter-clockwise).

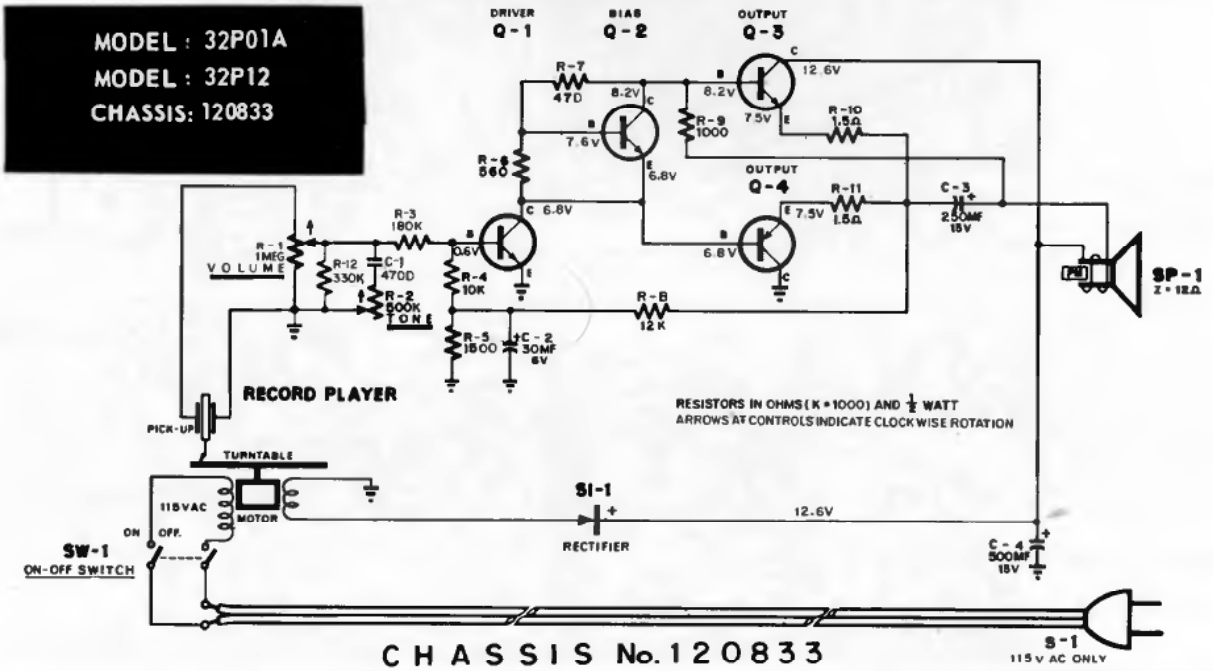


TERMINAL IDENTIFICATION - Q-3, Q-4

TRANSISTOR REPLACEMENT INFORMATION

CHASSIS PRODUCTION	RESISTANCE VALUES EMPLOYED			USE ONLY THE FOLLOWING REPLACEMENTS	
	R-4,5	R-8,9	R-15,16	Q-1,2	Q-3,4
GROUP A	330 K	68 K	12 K	815181-B	815180-3 OR -4
GROUP B	220 K	82 K	8.2 K	815181-D	815180-7

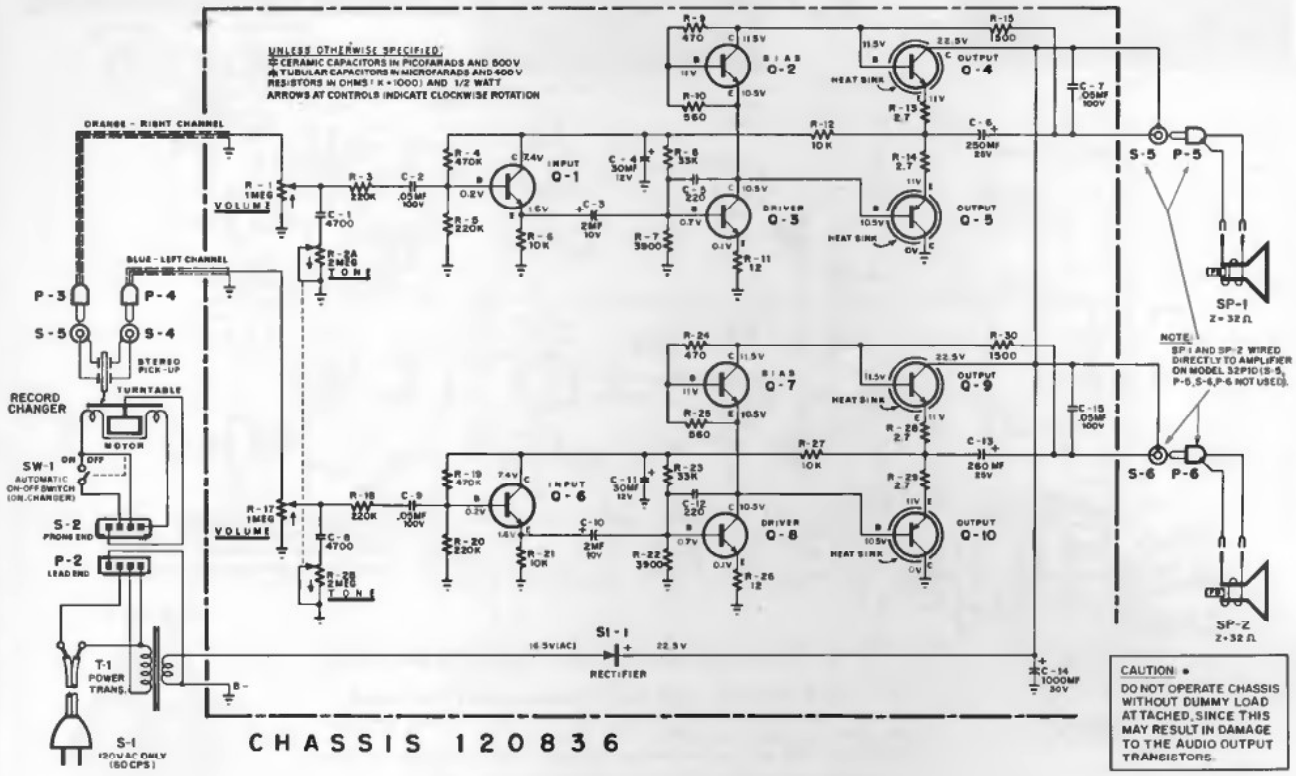
MODEL : 32P01A
MODEL : 32P12
CHASSIS: 120833



CHASSIS No. 120833

S-1 115 V AC ONLY

EMERSON Chassis 120836, Models 32P09, 32P10, 32P11

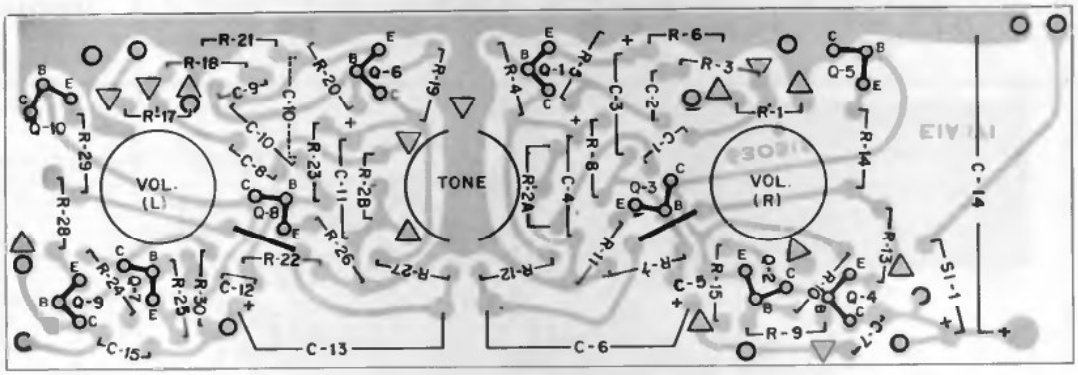


CHASSIS 120836

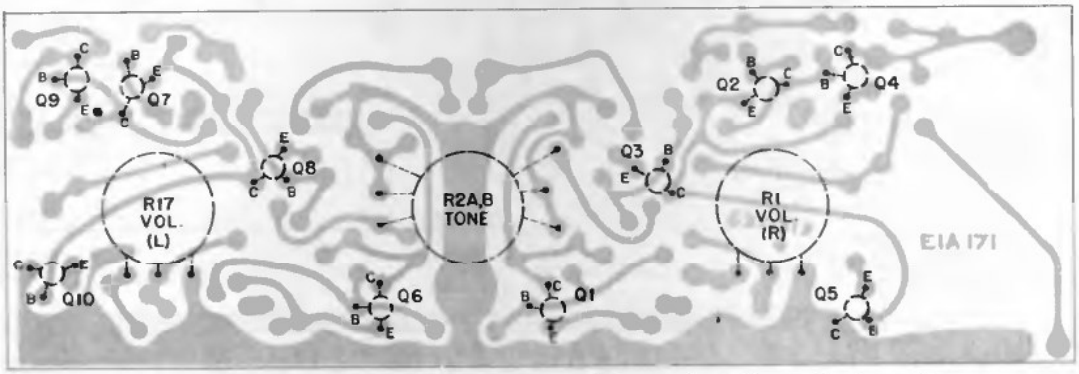
CONDITIONS FOR VOLTAGE MEASUREMENTS

Voltage readings shown on the schematic diagram are positive DC, measured using a VTVM between the points indicated and chassis ground. All measurements were made with controls set fully counter-clockwise, and line voltage maintained at 120 volts, 60 cps AC. Allow ± 10% variation in readings obtained to compensate for normal component tolerances.

ETCHED CIRCUIT BOARD (Top View)

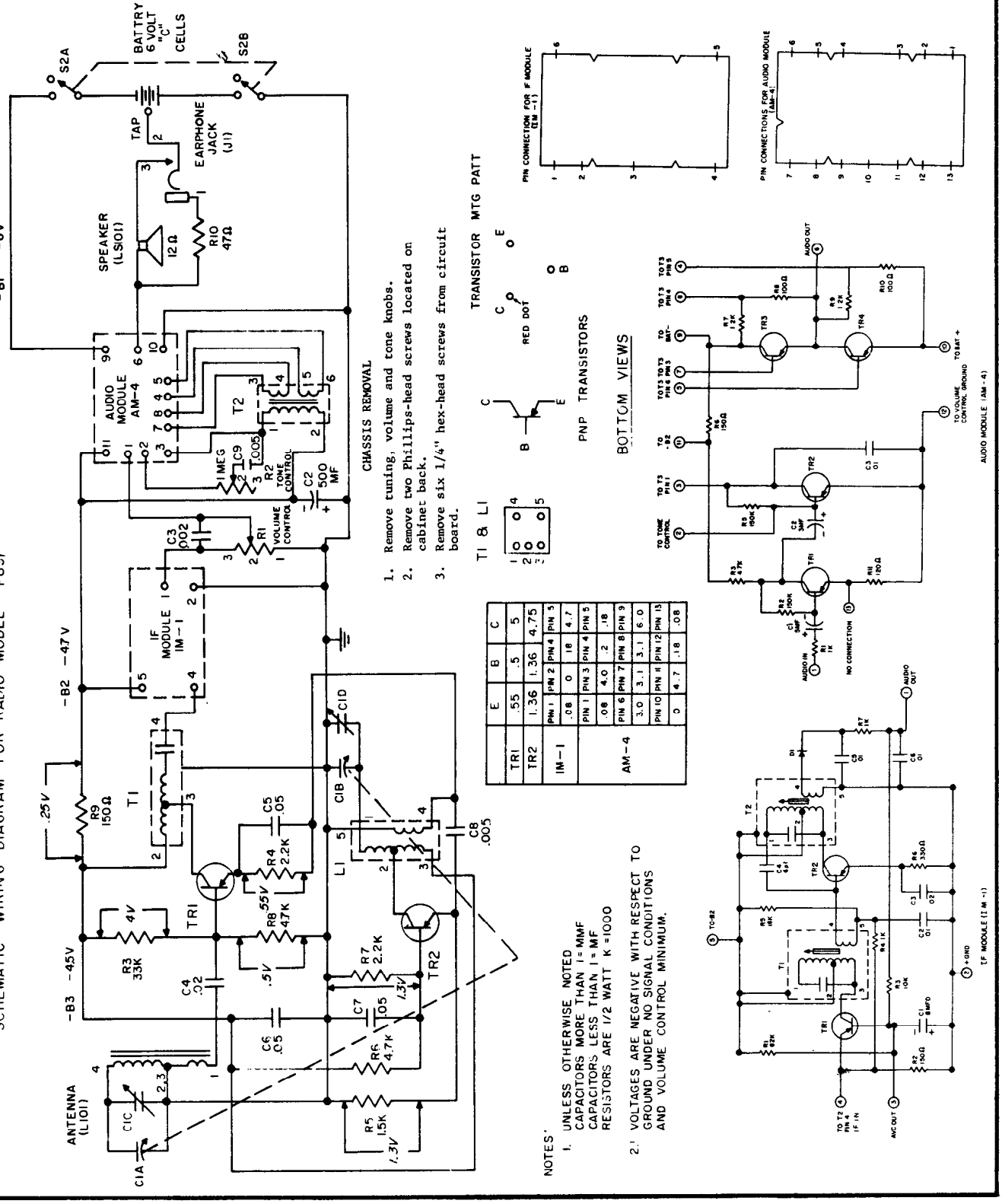


ETCHED CIRCUIT BOARD (Bottom View)



GENERAL ELECTRIC

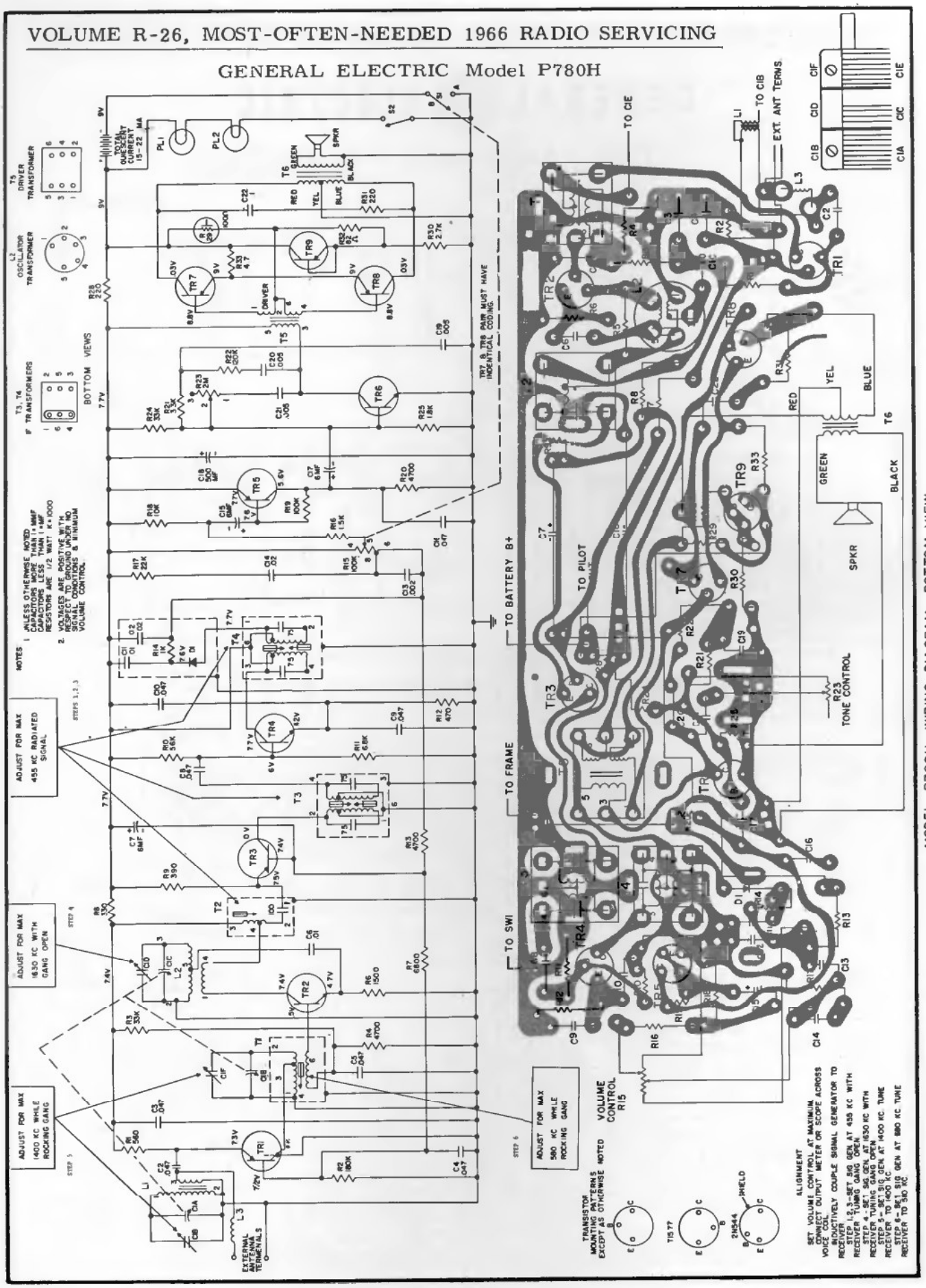
Model P891A



	E	B	C
TR1	.55	.5	5
TR2	1.36	1.36	4.75

		E	B	C
IM-1	PIN 1	.08	0	4.7
	PIN 2	0	.18	
	PIN 3			
	PIN 4			
	PIN 5			
AM-4	PIN 1	.08	4.0	.18
	PIN 2			
	PIN 3			
	PIN 4			
	PIN 5			
	PIN 6	3.0	3.1	6.0
	PIN 7			
	PIN 8			
	PIN 9			
	PIN 10	0	4.7	.18
	PIN 11			
	PIN 12			
	PIN 13			.08

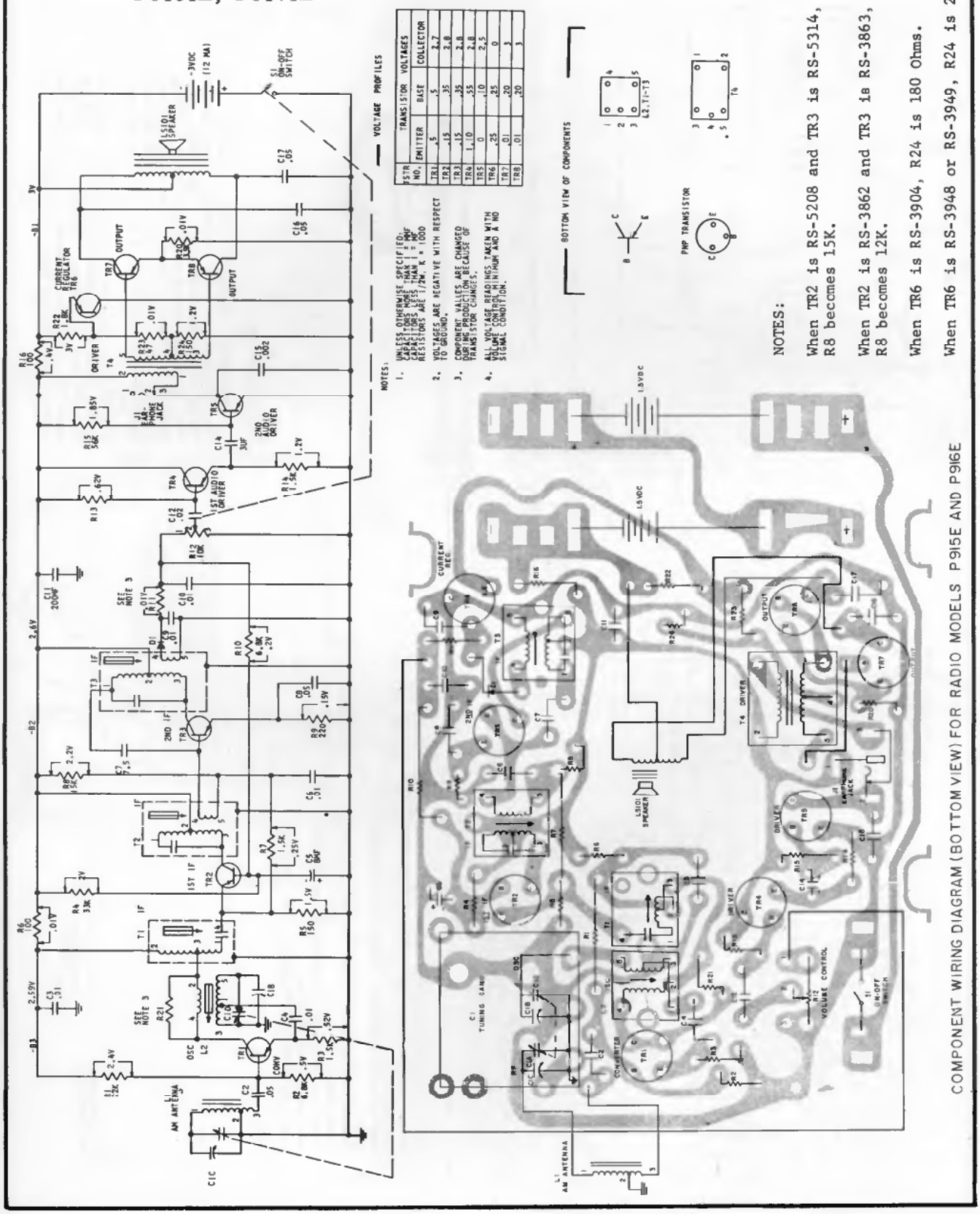
GENERAL ELECTRIC Model P780H



MODEL P780H WIRING DIAGRAM - BOTTOM VIEW

GENERAL ELECTRIC

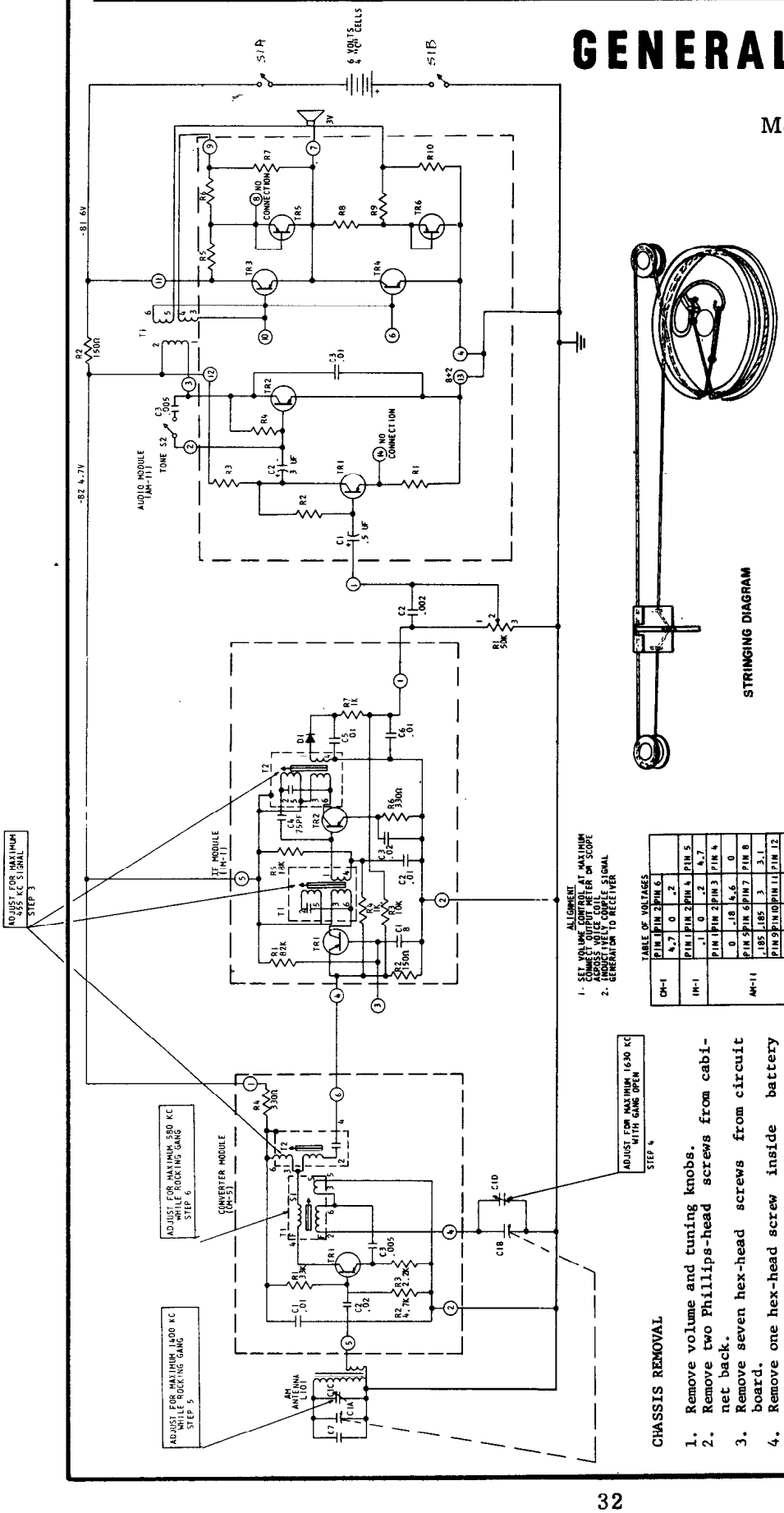
Models P740A, P741A, P915E, P916E, P917E, P9151E, P9161E, P9171E



COMPONENT WIRING DIAGRAM (BOTTOM VIEW) FOR RADIO MODELS P915E AND P916E

GENERAL ELECTRIC

Model P955E



STRINGING DIAGRAM

TROUBLESHOOTING

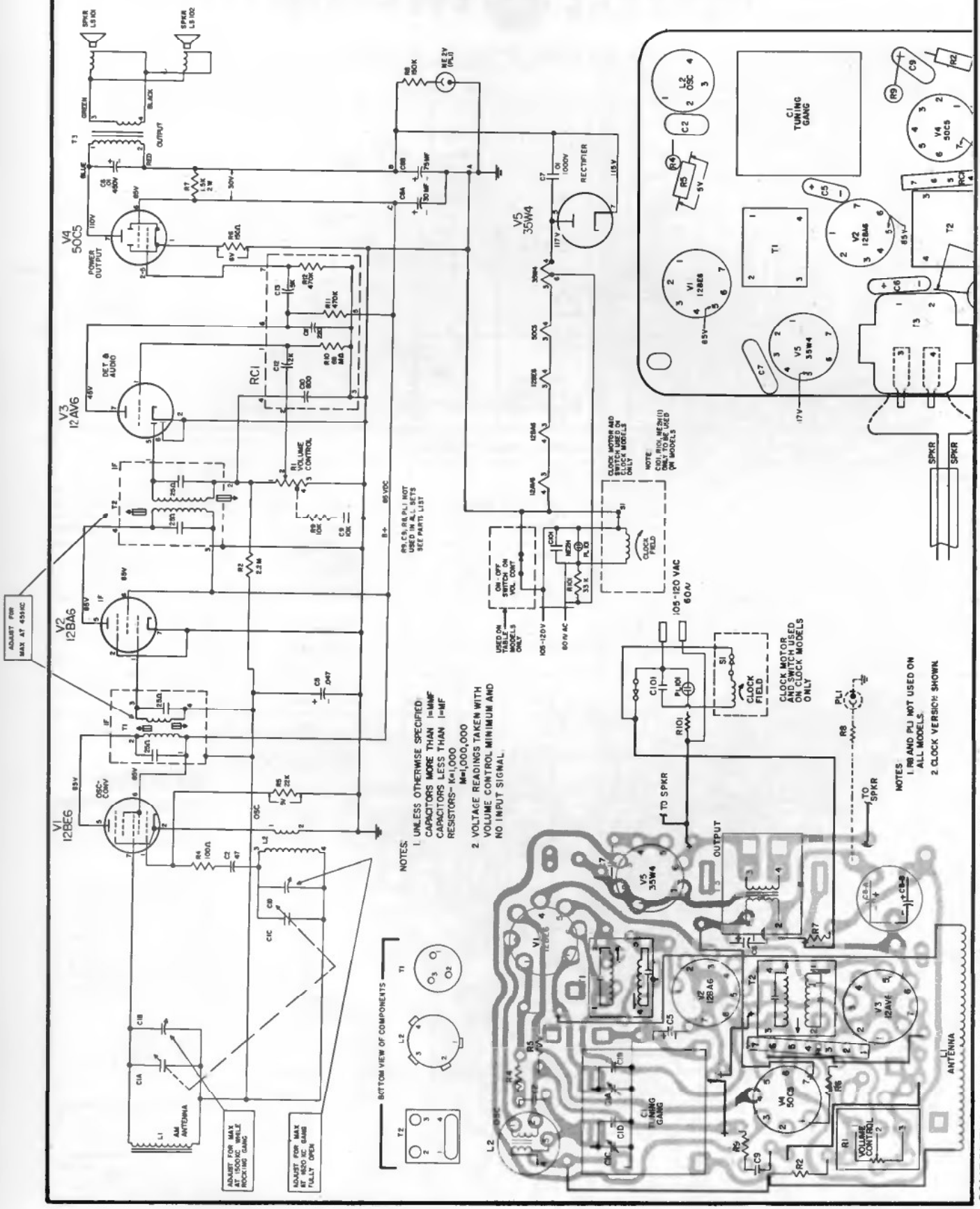
IMPORTANT: The audio output terminals of the radio must be D.C. isolated from ground during servicing procedures. This is to prevent the audio output transistors from becoming damaged by excess voltages in the audio circuit. Therefore, care must be exercised in using test equipment that may cause a D.C. path to ground.

Use of a VOM creates no particular problem as the meter is isolated from ground. If a VTVM is used, a 100 MFD., 200 volt electrolytic capacitor must be inserted in the negative probe to isolate the VTVM.

CHASSIS REMOVAL

1. Remove volume and tuning knobs.
2. Remove two Phillips-head screws from cabinet back.
3. Remove seven hex-head screws from circuit board.
4. Remove one hex-head screw inside battery compartment.
5. Label and unsolder wires going to speaker and battery terminals.
6. Carefully lift circuit board from cabinet.

GENERAL ELECTRIC Models C1410A, C1411A, C1412A

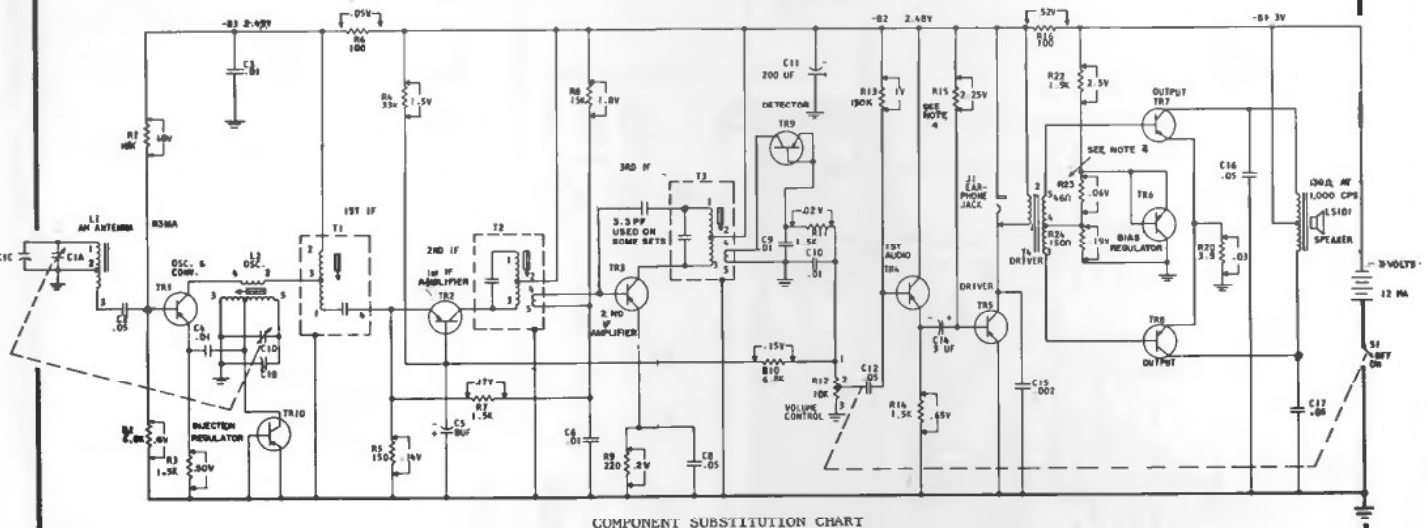


COMPONENT WIRING DIAGRAM (BOTTOM VIEW) RADIO MODEL C1410

COMPONENT LAYOUT DIAGRAM (TOP VIEW)

GENERAL ELECTRIC

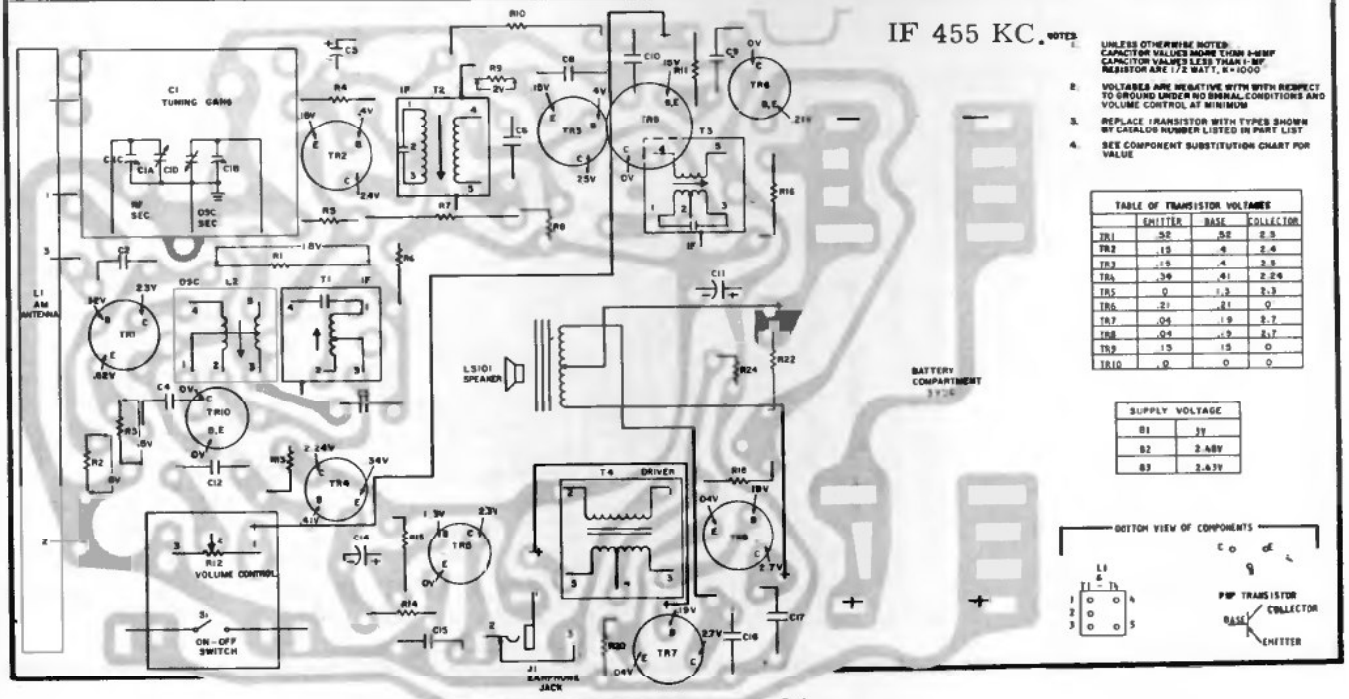
Models P1700A, P1701A, P1704A



COMPONENT SUBSTITUTION CHART

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TR5	RS-5551	RS-5551	RS-5551	RS-5552	RS-5552	RS-5552	RS-5552	RS-5553	RS-5553	RS-5553	RS-5553	RS-5553	RS-5554	RS-5554
TR7,8	RS-5757	RS-5758	RS-5759	RS-5756	RS-5757	RS-5758	RS-5759	RS-5755	RS-5756	RS-5757	RS-5758	RS-5759	RS-5755	RS-5756
R15	150K	150K	150K	180K	180K	180K	180K	220K	220K	220K	220K	220K	270K	270K
R23	39	47	50	22	39	47	56	22	22	39	47	56	22	22

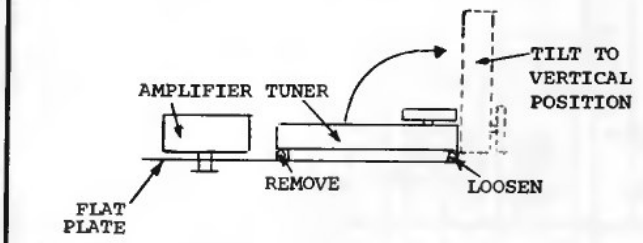
GROUP CONT'D.	15	16	17	18	19	20	21	22	23	24	25	26	27
TR5	RS-5554	RS-5554	RS-5554	RS-5555	RS-5555	RS-5555	RS-5555	RS-5556	RS-5556	RS-5556	RS-5557	RS-5557	RS-5557
TR7,8	RS-5757	RS-5758	RS-5759	RS-5755	RS-5756	RS-5757	RS-5758	RS-5754	RS-5755	RS-5756	RS-5754	RS-5755	RS-5756
R15	270K	270K	270K	330K	330K	330K	330K	330K	330K	330K	390K	390K	390K
R23	39	47	56	22	22	39	47	22	22	22	22	22	22

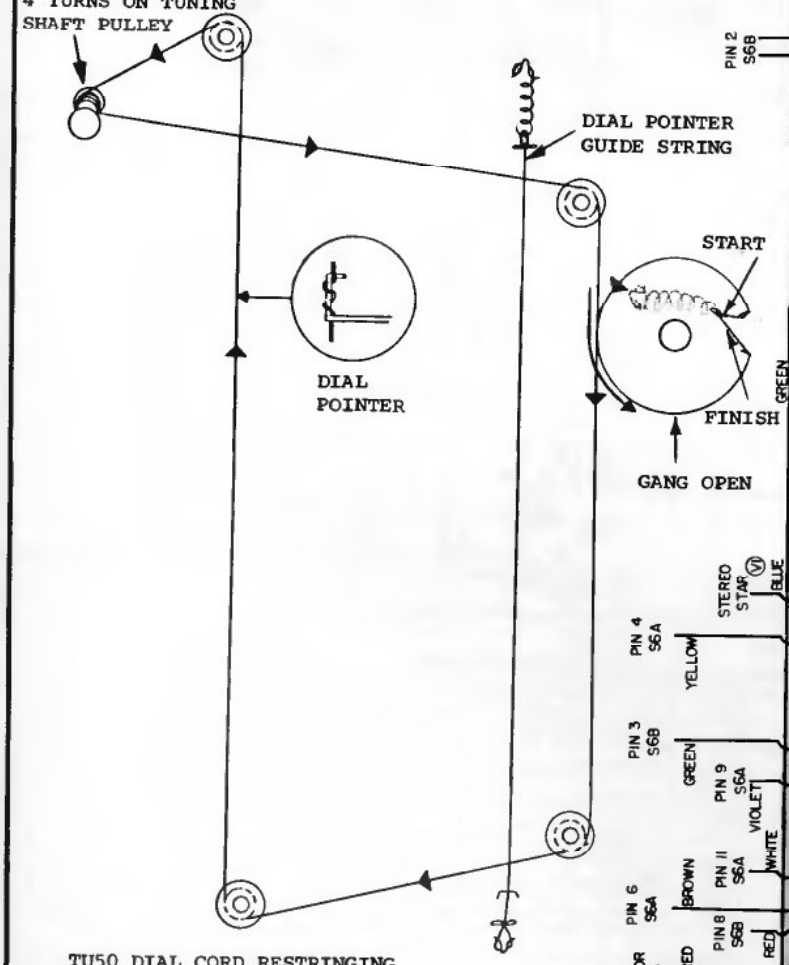


GENERAL ELECTRIC

TU50 FM-AM Tuner
(Diagram and data on next two pages)

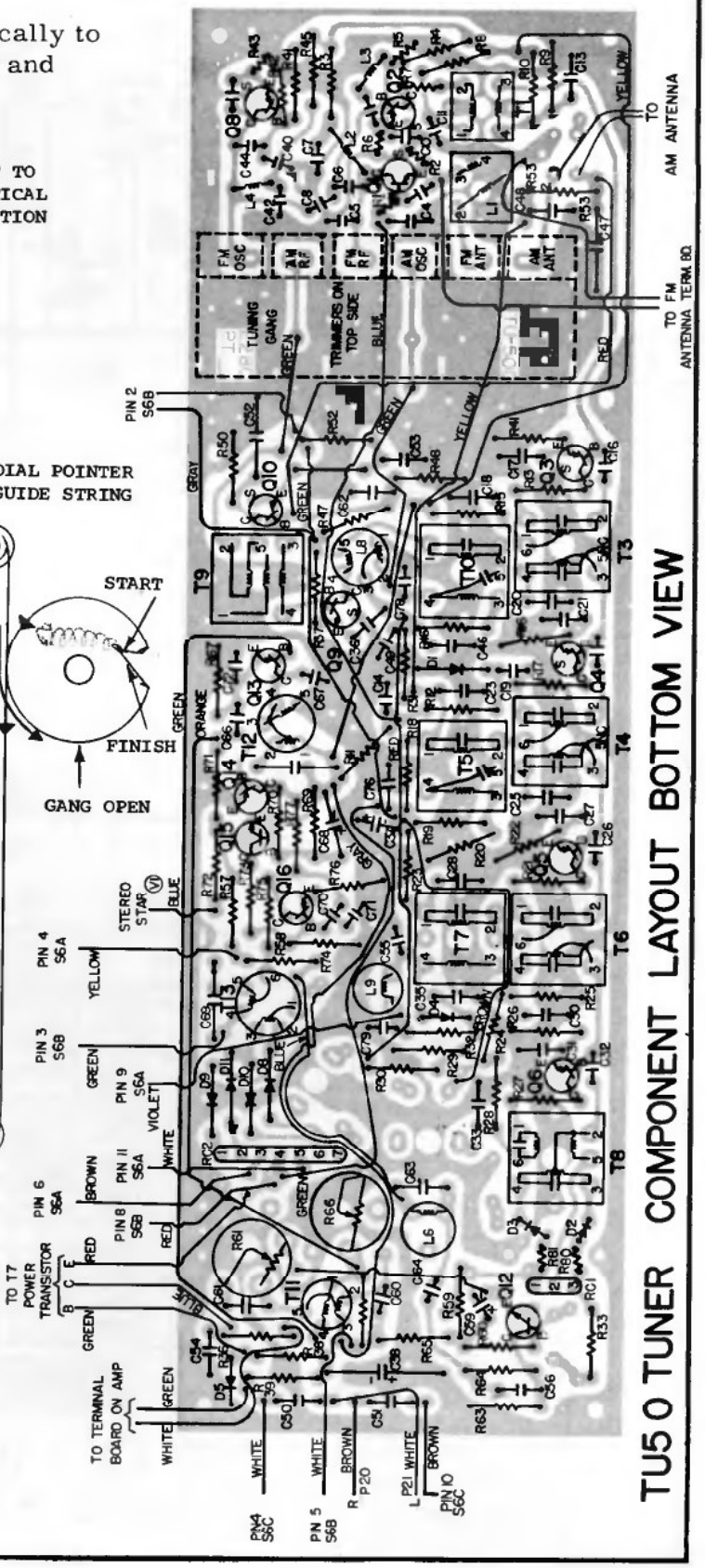
(TU500 series type tuner is practically to TU50, but has mechanical housing and flywheel tuning.)



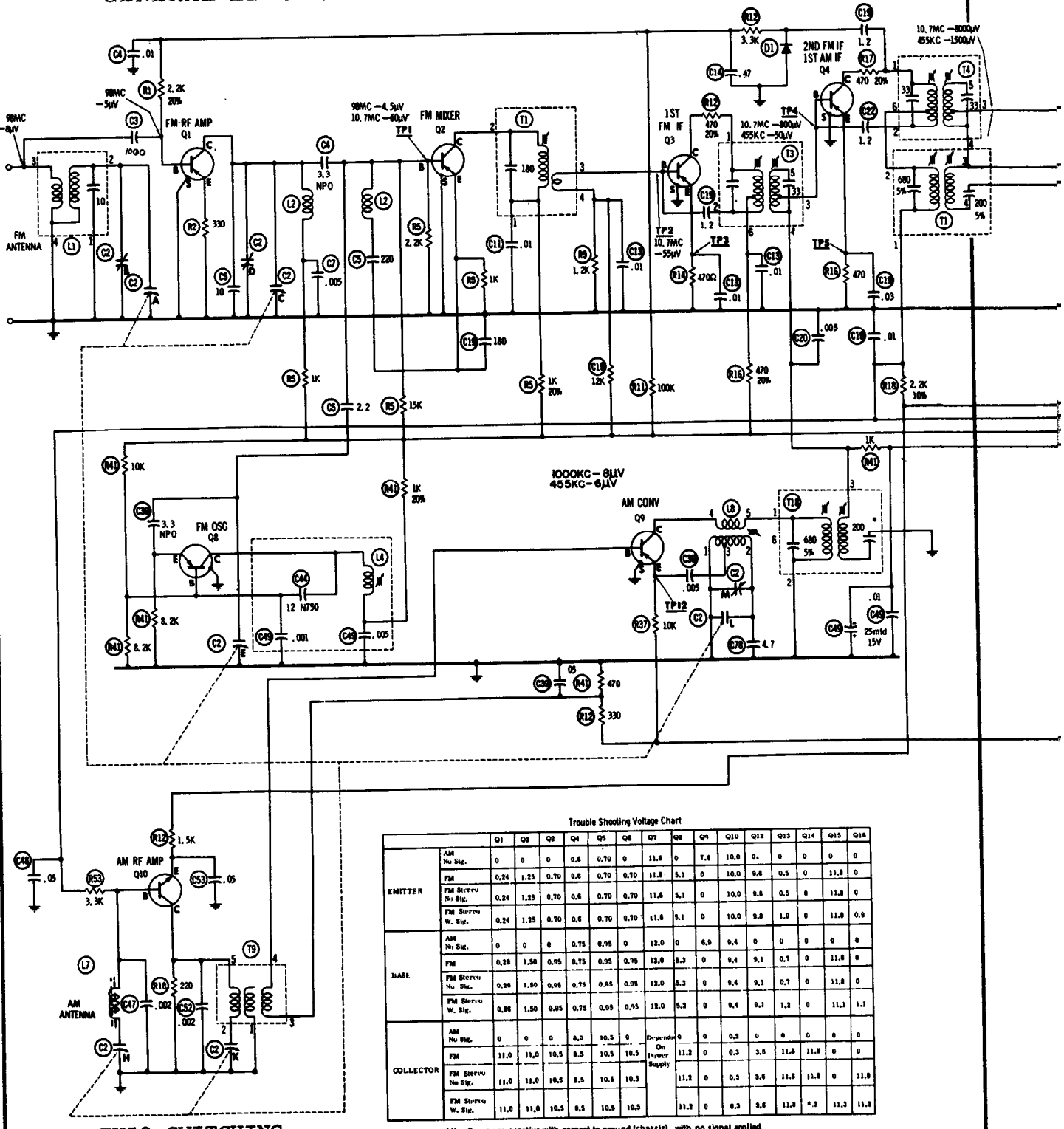


TU50 DIAL CORD RESTRINGING

1. Place gang to open position.
2. Hook on end of spring on gang drum and bring dial cord around drum and under tuner chassis.
3. Remove the two screws nearest the audio amplifier that hold the tuner to the flat plate. Loosen the other two tuner screws.
4. Tilt the tuner up to a vertical position. (See sketch.)
5. Follow the diagram for restringing the dial cord.



GENERAL ELECTRIC TU50 Tuner Schematic Diagram (Continued)



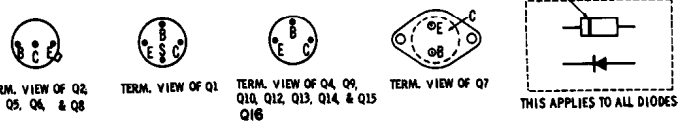
Trouble Shooting Voltage Chart

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q12	Q13	Q14	Q15	Q16
EMITTER	AM No Sig.	0	0	0	0.6	0.70	0	11.8	0	7.4	10.0	0.	0	0	0	0
	FM	0.24	1.25	0.70	0.6	0.70	0.70	11.8	5.1	0	10.0	9.8	0.5	0	11.8	0
	FM Stereo No Sig.	0.24	1.25	0.70	0.6	0.70	0.70	11.8	5.1	0	10.0	9.8	0.5	0	11.8	0
	FM Stereo W. Sig.	0.24	1.25	0.70	0.6	0.70	0.70	11.8	5.1	0	10.0	9.8	1.0	0	11.8	0.9
BASE	AM No Sig.	0	0	0	0.75	0.95	0	12.0	0	6.9	9.4	0	0	0	0	0
	FM	0.26	1.50	0.95	0.75	0.95	0.95	12.0	5.3	0	9.4	9.1	0.7	0	11.8	0
	FM Stereo No. Sig.	0.26	1.50	0.95	0.75	0.95	0.95	12.0	5.3	0	9.4	9.1	0.7	0	11.8	0
	FM Stereo W. Sig.	0.26	1.50	0.95	0.75	0.95	0.95	12.0	5.3	0	9.4	9.1	1.2	0	11.1	1.1
COLLECTOR	AM No Sig.	0	0	0	8.5	10.5	0	Depends On Power Supply	0	0	0.2	0	0	0	0	0
	FM	11.0	11.0	10.5	8.5	10.5	10.5		11.2	0	0.3	3.6	11.8	11.8	0	0
	FM Stereo No Sig.	11.0	11.0	10.5	8.5	10.5	10.5		11.2	0	0.3	3.6	11.8	11.8	0	11.8
	FM Stereo W. Sig.	11.0	11.0	10.5	8.5	10.5	10.5		11.2	0	0.3	3.6	11.8	9.2	11.3	11.1

All voltages are negative with respect to ground (chassis), with no signal applied, except for measurements in stereo circuits.
Zener diode (D5) voltage is —12 volts, ±5%. Chart is made for 12.0V Zener diode.
Other voltages have a tolerance of ±15%.

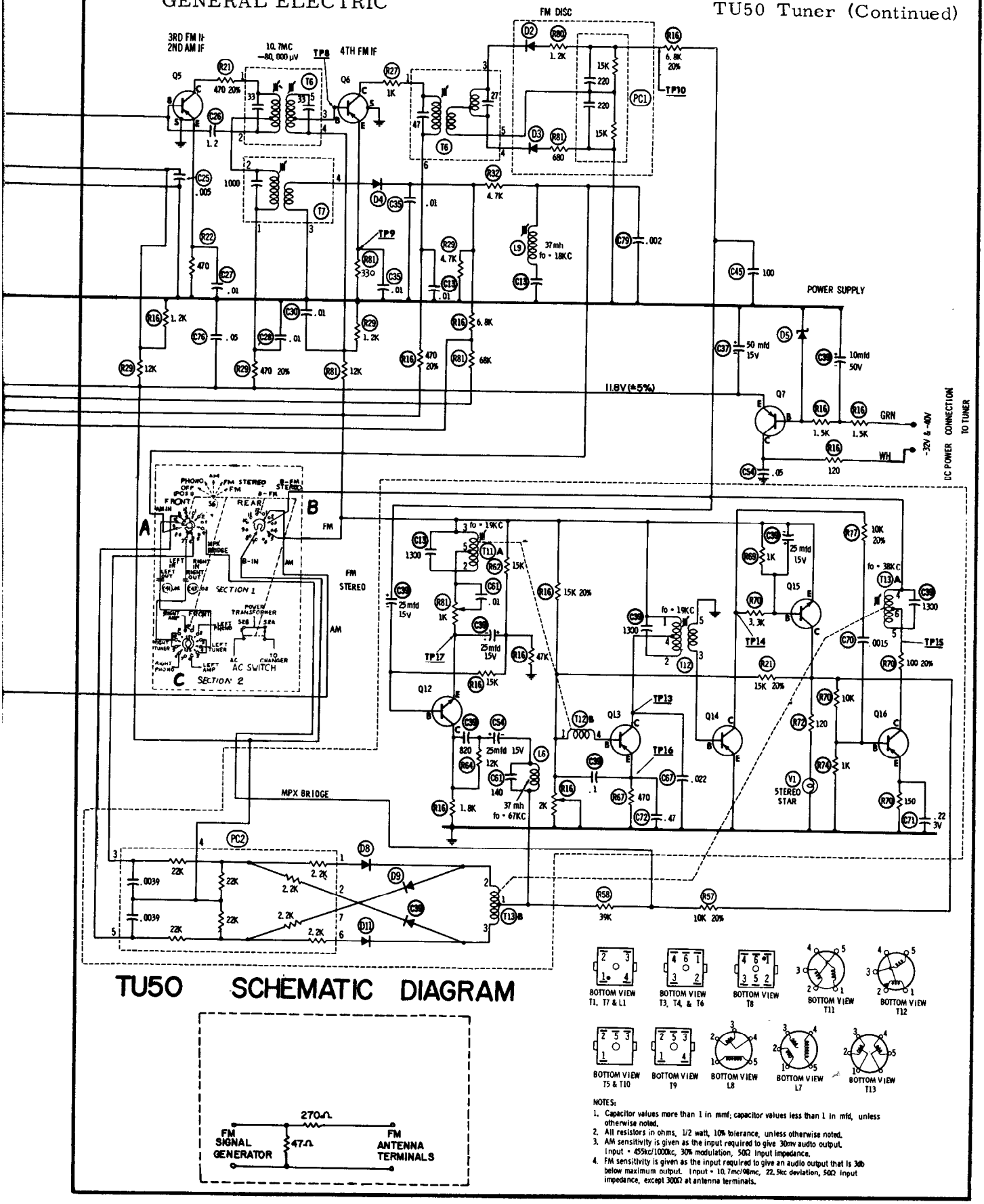
TU50 SWITCHING

POS.	S2A	S2B
1	ON	OFF
2	ON	OFF
3	OFF	ON
4	OFF	ON
5	OFF	ON



GENERAL ELECTRIC

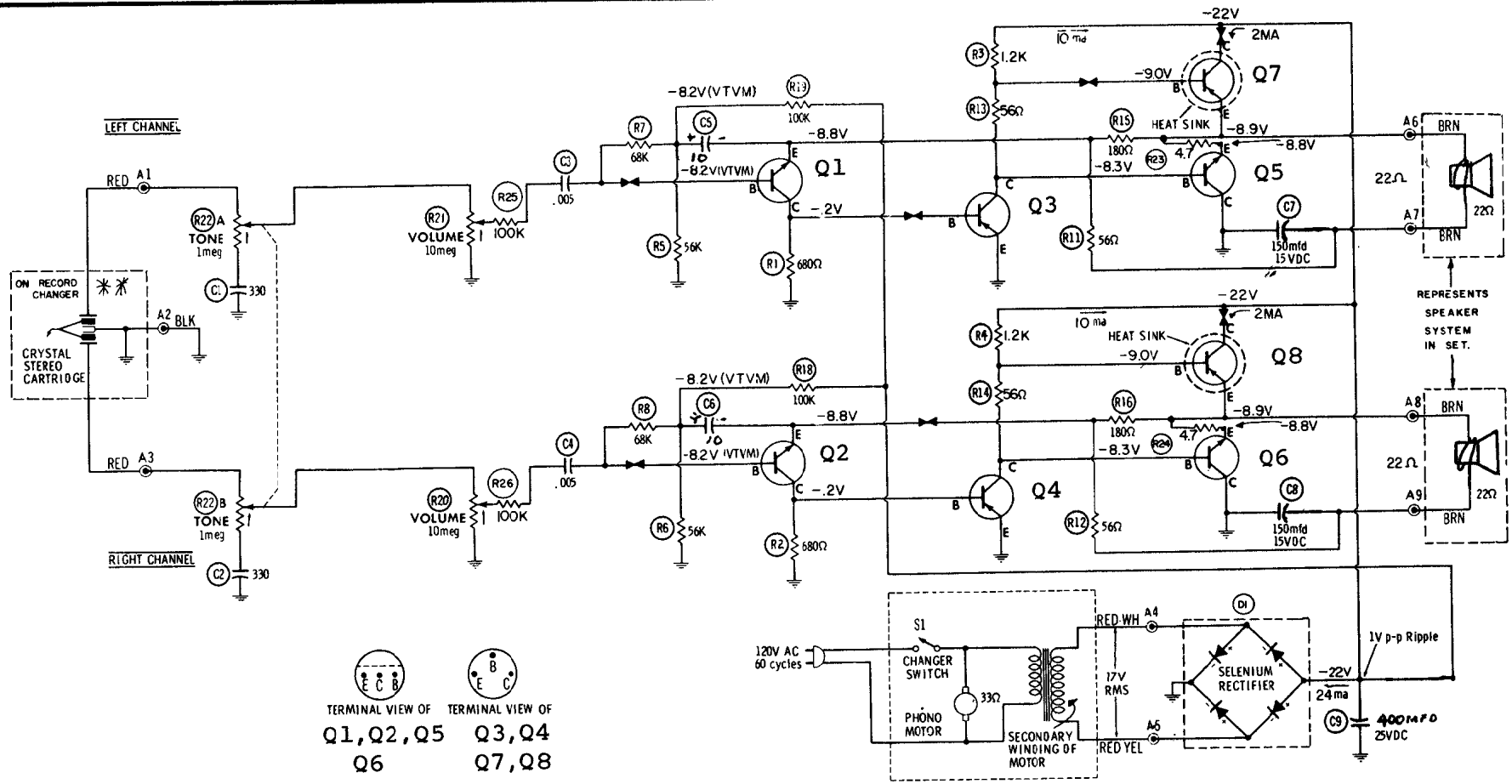
TU50 Tuner (Continued)



TU50 SCHEMATIC DIAGRAM

NOTES:

1. Capacitor values more than 1 in mmf; capacitor values less than 1 in mfd, unless otherwise noted.
2. All resistors in ohms, 1/2 watt, 10% tolerance, unless otherwise noted.
3. AM sensitivity is given as the input required to give 30mv audio output. Input = 455kc/1000kc, 30% modulation, 50Ω input impedance.
4. FM sensitivity is given as the input required to give an audio output that is 3db below maximum output. Input = 10.7mc/98mc, 22.5kc deviation, 50Ω input impedance, except 300Ω at antenna terminals.



Unless Otherwise Noted:

All voltages shown are typical voltages with no signal applied to circuit.

Measurements shown may deviate ±10%.

A- denotes amp connectors

Resistors shown are 1/2 watt. K= 1000 meg= 1,000,000

Capacitor values less than 1 in mfd; capacitor values more than 1 in mmf

Arrows on controls indicate clockwise rotation.

DC voltages measured from B-(gnd) with 20,000 ohm-per-volt meter.

Line voltage maintained at 120 volts AC, 60 cycles.

⋈-BOWTIES INDICATE CUT POINTS ON CONDUCTOR PATTERN FOR CIRCUIT TESTING WITH OHMMETER.

GENERAL ELECTRIC

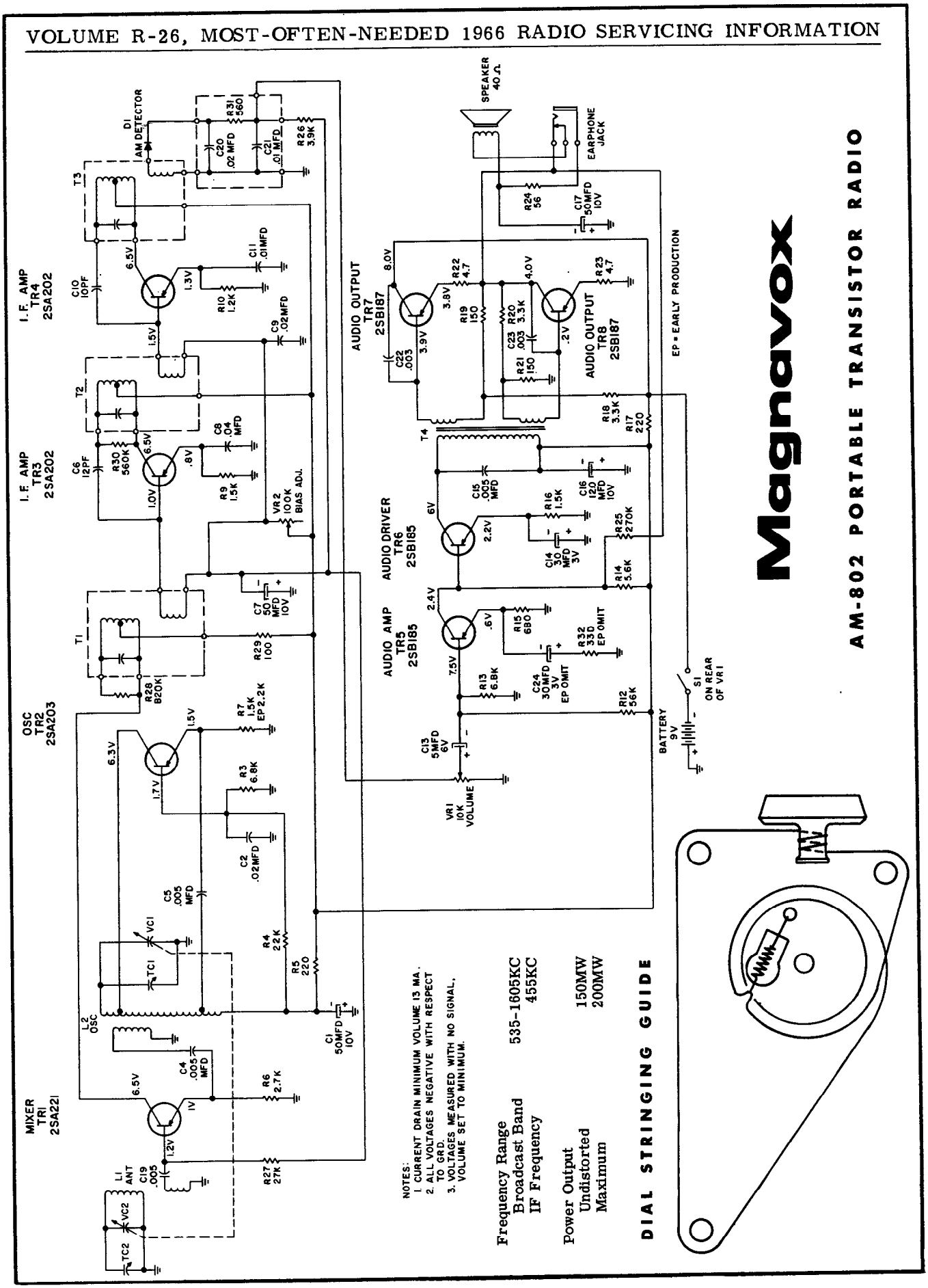
T2AB

TRANSISTOR

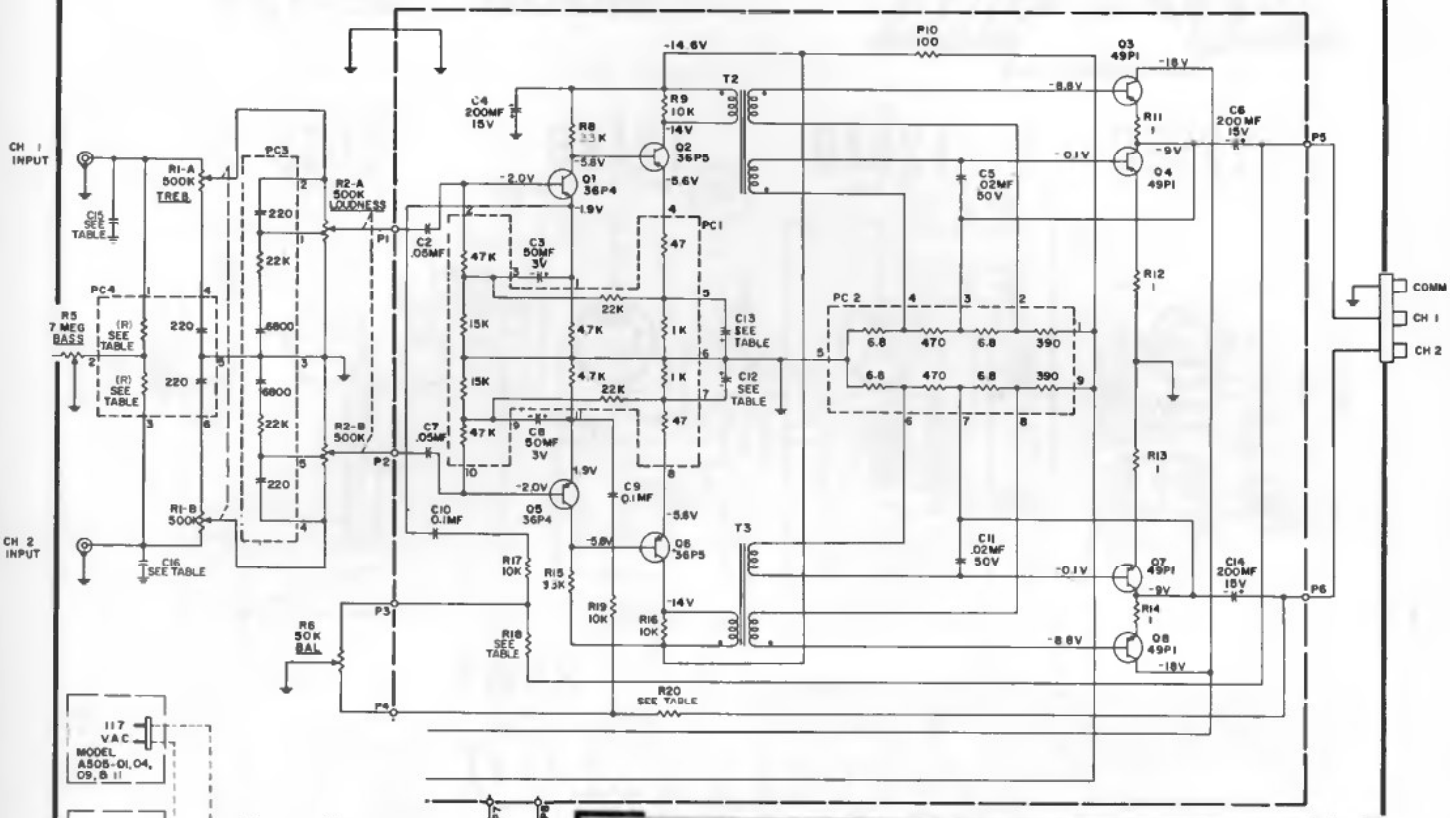
AMPLIFIER

Magnavox

R252 SERIES RADIO

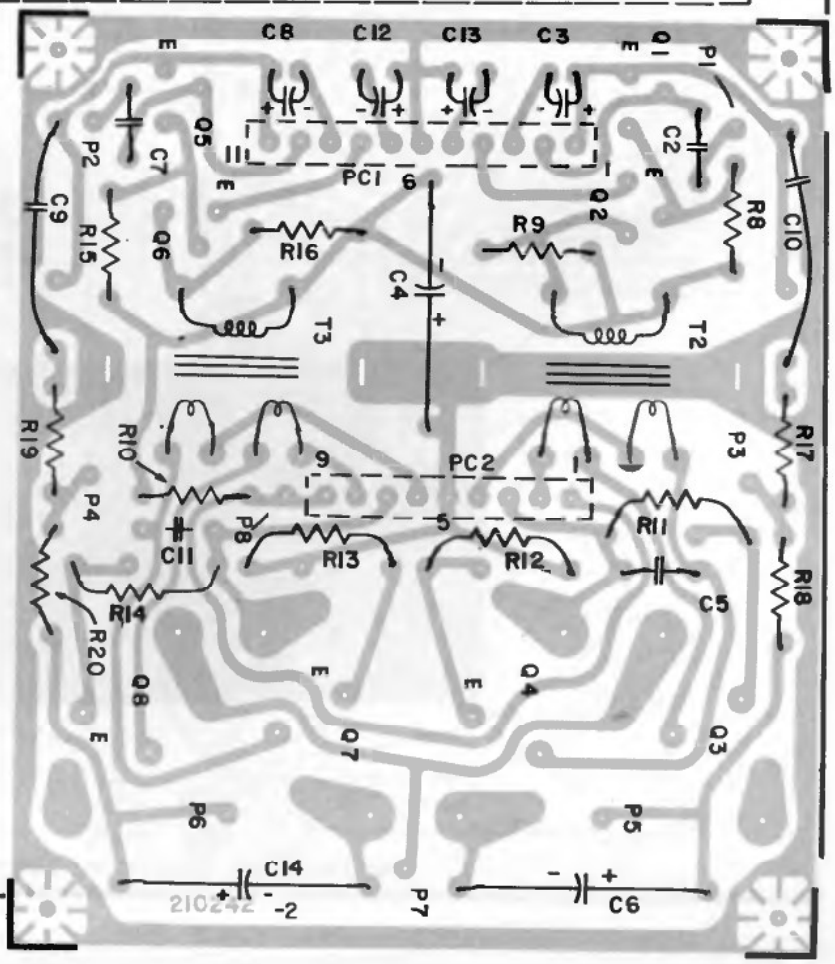

Magnavox
AM-802 PORTABLE TRANSISTOR RADIO
EP - EARLY PRODUCTION
MIXER TRI 2SA221
OSC TR2 2SA203
I.F. AMP TR3 2SA202
I.F. AMP TR4 2SA202
AUDIO AMP TR5 2SB185
AUDIO DRIVER TR6 2SB185
AUDIO OUTPUT TR7 2SB187
AUDIO OUTPUT TR8 2SB187
SPEAKER 40Ω
EARPHONE JACK
BATTERY 9V
VR1 10K VOLUME
VR2 100K BIAS ADJ.
S1 ON REAR OF VR1
NOTES:
1. CURRENT DRAIN MINIMUM VOLUME 13 MA.
2. ALL VOLTAGES NEGATIVE WITH RESPECT TO GRD.
3. VOLTAGES MEASURED WITH NO SIGNAL, VOLUME SET TO MINIMUM.
DIAL STRINGING GUIDE
Frequency Range
Broadcast Band 535-1605KC
IF Frequency 455KC
Power Output
Undistorted 150MW
Maximum 200MW

Magnavox A505 SERIES AMPLIFIER CHASSIS



NOTES:
1. VOLTAGES MEASURED WITH VTVM, NO INPUT SIGNAL.
2. SOME EARLY CHASSIS HAD 100K RESISTORS AT R18 & R20.

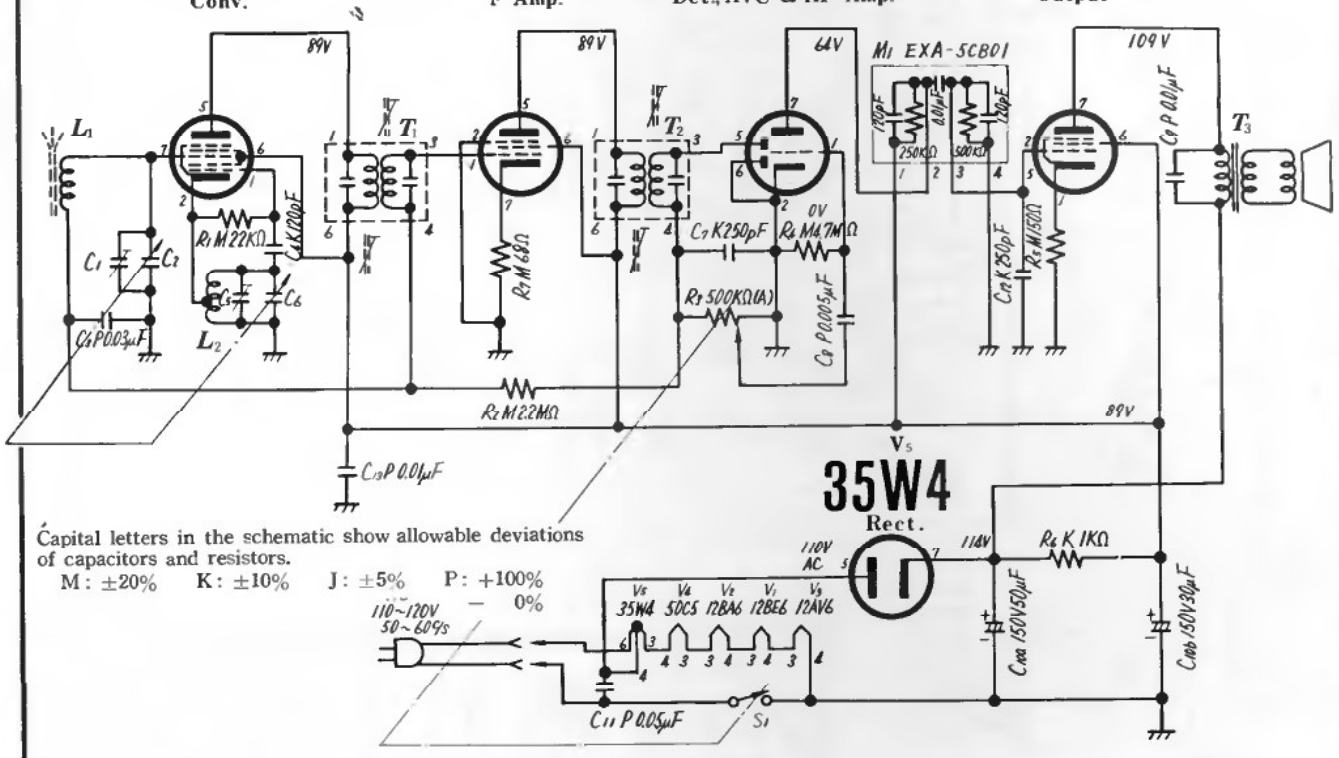
A505-11	250 MF, 10V	250 MF, 10V	100K	100K	1000	1000	180K
A505-10	250 MF, 10V	250 MF, 10V	68K	68K	OMIT	OMIT	100K
A505-09	250 MF, 10V	250 MF, 10V	68K	68K	OMIT	OMIT	100K
A505-07	250 MF, 10V	250 MF, 10V	68K	68K	OMIT	OMIT	100K
A505-06 THRU A505-01	100MF, 10V	100 MF, 10V	68K	68K	OMIT	OMIT	100K
MODEL	C12	C13	R18	R20	C15	C16	PCA (10)



MATSUSHITA ELECTRIC CORPORATION OF AMERICA

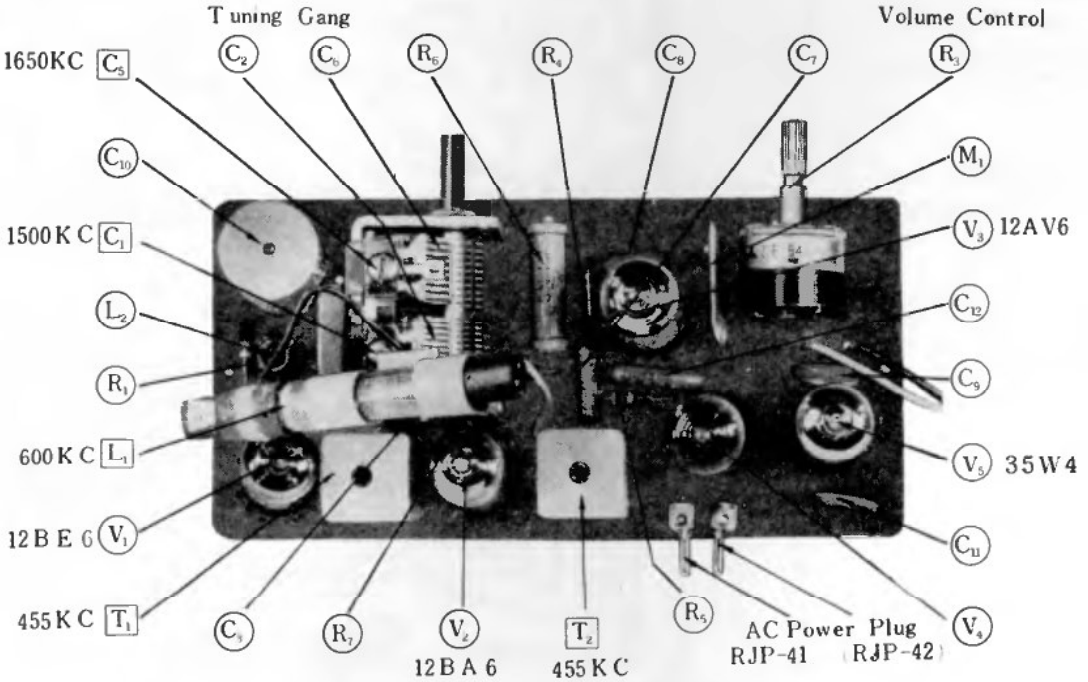
MODEL RE-124

V_1	V_2	V_3	V_4
12BE6	12BA6	12AV6	50C5
Conv.	F Amp.	Det., AVC & AF Amp.	Output



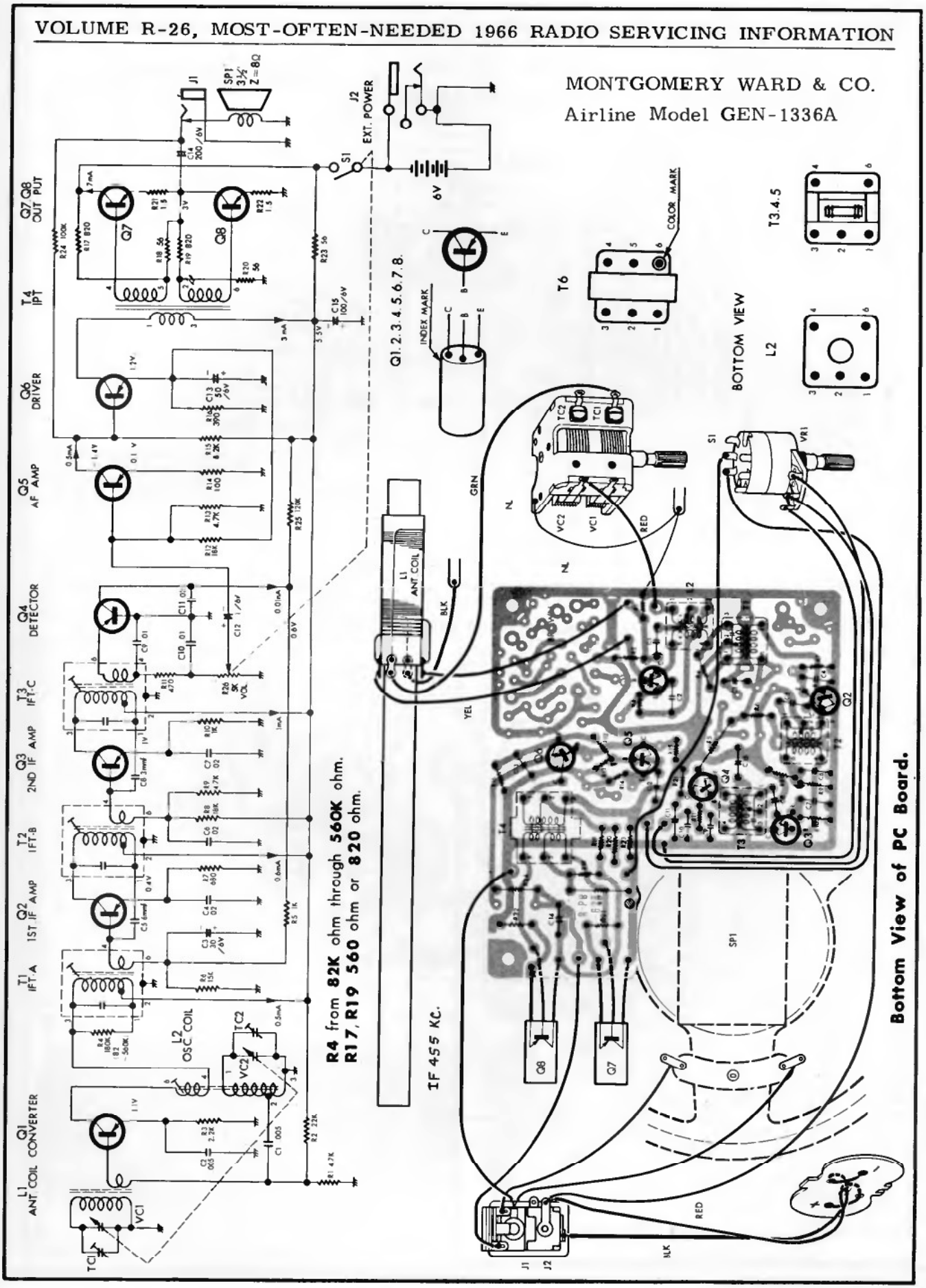
Capital letters in the schematic show allowable deviations of capacitors and resistors.

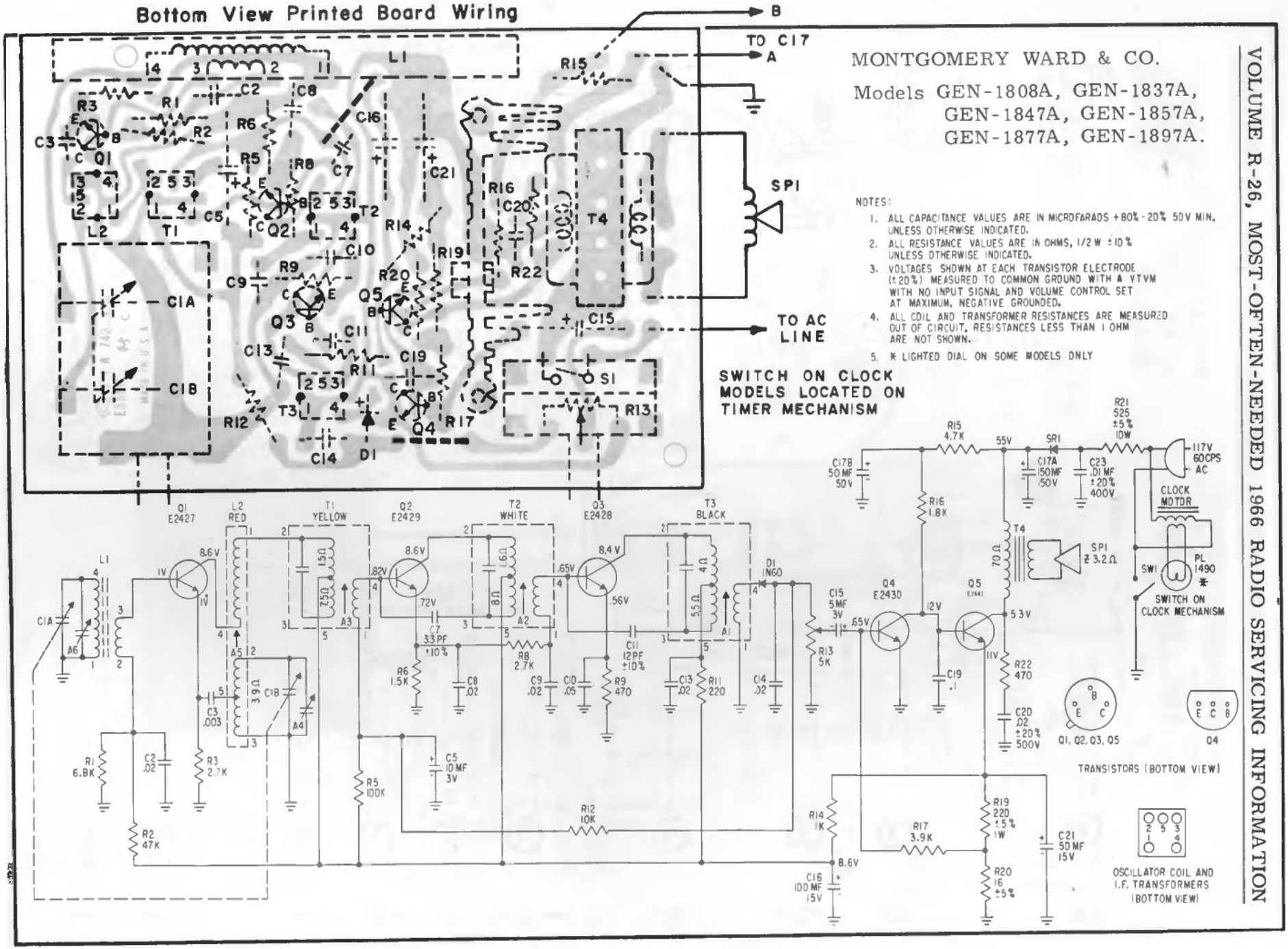
M: ±20% K: ±10% J: ±5% P: +100% − 0%



Top View - Parts Identification, Alignment Points.

MONTGOMERY WARD & CO.
Airline Model GEN-1336A

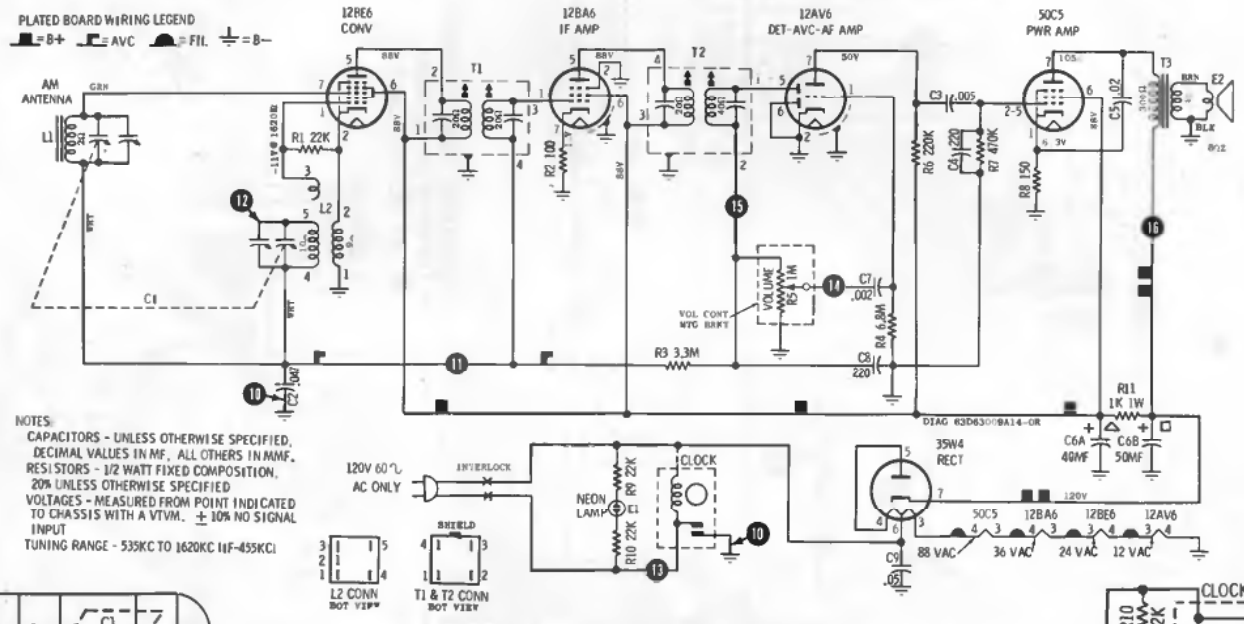



Bottom View Printed Board Wiring
MONTGOMERY WARD & CO.
Models GEN-1808A, GEN-1837A,
GEN-1847A, GEN-1857A,
GEN-1877A, GEN-1897A.
NOTES:
1. ALL CAPACITANCE VALUES ARE IN MICROFARADS +80%-20% 50V MIN. UNLESS OTHERWISE INDICATED.
2. ALL RESISTANCE VALUES ARE IN OHMS, 1/2 W ±10% UNLESS OTHERWISE INDICATED.
3. VOLTAGES SHOWN AT EACH TRANSISTOR ELECTRODE (±20%) MEASURED TO COMMON GROUND WITH A VTVM WITH NO INPUT SIGNAL AND VOLUME CONTROL SET AT MAXIMUM. NEGATIVE GROUNDED.
4. ALL COIL AND TRANSFORMER RESISTANCES ARE MEASURED OUT OF CIRCUIT. RESISTANCES LESS THAN 1 OHM ARE NOT SHOWN.
5. * LIGHTED DIAL ON SOME MODELS ONLY
TO C17 A
B
TO AC LINE
SPI
SWITCH ON CLOCK MODELS LOCATED ON TIMER MECHANISM
SWITCH ON CLOCK MECHANISM
CLOCK MOTOR
TRANSISTORS (BOTTOM VIEW)
Q1, Q2, Q3, Q5
Q4
OSCILLATOR COIL AND I.F. TRANSFORMERS (BOTTOM VIEW)

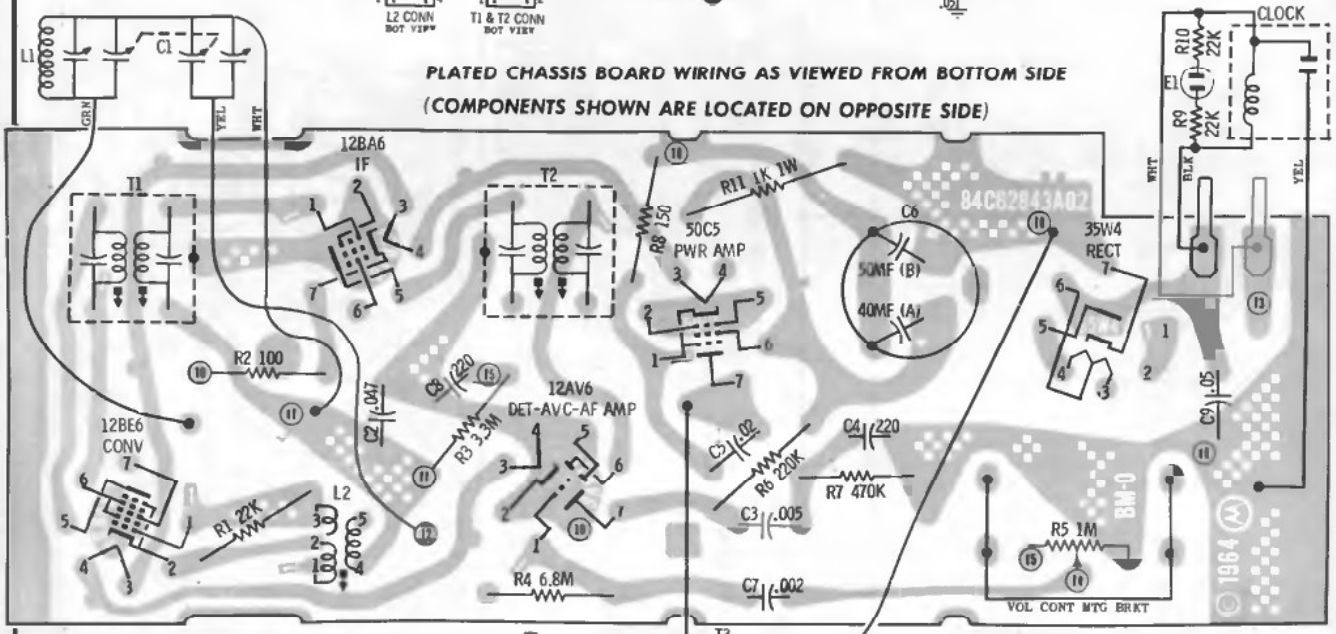
MOTOROLA

MODEL AC40A CHASSIS HS-4152

MODEL AC5B CHASSIS HS-4152

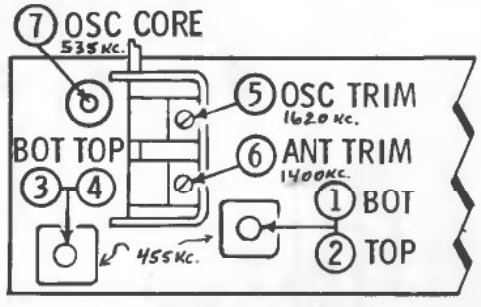


NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN MMF.
RESISTORS - 1/2 WATT FIXED COMPOSITION, 20% UNLESS OTHERWISE SPECIFIED
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ± 10% NO SIGNAL INPUT
TUNING RANGE - 535KC TO 1620KC I.F-455KC

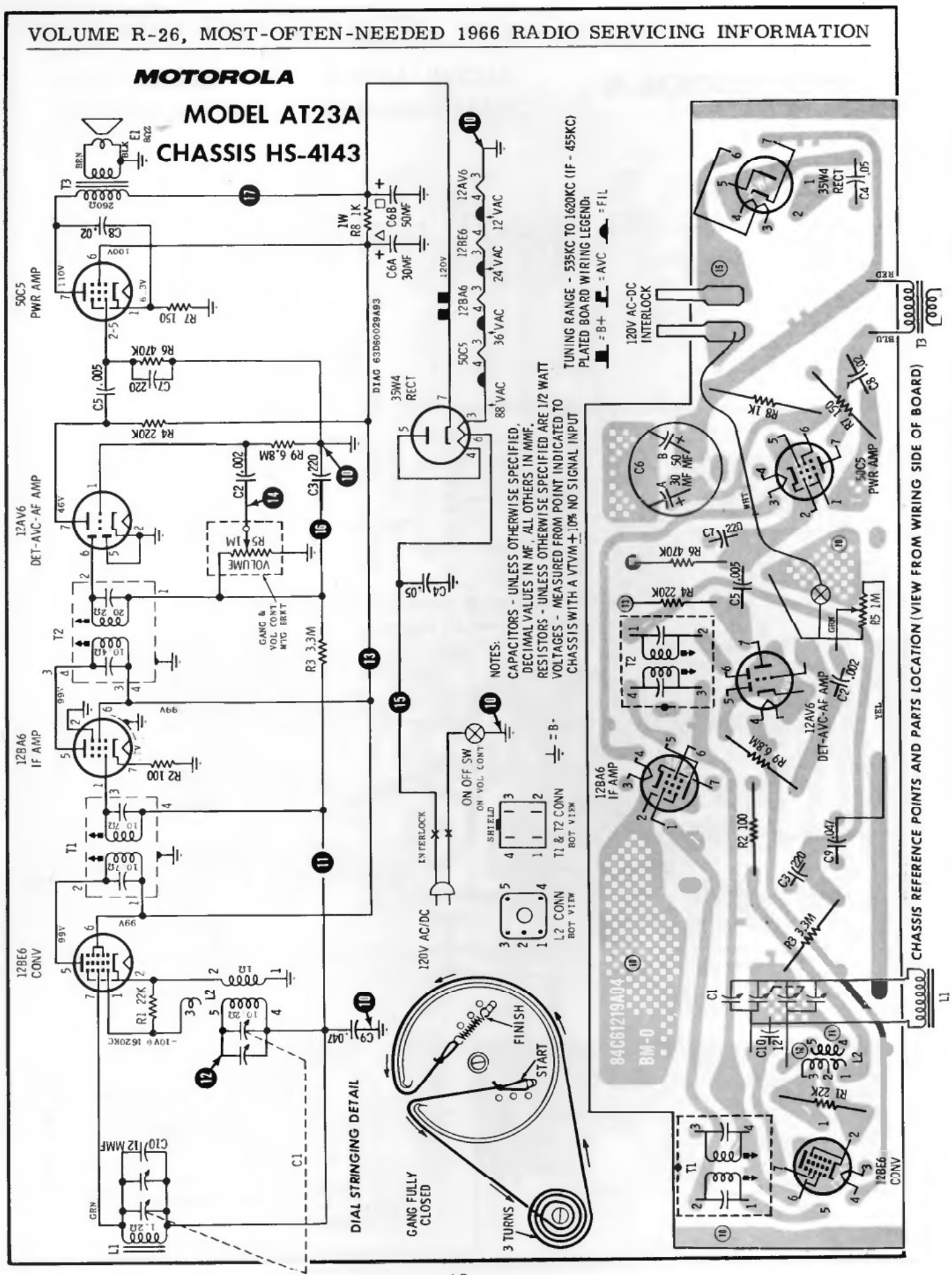


BOTTOM VIEW

PARTS LOCATION

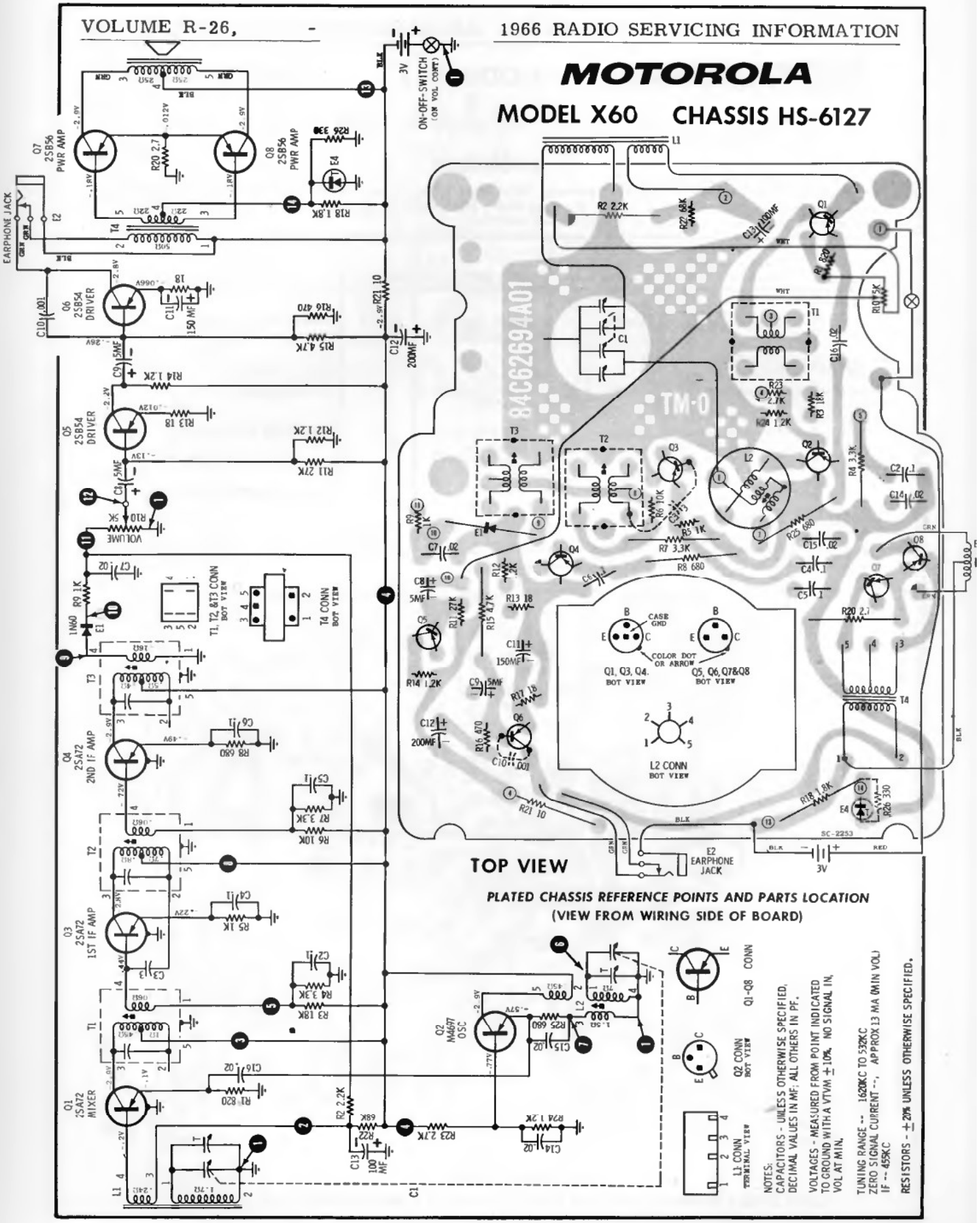


ALIGNMENT LOCATIONS


MOTOROLA
MODEL AT23A
CHASSIS HS-4143
50C5 PWR AMP
12AV6 DET-AVC-AF AMP
12BA6 IF AMP
12BE6 CONV
35W4 RECT
120V AC-DC INTERLOCK
TUNING RANGE - 535KC TO 1620KC (IF - 455KC)
PLATED BOARD WIRING LEGEND:
= B+ = AVC = FIL
NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN MMF.
RESISTORS - UNLESS OTHERWISE SPECIFIED ARE 1/2 WATT
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM +/- 10% NO SIGNAL INPUT
DIAL STRINGING DETAIL
GANG FULLY CLOSED
FINISH
START
3 TURNS
CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

MODEL X60 CHASSIS HS-6127



PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM WIRING SIDE OF BOARD)

NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN PF.

VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ± 10%. NO SIGNAL IN, VOL AT MIN.

TUNING RANGE -- 1620KC TO 532KC
ZERO SIGNAL CURRENT --, APPROX 13 MA (MIN VOL)
IF -- 455KC

RESISTORS - ± 20% UNLESS OTHERWISE SPECIFIED.

MOTOROLA MODEL X65 CHASSIS HS-6133

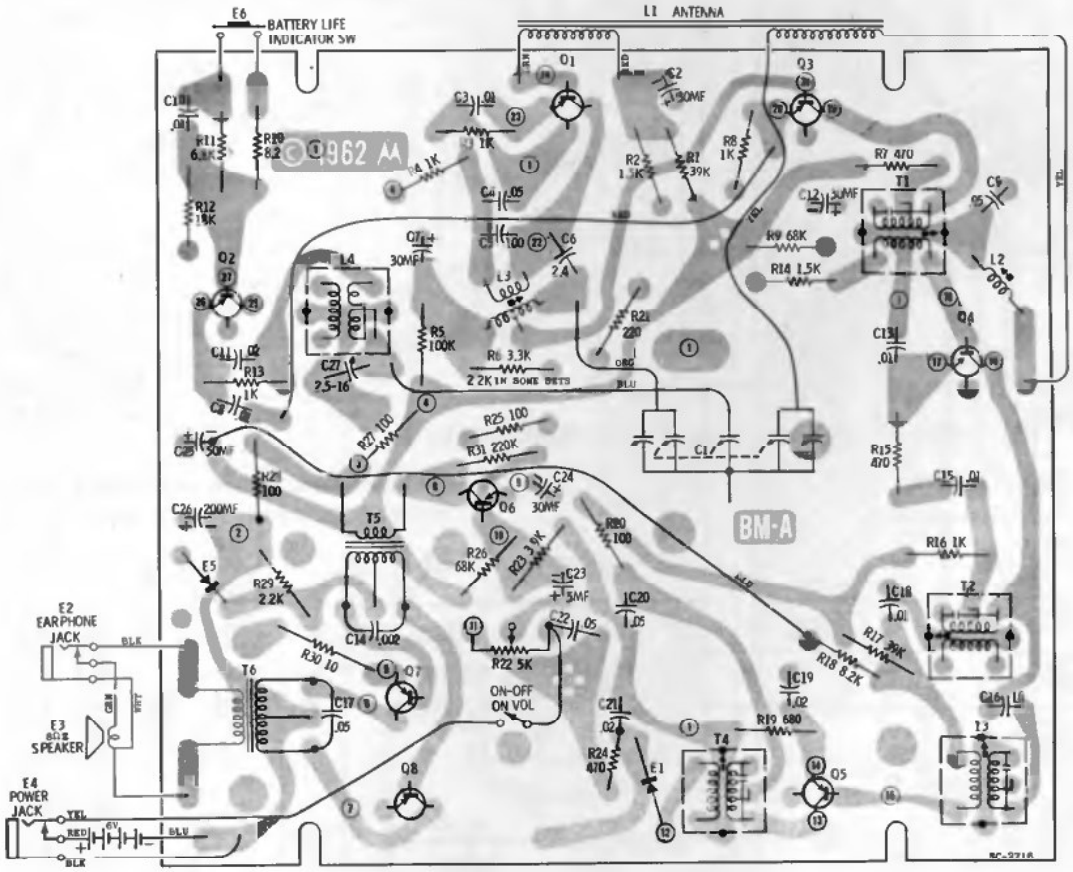
(Diagram and other service data on the next page adjacent at right)

ALIGNMENT

Connect an output meter across the speaker. Set volume to maximum. Attenuate signal generator output so as not to exceed 50 milliwatts (.64V) on output meter at all times to prevent overloading and AGC action. Alignment should be performed with the chassis installed.

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY (1000 cycle mod)	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT					
1.	Radiation loop*	455Kc	Fully opened (1620Kc)	1, 2, 3 & 4	Adjust for maximum.
RF ALIGNMENT					
2.	Radiation loop*	1620Kc	Fully opened (1620Kc)	5	Adjust for maximum.
3.	"	1400Kc	Tune for maximum at 1400Kc	6	Adjust for maximum.
4.	"	1400Kc	Tune for maximum at 1400Kc	7	Adjust for maximum.

*Connect generator output across 5" diameter, 5-turn loop and couple inductively to receiver antenna. Keep radiation loop at least 15" from receiver antenna.



BOTTOM VIEW

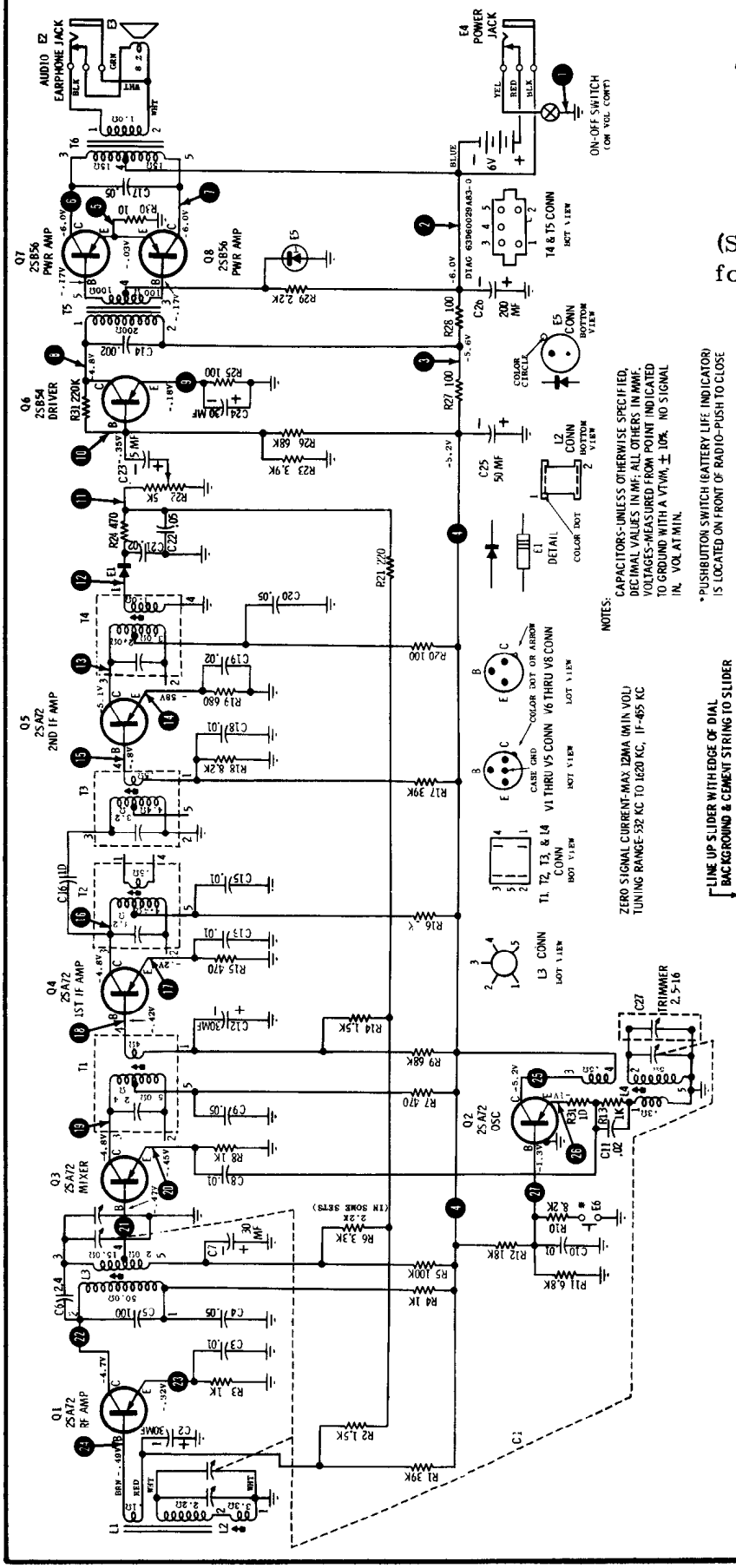
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

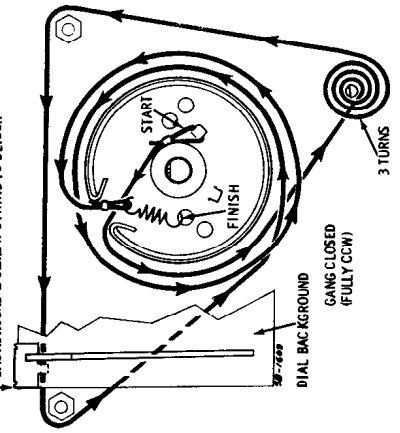
MOTOROLA

MODEL X65
CHASSIS HS-6133

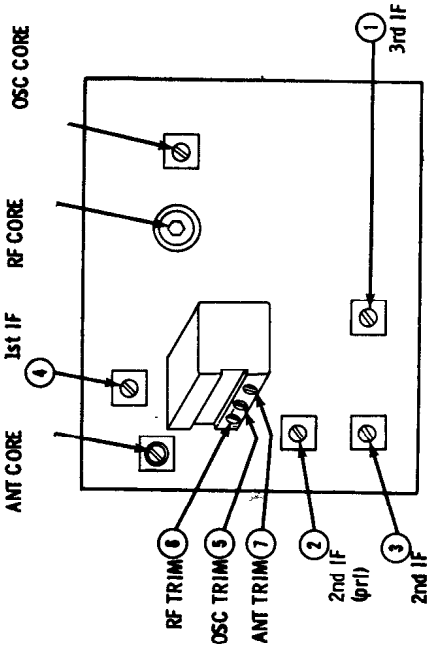
(See preceding page at left for additional service data)

The external power supply jack, when used in conjunction with the optional accessory power supply adaptor, Model HK-73), allows the radio to be operated from a 120 volt, 60 cycle, AC power supply. When the HK-73 is plugged into the radio, the batteries are automatically disconnected from the radio.





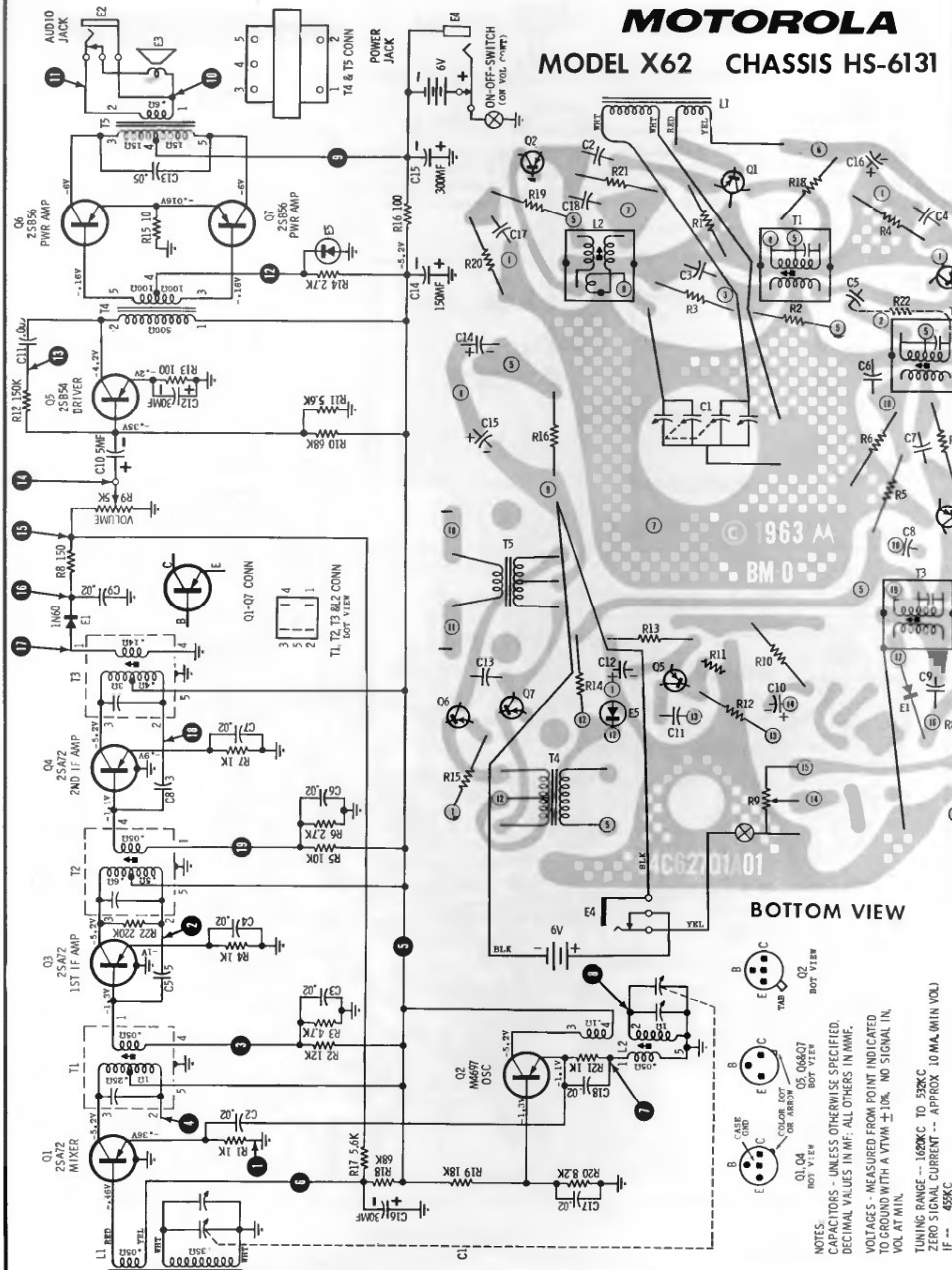
DIAL STRINGING DETAIL



ALIGNMENT LOCATION DETAIL

MOTOROLA

MODEL X62 CHASSIS HS-6131



NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.
VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ± 10%. NO SIGNAL IN, VOL AT MIN.
TUNING RANGE -- 1620KC TO 532KC
ZERO SIGNAL CURRENT -- APPROX 10 MA (MIN VOL)
IF -- 455KC

MOTOROLA

MODEL X58

CHASSIS HS-6136

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM WIRING SIDE OF BOARD)

IF 455 KC.

NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.

VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ±10%, NO SIGNAL IN, VOL AT MIN.

ZERO SIGNAL CURRENT - 7.5MA MAX

Q1, Q2, Q3 &Q4 BOT VIEW

Q5, Q6, &Q7 BOT VIEW

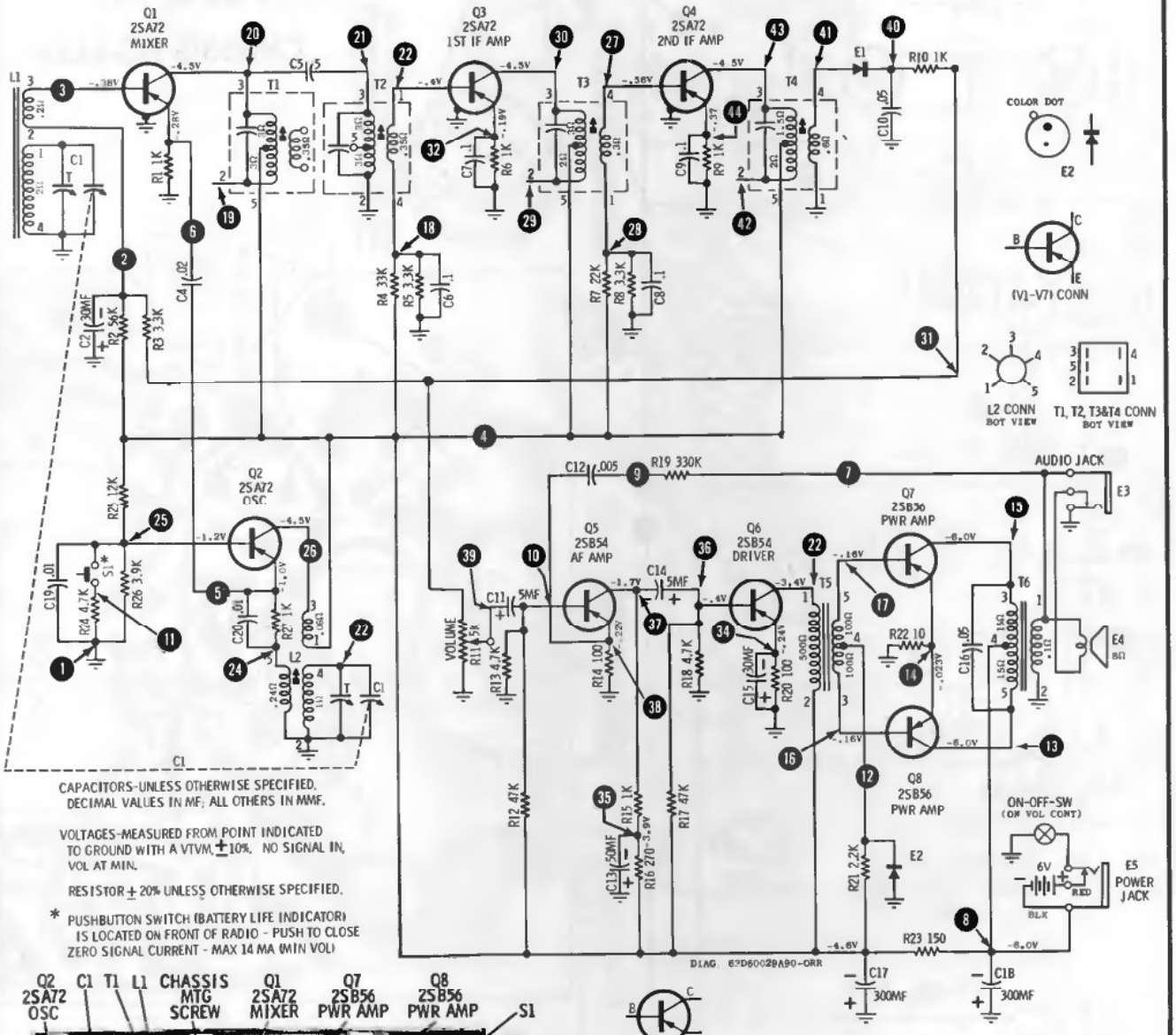
L2, T1, T2, T3 CONN BOT VIEW

T4 CONN BOT VIEW

T5 CONN BOT VIEW

MOTOROLA MODEL X61 CHASSIS HS-6137

(Other service material on the next page adjacent at right)

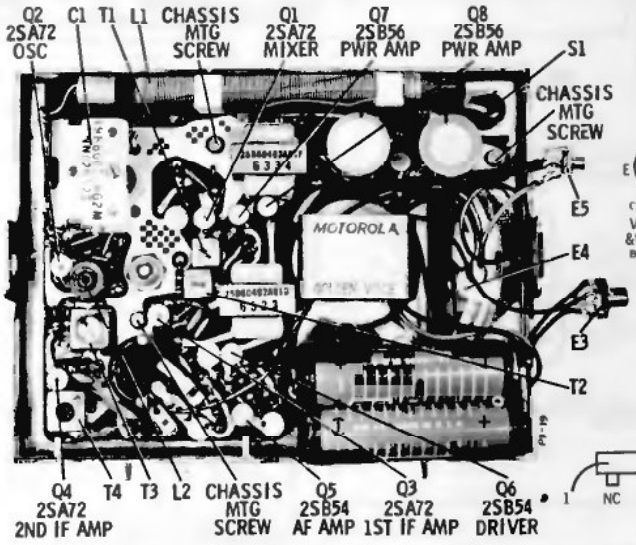


CAPACITORS-UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.

VOLTAGES-MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM, ±10%. NO SIGNAL IN, VOL AT MIN.

RESISTOR ± 20% UNLESS OTHERWISE SPECIFIED.

* PUSHBUTTON SWITCH (BATTERY LIFE INDICATOR) IS LOCATED ON FRONT OF RADIO - PUSH TO CLOSE ZERO SIGNAL CURRENT - MAX 14 MA (MIN VOL)



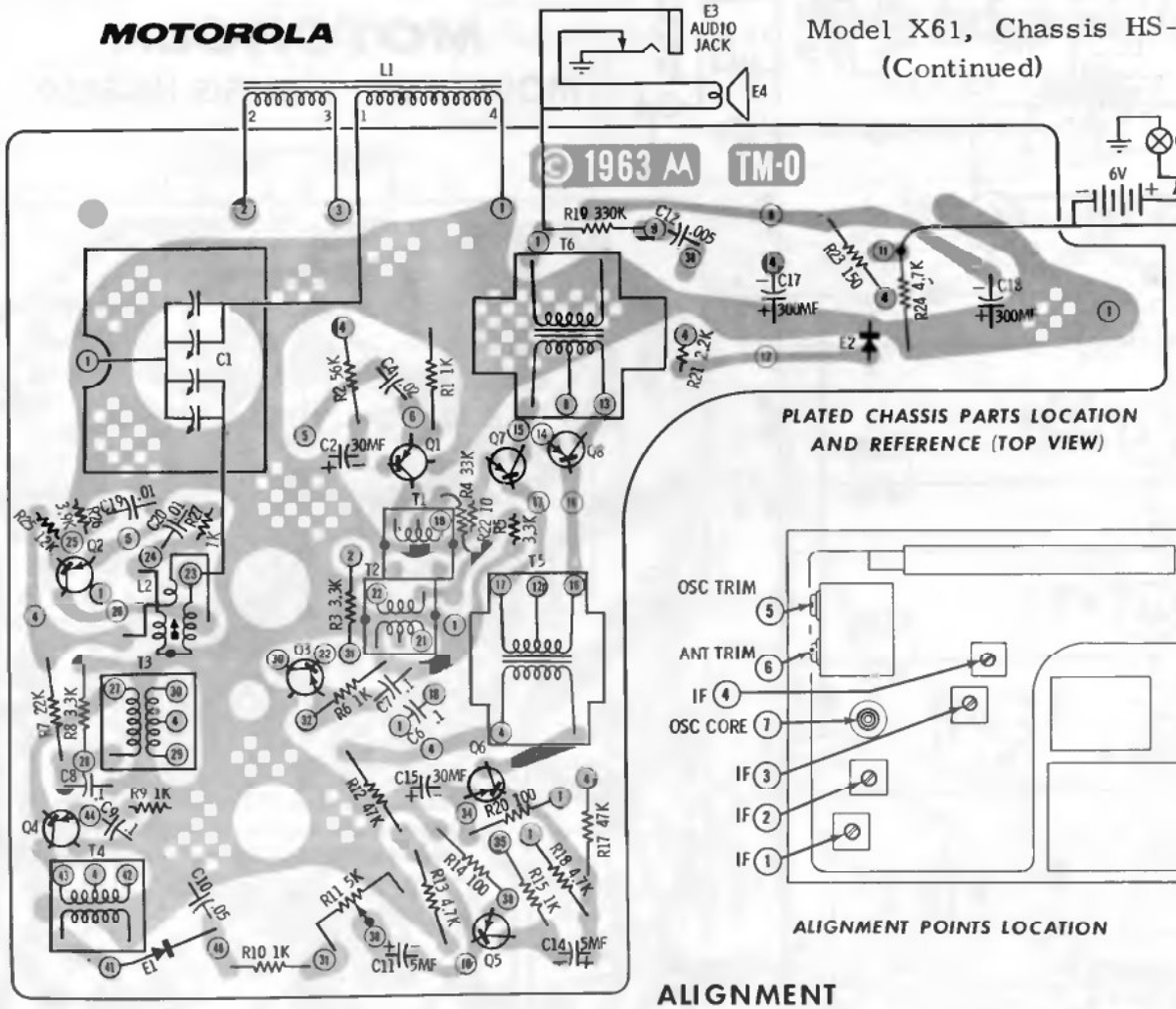
CHASSIS SERVICE AND REMOVAL

1. From front of radio, remove two (2) control knobs and nuts that mount the earphone jack and the external power supply jack.
2. Remove the two (2) cabinet mounting screws (they are located on the sides of the cabinet, under the carrying handle - lift the handle to expose them).
3. Lift the escutcheon and chassis as an assembly out of the cabinet.
4. To remove the chassis from the escutcheon, remove the battery, remove three (3) chassis mounting screws and, if necessary, unsolder leads connected to chassis.

PARTS LOCATION

MOTOROLA

Model X61, Chassis HS-6137
(Continued)



PLATED CHASSIS PARTS LOCATION AND REFERENCE (TOP VIEW)

ALIGNMENT POINTS LOCATION

ALIGNMENT

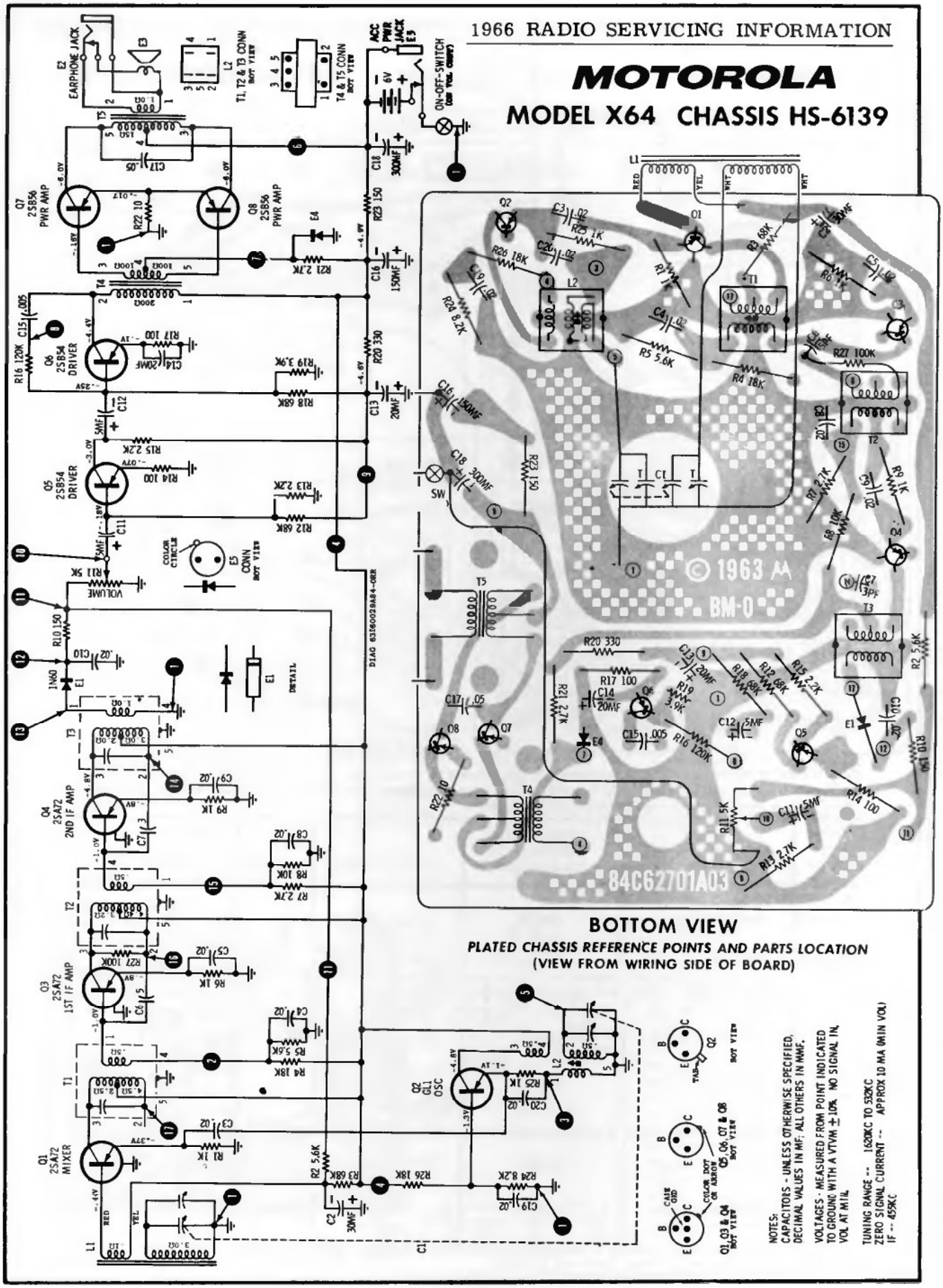
Connect an output meter across the speaker. Set volume to maximum. Attenuate signal generator output so as not to exceed .40 volt on output meter at all times to prevent overloading and AGC action. Alignment should be performed with the chassis in the cabinet.

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY (400 cycle mod)	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT					
1.	Radiation loop*	455Kc	Fully opened (1620Kc)	1, 2, 3 & 4	Adjust for maximum. Repeat adjustments #1 and #2.
RF ALIGNMENT					
NOTE:	Before performing RF alignment, check oscillator tuning range; with gang fully opened, set should tune to 1620Kc ±15Kc; with gang fully closed, 532Kc ±5Kc. If oscillator does not cover this range, perform Steps A, B and C at this point. . . . .otherwise, skip over them and go on to Step 2.				
	A. Radiation loop*	532Kc	Fully closed (532Kc)	7	Adjust for maximum.
	B. Radiation loop*	1620Kc	Fully opened (1620Kc)	5	Adjust for maximum.
	C. Repeat Steps A and B until oscillator covers required range; Step B should be last adjustment.				
2.	Radiation loop*	1620Kc	Fully opened (1620Kc)	5	Adjust for maximum.
3.	Radiation loop*	1400Kc	Tune for maximum	6	Adjust for maximum.

*Connect generator output across 5" diameter, 5-turn loop and couple inductively to receiver antenna. Keep radiation loop at least 12" from receiver antenna.

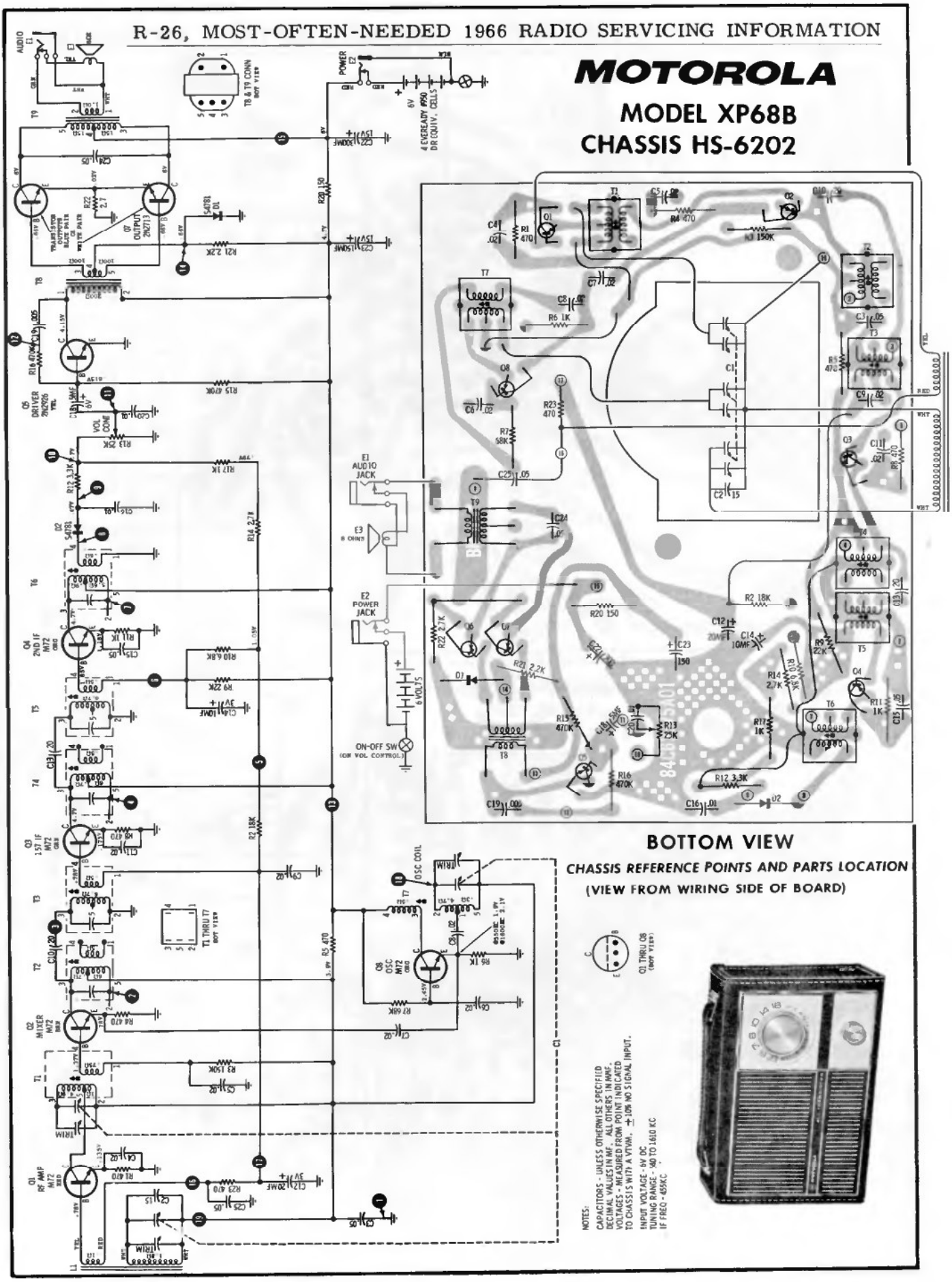
MOTOROLA

MODEL X64 CHASSIS HS-6139



MOTOROLA

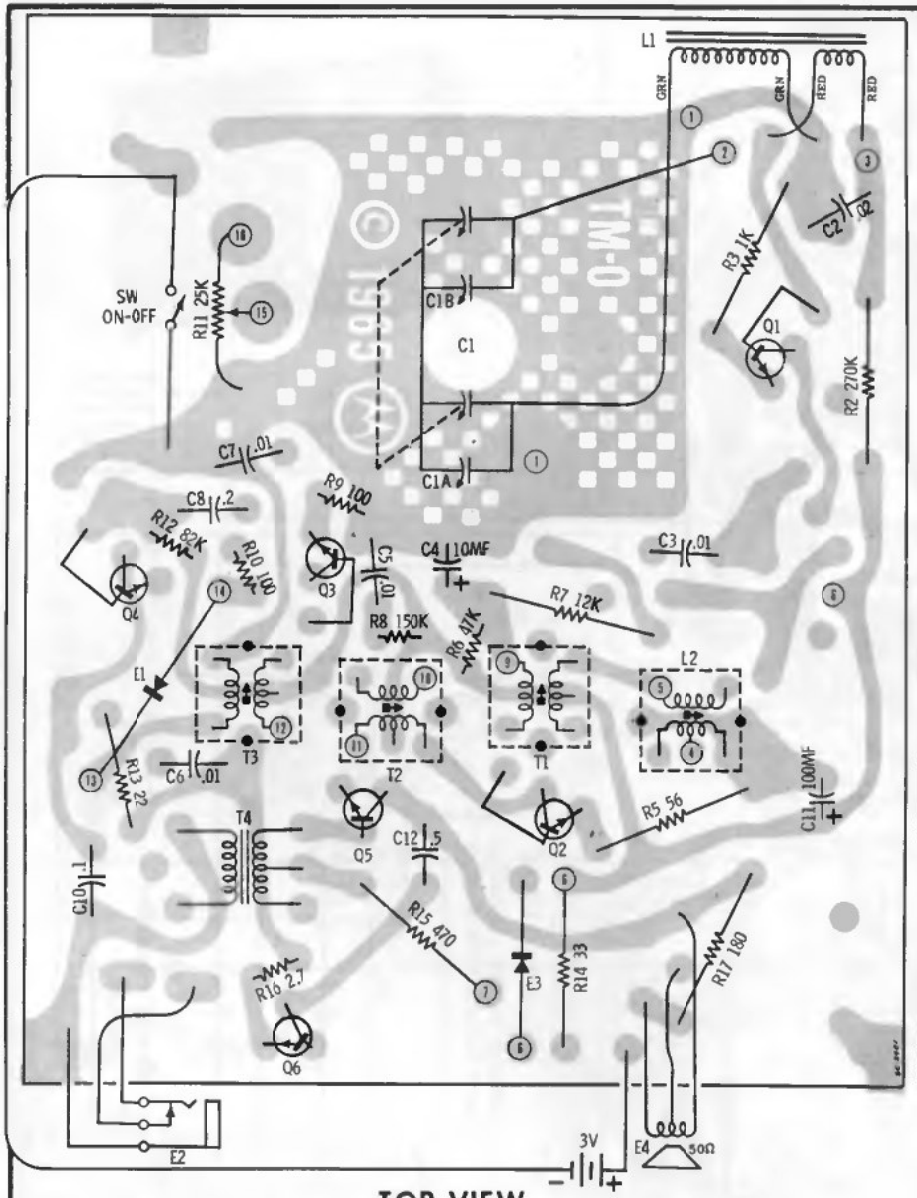
MODEL XP68B
CHASSIS HS-6202



BOTTOM VIEW

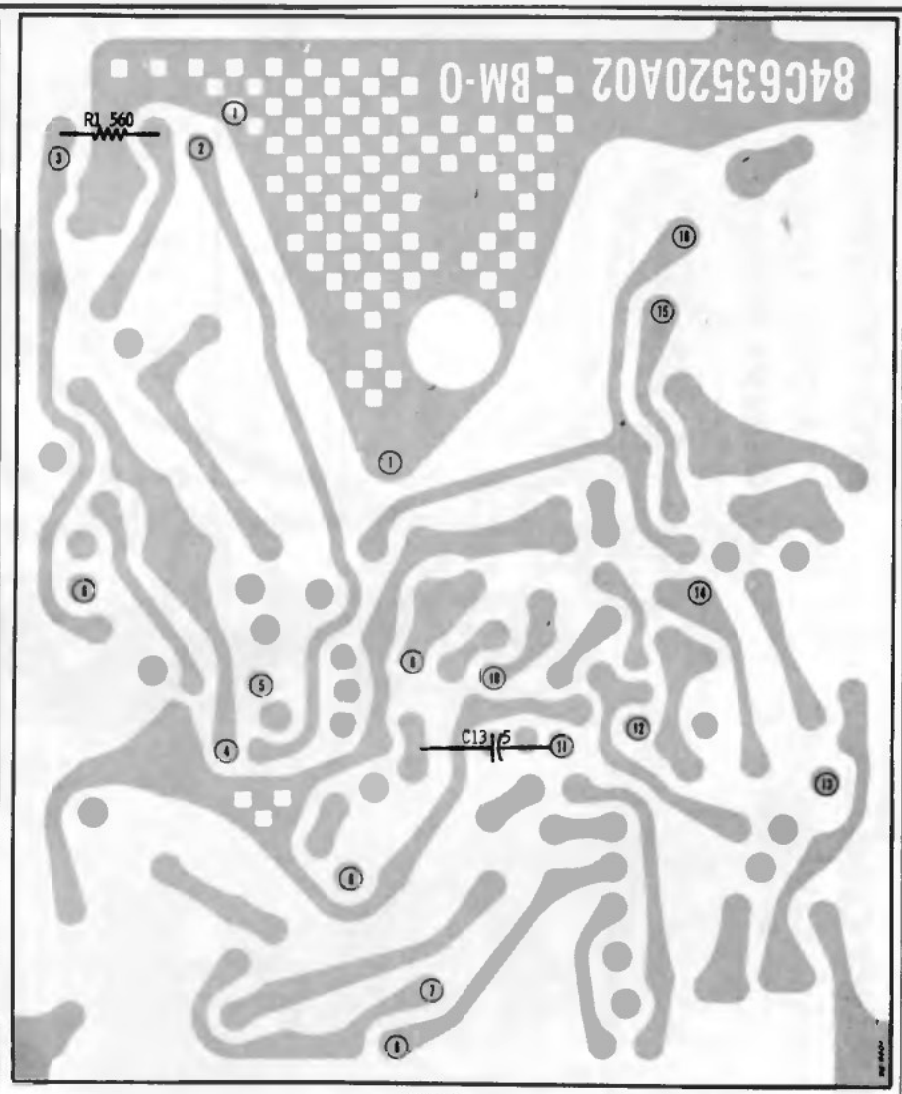
CHASSIS REFERENCE POINTS AND PARTS LOCATION

(VIEW FROM WIRING SIDE OF BOARD)



TOP VIEW

MODEL XP69B - PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM COMPONENT SIDE OF BOARD)

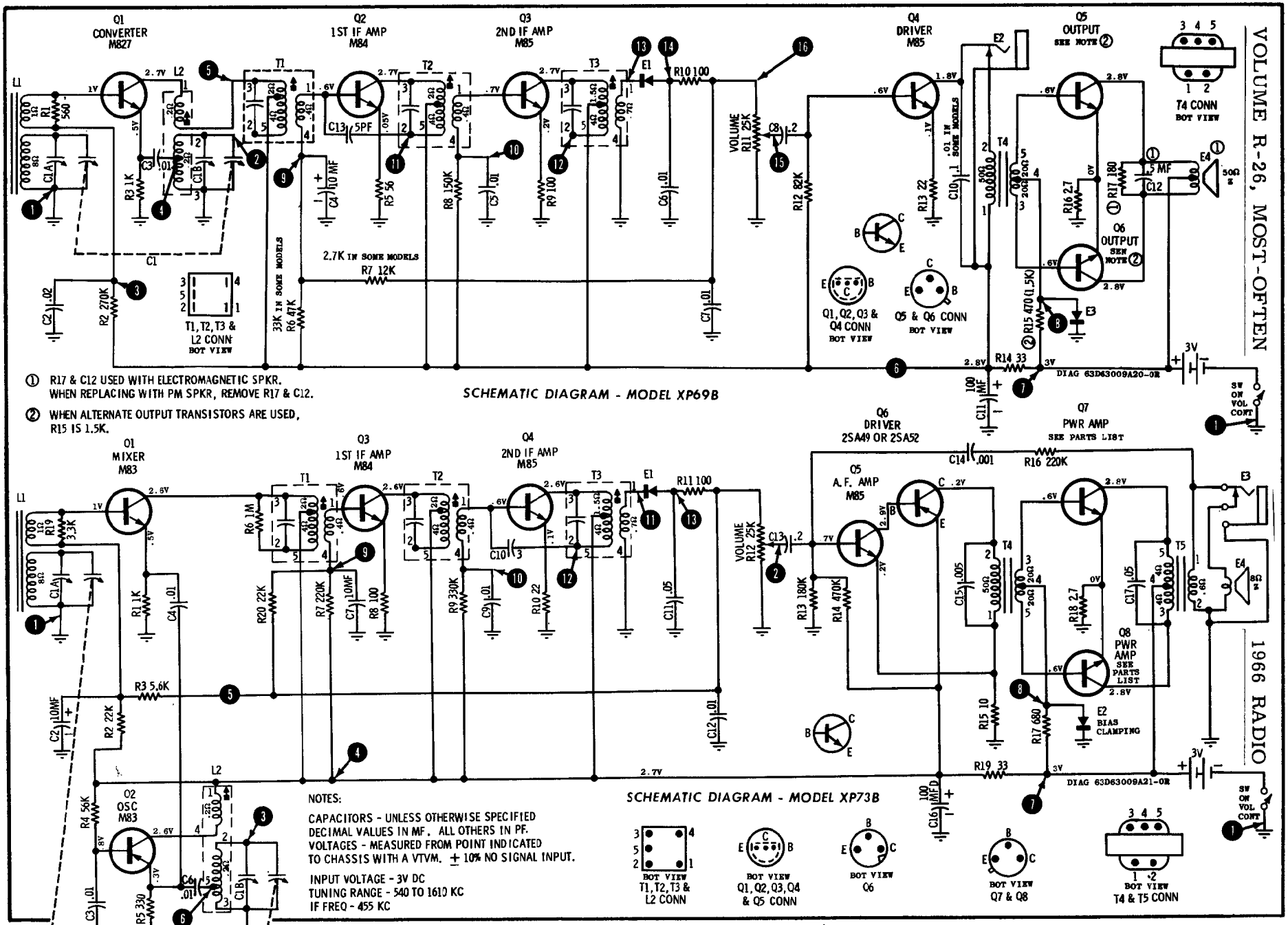


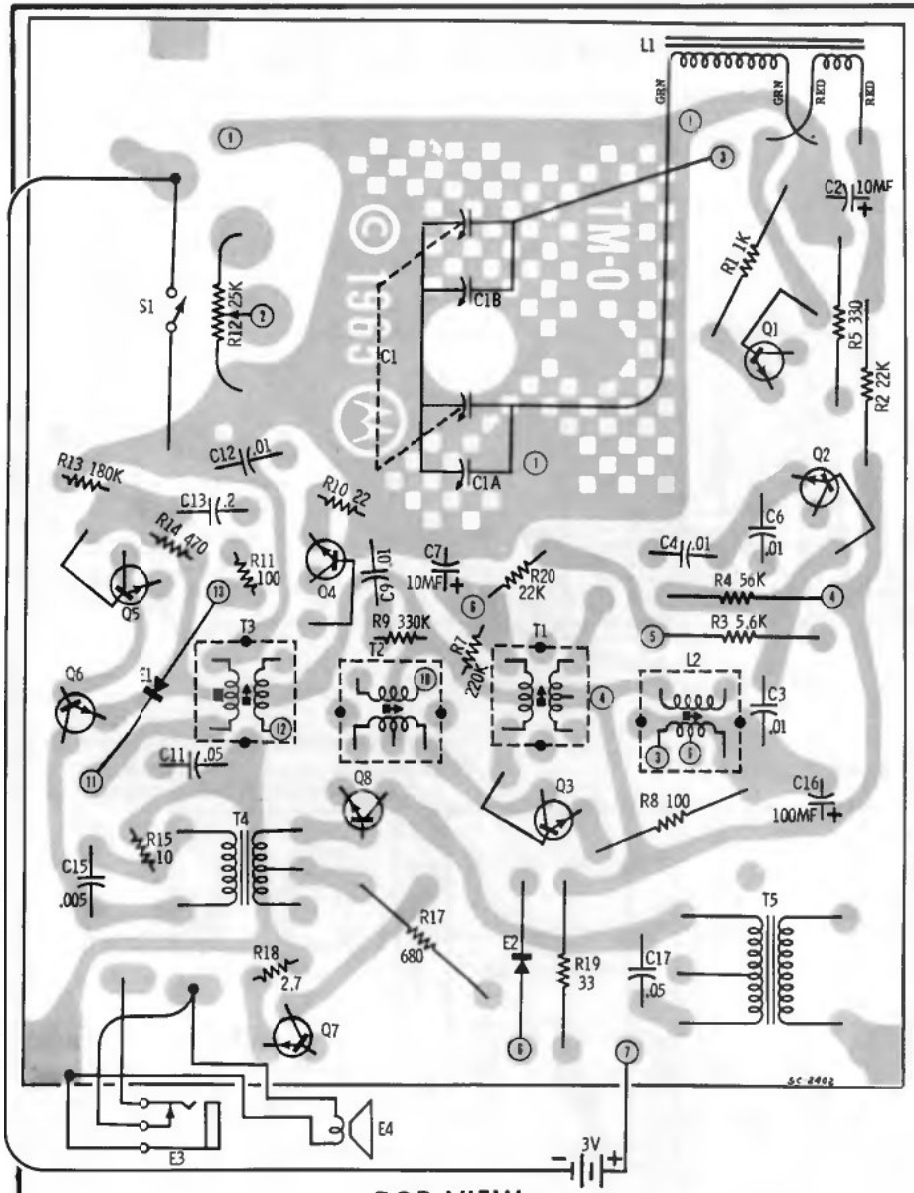
BOTTOM VIEW

MODEL XP69B - PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA Model XP69B, Chassis HS-6207

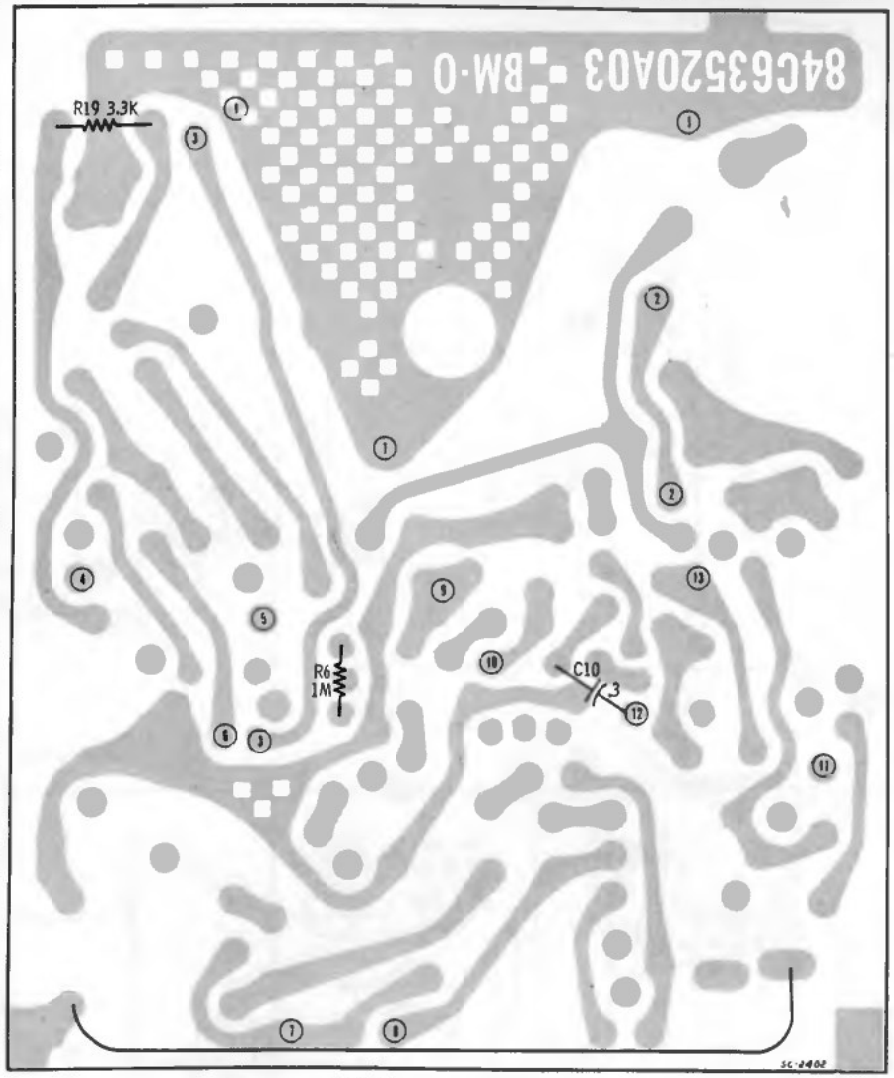
(See page adjacent at right for circuit diagram)


VOLUME R-26, MOST-OFTEN
1966 RADIO
Q1 CONVERTER M827
Q2 1ST IF AMP M84
Q3 2ND IF AMP M85
Q4 DRIVER M85
Q5 OUTPUT SEE NOTE ②
Q6 OUTPUT SEE NOTE ②
T4 CONN BOT VIEW
Q1, Q2, Q3 & Q4 CONN BOT VIEW
Q5 & Q6 CONN BOT VIEW
T1, T2, T3 & L2 CONN BOT VIEW
2.7K IN SOME MODELS R7 12K
33K IN SOME MODELS R6 47K
① R17 & C12 USED WITH ELECTROMAGNETIC SPKR. WHEN REPLACING WITH PM SPKR, REMOVE R17 & C12.
② WHEN ALTERNATE OUTPUT TRANSISTORS ARE USED, R15 IS 1.5K.
SCHEMATIC DIAGRAM - MODEL XP69B
Q1 MIXER M83
Q2 OSC M83
Q3 1ST IF AMP M84
Q4 2ND IF AMP M85
Q5 A.F. AMP M85
Q6 DRIVER 2SA49 OR 2SA52
Q7 PWR AMP SEE PARTS LIST
Q8 PWR AMP SEE PARTS LIST
E2 BIAS CLAMPING
T5 CONN BOT VIEW
NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF. ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ± 10% NO SIGNAL INPUT.
INPUT VOLTAGE - 3V DC
TUNING RANGE - 540 TO 1610 KC
IF FREQ - 455 KC
SCHEMATIC DIAGRAM - MODEL XP73B
BOT VIEW T1, T2, T3 & L2 CONN
BOT VIEW Q1, Q2, Q3, Q4 & Q5 CONN
BOT VIEW Q6
BOT VIEW Q7 & Q8
BOT VIEW T4 & T5 CONN



TOP VIEW

MODEL XP73B - PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM COMPONENT SIDE OF BOARD)



BOTTOM VIEW

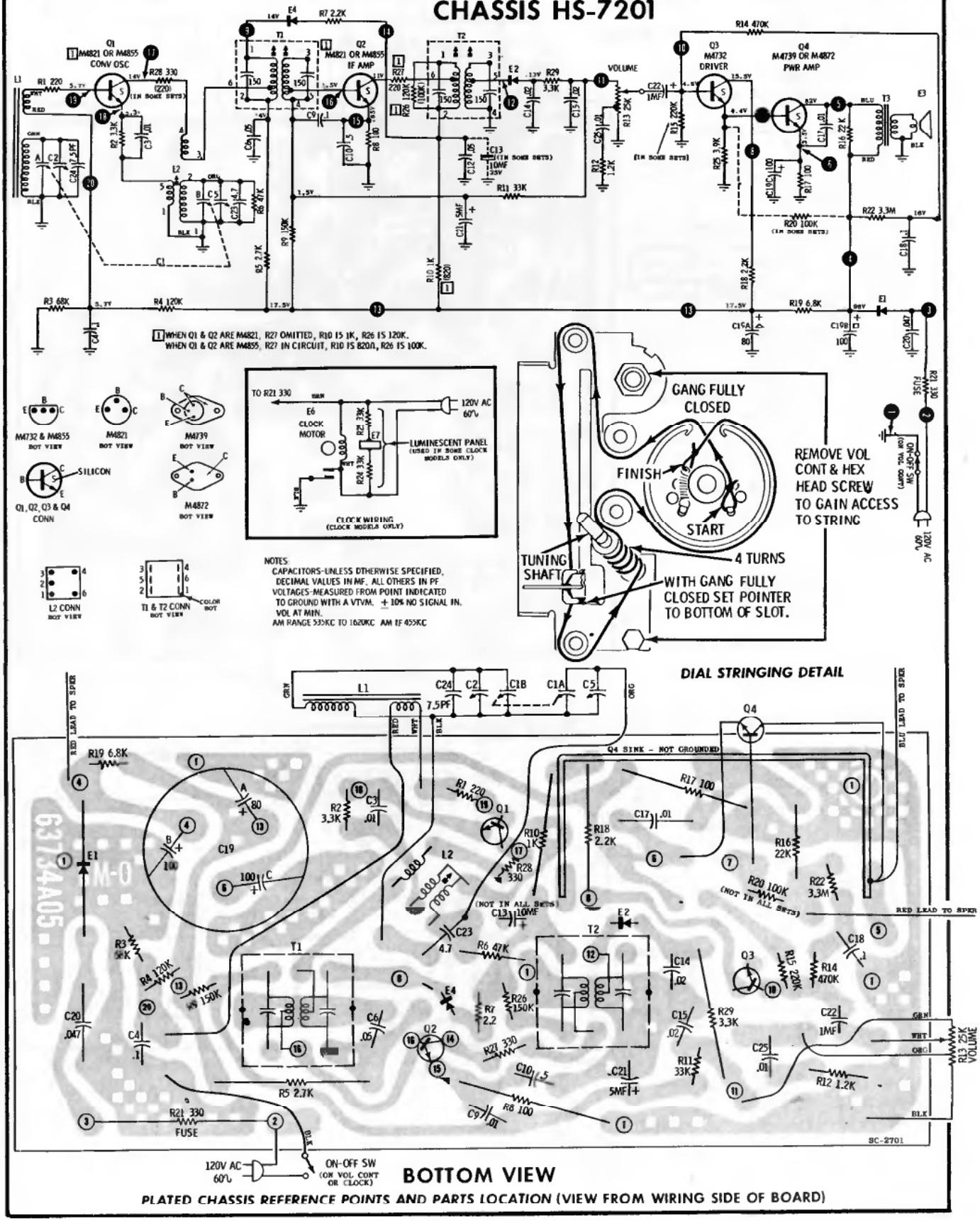
MODEL XP73B - PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA Model XP73B, Chassis HS-6208

(See preceding page for circuit diagram)

MOTOROLA MODELS XT2B, 3B; XC11B, 12B, 13B, 14B

CHASSIS HS-7201



MODELS
TC7B, TC8B
TT14B, TT15B

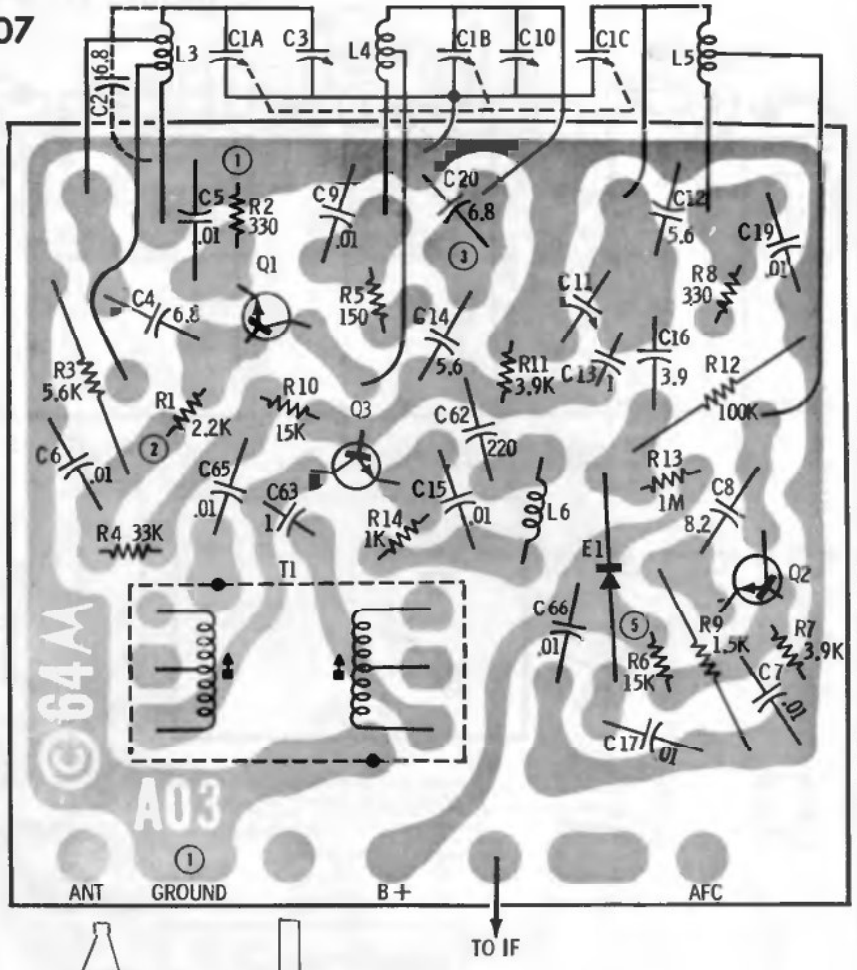
CHASSIS
HS-8206
HS-8207

MOTOROLA

(For diagram see next page adjacent at right)

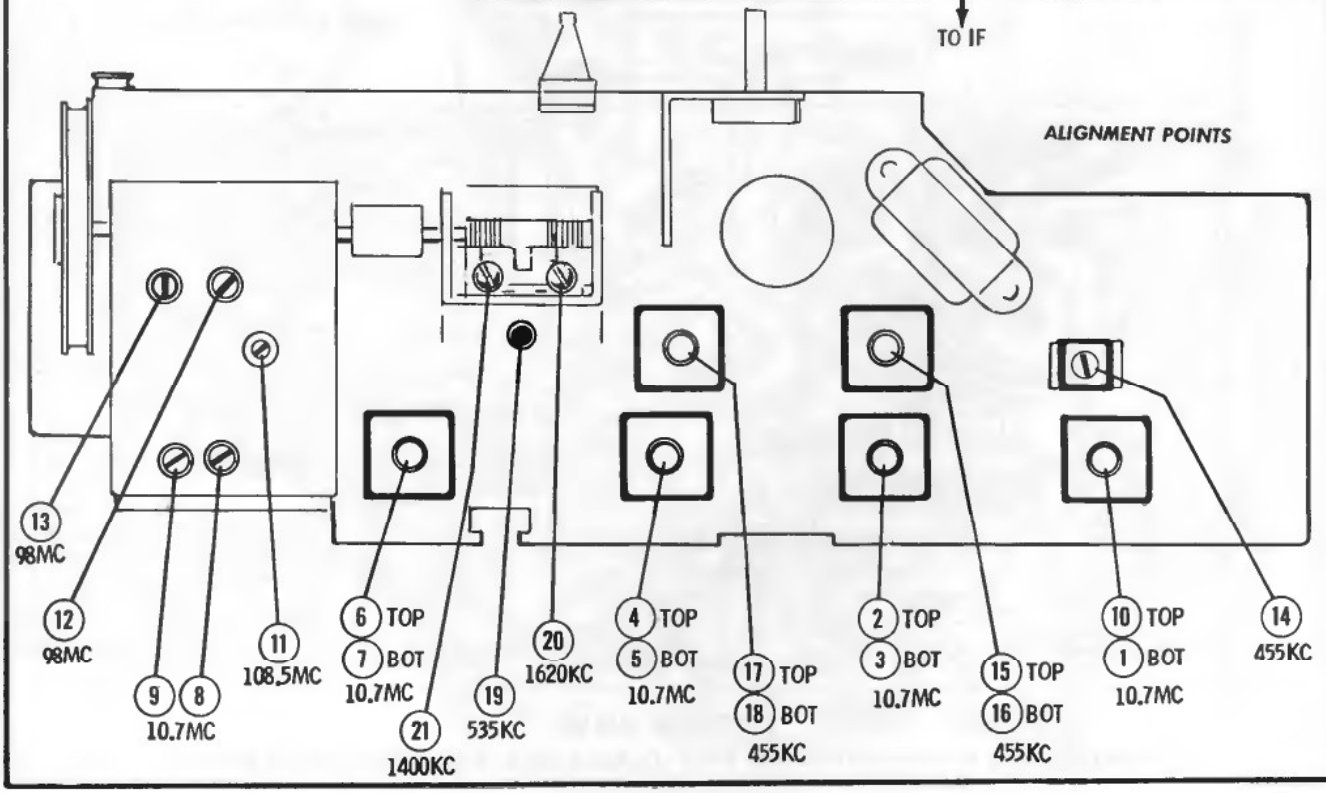
CHASSIS REMOVAL (All Models)

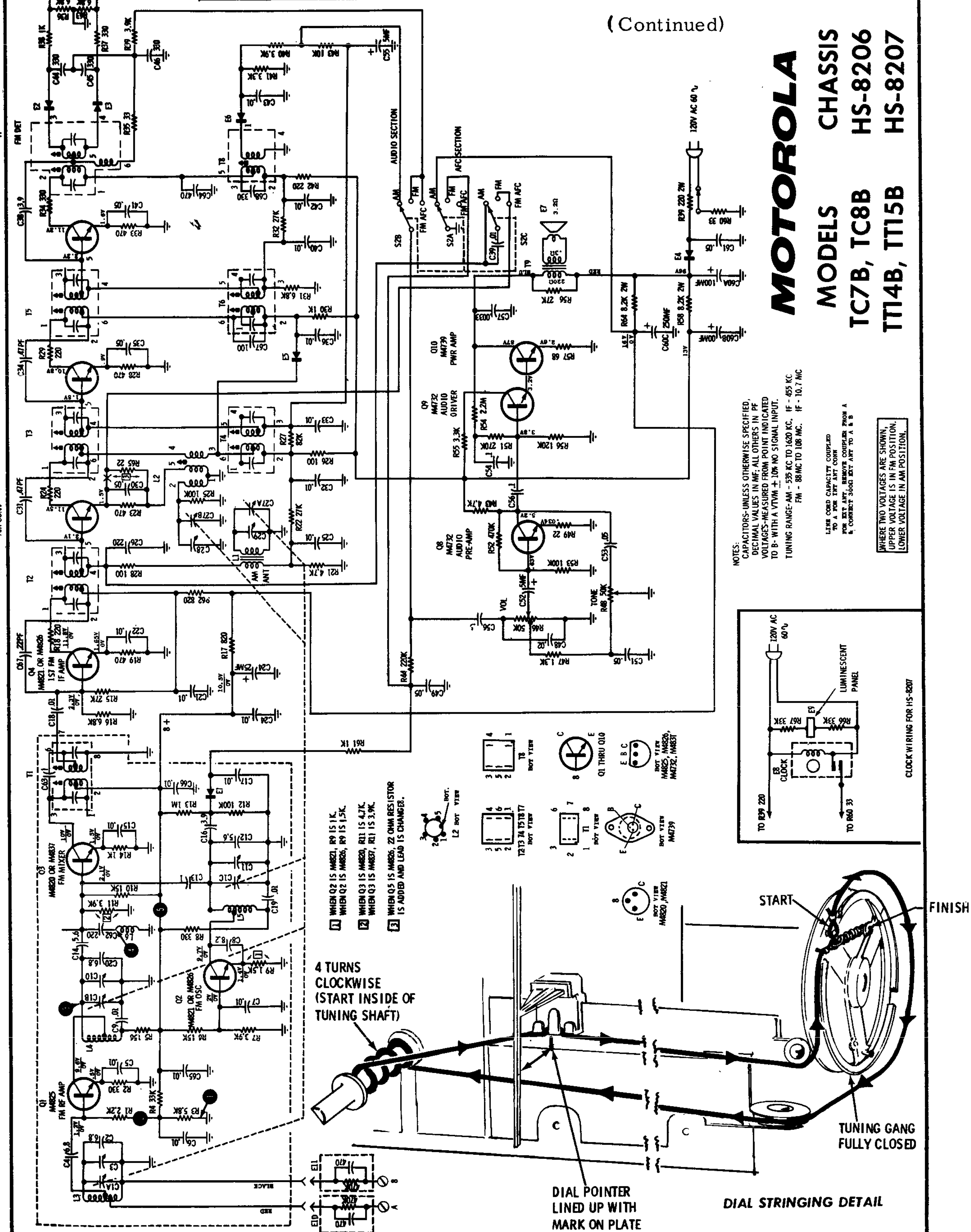
1. Remove selector and tuning knobs only. Loudness and tone control knobs are captivated.
2. Remove clock control knobs.
3. Remove clock crystal by inserting screwdriver between cabinet and bottom edge of crystal below the letters AM on dial scale. Release catch and lift out crystal.
4. Remove dial pointer by carefully pulling straight out.
5. From rear of chassis, remove three (3) screws along front chassis apron from below chassis.
6. Remove two (2) screws on vertical chassis above loudness control.
7. Unsolder speaker leads and necessary clock leads.
8. Carefully pull chassis from cabinet front.



TOP VIEW

FM-RF PLATED BOARD (PART OF CHASSIS HS-8206 & HS-8207)

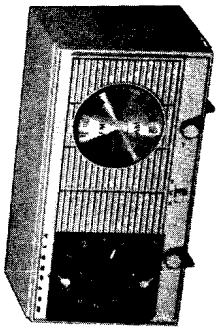



MOTOROLA
MODELS TC7B, TC8B
TT14B, TT15B
CHASSIS HS-8206
HS-8207
4 TURNS
CLOCKWISE
(START INSIDE OF
TUNING SHAFT)
START
FINISH
TUNING GANG
FULLY CLOSED
DIAL POINTER
LINED UP WITH
MARK ON PLATE
DIAL STRINGING DETAIL

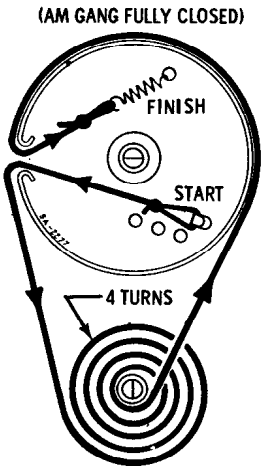
MOTOROLA

MODELS BC9B BT16B

MODEL CHASSIS
BT13A HS-8201
BC6A HS-8202



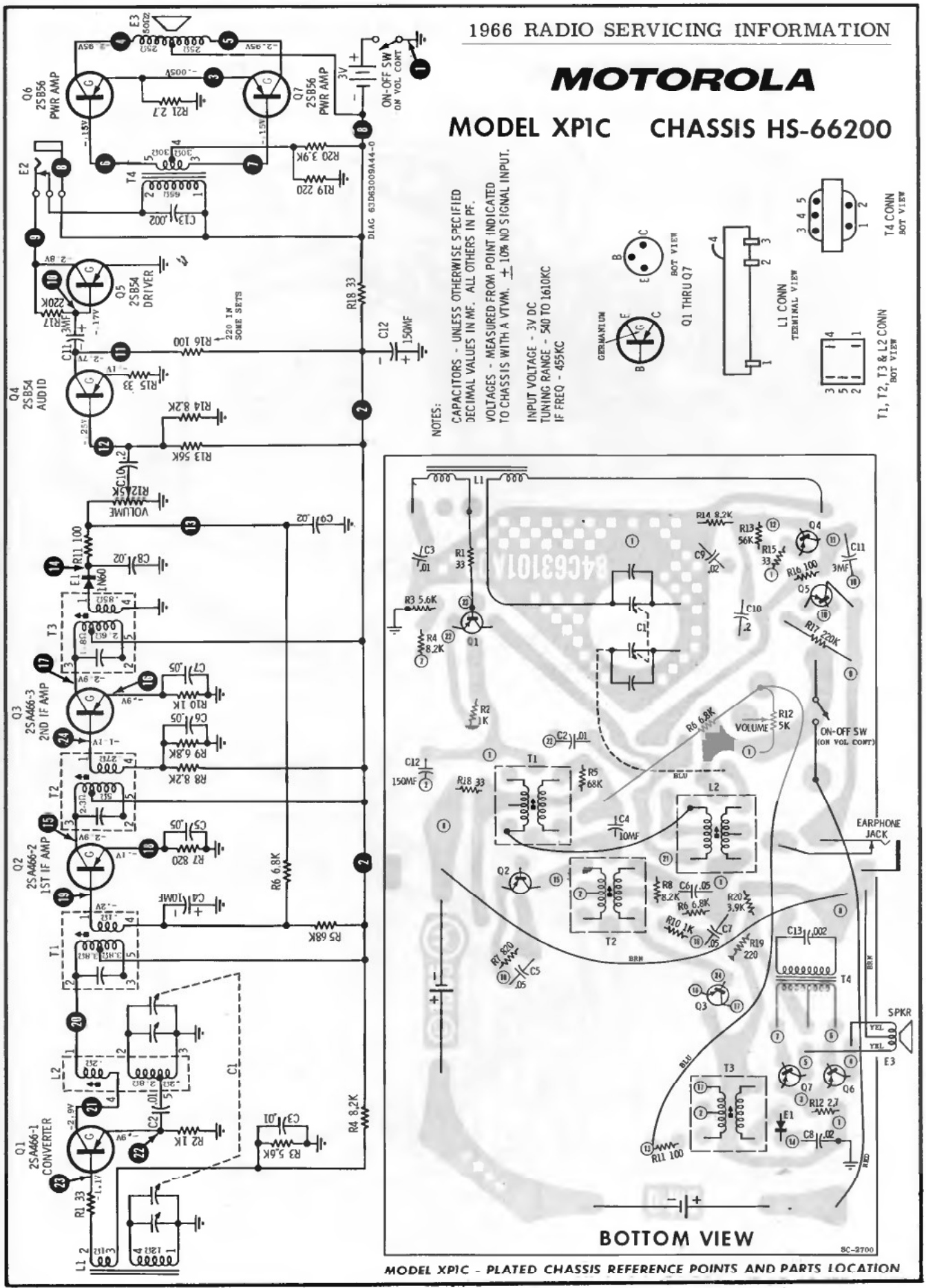
MODEL BC6A



DIAL STRINGING DETAIL

MOTOROLA

MODEL XP1C CHASSIS HS-66200

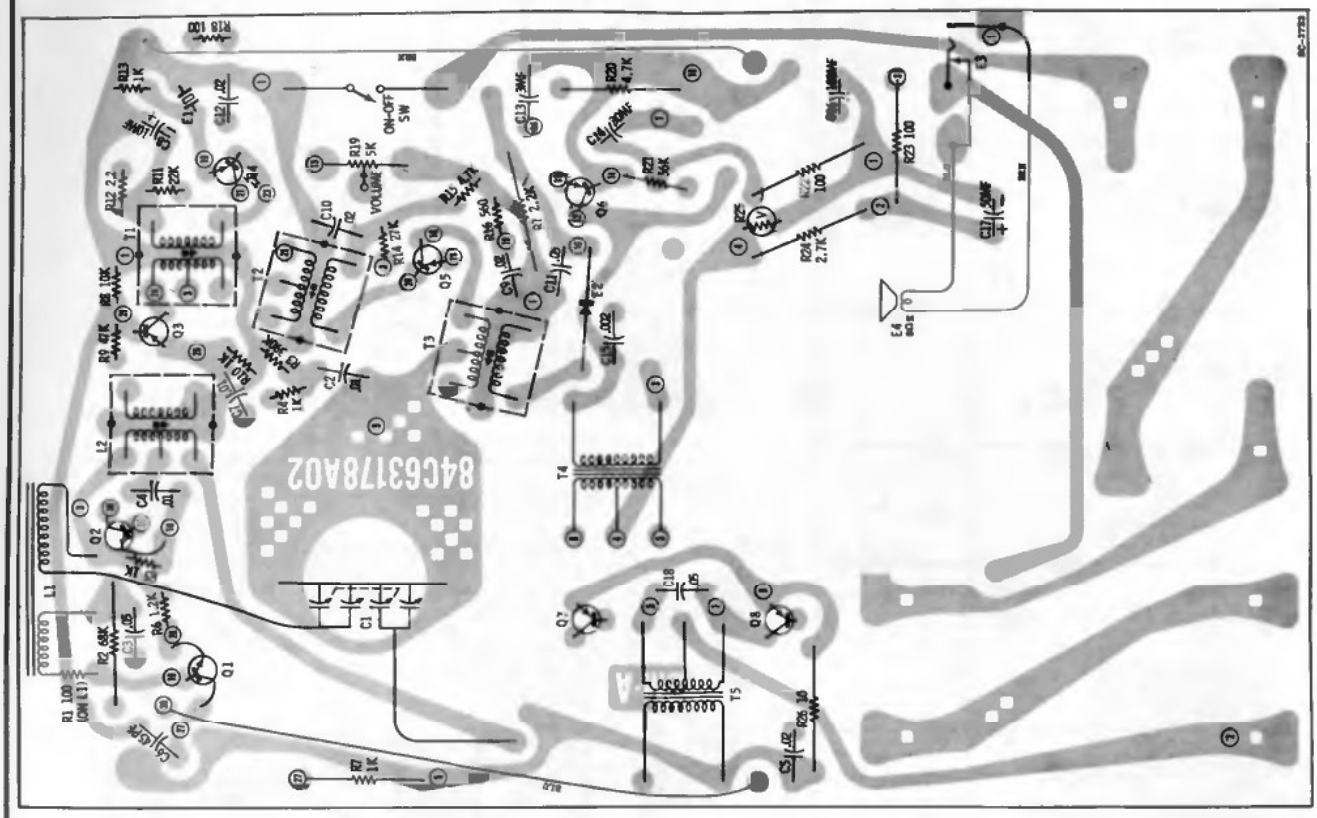


MODEL XP1C - PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION
(VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

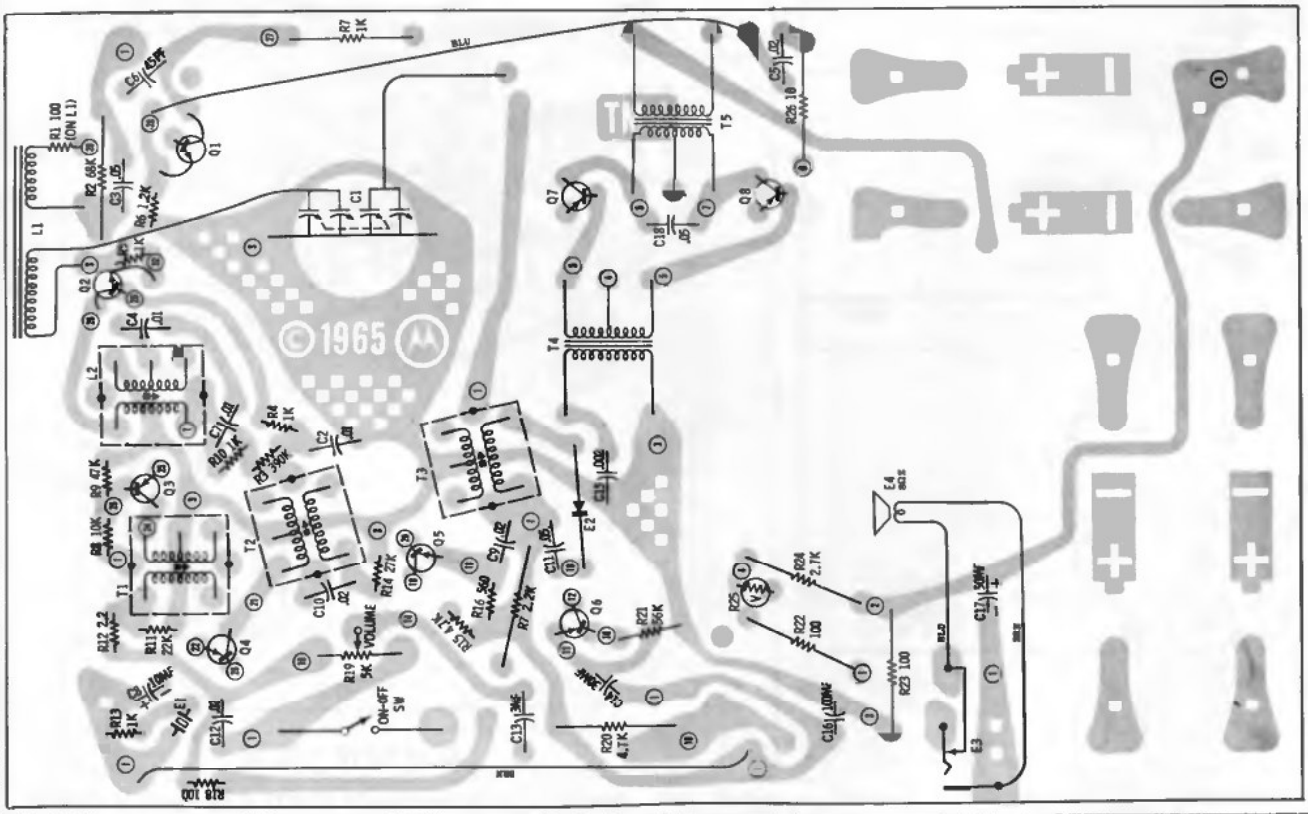
(Diagram and other data on page at right)

MODEL XP3C
CHASSIS HS-66202



MODEL XP3C PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

BOTTOM VIEW



TOP VIEW

MODEL XP3C PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)

MOTOROLA

MODEL XP3C

CHASSIS HS-66202

(Continued from preceding page)

PARTS LOCATION

MODEL XP3C DIAL STRINGING DETAIL

CHASSIS REMOVAL

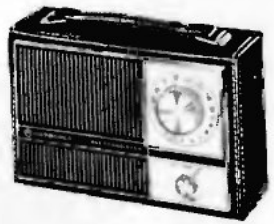
1. From front of radio, remove two (2) control knobs and dial scale.

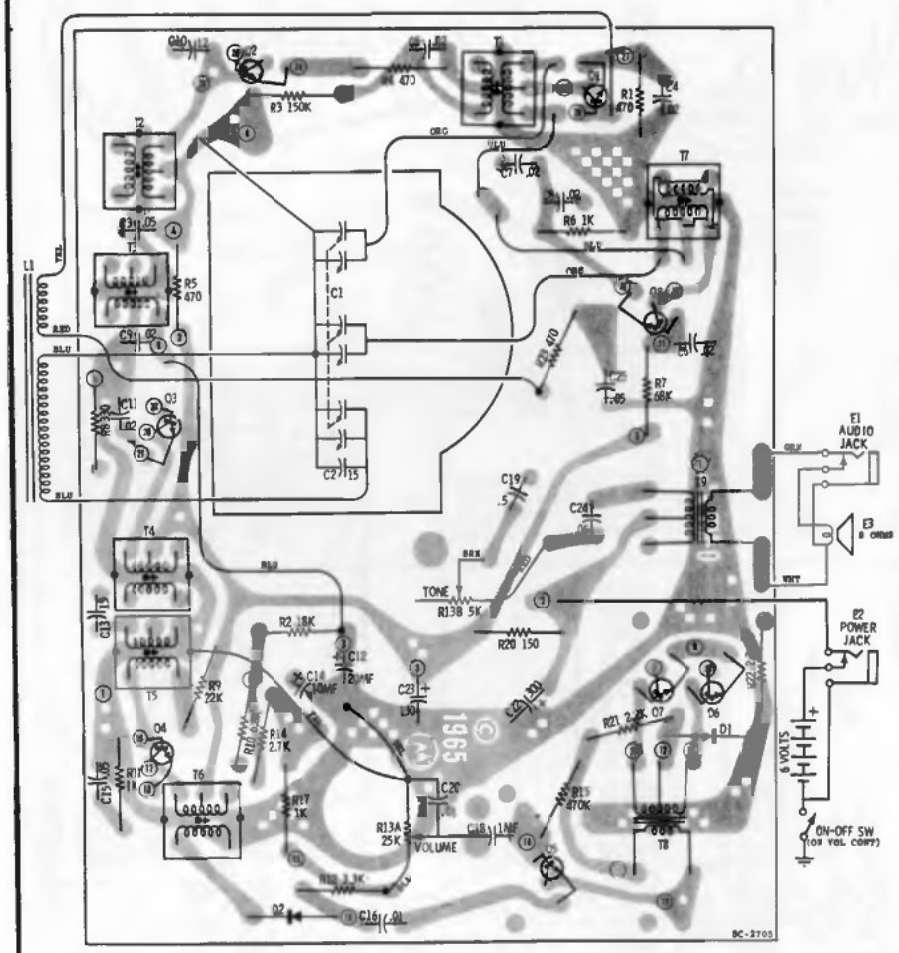
2. From rear of radio, open back panel by unsnapping the three (3) tabs at top of panel.

3. Remove two (2) screws holding ferrite antenna from sides of radio.

4. Remove six (6) chassis mounting screws. If necessary, unsolder leads connected to chassis before removing chassis from cabinet.

5. If it becomes necessary to remove the earphone jack or power jack, use tool, Motorola Part No. 66A646211.

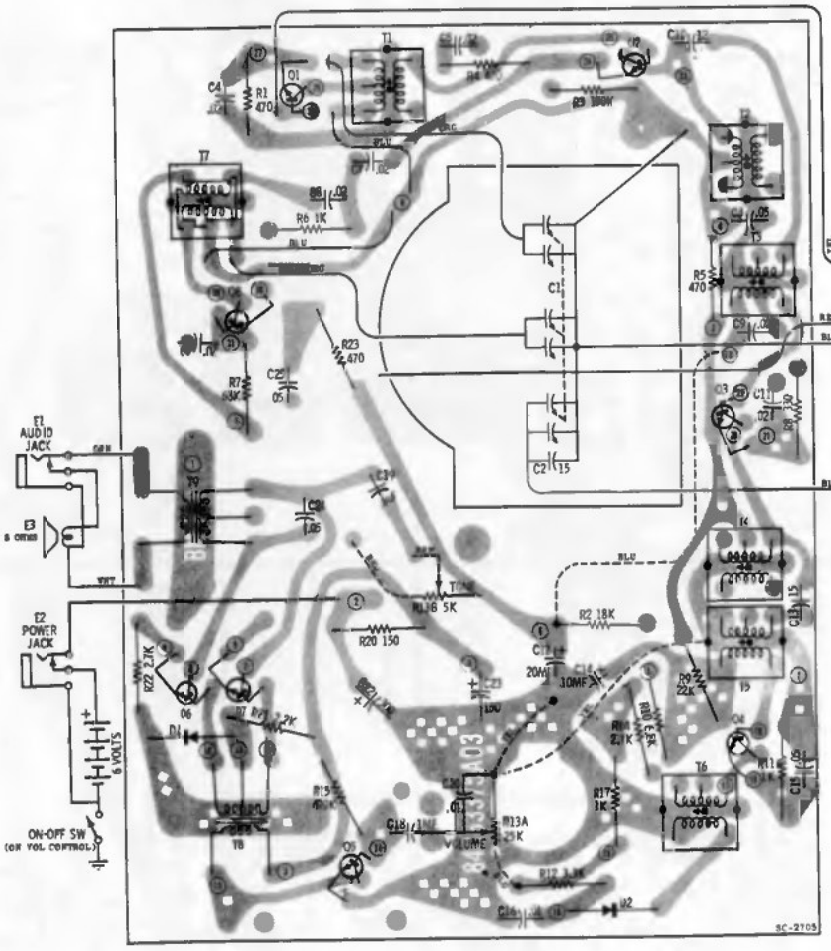




TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

(VIEW FROM COMPONENT SIDE OF BOARD)



BOTTOM VIEW

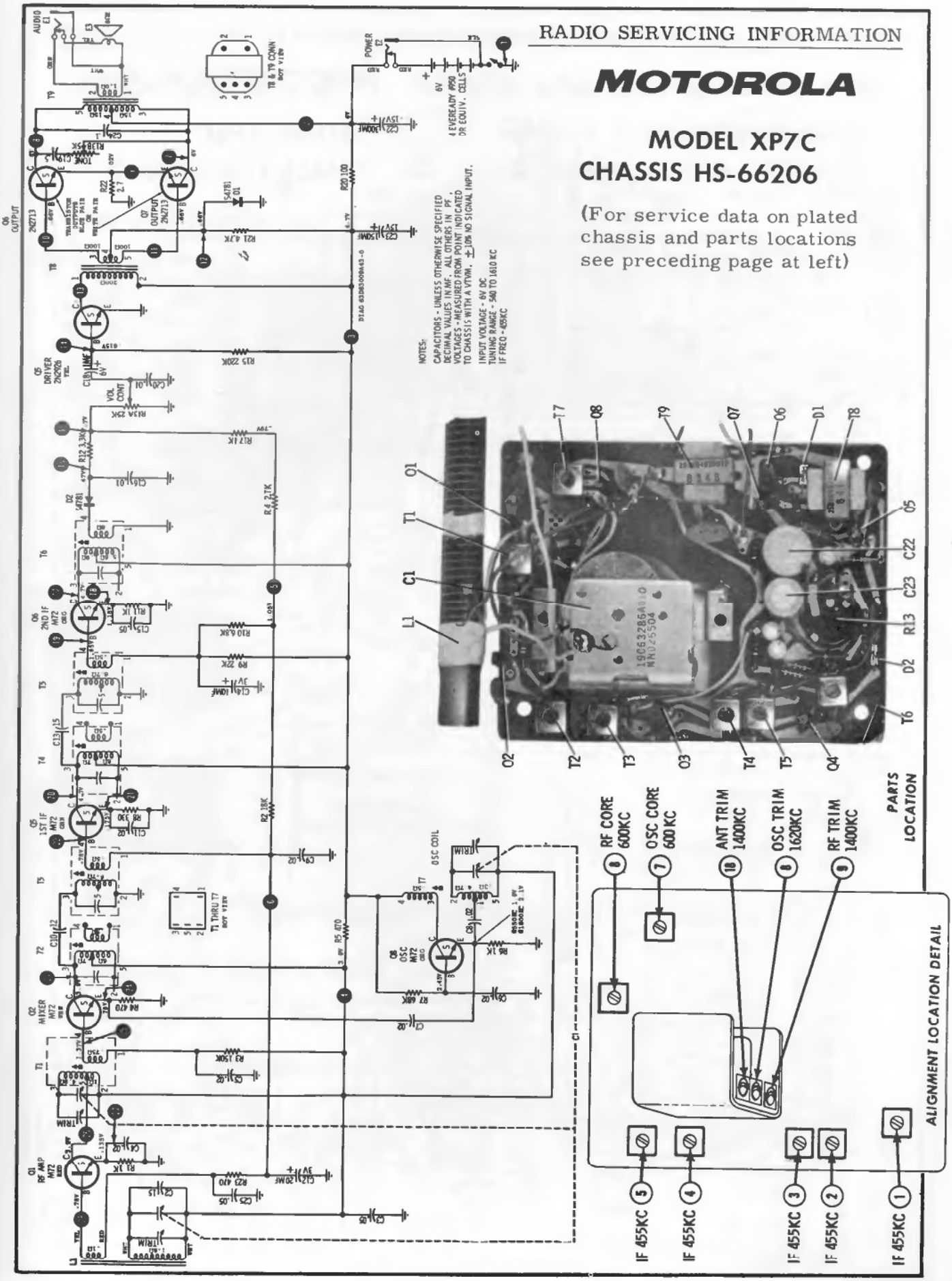
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

(VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

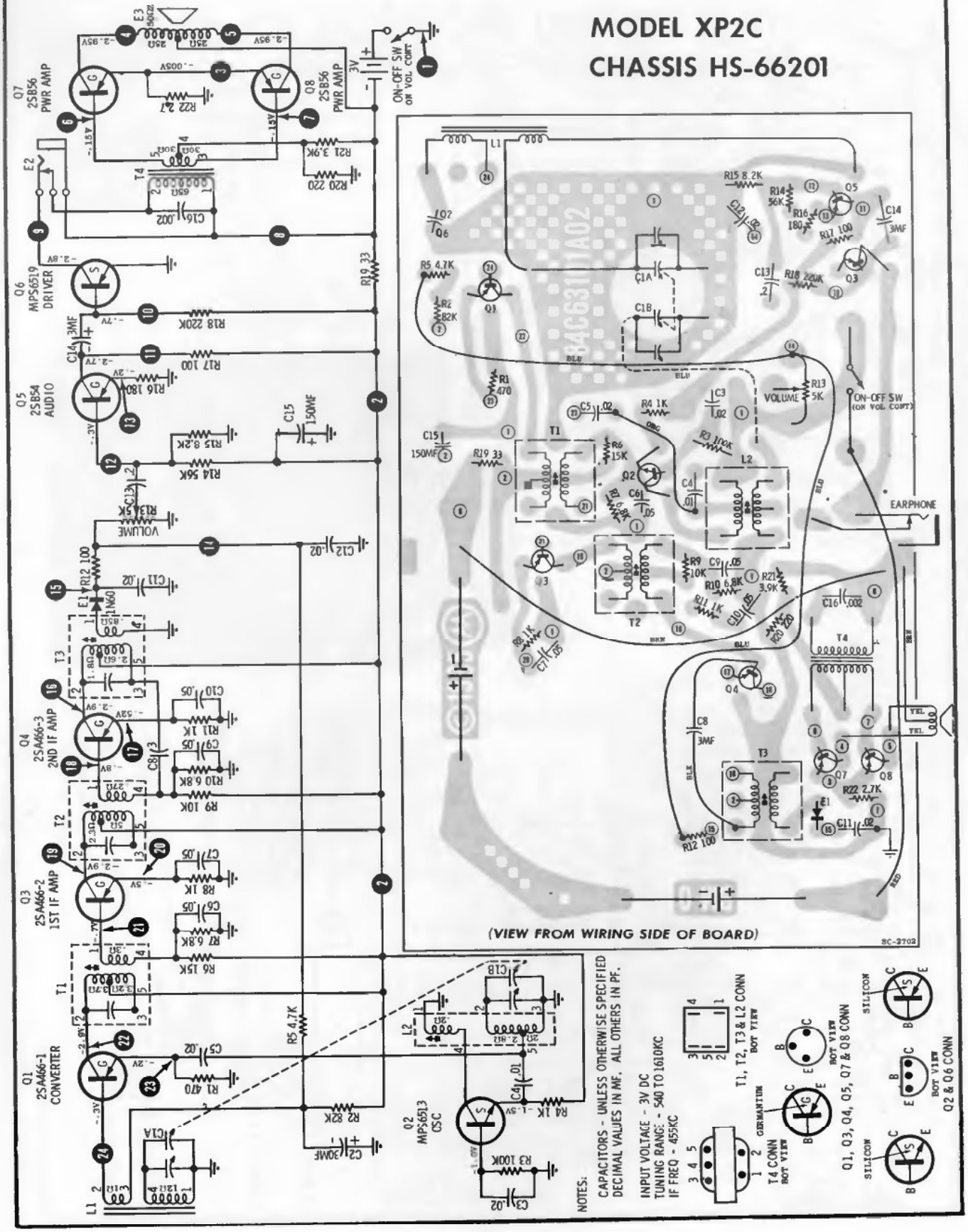
MODEL XP7C
CHASSIS HS-66206

(For service data on plated chassis and parts locations see preceding page at left)



MOTOROLA

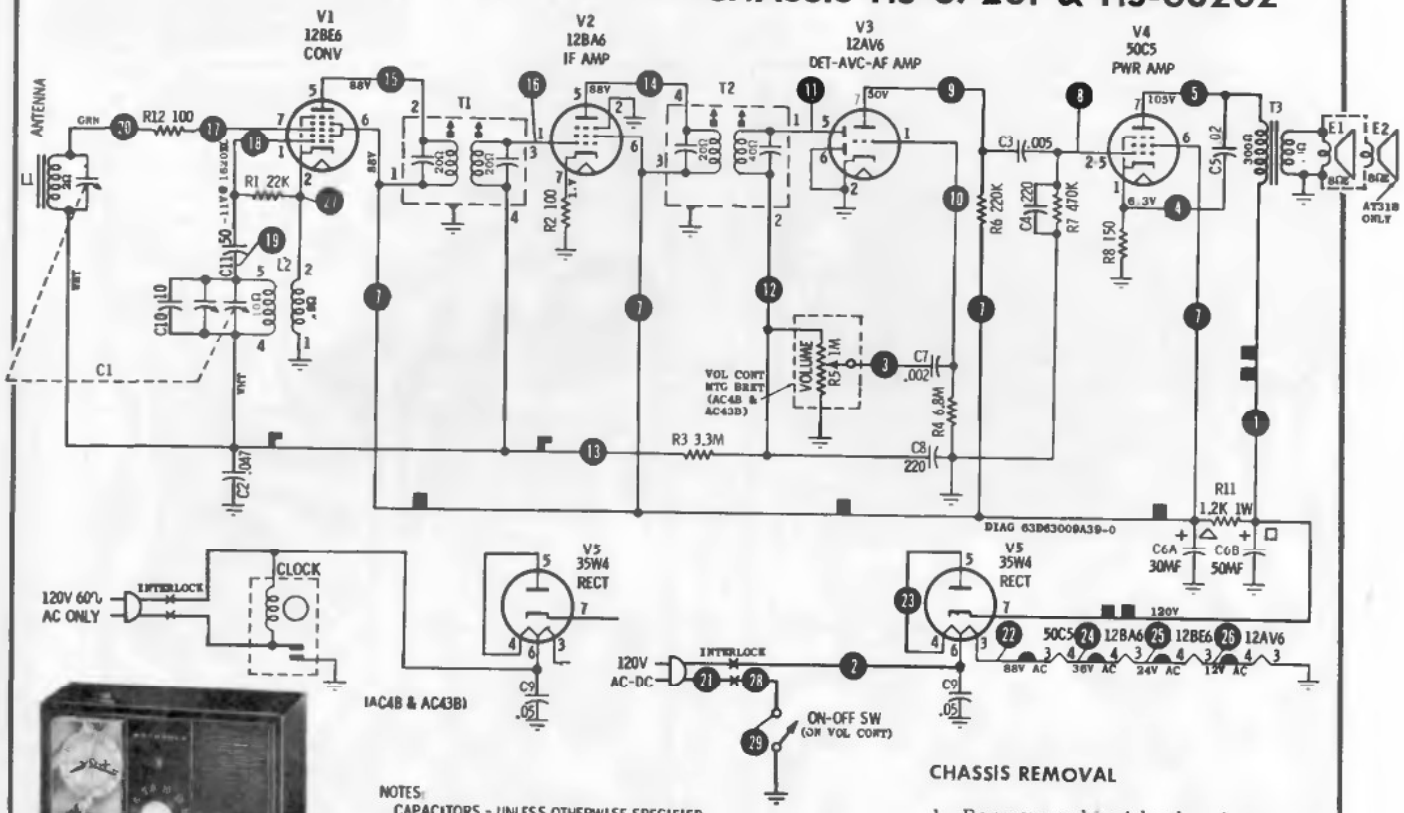
MODEL XP2C
CHASSIS HS-66201



MOTOROLA

MODELS AC4B, AC43B, AT30B, AT31B

CHASSIS HS-67201 & HS-68202



MODEL AC43B

MODEL AT31B

NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN PF.
RESISTORS - 1/2 WATT FIXED COMPOSITION, 20% UNLESS OTHERWISE SPECIFIED.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ± 10% NO SIGNAL INPUT
TUNING RANGE - 535KC TO 1620KC (IF-455KC)

BOARD WIRING LEGEND
B+ AVC FIL B−

L2 CONN
BOT VIEW

T1 & T2 CONN
BOT VIEW

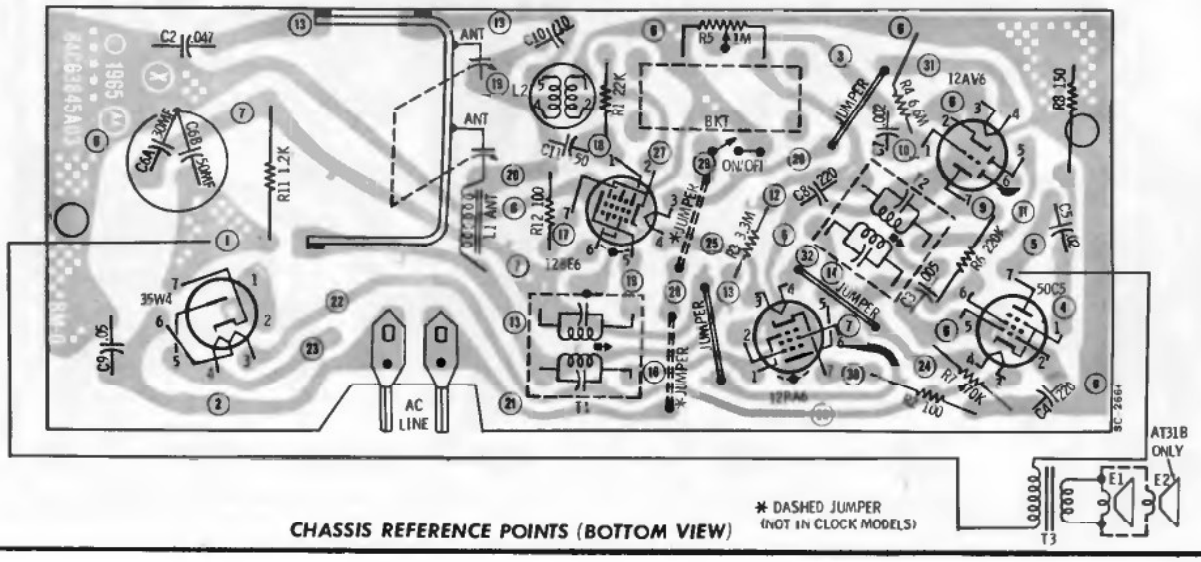
CHASSIS REMOVAL

1. Remove cabinet back - 4 screws hold it in place.

2. Remove chassis mounting screw at base of chassis and screw at tuning gang mounting bracket.

3. Pull off volume knob ONLY. (Do not pull captivated tuning knob.)

4. Unsolder appropriate leads to slide chassis out of tuning knob and cabinet.

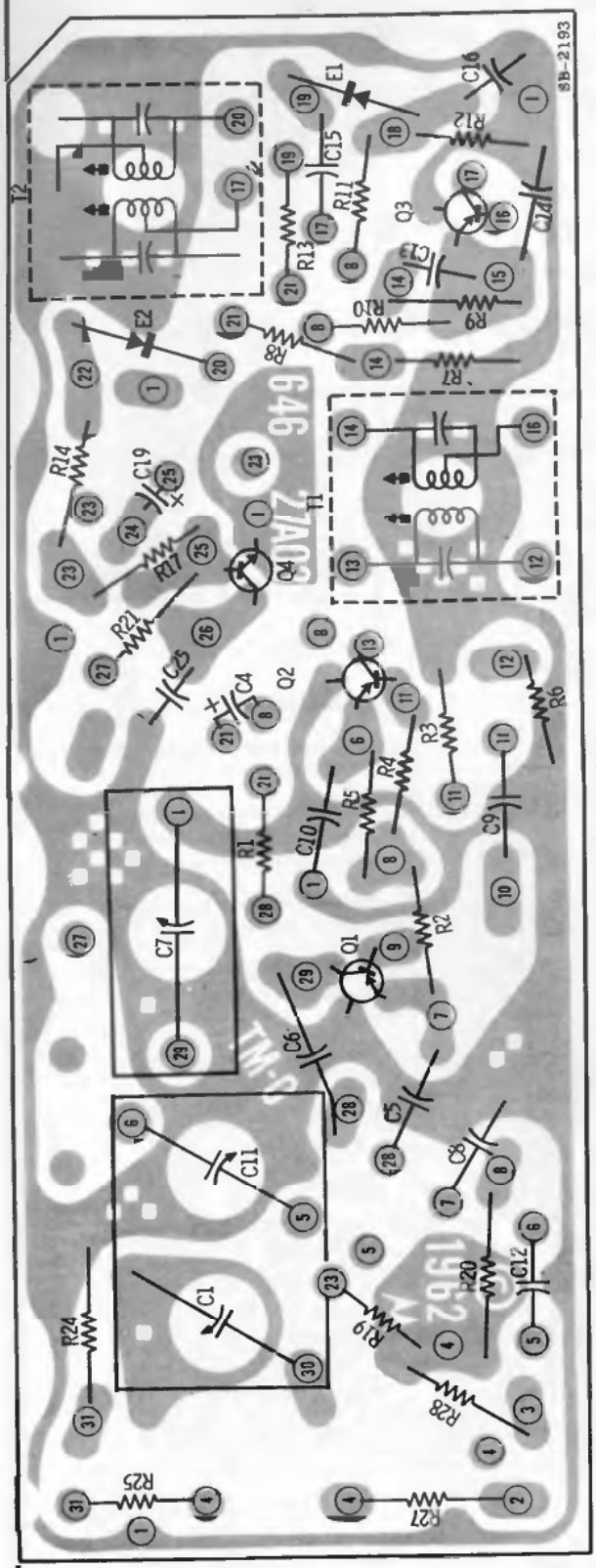


CHASSIS REFERENCE POINTS (BOTTOM VIEW)

* DASHED JUMPER (NOT IN CLOCK MODELS)

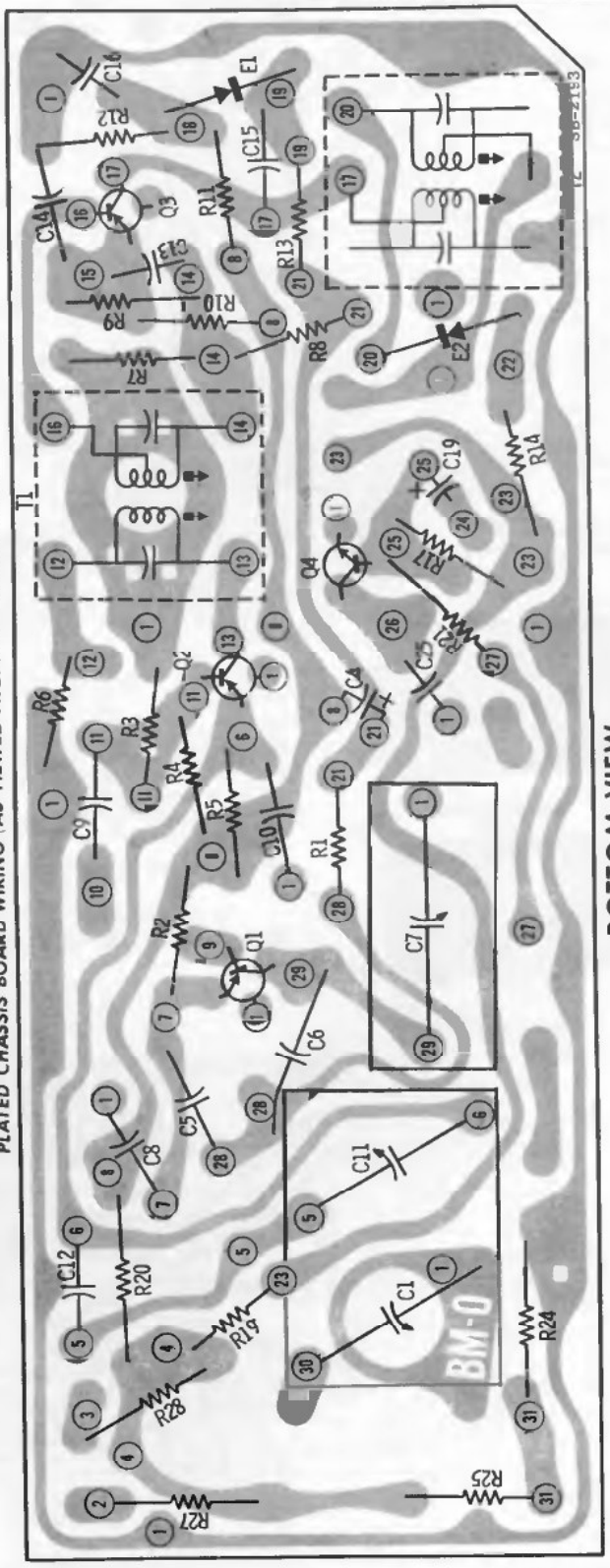
MOTOROLA MODEL TM5A

(Diagram and other data on the next page at right)



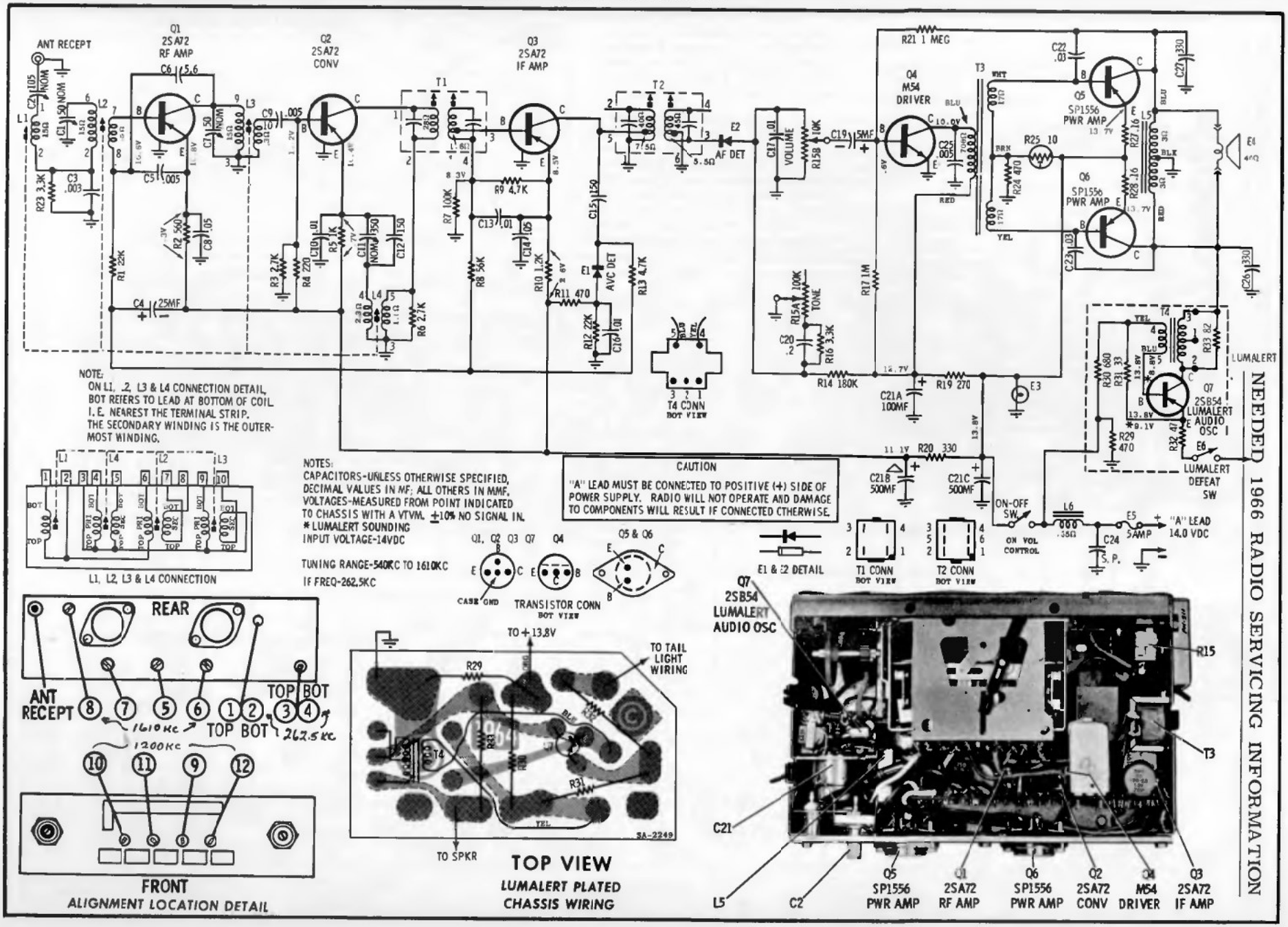
TOP VIEW

PLATED CHASSIS BOARD WIRING (AS VIEWED FROM COMPONENT SIDE)

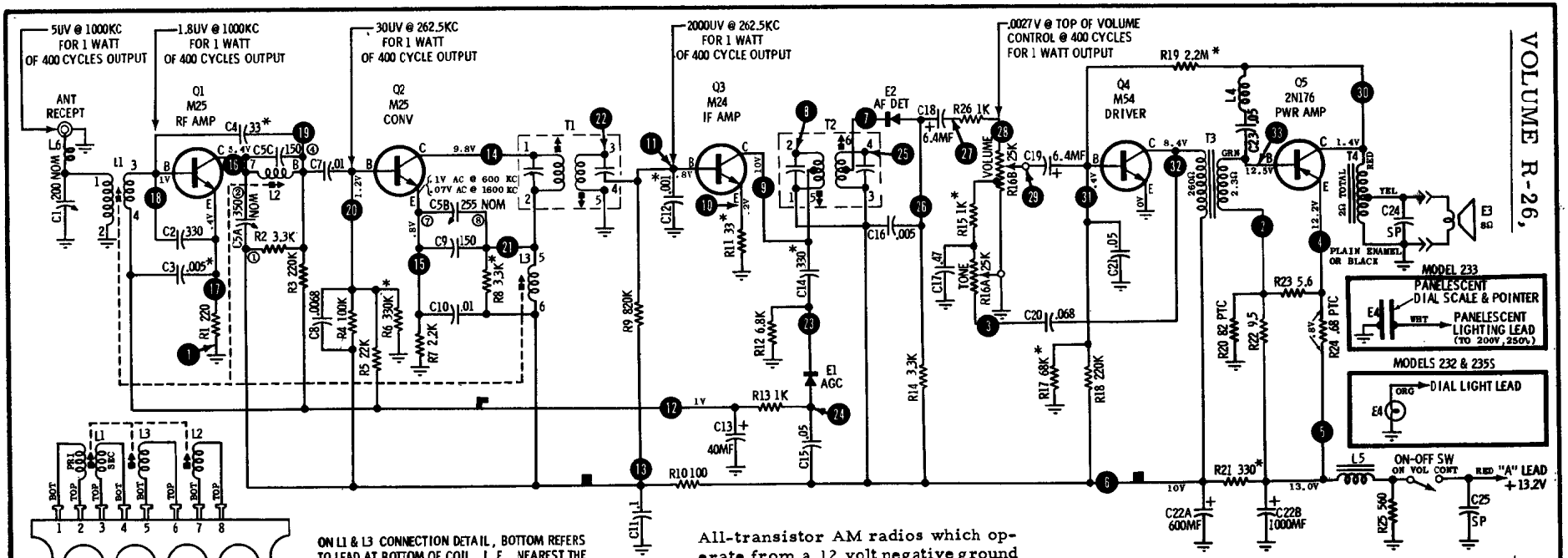


BOTTOM VIEW

PLATED CHASSIS BOARD WIRING AS VIEWED FROM BOTTOM (COMPONENTS SHOWN ARE LOCATED ON OPPOSITE SIDE)

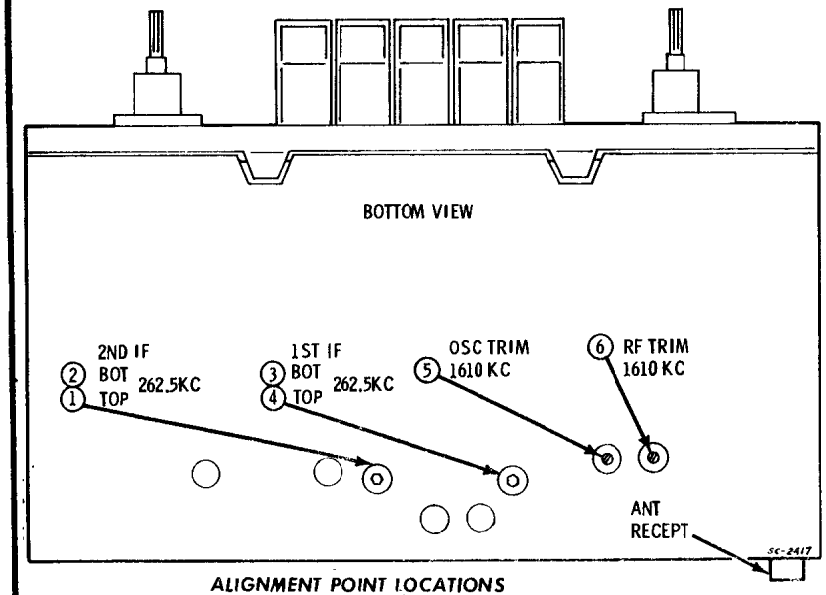


NEEDED 1966 RADIO SERVICING INFORMATION



L1, L2 & L3 CONNECTION DETAIL

ON L1 & L3 CONNECTION DETAIL, BOTTOM REFERS TO LEAD AT BOTTOM OF COIL, I. E., NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.



ALIGNMENT POINT LOCATIONS

All-transistor AM radios which operate from a 12 volt negative ground system. These radios are designed for custom installation in the following cars:

Model 232 - 1966 Dodge Coronet, BW1 and BW2.

Model 233 - 1966 Dodge Charger, BW29.

Model 235S - 1966 Dodge Polara, Custom 880 and Monaco, BD2.

PLATED CHASSIS BOARD REMOVAL - To remove the plated chassis from the radio housing, proceed as follows:

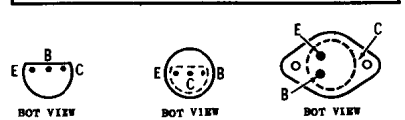
A. Unsolder the 3 black chassis ground wires from the chassis mounting bracket.

B. Remove the 4 wraparound mounting screws.

C. Straighten the ears on the chassis mounting bracket, then unsolder and remove the chassis mounting bracket. The chassis can then be positioned as desired.

CAUTION

"A" LEAD MUST BE CONNECTED TO POSITIVE (+) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.



NOTES:
CAPACITOR - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ± 10%. NO SIGNAL IN.
INPUT VOLTAGE 13.2V DC
TUNING RANGE - 540KC TO 1610KC
IF FREQ - 262.5KC
*THESE VALUES ARE NOMINAL AND MAY VARY IN PRODUCTION TO MEET SPECIFICATIONS.

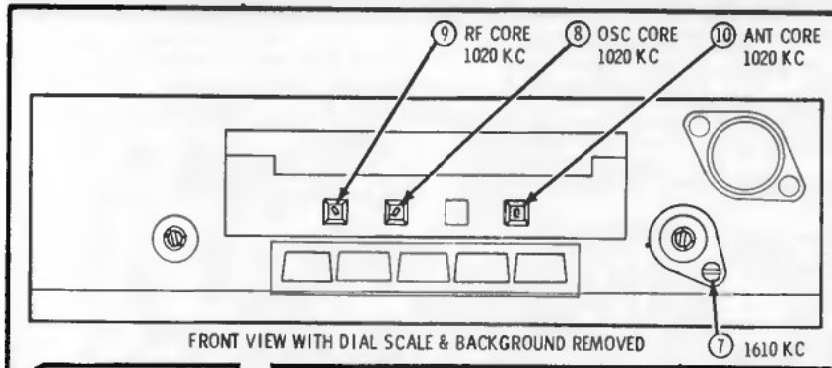
■ =B+ ■ =AVC

MOTOROLA

MODELS 232, 233, 235S

1966 RADIO SERVICING INFORMATION

(Continued on the next page at right)



FRONT VIEW WITH DIAL SCALE & BACKGROUND REMOVED

MOTOROLA

Models 232, 233, 235S

(Continued from preceding page)

AVC VOLTAGE CHECKS

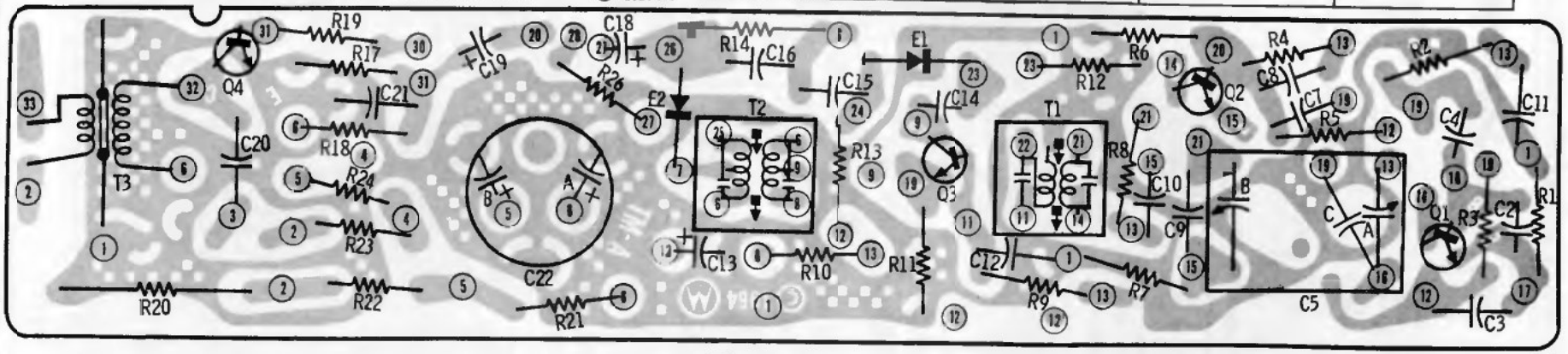
A CHECK FOR PROPER AVC ACTION IN THIS SET CAN BE MADE AS FOLLOWS.

WITH NO INPUT SIGNAL (OR IN-BETWEEN STATIONS) THE DC VOLTAGE FROM THE AVC LINE ((12) ON SCHEMATIC) WITH RESPECT TO GROUND SHOULD BE SLIGHTLY POSITIVE (APPROXIMATELY + .85 VOLTS).

WITH AN INPUT SIGNAL, THIS VOLTAGE WILL TEND TO GO NEGATIVE, ITS MAGNITUDE DEPENDING ON SIGNAL STRENGTH.

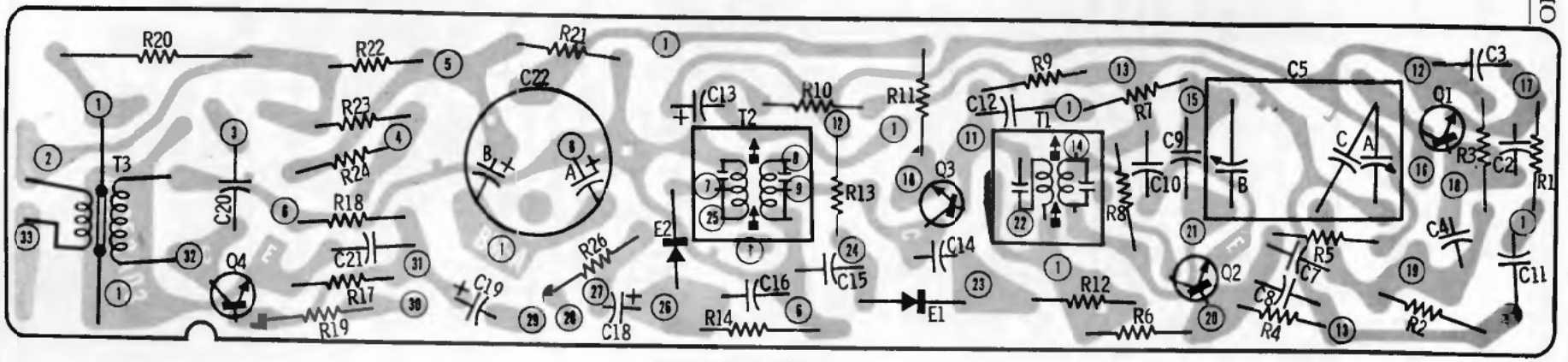
SOME TYPICAL EXAMPLES ARE SHOWN AT RIGHT.

INPUT SIGNAL STRENGTH	AVC VOLTAGE DEVELOPED
NO SIGNAL (OR IN-BETWEEN STATIONS)	APPROX + .85 VOLTS
APPROX 10,000 MICROVOLTS (MEDIUM POWER STATION)	APPROX + .5 VOLTS
APPROX 1 VOLT (STRONG STATION)	APPROX - .5 VOLTS



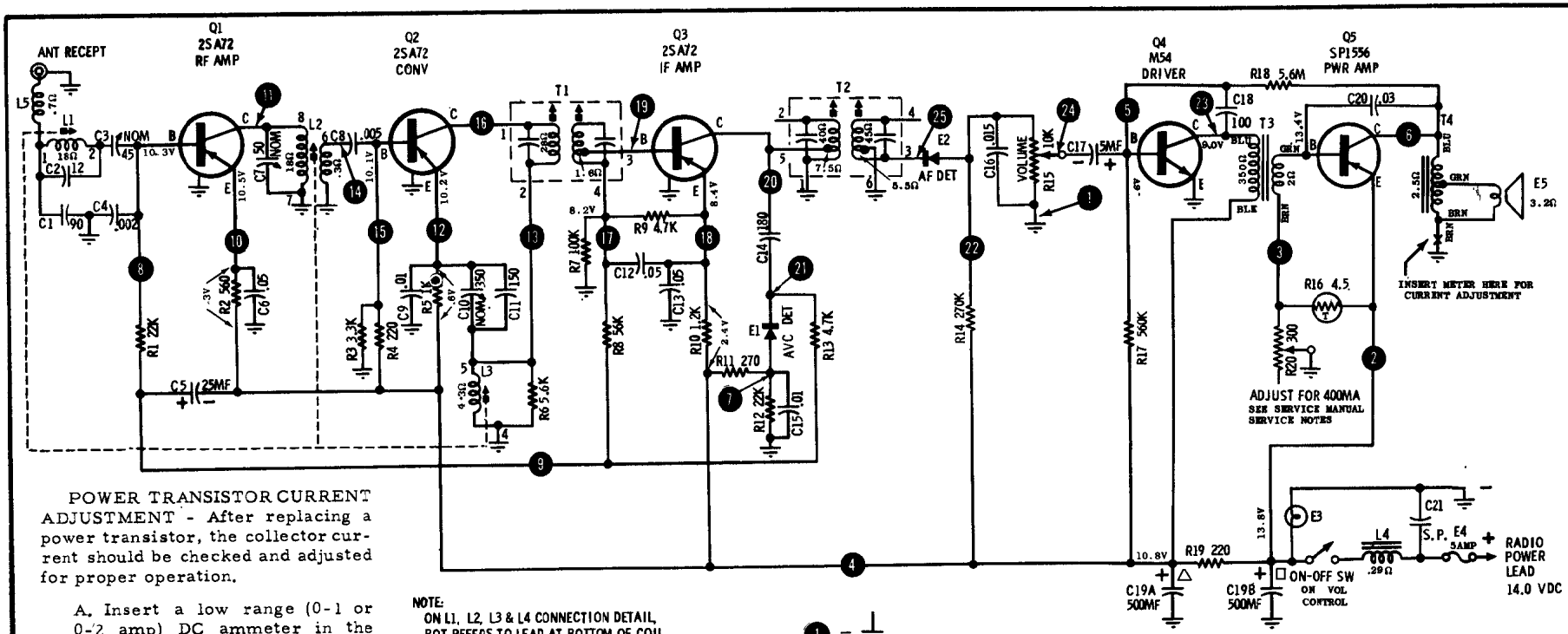
TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)



BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)



POWER TRANSISTOR CURRENT ADJUSTMENT - After replacing a power transistor, the collector current should be checked and adjusted for proper operation.

A. Insert a low range (0-1 or 0-2 amp) DC ammeter in the primary ground return lead of the output transformer (T-4). Connect the negative terminal of the meter to ground.

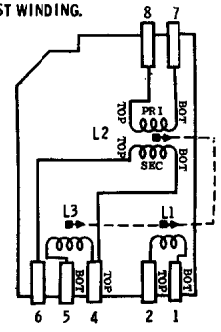
CAUTION: Be sure the speaker ground lead is connected in common with the transformer ground lead to the positive terminal (see SCHEMATIC DIAGRAM).

B. Turn the radio on and allow it to heat up for about 15 minutes.

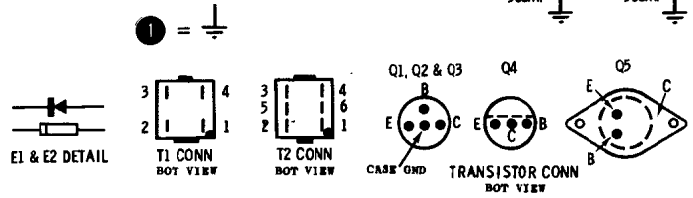
C. Adjust the bias control (R-20) for a reading of 320 ma with 12.6 volts input to the radio "A" lead.

NOTE: Two values of radio input voltage are given as a convenience to service personnel in order to accommodate different power sources. The current value stated on the schematic diagram is for 14 volts input to the radio "A" lead.

NOTE:
ON L1, L2, L3 & L4 CONNECTION DETAIL, BOT REFERS TO LEAD AT BOTTOM OF COIL, I.E. NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.



L1, L2 & L3 CONN DETAIL



CAUTION

"A" LEAD MUST BE CONNECTED TO POSITIVE (+) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.

AVC VOLTAGE CHECKS

A CHECK FOR PROPER AVC ACTION IN THIS SET CAN BE MADE AS FOLLOWS. WITH NO INPUT SIGNAL (OR IN-BETWEEN STATIONS) THE DC VOLTAGE FROM THE AVC LINE ((9) ON SCHEMATIC) WITH RESPECT TO B+ ((4) ON SCHEMATIC) SHOULD BE NEGATIVE (APPROXIMATELY −.6 VOLTS.) WITH AN INPUT SIGNAL, THIS VOLTAGE WILL TEND TO GO POSITIVE, ITS MAGNITUDE DEPENDING ON SIGNAL STRENGTH.

NOTES:
CAPACITORS-UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.
VOLTAGES-MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±10% NO SIGNAL IN.

INPUT VOLTAGE-14VDC

TUNING RANGE-540KC TO 1610KC

IF FREQ-262.5KC

MOTOROLA

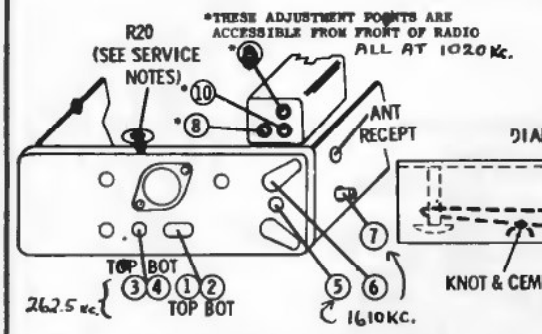
MODEL TM295M

(Service material continued on the next page, adjacent at right)

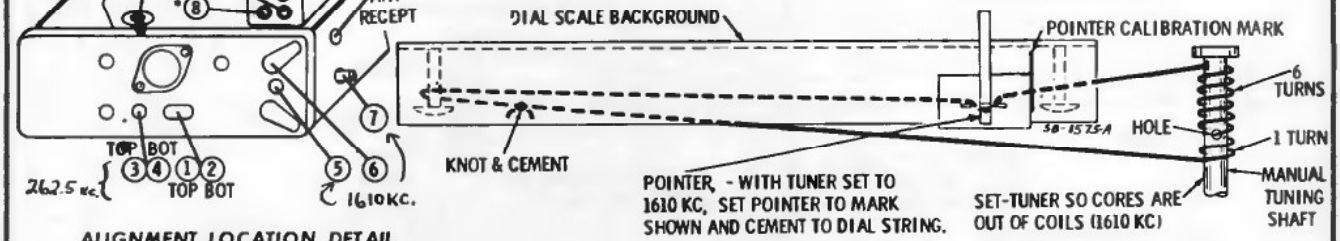
MOTOROLA

MODEL TM295M

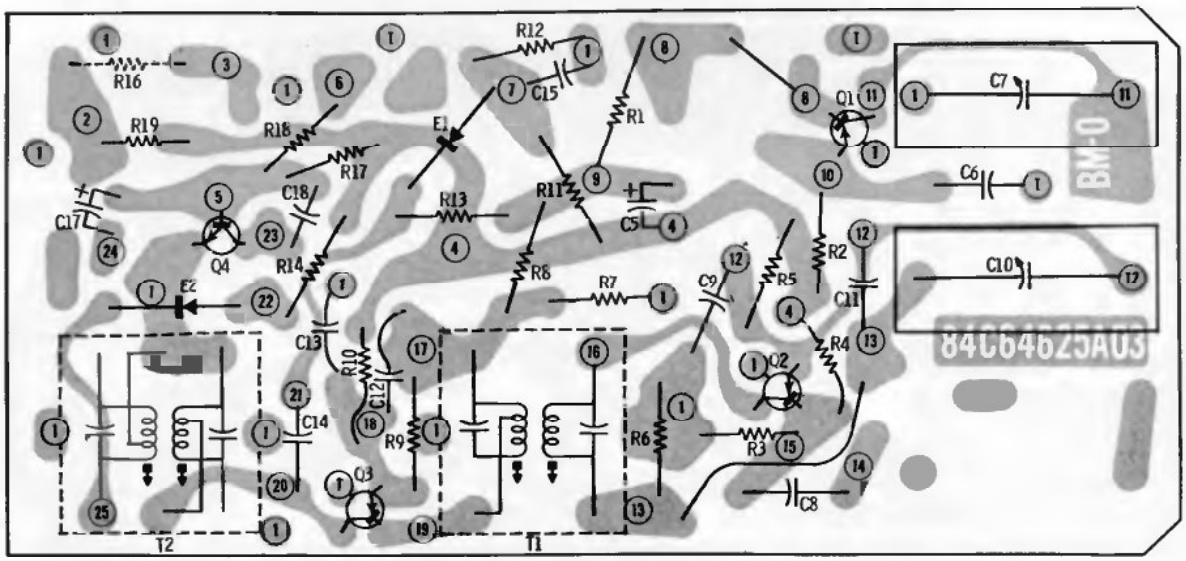
(Continued from preceding page at left)



ALIGNMENT LOCATION DETAIL

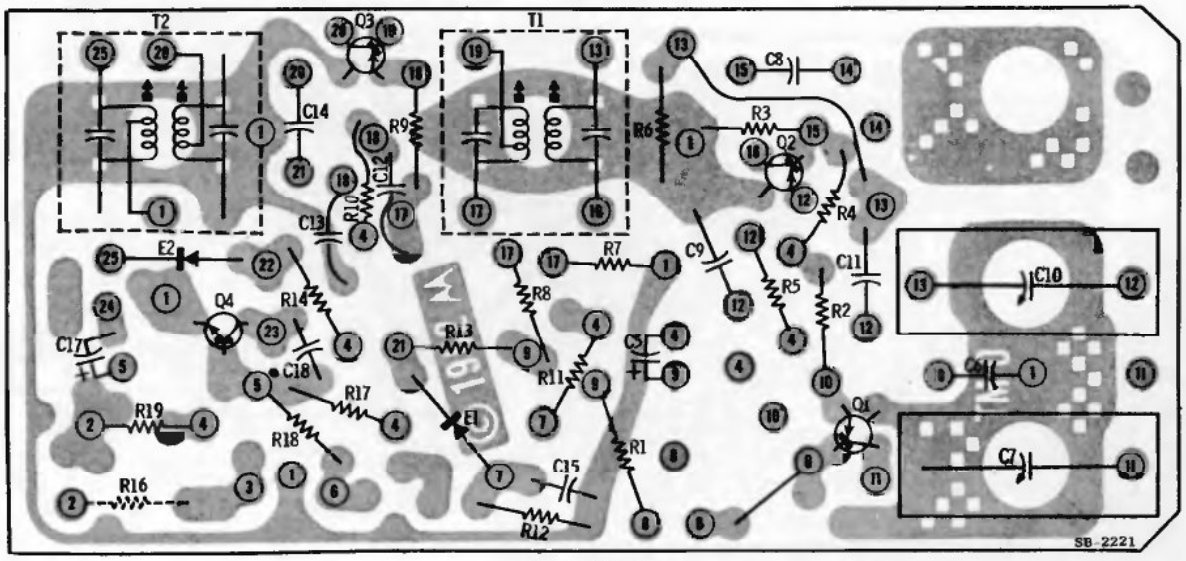


DIAL STRINGING DETAIL



BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

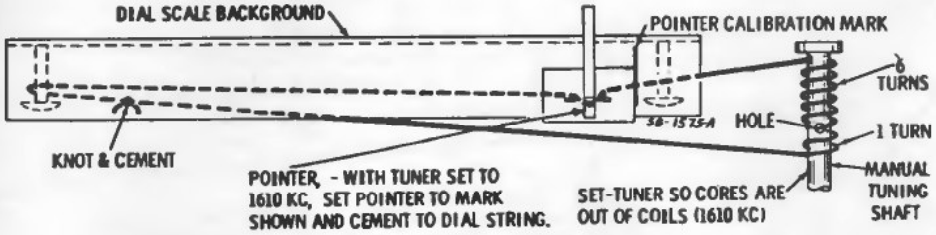


TOP VIEW

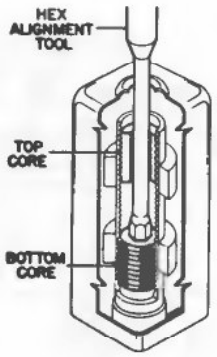
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)

MOTOROLA MODEL TM296M

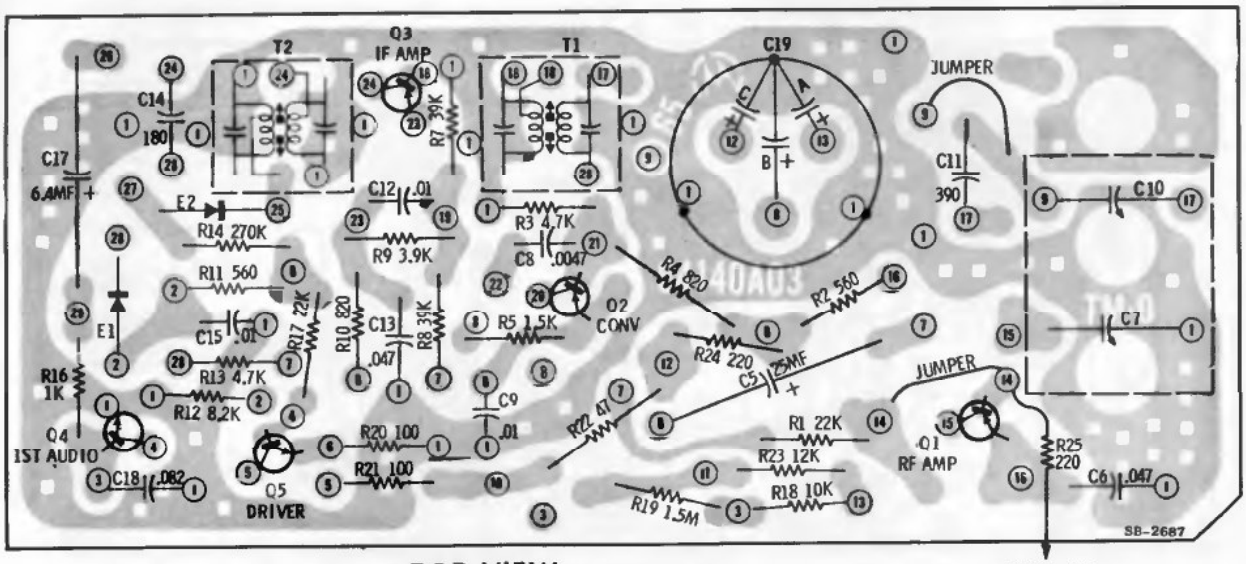
(Diagram and other data on the next page adjacent at right)



DIAL STRINGING DETAIL



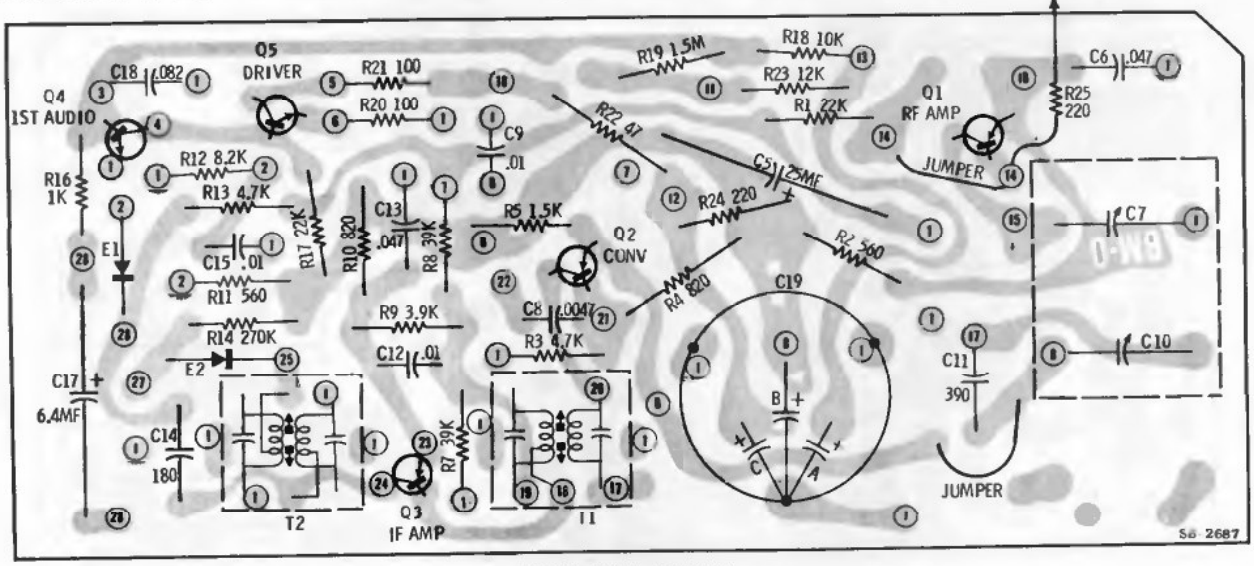
IF ALIGNMENT DETAIL



TOP VIEW

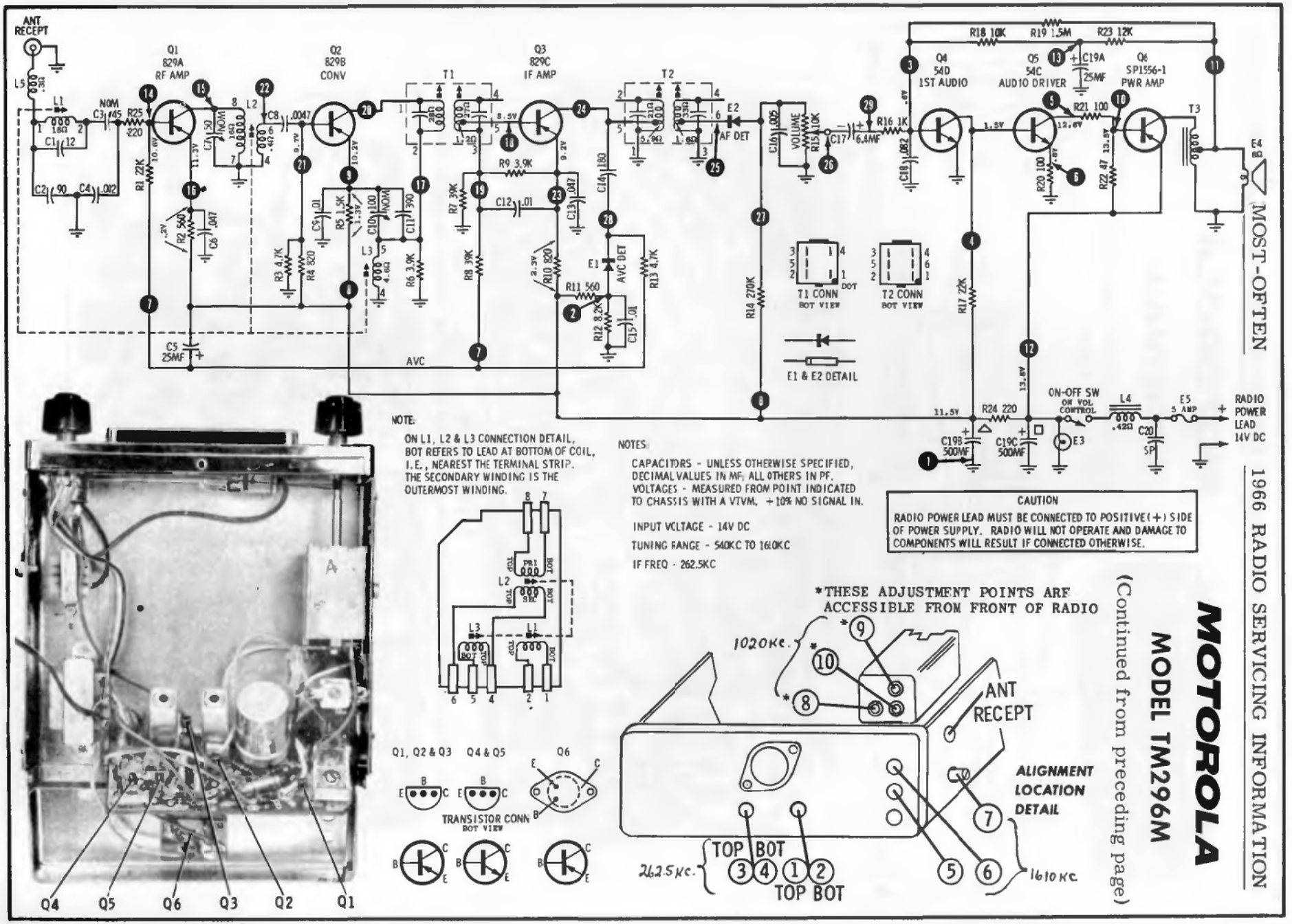
TOC3 - C4

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD) TOC3 - C4



BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)



PARTS LOCATION

MOTOROLA

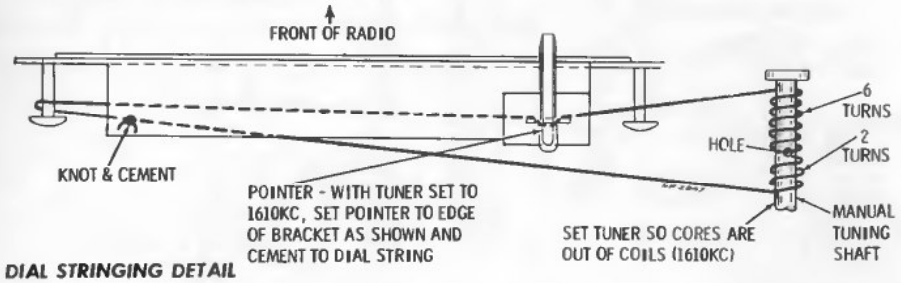
MODEL TM296M

(Continued from preceding page)

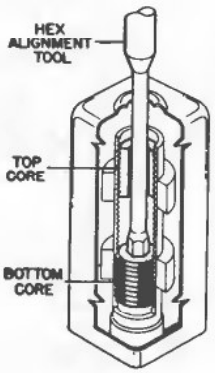
MOTOROLA

MODEL TM316M

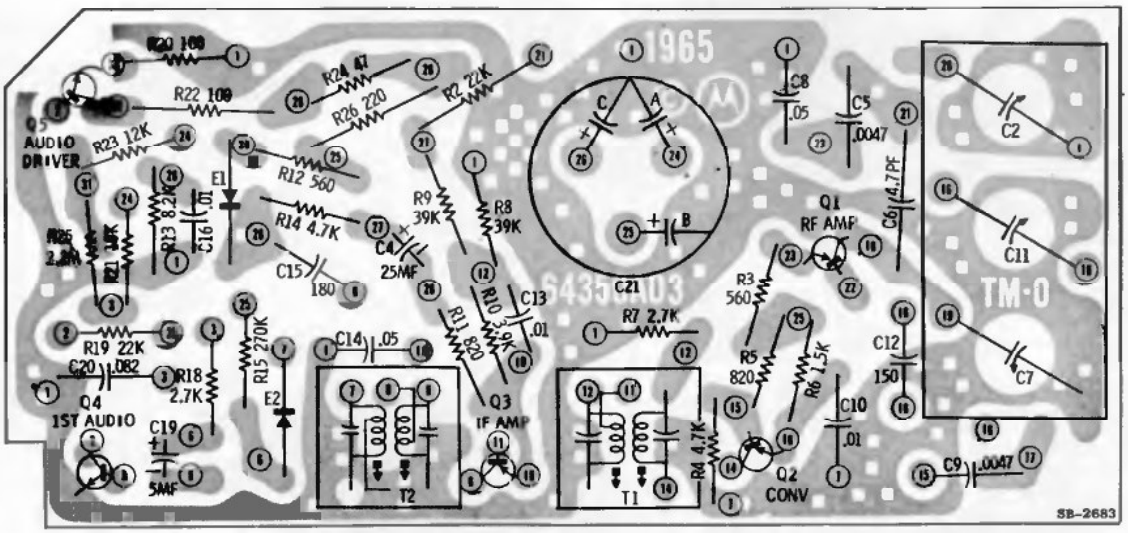
(Continued on the next page adjacent at right)



DIAL STRINGING DETAIL

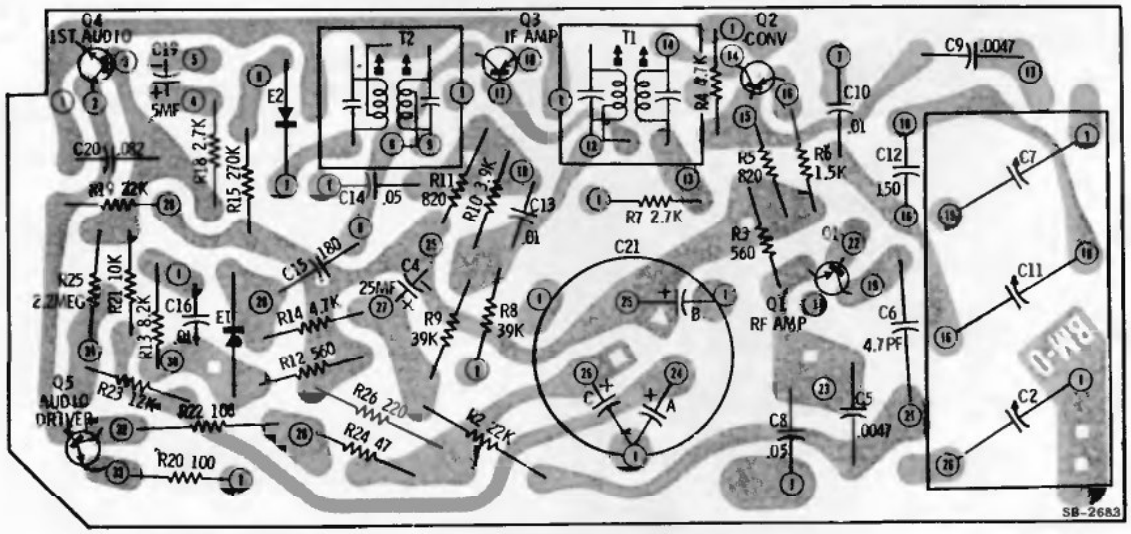


IF ALIGNMENT DETAIL



TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)



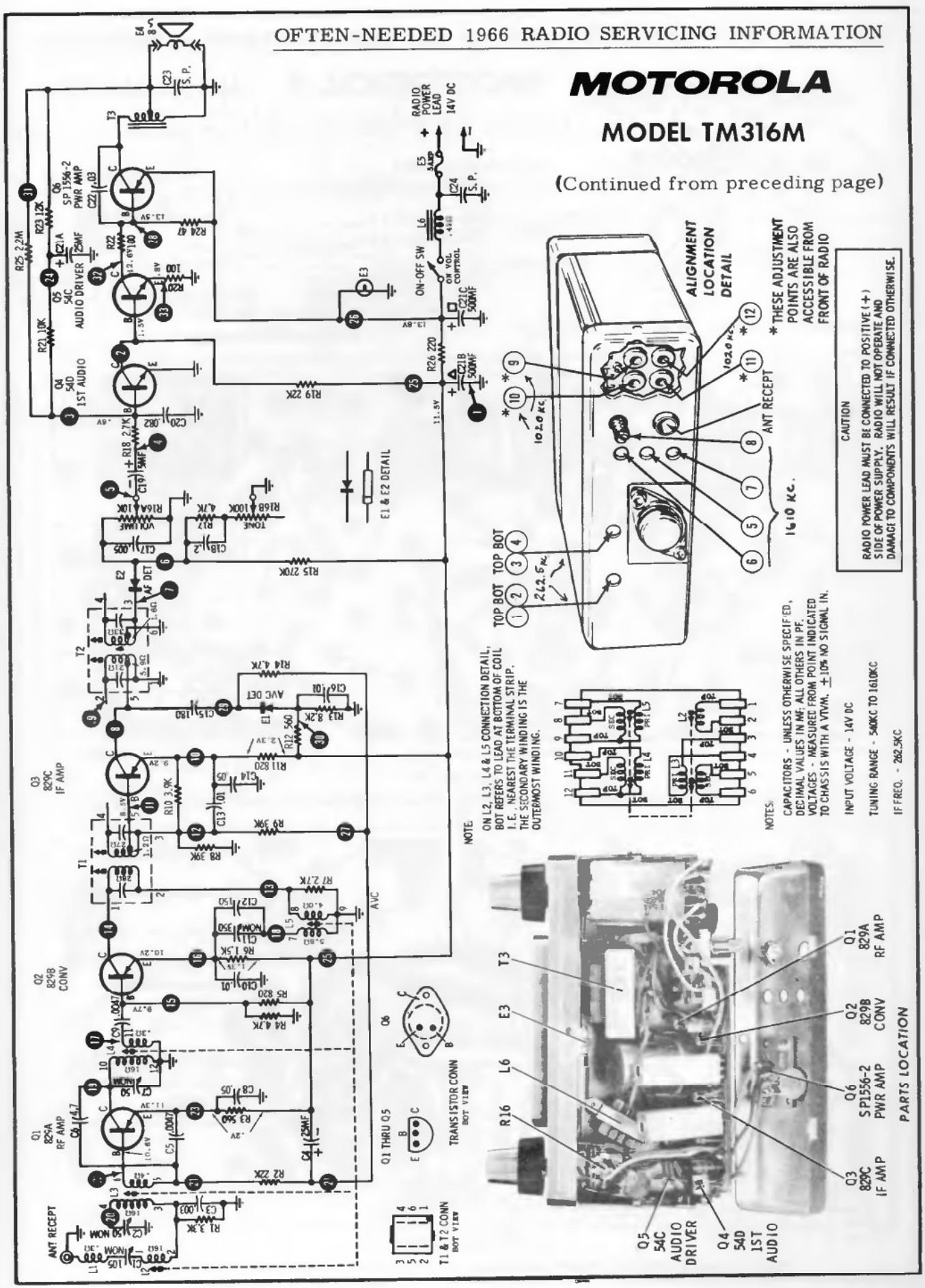
BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

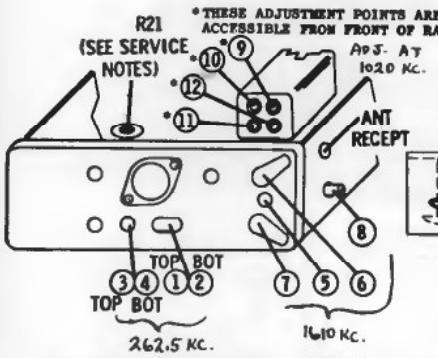
MODEL TM316M

(Continued from preceding page)

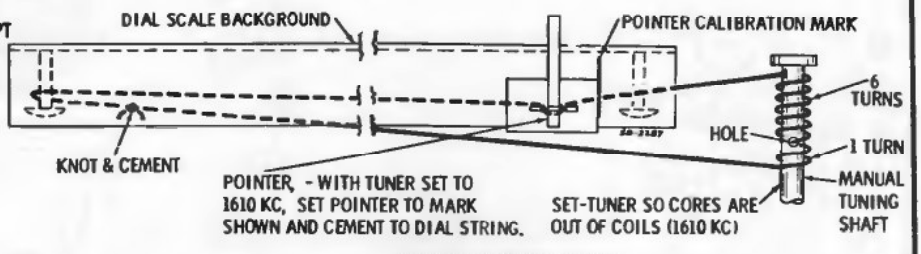


MOTOROLA MODEL TM325M

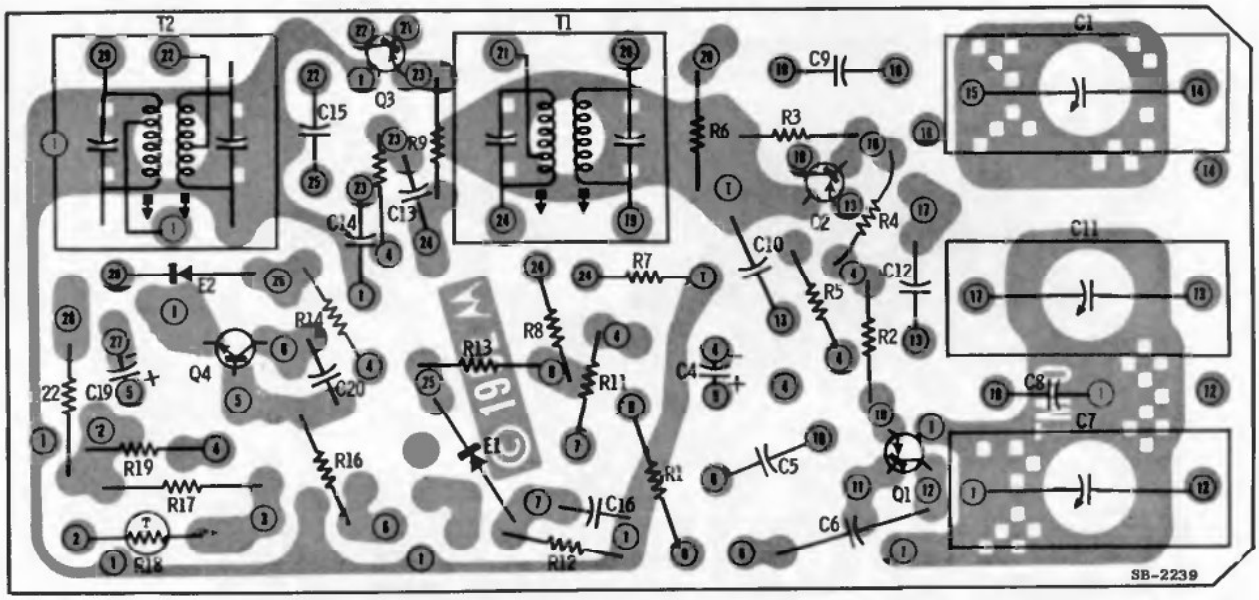
(Diagram and other data on next page adjacent at right)



ALIGNMENT LOCATION DETAIL

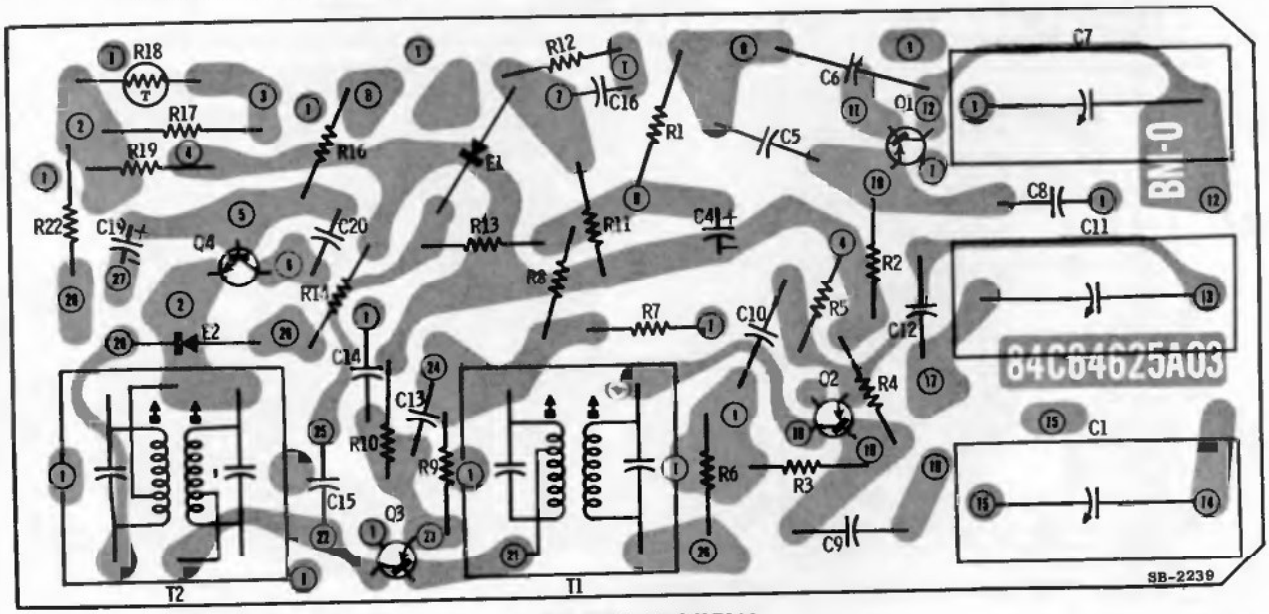


DIAL STRINGING DETAIL



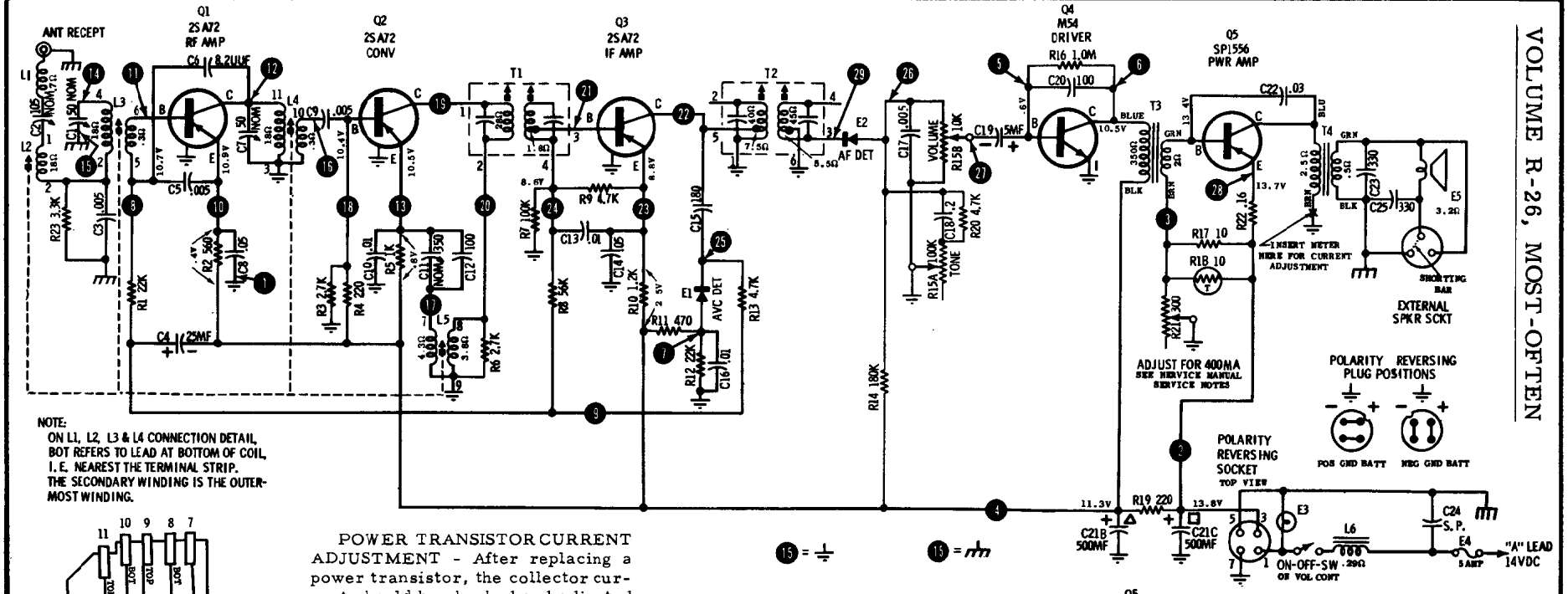
TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)

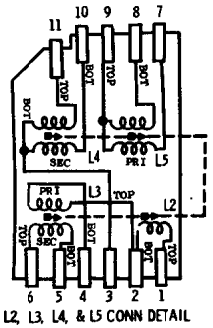


BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)



NOTE:
ON L1, L2, L3 & L4 CONNECTION DETAIL, BOT REFERS TO LEAD AT BOTTOM OF COIL, I.E. NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.



NOTES:
CAPACITORS-UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.
VOLTAGES-MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±10% NO SIGNAL IN.

INPUT VOLTAGE-14VDC

TUNING RANGE-540KC TO 1610KC

IF FREQ-262.5KC

⏚ -INDICATES ISOLATED NEGATIVE LINE

⏚ -INDICATES OUTER HOUSING

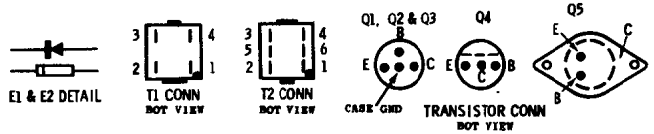
POWER TRANSISTOR CURRENT ADJUSTMENT - After replacing a power transistor, the collector current should be checked and adjusted for proper operation.

A. Insert a low range (0-1 or 0-2 amp) DC ammeter in the primary ground return lead of the output transformer. Connect the negative terminal of the meter to isolated negative line on polarity reversing socket.

B. Turn the radio on and allow it to heat up for about 15 minutes.

C. Adjust the bias control (R-21) for a reading of 320 ma with 12.6 volts input to the radio "A" lead.

NOTE: Two values of radio input voltage are given as a convenience to service personnel in order to accommodate different power sources. The current value stated on the schematic diagram is for 14 volts input to the radio "A" lead.



CAUTION

BEFORE CONNECTING "A" LEAD, BATTERY POLARITY SHOULD BE CHECKED AND POLARITY REVERSING PLUG SHOULD BE CHANGED CORRESPONDINGLY, OTHERWISE SET WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT.

AVC VOLTAGE CHECKS

A CHECK FOR PROPER AVC ACTION IN THIS SET CAN BE MADE AS FOLLOWS: WITH NO INPUT SIGNAL (OR IN-BETWEEN STATIONS) THE DC VOLTAGE FROM THE AVC LINE (9 ON SCHEMATIC) WITH RESPECT TO B+ (4 ON SCHEMATIC) SHOULD BE NEGATIVE (APPROXIMATELY -.6 VOLTS).
WITH AN INPUT SIGNAL, THIS VOLTAGE WILL TEND TO GO POSITIVE, ITS MAGNITUDE DEPENDING ON SIGNAL STRENGTH.

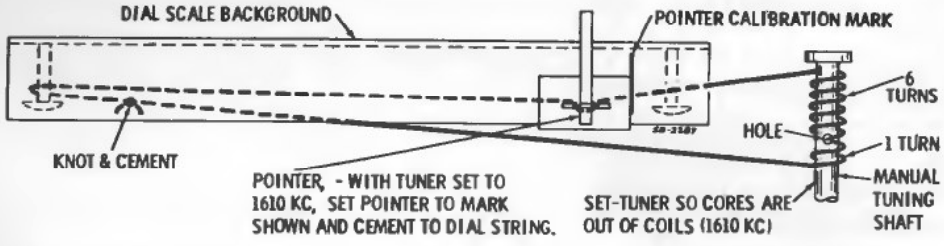
MOTOROLA

MODEL TM325M

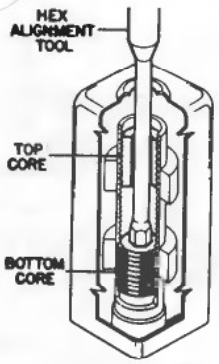
(Continued from preceding page)

MOTOROLA MODEL TM326M

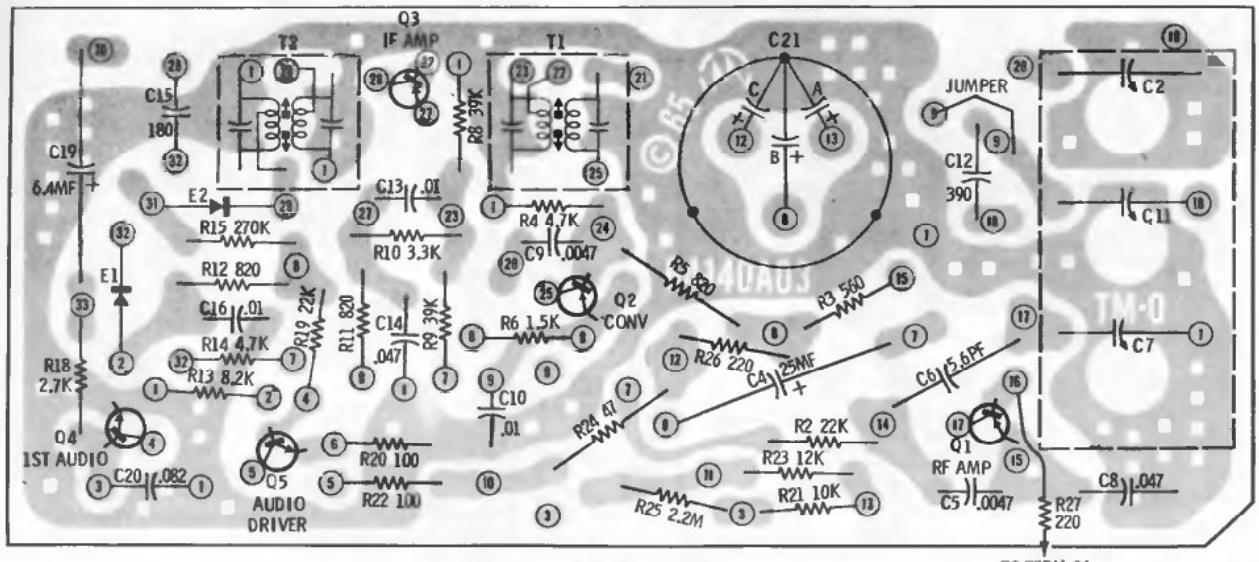
(Diagram and other data on the next page adjacent at right)



DIAL STRINGING DETAIL

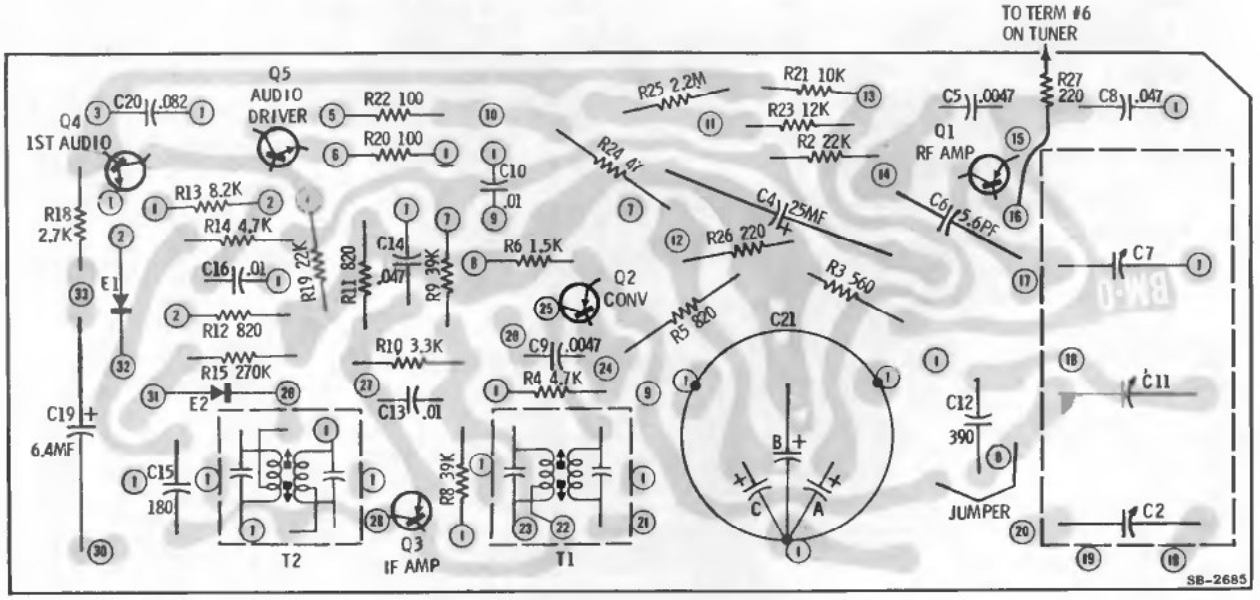


IF ALIGNMENT DETAIL



TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)



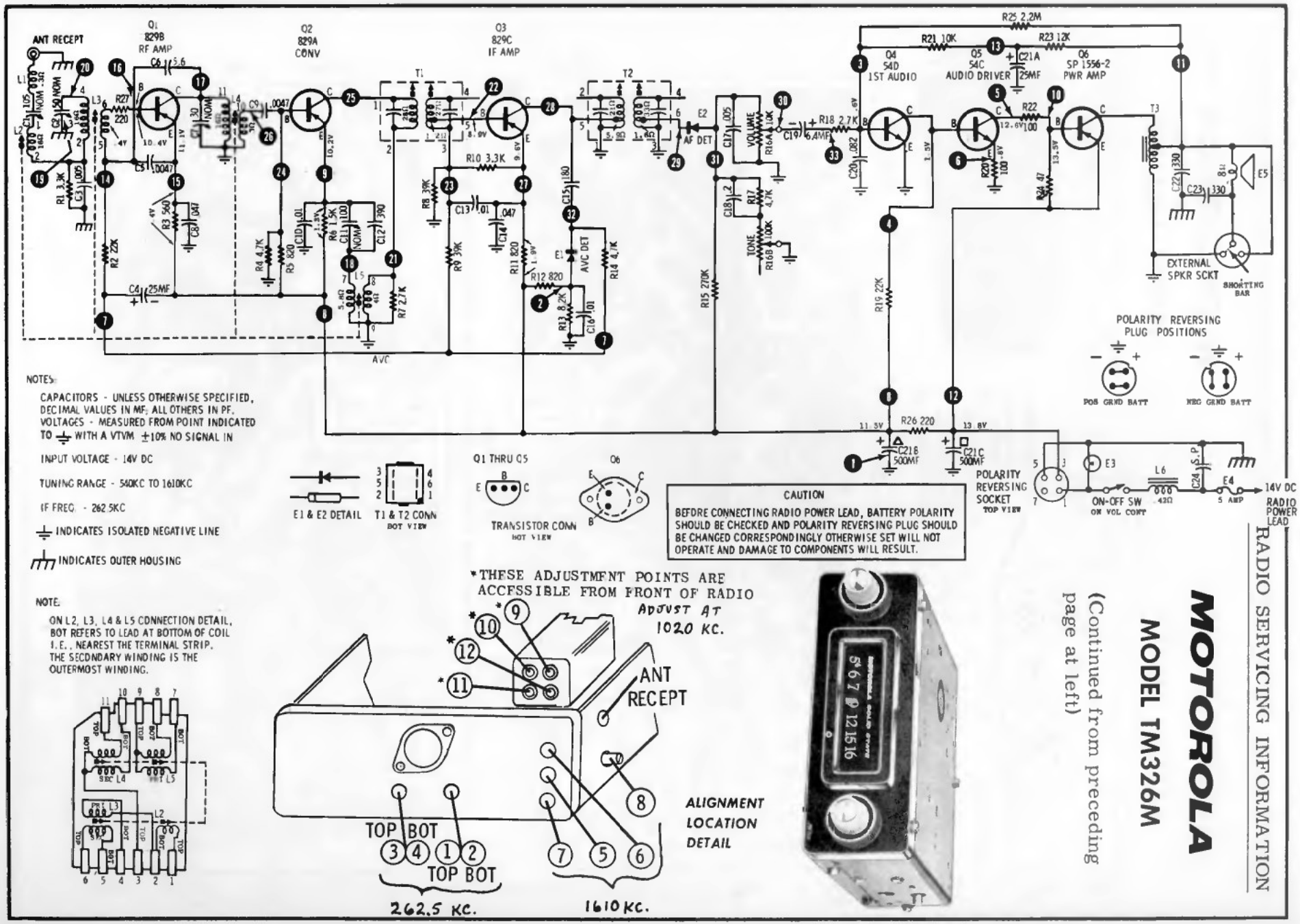
BOTTOM VIEW

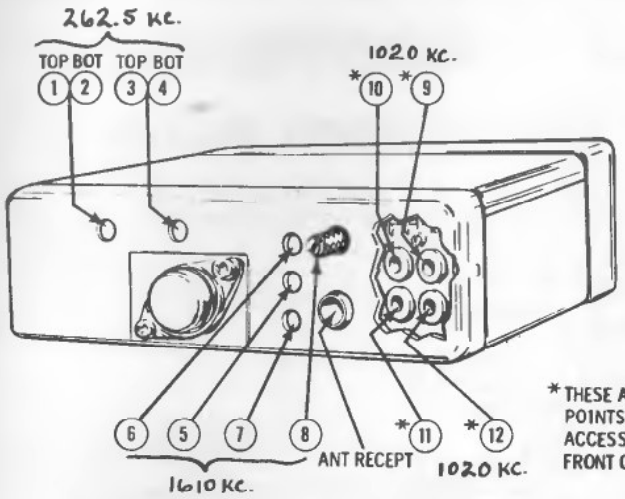
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

MODEL TM326M

(Continued from preceding page at left)





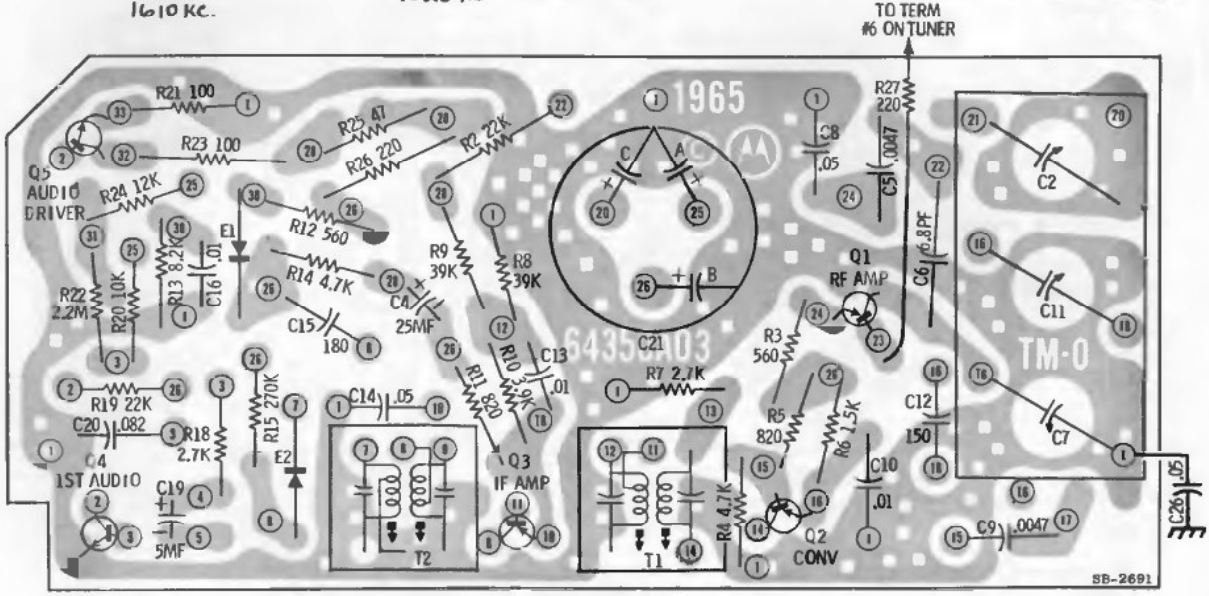
ALIGNMENT LOCATION DETAIL

* THESE ADJUSTMENT POINTS ARE ALSO ACCESSIBLE FROM FRONT OF RADIO

MOTOROLA

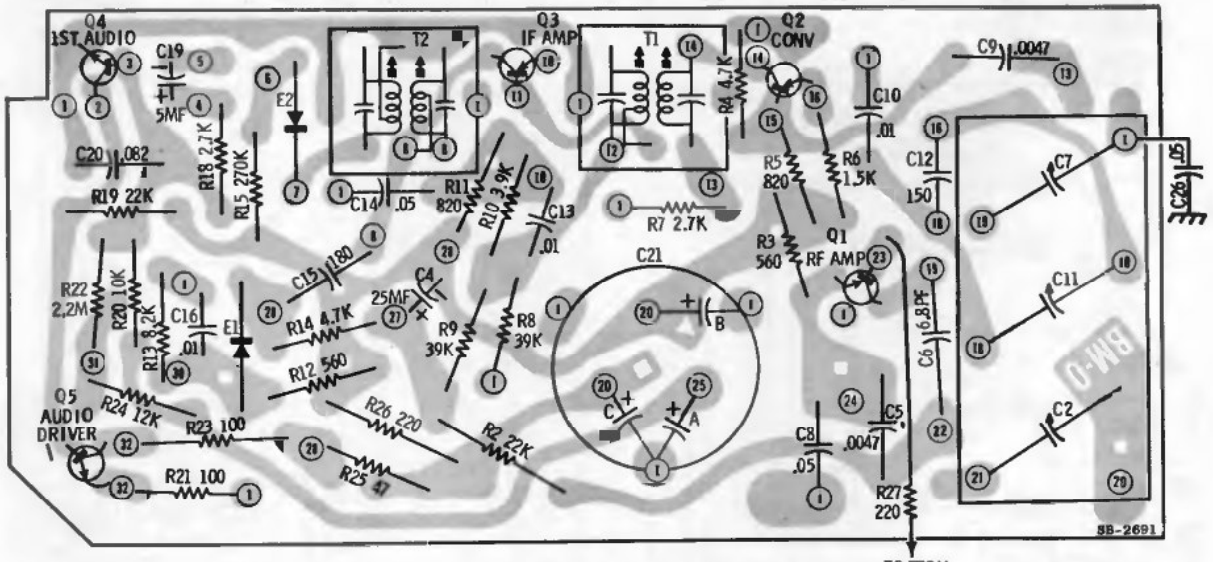
MODEL TM336M

(Diagram and other data on the next page adjacent at right)



TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM COMPONENT SIDE OF BOARD)



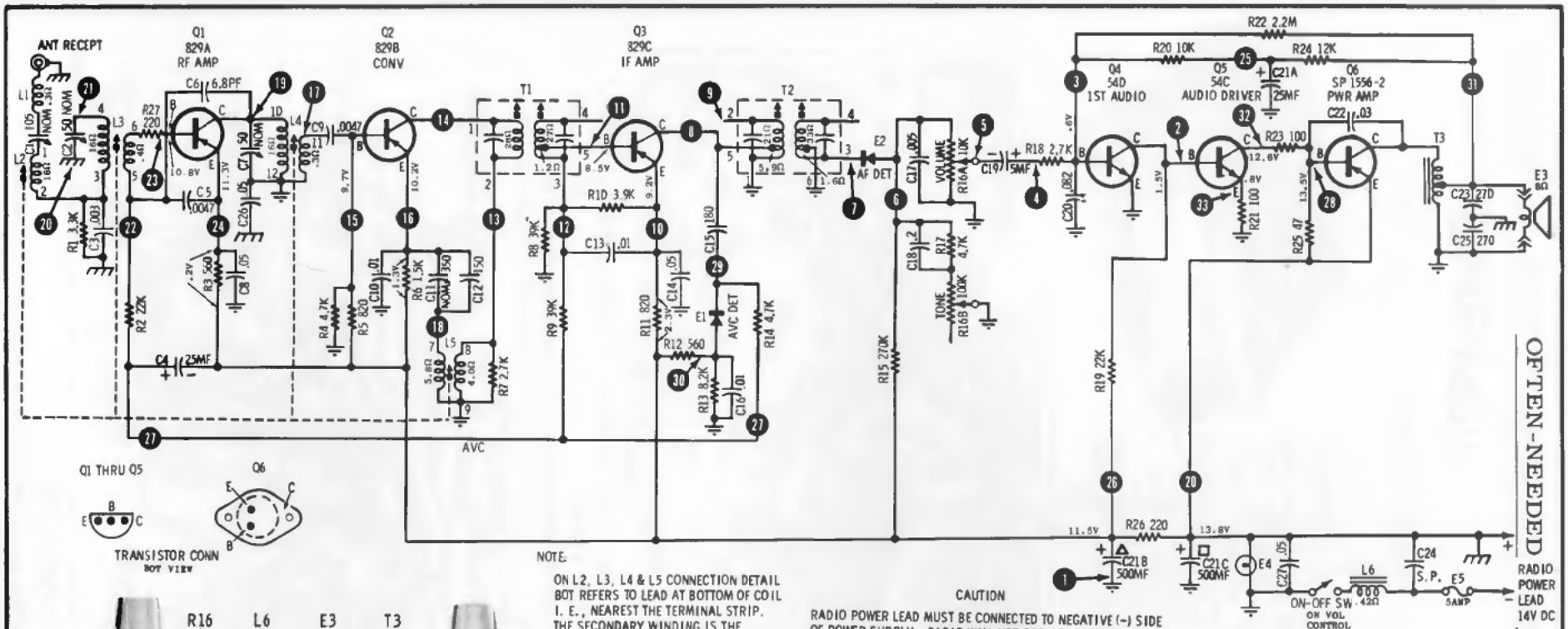
BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA

MODEL TM336M

(Continued from preceding page)



NOTE.

ON L2, L3, L4 & L5 CONNECTION DETAIL BOT REFERS TO LEAD AT BOTTOM OF COIL I. E., NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OTHERMOST WINDING.

CAUTION

RADIO POWER LEAD MUST BE CONNECTED TO NEGATIVE (-) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.

NOTES:

CAPACITORS - UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF; ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO ⏚ WITH A VTVM ± 10% NO SIGNAL IN

INPUT VOLTAGE - 14V DC

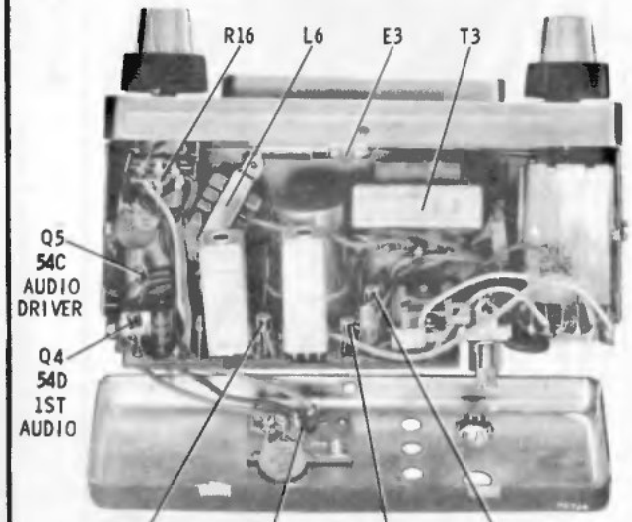
TUNING RANGE - 540KC TO 1610KC

IF FREQ. - 262.5KC

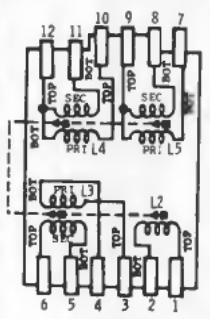
⏚ INDICATES ISOLATED NEGATIVE LINE

INDICATES OUTER HOUSING

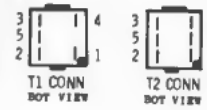
FRONT OF RADIO

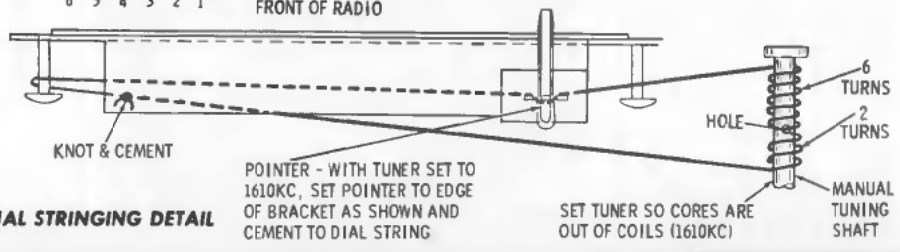


PARTS LOCATION



E1 & E2 DETAIL





DIAL STRINGING DETAIL

MOTOROLA

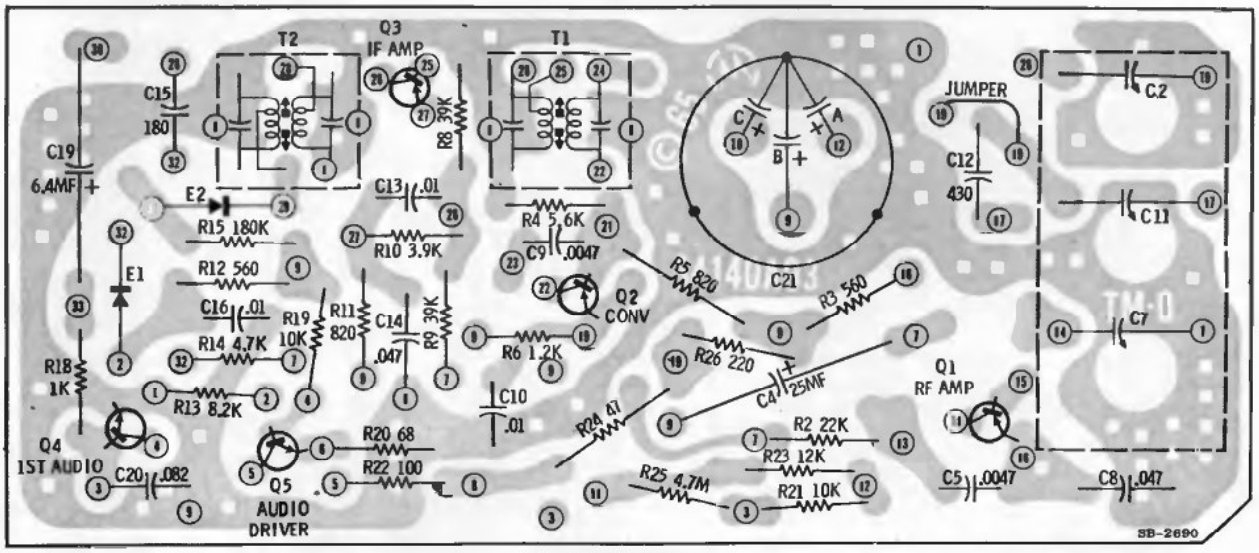
MODEL TM526A

(Diagram and other service data on the next page adjacent at right)

GENERAL INFORMATION

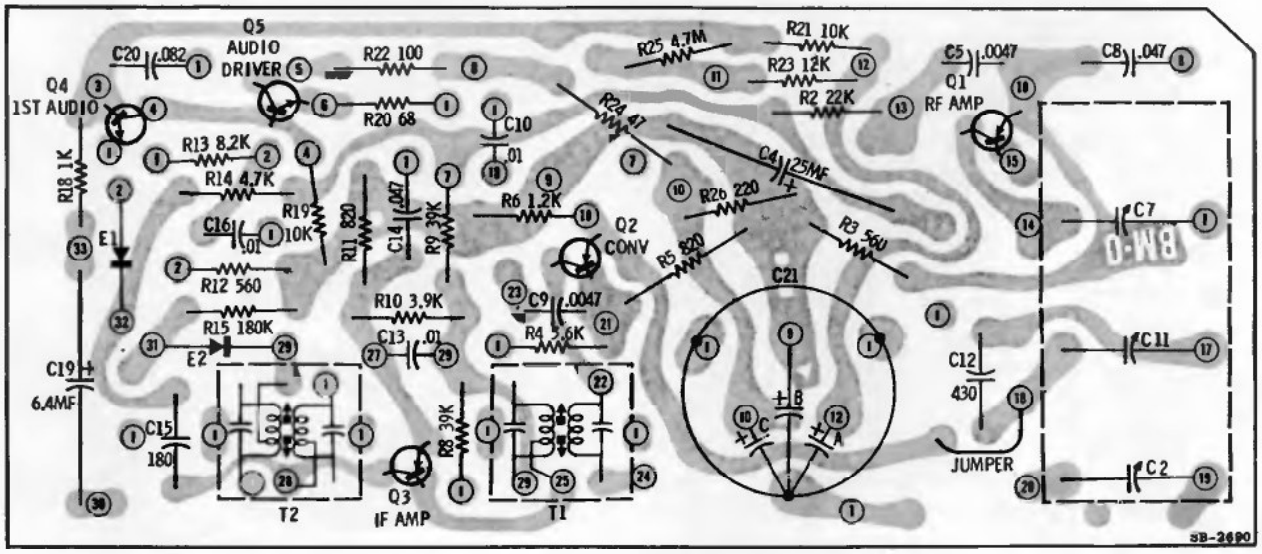
Universal automotive type all-transistor superheterodyne AM radio for standard broadcast reception; operates from 12 volt negative or positive ground system (by simply re-positioning a polarity reversing plug on the radio). This receiver contains a plated chassis board, 6 transistors and 2 diodes and uses an 8 ohm speaker system.

This radio is of the compact, under-dash type. In-dash installations, however, can be made in many cars with the use of trimplate kits AK-223 or KM35T. Special knobs are designed to give all installations a custom look. The tone knob and the dummy knob are reversible. For in-dash installations, the knob is used "backwards" and provides a flush fit. For under-dash installations, the knob is used "face-up" and fills the extra space where the dash would be.



TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION **(VIEW FROM COMPONENT SIDE OF BOARD)**



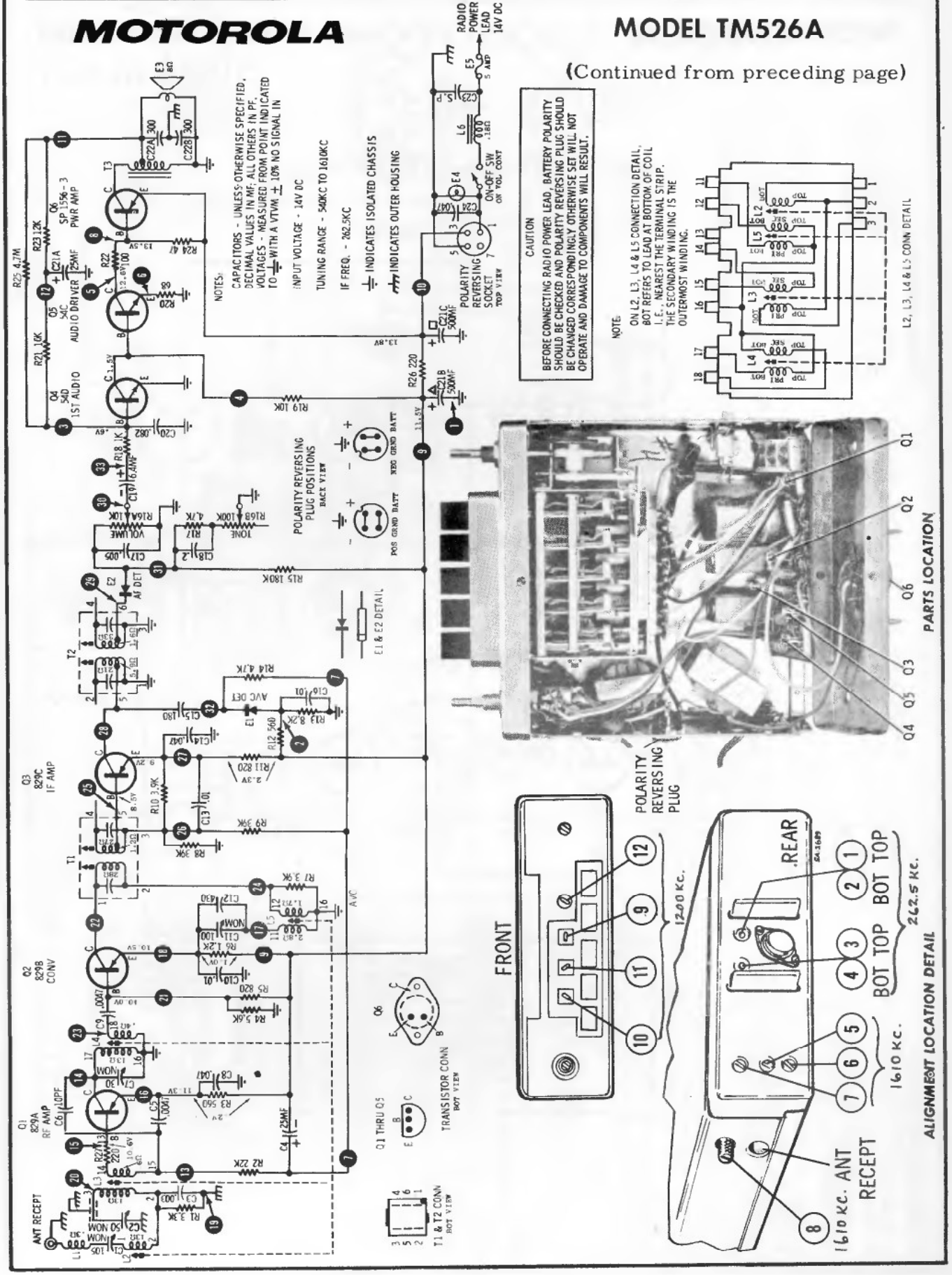
BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION **(VIEW FROM WIRING SIDE OF BOARD)**

MOTOROLA

MODEL TM526A

(Continued from preceding page)



MOTOROLA

MODELS PP200B,201B

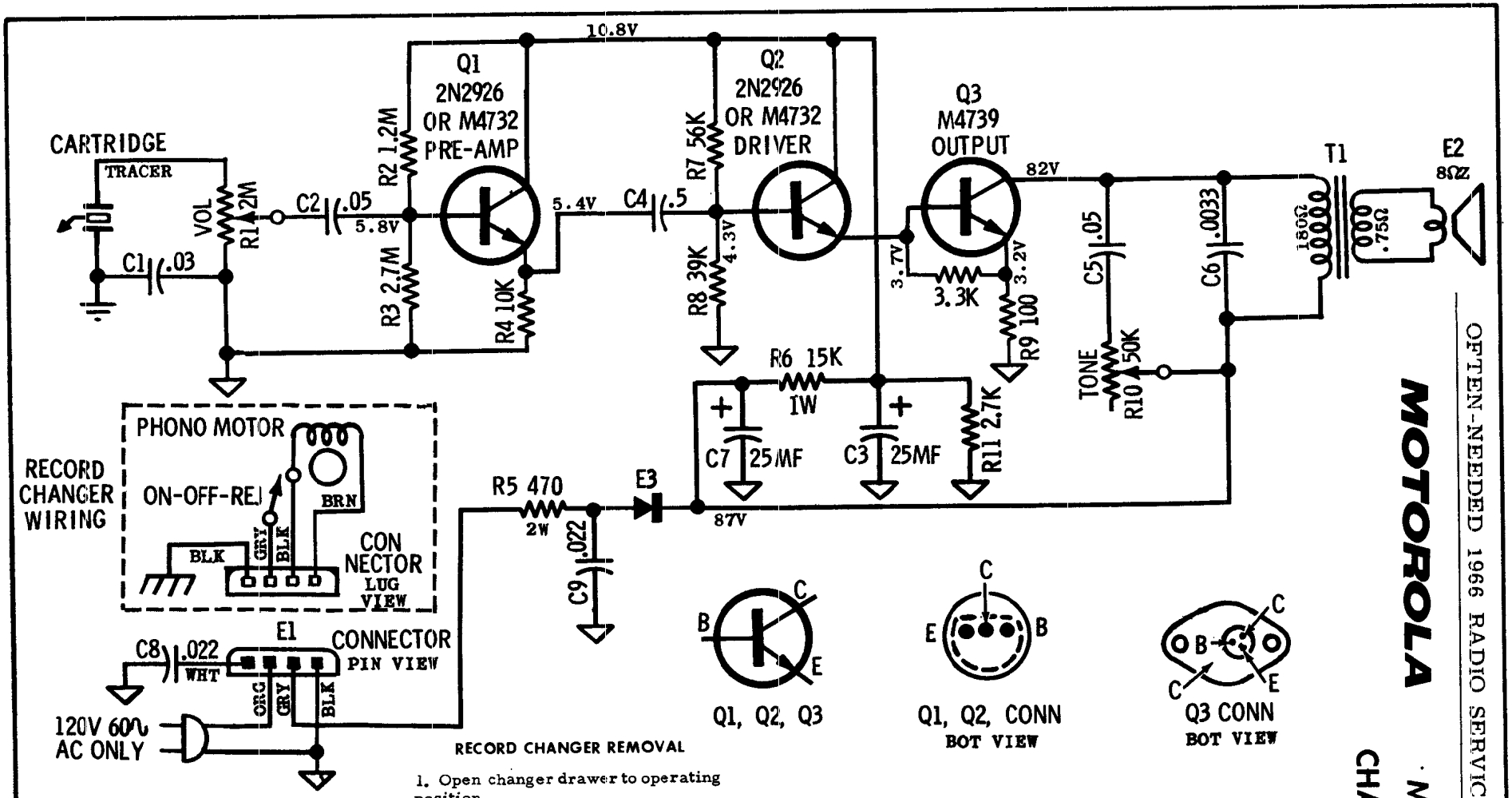
CHASSIS HS-2347

CHASSIS REMOVAL

1. From rear of cabinet, remove four (4) screws along rear of handle and four (4) screws across cabinet back.
2. Remove three (3) control knobs. Carefully pull cabinet front forward and remove three (3) screws which secure chassis to cabinet front.
3. If necessary, disconnect all cables (speakers, etc.).

RECORD CHANGER REMOVAL

1. Open changer drawer to operating position.
2. Screw changer hold down screws fully into record changer base.
3. Raise the front of the changer enough to clear drawer edge and carefully slide record changer forward until it clears changer supports.
4. Lift up changer, disconnect power plug and unsolder audio leads from terminal strip on underside of the changer.



CHASSIS REMOVAL

1. From rear of cabinet, remove four (4) screws along rear of handle and four (4) screws across cabinet back.

2. Remove two (2) control knobs. Carefully pull cabinet front forward and remove three (3) screws which secure chassis to cabinet front.

3. If necessary, disconnect all cables (speakers, etc.).

RECORD CHANGER REMOVAL

1. Open changer drawer to operating position.

2. Screw changer hold down screws fully into record changer base.

3. Raise the front of the changer enough to clear drawer edge and carefully slide record changer forward until it clears changer supports.

4. Lift up changer, disconnect power plug and unsolder audio leads from terminal strip on underside of the changer.

NOTE:

VOLTAGES - MEASURED FROM POINT INDICATED TO B- WITH VTVM ± 10% NO SIGNAL INPUT

⏚ =B-

⏚ =CHASSIS

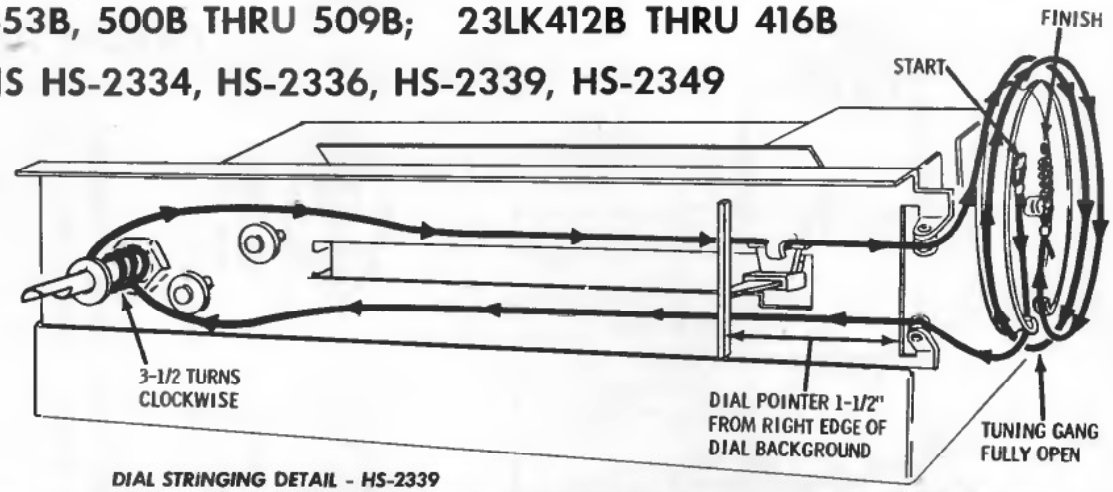
RECORD CHANGER FRAME

MOTOROLA · MODEL MP100B

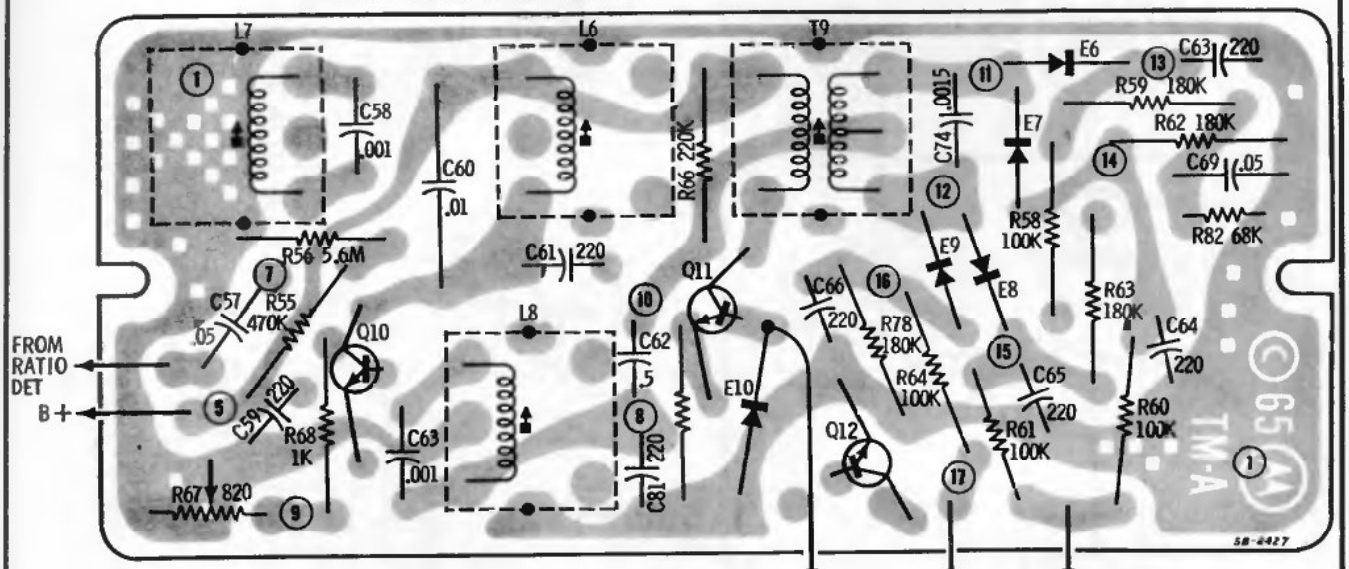
CHASSIS HS-2348

MOTOROLA MODELS PP301B, 302B; SP310B; PK400B, 401B; SK450B THRU 453B, 500B THRU 509B; 23LK412B THRU 416B CHASSIS HS-2334, HS-2336, HS-2339, HS-2349

Material on pages 90 through 94.

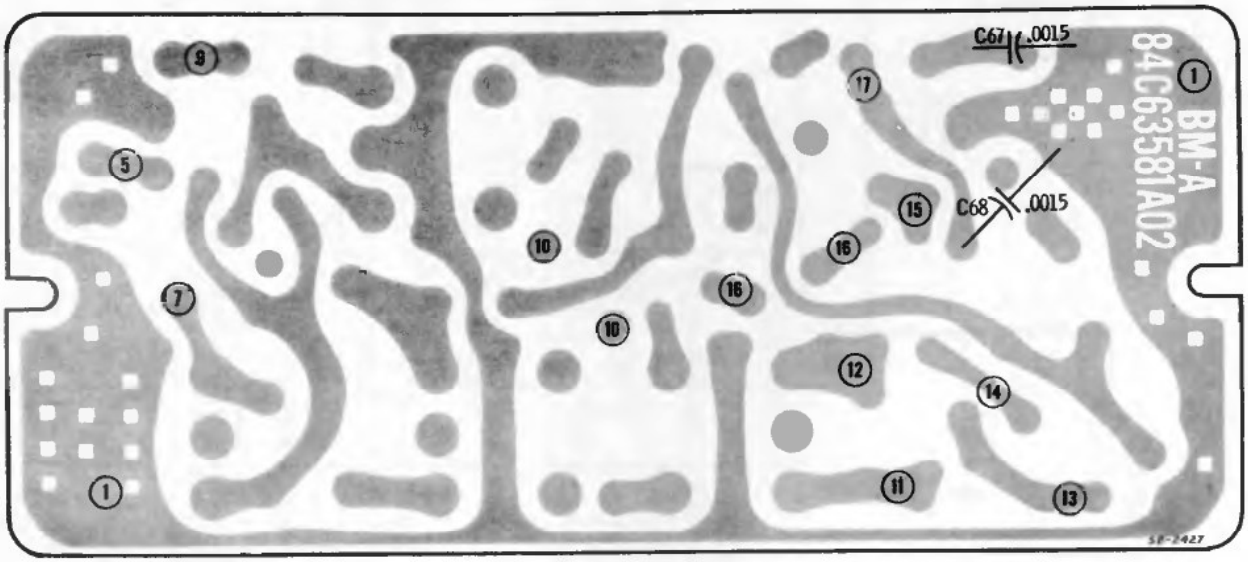


DIAL STRINGING DETAIL - HS-2339



TOP VIEW

MULTIPLEX PLATED BOARD (PART OF CHASSIS HS-2339)

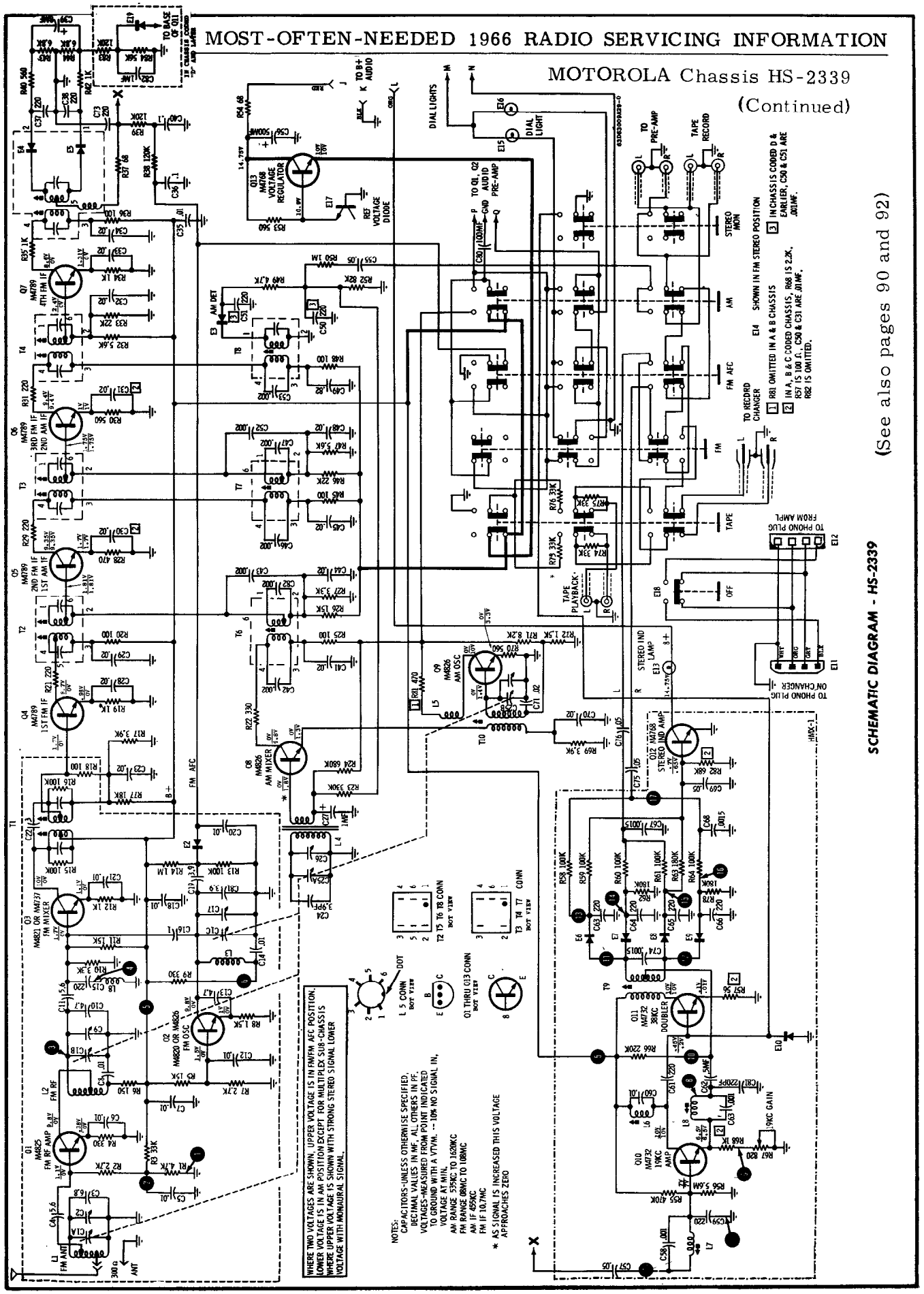


BOTTOM VIEW

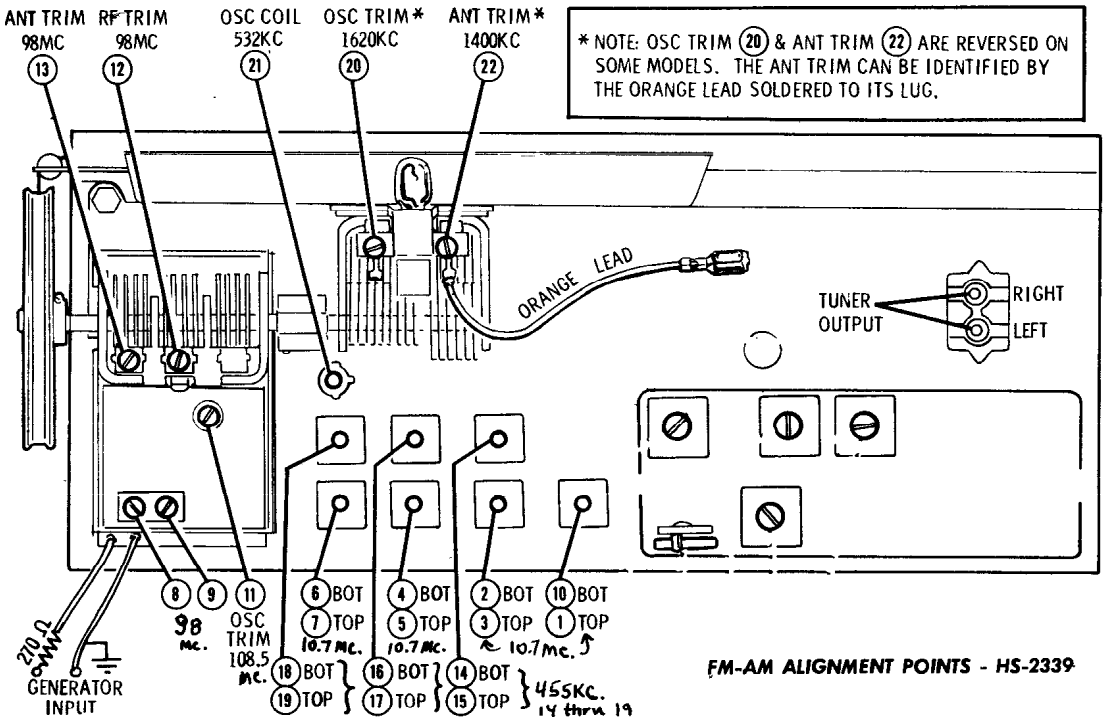
MULTIPLEX PLATED BOARD (PART OF CHASSIS HS-2339)

MOTOROLA Chassis HS-2339

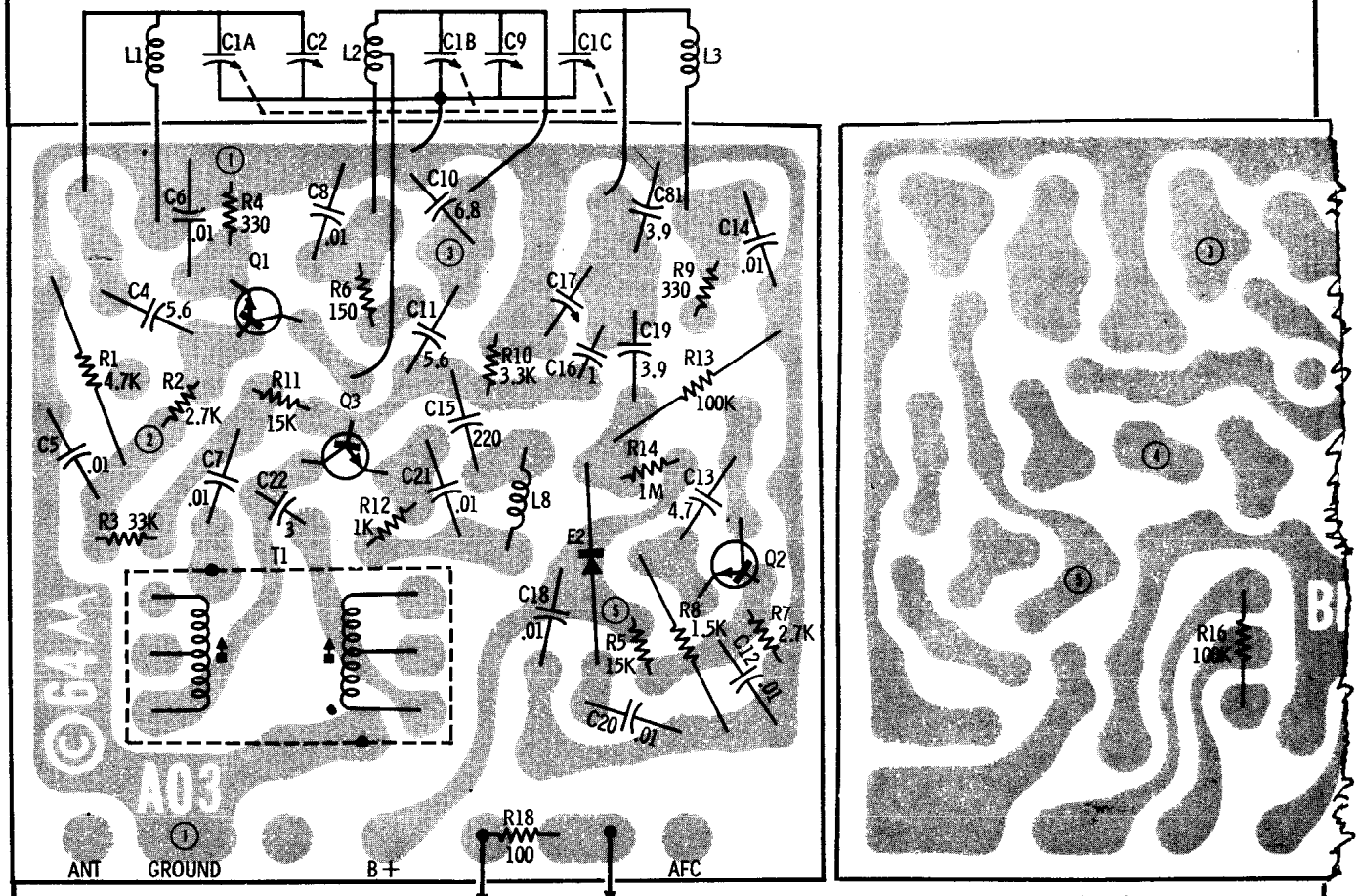
(Continued)



MOTOROLA Chassis HS-2339 Service Information, Continued



FM-AM ALIGNMENT POINTS - HS-2339



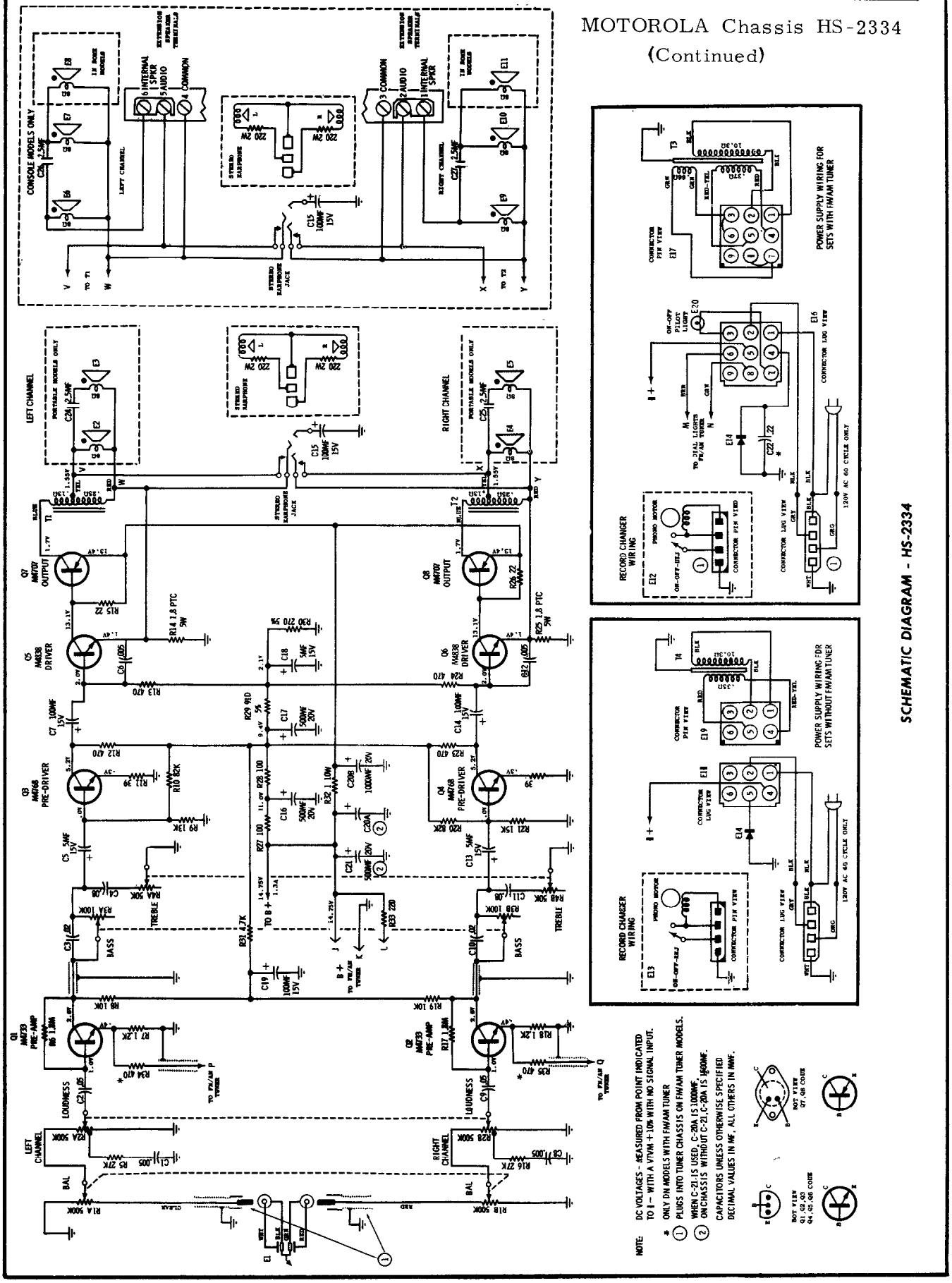
TOP VIEW

FM RF PLATED BOARD (PART OF CHASSIS HS-2339)

BOTTOM VIEW

FM RF PLATED BOARD (PART OF CHASSIS HS-2339)

MOTOROLA Chassis HS-2334
(Continued)

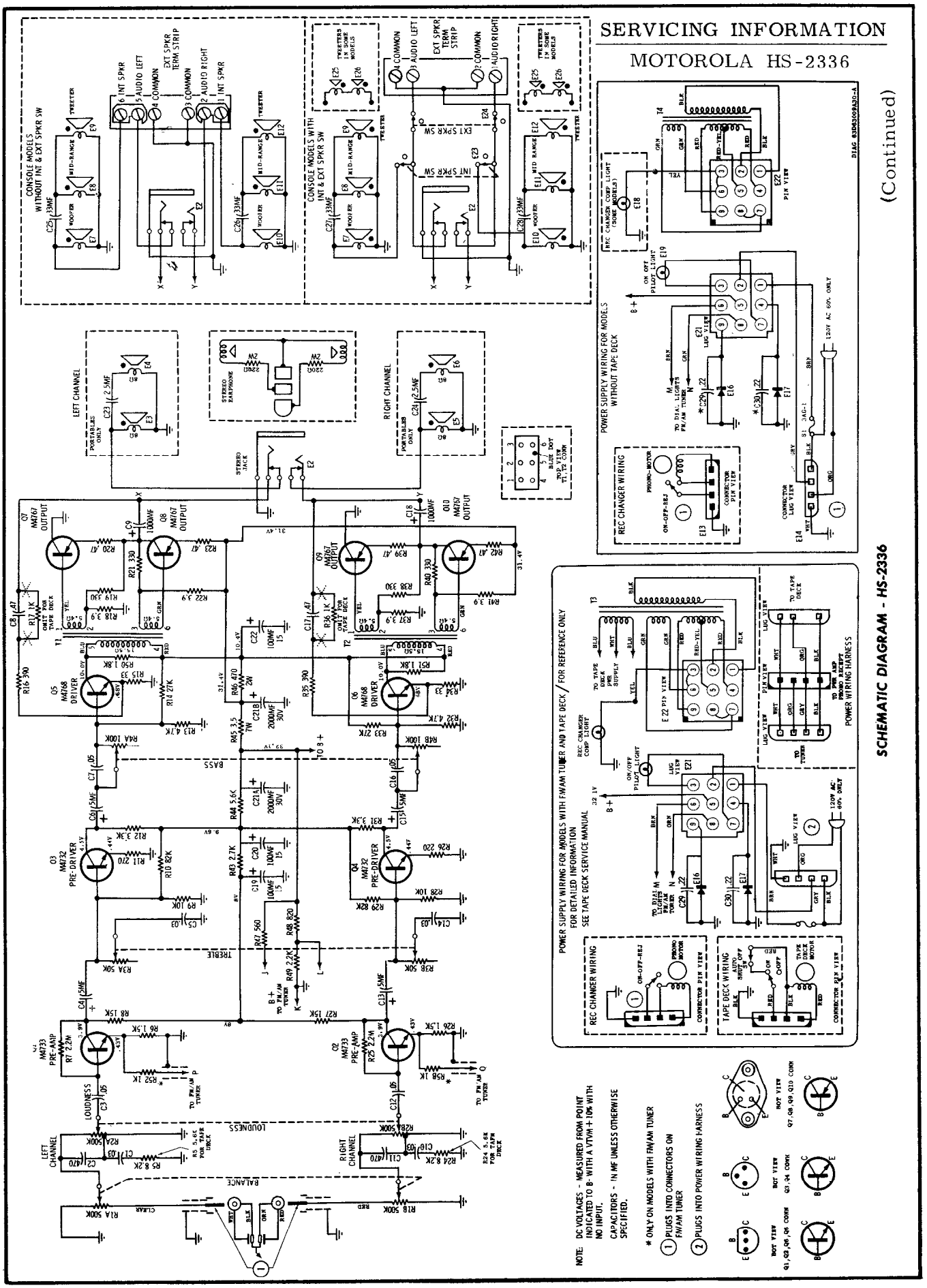


SCHEMATIC DIAGRAM - HS-2334

NOTE: DC VOLTAGES - MEASURED FROM POINT INDICATED TO ⊥ - WITH A VTVM + 10K WITH NO SIGNAL INPUT.
* ONLY ON MODELS WITH FM/AM TUNER
① PLUGS INTO TUNER CHASSIS ON FM/AM TUNER MODELS.
② WHEN C-21 IS USED, C-20A IS 1000MF. ON CHASSIS WITHOUT C-21, C-20A IS 1500MF.
CAPACITORS UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF, ALL OTHERS IN MMF.

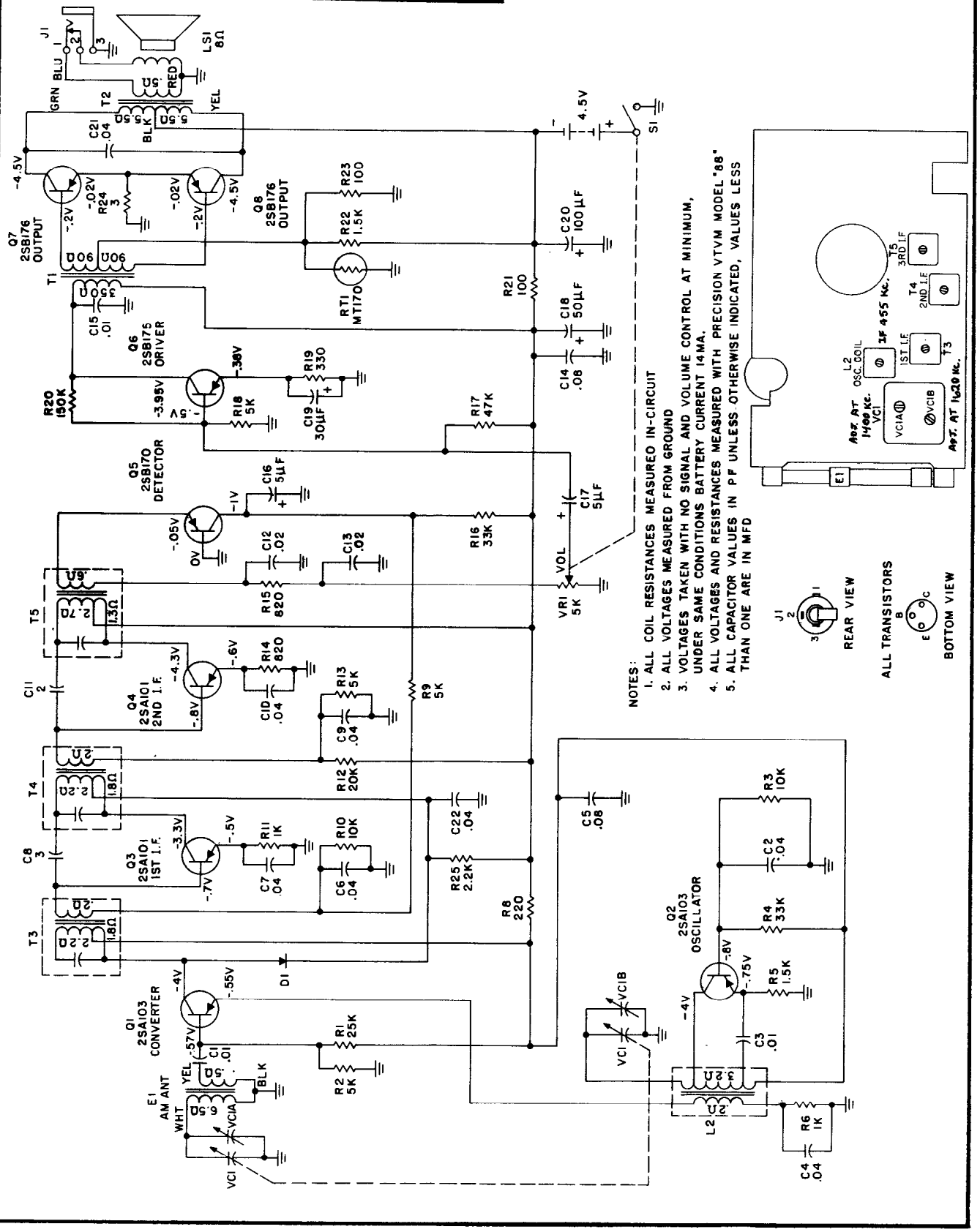
MOTOROLA HS-2336

(Continued)

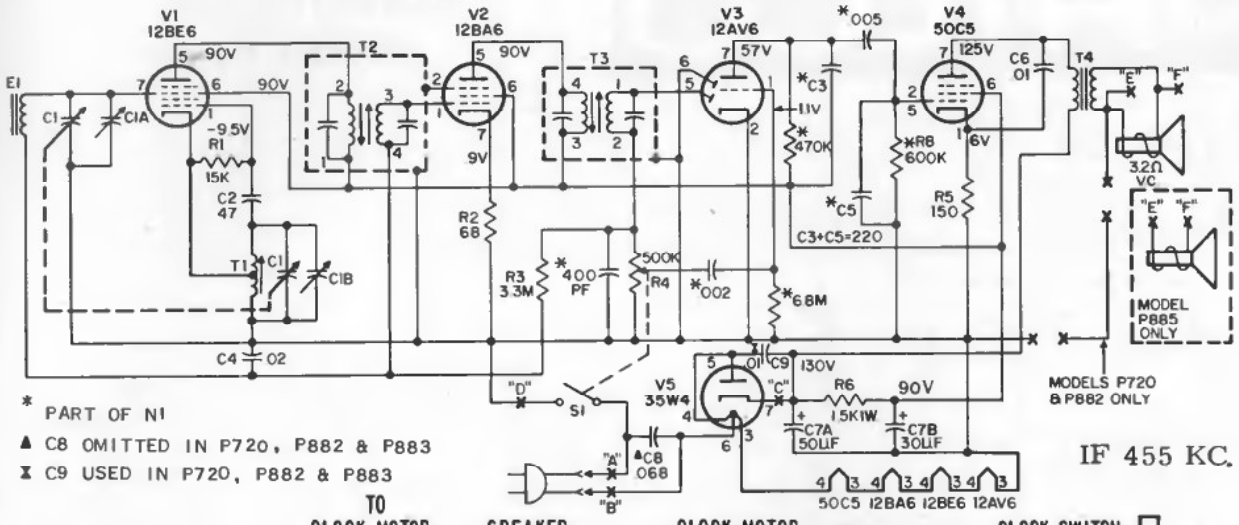


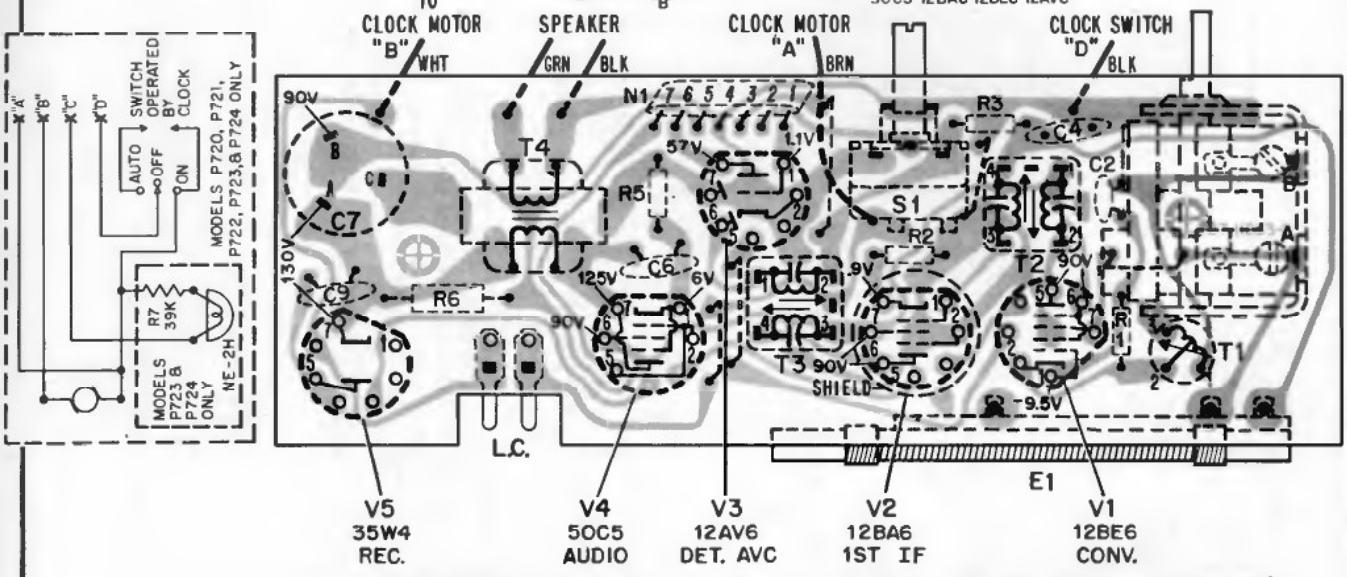
PHILCO

TRANSISTOR PORTABLE
MODEL NT809

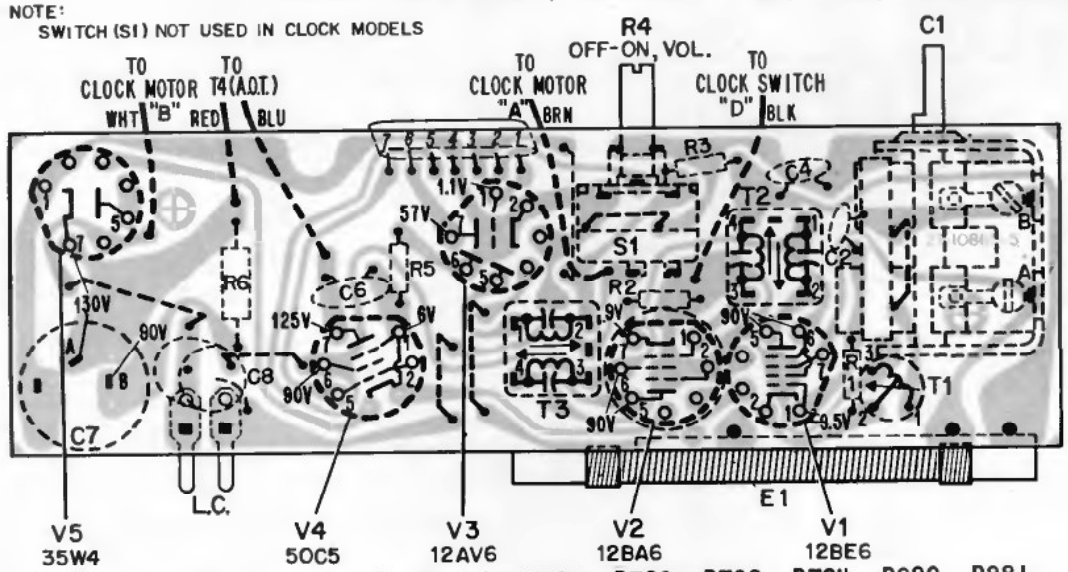


PHILCO Models P720, P721, P722, P723, P724, P880, P881, P882, P883, P884, P885



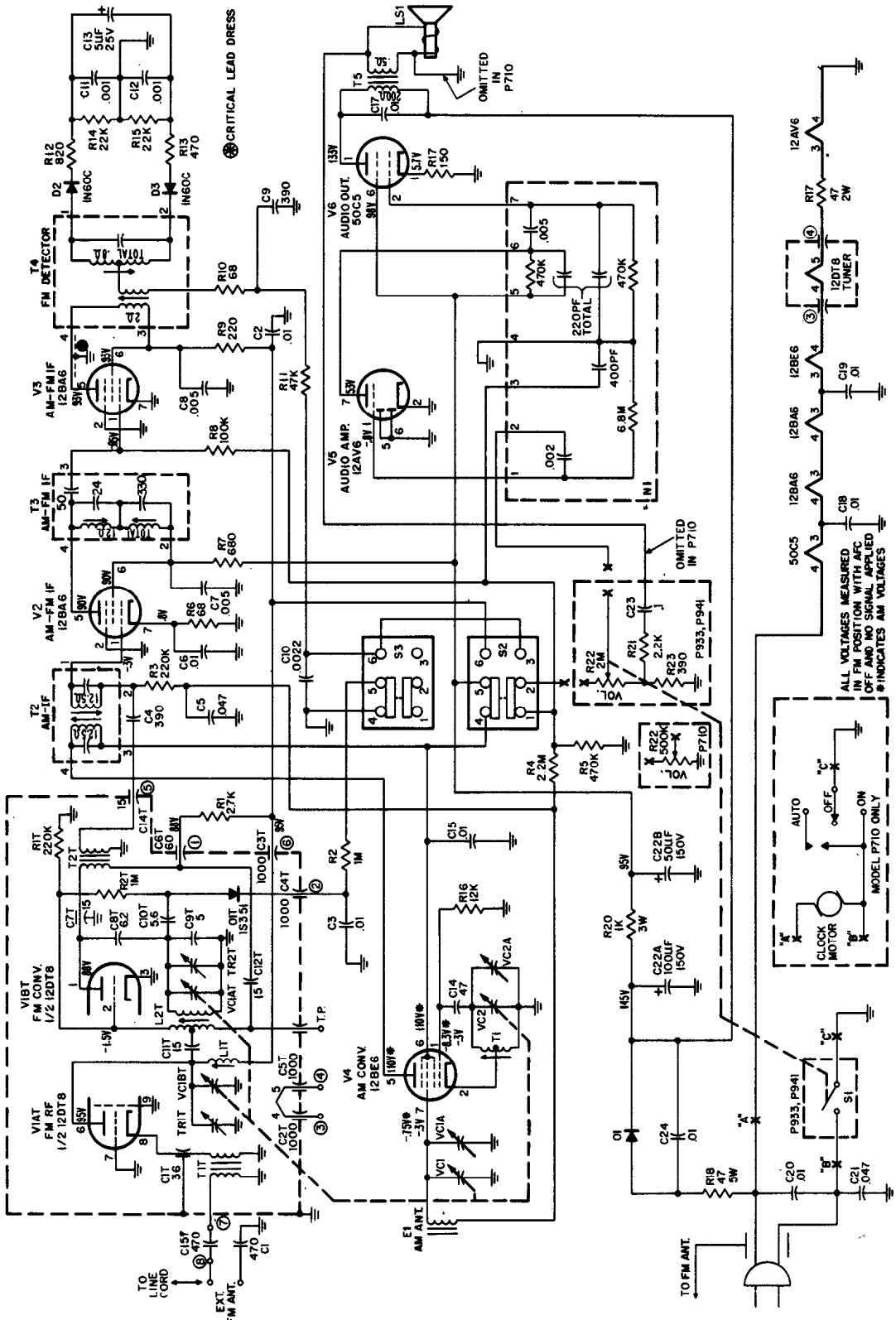


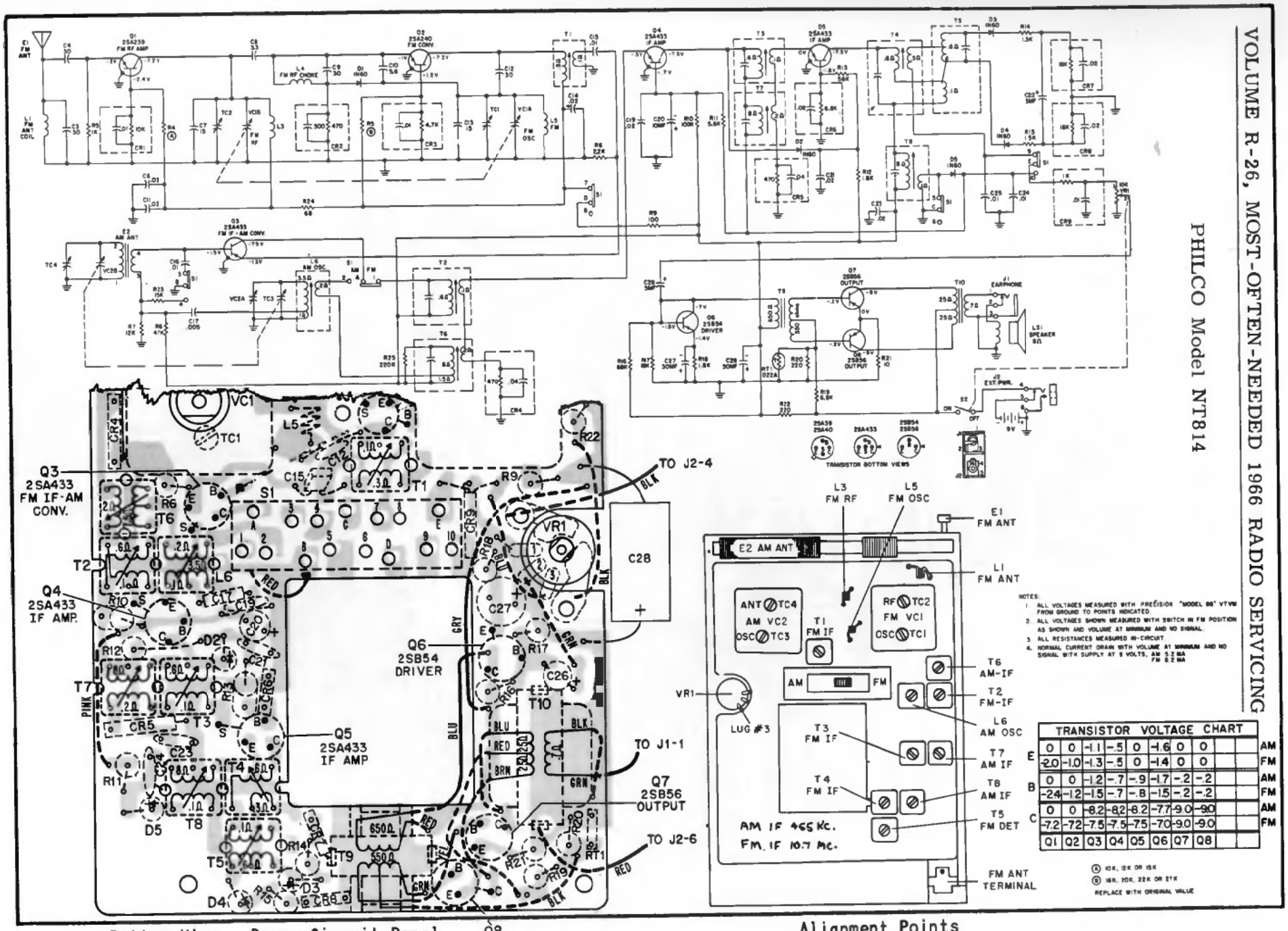
Perma-Circuit Panel, AM Models P720, P882, P883, Bottom View



Perma-Circuit Panel, AM Only Models P721, P722, P723, P724, P880, P881, P884, P885, Bottom View, Parts Location

PHILCO Models P710, P933, P941



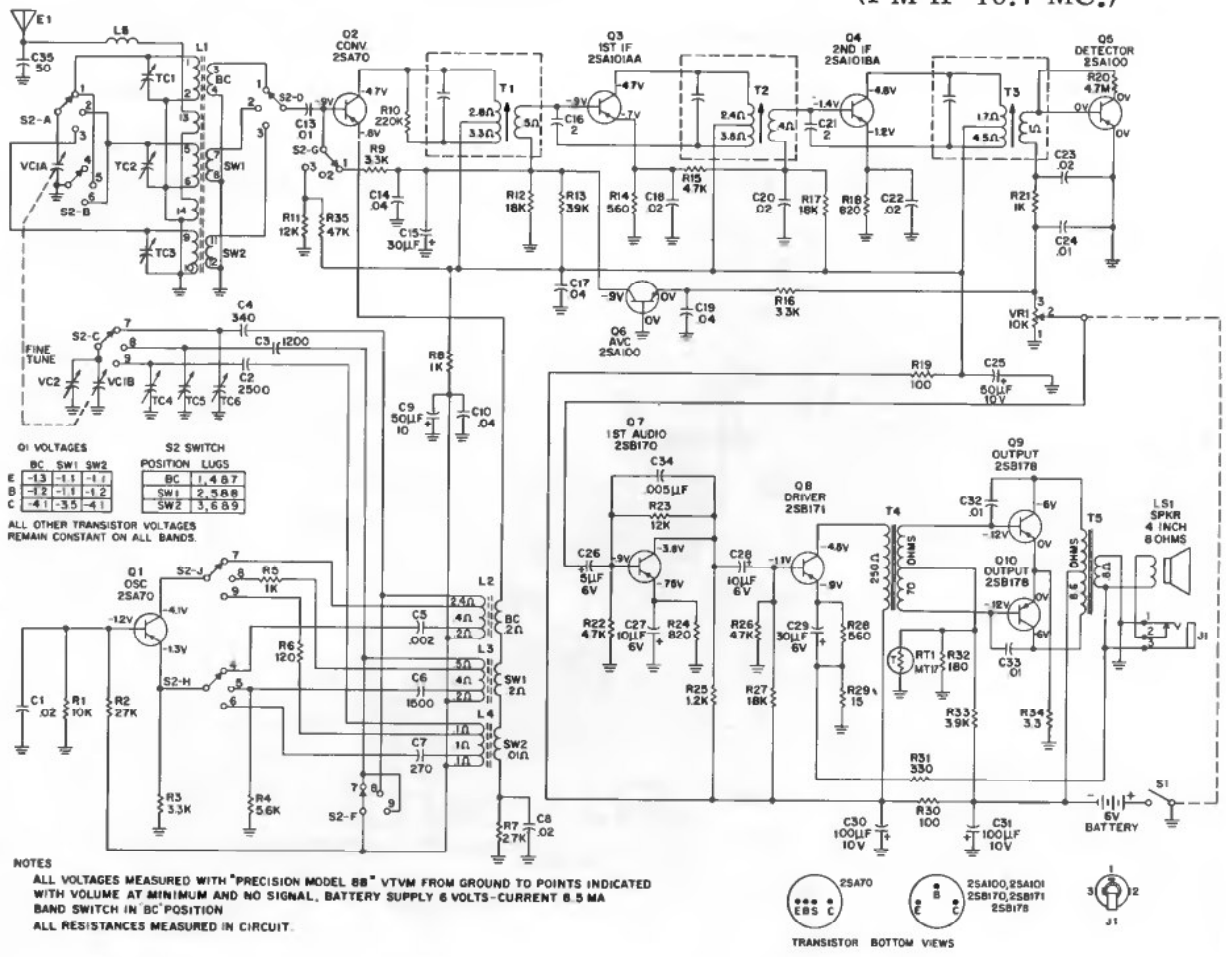


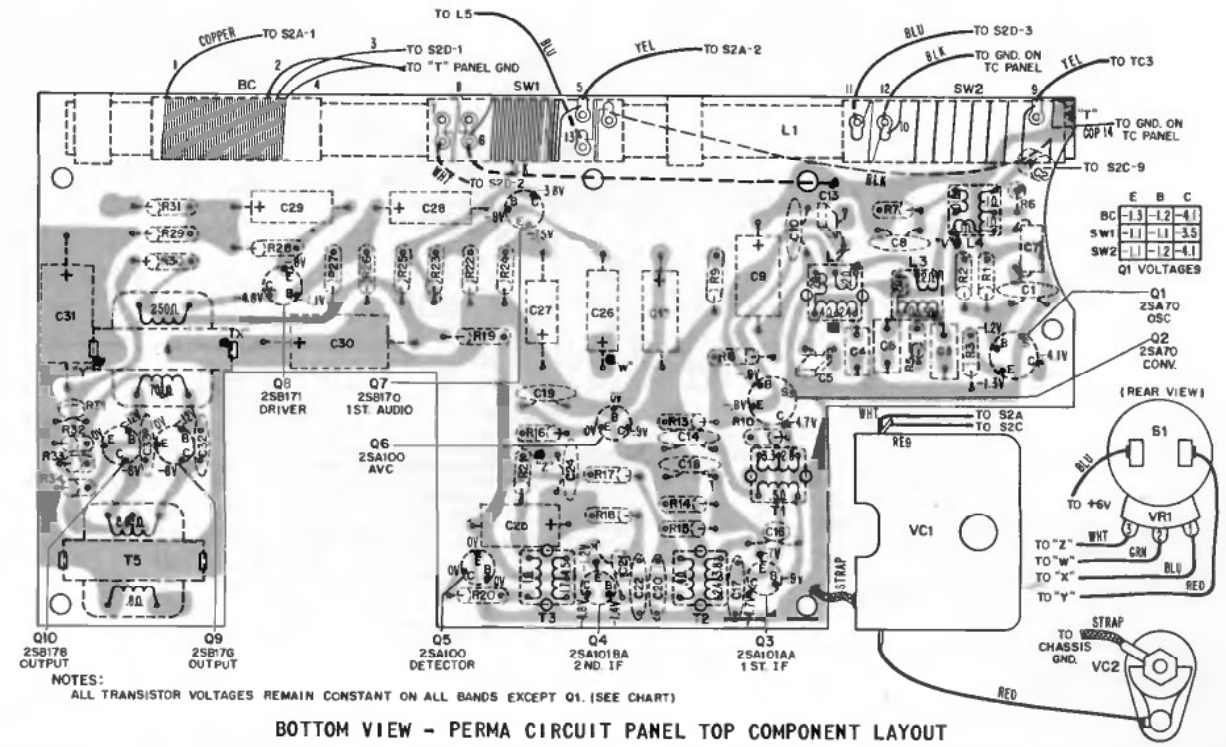
Bottom View - Perma-Circuit Panel

Alignment Points

PHILCO Model NT815

(AM IF 455 KC.)
(FM IF 10.7 MC.)

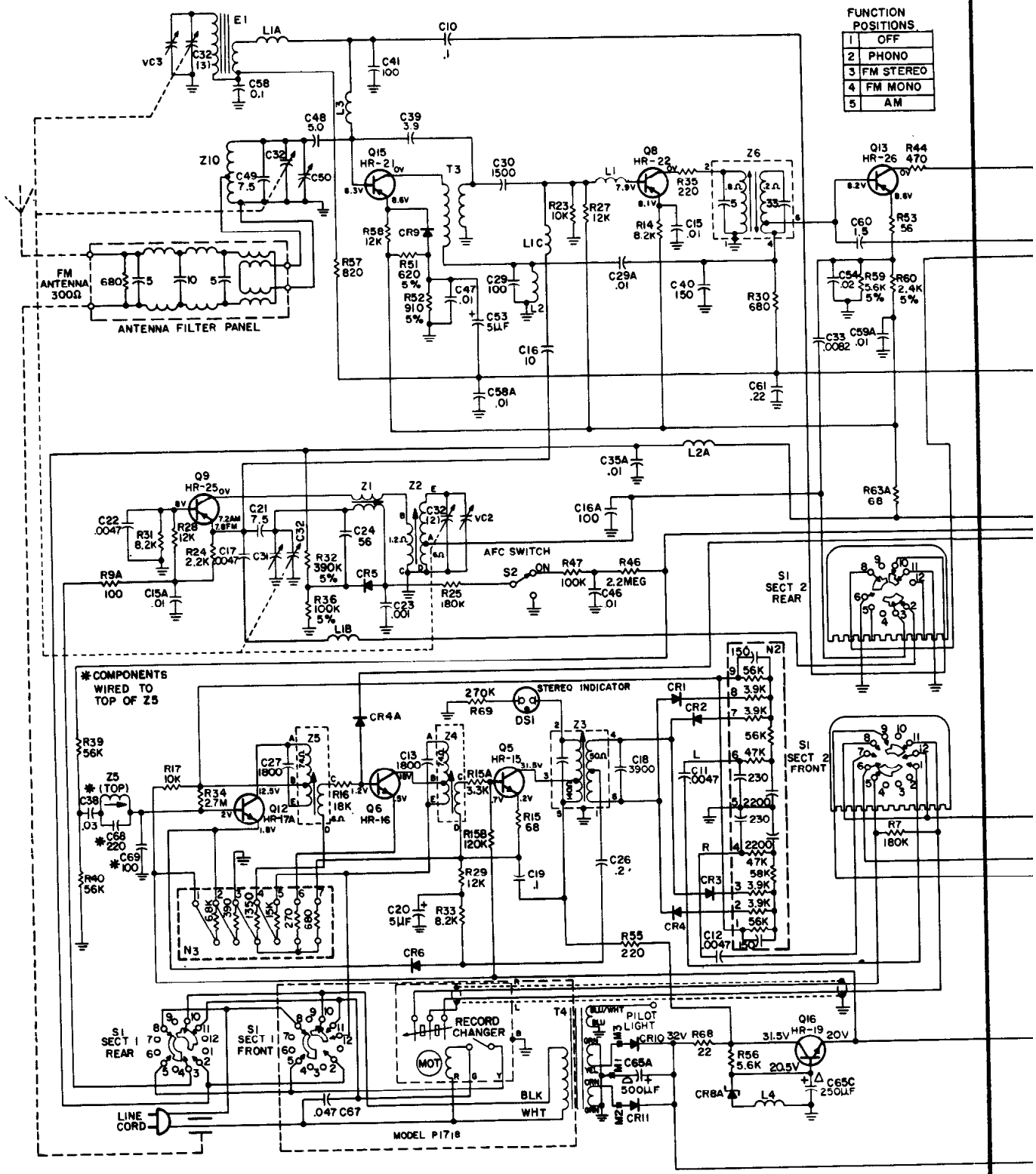




BOTTOM VIEW - PERMA CIRCUIT PANEL TOP COMPONENT LAYOUT

PHILCO Tuner-Amplifier Chassis P10ST used in Models P1002 and P1718

(Diagram continued on page at right; other material on page following)

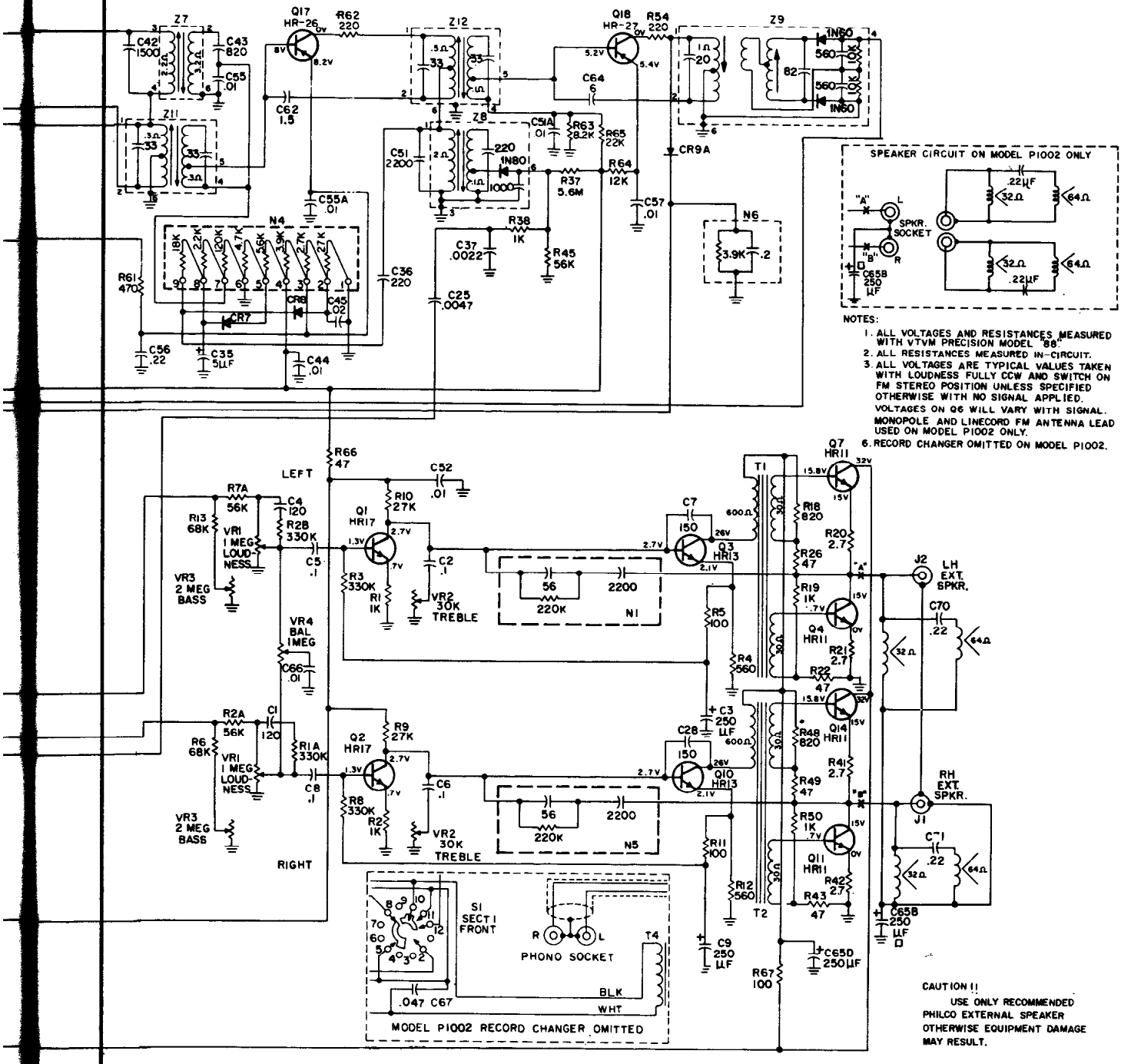


PHILCO Tuner-Amplifier Chassis P10ST used in Models P1002 and P1718

(Continued; see also next page,over)

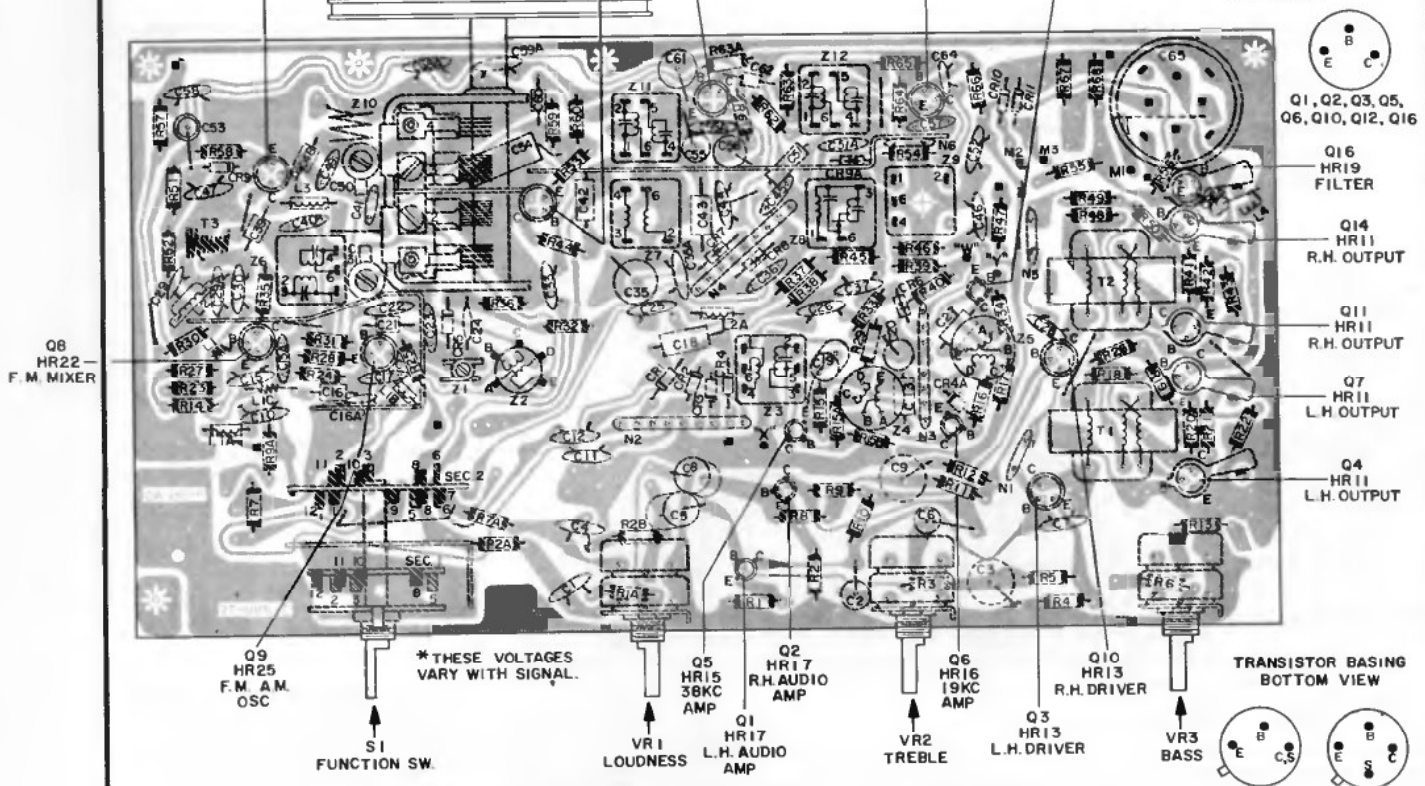
CHASSIS REMOVAL - P10ST, P25ST,

1. Disconnect line cord and remove back.
2. Disconnect speaker cables, phono power cable, phono input cable and bin light when used.
3. Remove holddown screws at rear of chassis.
4. Remove screws inside of cabinet at corners of front bezel.
5. Remove screws holding EXT. SPKR. JACK PLATE to cabinet.
6. Remove chassis from front of cabinet; in drop-in models lift lid then lift chassis up and out of cabinet.

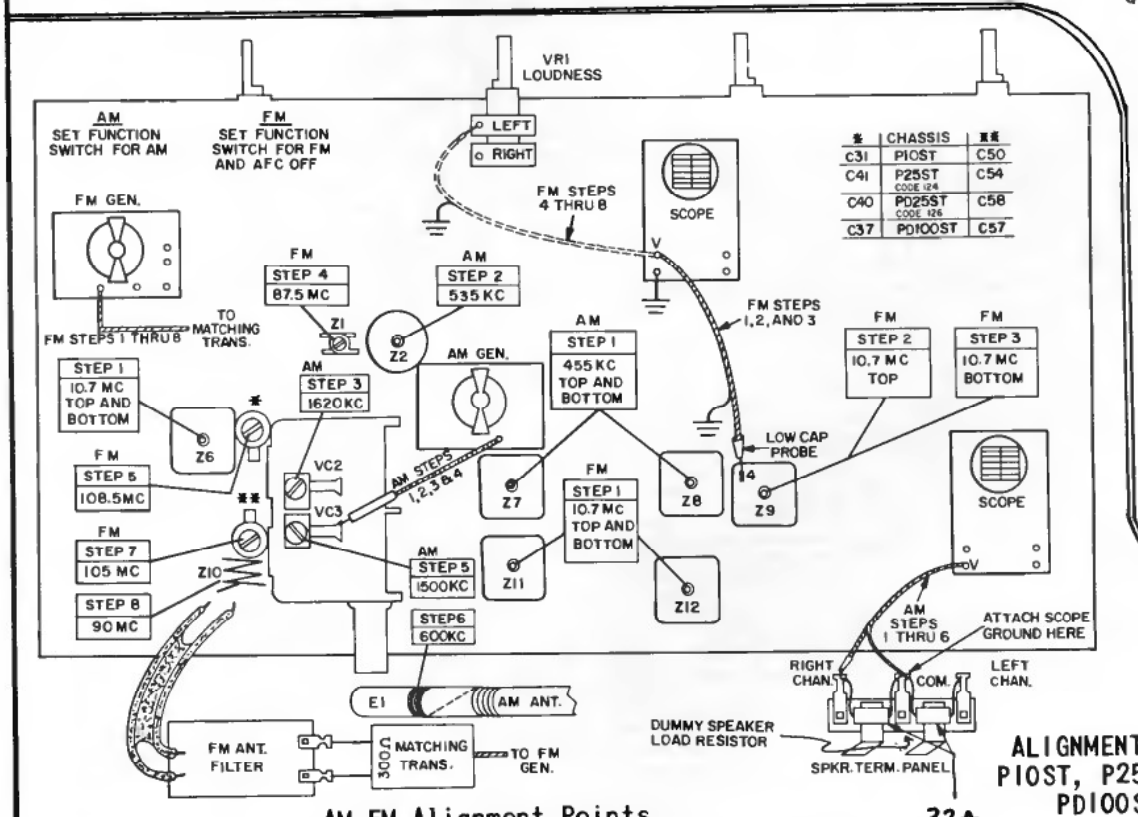


PHILCO Chassis P10ST, continued

ALL VOLTAGES MEASURED WITH VTVM "PRECISION" MODEL "88" WITH SELECTOR SWITCH IN FM STEREO POSITION, AFC SW. ON AND NO SIGNAL.



Bottom View - Top Component Location P10ST Chassis



AM FM Alignment Points

*	CHASSIS	**
C31	P10ST	C50
C41	P25ST CODE 124	C54
C40	PD25ST CODE 126	C58
C37	PD100ST	C57

TYPICAL VOLTAGES

Q	E	B	C
1	.7	1.3	2.7
2	.7	1.3	2.7
3	2.1	2.7	26
4	0	.7	15
5	2	.7	31.5
6	*.5	*1.2	18
7	15	15.8	32
8	8.1	7.9	0
9	7.8	8.0	0
10	2.1	2.7	26
11	0	.7	15
12	1.8	2	12.5
13	8.6	8.2	0
14	15	15.8	32
15	8.6	8.3	0
16	20	20.5	31.5
17	8.2	8	0
18	5.4	5.2	0

ALIGNMENT INFORMATION P10ST, P25ST, PD25ST, & PD100ST CHASSIS

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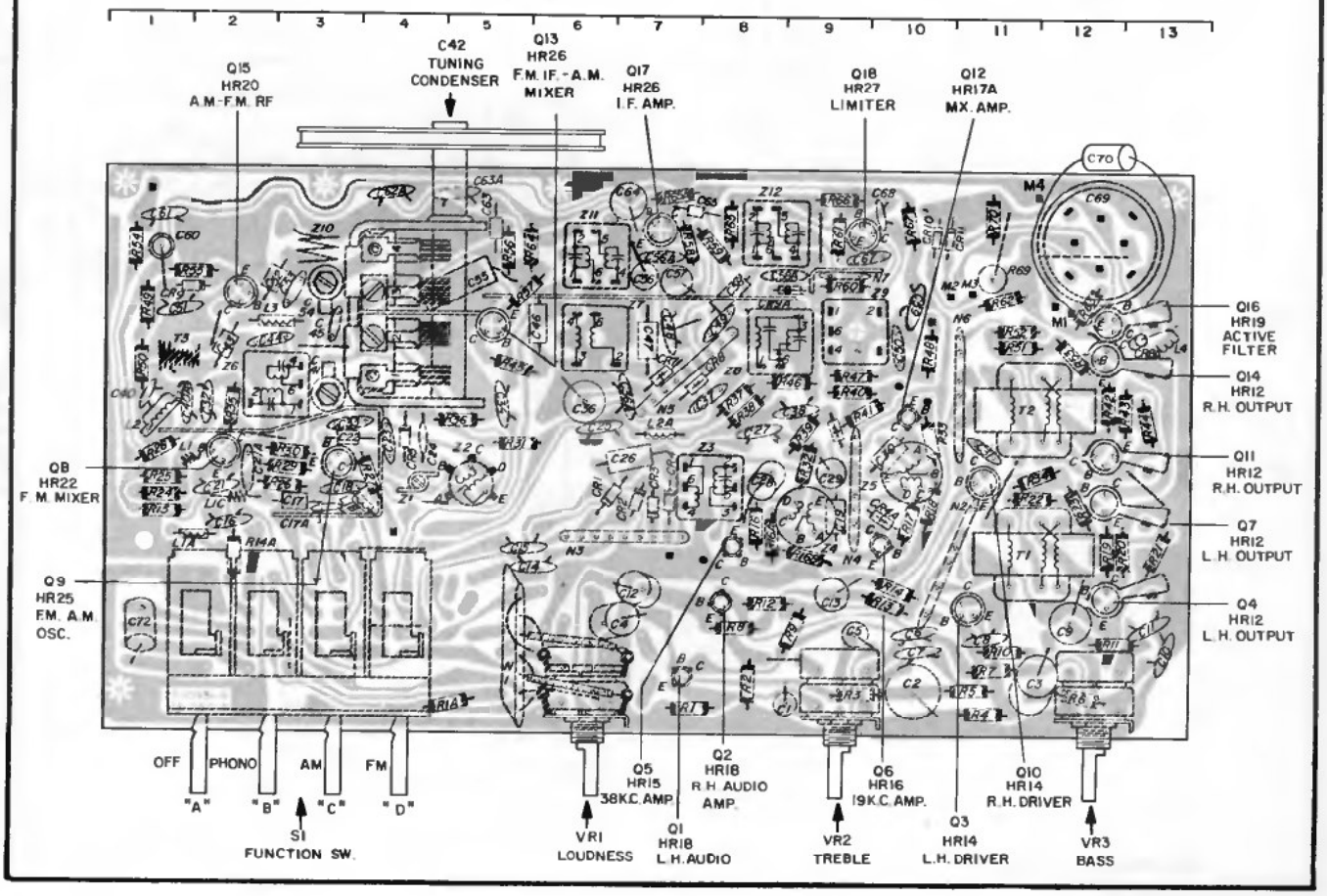
PHILCO P25ST - CODE 124 CHASSIS ELECTRICAL PARTS

SYM-BOL	LOCA-TION	DESCRIPTION	SERVICE PART NO.
		CAPACITORS	
C1	G8	.1 mf, treble cont.	30-4706-13
C1A		100 pf, 67KC filter	30-1293-32
C2	G10	elec., 250 mf, 6V, driver emit.	30-2611-10
C2A		220 pf, 67KC filter	30-1294-19
C3	G11	.1 mfd, bass cont.	30-4695-30
C4	F7	.1 mf, 1st audio	30-4695-30
C5	F9	.1 mf, treble cont.	30-4706-13
C6	F10	.05 mf, treble cont.	30-1272-23
C7	G10	.05 mf, treble cont.	30-1272-23
C8	F8	150 pf, driver C to B	30-1294-31
C9	F12	2 mfd, bass cont.	30-2612-2
C10	G13	.0047 mf, bass cont.	30-1294-28
C11	F13	.0047 mf, bass cont.	30-1294-28
C12	F7	.1 mf, 1st audio	30-6495-30
C13	F9	elec., 250 mf, 6V, driver emit.	30-2611-10
C14	E5	4700 pf, mx. out.	30-1294-28
C15	E5	4700 pf, mx. out.	30-1294-28
C16	E2	.1 mf, AM ant.	30-4706-13
C17	E3	10 pf, FM osc. inj.	30-1221-23
C17A	E3	100 pf, AM osc.	30-1293-32
C18	E3	4700 pf, AM osc. FB	30-1294-28
C19	E9	1800 pf, 19KC transf.	30-4707-15
C21	E2	.01 mf, FM mix.	30-1294-6
C21A	D2	.01 mf, B+ bypass	30-1294-6
C22	D3	7.5 pf, FM osc. FB	30-1221-24
C23	D4	.001 mf, FM osc. ret.	30-1294-20
C24	D4	56 pf, AFC	30-1287-5
C25	D6	.001 AM out.	30-1294-20
C26	D7	3900 pf, 38KC transf.	30-4707-17
C27	D8	.2 mf, mx. amp.	30-4704-3
C28	D8	.1 mf, mx.	30-4706-13
C29	D9	elec., 5 mf, 25V, 38KC emit.	30-2610-2
C30	D10	1800 pf, mx. amp. transf.	30-4707-15
C31	D11	150 pf, driver C to B	30-1294-31
C32	D2	1500 pf, FM mix. coup.	30-1294-30
C33	D3	4700 pf, osc. base	30-1294-13
C34	D5	.0082 mf, AM osc. inj.	30-1294-32
C36	D6	elec., 5 mf, 15V, AVC	30-2610-1
C36A	C7	.01 mf, B+ bypass	30-1294-6
C37	D7	220 pf, AVC coup.	30-1293-34
C38		2200 pf, AM bypass	30-1294-29
C39	C10	.03 mf, mx. input	30-1272-5
C40	C1	100 pf, AM R-F coil	30-1293-32
C40A	D2	.01 mf, AM mix. coup.	30-1294-6
C41	C3	trimmer 3 to 12.5 pf FM osc.	31-6520-37
C42	A5	tuning AM-FM	31-2795-1
C43	C2	3.9 pf, AM-FM R-F neut.	30-1221-14
C44	C3	150 pf, FM I-F-AM R-F bypass	30-1293-22
C45	C3	100 pf, AM ant.	30-1293-32
C46	C5	1500 pf, 1st AM I-F	30-4707-7
C47	C7	820 pf, 1st AM I-F	30-4707-6
C48	C7	.01 mf, B+ bypass	30-1294-6
C49	C8	.02 mf, AVC	30-1294-27
C50	C10	.01 mf, AFC bypass	30-1294-6
C51	B2	.01 mf, AM-FM R-F	30-1294-6
C52	B3	4.7 pf, AM ant. coup.	30-1221-13
C53	B3	7.5 pf, FM ant. pad.	30-1293-31
C54	B3	trimmer, 1 to 5 pf, FM ant.	31-6520-36
C55	B5	.02 mf, FM I-F-AM mix.	30-4706-32
C56	B7	.01 mf, 1st AM I-F	30-4706-22
C56A	B7	.01 mf, I-F emit.	30-1294-6
C57	B7	.22 mf, AVC	30-4706-29
C58	B8	2200 pf, 2nd AM I-F	30-4707-16
C58A	B8	.01 mf, lim. bypass	30-1294-6
C59	B10	.01 mf, B+ bypass	30-1294-6
C60	B1	elec., 5 mf, 15V, overload	30-2610-1



Bottom View - Top Components Location

PHILCO

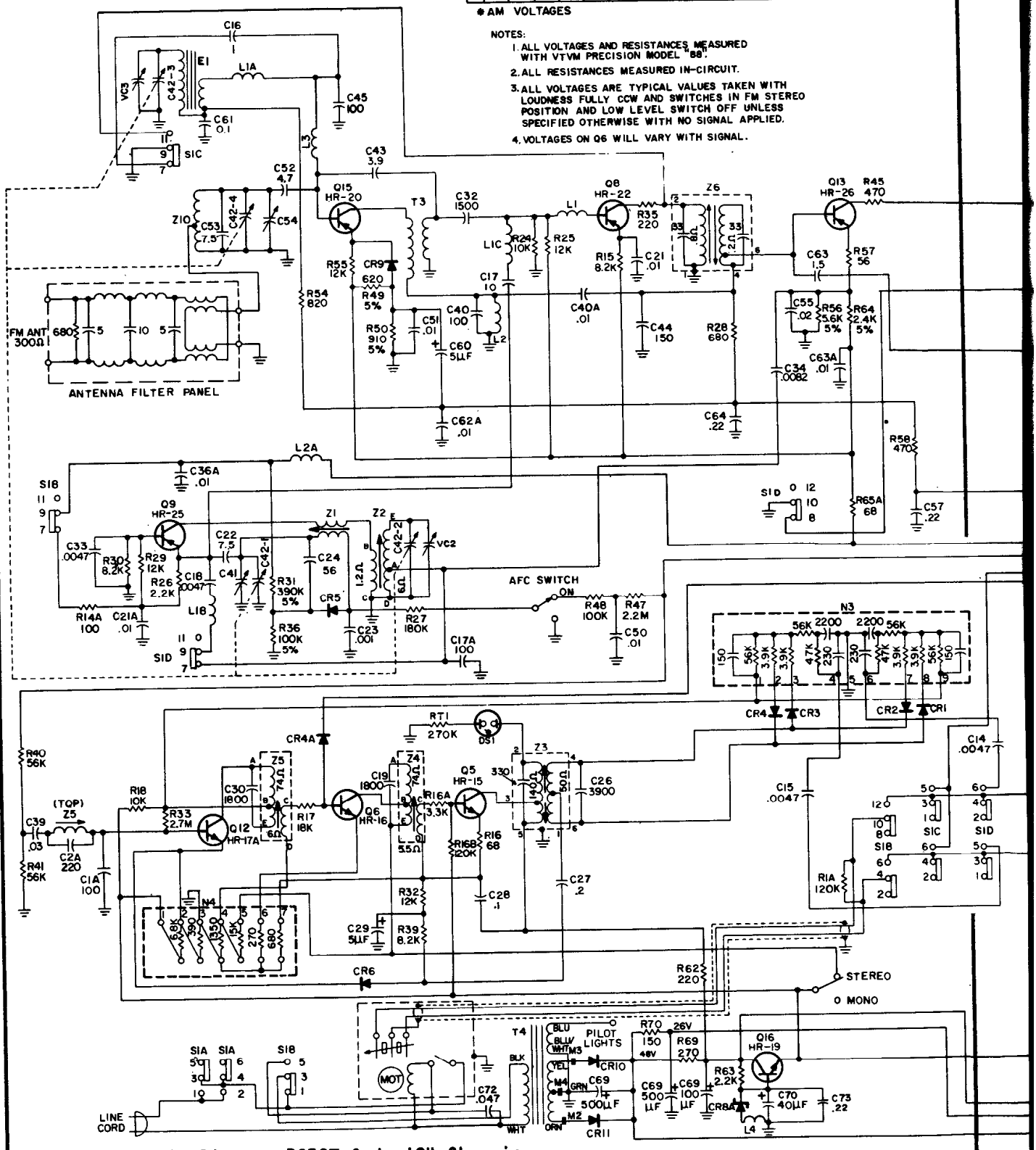
P25ST-CODE 124 TUNER-AMPLIFIER CHASSIS - MODELS P1710, P1719, P1722, P1735 & P1737

(Diagram continued on next page at right; see also the preceding two pages)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
E	.5	.5	2.3	.1	.3	0	24.5	8.7	8.2 / 7.2*	2.3	.1	1.5	10.3	24.5	10.8	20.5	10.3	5.6
B	1	1	2.8	.7	.9	.4	25	8.4	8.1 / 8.0*	2.8	.7	2.1	10.6	25	10.4	21	10	5.3
C	2.8	2.8	28	24	32	20	48	.2	0	28	24	12	.3	48	0	32.5	.4	.2

* AM VOLTAGES

NOTES:
1. ALL VOLTAGES AND RESISTANCES MEASURED WITH VTVM PRECISION MODEL "88".
2. ALL RESISTANCES MEASURED IN-CIRCUIT.
3. ALL VOLTAGES ARE TYPICAL VALUES TAKEN WITH LOUDNESS FULLY CCW AND SWITCHES IN FM STEREO POSITION AND LOW LEVEL SWITCH OFF UNLESS SPECIFIED OTHERWISE WITH NO SIGNAL APPLIED.
4. VOLTAGES ON Q6 WILL VARY WITH SIGNAL.



Schematic Diagram P25ST Code 124 Chassis

PHILCO Chassis P25ST, Models P1710, P1719, P1722, P1735, P1737, Continued

ALL TRANSISTOR TUNER/AMPLIFIERS

RF SHIELD REMOVAL: (RF Tuning Section) Top & Bottom

NOTE: Two types of RF shields were used on these chassis.

Type 1 - Top shield with a removable cover. The mounting studs are part of the top shield with mounting nuts on bottom of PW panel.

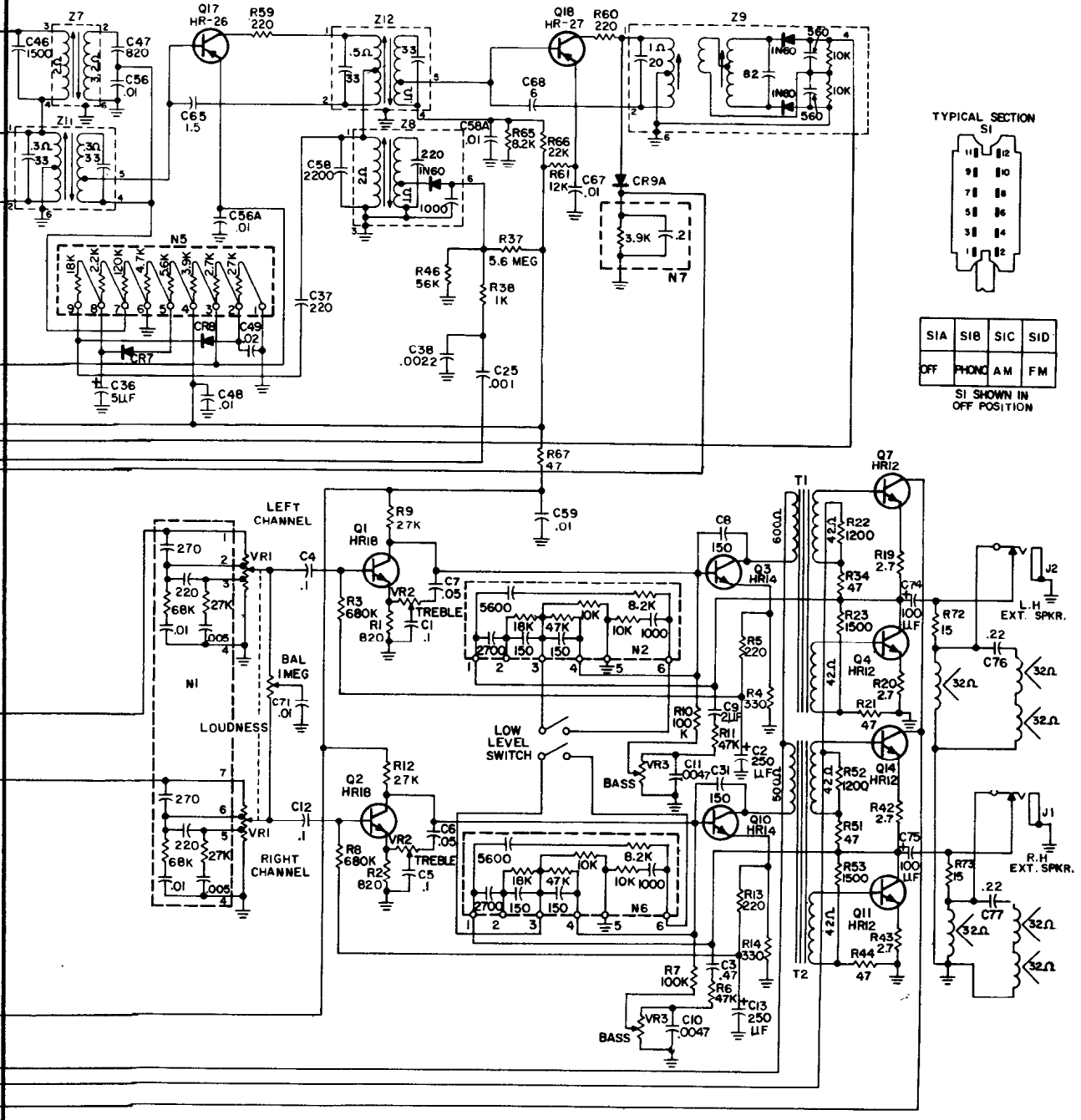
Type 2 - Top shield without a removable cover. The mounting studs are part of the bottom shield with mounting nuts on top of PW panel.

To remove type 1 top shield:

1. Remove 3 nuts holding bottom shield.
2. Unsolder ground tab and remove bottom shield.
3. Remove top cover.

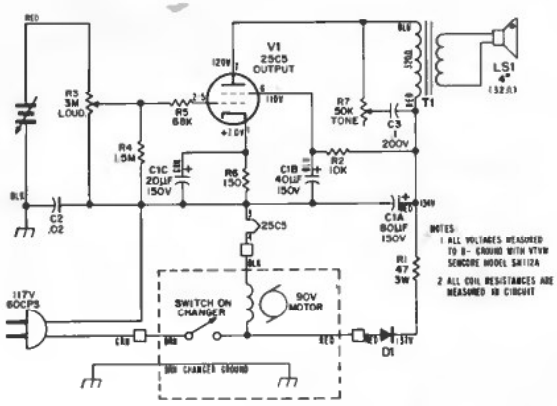
To remove type 2 top shield:

1. Remove 3 nuts holding top shield.
2. Unsolder antenna lead from Gang and lift off top shield.
3. Remove 3 additional nuts on shield studs, unsolder ground tab and lift off bottom shield.



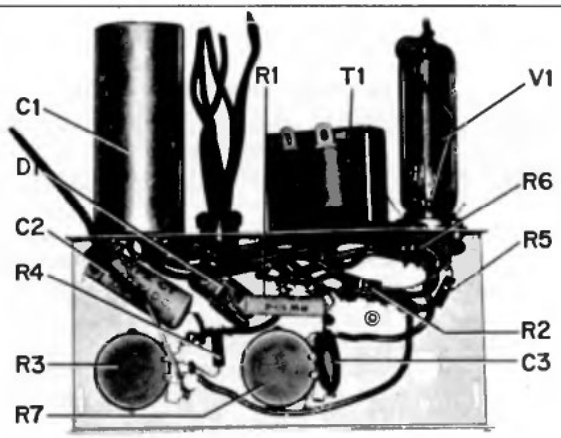
USE ONLY RECOMMENDED PHILCO EXTERNAL SPEAKERS, OTHERWISE EQUIPMENT DAMAGE MAY RESULT.

PHILCO Model P1441



CHASSIS REMOVAL - MODEL P1441

1. Remove 6 panel (motorboard) screws, lift panel then disconnect 2 speaker leads and audio cables from changer.
2. Remove knobs (Tone & Loudness).
3. Remove bushing nuts from control shafts.
4. Lift panel and remove chassis.

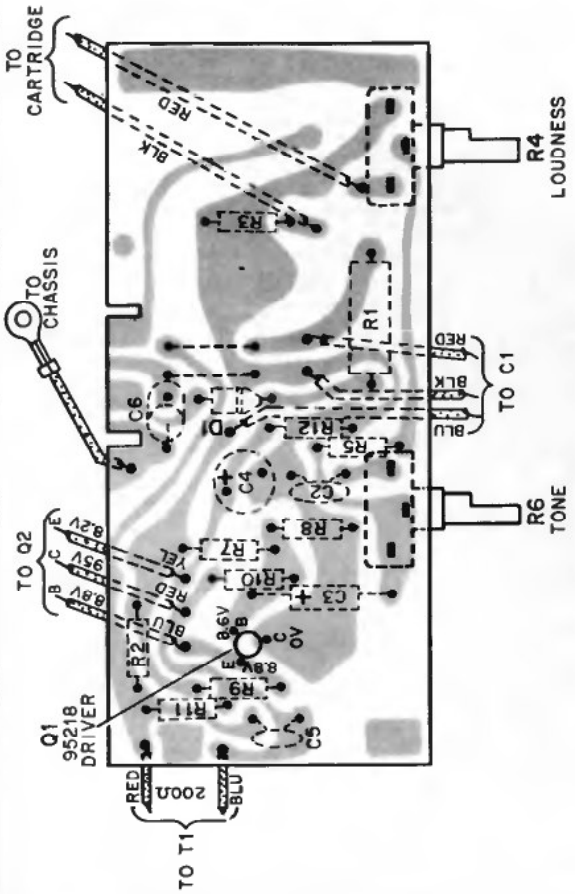


Model P1441 Bottom View - Component Layout

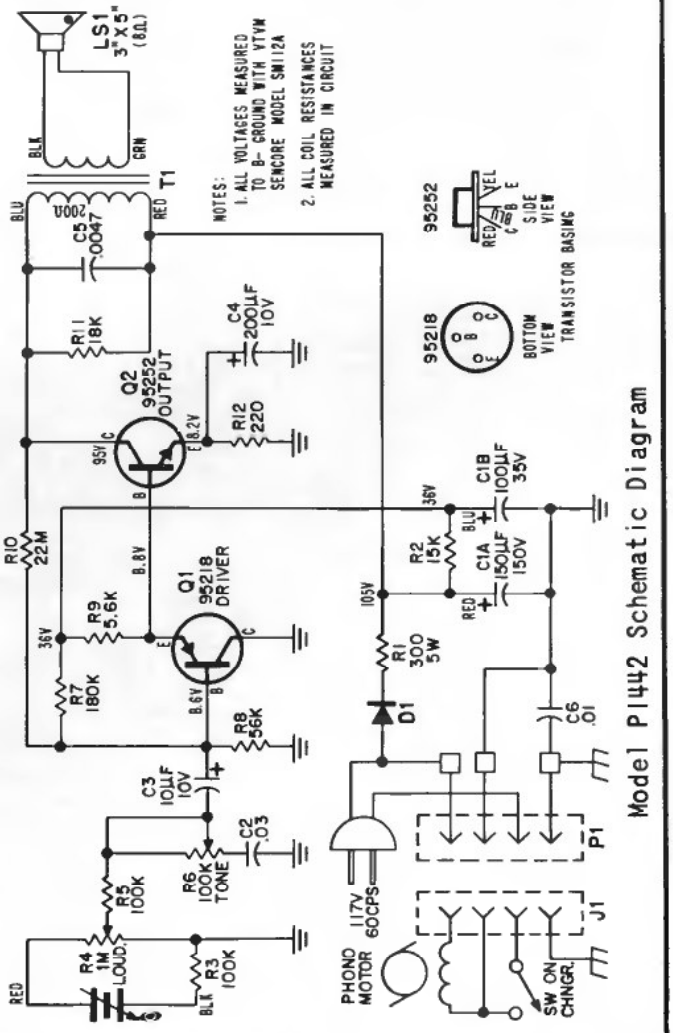
RECORD CHANGER REMOVAL - MODEL P1441

1. Remove 6 panel screws.
2. Lift front end of panel with changer and amplifier.
3. Disconnect power and audio leads.
4. Straighten changer mounting bolt clips then lift off record changer.

PHILCO Model P1442

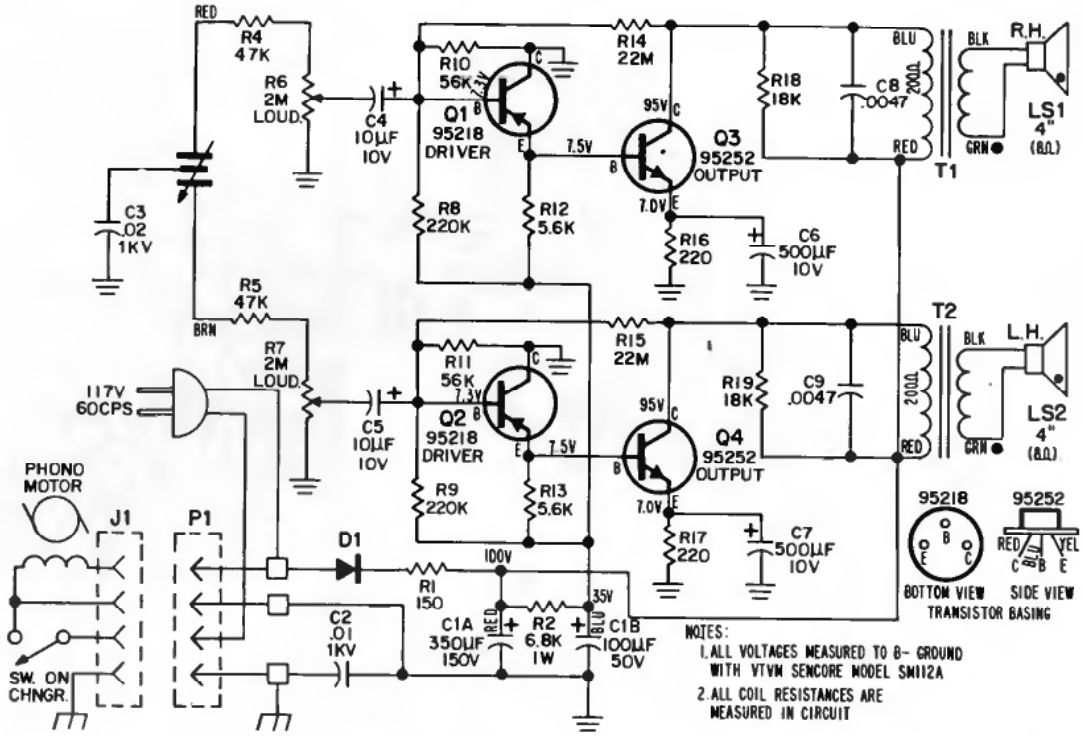


Bottom View Perma-Circuit Panel - Component Layout



Model P1442 Schematic Diagram

PHILCO Model P1444

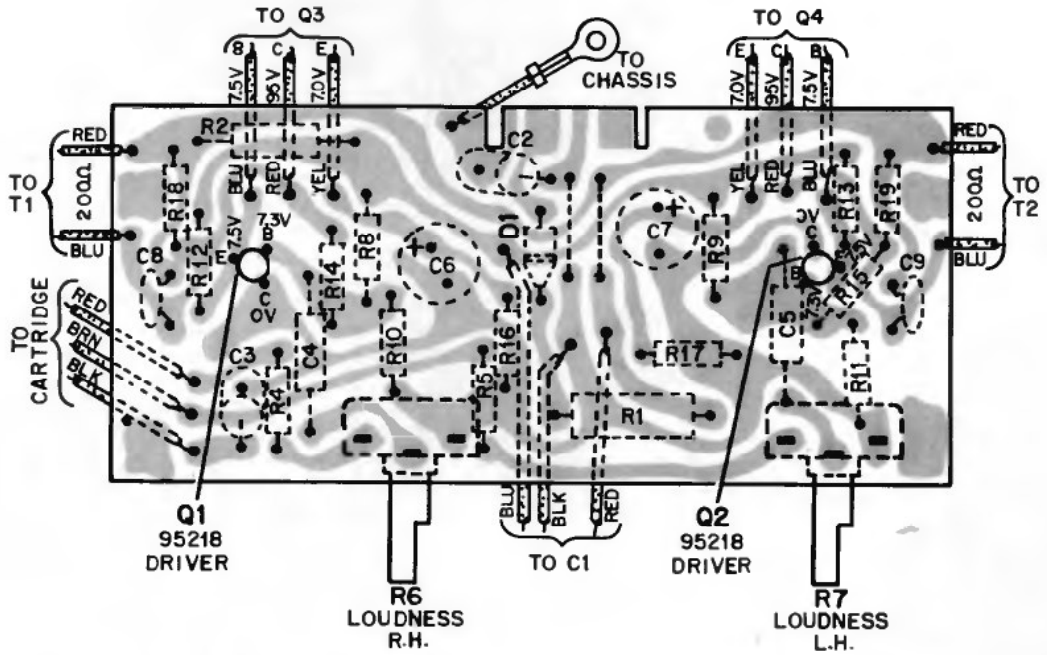


RECORD CHANGER REMOVAL - MODEL P1444

1. Lower changer drawer and remove 4 screws holding record changer to base.
2. Lift front of record changer and disconnect changer power plug, unsolder 3 leads to termina' strip.
3. Lift record changer from base.

CHASSIS REMOVAL-- MODEL P1444

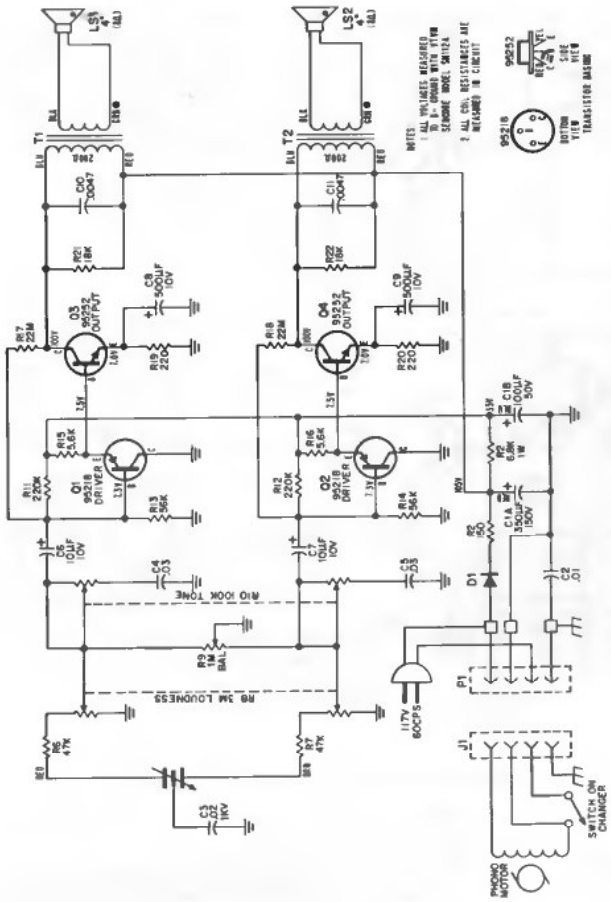
1. Remove record changer (see record changer removal instructions).
2. Remove 2 knobs (Loudness).
3. Disconnect panel plug at rear of chassis panel and unsolder speaker leads from output transformer.
4. Remove 2 chassis hold down screws (one located at each end of chassis), lift chassis from base.

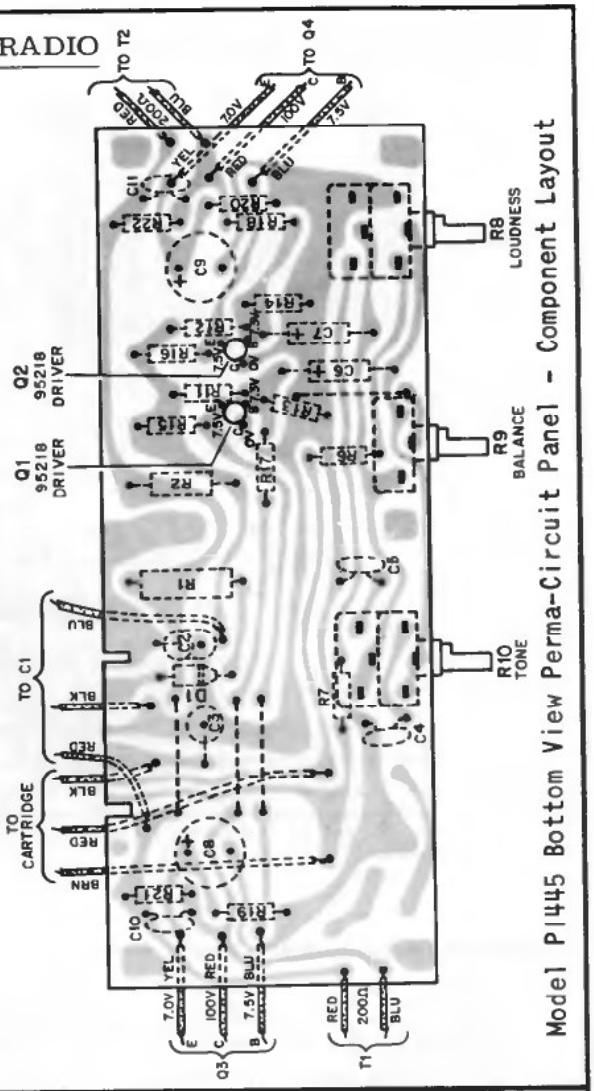


Model P1444 Bottom View Perma-Circuit Panel - Component Layout

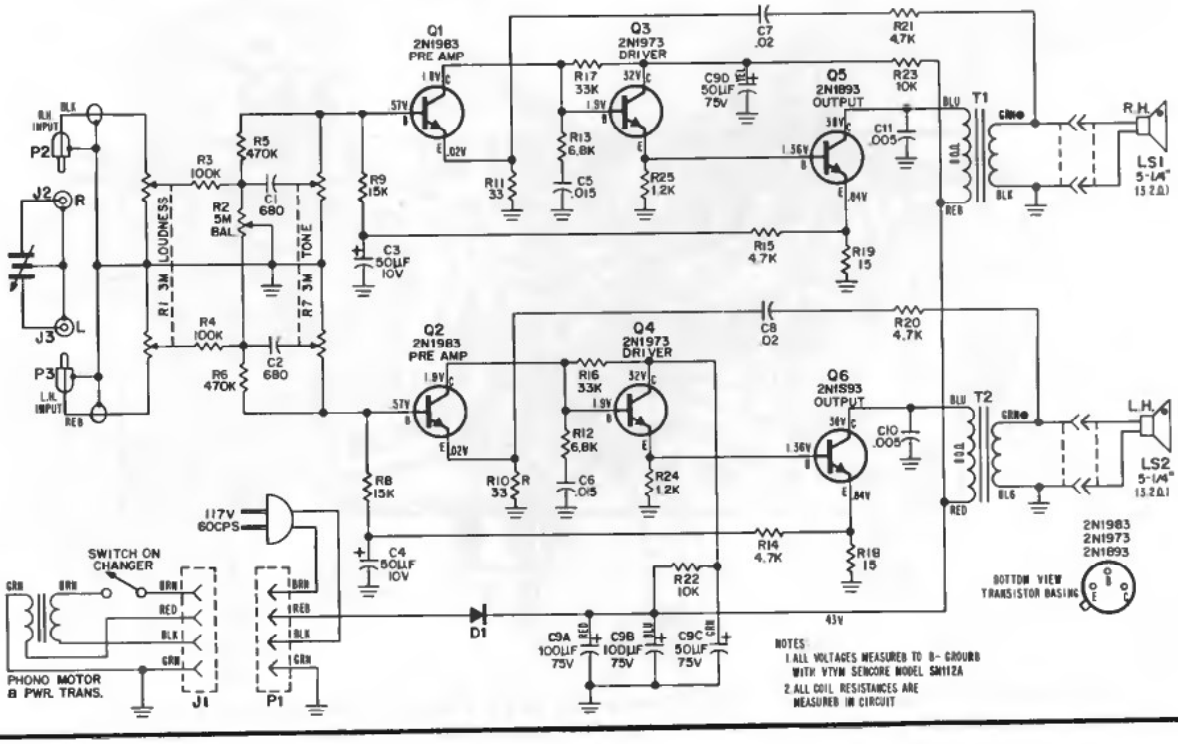
PHILCO Model P1445

PHILCO Model P1445

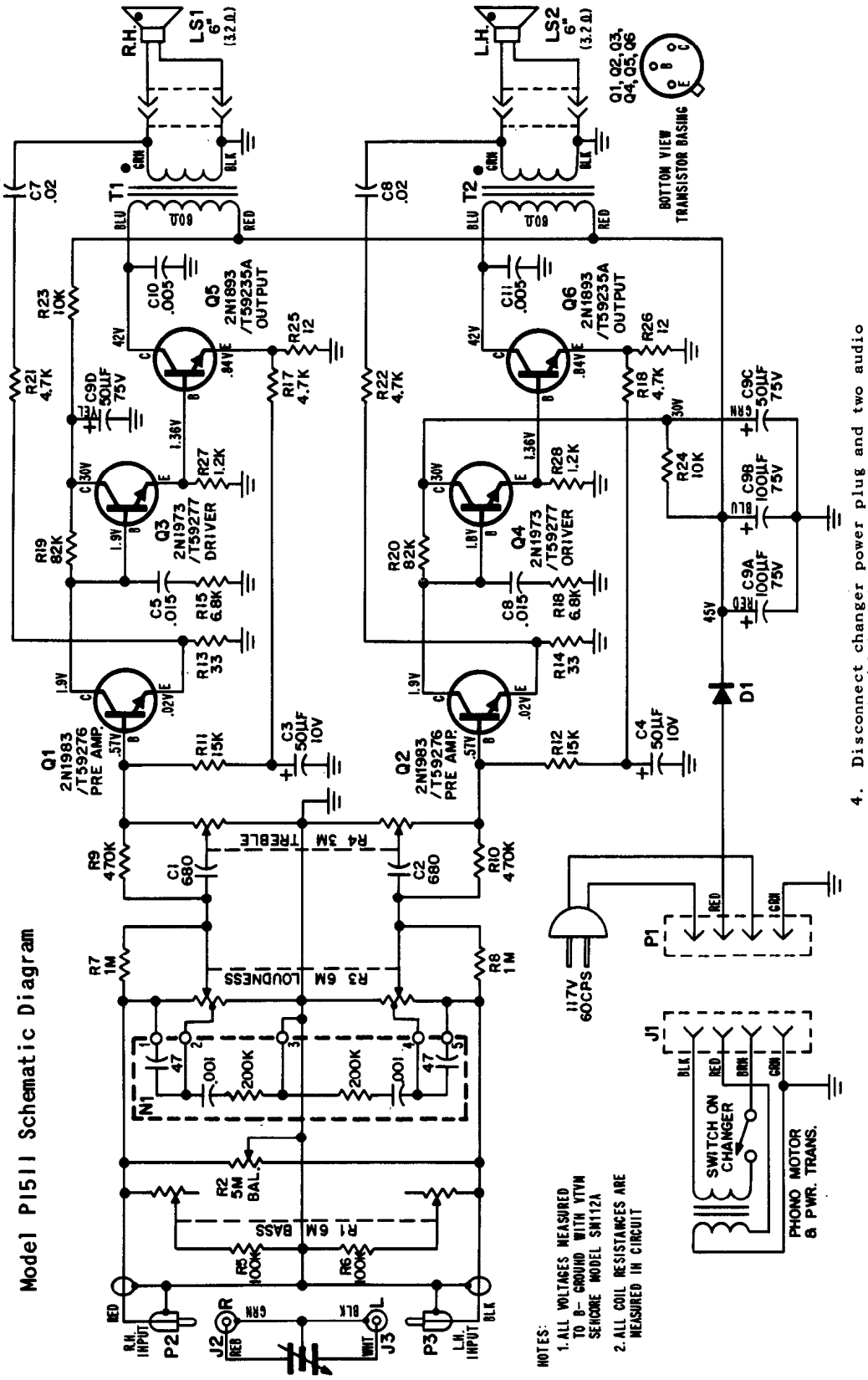




PHILCO Model P1446



PHILCO Model P1511



NOTES:
1. ALL VOLTAGES MEASURED TO B- GROUND WITH VTVM SENCORE MODEL SM112A
2. ALL COIL RESISTANCES ARE MEASURED IN CIRCUIT

TRANSISTOR VOLTAGES

	C	B	E
PRE AMPS	Q1 – Q2	1.9V	.57V	.02V
DRIVERS	Q3 – Q4	30V	1.9V	1.36V
OUTPUTS	Q5 – Q6	42V	1.36V	.84V

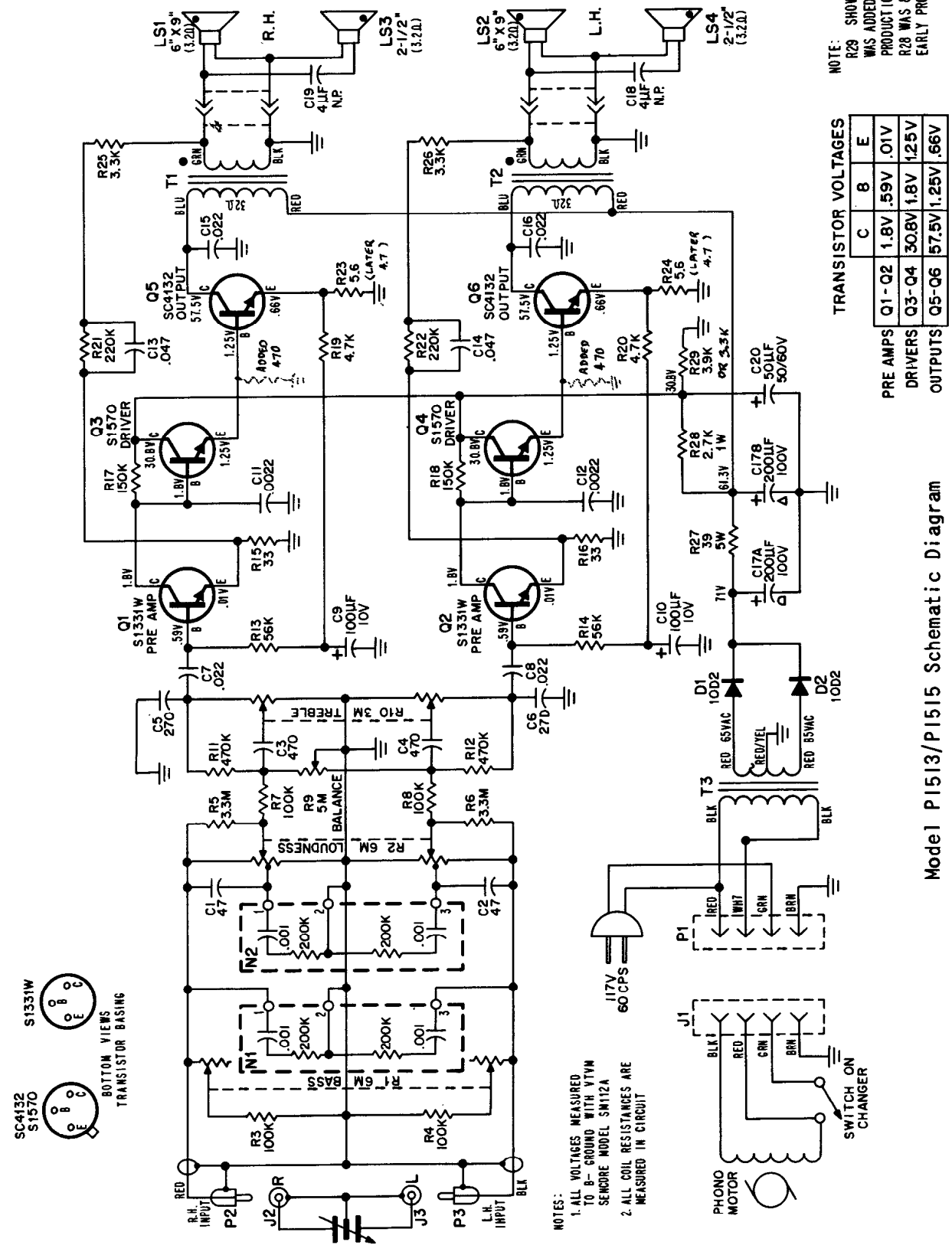
RECORD CHANGER REMOVAL – MODELS P1446 & P1511

1. Lower record changer drawer and remove plug button located at right hand side of changer base.
2. Insert screwdriver through hole at right hand side and straighten mounting bolt clip. (Changer mounting bolts must be screwed down.)
3. Lift changer slightly with the right hand and then with the thumb and forefinger of left hand pull changer mounting spring (located near front left corner of base plate) to free it from spring clip on motorboard.
4. Disconnect changer power plug and two audio plugs (red & black).
5. Lift changer forward and slide rear end to the right to release mounting bolt at left rear of base plate.

CHASSIS REMOVAL – MODELS P1446 & P1511

1. Remove rear access panel (4 screws).
2. Remove cable hold down clips.
3. Remove knobs (Balance, Tone, Loudness & Treble).
4. Remove bushing nuts (3) from control shafts.
5. Lift chassis out from rear of cabinet.
6. Disconnect cables as necessary

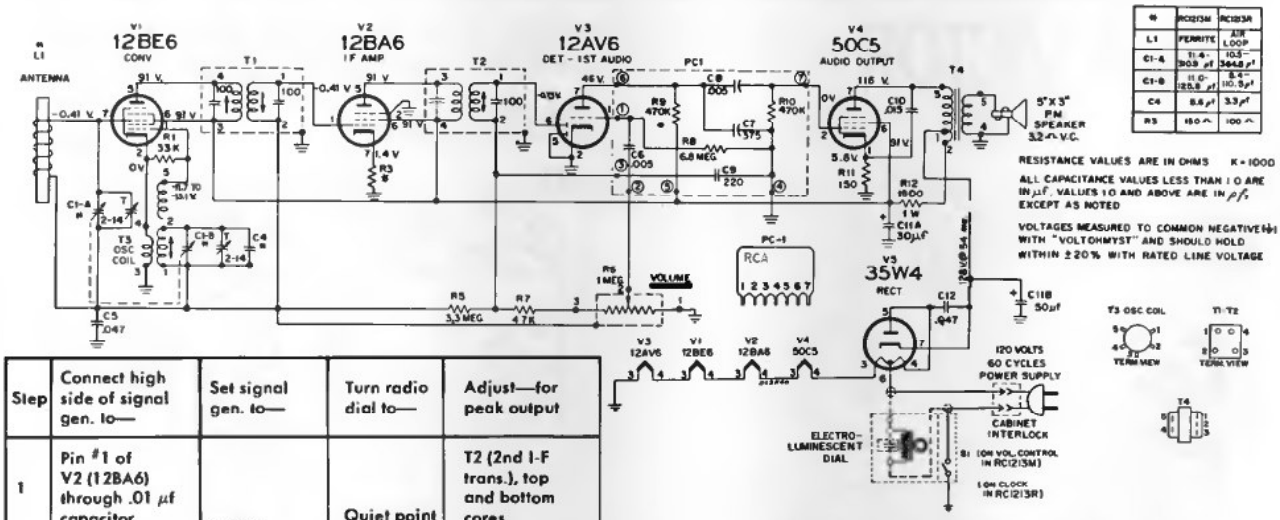
PHILCO Models P1513, P1515



TRANSISTOR VOLTAGES

		C	B	E
PRE AMPS	Q1-Q2	1.8V	.59V	.01V
DRIVERS	Q3-Q4	30.8V	1.8V	1.25V
OUTPUTS	Q5-Q6	57.5V	1.25V	.66V

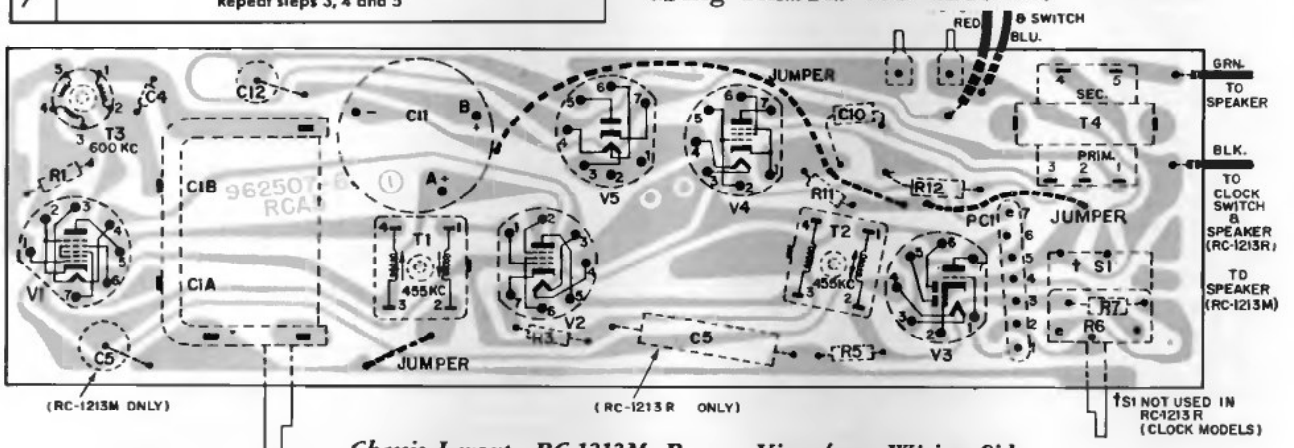
Model P1513/P1515 Schematic Diagram



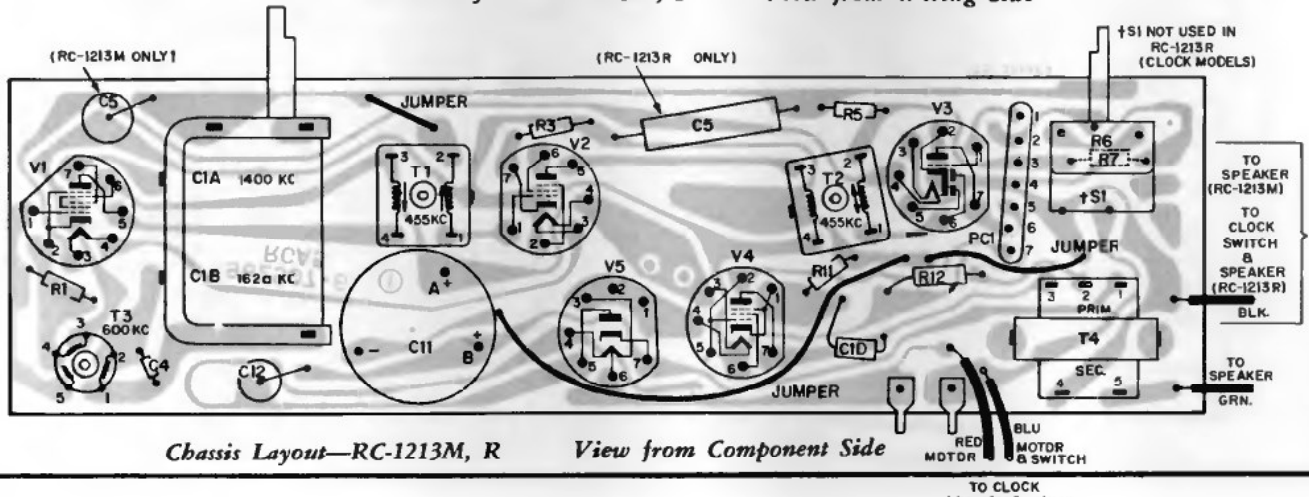
Step	Connect high side of signal gen. to—	Set signal gen. to—	Turn radio dial to—	Adjust—for peak output
1	Pin #1 of V2 (12BA6) through .01 µf capacitor	455 kc (Modulated)	Quiet point near 1600 kc	T2 (2nd I-F trans.), top and bottom cores
2	Pin #7 of V1 (12BE6) through .01 µf capacitor			T1 (1st I-F trans.), top and bottom cores
3	Repeat steps 1 and 2			
4	Short wire placed near antenna to radiate signal	1620 kc (Modulated)	Gang fully open	C1-B-T (osc. trimmer)
5		1400 kc (Modulated)	1400 kc signal	C1-B-T (Ant. trimmer)
6		600 kc (Modulated)	600 kc signal	T3 (osc. coil) (rock gang)
7	Repeat steps 3, 4 and 5			

RCA VICTOR

This is exact material for the following: RGA-27 Series, Chassis RC-1213R; RGD-30 Series, Chassis RC-1213M; and this group of sets are very similar: RHA-12G,N,Y, RHA-17A,E,J, RC-1213W; RHD-13N,Y, RHD-17A,J,Y, using Chassis RC-1213AB; RHD-21A,J,T, using Chassis RC-1213AA.



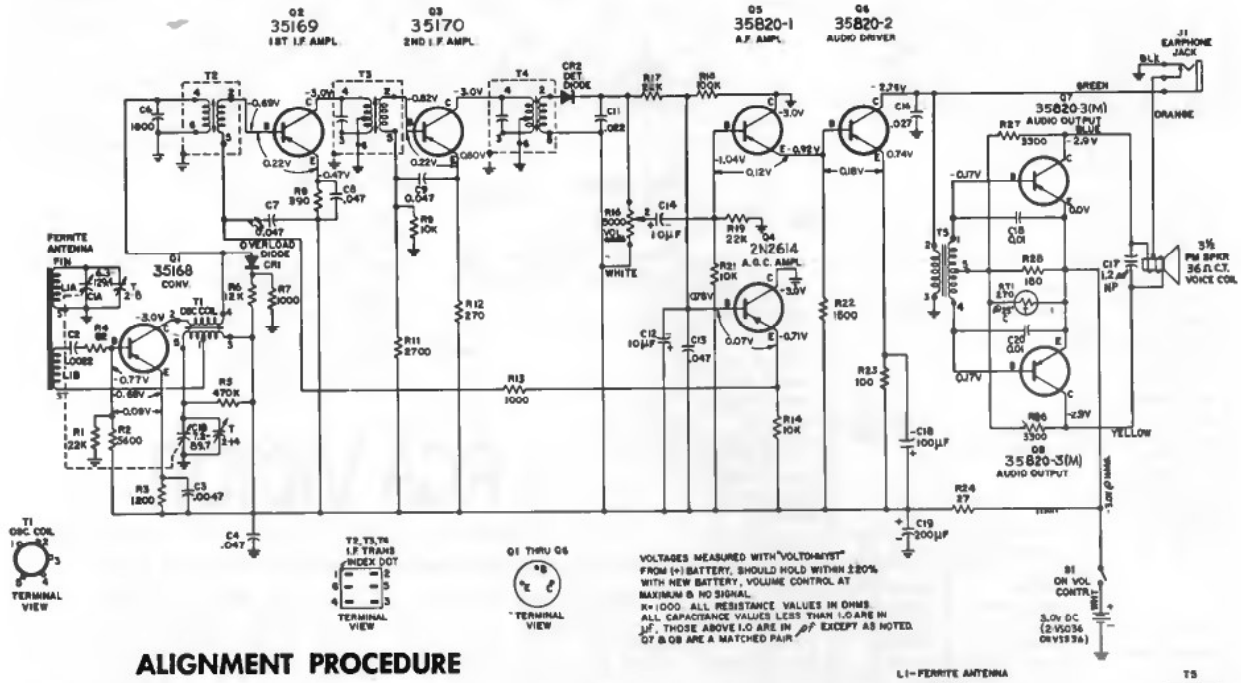
Chassis Layout—RC-1213M, R View from Wiring Side



Chassis Layout—RC-1213M, R View from Component Side

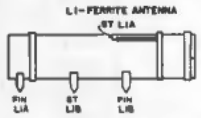
RCA VICTOR

Models RGG-17B, RGG-22A, N, U, RGG-25B, E, G
Chassis RC-1219A, RC-1219B



ALIGNMENT PROCEDURE

Step	Connect High Side of Signal Generator to—	Signal Gen. Output	Dial Pointer Setting	Adjust for Max. Output
1	Loop or piece of short wire placed near antenna for radiated signal	455 kc	Gang fully open	T4 (3rd I-F)
2				T3 (2nd I-F)
3				T2 (1st I-F)
4		Repeat Steps 1, 2, and 3		
5		1620 kc	Gang fully open	Oscillator trimmer C1B-T
6		1400 kc	1400 kc (rock gang if necessary)	Antenna trimmer C1A-T
7		600 kc	600 kc (rock gang)	Osc. coil T1
8		Repeat Steps 5, 6, and 7		



CHASSIS REMOVAL

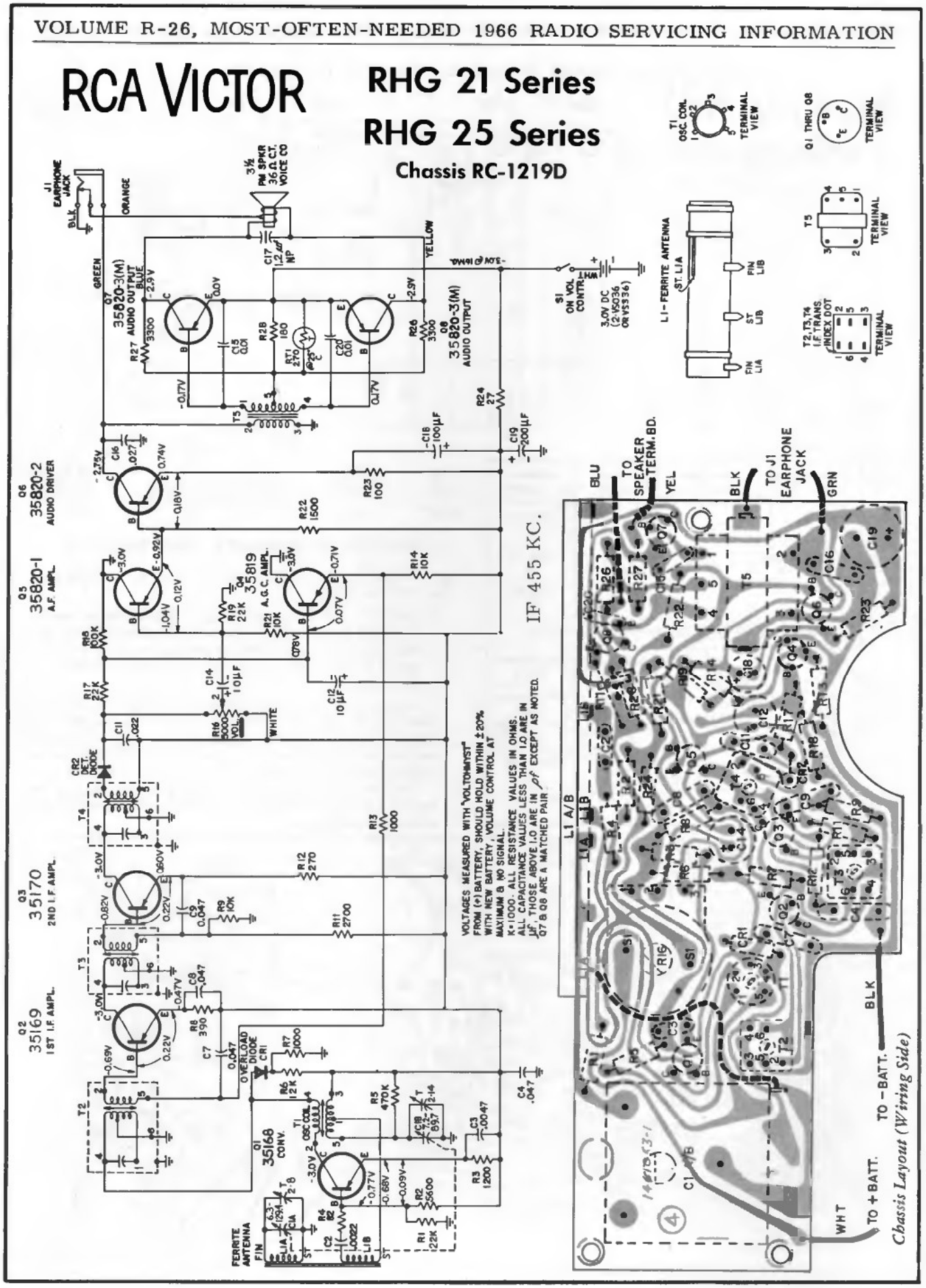
1. Remove tuning and volume knobs.
2. Open case.
3. Remove three screws securing chassis. (Two at battery end of board and one at speaker end.)
4. Remove nut holding earphone jack (RC-1219B) or slide earphone jack out of slot (RC-1219A).
5. Unsolder speaker wires if necessary (or remove clips holding speaker to case).
6. Unsolder battery wires if necessary.
7. Lift board out of case.

Chassis Layout (Wiring Side)

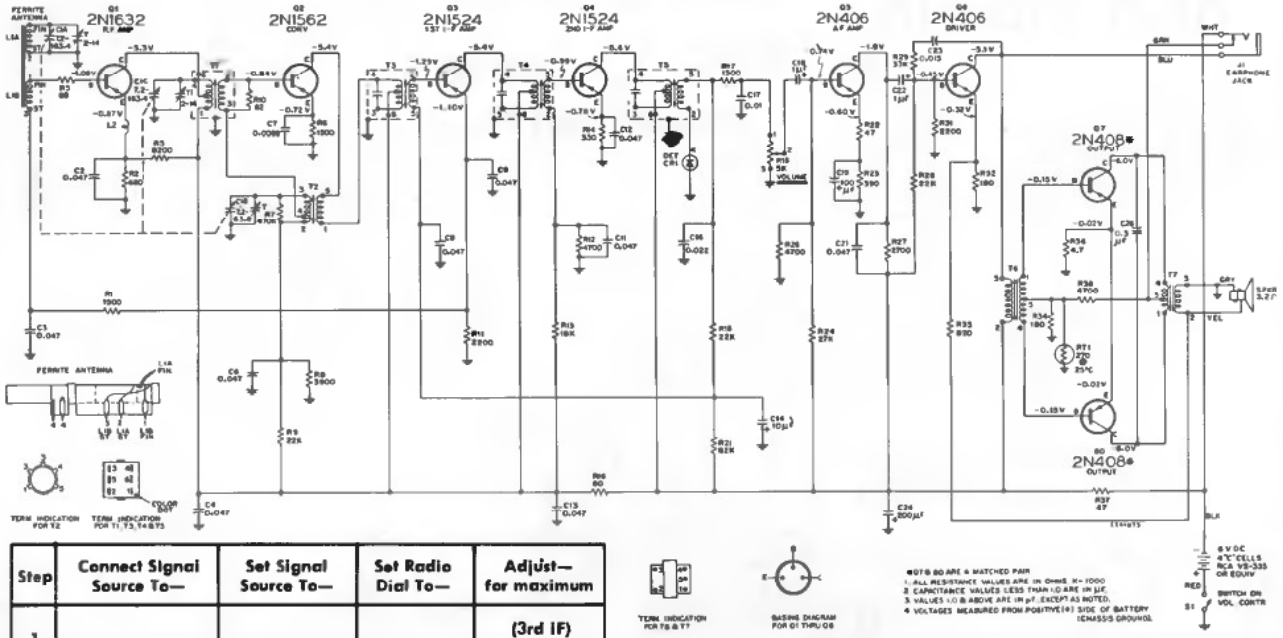
RCA VICTOR

RHG 21 Series
RHG 25 Series

Chassis RC-1219D



RCA Victor Model RGG-29E, Chassis RC-1221A



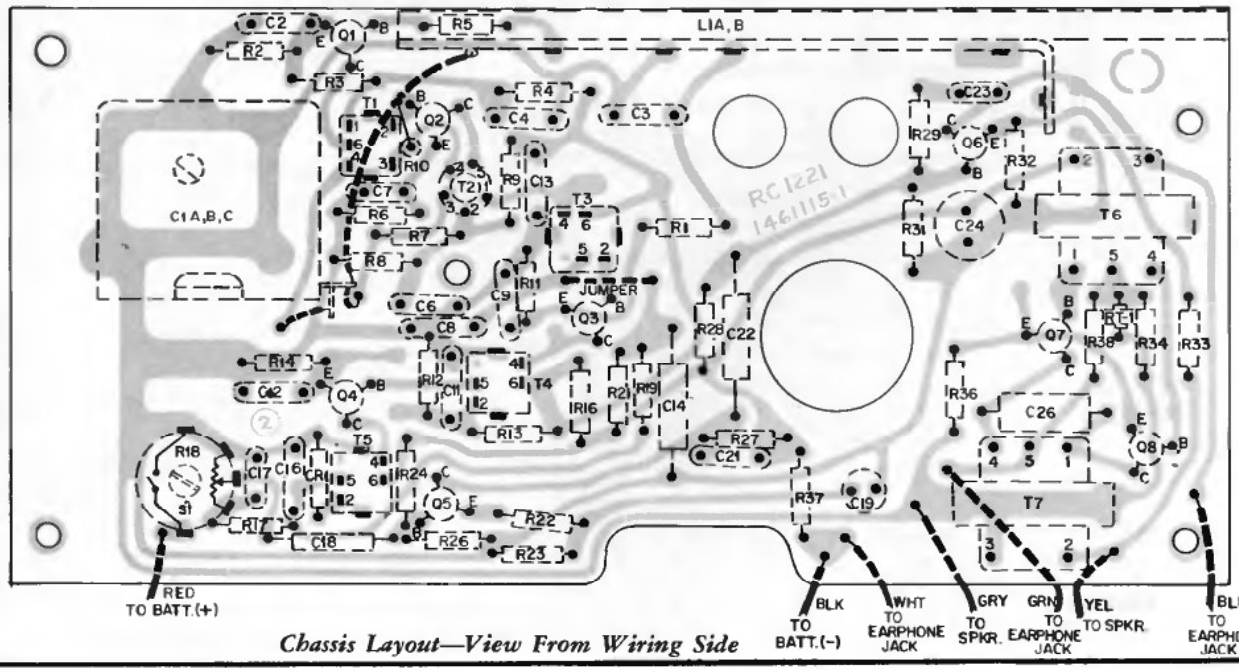
Step	Connect Signal Source To—	Set Signal Source To—	Set Radio Dial To—	Adjust— for maximum
1	Stator of C1A (RF Gang) through a 0.01 µf capacitor	455 kc	Gang fully open	(3rd IF) T5
2				(2nd IF) T4
3				(1st IF) T3
4	Repeat steps 1, 2 and 3 as necessary for maximum.			
5	Standard Loop or short piece of wire placed near antenna	1620 kc	Gang fully open	(Osc. Trimmer) C1C-T
6		1400 kc	1400 kc	(RF Trimmer) C1B-T
7				(Ant. Trimmer) C1A-T
8		600 kc	600 kc (rock gang)	(Osc. Coil) T2
9				(RF Trans.) T1

CHASSIS ACCESSIBILITY AND REMOVAL

1. Unsnap the two tabs at the bottom of the back and swing the back cover out and up.
2. Insert cells, with button end (+) to the left, into the opening in the battery compartment. Slide one cell to the left and two to the right; the fourth cell is inserted by pushing the cells on the right against the spring pressure until the fourth cell slips into place in the opening.

The chassis may be made further accessible by removing the front panel from the case; remove three (3) screws through the bottom of the case and two (2) through the top (under the handle) to permit the front panel to slide out of the case. (NOTE: The three screws through the bottom of the case also secure the battery holder.)

The chassis may be removed from the front panel by removing the five (5) screws securing it to the front panel; two at each end and one at the approximate center.



Chassis Layout—View From Wiring Side

RCA VICTOR

Chassis RC-1221B

Model RHG 30E—Black

I.F. Alignment Information

Step	Connect Signal Source To—	Set Signal Source To—	Set Radio Dial To—	Adjust— for maximum
1	Stator of C1A (RF Gang) through a 0.01 μf capacitor	455 kc	Gang fully open	(3rd IF) T5
2				(2nd IF) T4
3				(1st IF) T3

NOTES ARE A MATCHED PAIR
1. ALL RESISTANCE VALUES ARE IN OHMS. K=1000
2. CAPACITANCE VALUES LESS THAN 1.0 ARE IN μf.
3. VALUES 1.0 & ABOVE ARE IN pf. EXCEPT AS NOTED.
4. VOLTAGES MEASURED FROM POSITIVE(+) SIDE OF BATTERY (CHASSIS GROUND).

TERM. INDICATION FOR T1, T5, T4 & T5

TERM. INDICATION FOR T6 & T7

TERM. INDICATION FOR T2

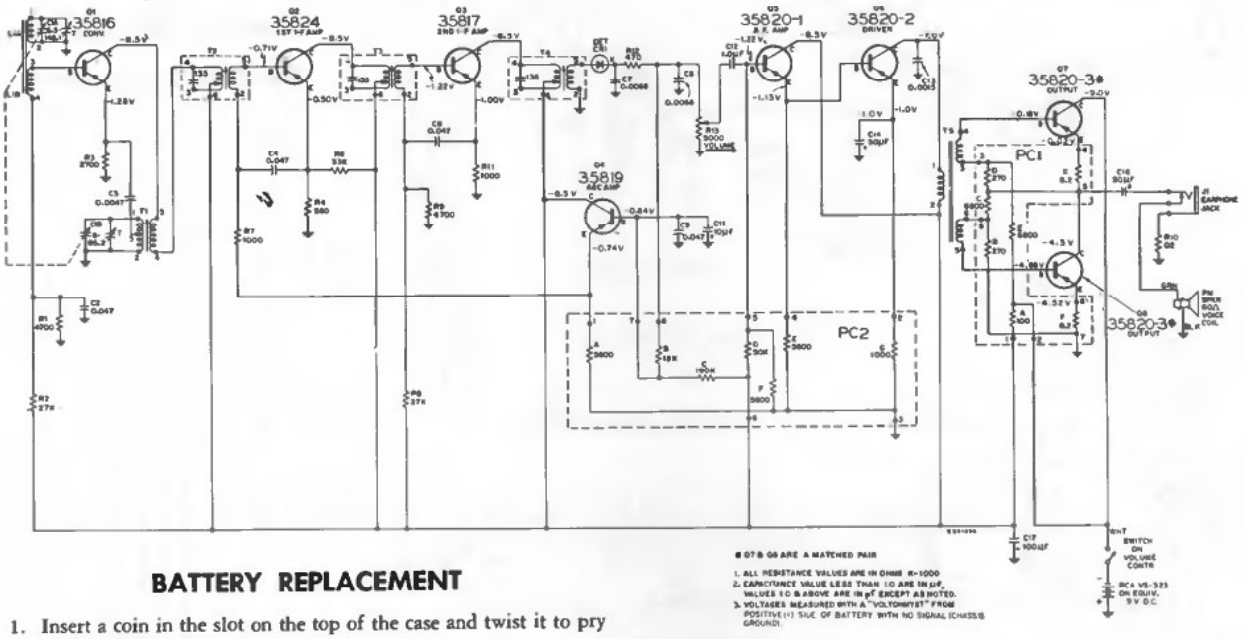
BASING DIAGRAM FOR Q1 THRU Q5

Chassis Layout (Wiring Side)

RCA VICTOR

RGH 12 Series

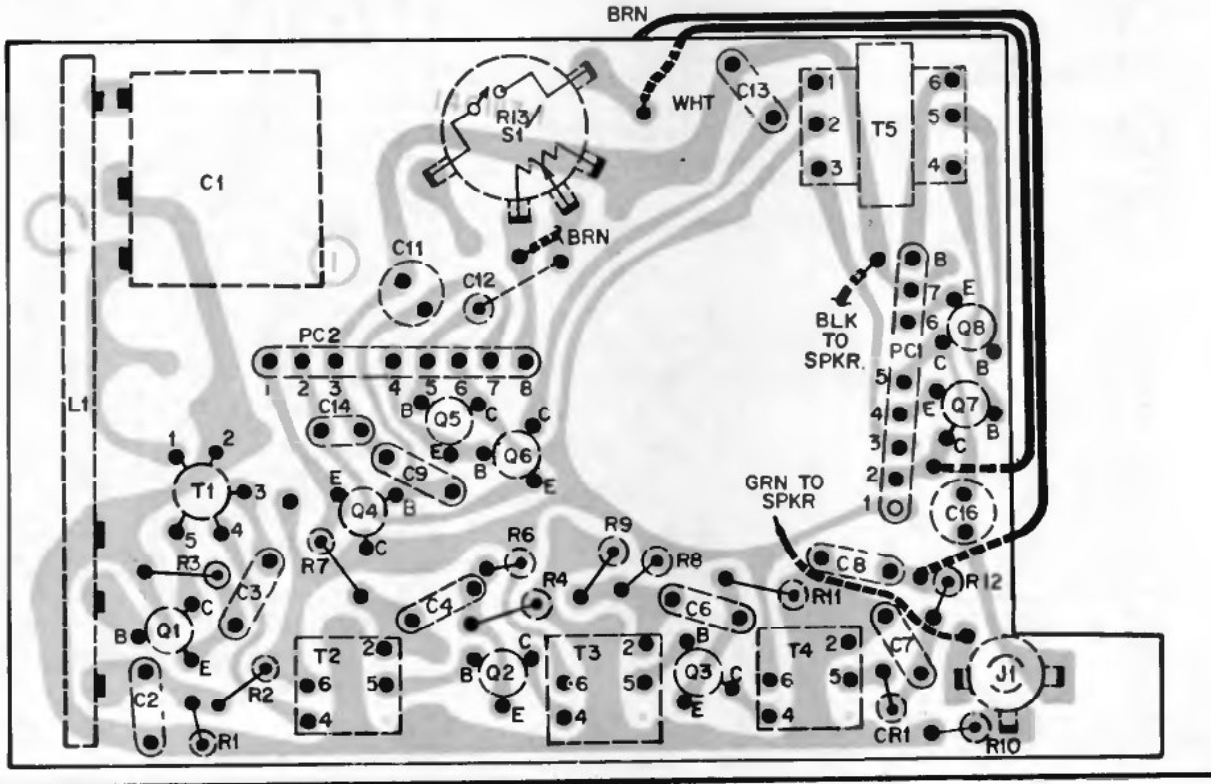
Chassis RC-1222A



BATTERY REPLACEMENT

1. Insert a coin in the slot on the top of the case and twist it to pry the front and back section apart.
2. Remove the back by swinging it open as though it were hinged at the bottom.
3. Replace the battery by snapping the connector off the old battery and onto the new one. (Note the polarized terminals.)
4. Reassemble the case by placing the bottom of the back section into the bottom of the front section and hinge the back section up into the front section and snap them together. (Small bosses on the top and bottom edges of the back section fit into small indentations inside of the edge of the front section.)

Collector	Q7 - -9.0v	Q8 - -4.5v
Base	Q7 - -4.68v	Q8- -0.18v
Emitter	Q7 - -4.52v	Q8 - -0.02v

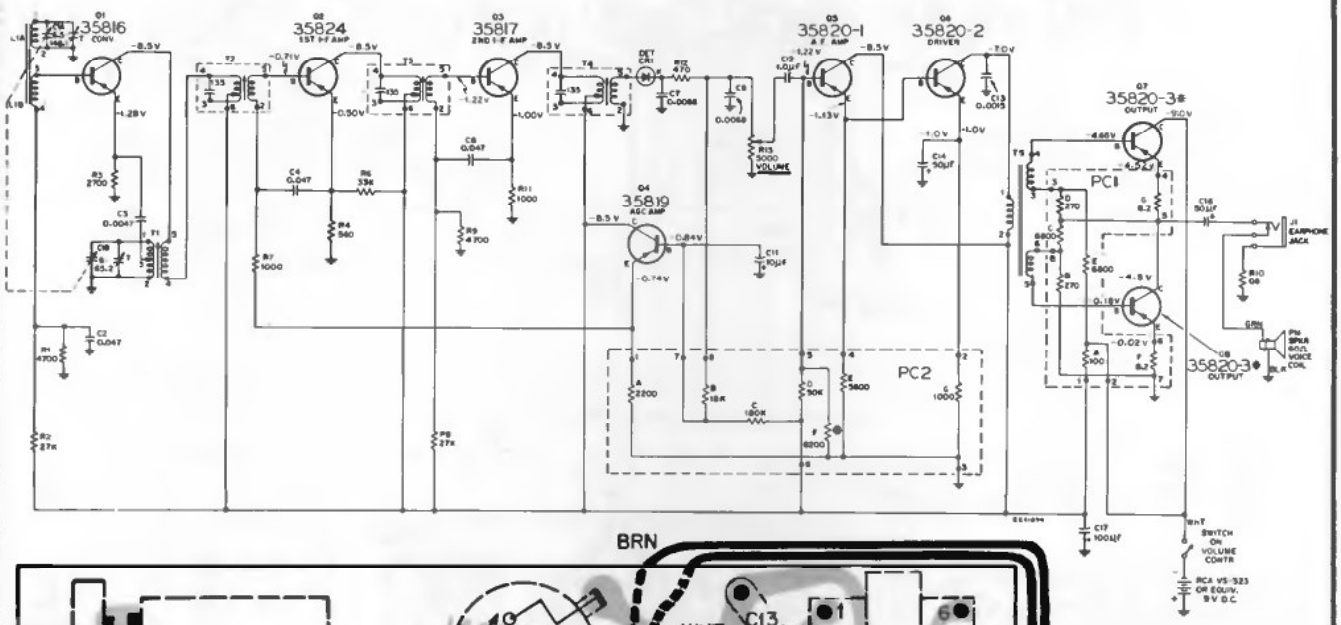


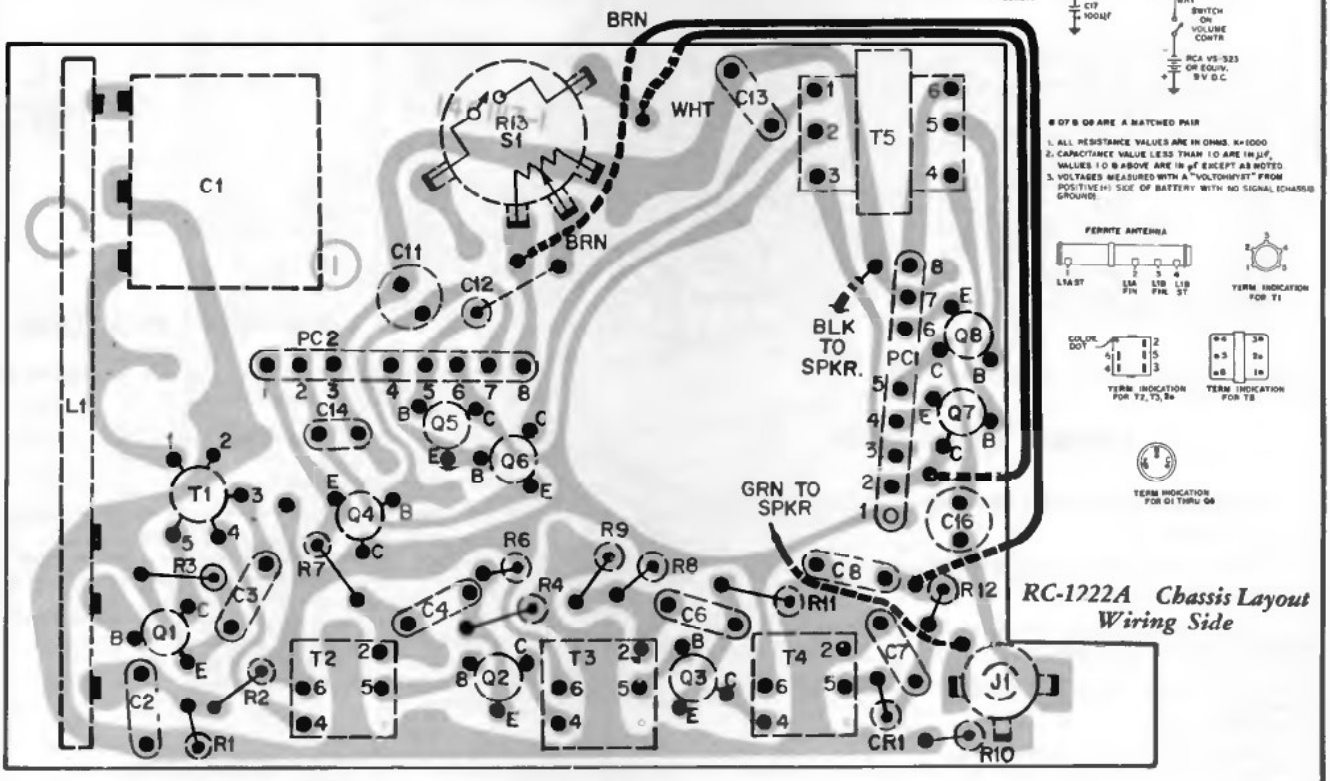
Wiring Side

RCA VICTOR

RHH 17 Series

Chassis RC-1222A





RC-1222A Chassis Layout Wiring Side

IF 455 KC.

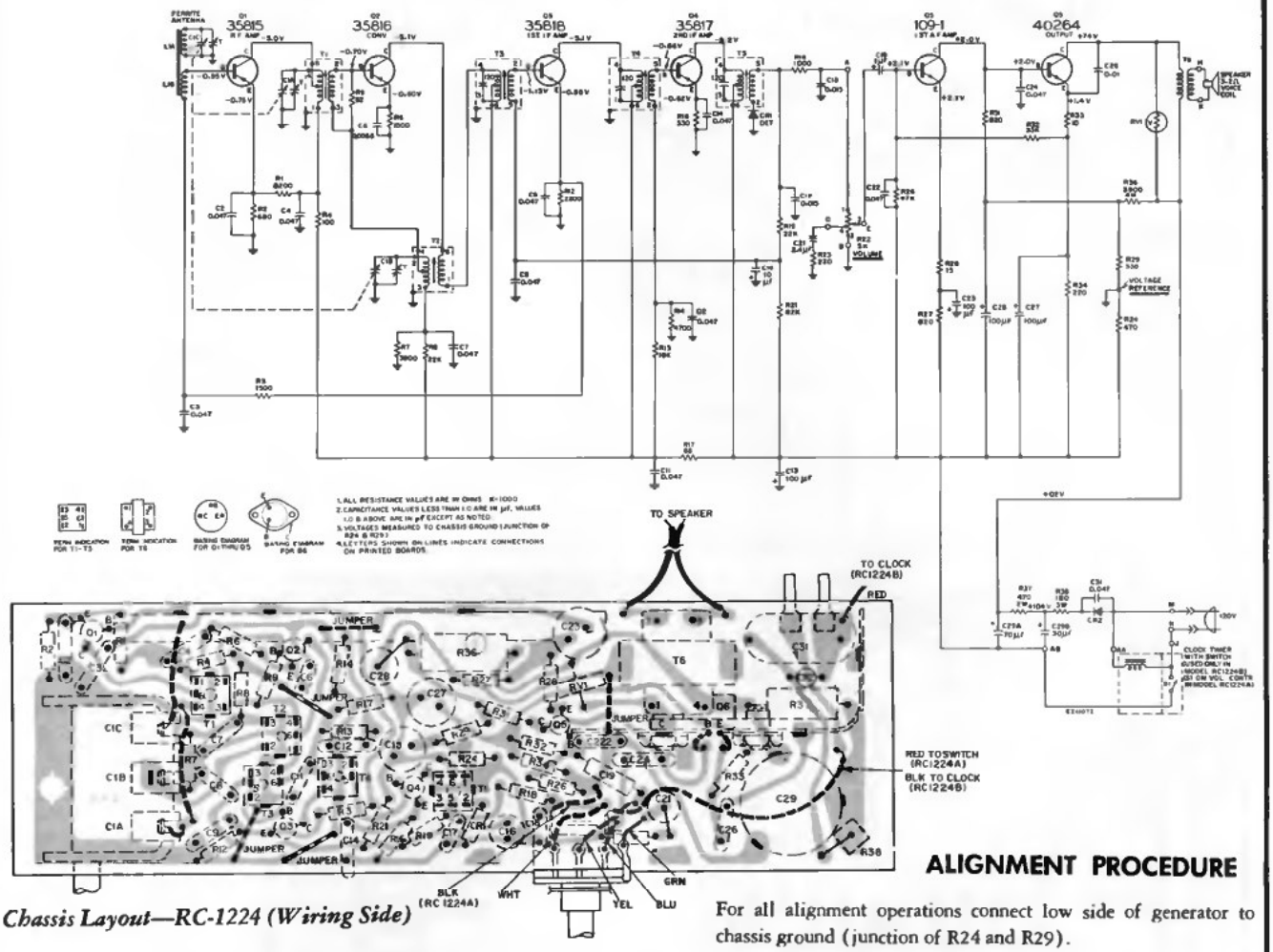
BATTERY REPLACEMENT

1. Insert a coin in the slot on the top of the case and twist it to pry the front and back section apart.
2. Remove the back by swinging it open as though it were hinged at the bottom.
3. Replace the battery by snapping the connector off the old battery and onto the new one. (Note the polarized terminals.)
4. Reassemble the case by placing the bottom of the back section into the bottom of the front section and hinge the back section up into the front section and snap them together. (Small bosses on the top and bottom edges of the back section fit into small indentations inside of the edge of the front section.)

CHASSIS REMOVAL

1. Open case as described under "Battery Replacement."
2. Remove three (3) screws holding circuit board to case.
3. Unfold wires to speaker.
4. Lift up transformer side of circuit board and slide board sideways out of case. (Speaker wires are long enough to permit chassis to be laid outside of case for servicing. If necessary to separate the chassis and speaker, the speaker leads should be unsoldered from the board to avoid damaging the voice coil leads of the speaker.)

RCA Victor Models RGA-39W, RGA-40W, Chassis RC-1224



Chassis Layout—RC-1224 (Wiring Side)

CHASSIS ACCESSIBILITY

1. Remove four Phillips head screws holding the rear cover. Remove the rear cover.
2. Remove two Phillips head screws retaining the tuning panel to the front of the cabinet.
3. Remove two Phillips head screws holding chassis retaining tabs located at rear of cabinet.
4. Slide chassis rearward to remove. If necessary, unsolder speaker leads.

To reassemble—reverse above procedure.

Oscillation on Strong Signal

In a strong signal area an oscillation may be set up which will manifest itself by clamping of the A.G.C. and by causing a reverse bias to exist between the base and emitter of Q3, the first IF transistor.

This condition may be corrected by installing a ferrite bead on the emitter lead of Q4, the second IF transistor. The installation of the bead is accomplished by unsoldering the emitter lead of Q4, slipping the lead through the hole in the bead, and reinserting and resoldering the lead in the board.

The ferrite bead is available from Parts and Accessories under stock number 116761.

ALIGNMENT PROCEDURE

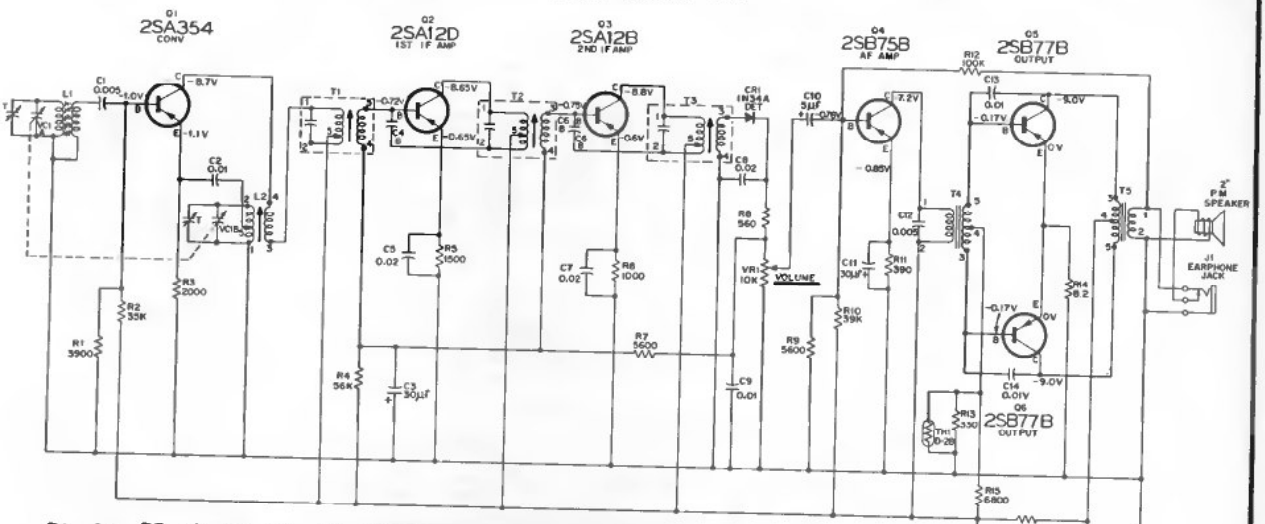
For all alignment operations connect low side of generator to chassis ground (junction of R24 and R29).

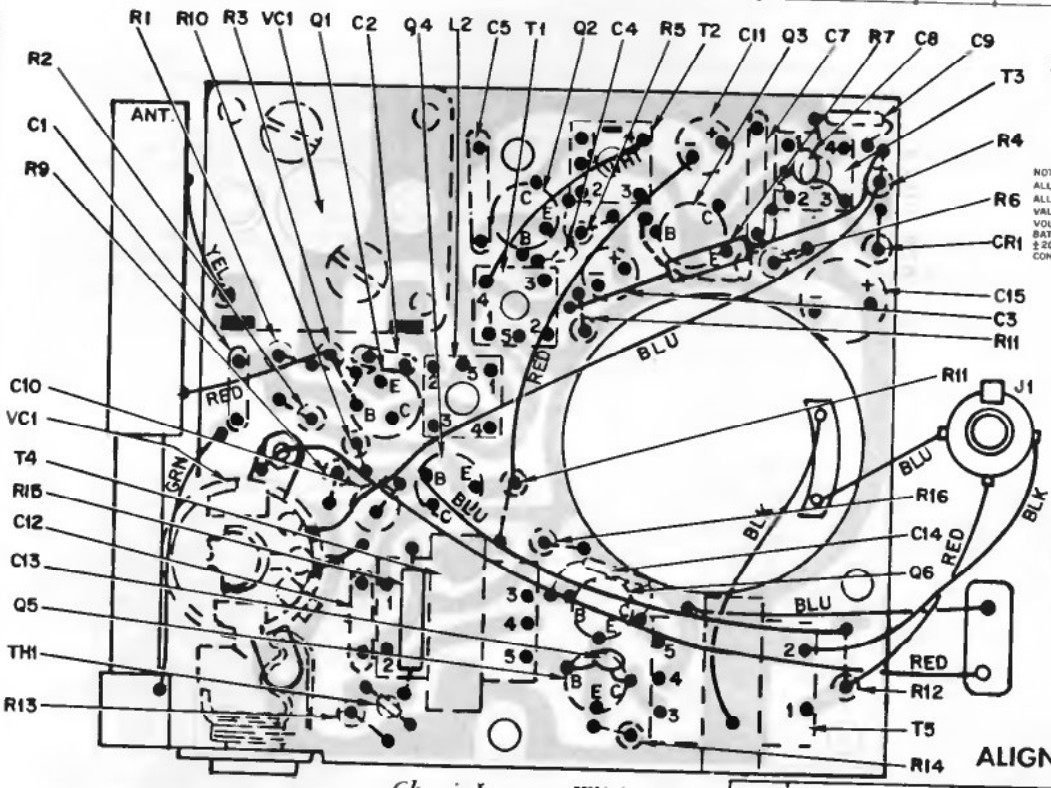
Connect output indicator across speaker voice coil.

Set volume control to maximum.

Step	Connect high side signal gen. to—	Set signal gen. to—	Set radio dial to—	Adjust—for maximum output
1	Stator of C1A (RF gang) through a 0.01 mfd capacitor	455 kc (Modulated)	tuning gang fully open	T5 (3rd IF)
2				T4 (2nd IF)
3				T3 (1st IF)
4	Short wire placed near antenna to radiate signal	1620 kc (Modulated)	1620 kc (gang open)	C1B-T (Osc. trimmer)
5		1400 kc (Modulated)	1400 kc	C1A-T (RF trimmer)
6				C1C-T (Ant. trimmer)
7		600 kc (Modulated)	600 kc (rock gang)	T2 (Osc. coil)
8				T1 (RF coil)
9	Repeat above steps as necessary for best sensitivity.			

RCA Victor Model RGH-10





Chassis Layout—Wiring Side

The "Souvenir" is a pockette type transistorized radio receiver designed for the reception of AM broadcasts in the range from 520 kc to 1680 kc. It is housed in a vertically styled case small enough to fit into a shirt pocket.

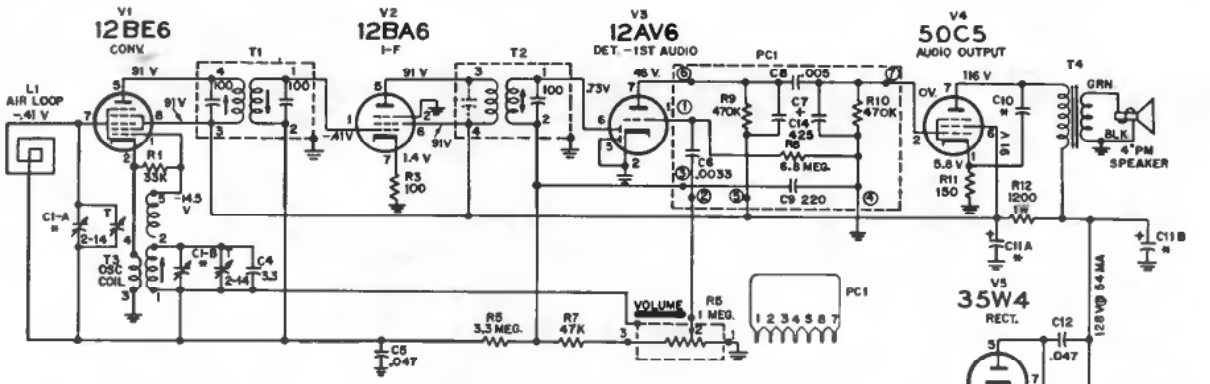
BATTERY REPLACEMENT

1. Grasp the front section of the case with the left hand and the back section with right hand with the thumbs near the volume control on the right side.
2. Separate the back from the front as though it were hinged at the left side.
3. Replace the battery by snapping the connector off the old battery and onto the new one.
4. Reassemble the case by placing the left side of the front and back sections together and closing them with a hinging action.

ALIGNMENT PROCEDURE

Step	Connect Signal Generator to—	Signal Gen. Output	Dial Pointer Setting	Adjust for Max. Output
1	Loop of wire placed near antenna for radiated signal	455 kc	Gong fully open	T3 (3rd I-F)
2				T2 (2nd I-F)
3				T1 (1st I-F)
4		Repeat Steps 1, 2, and 3		
5		1680 kc	Gong fully open	VC1B-T (Oscillator Trimmer)
6		1400 kc	1400 kc (rock gang)	VC1A-T (Antenna trimmer
7		600 kc	600 kc (rock gang)	L2 (Osc. Coil)
8		Repeat Steps 5, 6, and 7		

RCA Victor Models RGA-12Y, RGA-15A,R,Y, RGD-20N,R,Y, Chassis RC-1213A,-K



TUBE AND CHASSIS ACCESSIBILITY

1. DO NOT ATTEMPT TO REMOVE THE KNOBS. The tuning and volume control knobs are held captive to the cabinet by retainers on their shafts.
2. Remove the back cover by lifting the protrusions on the bottom of the back cover out of the slots in the base of the cabinet.
3. Unsolder speaker leads if necessary. Avoid putting a strain on the speaker leads.
4. Remove two chassis retainers (screws or clips), one at the volume control and one of the left end mounting.
5. Grasp tuning capacitor and volume control, and pull chassis out of knobs and mounting slots.

To reassemble—reverse above procedure.

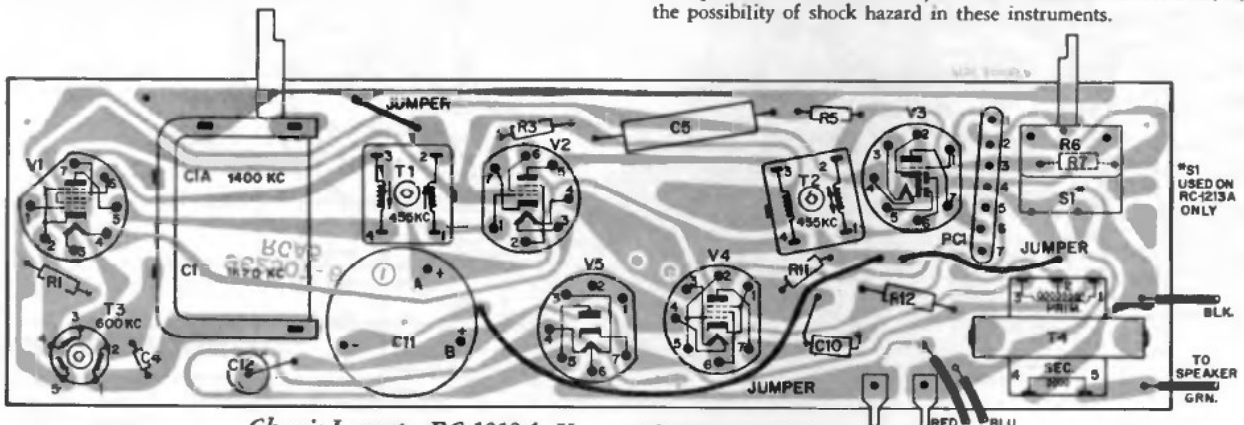
*	CHASSIS RC-1213 A	CHASSIS RC-1213 K
C1-A	12.5 366.5	12.5 366.5
C1-B	10.0 99.3	10.4 112.5
C10	0.01	0.015
C11-A	50 μf	30 μf
C11-B	30 μf	50 μf

RESISTANCE VALUES ARE IN OHMS. K= 1000

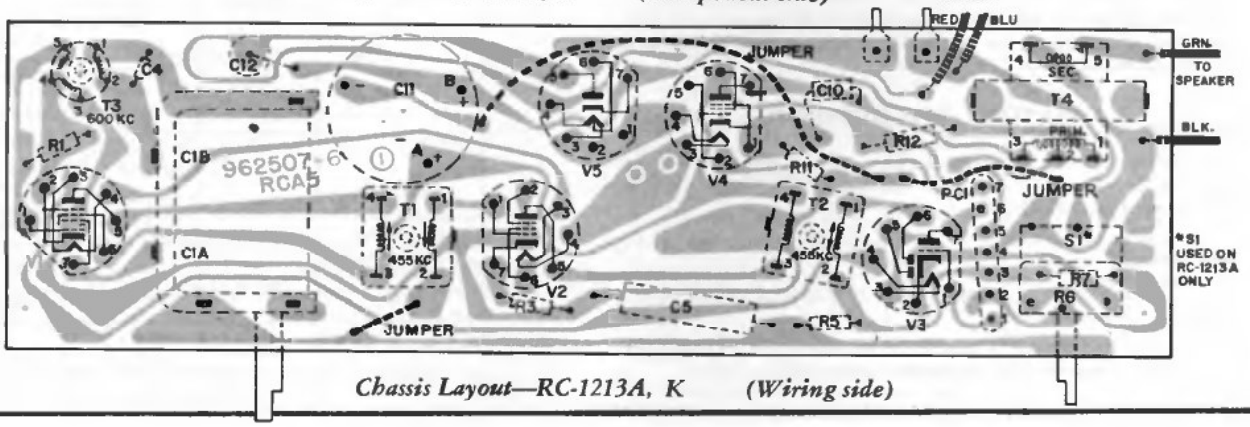
ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN μf, VALUES 1.0 & ABOVE ARE IN μμf (μμf), EXCEPT AS NOTED.

VOLTAGES MEASURED TO COMMON NEGATIVE (⏚) WITH "VOLTOHMYST" & SHOULD HOLD WITHIN ± 20% WITH RATED LINE VOLTAGE.

The RGA 12 and RGA 15 are table model radio receivers and the RGD 20 is a table model clock radio designed for the reception of AM broadcasts. These instruments are housed in one piece plastic cabinets with "snap-in" masonite back covers to which is attached the loop antenna and power cord interlock connector. With this mode of power connection, the line cord is disconnected from the chassis thus removing all power when the back cover is removed and the chassis is exposed. The use of captive knobs, which cannot be separated from the cabinet, and line cord disconnect removes the possibility of shock hazard in these instruments.



Chassis Layout—RC-1213A, K (Component side)

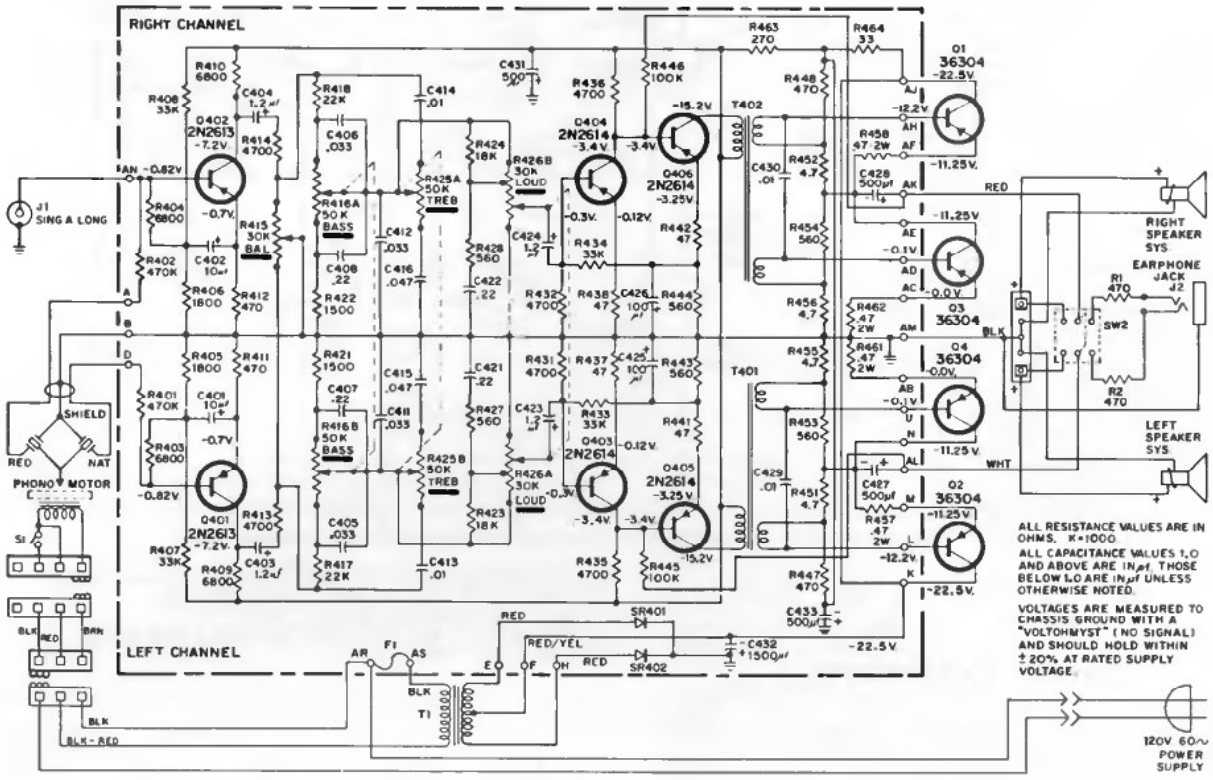


Chassis Layout—RC-1213A, K (Wiring side)

RCA VICTOR

Model VGP 72

Chassis RS-216A

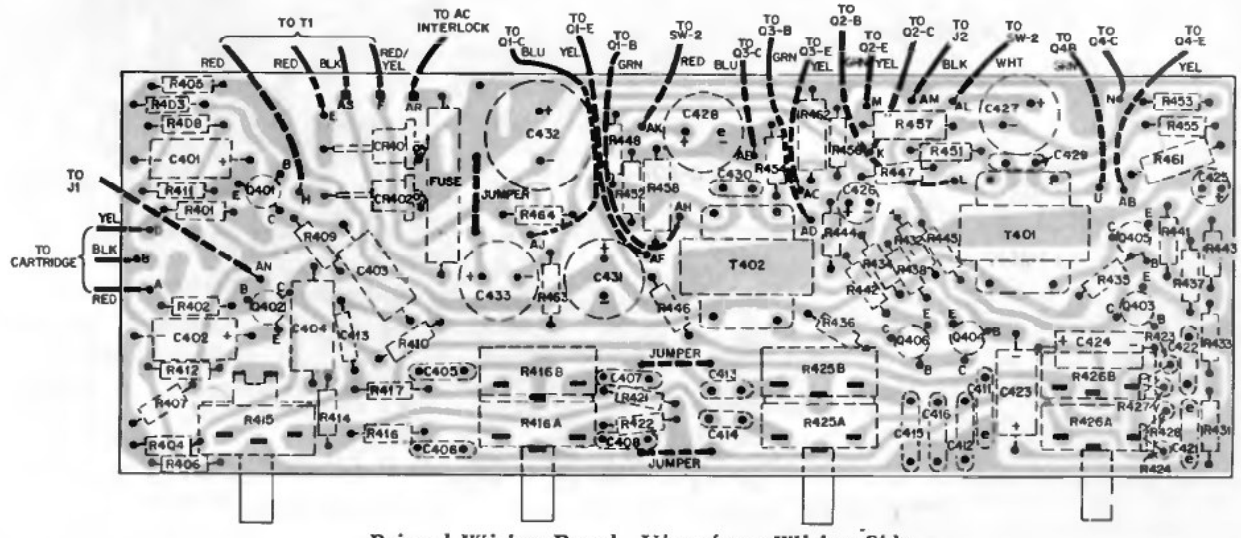


(Models VGE-15M, VGP-83 Chassis RS-219A, -B, are similar to this material)

CHASSIS REMOVAL

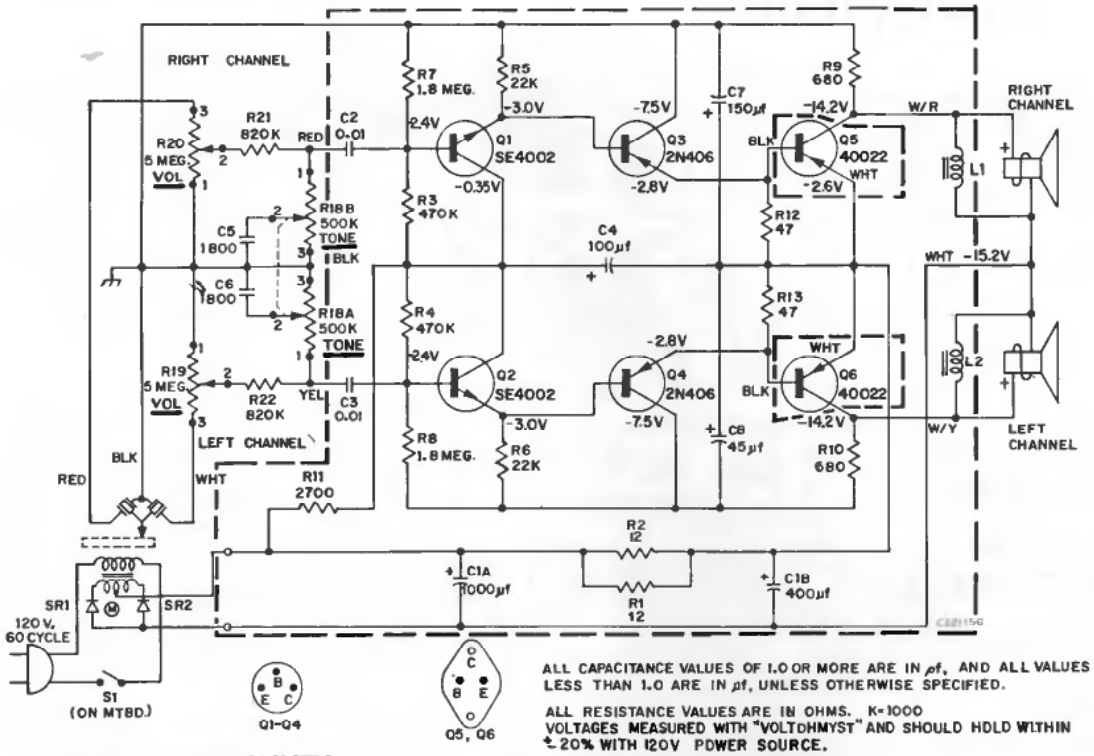
The top of the record changer compartment comprises the complete chassis. It rests on and is secured to a ledge at the front and is held by screws at the rear. The recommended procedure for its removal is as follows:

1. Remove knobs.
2. Pull record changer drawer down.
3. Remove four (4) plated screws holding front of chassis to horizontal ledge located inside of compartment at front of top.
4. Remove wires, running down each back corner of compartment, from holding clips.
5. Remove four (4) painted screws holding rear of chassis to rear of instrument. (Hold chassis—top of compartment—to prevent its falling.)
6. Chassis may then be lowered and removed.
7. Disconnect speaker cables and lift chassis out of case.



Printed Wiring Board—View from Wiring Side

RCA Victor Models VGE-03W, VGP-25E,T, VGP-34E,G, VGP-43E,T



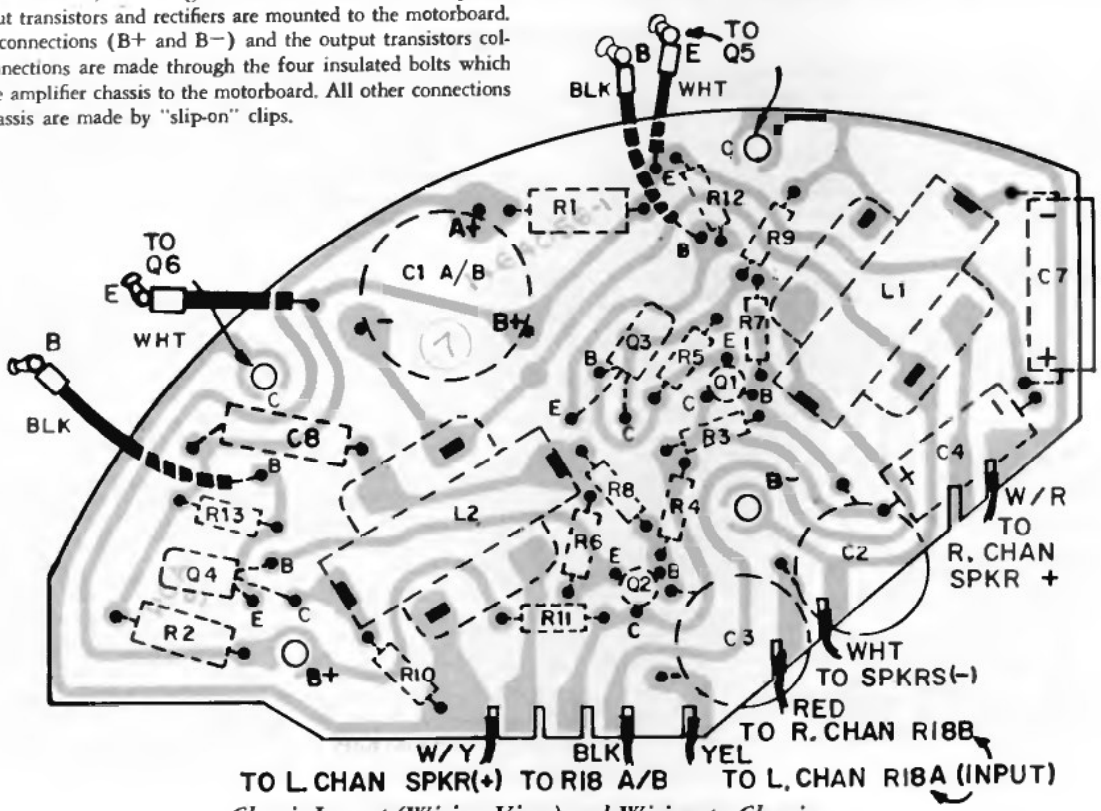
ALL CAPACITANCE VALUES OF 1.0 OR MORE ARE IN µf, AND ALL VALUES LESS THAN 1.0 ARE IN µf, UNLESS OTHERWISE SPECIFIED.

ALL RESISTANCE VALUES ARE IN OHMS. K=1000
VOLTAGES MEASURED WITH "VOLTOHMYST" AND SHOULD HOLD WITHIN ±20% WITH 120V POWER SOURCE.

CHASSIS ACCESSIBILITY

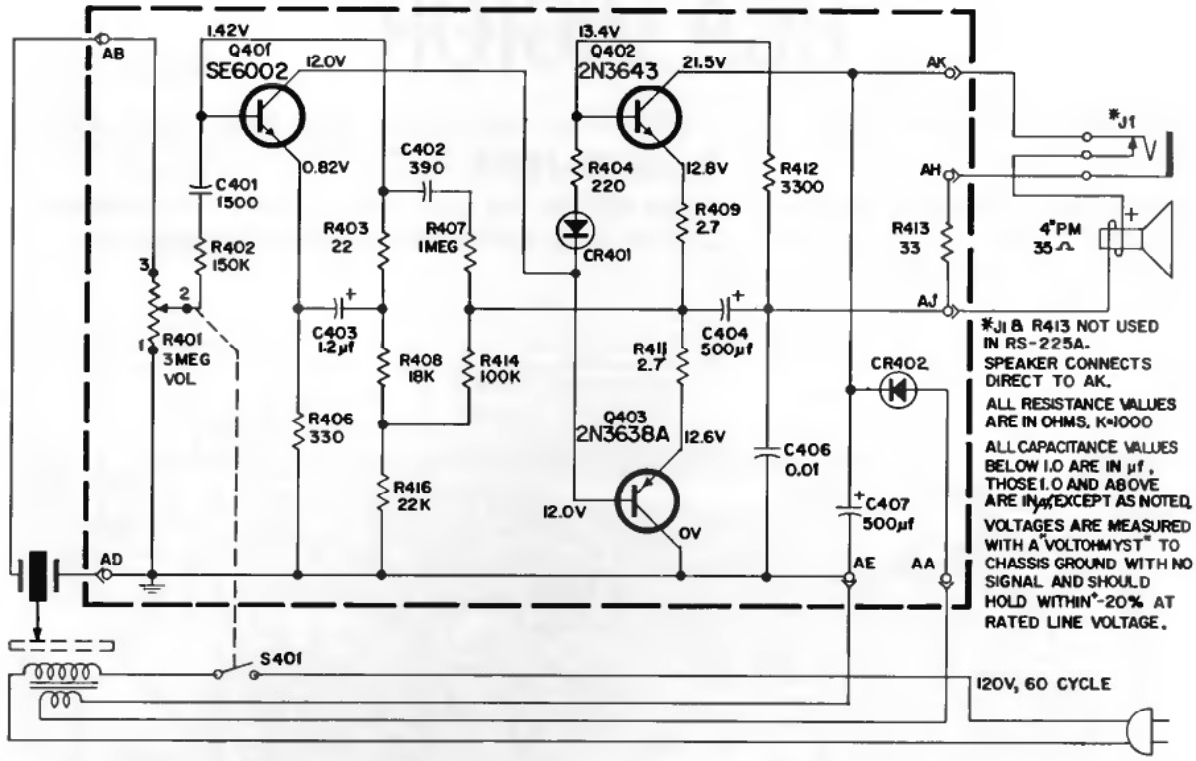
The "Solid Copper Circuit" transistorized amplifier chassis is physically mounted to the motorboard under the turntable with the large components, such as the transformers and filter capacitors, protruding downward through cutouts in the motorboard. When the turntable is removed, the wiring side of the circuit board is exposed. The output transistors and rectifiers are mounted to the motorboard.

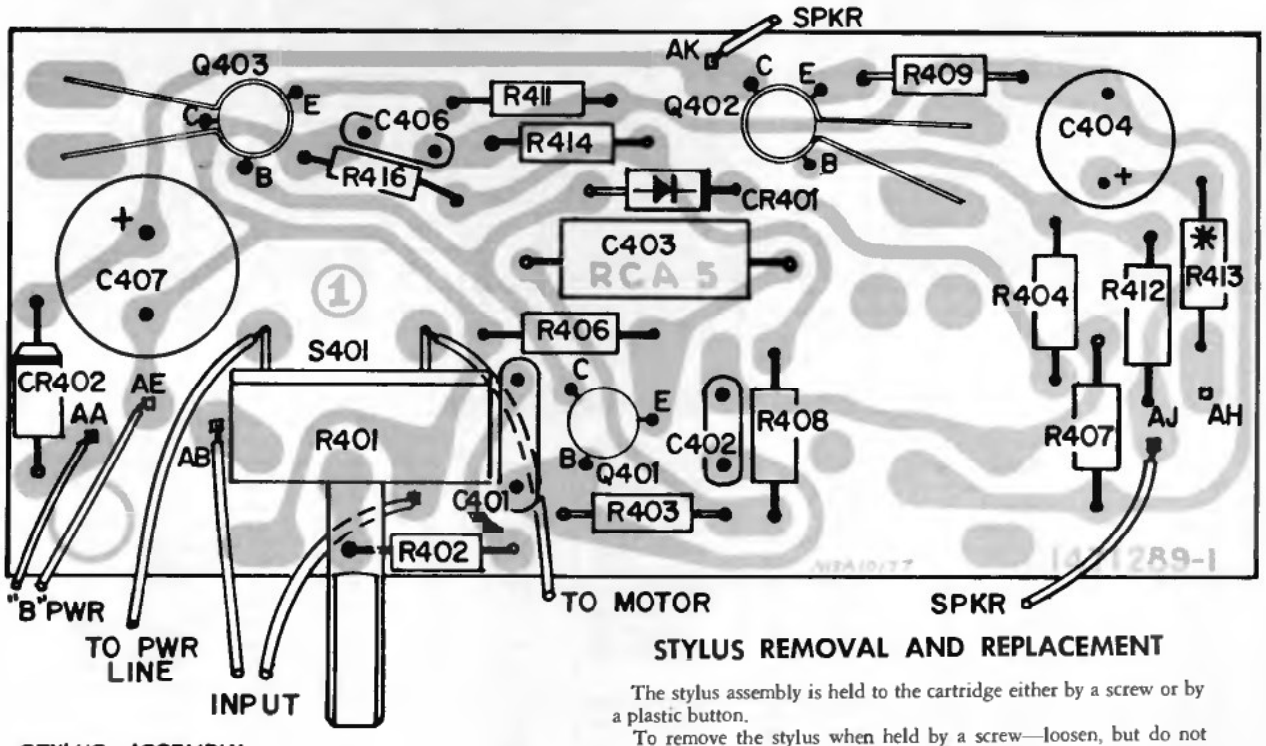
Power connections (B+ and B−) and the output transistors collector connections are made through the four insulated bolts which mount the amplifier chassis to the motorboard. All other connections to the chassis are made by "slip-on" clips.

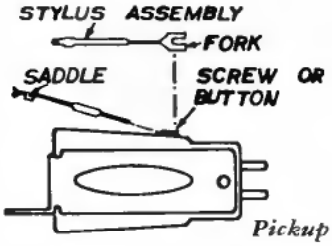


Chassis Layout (Wiring View) and Wiring to Chassis

RCA Victor Models VGP-05A,E,N, VGP-08A,G,N,Y, Chassis RS-225,-A







Pickup and Stylus Assembly

STYLUS REMOVAL AND REPLACEMENT

The stylus assembly is held to the cartridge either by a screw or by a plastic button.

To remove the stylus when held by a screw—loosen, but do not remove the screw, and slide the stylus assembly out from under it. To replace the stylus—slide the spade end of the stylus assembly under the head of the screw, making certain that it is fully seated, and tighten screw. Check that stylus saddle is seated on the yoke.

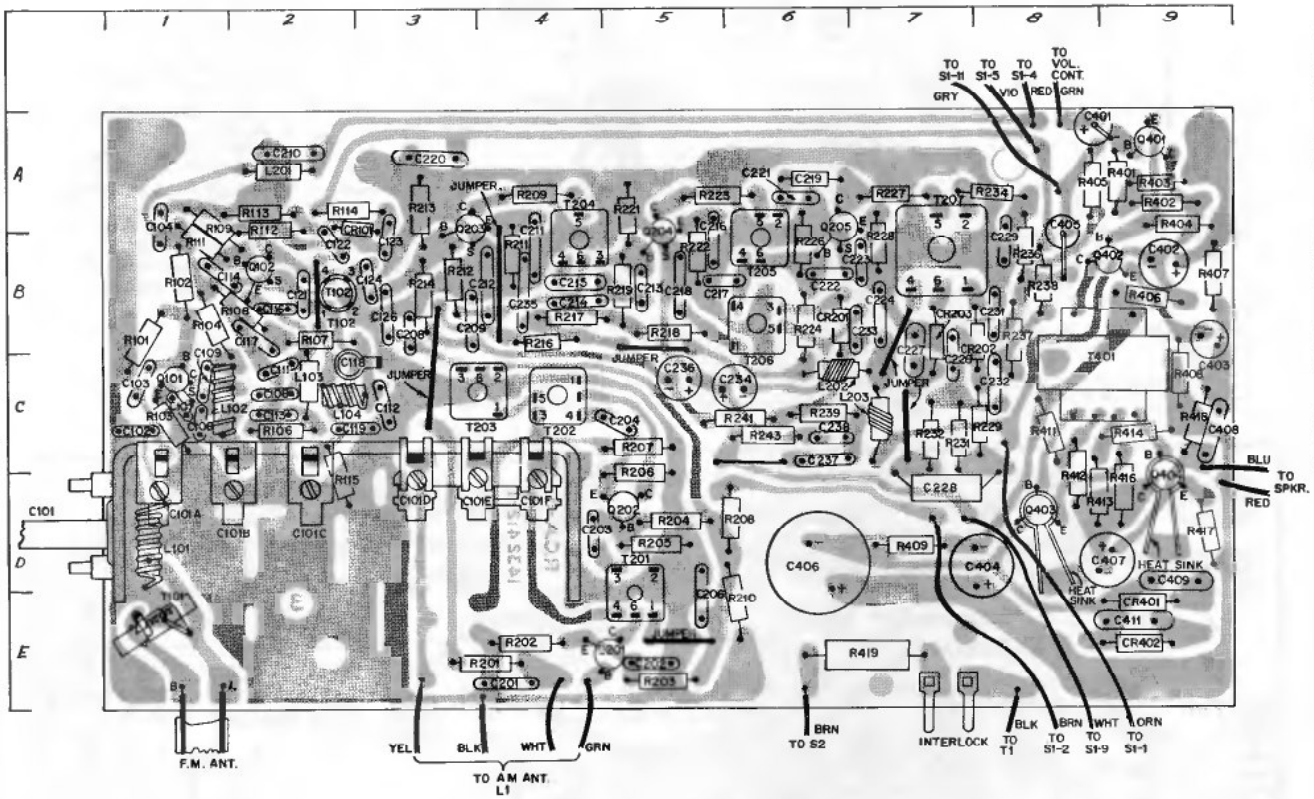
To remove the stylus when held by a plastic button—grasp the stylus assembly with a pair of tweezers or needle nose pliers and pull it out from under the plastic button. To replace the stylus—push the spade end of the assembly under the plastic button making certain that it is fully seated. Check that the stylus saddle is seated on the yoke.

RCA VICTOR

Models RHC-29W, RHC-33W, RHC-37L, RHC-41W, RHC-45F, RHC-49S

Chassis RC-1220A

Data on these sets presented below and on the next three pages. Alignment is on the next page at right. Circuit diagram and other service material are on the two pages following.



Chassis Layout—Component View

C101.....D1
C101A....D1
C101B....D2
C101C....D2
C101D....D3
C101E....D4
C101F....D4
C102.....C1
C103.....C1
C104.....A1
C106.....C1
C107.....C1
C108.....C2
C109.....C1
C111.....C2
C112.....C3
C113.....C2
C114.....B1
C116.....B2
C117.....B2
C118.....C2
C119.....C2
C121.....B2
C122.....B2
C123.....B3
C124.....B3
C126.....B3

C201.....E4
C202.....E5
C203.....D4
C204.....C5
C206.....E5
C208.....B3
C209.....B3
C210.....A2
C211.....A4
C212.....B4
C213.....B5
C214.....B4
C215.....B4
C216.....A5
C217.....B5
C218.....B5
C219.....A6
C220.....A3
C221.....A6
C222.....B6
C223.....B7
C224.....B7
C226.....C7
C227.....B7
C228.....D7
C229.....B8
C231.....B8
C232.....CB
C233.....B7
C234.....C6
C235.....B4
C236.....C5
C237.....C6
C238.....C6

C401.....A8
C402.....B9
C403.....B9
C404.....D8
C405.....AB
C406.....D6
C407.....D9
C408.....C9
C409.....D9
C411.....E9

CR101....A3
CR201....B6
CR202....BB
CR203....B7
CR401....E9
CR402....E9

L101.....D1
L102.....C1
L103.....C2
L104.....C2
L201.....A2
L202.....C6
L203.....C7

Q101.....C1
Q102.....B2
Q201.....E5
Q202.....D5
Q203.....A3
Q204.....A5
Q205.....A6
Q401.....A9
Q402.....B9
Q403.....DB
Q404.....D9

R101.....B1
R102.....B1
R103.....C1
R104.....B1
R106.....C2
R107.....B2
R108.....B2
R109.....A1
R111.....B1
R112.....A2
R113.....A2
R114.....A2
R115.....D2

R201.....E4
R202.....E4
R203.....E5
R204.....D5
R205.....D5
R206.....C5
R207.....C5
R208.....D6
R209.....A4
R210.....E6
R211.....B4
R212.....B3
R213.....A3
R214.....B3
R216.....B4
R217.....B4
R21B.....B5
R219.....B5
R221.....A5
R222.....B5
R223.....A5
R224.....B6
R226.....B6
R227.....A7
R228.....B7
R229.....CB
R231.....C7
R232.....C7
R234.....A8
R236.....BB
R237.....BB
R238.....B8
R239.....C6
R241.....C6
R243.....C6

R401.....A9
R402.....A9
R403.....A9
R404.....A9
R405.....A8
R406.....B9
R407.....B9
R408.....C9
R409.....D7
R411.....C8
R412.....D8
R413.....D9
R414.....C9
R416.....D9
R417.....D9
R418.....C9
R419.....E7

T101.....E1
T102.....B2
T201.....D5
T202.....C4
T203.....C3
T205.....B6
T206.....B6
T207.....A7
T401.....C8

RCA Victor Chassis RC-1220A, Continued

AM-FM ALIGNMENT PROCEDURE

INSTRUMENTS REQUIRED

Signal Sources

1. RF Signal Generator (RCA WR-50A or equivalent)
2. TV/FM Sweep Generator (RCA WR-69A or equivalent)
3. Marker Generator (RCA WR-99A or equivalent)

Output Indicators

4. Vacuum-Tube Voltmeter (RCA WV-98B or equivalent)
5. Oscilloscope (RCA WO-91A or equivalent)

Tools

6. Hex head alignment tool
7. Thin fibre shaft alignment tool

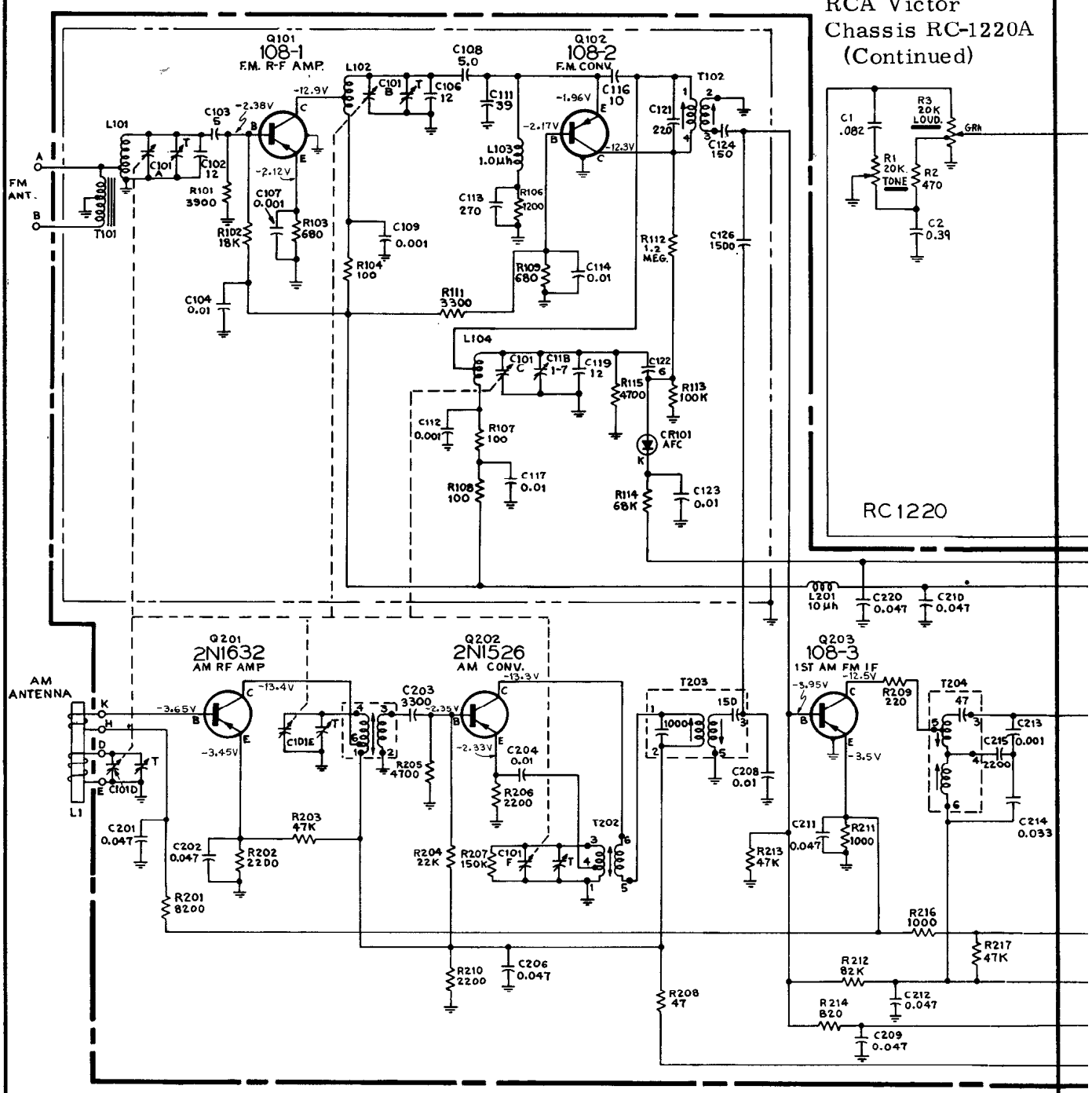
GENERAL ALIGNMENT CONDITIONS

1. Connect low side of signal source and output indicator to chassis ground as close as possible to high side connection unless otherwise specified.
2. Signal input must be kept as low as possible to avoid AVC action. (Set output indicator to highest sensitivity.)
3. Markers must be accurate. (Crystal controlled or checked against a crystal calibrator.) The 10.7 mc marker used in each section of the FM alignment must be the same. (Generator dial should not be moved.)
4. Marker insertion and amplitude must not distort the oscilloscope trace.
5. Standard modulation is 400 cycle at 30% amplitude.

STEP	Signal Source— Connected to—	Set Signal to—	Set Radio Dial to—	Output Indicator— Connected to—	Adjust	Adjust for—	STEP
1	Set Radio Function Switch on "AM"						1
2	RF Generator— Q202 Base through a 0.01μf capacitor	455 kc (modulated)	Quiet point on band near 1600 kc	V.T.V.M.— Across speaker voice coil	T206 (3rd AM IF)	Maximum	2
3					T204 Tap (2nd AM IF)		3
4					T203 Top & Bottom (1st AM IF)		4
5	RF Generator— A standard radiating loop or short piece of wire placed near AM antenna	1620 kc (modulated)	gang fully open		C101F-T (Oscillator Trim)		5
6		1400 kc (modulated)	1400 kc		C101D-T (Antenna Trim)		6
7					C101E-T (RF Trimmer)		7
8		600 kc (modulated)	600 kc (rack gang)		T201 (RF Trans.)		8
9					T202 (Oscillator Coil)		9
10	Repeat steps 2 through 4 and steps 5 through 9 as necessary to obtain maximum sensitivity on stations						10
11	Set Radio Function Switch on "FM"						11
12	RF Generator— Q205 Base through a 0.01μf capacitor	10.7 mc (unmodulated)	Quiet point on band	V.T.V.M.— Across R232	T207 Bottom core (Pri.) (Ratio Detector)	Maximum	12
13				V.T.V.M.— (Set to center zero) Junction of C231, R236, R237	T207 Top core (Sec.) (Ratio Detector)	Zero Voltage (cross-over)	13
14	Repeat steps 12 and 13 as necessary to obtain a balanced "S" curve with ±200 kc linearity						14
15	TV/FM Sweep Gen.— Q204 Base through a 0.01μf capacitor	240 kc Sweep centered at 10.7 mc with markers at 10.6, 10.7 & 10.8 mc	Quiet point on band	Oscillascope— with signal Tracing Probe (RCA WG-302A)	*Detune T204 Bottom	Maximum symmetrical response centered at 10.7 mc with 10.6 and 10.8 mc at equal heights within 10% and approx. 40% down slope (limits-between 30%-60%)	15
16					T205 Top & Bottom (3rd FM IF)		16
17	TV/FM Sweep Gen.— Q203 Base through a 0.01μf capacitor			Q205 Base (adjust signal input to obtain a 30 mv P-P reading on oscilloscope)	*Detune T102 Top		17
18					T204 Bottom (2nd FM IF)		18
19	TV/FM Sweep Gen.— One FM antenna terminal				T102 Top & Bottom (1st FM IF-in tuner)		19
20	Repeat steps 15 thru 19 as necessary to obtain specified response						20
21	Marker Generator— across FM antenna terminals through a matching network if necessary	108.5 mc	gang fully open	V.T.V.M.— Across speaker voice coil	C118 (Oscillator Trimmer)	Maximum	21
22					C101B-T (RF-Trimmer)		22
23					C101A-T (Antenna Trimmer)		23
24	Repeat steps 21, 22 and 23 as necessary to obtain maximum sensitivity on stations						24

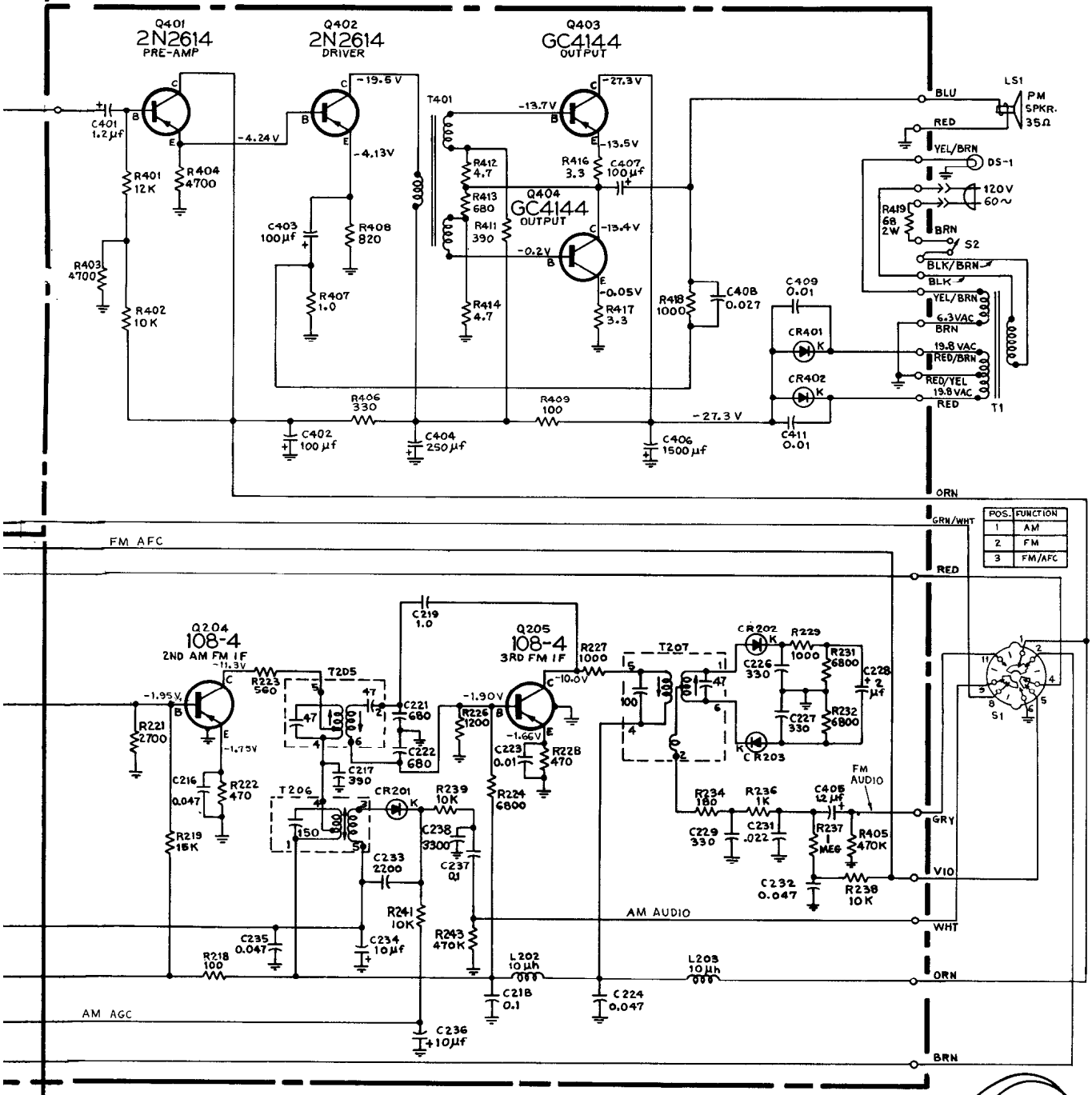
* When detuning T204 & T102, the specified core should be adjusted until no action appears in the trace with further adjustment of the core (2 or more turns). Opposite core will have little or no effect after specified core is fully detuned.

RCA Victor
Chassis RC-1220A
(Continued)



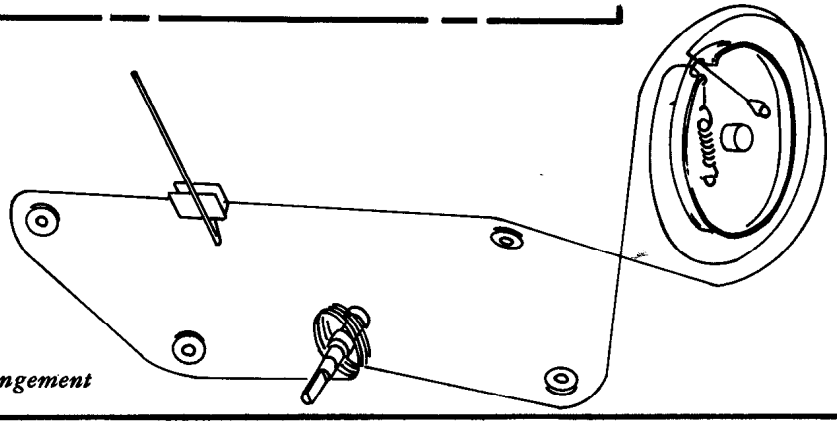
SYMBOL NO.	STOCK NO.	DESCRIPTION
		CAPACITORS:
C118	115092	trimmer—1-8 pf—for C101C
C119	115658	ceramic—12 pf, ±5%, 500 v
C121	115660	mica—220 pf, ±5%, 100 v
C122	115656	ceramic—6 pf, ±10%, 500 v
C123	115091	ceramic—0.01 µf, ±20%, 100 v
C124	115661	mica—150 pf, ±5%, 100 v
C126		ceramic—1500 pf, ±10%, 500 v
C201		ceramic—0.047 µf, +100—20%, 100 v
C202		ceramic—0.047 µf, +100—20%, 100 v
C203		ceramic—3300 pf, ±20%, 100 v
C204		ceramic—0.01 µf, ±20%, 100 v
C206		ceramic—0.047 µf, +100—20%, 100 v
C208		ceramic—0.01 µf, ±20%, 100 v
C209		ceramic—0.047 µf, +100—20%, 100 v
C210		ceramic—0.047 µf, +100—20%, 100 v
C211		ceramic—0.047 µf, +100—20%, 100 v
C212		ceramic—0.047 µf, +100—20%, 100 v
C213		ceramic—1000 pf, ±10%, 500 v
C214		ceramic—0.033 µf, ±20%, 100 v
C215		ceramic—2200 pf, ±10%, 500 v
C216		ceramic—0.047 µf, +100—20%, 100 v
C217	105310	ceramic—390 pf, ±10%, 500 v
C218	112969	ceramic—0.1 µf, ±20%, 50 v
C219	115666	headed lead—1 pf, ±5%, 500 v
C220		ceramic—0.047 µf, +100—20%, 100 v
C221		ceramic—680 pf, ±10%, 500 v
C222		ceramic—680 pf, ±10%, 500 v
C223		ceramic—0.01 µf, +100—20%, 100 v
C224		ceramic—0.047 µf, +100—20%, 100 v
C226		ceramic—330 pf, ±10%, 500 v
C227		ceramic—330 pf, ±10%, 500 v
C228	111370	electrolytic—2 µf, +250—10%, 50 v
C229		ceramic—330 pf, ±10%, 500 v
C231		ceramic—0.022 µf, ±20%, 100 v
C232		ceramic—0.047 µf, +100—20%, 100 v
C233		ceramic—2200 pf, ±20%, 100 v
C234	115100	electrolytic—10 µf, +100—10%, 10 v
C235		ceramic—0.047 µf, +100—20%, 100 v
C236	115100	electrolytic—10 µf, +100—10%, 10 v
C237		mylar—0.1 µf, ±20%, 100 v
C238		ceramic—3300 pf, ±20%, 100 v
C401	115180	electrolytic—1.2 µf, ±20%, 15 v
C402	115803	electrolytic—100 µf, +100—10%, 15 v
C403	115617	electrolytic—100 µf, +250—10%, 6 v

RCA Victor Chassis RC-1220A Schematic Diagram, Continued



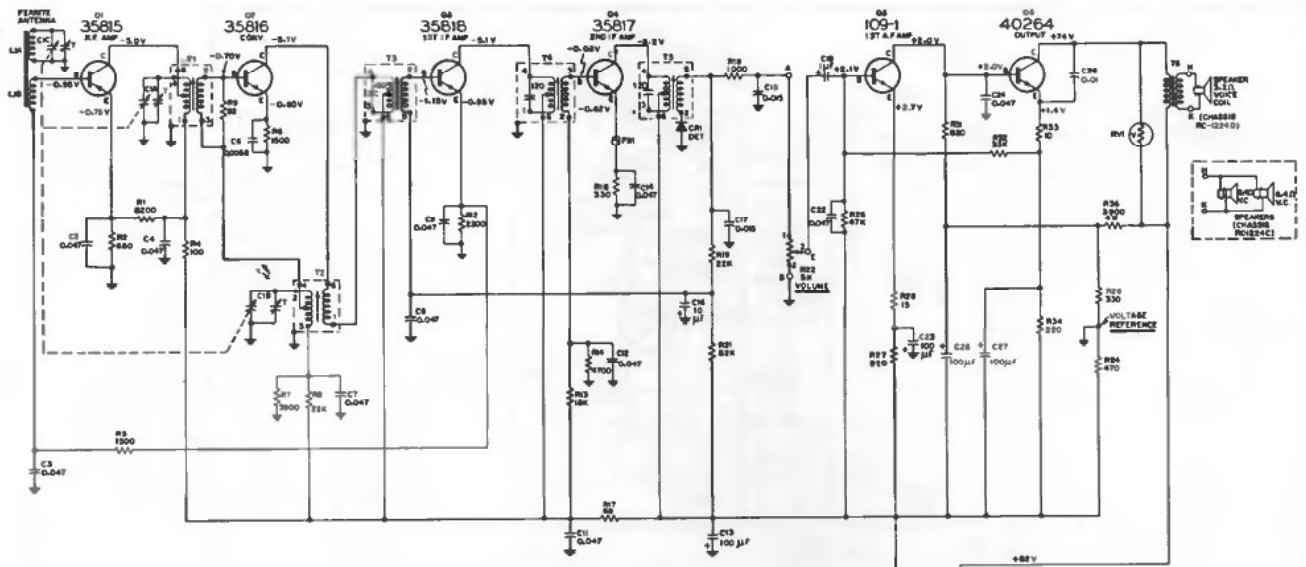
NOTES:
UNLESS OTHERWISE SPECIFIED

1. ALL CAPACITOR VALUES LESS THAN 1.0 ARE µf VALUES 1.0 & ABOVE ARE Pf.
2. ALL RESISTORS 1/2 W & VALUES ARE IN OHMS. K = 1000
3. ALL CONNECTORS SHOWN FROM WIRED SIDE.
4. CONNECTOR PIN NUMBERS FOR REF. ONLY.
5. ALL SECTIONS OF SWITCH S1 ARE VIEWED FROM FRONT, WITH SWITCH IN EXTREME C.C.W. POSITION.
6. VOLTAGES MEASURED WITH "VOLTOHMYST" & SHOULD HOLD WITHIN ± 20% AT RATED LINE VOLTAGE. MEASURED TO CHASSIS GROUND "B+" NO SIGNAL APPLIED.

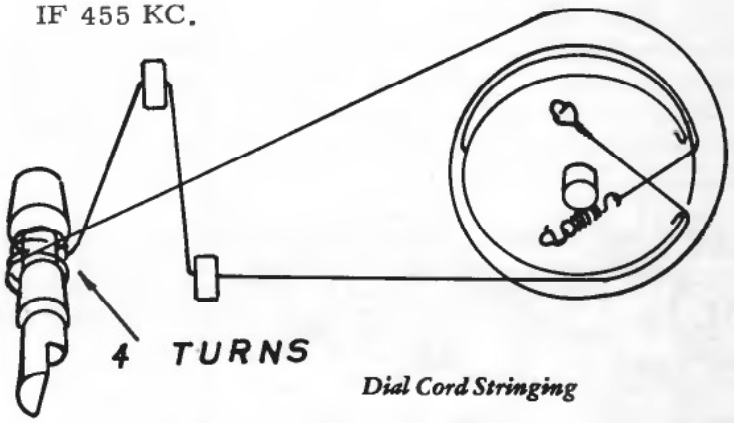


Dial Cord Arrangement

RCA Victor Model RHA-39W, Chassis RC-1224C; Model RHD-29W, Chassis RC-1224D



IF 455 KC.



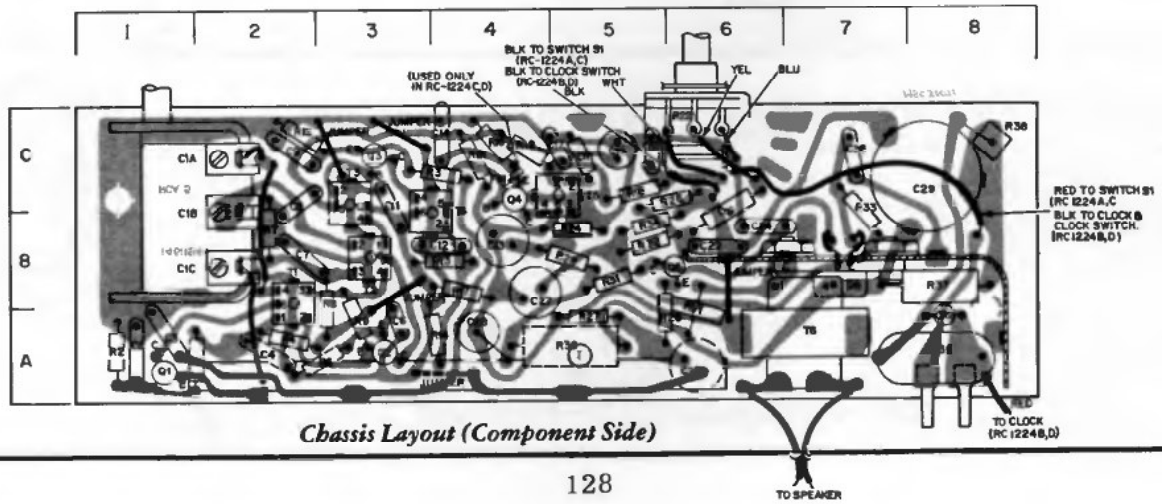
Dial Cord Stringing

1. ALL RESISTANCE VALUES ARE IN OHMS K=1000
2. CAPACITANCE VALUES LESS THAN 1.0 ARE IN µF, VALUES 1.0 & ABOVE ARE IN pF EXCEPT AS NOTED.
3. VOLTAGES MEASURED TO CHASSIS GROUND (JUNCTION OF R24 & R28)
4. LETTERS SHOWN ON LINES INDICATE CONNECTIONS ON PRINTED BOARDS.

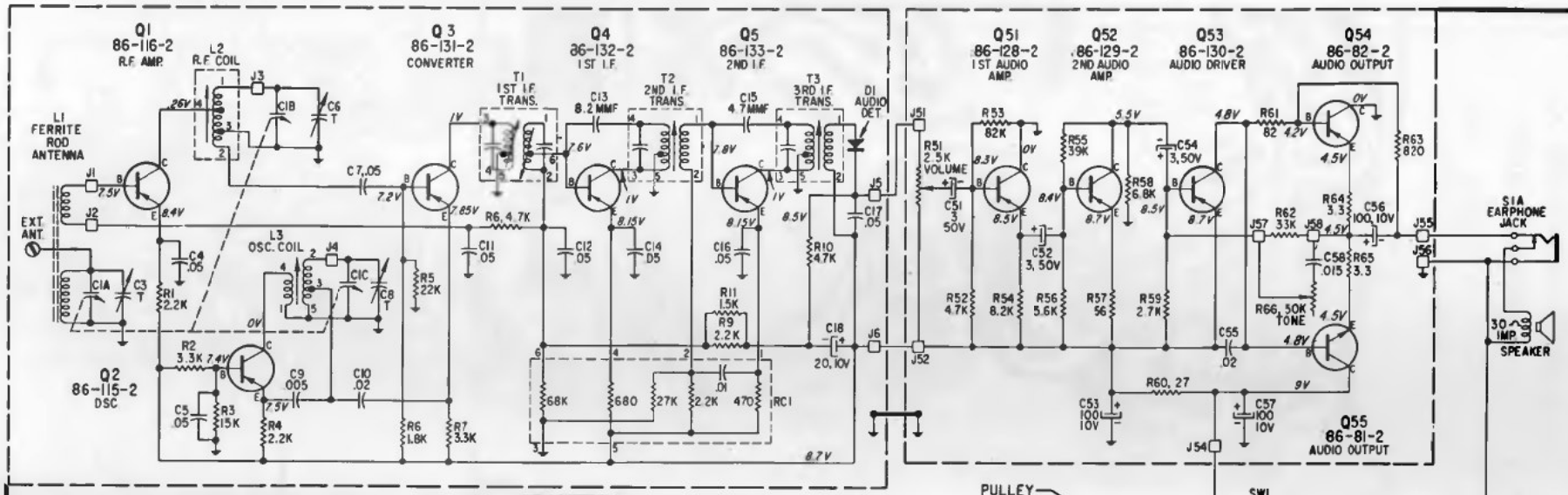
CLOCK TIMER WITH SWITCH (USED ONLY IN CHASSIS RC-1224D) (S1 ON VOL. CONTR. (R1) ON CHASSIS RC-1224C)

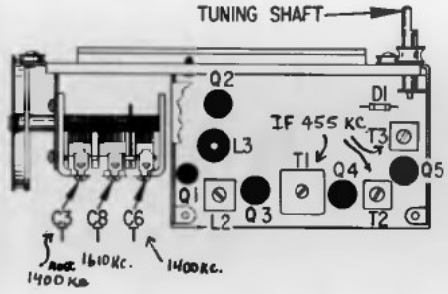
TERM. INDICATION FOR T1-T5 | TERM. INDICATION FOR T6 | BASING DIAGRAM FOR Q1 THRU Q5 | BASING DIAGRAM FOR Q6

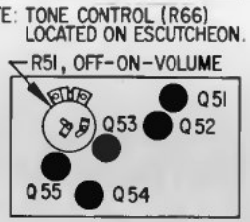
C1.....1C	C16.....5C	CR1.....5C	R1.....1A	R17.....4B	R33.....7B
C2.....1A	C17.....5C	CR2.....8A	R2.....1A	R18.....5B	R34.....5B
C3.....1A	C18.....5C		R3.....4C	R19.....4C	R36.....5A
C4.....2A	C19.....6B	FB1.....4C	R4.....2A	R21.....4C	R37.....8B
C6.....3A	C22.....6B		R6.....3A	R22.....6C	R38.....8C
C7.....2B	C23.....6A	Q1.....1A	R7.....2B	R24.....5B	RV1.....6A
C8.....2C	C24.....6B	Q2.....3A	R8.....3A	R26.....6B	
C9.....2C	C26.....7C	Q3.....3C	R9.....3A	R27.....5A	T1.....2A
C11.....3B	C27.....4B	Q4.....4C	R12.....2C	R28.....5A	T2.....3B
C12.....4B	C28.....4A	Q5.....6B	R13.....4B	R29.....5B	T3.....3B
C13.....4B	C29.....BB	Q6.....7B	R14.....4A	R31.....5B	T4.....4B
C14.....4C	C31.....BA		R16.....4C	R32.....5B	T5.....5B
					T6.....7A

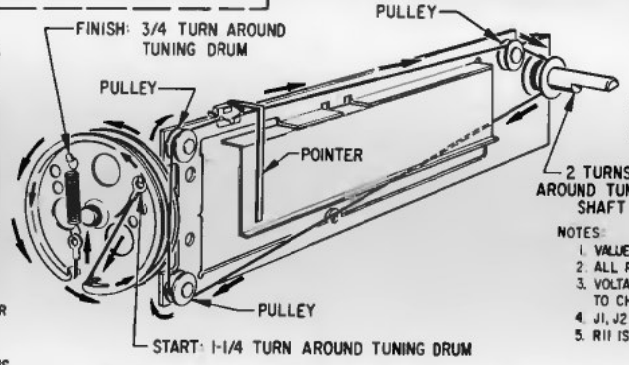


Chassis Layout (Component Side)





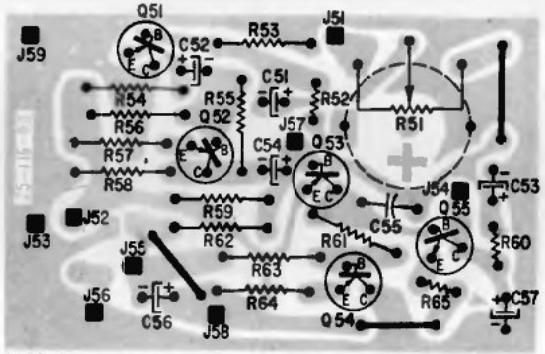




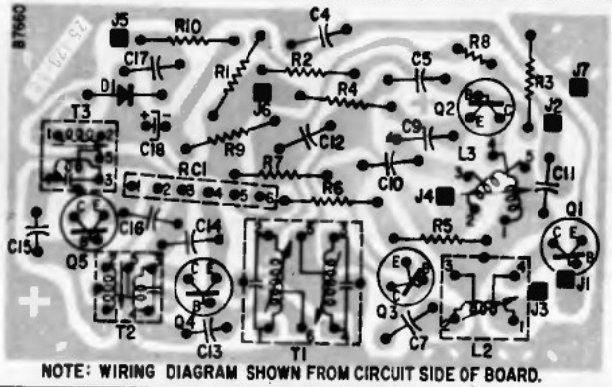
NOTES:
1. VALUES OF CAPACITORS IN MFD UNLESS OTHERWISE NOTED.
2. ALL RESISTORS ARE 1/2 WATT, UNLESS OTHERWISE NOTED.
3. VOLTAGE READINGS ARE TAKEN WITH "VTVM" FROM POINT INDICATED TO CHASSIS GROUND, NO SIGNAL INPUT.
4. J1, J2 ETC. INDICATES TERMINAL CONNECTION ON CIRCUIT BOARDS.
5. R11 IS WIRED ON CIRCUIT SIDE OF BOARD.

NOTE: *STRINGING DIAGRAM SHOWN WITH TUNING GANG FULLY CLOSED.*

AMPLIFIER CIRCUIT BOARD DIAGRAM



NOTES:
1. WIRING DIAGRAM IS SHOWN FROM CIRCUIT SIDE OF BOARD.
2. SOLID LINES INDICATE WIRE JUMPERS



NOTE: WIRING DIAGRAM SHOWN FROM CIRCUIT SIDE OF BOARD.

TUNER CIRCUIT BOARD DIAGRAM

SEARS, ROEBUCK and CO.

RADIO CHASSIS No. 528.63131

USED IN MODELS:

6223 6224
6225

SEARS, ROEBUCK AND CO.

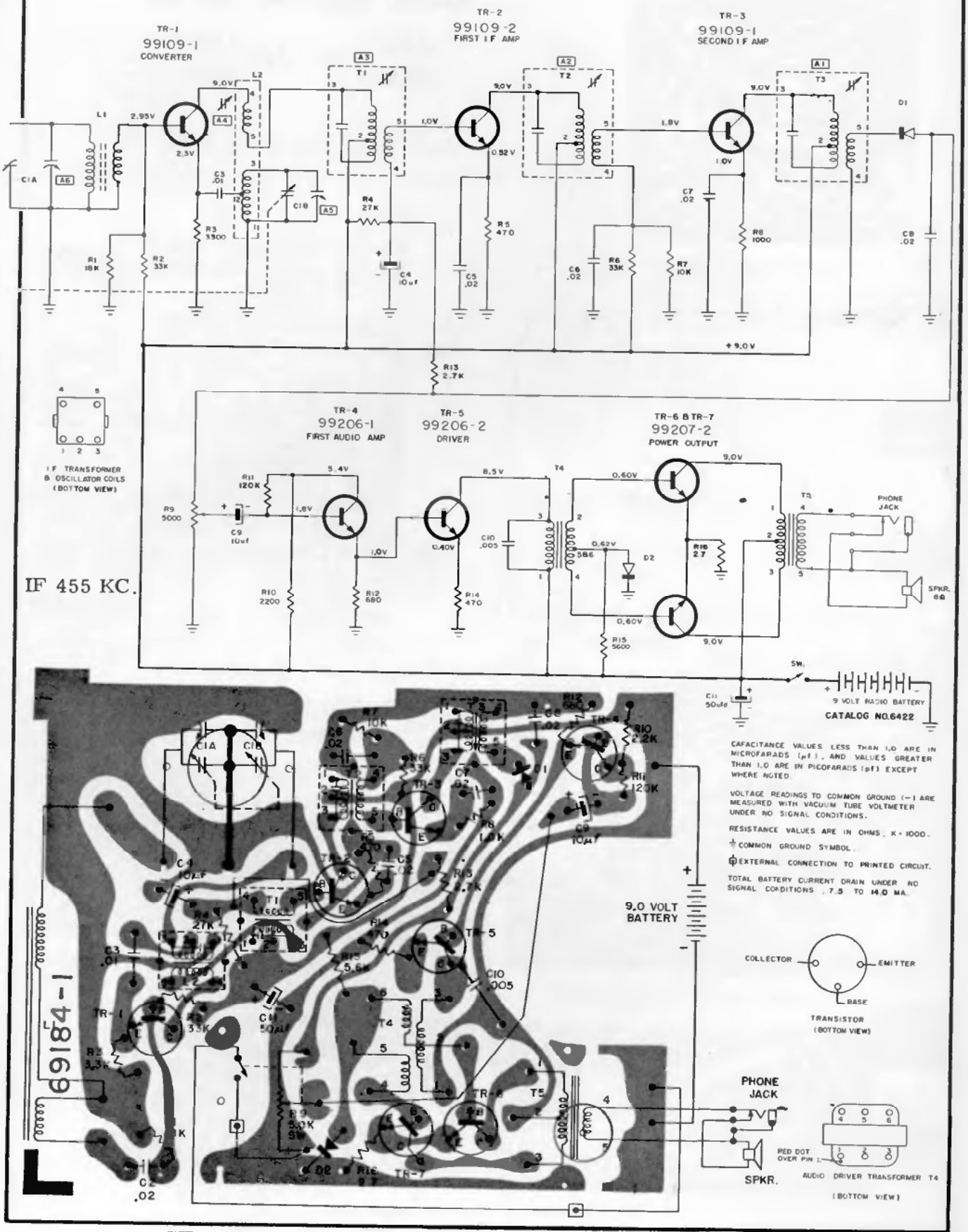
CHASSIS 132.91301

Used in Models 6208, 6209, 6210, 6211

CIRCUIT BOARD DIAGRAM
(Bottom View)

LOCATION OF PARTS

SEARS, ROEBUCK Chassis No. 132.90301, Models 6202, 6203, 6204



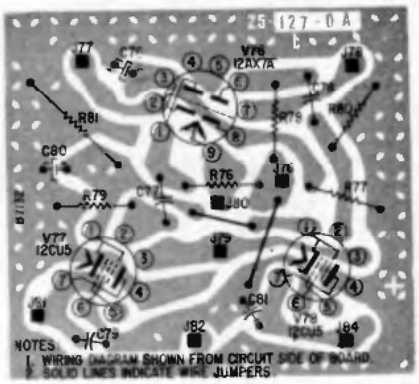
CIRCUIT BOARD DIAGRAM
(Bottom View)

SEARS, ROEBUCK and CO.

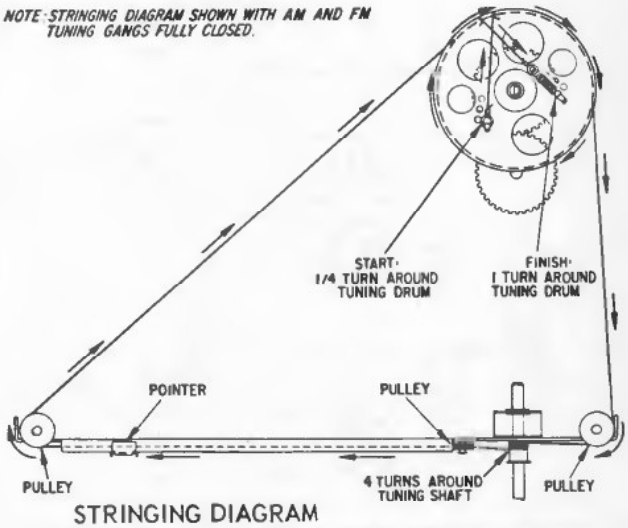
RADIO CHASSIS NOS. 528. { 63470 / 63471

Used in Models 6055, 6056

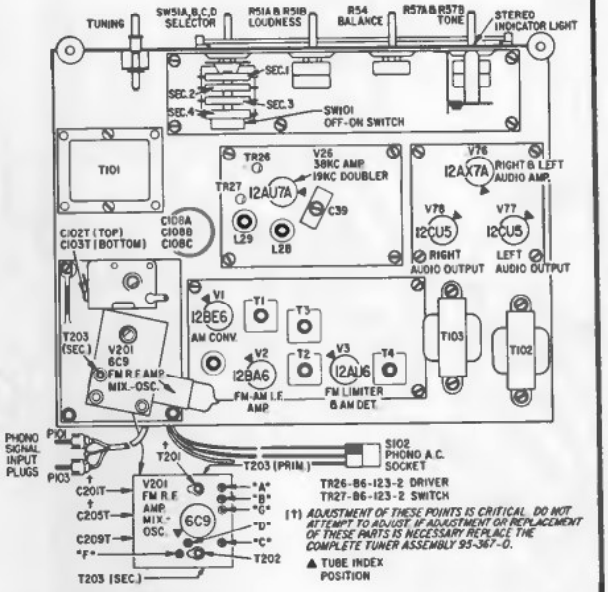
(See page at right for schematic diagram)



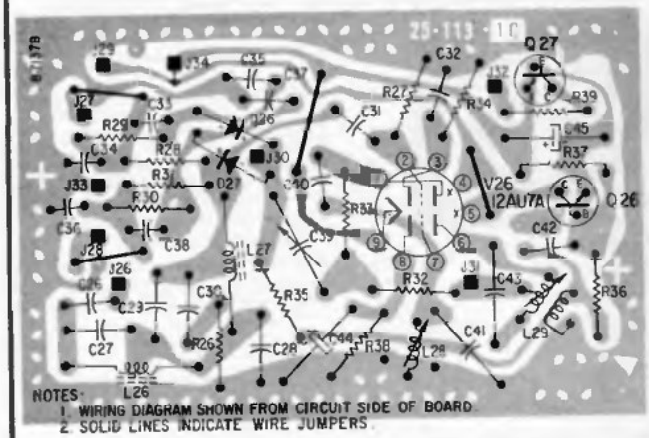
AUDIO CIRCUIT BOARD



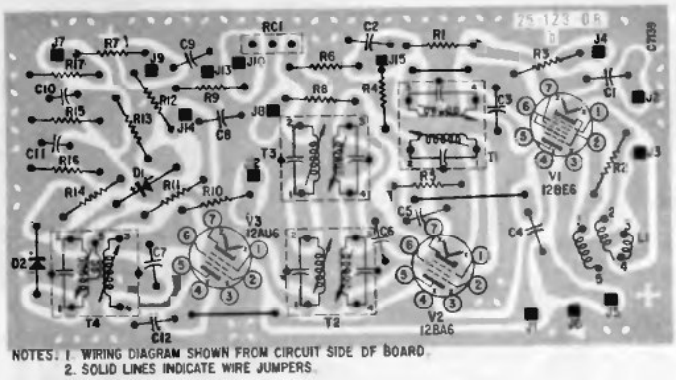
STRINGING DIAGRAM



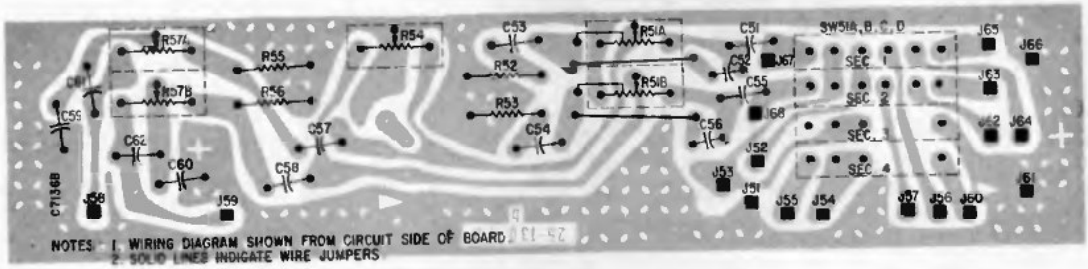
CHASSIS VIEW



MULTIPLEX CIRCUIT BOARD



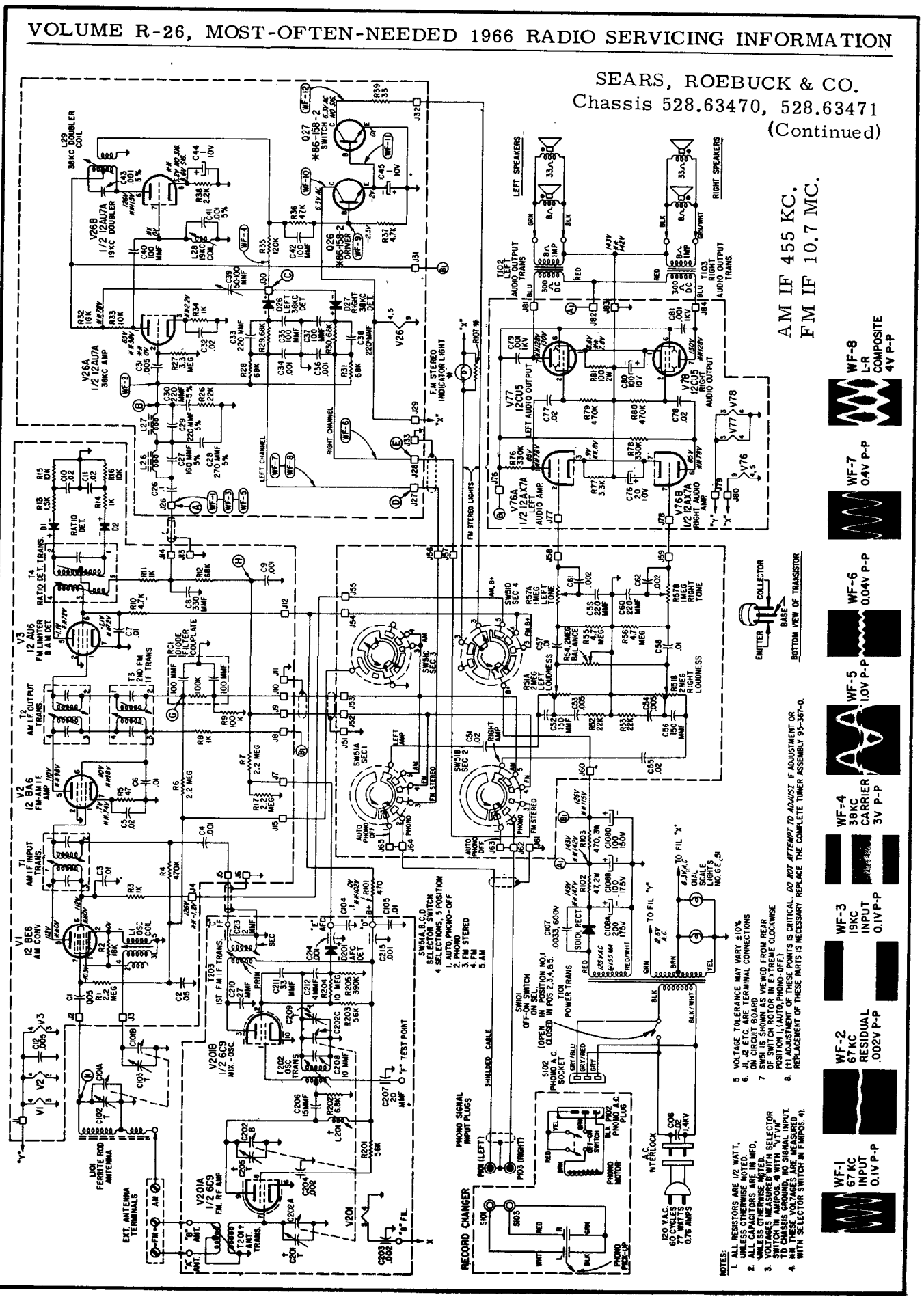
I.F. CIRCUIT BOARD



TONE CONTROL CIRCUIT BOARD

SCHEMATIC DIAGRAM FOR CHASSIS 63470, 63471

SEARS, ROEBUCK & CO.
Chassis 528.63470, 528.63471
(Continued)

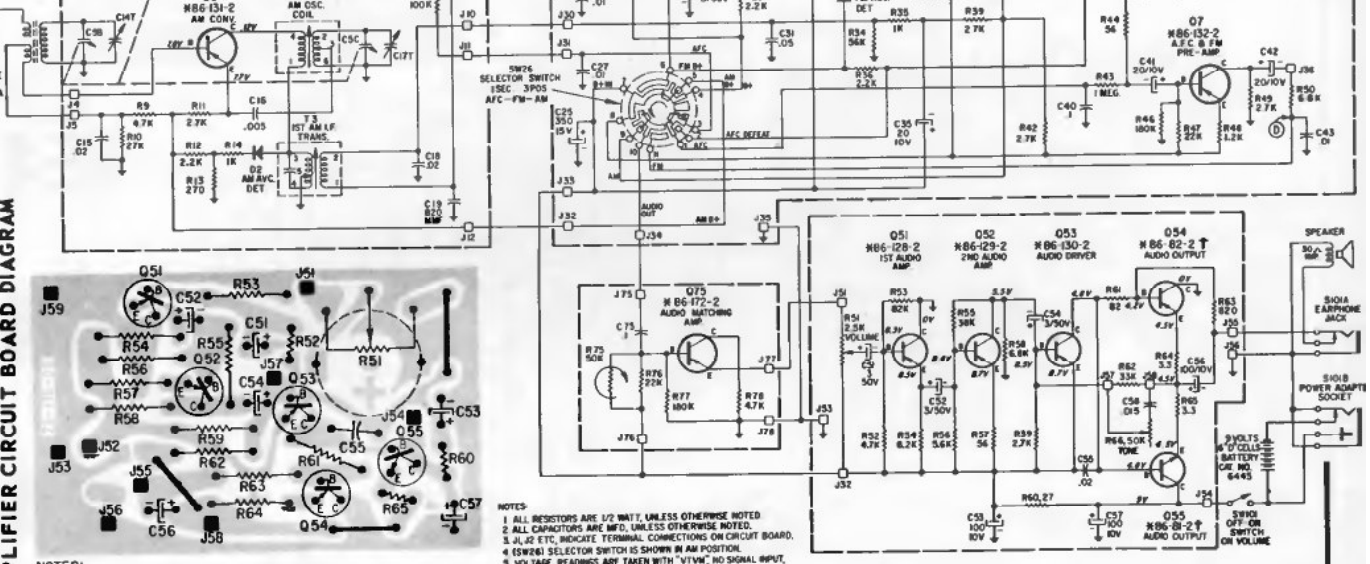


SEARS, ROEBUCK & CO. Chassis 528.63140, Model 6200

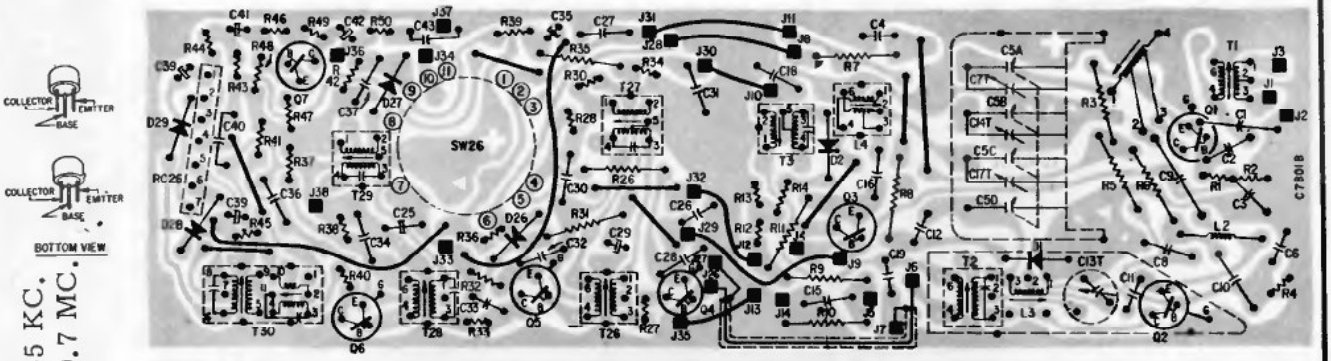
AMPLIFIER CIRCUIT BOARD DIAGRAM

NOTES:
1. WIRING DIAGRAM IS SHOWN FROM CIRCUIT SIDE OF BOARD.
2. SOLID LINES INDICATE WIRE JUMPERS

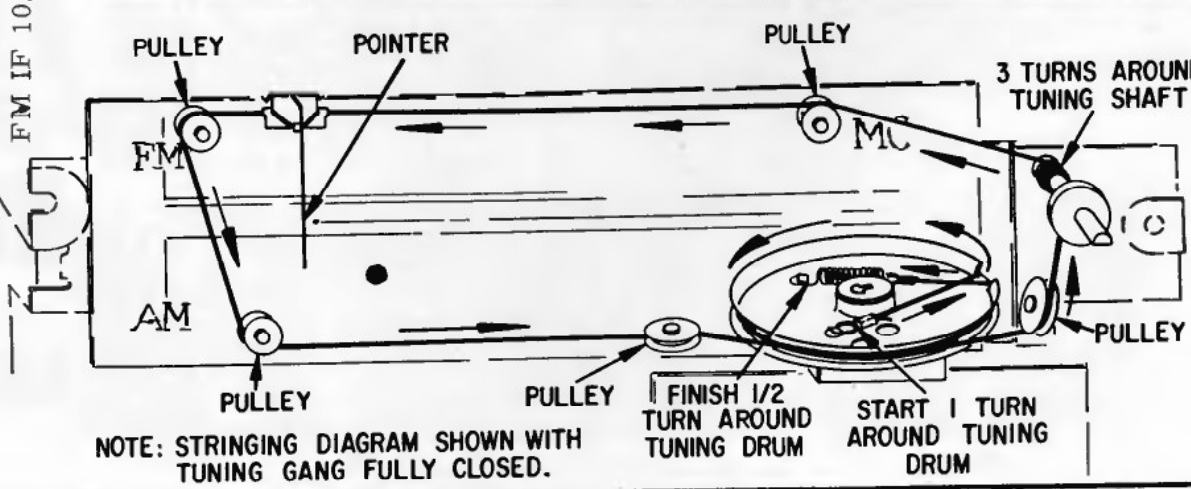
TUNER CIRCUIT BOARD DIAGRAM



NOTES:
1. ALL RESISTORS ARE 1/2 WATT, UNLESS OTHERWISE NOTED.
2. ALL CAPACITORS ARE MFD, UNLESS OTHERWISE NOTED.
3. J1, J2 ETC, INDICATE TERMINAL CONNECTIONS ON CIRCUIT BOARD.
4. (SW26) SELECTOR SWITCH IS SHOWN IN AM POSITION.
5. VOLTAGE READINGS ARE TAKEN WITH "VTVM", NO SIGNAL INPUT, SELECTOR SWITCH (SW26) IN AM POSITION.
** THESE VOLTAGES ARE MEASURED WITH SELECTOR SWITCH (SW26) IN FM POSITION.



AM IF 455 KC.
FM IF 10.7 MC.

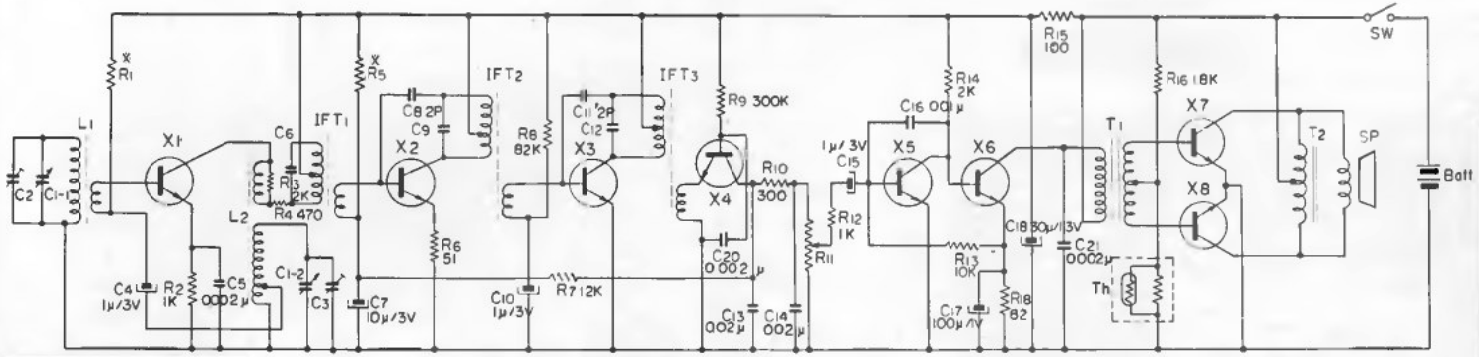


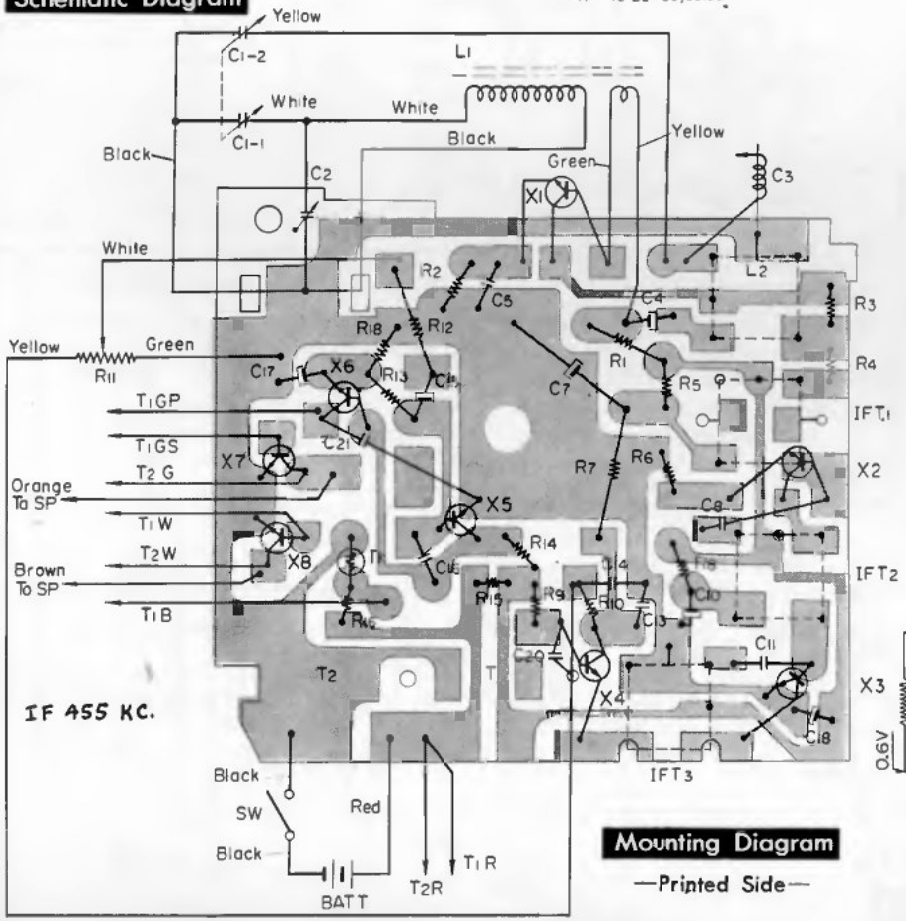
NOTE: STRINGING DIAGRAM SHOWN WITH TUNING GANG FULLY CLOSED.

STRINGING DIAGRAM

SONY TR-8

Schematic Diagram

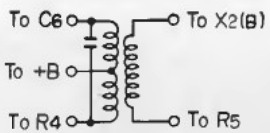




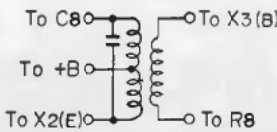
Mounting Diagram

—Printed Side—

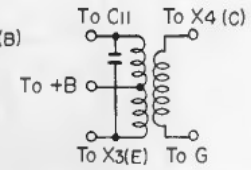
IFT1



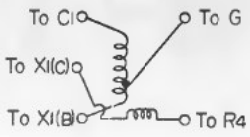
IFT2



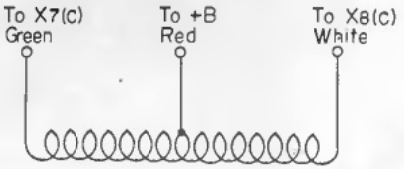
IFT3



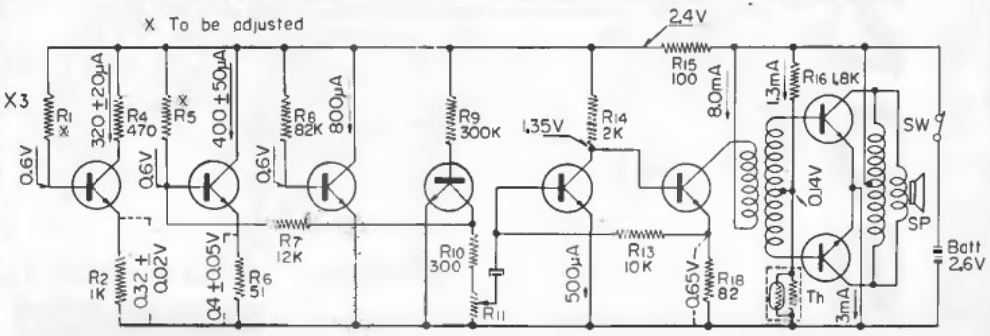
L2 OSC Coil



T2 Output Choke Coil



Voltage and Current Distribution Chart at Zero Signal



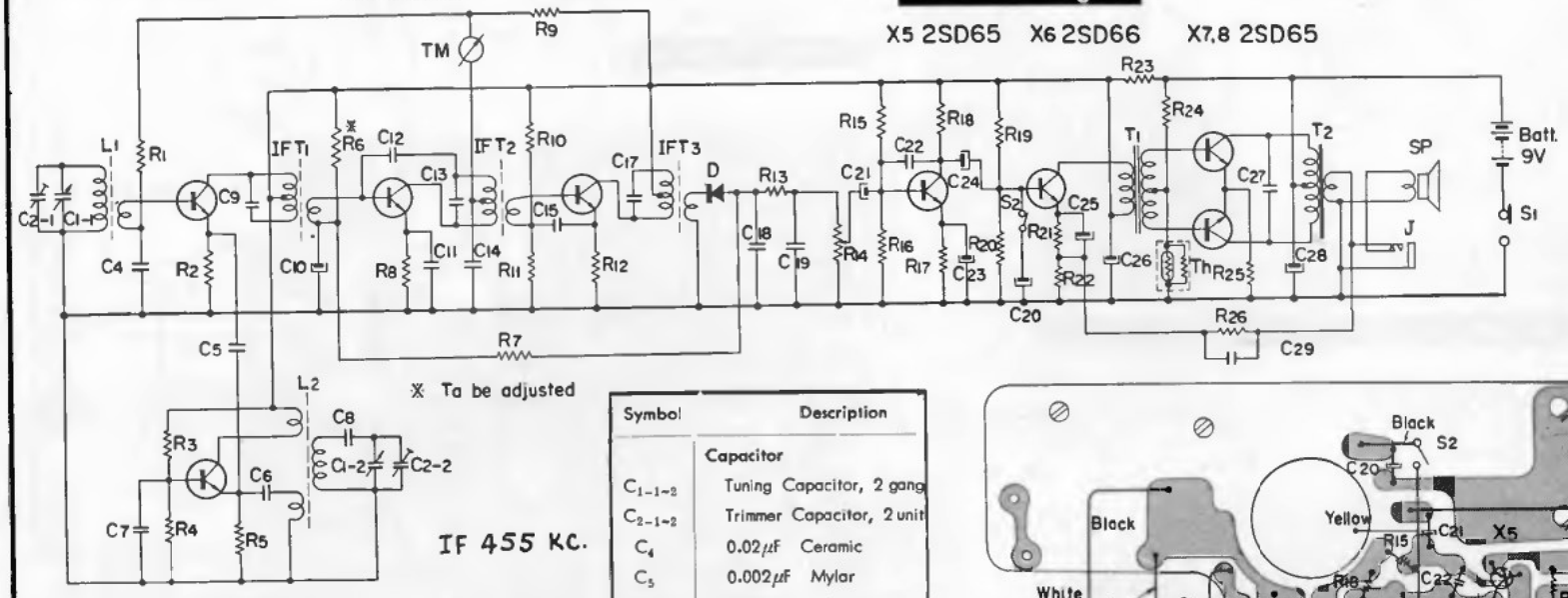
SONY

TR-830

Schematic Diagram

X1 2SC73 X3 2SC76 X4 2SC76

X5 2SD65 X6 2SD66 X7,8 2SD65



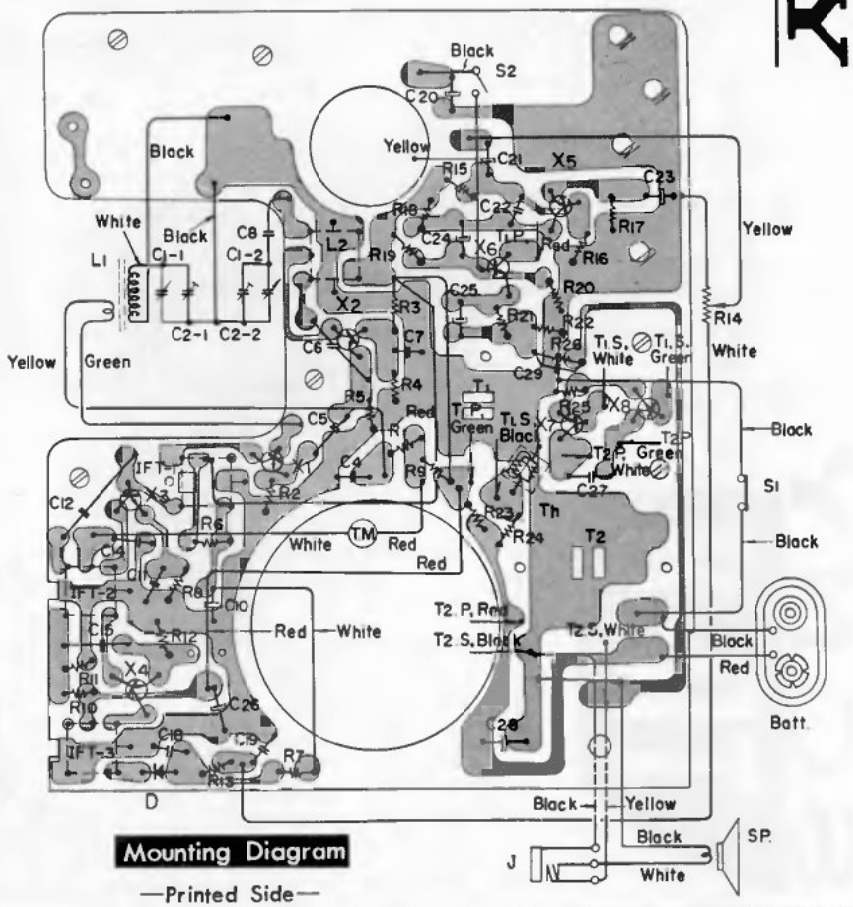
Symbol	Description
	Capacitor
C_{1-1-2}	Tuning Capacitor, 2 gang
C_{2-1-2}	Trimmer Capacitor, 2 unit
C_4	0.02μF Ceramic
C_5	0.002μF Mylar
C_6	0.002μF 〃
C_7	0.01μF Ceramic
C_8	130PF Styrol
C_9	150PF (built in IFT_1)
C_{10}	10μF 3V Electrolytic
C_{11}	0.02μF Ceramic
C_{12}	1PF 〃
C_{13}	150PF (built in IFT_2)
C_{14}	0.01μF Ceramic
C_{15}	0.01μF 〃
C_{17}	150PF (built in IFT_3)
C_{18}	0.02μF Ceramic
C_{19}	0.01μF 〃
C_{20}	0.3μF 15V Electrolytic
C_{21}	10μF 3V 〃
C_{22}	0.005μF Mylar
C_{23}	10μF 3V Electrolytic
C_{24}	10μF 6V 〃
C_{25}	30μF 3V 〃
C_{26}	30μF 10V 〃
C_{27}	0.04μF Ceramic
C_{28}	50μF 10V Electrolytic
C_{29}	0.02μF Ceramic

Symbol	Description
X_1	Transistor 2SC73
X_2	〃 2SC76
X_3	〃 2SC76
X_4	〃 2SC76
X_5	〃 2SD65
X_6	〃 2SD66
X_7	〃 2SD65
X_8	〃 2SD65
D	Diode 1T23G
Th	Thermistor CS-120
	Resistor
R_1	10KΩ 1/10W Carbon
R_2	30KΩ 〃 〃
R_3	39KΩ 〃 〃
R_4	5.6KΩ 〃 〃
R_5	2.2KΩ 〃 〃
*R_6	120KΩ 〃 〃
R_7	5.6KΩ 〃 〃
R_8	470Ω 1/10W Carbon
R_9	10KΩ 〃 〃
R_{10}	39KΩ 〃 〃
R_{11}	3.3KΩ 〃 〃
R_{12}	470Ω 〃 〃
R_{13}	1.8KΩ 〃 〃
R_{14}	5KΩ Volume Control
R_{15}	36KΩ 1/10W Carbon
R_{16}	5.6KΩ 〃 〃
R_{17}	1KΩ 〃 〃
R_{18}	1KΩ 〃 〃
R_{19}	27KΩ 〃 〃
R_{20}	10KΩ 〃 〃
R_{21}	1KΩ 〃 〃
R_{22}	10Ω 〃 〃
R_{23}	220Ω 〃 〃
R_{24}	7.5KΩ 〃 〃
R_{25}	10Ω 〃 〃
R_{26}	680Ω 〃 〃

* To be adjusted

Mounting Diagram

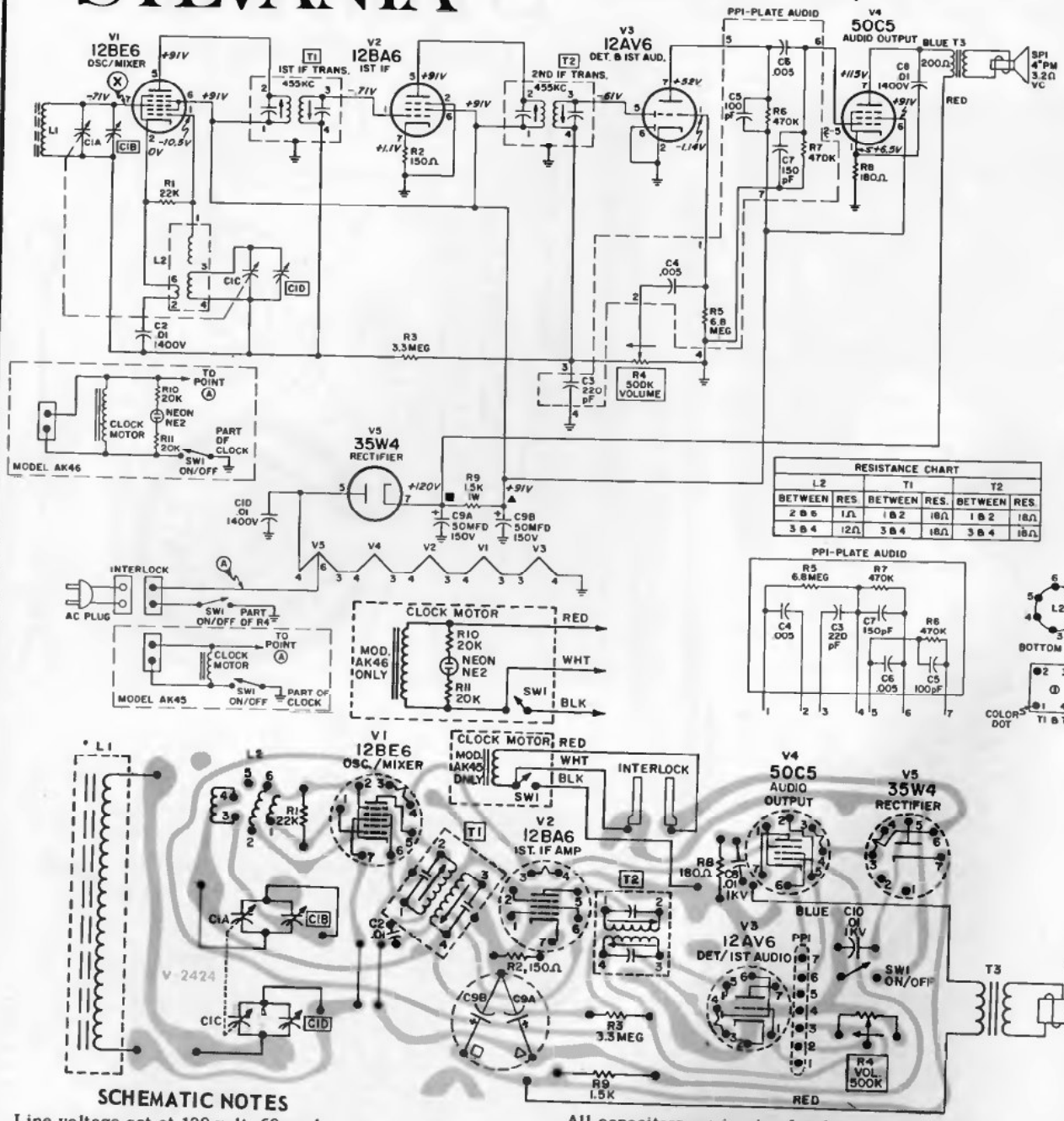
—Printed Side—



C29 is mounted on the printed side.

SYLVANIA

Chassis U50-1, -2
Models AK45, AK46, AT40



RESISTANCE CHART					
L2		T1		T2	
BETWEEN	RES.	BETWEEN	RES.	BETWEEN	RES.
2 & 5	1Ω	1 & 2	18Ω	1 & 2	18Ω
3 & 4	12Ω	3 & 4	18Ω	3 & 4	18Ω

SCHEMATIC NOTES

Line voltage set at 120 volt, 60 cycle.

Voltages shown are average readings measured to chassis ground with no signal, minimum volume setting and variable capacitor fully open.

All capacitors are in microfarads unless otherwise specified.

All resistors are 10%, 1/2 watt unless otherwise specified.

Intermediate frequency (IF), 455 KC.

⏚ designates chassis ground.

Arrow on volume control indicates clockwise direction.

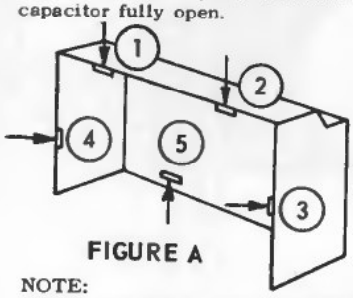


FIGURE A

FIGURE B

FIGURE C

NOTE:
THE CABINET SECTIONS ARE HELD TOGETHER WITH SNAP TABS SHOWN BY ARROWS. SEE FIGURES A AND C.

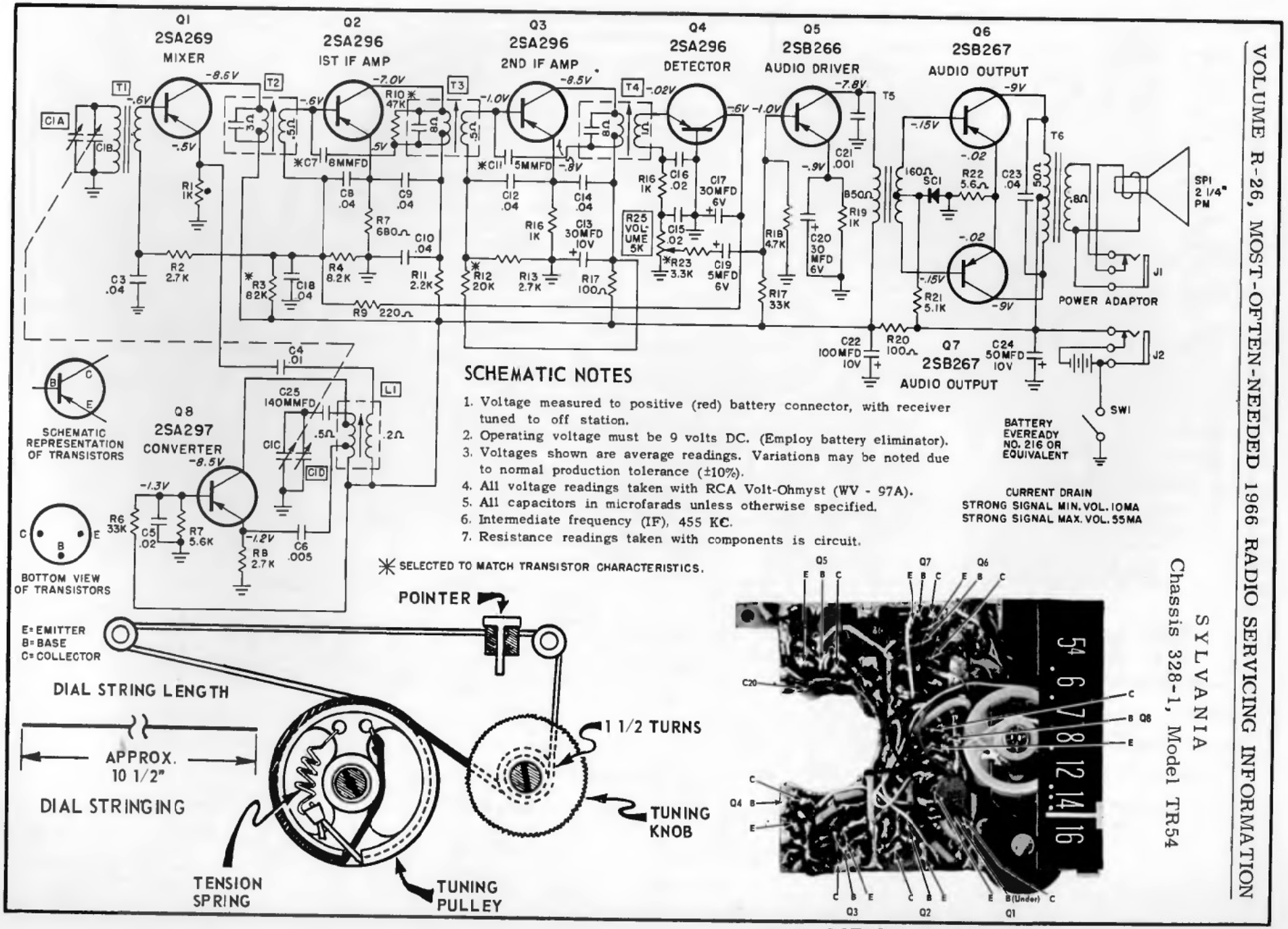
SYLVANIA

Chassis 325-1, Model TR50

SCHEMATIC NOTES

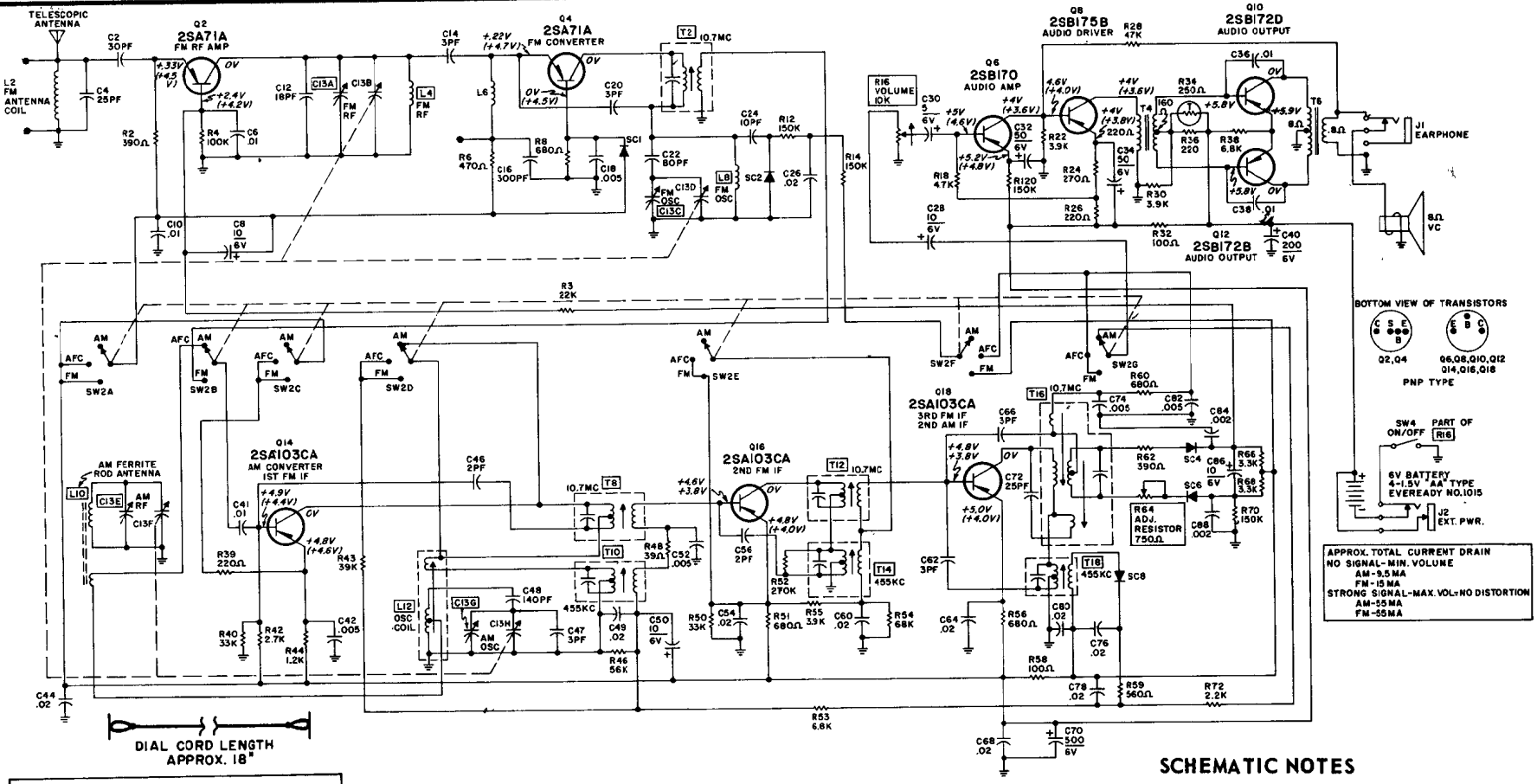
1. Voltage measured to positive (red) battery connector, with receiver tuned to off station.
2. Operating voltage must be 9 volts DC. (Employ battery eliminator).
3. Voltages shown are average readings. Variations may be noted due to normal production tolerance (±10%)
4. All voltage readings taken with RCA Volt-Ohmyst (WV - 97A).
5. All capacitors in microfarads unless otherwise specified.
6. Intermediate frequency (IF), 455 KC.
7. Resistance readings taken with components is circuit.

BOTTOM PARTS LAYOUT



BOTTOM PARTS LAYOUT

SYLVANIA
Chassis 328-1, Model TR54

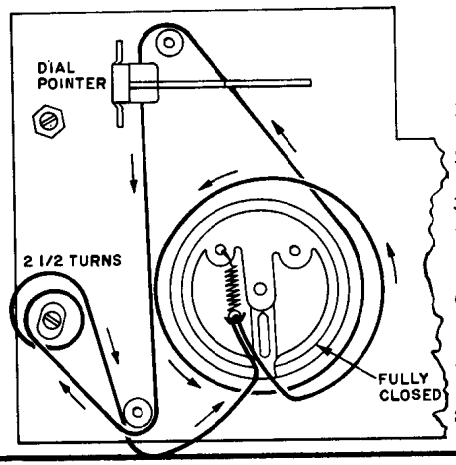


SCHEMATIC NOTES

1. Voltages measured to chassis ground, test point (2), with receiver tuned to off station and minimum volume.
2. Operating voltage must be 6 volts DC. (Employ battery eliminator).
3. Voltages shown are average readings. Voltages in brackets are measured with switch in FM position.
4. Switch SW2 is shown in the AM position.
5. All capacitors in microfarads unless otherwise specified.
6. All resistors are 1/4W - 10% unless otherwise specified.
7. Resistance readings taken with components in circuit.
8. Arrow on volume control indicates clockwise rotation.

CHASSIS REMOVAL

1. Remove three (3) knobs; two (2) front knobs and the one (1) side knob by pulling straight out.
2. Open back cover flap by unsnapping the fasteners at bottom rear of case.
3. Unsnap battery holder and remove from case.
4. Remove two (2) screws securing battery compartment. Remove compartment from case.
5. Remove earphone and ext. pwr. jack assembly from case.
6. Remove six (6) screws (indicated by (X) on top parts layout) securing chassis to case. Remove one (1) screw (located on bottom of case)' securing telescopic antenna to case.
7. Remove chassis and set to one side of case. If necessary unsolder leads to speaker.
8. To replace chassis reverse the above procedure.



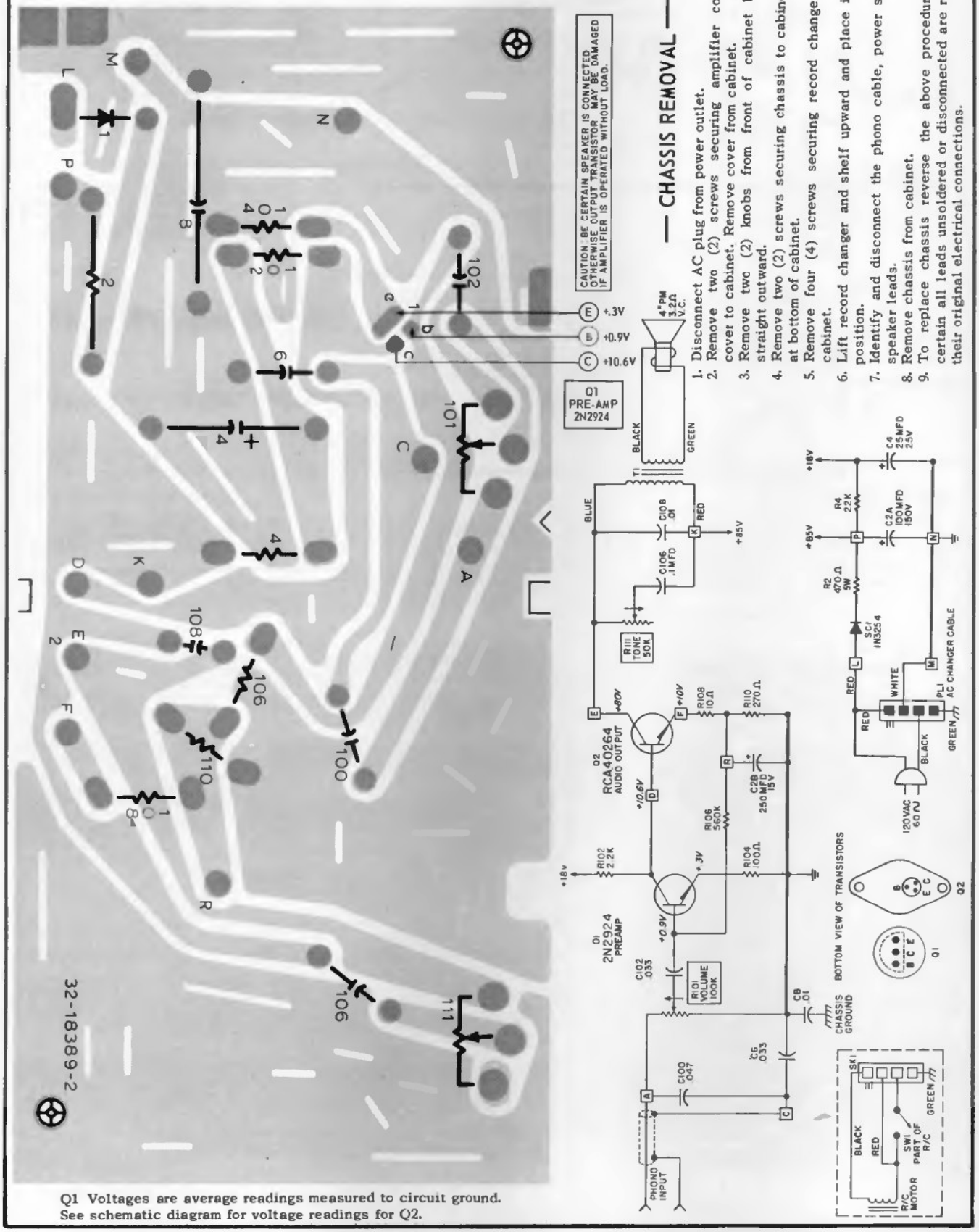
DIAL STRINGING

SYLVANIA

Chassis 335-1, Model TR86

SYLVANIA

Chassis P01-1
Model 45P50

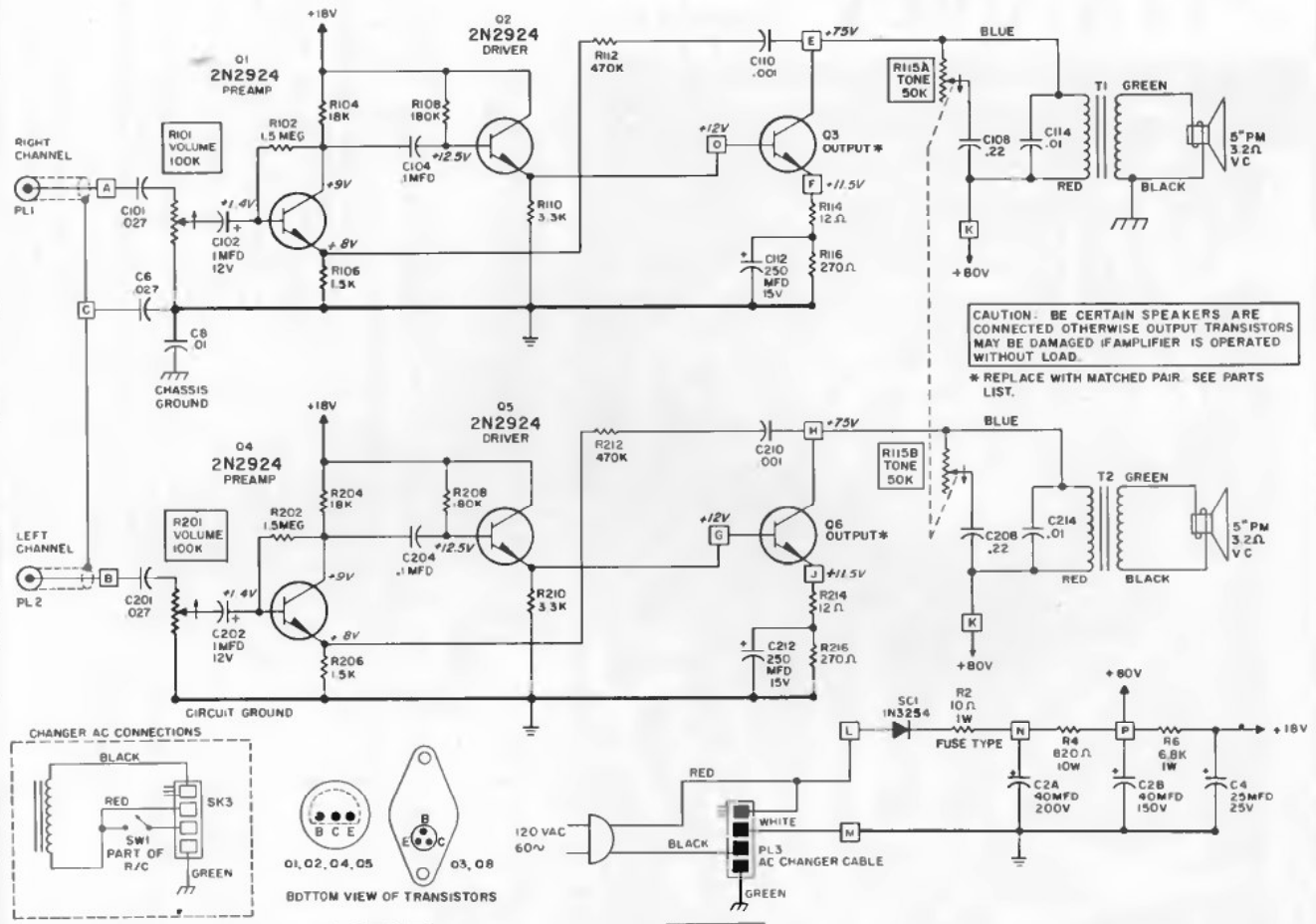


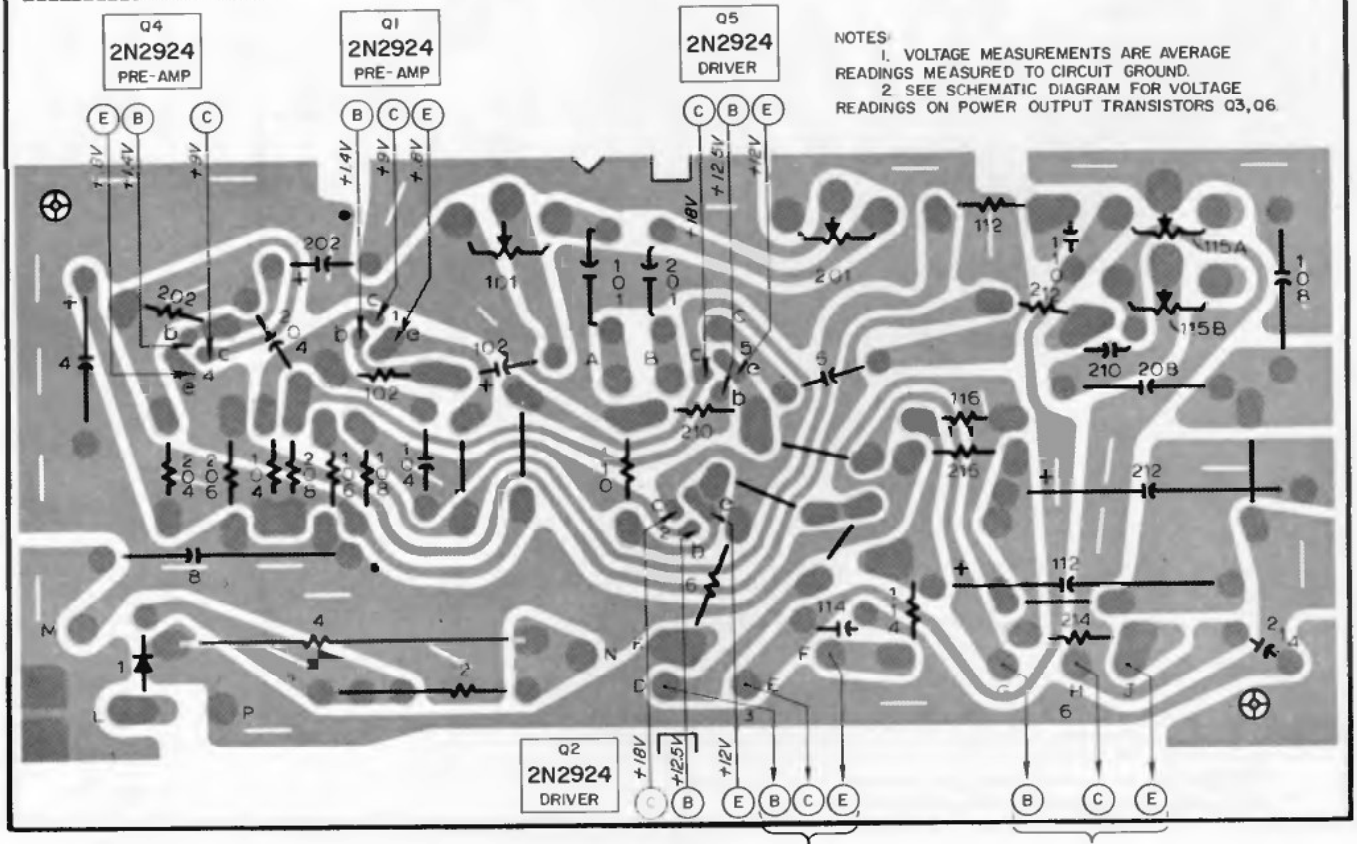
— CHASSIS REMOVAL —

1. Disconnect AC plug from power outlet.
2. Remove two (2) screws securing amplifier compartment cover to cabinet. Remove cover from cabinet.
3. Remove two (2) knobs from front of cabinet by pulling straight outward.
4. Remove two (2) screws securing chassis to cabinet located at bottom of cabinet.
5. Remove four (4) screws securing record changer shelf to cabinet.
6. Lift record changer and shelf upward and place in vertical position.
7. Identify and disconnect the phono cable, power supply and speaker leads.
8. Remove chassis from cabinet.
9. To replace chassis reverse the above procedure making certain all leads unsoldered or disconnected are replaced in their original electrical connections.

Q1 Voltages are average readings measured to circuit ground.
See schematic diagram for voltage readings for Q2.

SYLVANIA Chassis P02-1, Model 45P60

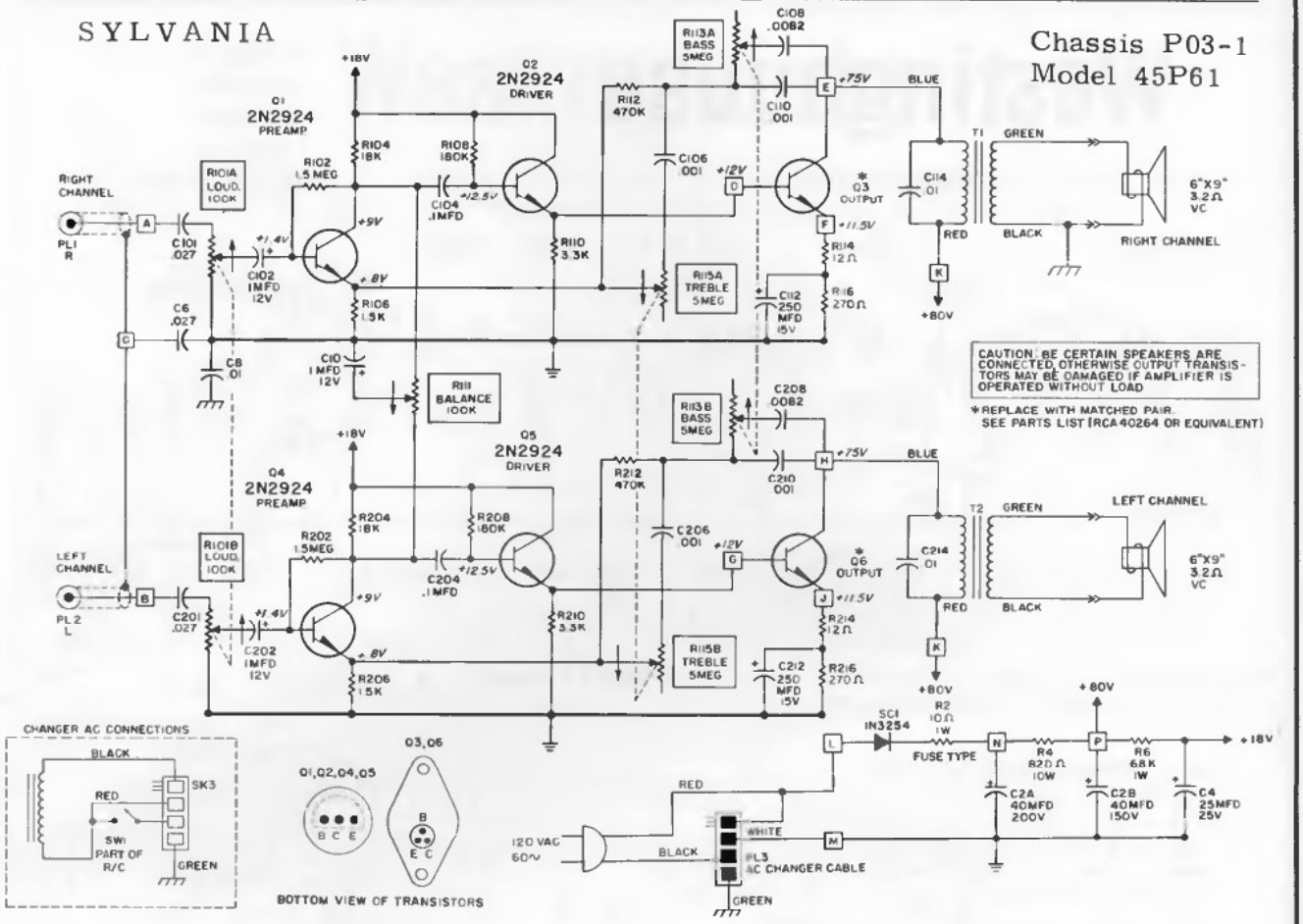


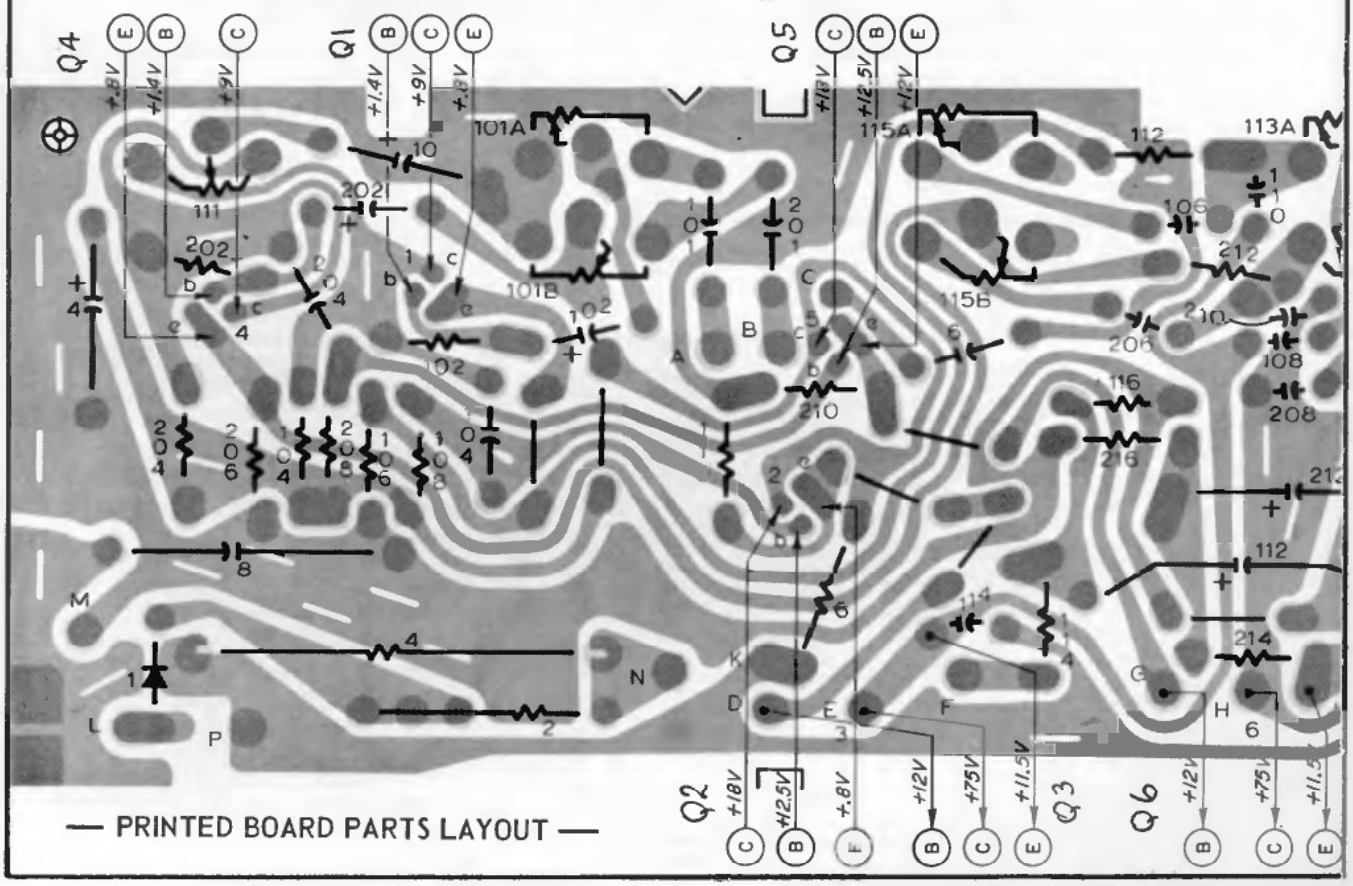


NOTES:
1. VOLTAGE MEASUREMENTS ARE AVERAGE READINGS MEASURED TO CIRCUIT GROUND.
2. SEE SCHEMATIC DIAGRAM FOR VOLTAGE READINGS ON POWER OUTPUT TRANSISTORS Q3, Q6.

SYLVANIA

Chassis P03-1
Model 45P61

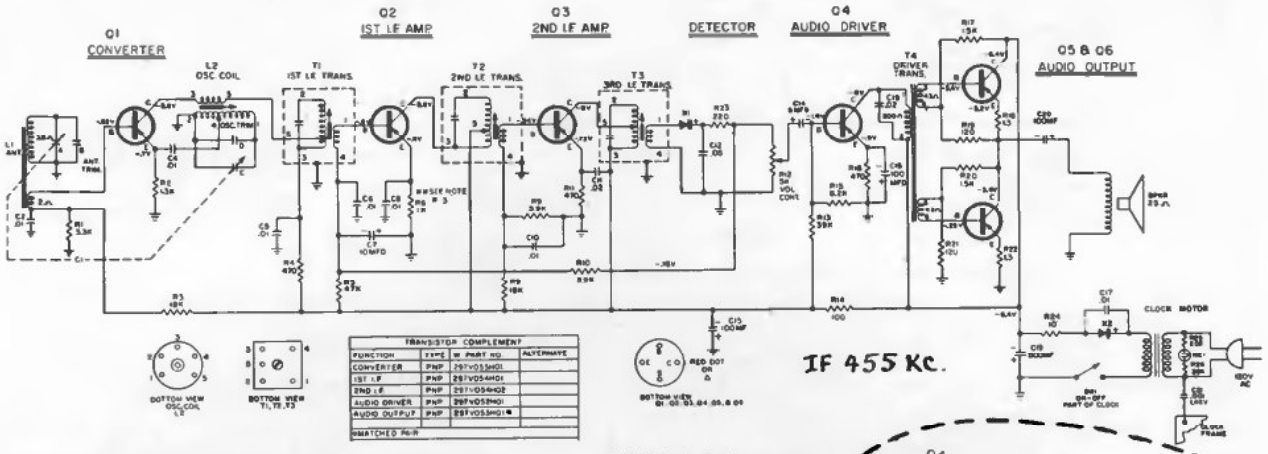




Westinghouse

H-954P6
H-955P6
H-956L6
H-957L6
H-958L6

CHASSIS V–2463-1, -2

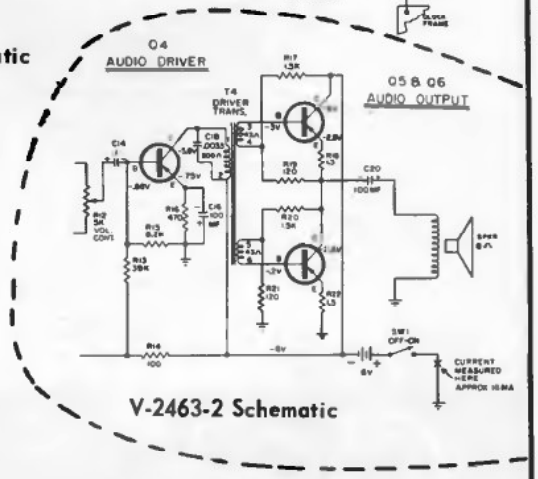


V-2463-1 Schematic

VOLTAGE MEASUREMENTS MADE WITH A VTVM FROM POINTS INDICATED TO GROUND WITH TUNING CAPACITOR AT MAXIMUM, VOLUME CONTROL AT MINIMUM.

ALL CAPACITANCE VALUES LESS THAN 1 ARE IN MF & VALUES GREATER THAN 1 ARE IN PF.
ALL RESISTANCE VALUES ARE IN OHMS, 1/2 WATT UNLESS OTHERWISE INDICATED.

LATER PRODUCTION R6-470 Ω



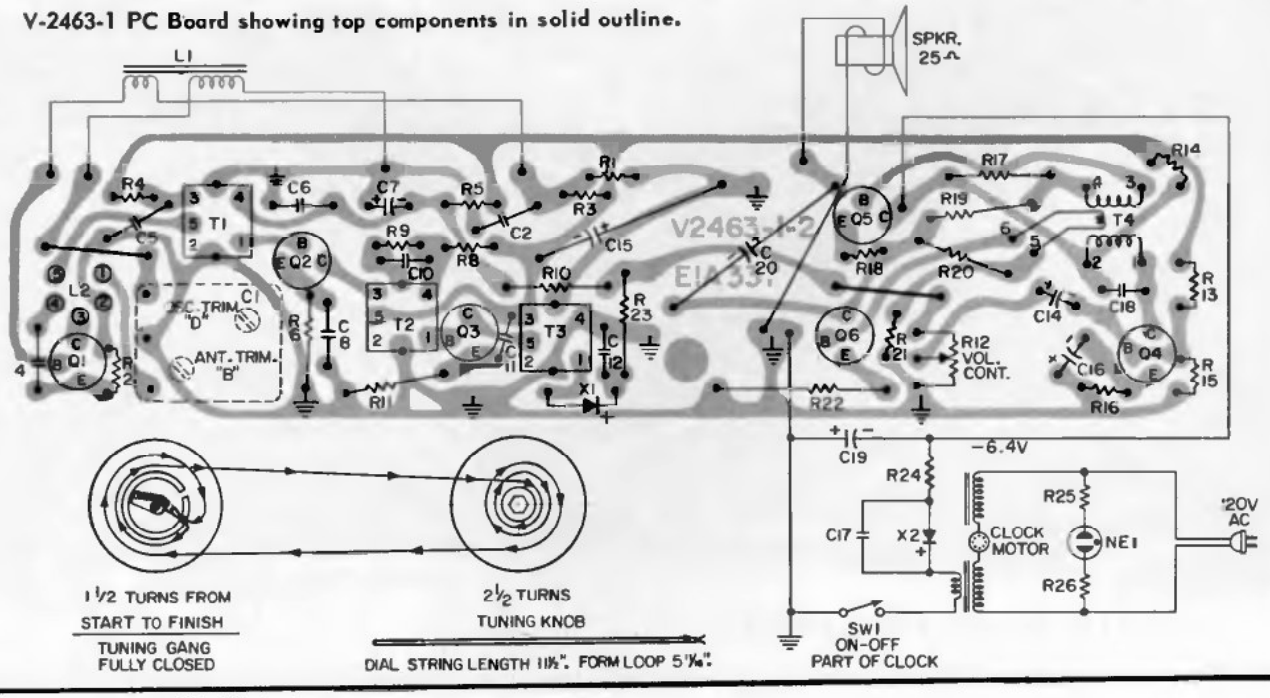
V-2463-2 Schematic

CHASSIS REMOVAL H-954P6, H-955P6

The cabinet front and back are held together by 4 tabs molded on the top and bottom rim of the cabinet back.

1. Pry the bottom of the cabinet apart to release the two bottom tabs and carefully separate the two sections. CAUTION: the battery housing is mounted to the cabinet back.
2. The volume and tuning knobs are mounted to the PC board which comes out with the cabinet front.
3. Unsolder the two leads to the speaker.
4. Remove the hex head screw and mounting stud (located under the PC board) from the cabinet front and slide the chassis to the rear.

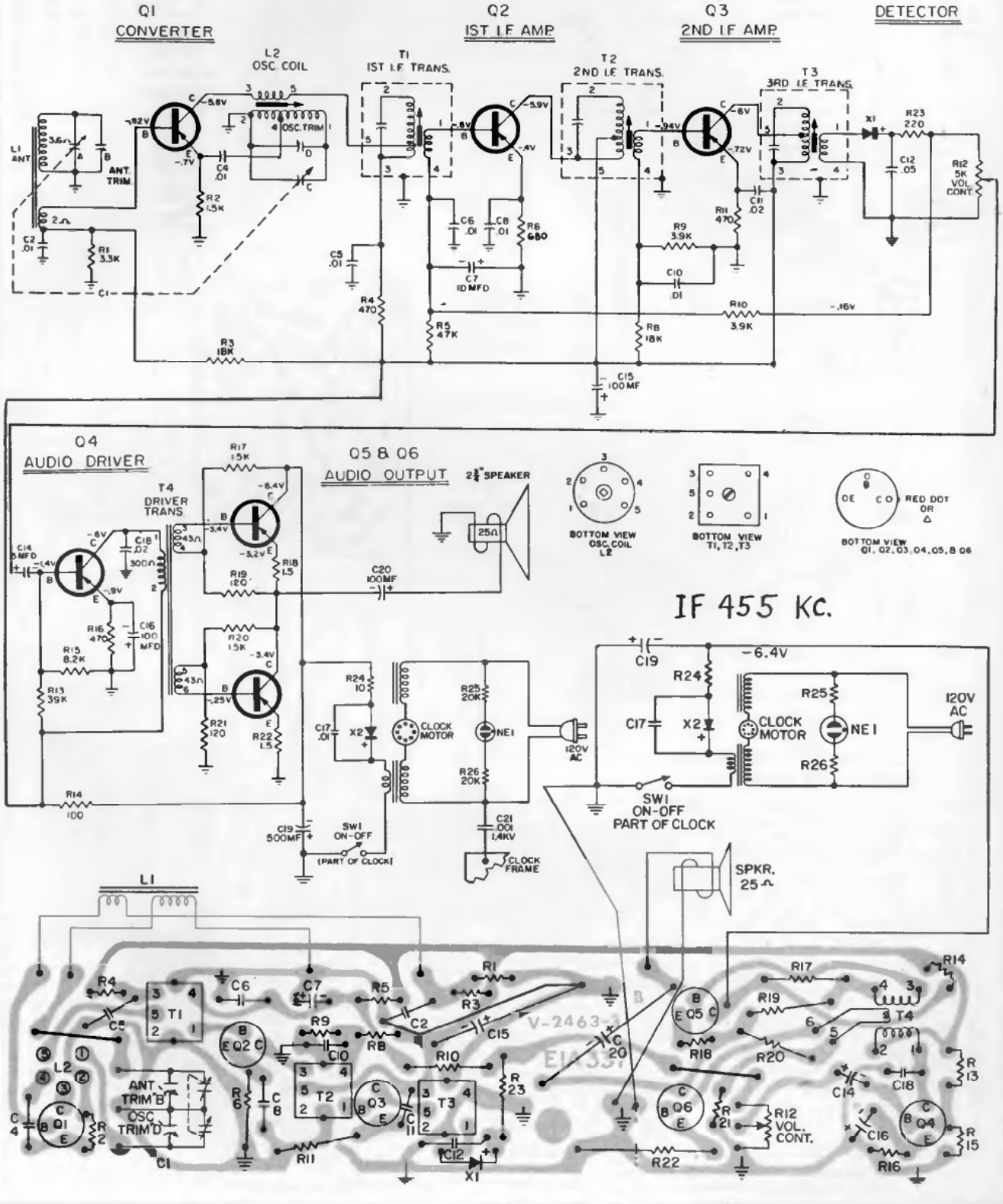
V-2463-1 PC Board showing top components in solid outline.



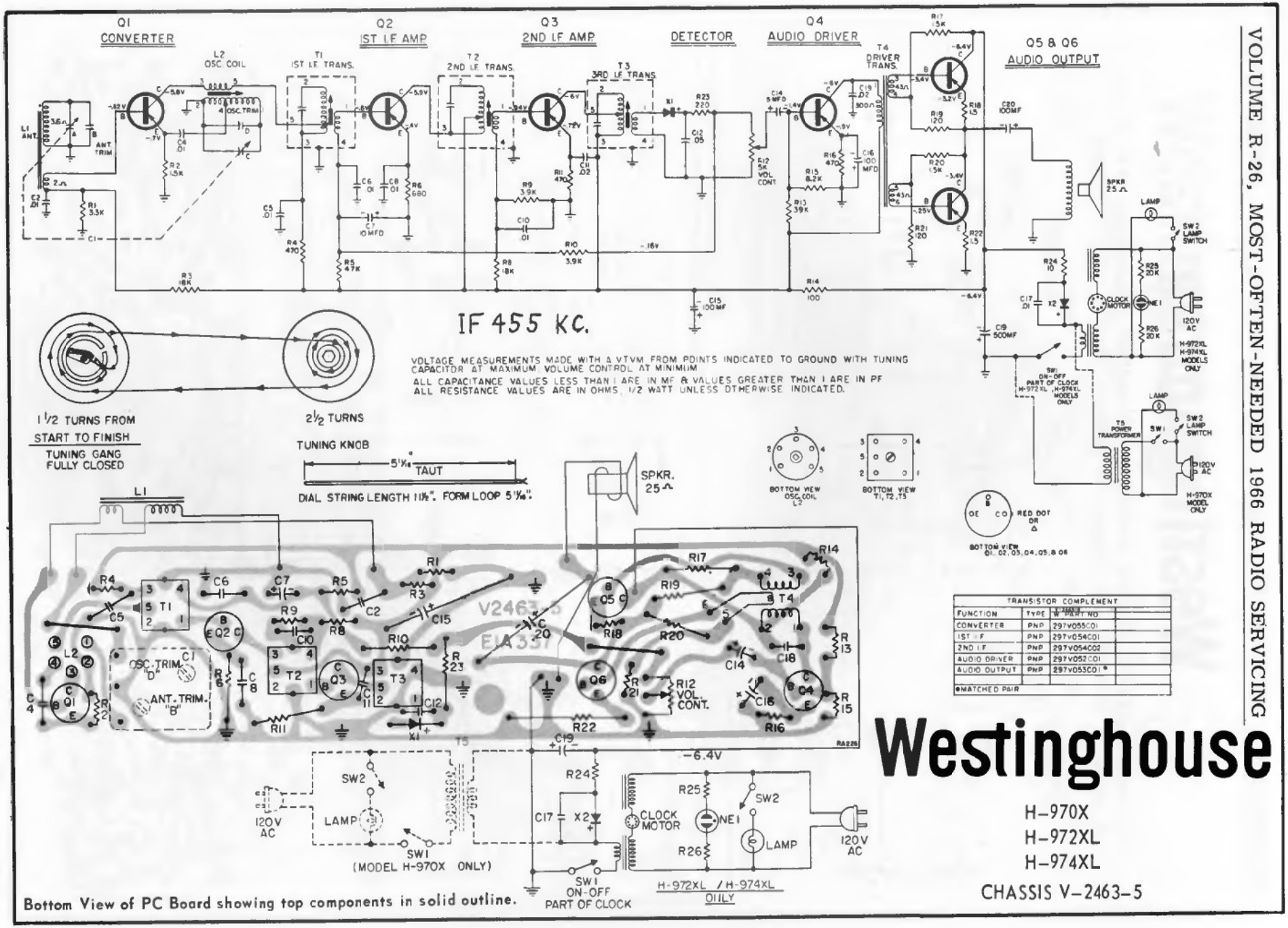
Dial Stringing

Westinghouse

Chassis V-2463-3, Models H-957L6A, H-958L6A, Chassis V-2463-4, used in Model H-957L6B, and Chassis V-2463-6, Models CR525, CR526.



Bottom View of PC Board Showing Top Components In Solid Outline.



TRANSISTOR COMPLEMENT		
FUNCTION	TYPE	WESTINGHOUSE PART NO.
CONVERTER	PNP	297V055C01
IST I.F.	PNP	297V054C01
2ND I.F.	PNP	297V054C02
AUDIO DRIVER	PNP	297V052C01
AUDIO OUTPUT	PNP	297V053C01*
*MATCHED PAIR		

Bottom View of PC Board showing top components in solid outline.

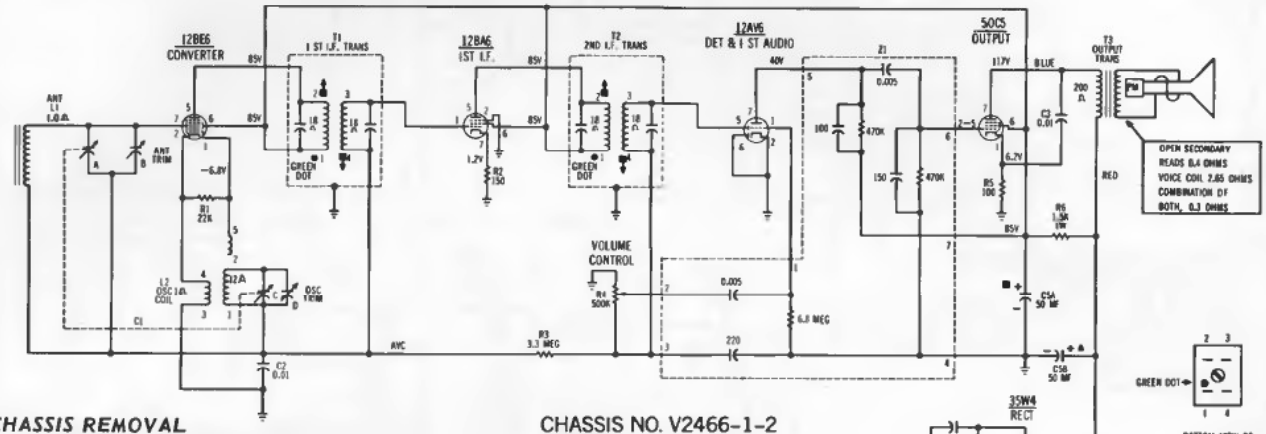
Westinghouse

H-970X
H-972XL
H-974XL

CHASSIS V-2463-5

Westinghouse

Chassis V-2466-1, -2, used in Models H-200T5, H-201T5, H-205L5, H-210L5, H-211L5, H-215L5, H-216L5, CR-500, and CR-501. Chassis V-2466-7 used in Models CR-515, CR-520, CR-521, is identical except for clock circuit.

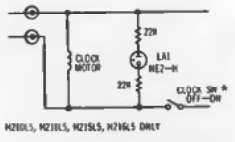


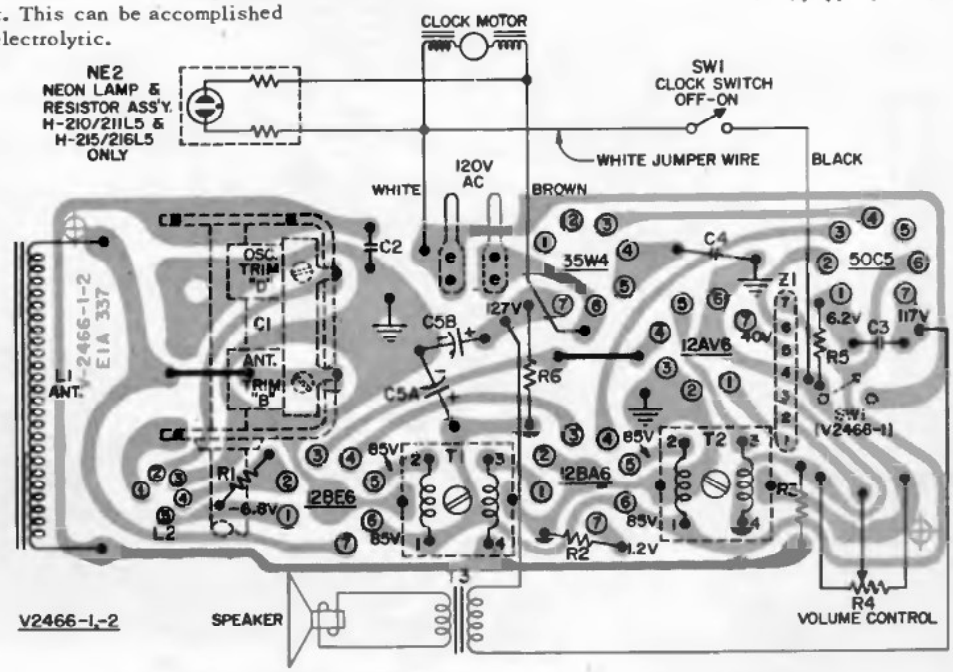
CHASSIS REMOVAL

1. Remove the back cover.
2. Remove the volume knob.
3. Release the tuning knob from the tuning capacitor. CAUTION: The tuning knob is captivated to the cabinet front.
4. Lift the PC board at the rear, to clear the square bar on the cabinet bottom, and slide the chassis to the rear.
5. It may be necessary to unsolder the leads from the clock and speaker before the chassis can be completely removed from the chassis.
6. To reassemble the chassis to the cabinet, reverse the above procedure. It may be necessary to force the front edge of the PC board down into the mounting slots provided in the cabinet front. This can be accomplished by applying pressure to the electrolytic.

NOTES
1. ALL VOLTAGES MEASURED FROM COMMON B—TO POINTS INDICATED WITH V.T.V.M. LINE VOLTAGE SET AT 120 V.A.C. READINGS SHOULD BE AS SHOWN ±20% NO SIGNAL.
2. ALL CAPACITANCE VALUES LESS THAN 1, ARE IN MF AND VALUES GREATER THAN 1 ARE IN PF. ALL RESISTANCE VALUES ARE IN OHMS 0.5 WATT UNLESS OTHERWISE INDICATED.

*V-2466-2 SW1 IS PART OF CLOCK
V-2466-1 SW1 IS PART OF R4.





H-215L5 – H-216L5

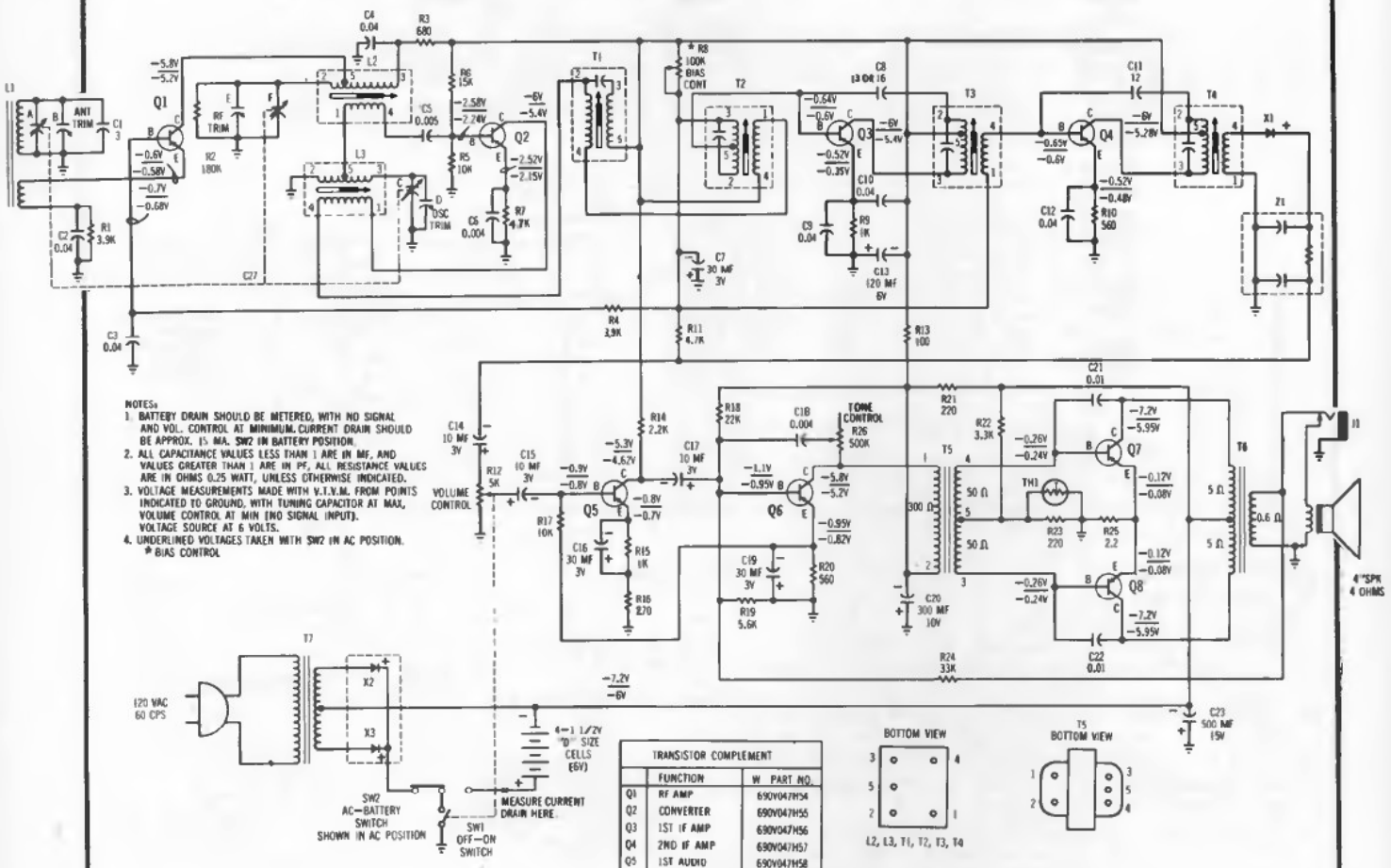
Bottom View of PC Board showing top components in solid outline.

Westinghouse

MODEL CR-566

MODEL H-953XP8

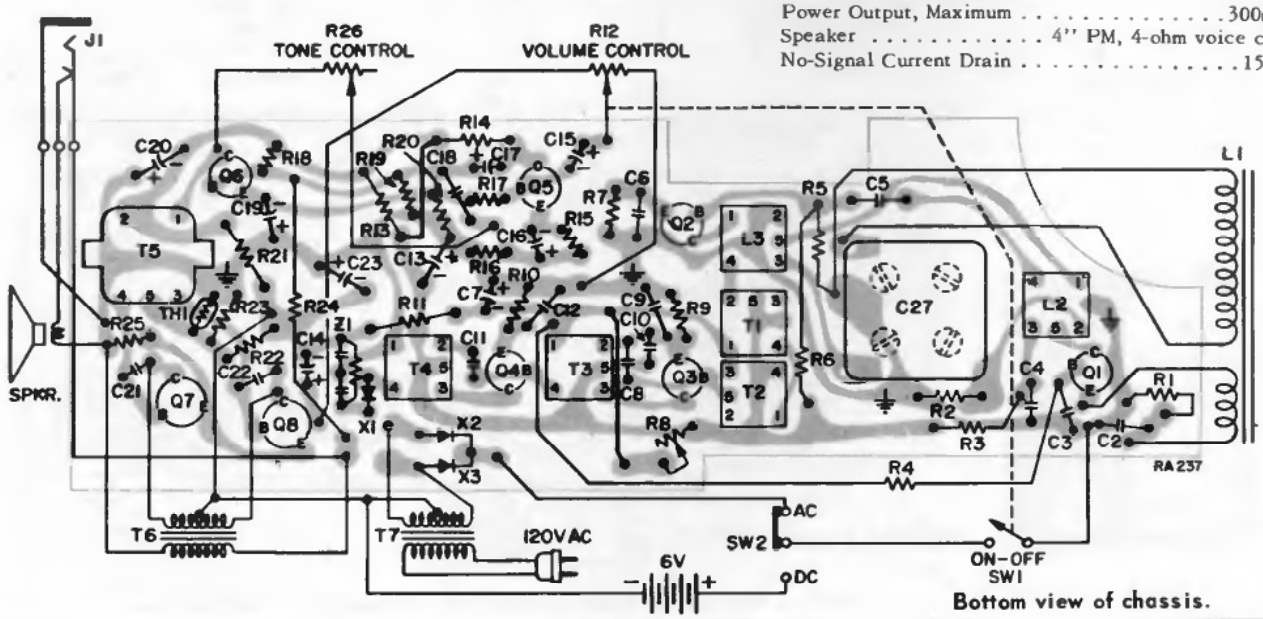
CHASSIS V-2580-1



TRANSISTOR COMPLEMENT		
	FUNCTION	W PART NO.
Q1	RF AMP	690V047H54
Q2	CONVERTER	690V047H55
Q3	1ST IF AMP	690V047H56
Q4	2ND IF AMP	690V047H57
Q5	1ST AUDIO	690V047H58
Q6	AUDIO DRIVER	690V047H58
Q7	AUDIO OUTPUT *	690V047H60
Q8	AUDIO OUTPUT *	
*	MATCHED PAIR	

SPECIFICATIONS

AM Frequency Range . . . . . .540KC to 1600KC
AM Intermediate Frequency 455KC
Power Output, Maximum 300mw
Speaker . . . . . 4" PM, 4-ohm voice coil
No-Signal Current Drain 15ma

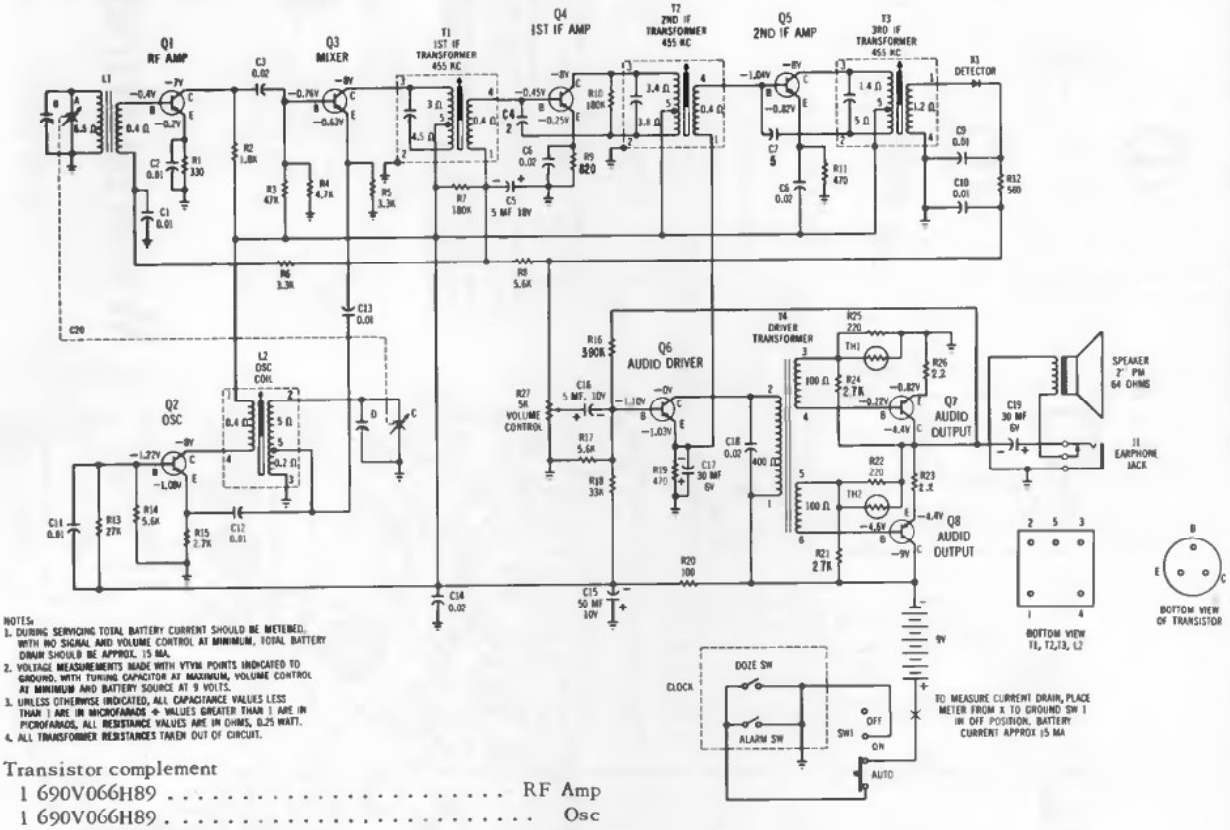


Bottom view of chassis.

Westinghouse

H-968PL

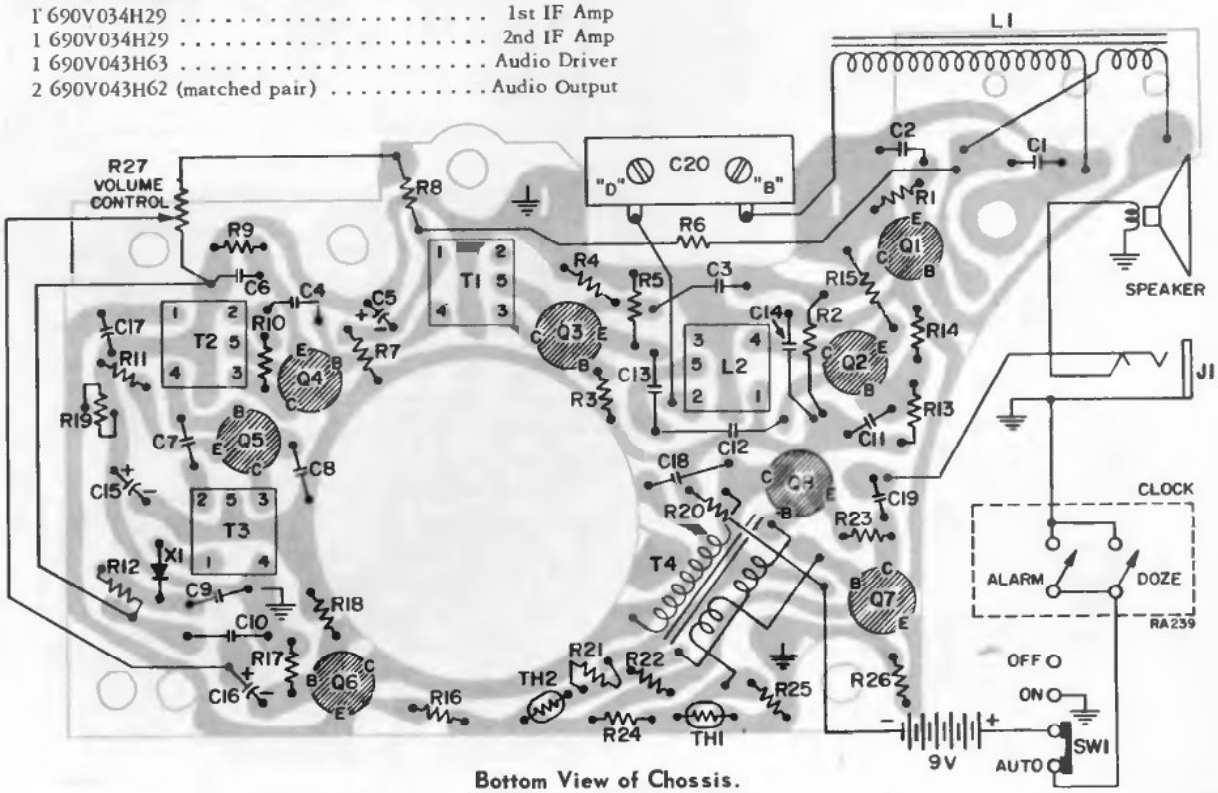
CHASSIS V-2585-1



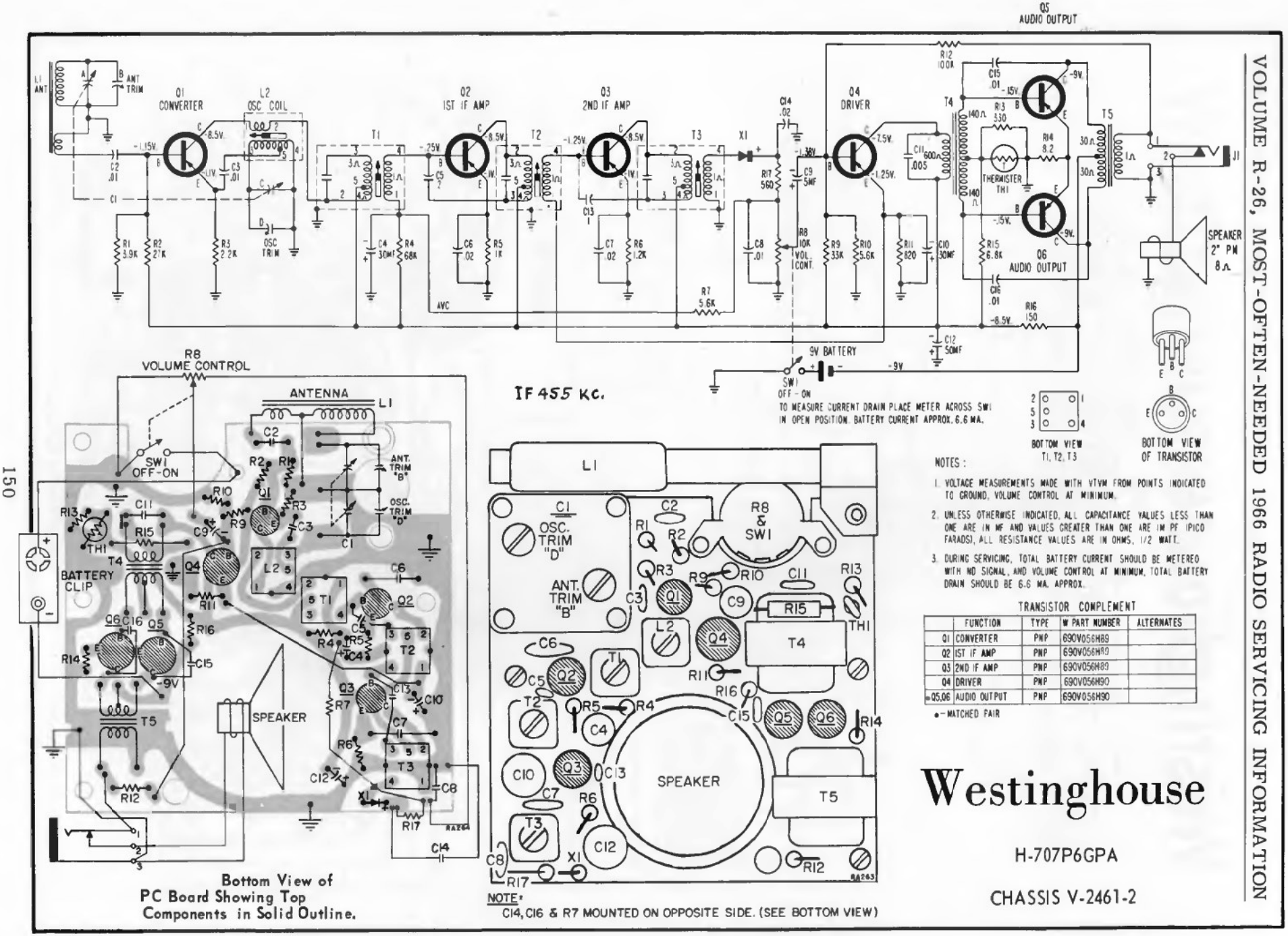
NOTES:
1. DURING SERVICING TOTAL BATTERY CURRENT SHOULD BE METERED. WITH NO SIGNAL AND VOLUME CONTROL AT MINIMUM, TOTAL BATTERY DRAIN SHOULD BE APPROX. 15 MA.
2. VOLTAGE MEASUREMENTS MADE WITH VTVM. POINTS INDICATED TO GROUND. WITH TUNING CAPACITOR AT MAXIMUM, VOLUME CONTROL AT MINIMUM AND BATTERY SOURCE AT 9 VOLTS.
3. UNLESS OTHERWISE INDICATED, ALL CAPACITANCE VALUES LESS THAN 1 ARE IN MICROFARADS + VALUES GREATER THAN 1 ARE IN PICROFARADS. ALL RESISTANCE VALUES ARE IN OHMS, 0.25 WATT.
4. ALL TRANSFORMER RESISTANCES TAKEN OUT OF CIRCUIT.

Transistor complement

1 690V066H89	RF Amp
1 690V066H89	Osc
1 690V066H89	Mixer
1 690V034H29	1st IF Amp
1 690V034H29	2nd IF Amp
1 690V043H63	Audio Driver
2 690V043H62 (matched pair)	Audio Output



Bottom View of Chassis.



Bottom View of PC Board Showing Top Components in Solid Outline.

NOTE*
C14, C16 & R7 MOUNTED ON OPPOSITE SIDE. (SEE BOTTOM VIEW)

NOTES:

1. VOLTAGE MEASUREMENTS MADE WITH VTVM FROM POINTS INDICATED TO GROUND, VOLUME CONTROL AT MINIMUM.
2. UNLESS OTHERWISE INDICATED, ALL CAPACITANCE VALUES LESS THAN ONE ARE IN MF AND VALUES GREATER THAN ONE ARE IN MF (PICO FARADS), ALL RESISTANCE VALUES ARE IN OHMS, 1/2 WATT.
3. DURING SERVICING, TOTAL BATTERY CURRENT SHOULD BE METERED WITH NO SIGNAL, AND VOLUME CONTROL AT MINIMUM. TOTAL BATTERY DRAIN SHOULD BE 6.6 MA. APPROX.

TRANSISTOR COMPLEMENT

	FUNCTION	TYPE	W PART NUMBER	ALTERNATES
Q1	CONVERTER	PNP	690V056H89	
Q2	IST IF AMP	PNP	690V056H89	
Q3	2ND IF AMP	PNP	690V056H89	
Q4	DRIVER	PNP	690V056H90	
*Q5,06	AUDIO OUTPUT	PNP	690V056H90	

*- MATCHED PAIR

Westinghouse

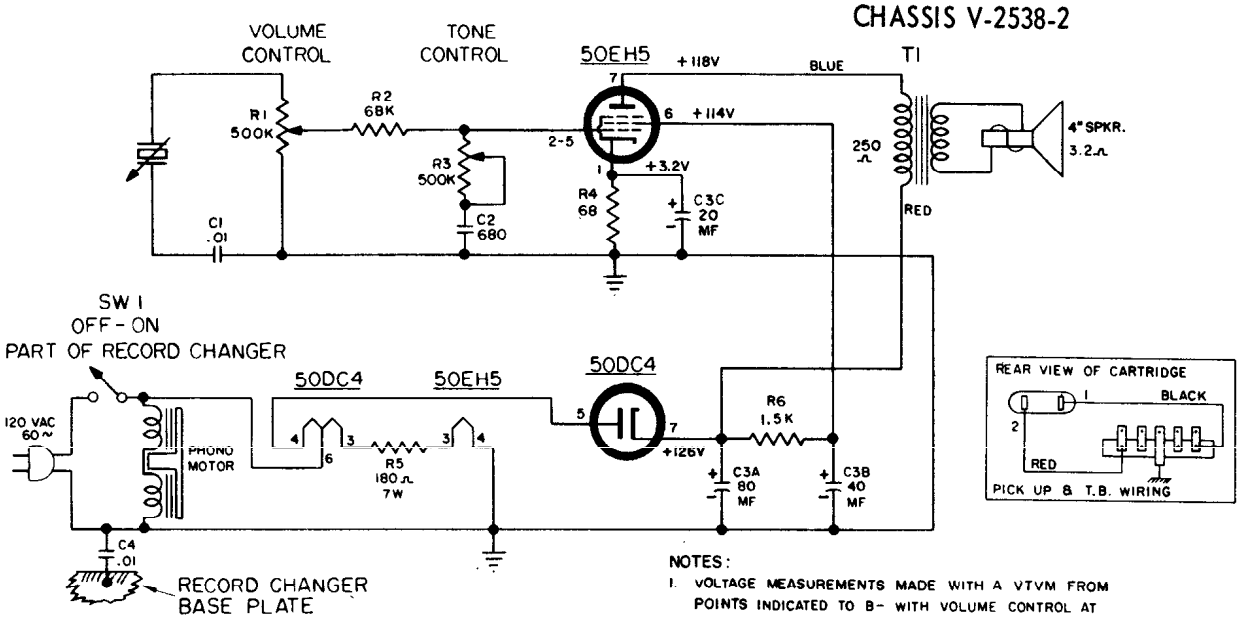
H-707P6GPA

CHASSIS V-2461-2

Westinghouse

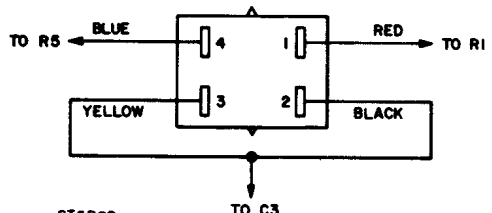
H-75AC1E (slate gray)
H-75AC2E (metallic mocha)
H-114AC1 (charcoal blue)

CHASSIS V-2538-2



NOTES:

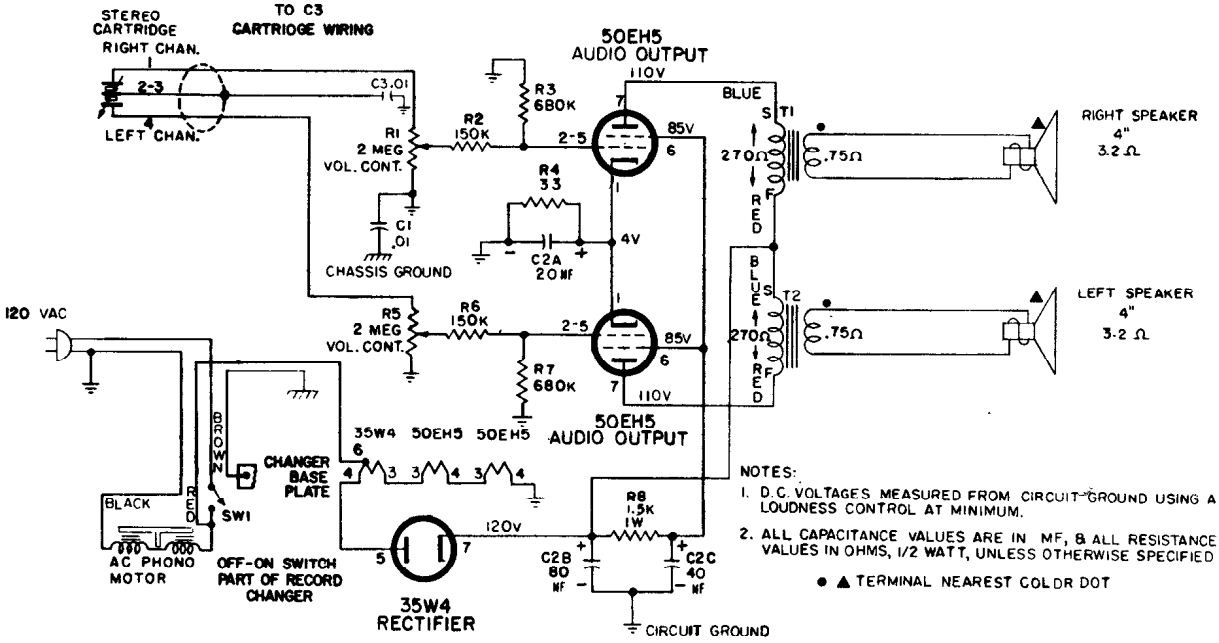
1. VOLTAGE MEASUREMENTS MADE WITH A VTVM FROM POINTS INDICATED TO B- WITH VOLUME CONTROL AT MINIMUM, LINE VOLTAGE AT 120 VAC.
2. UNLESS OTHERWISE INDICATED: ALL CAPACITANCE VALUES LESS THAN ONE ARE IN MICROFARADS AND VALUES GREATER THAN ONE ARE IN PICOFARADS. ALL RESISTANCE ARE IN OHMS 1/2 WATTS.



WESTINGHOUSE

Models H-127ACS1, H-127ACS6

Chassis V-2539-1



NOTES:

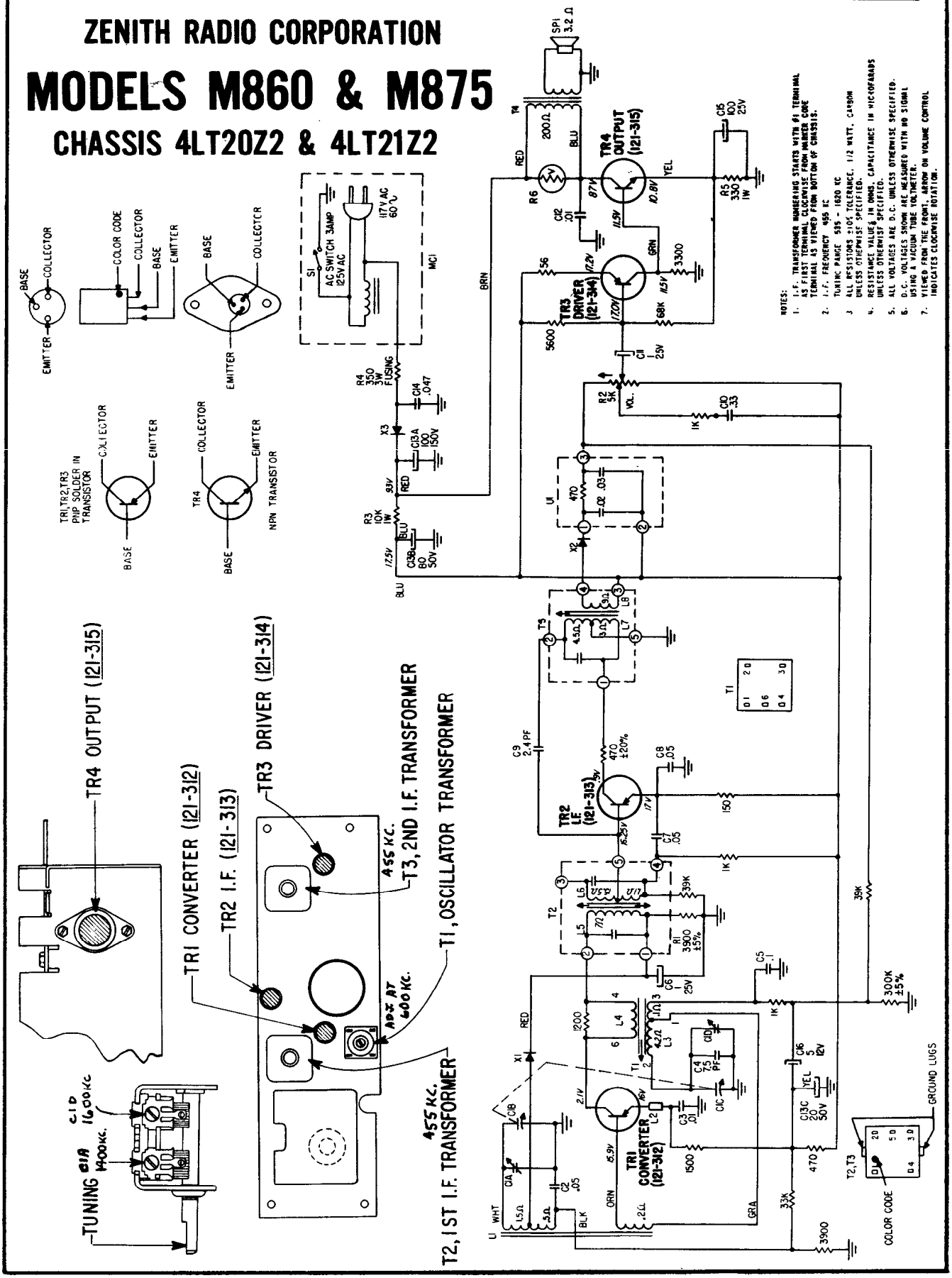
1. D.C. VOLTAGES MEASURED FROM CIRCUIT GROUND USING A V T V M, LOUDNESS CONTROL AT MINIMUM.
2. ALL CAPACITANCE VALUES ARE IN MF, & ALL RESISTANCE VALUES IN OHMS, 1/2 WATT, UNLESS OTHERWISE SPECIFIED

● ▲ TERMINAL NEAREST COLOR DOT

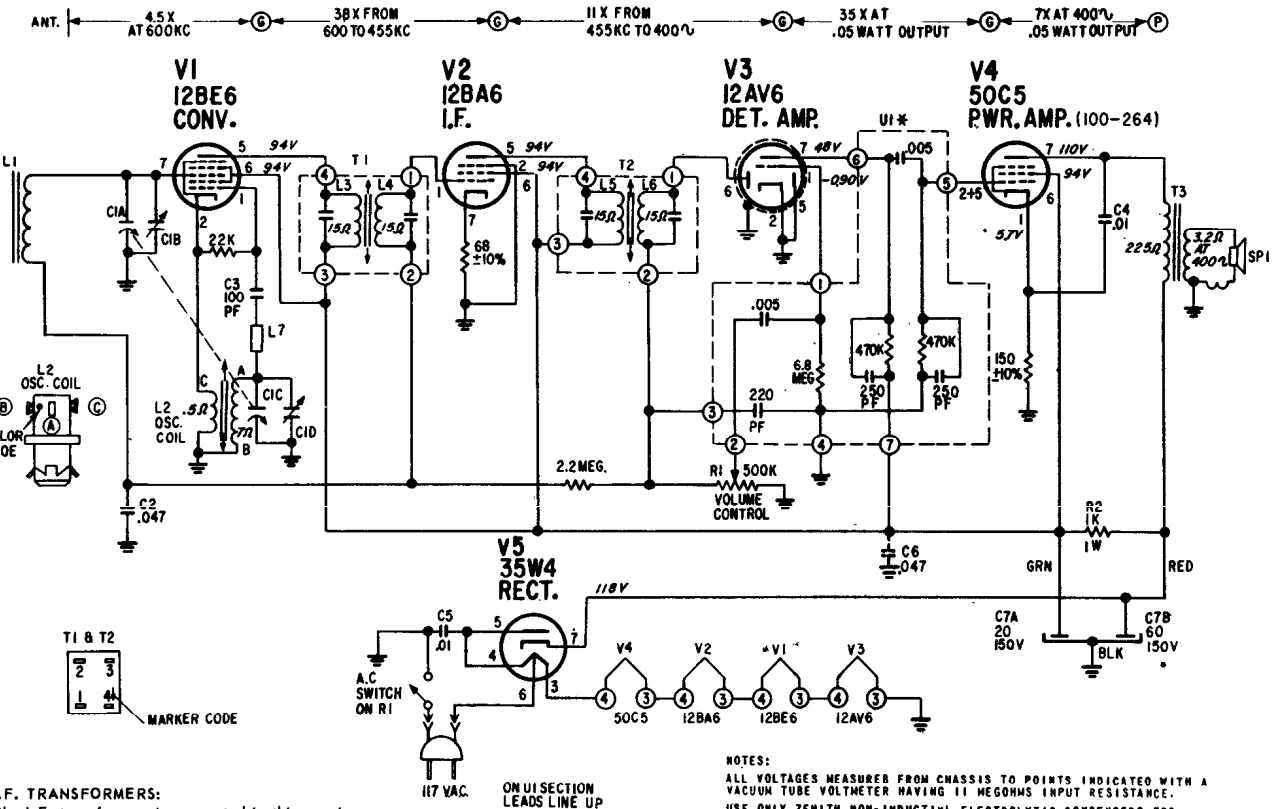
ZENITH RADIO CORPORATION

MODELS M860 & M875

CHASSIS 4LT20Z2 & 4LT21Z2



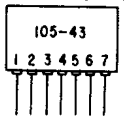
ZENITH RADIO CORPORATION MODEL T305C, L & W USING CHASSIS 5M02



I.F. TRANSFORMERS:

The I.F. transformers incorporated in this receiver are of the new permeability tuned type. The advantage of this type is its extreme stability under various humidity and temperature conditions. The upper coil is the secondary and the lower the primary. When adjusting these I.F. transformers, the tuning wrench 68-26 can be inserted into the top slug, rotated until maximum output is obtained and then dropped down to the lower slug and the same operation repeated. The tuning wrench is so designed that turning one slug does not affect the adjustment of the other.

ON U1 SECTION LEADS LINE UP ACCORDING TO THE PART NO AS SHOWN



NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHMS INPUT RESISTANCE.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD CG SHOWN IN DOTTED LINES.

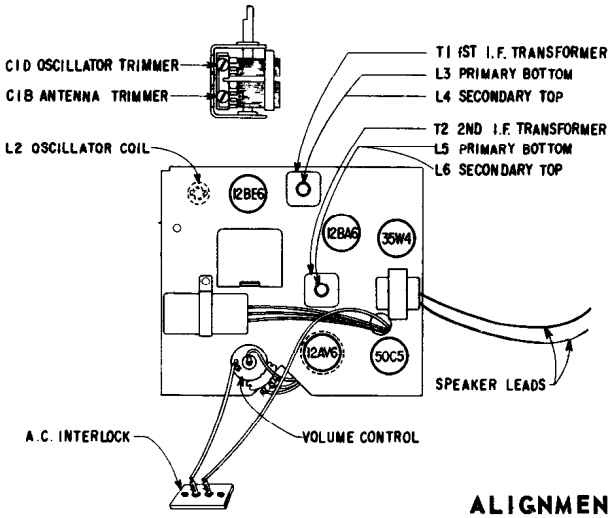
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.

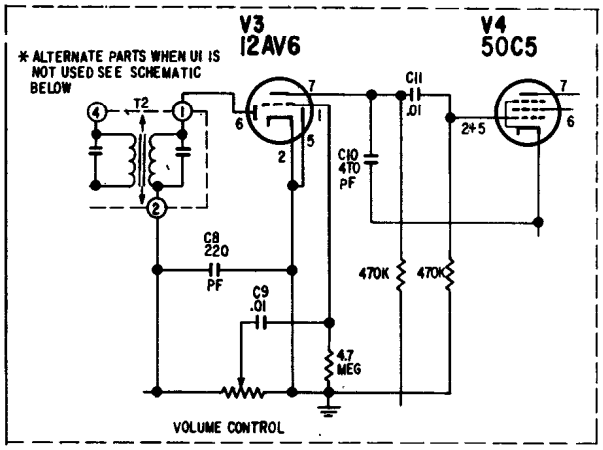
I.F. FREQUENCY 455 KC

TUNING RANGE 535 - 1620 KC

ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.

DENOTES CHASSIS



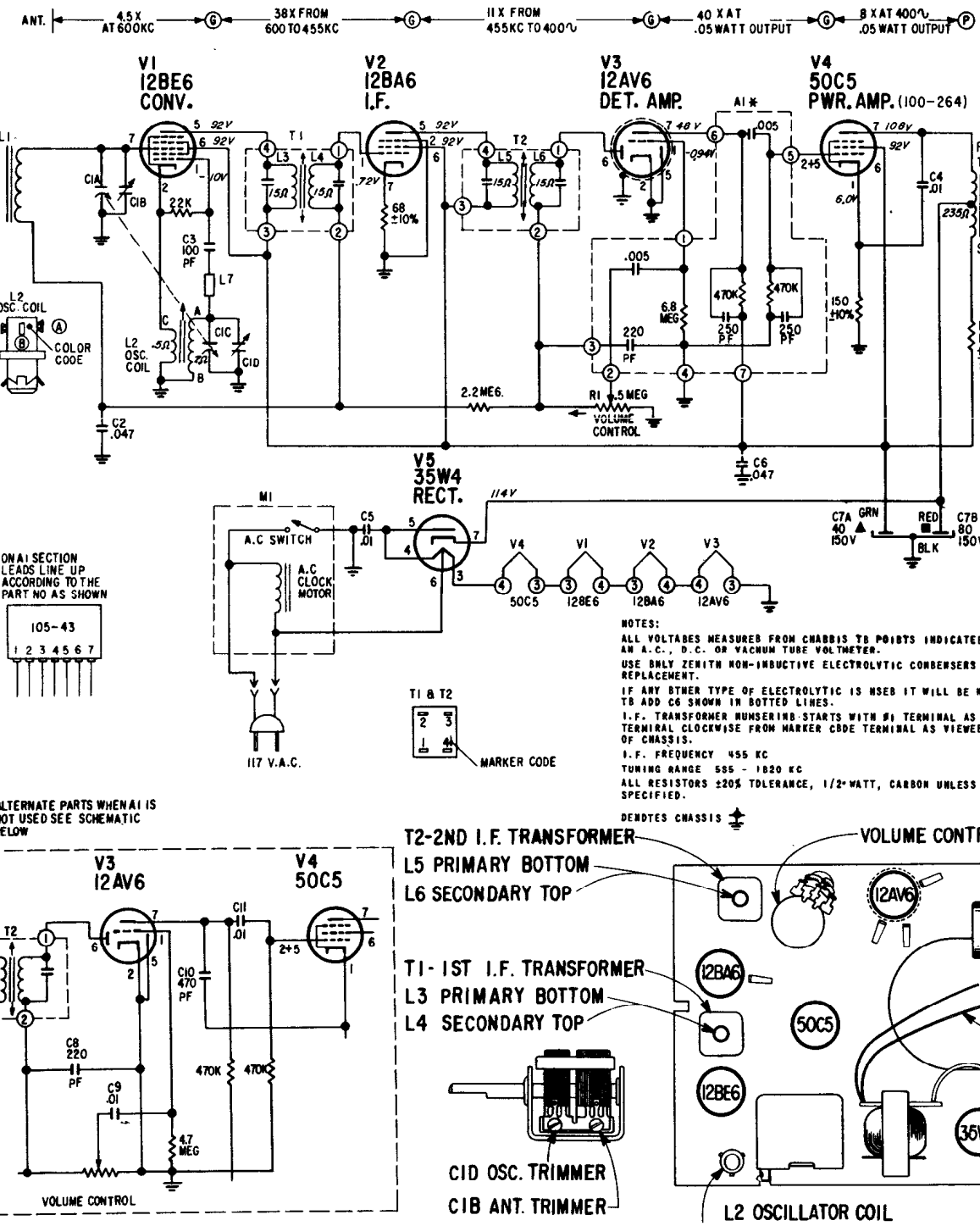


ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop Coupled Loosely to Wave magnet	–	1600 Kc.	1600 Kc.	C1D	Set Osc. to Dial Scale.
3		–	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage.

ZENITH RADIO CORPORATION

MODELS M507B,C,W AND M511C,W,V USING CHASSIS 5M03



NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH AN A.C., D.C. OR VACNUM TUBE VOLTMETER.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.

I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.

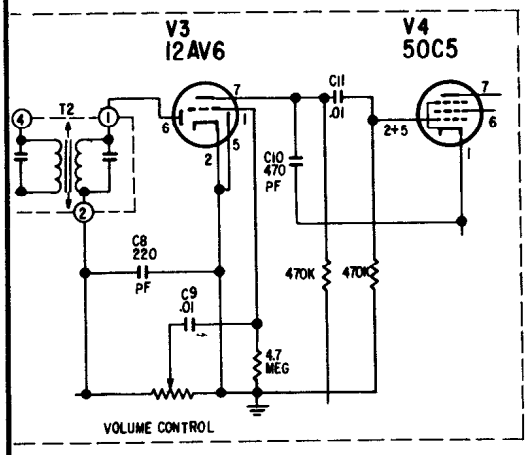
I.F. FREQUENCY 455 KC

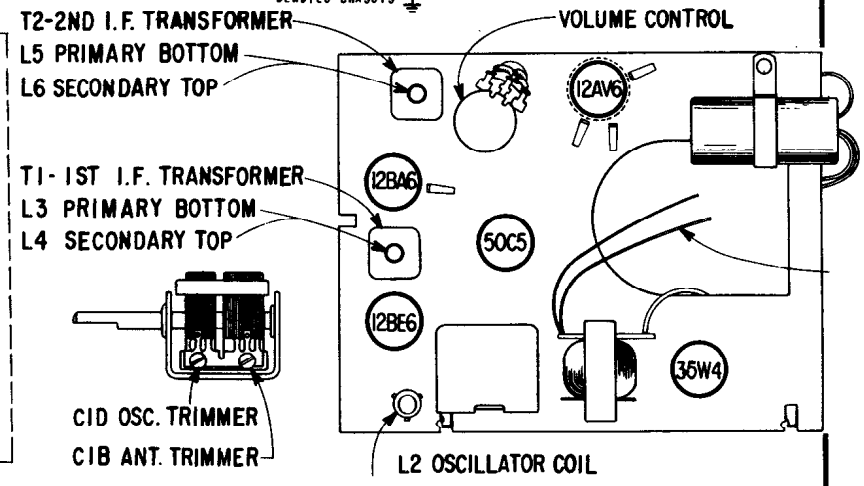
TUNING RANGE 535 - 1620 KC

ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.

DENOTES CHASSIS

* ALTERNATE PARTS WHEN A1 IS NOT USED SEE SCHEMATIC BELOW

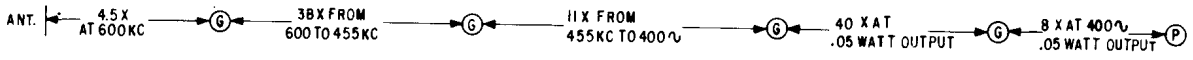


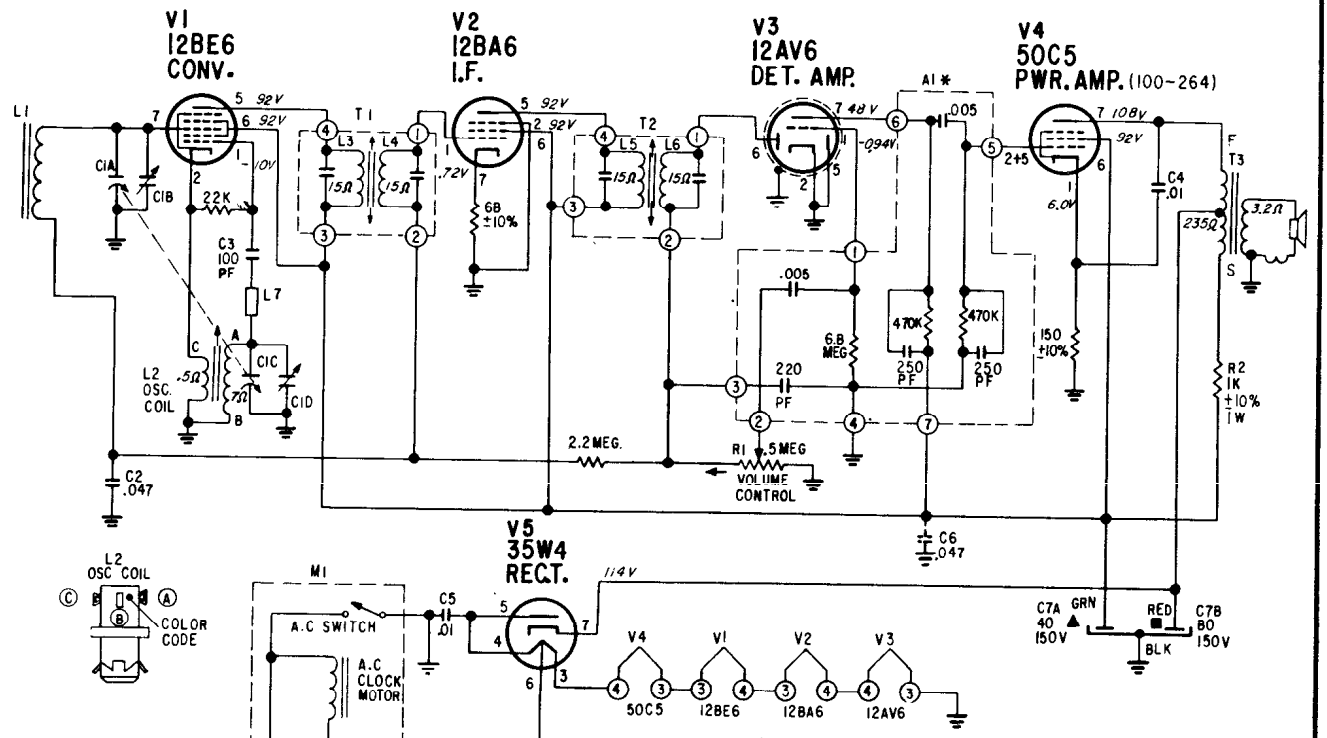


ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop Coupled Loosely to Wave magnet	-	1600 Kc.	1600 Kc.	C1D	Set Osc. to Dial Scale.
3		-	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage.

ZENITH RADIO CORPORATION MODELS T315B, W & P CHASSIS 5M06





NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH AN A.C., D.C. OR VACUUM TUBE VOLTMETER.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

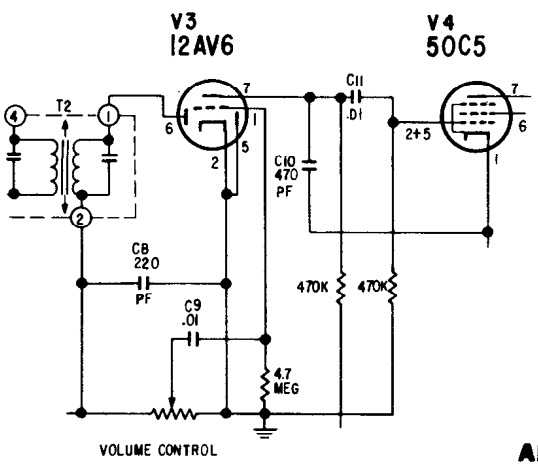
IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.

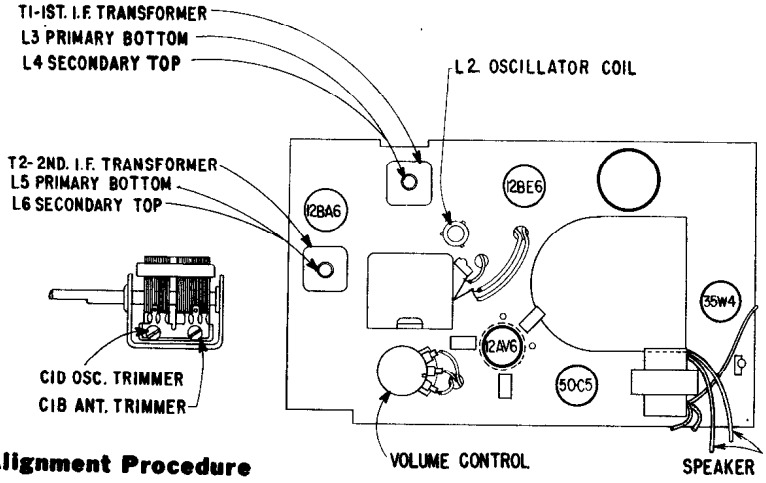
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.

I.F. FREQUENCY 455 KC

TUNING RANGE 535 - 1620 KC

* ALTERNATE PARTS WHEN A1 IS NOT USED SEE SCHEMATIC BELOW

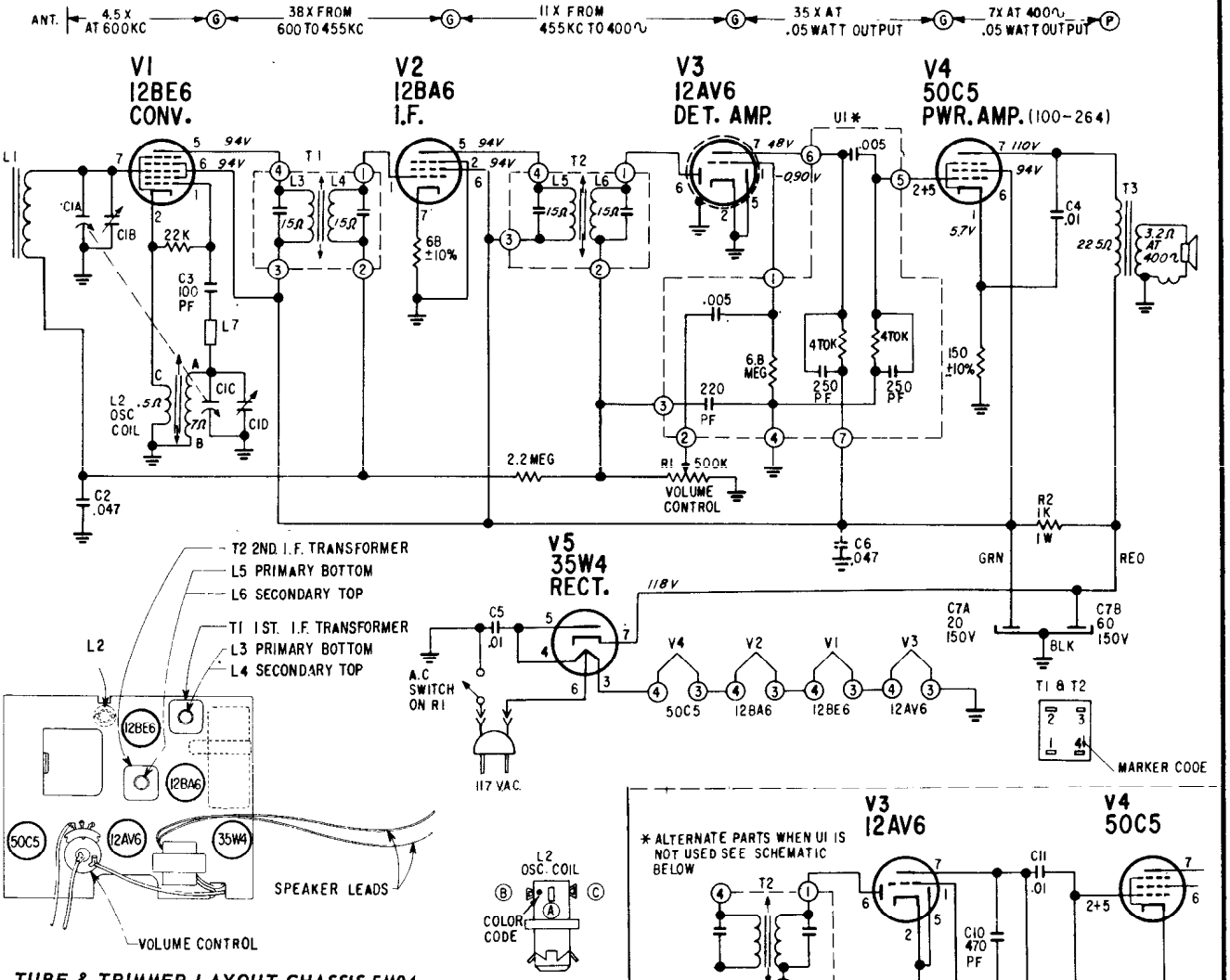




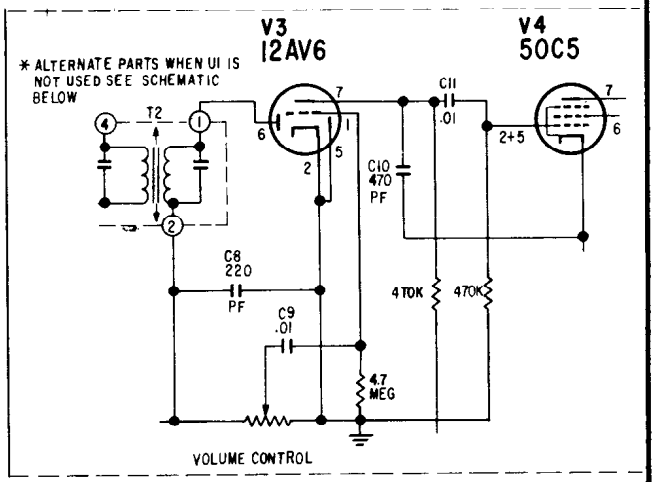
Alignment Procedure

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3, 4, 5, 6	For I.F. Alignment.
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	CID	Set Oscillator to Dial Scale
3		—	1400 Kc.	1400 Kc.	CIB	Align Antenna Stage

ZENITH RADIO MODELS M504C, L & W USING CHASSIS 5M04, MODELS M506C, P & W USING CHASSIS 5M02 AND MODELS M508B, C, L & W USING CHASSIS 5M05



TUBE & TRIMMER LAYOUT CHASSIS 5M04



NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHMS INPUT RESISTANCE.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.

I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.

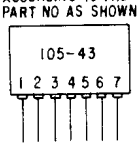
I.F. FREQUENCY 455 KC

TUNING RANGE 535 - 1620 KC

ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.

DENOTES CHASSIS

ON U1 SECTION LEADS LINE UP ACCORDING TO THE PART NO AS SHOWN

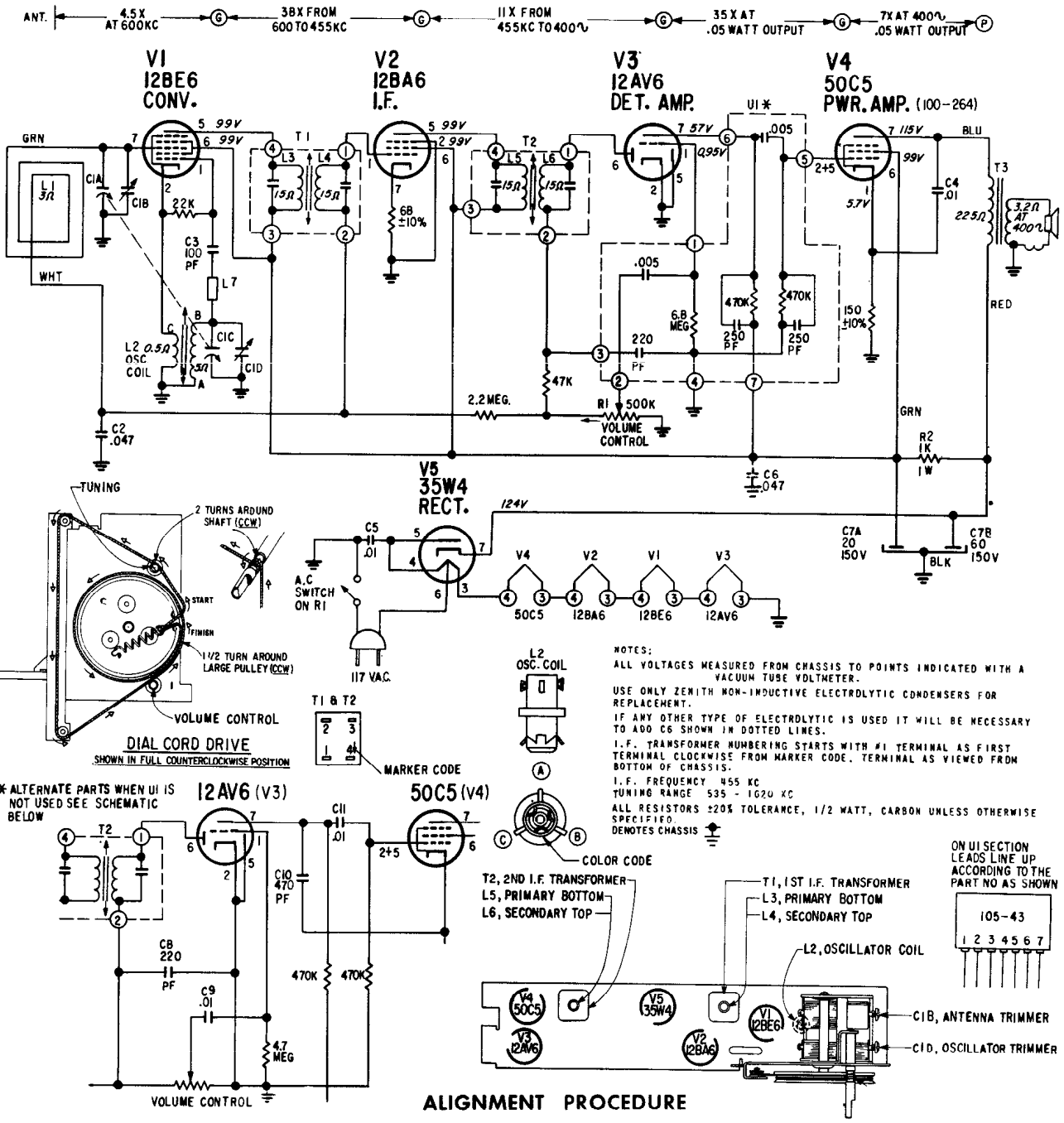


ALIGNMENT PROCEDURE

OPER.	CONNECT OSCILLATOR TO	DUMMY ANT.	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop	–	1600 Kc.	1600 Kc.	C1D	Set Osc. to Dial Scale.
3	Coupled Loosely to Wave magnet	–	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage

ZENITH RADIO CORPORATION

MODELS M512B, C & W CHASSIS 5M13

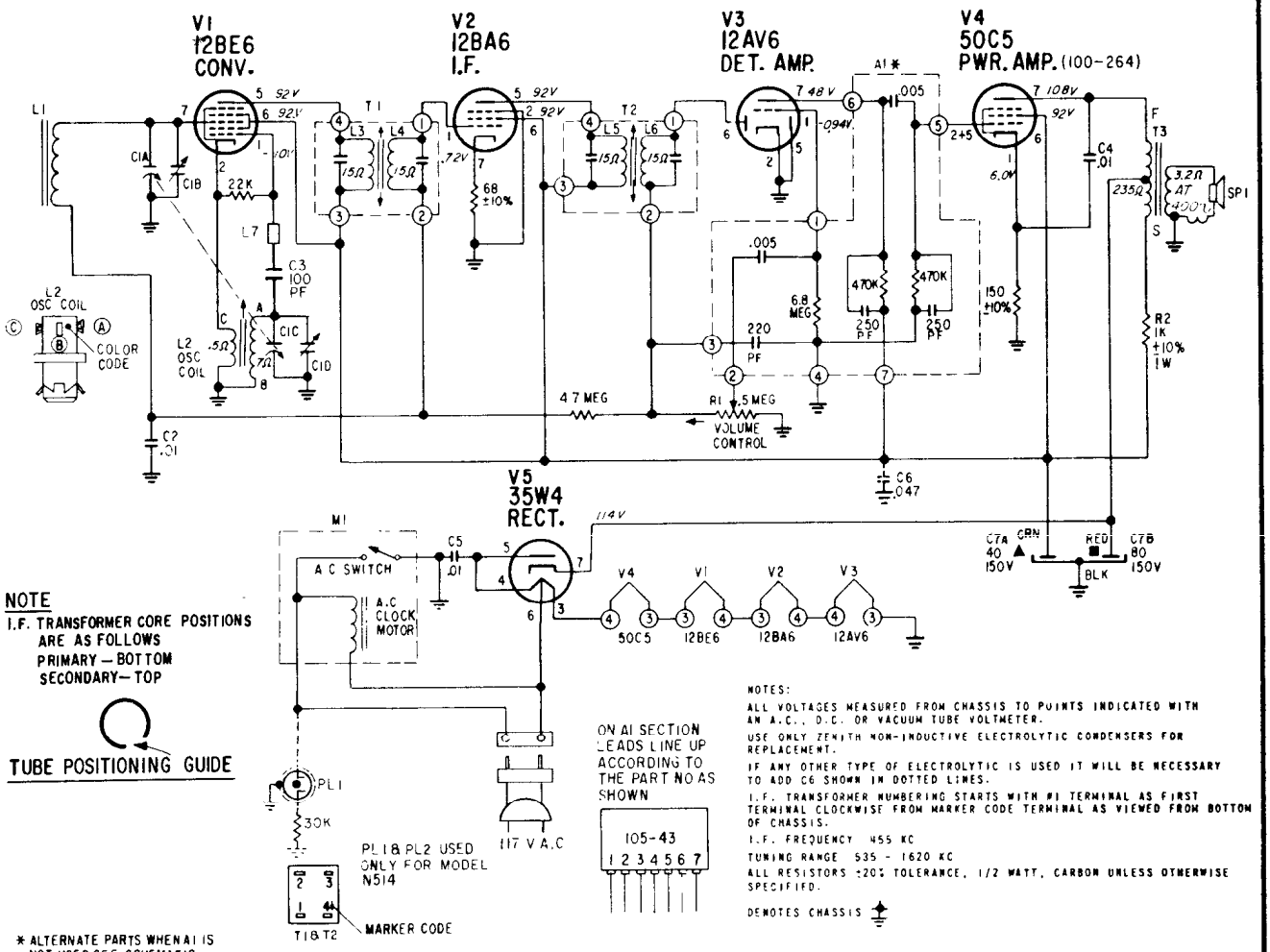


NOTES;
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER.
USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.
IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE. TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
I.F. FREQUENCY 455 KC
TUNING RANGE 535 - 1620 KC
ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
DENOTES CHASSIS

ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,4,5,6	For I.F. Alignment.
2	One Turn Loop Coupled Loosely to Wave Magnet	____	1600 Kc.	1600 Kc.	CID	Set Oscillator to Dial Scale
3		____	1400 Kc.	1400 Kc.	CIB	Align Antenna Stage

ZENITH RADIO MODELS N511C,L,W-N513B,J,W-N514C,G,L USING CHASSIS 5N02



NOTE

I.F. TRANSFORMER CORE POSITIONS ARE AS FOLLOWS
PRIMARY — BOTTOM
SECONDARY — TOP

TUBE POSITIONING GUIDE

NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH AN A.C., D.C. OR VACUUM TUBE VOLTMETER.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.

I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.

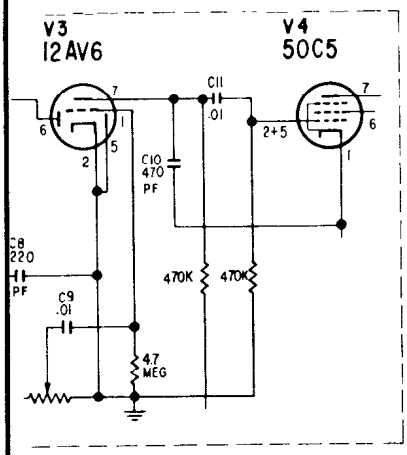
I.F. FREQUENCY 455 KC

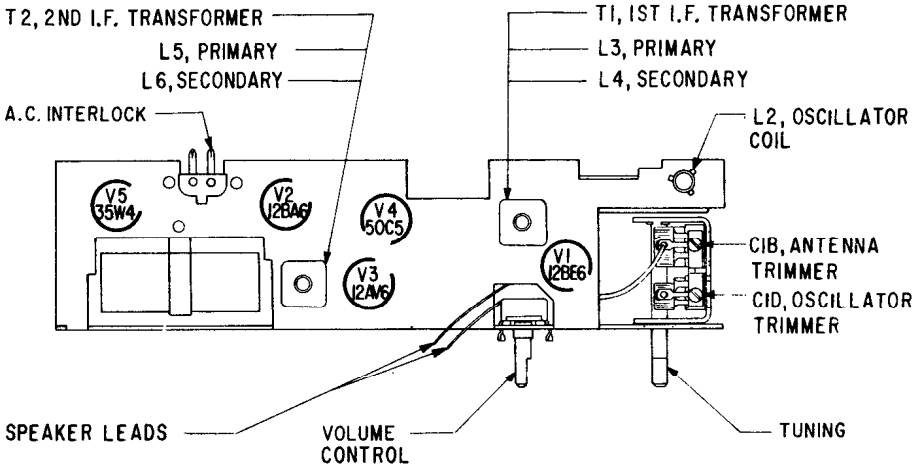
TUNING RANGE 535 - 1620 KC

ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.

DENOTES CHASSIS

* ALTERNATE PARTS WHEN A1 IS NOT USED SEE SCHEMATIC BELOW



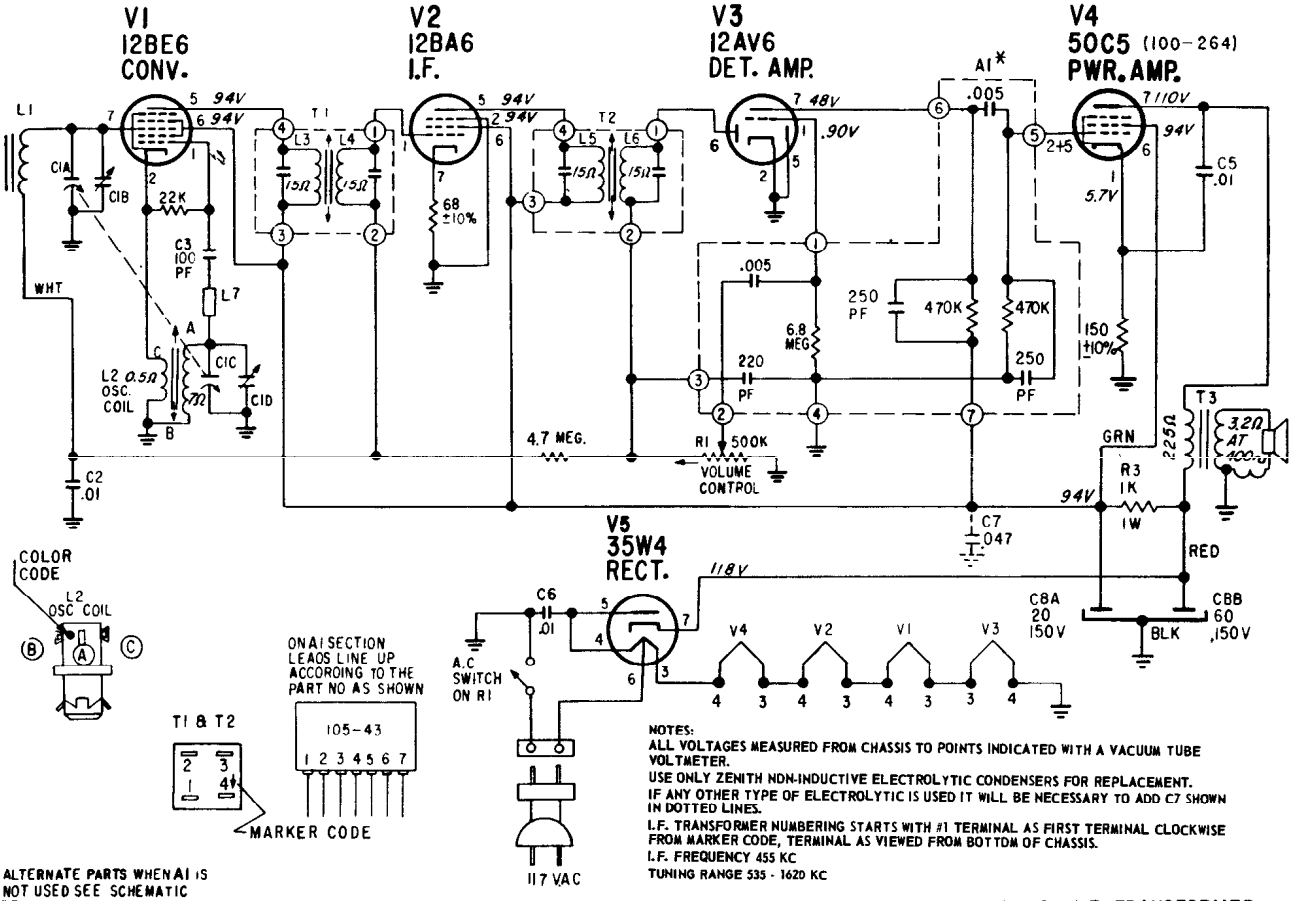


ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop Coupled Loosely to Wave magnet	–	1600 Kc.	1600 Kc.	C1D	Set Osc. to Dial Scale.
3		–	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage.

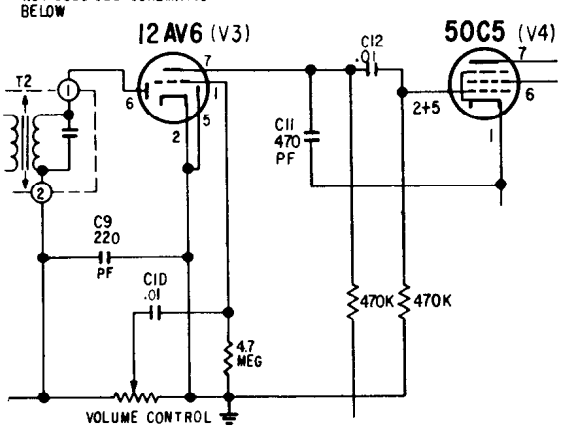
ZENITH RADIO CORPORATION

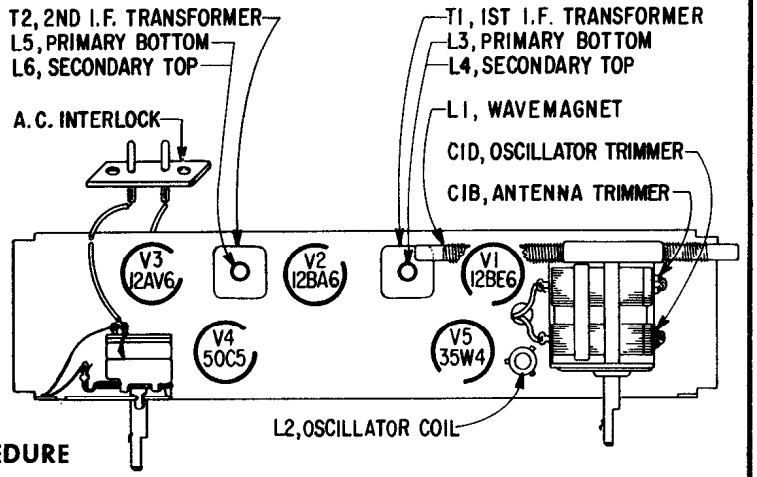
MODELS N506C, L & W – N508B, L & W USING CHASSIS 5N03



NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER.
USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.
IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C7 SHOWN IN DOTTED LINES.
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE, TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
I.F. FREQUENCY 455 KC
TUNING RANGE 535 - 1620 KC

* ALTERNATE PARTS WHEN A1 IS NOT USED SEE SCHEMATIC BELOW



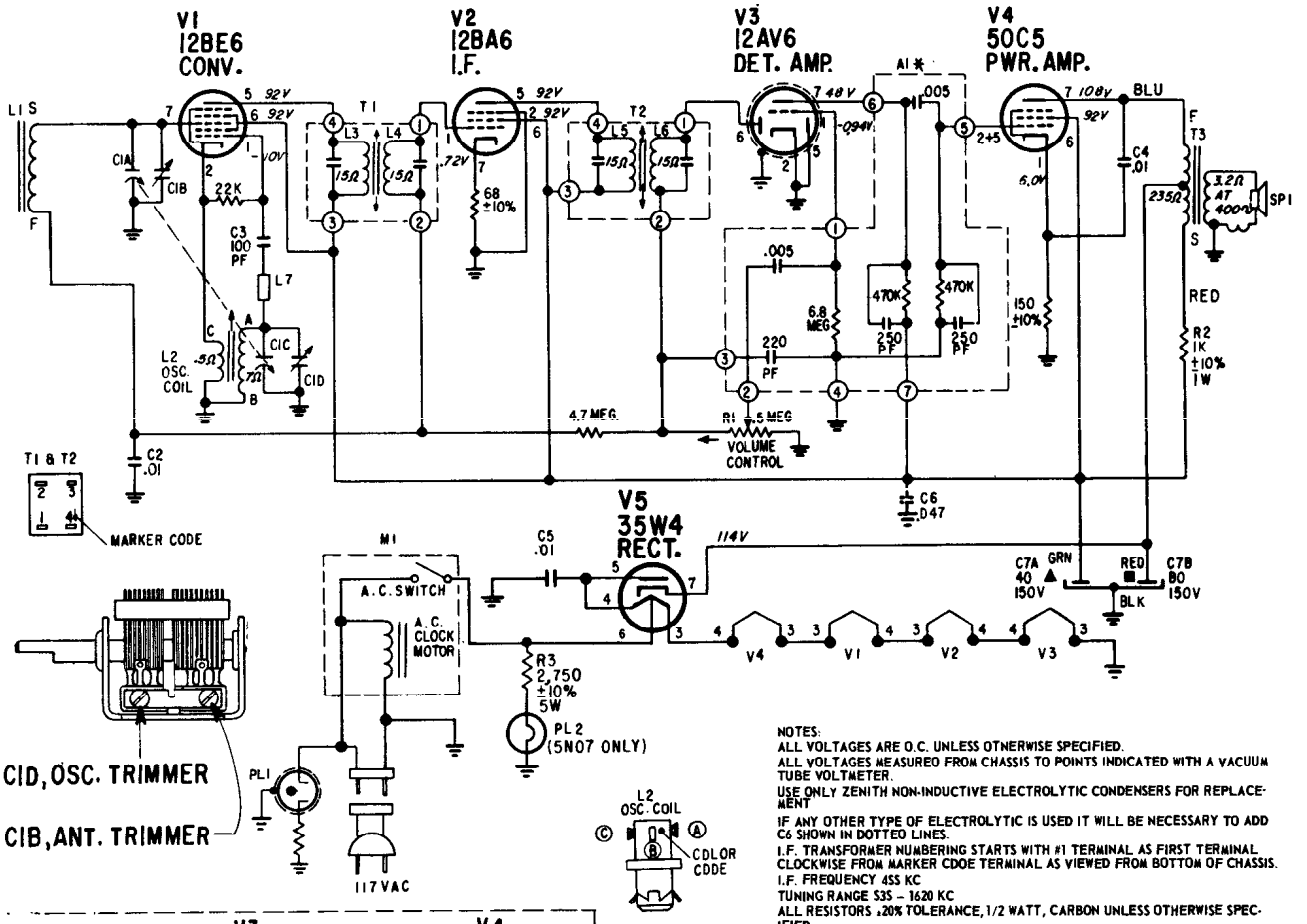


ALIGNMENT PROCEDURE

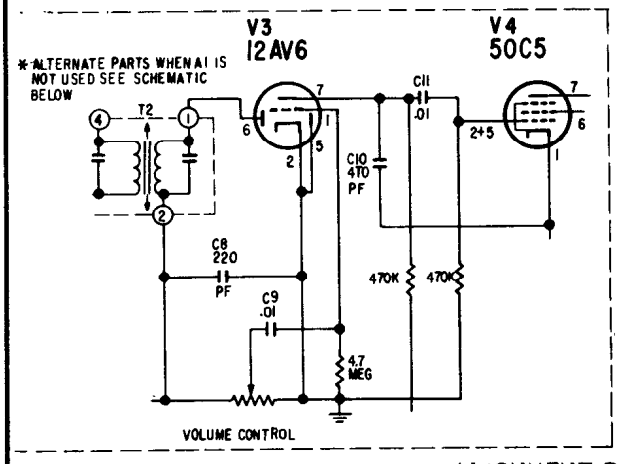
OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,4,5,6	For I.F. Alignment.
2	One Turn Loop Coupled Loosely to Weve Magnet	——	1600 Kc.	1600 Kc.	CID	Set Oscillator to Diel Scele
3		——	1400 Kc.	1400 Kc.	CIB	Align Antenne Stege

ZENITH RADIO CORPORATION

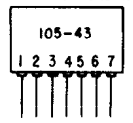
MODELS N516J, L & W USING CHASSIS 5N09
AND MODELS N519C, J, L, & W USING CHASSIS 5N07



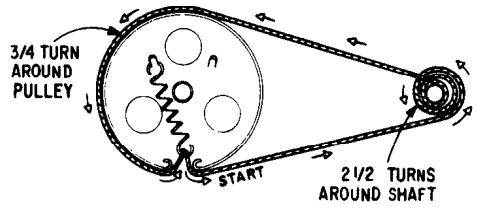
NOTES:
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER.
USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT
IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C6 SHOWN IN DOTTED LINES.
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CDOE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
I.F. FREQUENCY 455 KC
TUNING RANGE 535 – 1620 KC
ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR VALUE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
DENOTES CHASSIS



ON AI SECTION LEADS LINE UP ACCORDING TO THE PART NO AS SHOWN



DIAL CORD DRIVE
SHOWN IN COUNTERCLOCKWISE POSITION

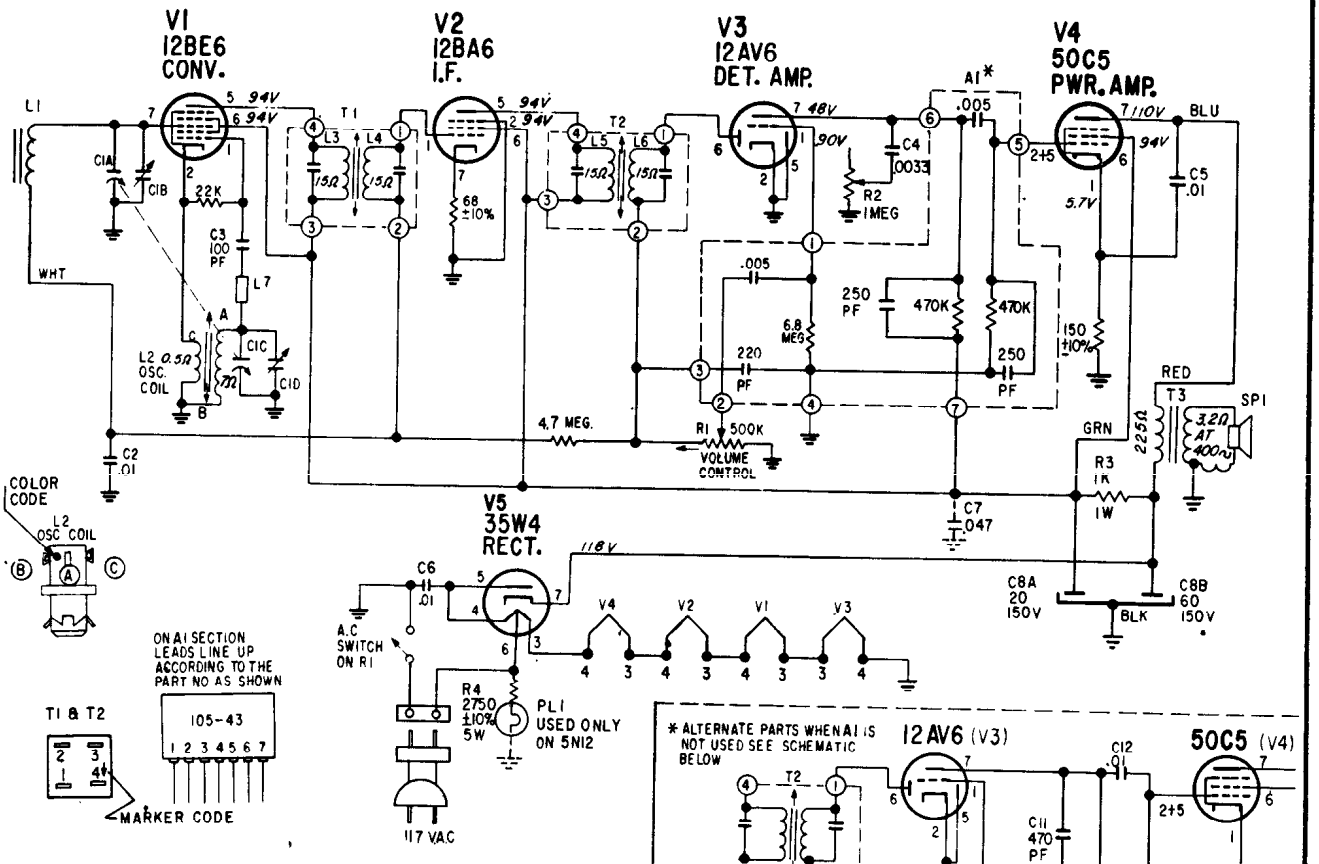


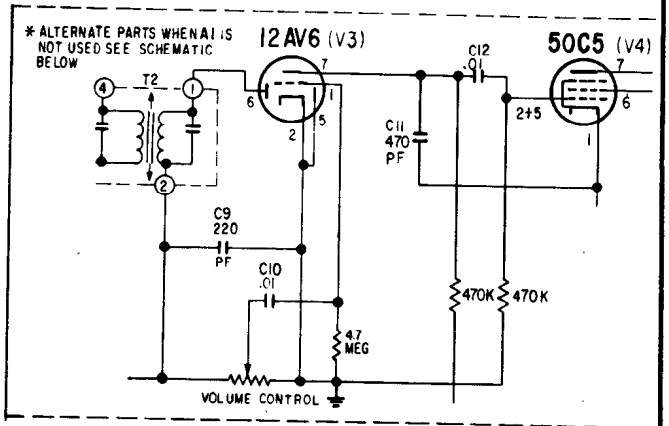
ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop Coupled Loosely to Wave magnet	-	1600 Kc.	1600 Kc.	CID	Set Osc. to Diol Scale.
3		-	1400 Kc.	1400 Kc.	CIB	Align Antenna Stage.

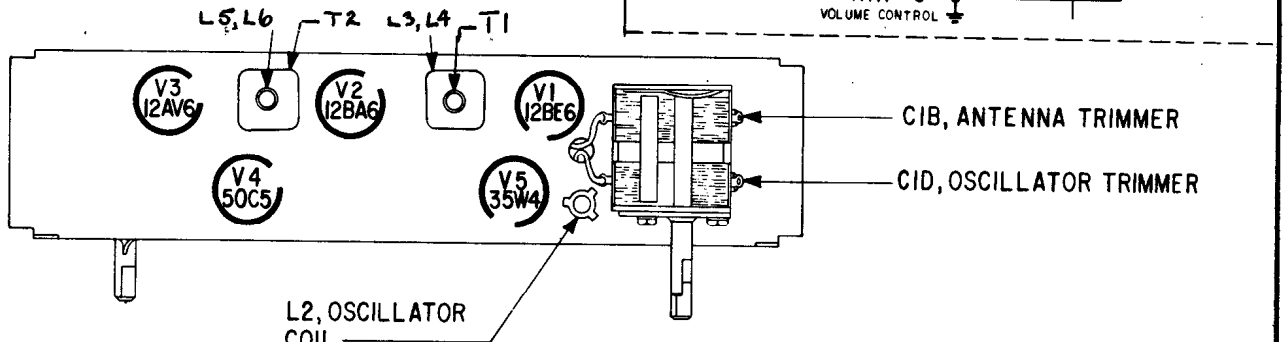
ZENITH RADIO CORPORATION

MODELS N509C, F & W CHASSIS 5N13 AND N512A, H & J CHASSIS 5N12





NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH AN VACUUM TUBE VOLTMETER.
USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.
IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C7 SHOWN IN DOTTED LINES.
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE, TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
I.F. FREQUENCY 455 KC
TUNING RANGE 535 – 1620 KC
ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
DENOTES CHASSIS

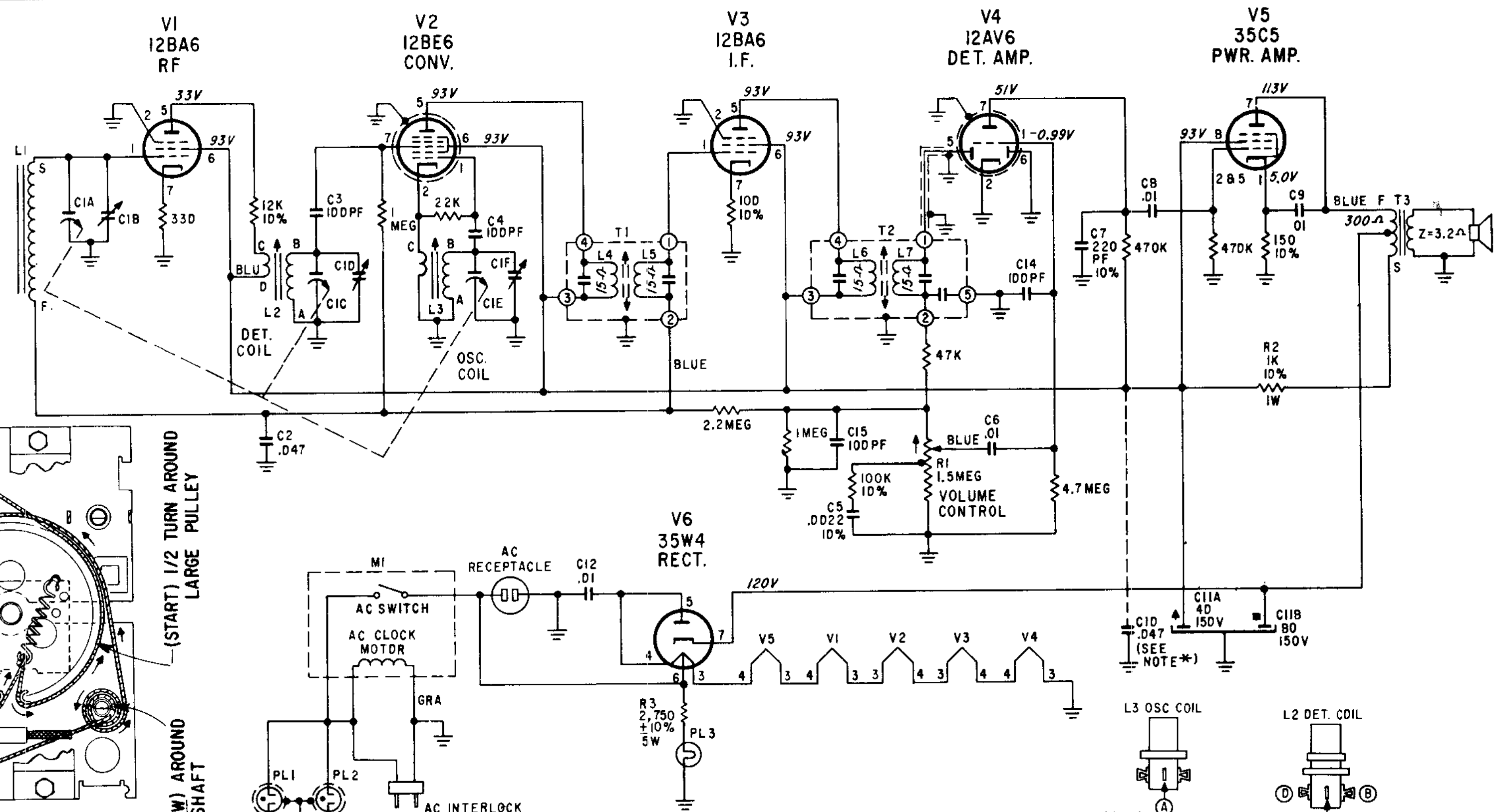


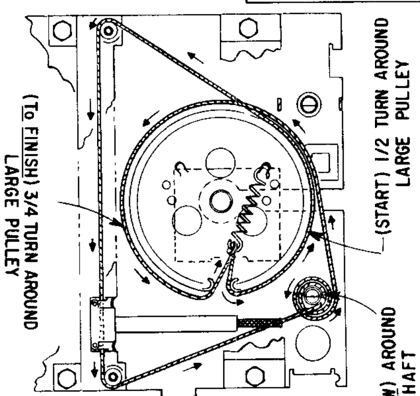
5N12 & 5N13 CHASSIS LAYOUT

ALIGNMENT PROCEDURE

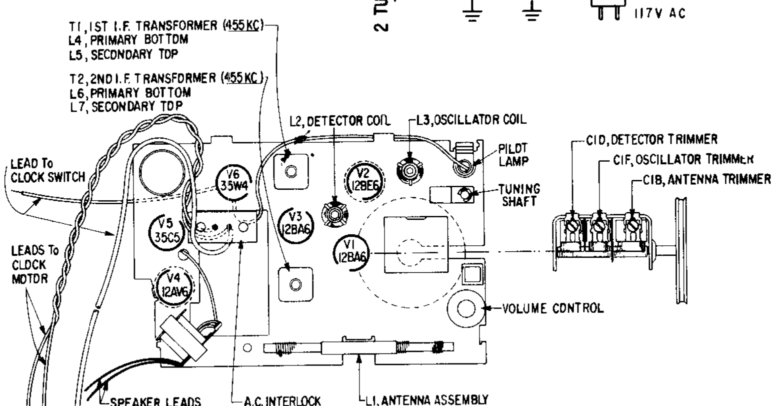
OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3,L4,L5,L6	Align I.F. for max. output.
2	One Turn Loop Coupled Loosely to Wave magnet	-	1600 Kc.	1600 Kc.	C1D	Set Osc. to Dial Scale.
3		-	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage.

ZENITH RADIO CORPORATION MODELS N624A, H & J CHASSIS 6N03

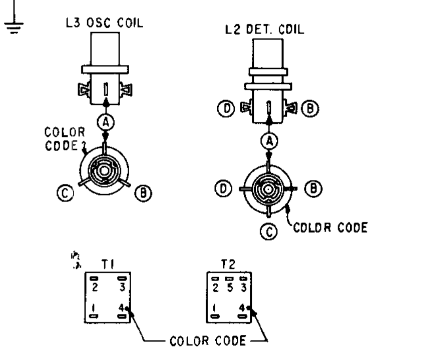




DIAL CORD DRIVE
IN COUNTERCLOCKWISE POSITION



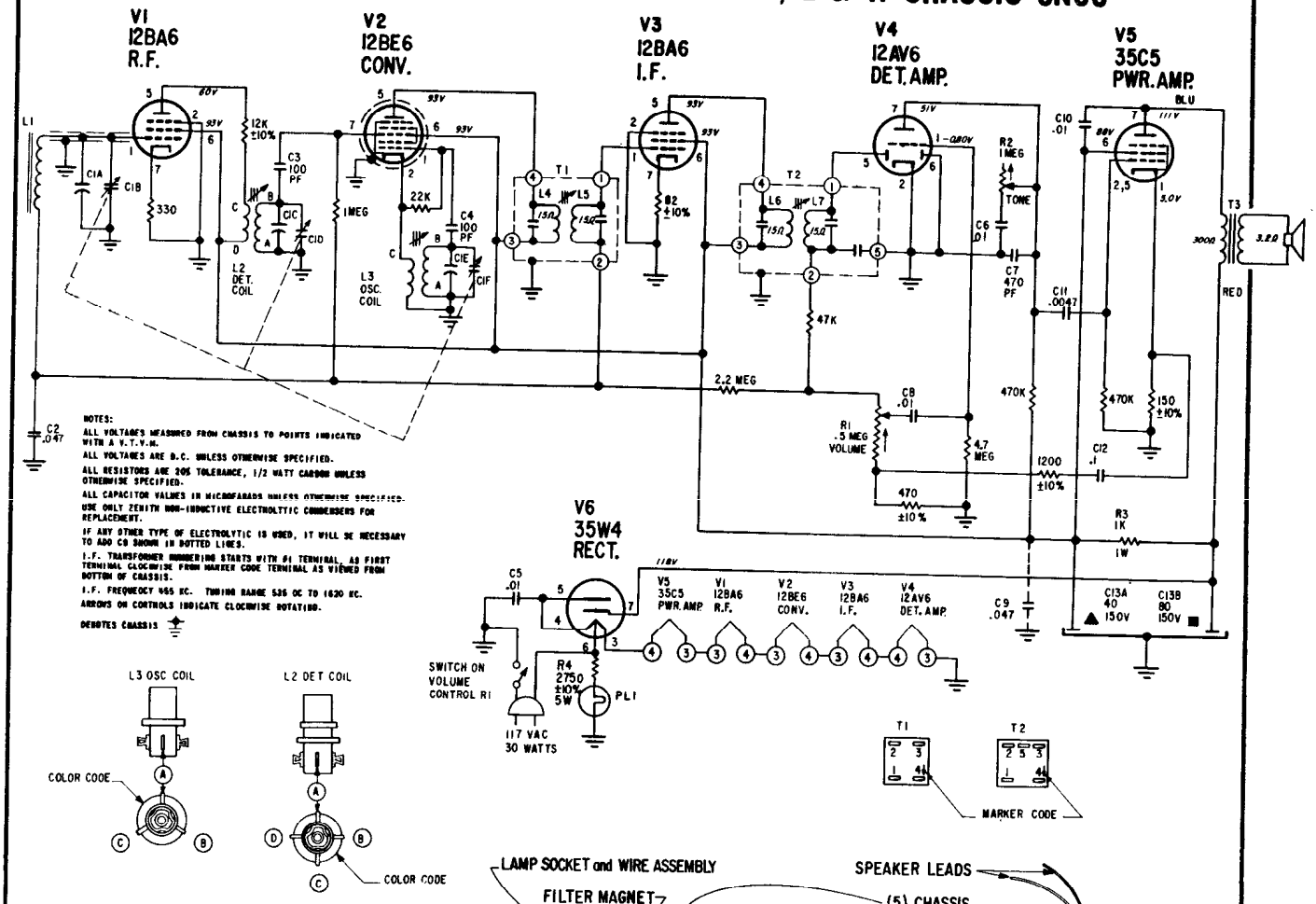
NOTES:
ALL VOLTAGES ARE D C. UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR VALUES ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
* USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTICS FOR REPLACEMENT IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C1D SHOWN BY DOTTED LINE.
I.F. TRANSFORMER NUMBERING STARTS WITH NO. 1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
I F. FREQUENCY: 455 KC TUNING RANGE: 535KC TO 1620KC
ARROWS ON CONTROLS DENOTES CLOCKWISE ROTATION.
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER, HAVING 11 MEGOHMS INPUT RESISTANCE.
DENOTES CHASSIS GROUND ⏚

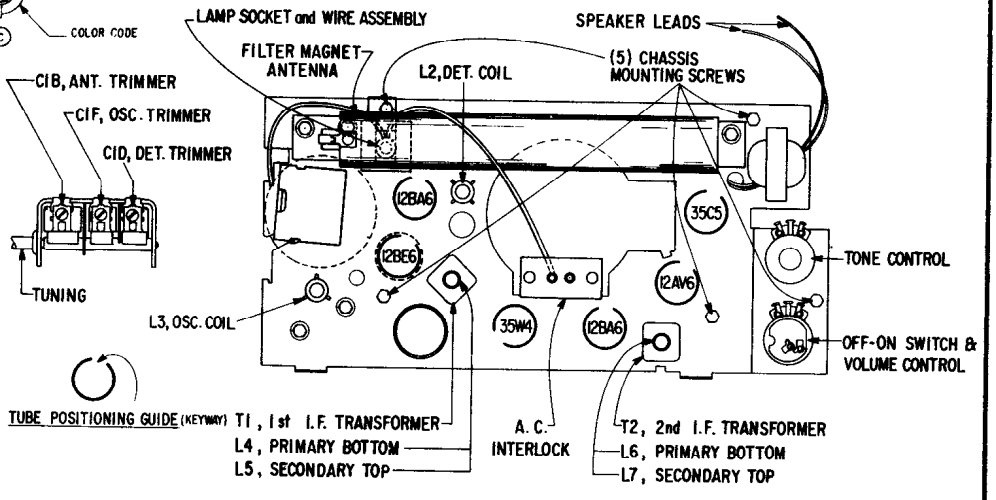


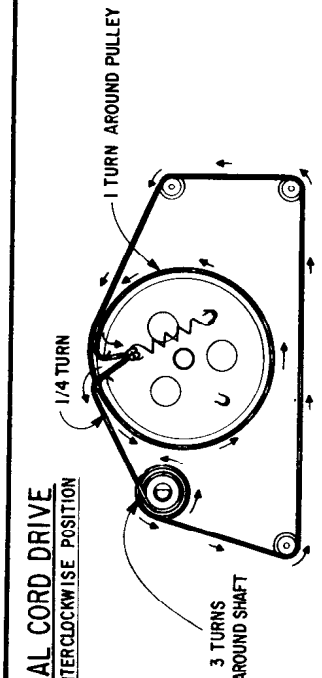
ALIGNMENT PROCEDURE

Operation	Connect Oscillator To	Dummy Antenna	Input Sig. Frequency	Set Dial At	Trimmers	Purpose
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc	L4, L5, L6 L7	For I.F. Alignment.
2	One Turn Loop Coupled	-	1600 Kc.	1600 Kc.	C1F	Set Oscillator to Dial Scale
3	Loosely to Wave Magnet	-	1400 Kc.	1400 Kc.	C1D, C1B	Align RF and Antenna Stage

ZENITH RADIO CORPORATION MODELS N615C, L & W CHASSIS 6N05



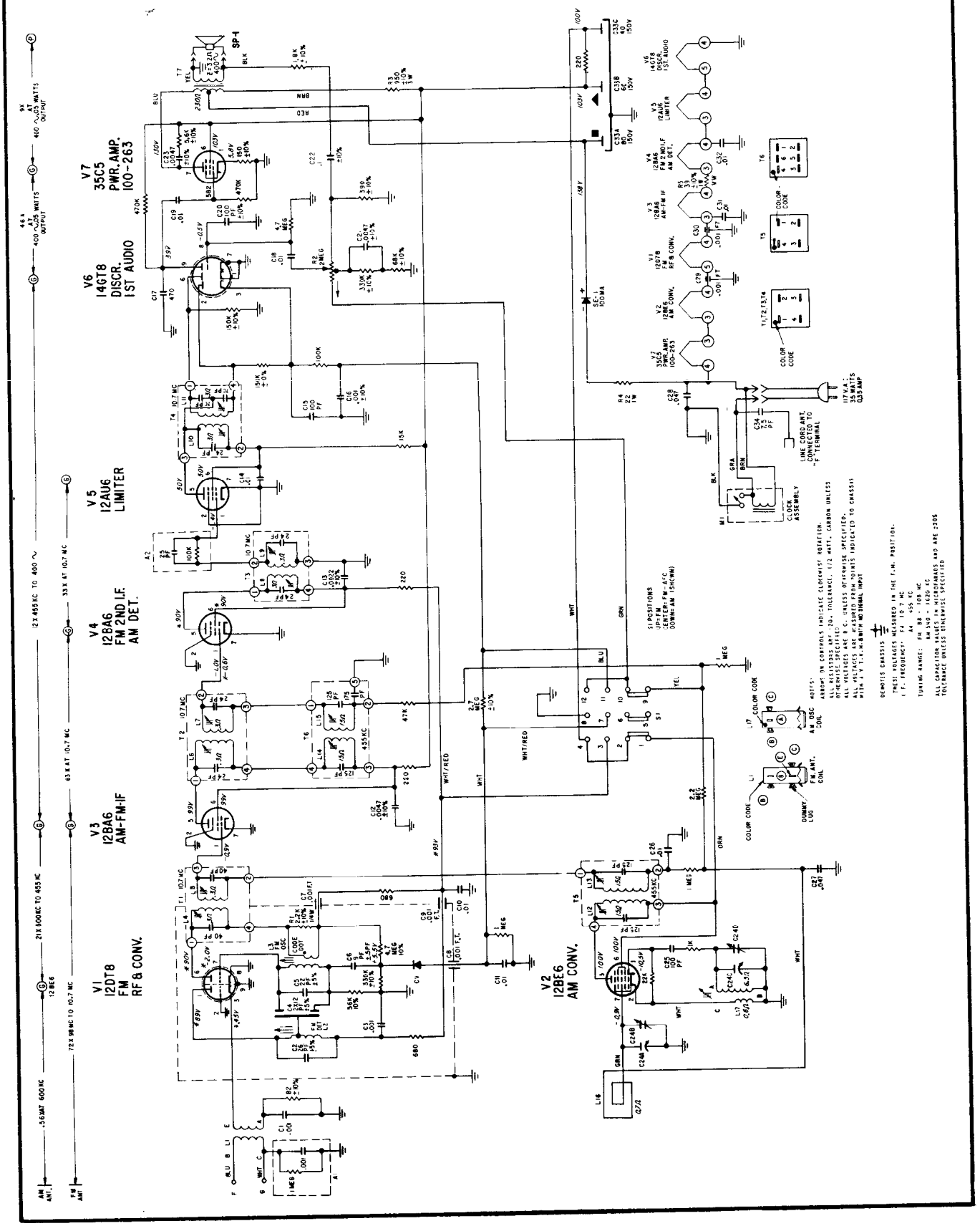




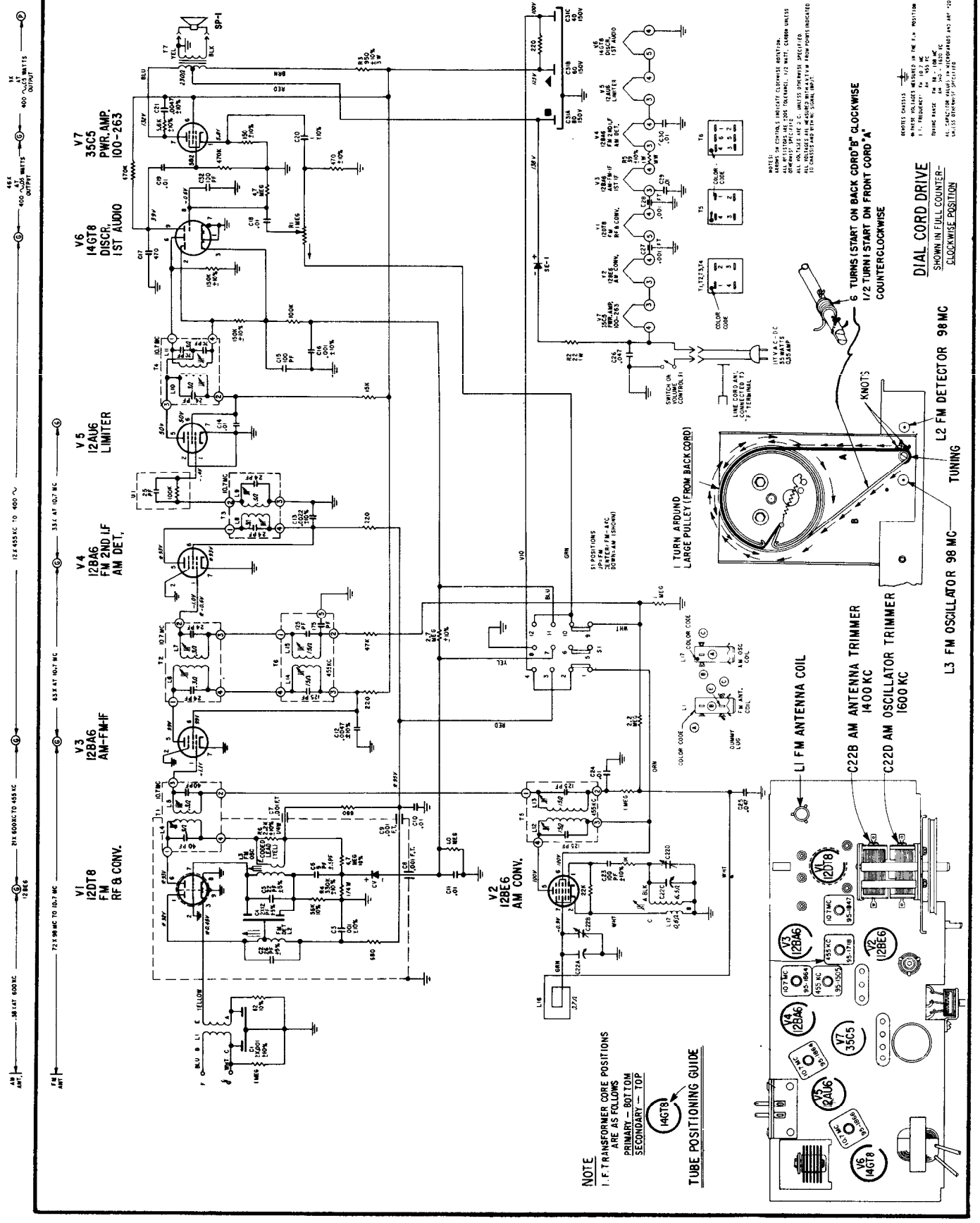
ALIGNMENT PROCEDURE

Operation	Connect Oscillator To	Dummy Antenna	Input Sig. Frequency	Set Dial At	Trimmers	Purpose
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc	L4, L5, L6, L7	For I.F. Alignment.
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	C1F	Set Oscillator to Dial Scale
3		—	1400 Kc.	1400 Kc.	C1D, C1B	Align Detector and Antenna Stage

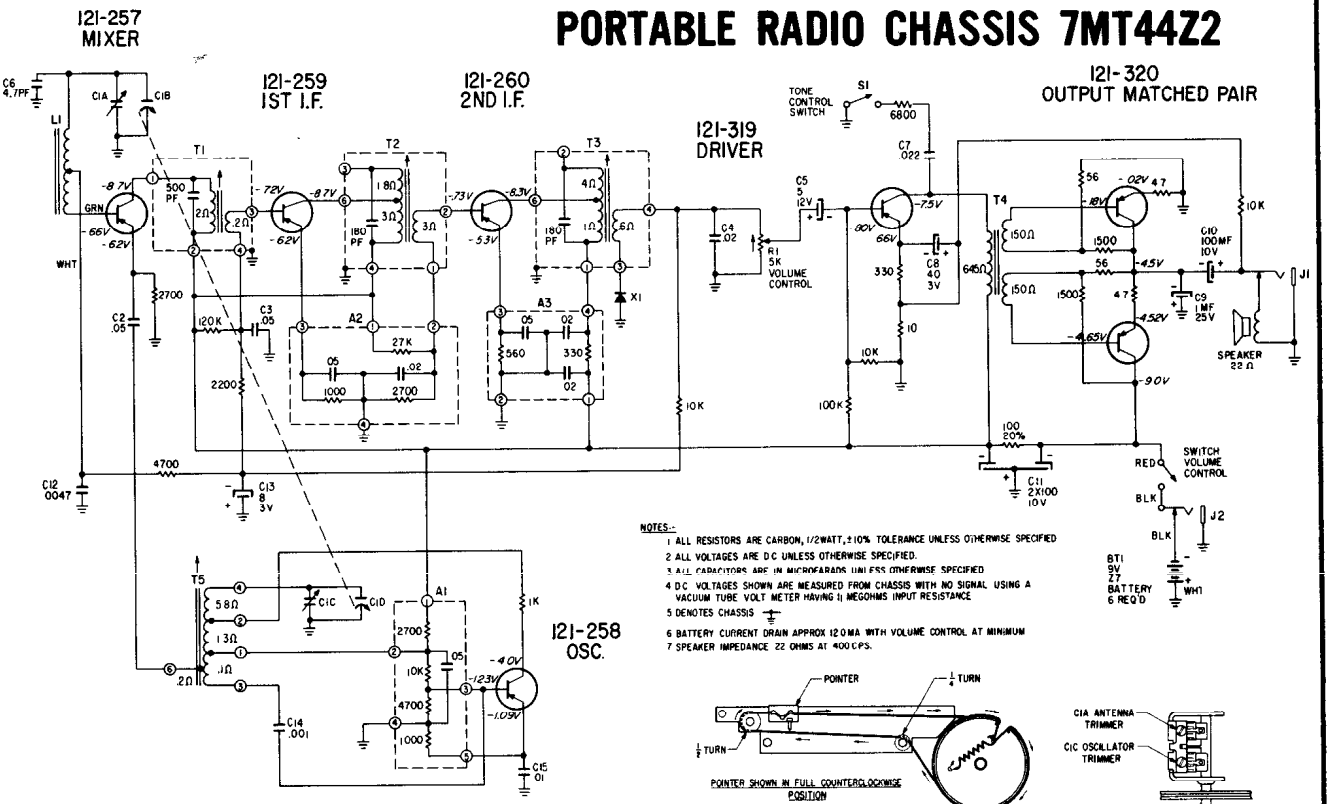
ZENITH RADIO CORPORATION
MODEL M729A CHASSIS 7M03

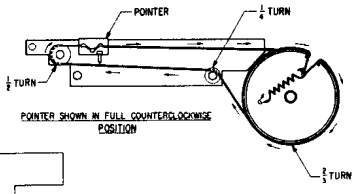


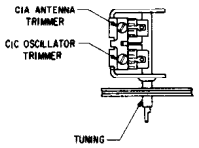
ZENITH RADIO Model M730W, Chassis 7M04

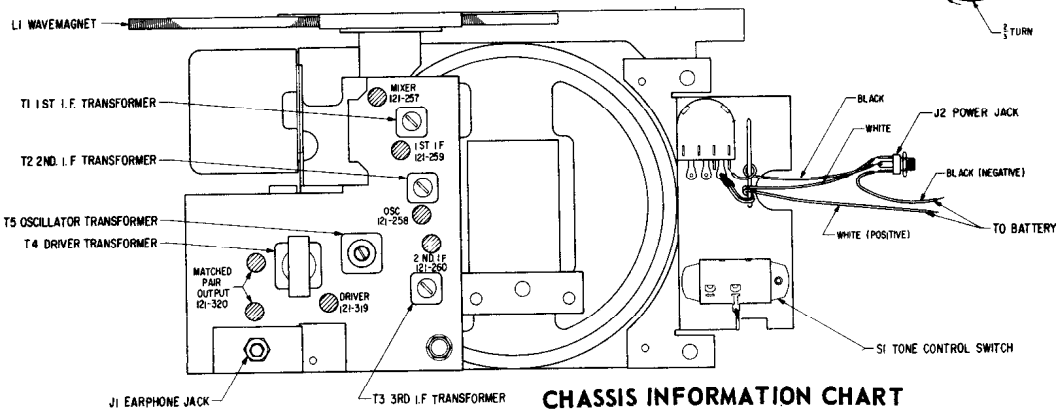


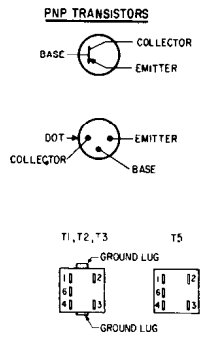
MODEL ROYAL 710M ALL TRANSISTOR PORTABLE RADIO CHASSIS 7MT44Z2









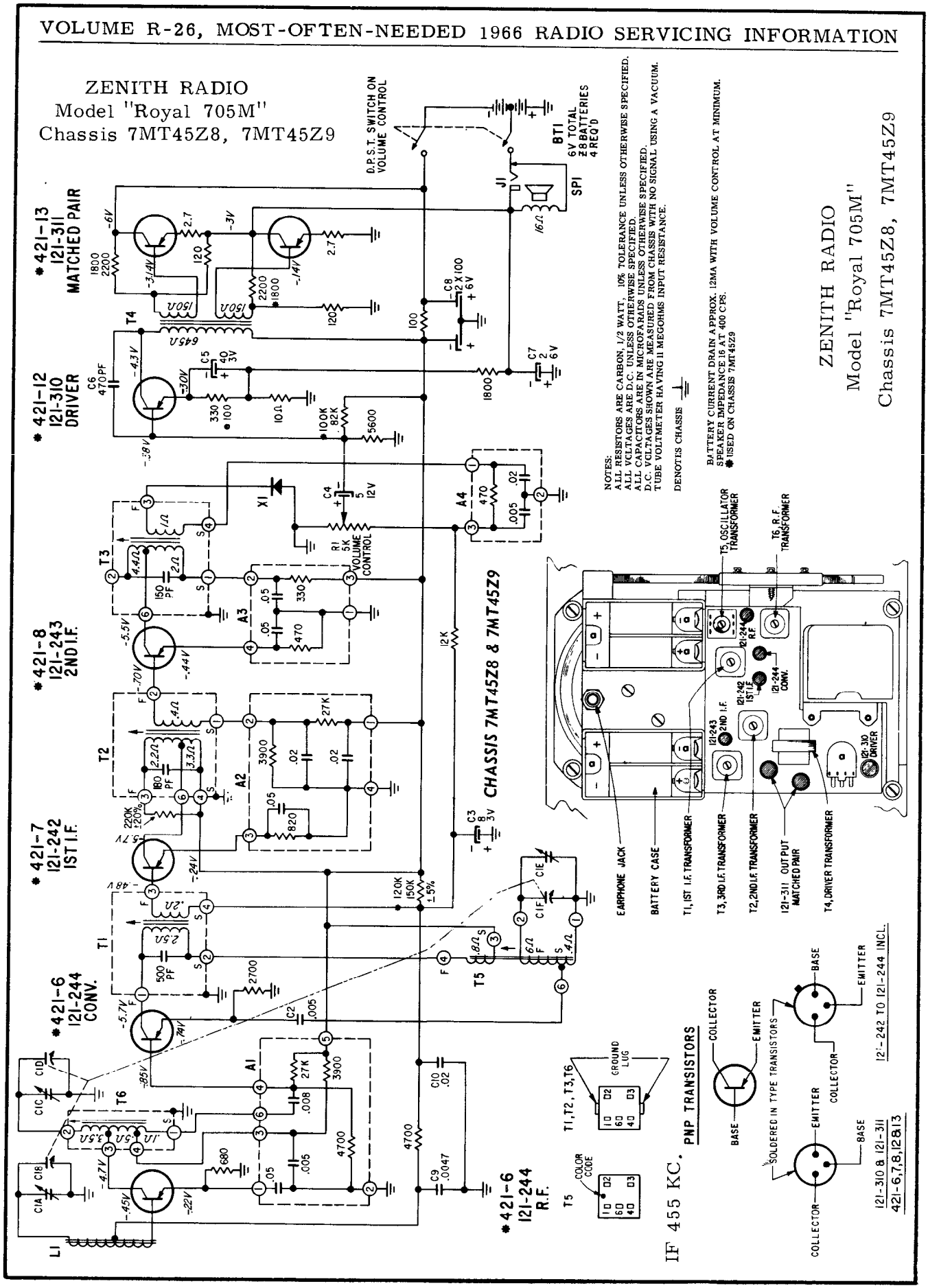


CHASSIS INFORMATION CHART

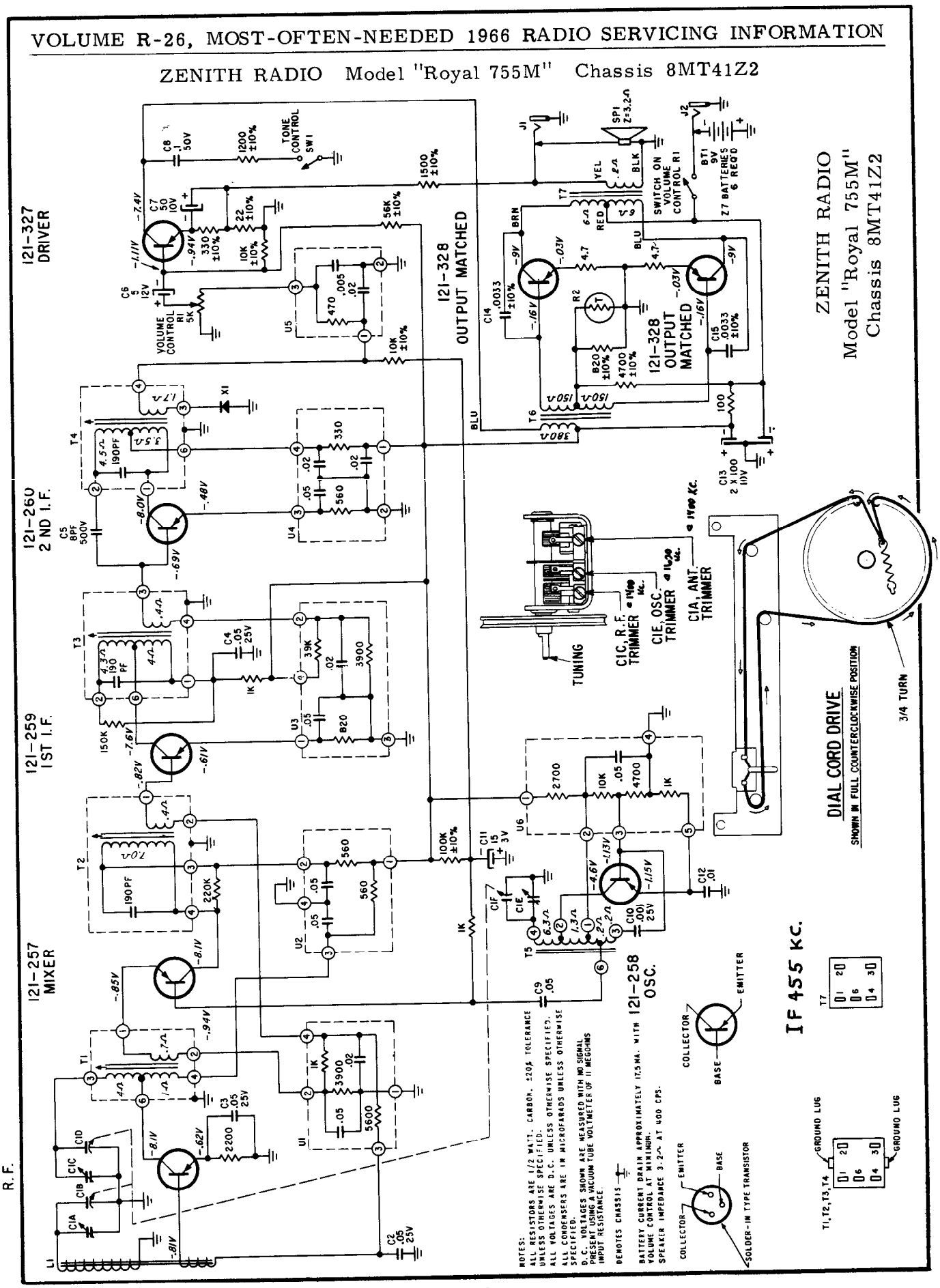
Chassis	Part No.	OSC.	Mixer	1st I.F.	2nd I.F.	Crystal Diode Detector	Driver	Output	Supplier
7MT44Z2	Zenith E.I.A. Type	121-258 2N1526 PNP	121-257 2N1524 PNP	121-259 2N1524 PNP	121-260 2N1524 PNP	103-44 or 403-1	121-319 2N408 PNP	121-320 2N408 Matched Pair PNP	R. C. A.

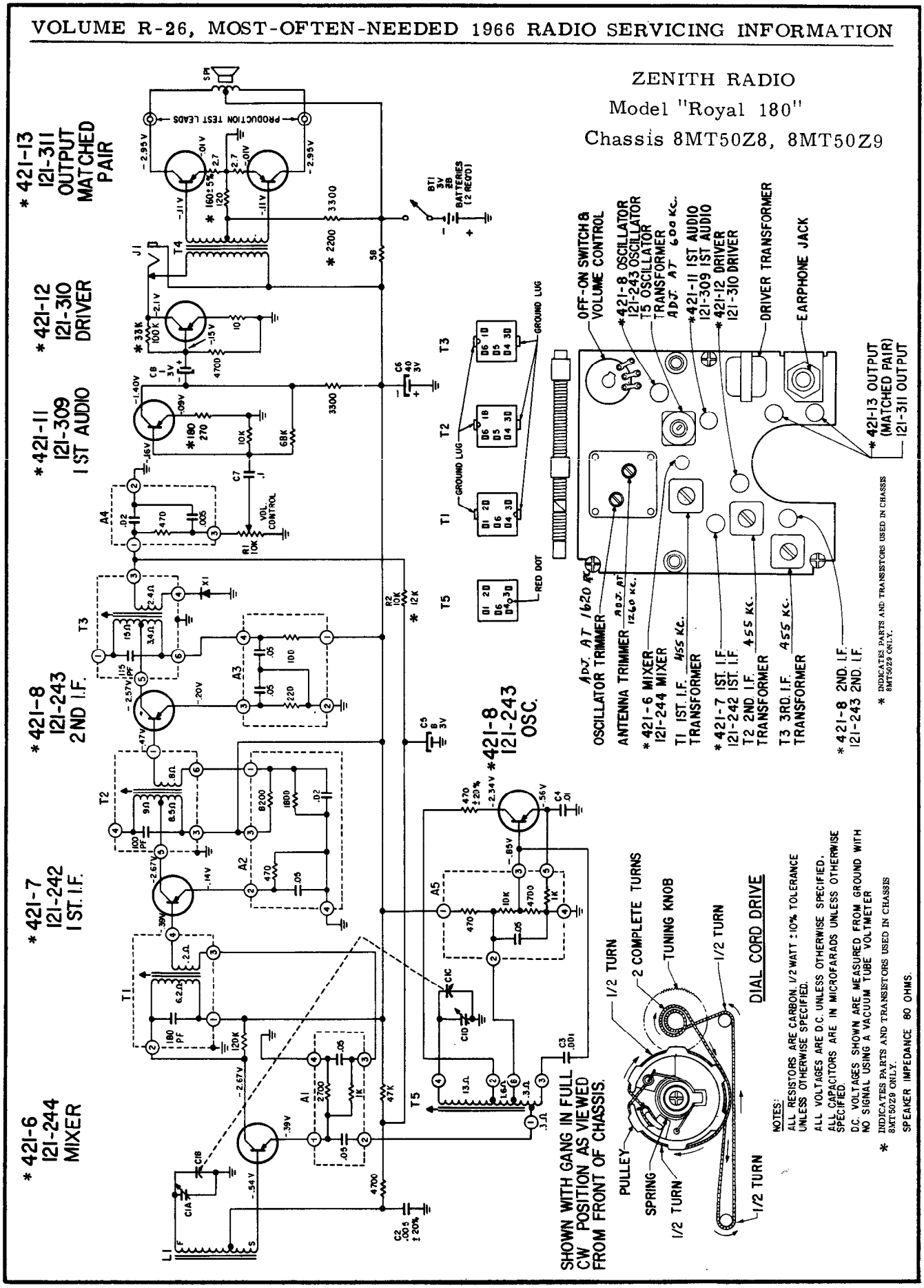
ALIGNMENT PROCEDURE

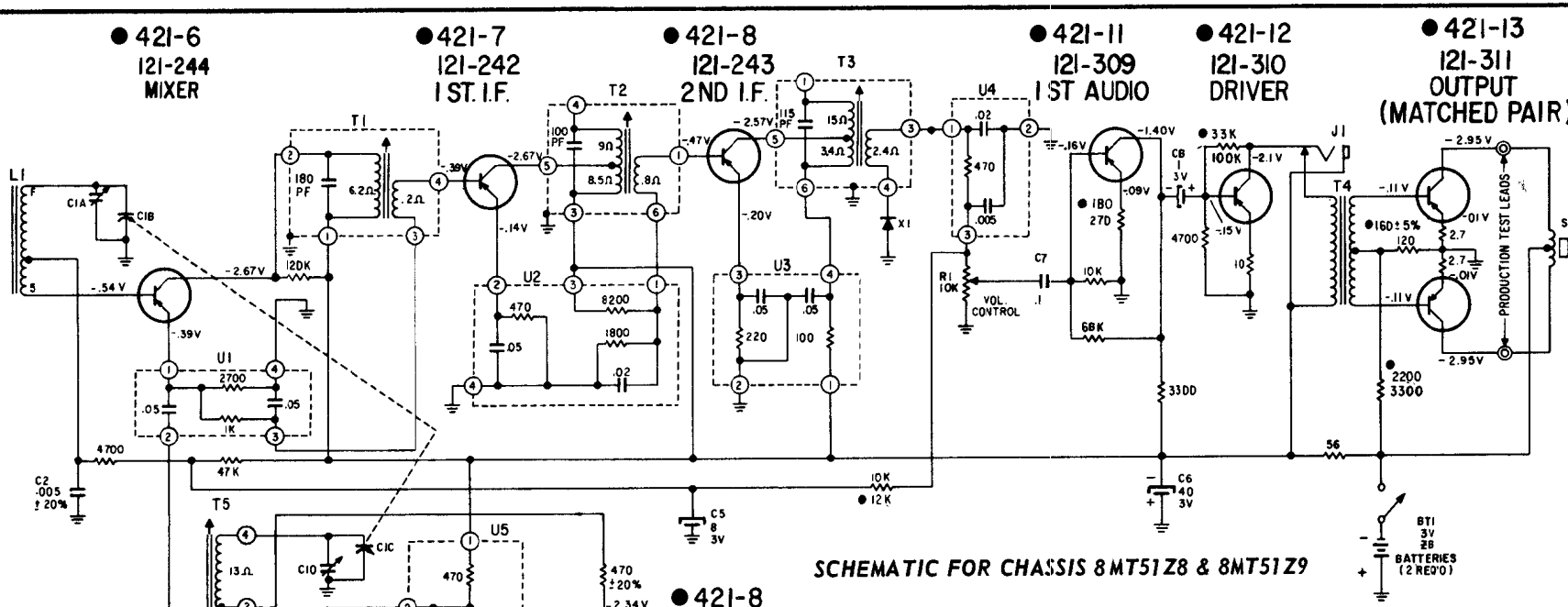
Operation	Input Signal Frequency	Connect Inner Conductor From Oscillator To	Connect Outer Shield Conductor From Oscillator To	Set Dial At	Trimmers	Purpose
1	455 KC	ONE TURN LOOSELY COUPLED TO WAVEMAGNET	Chassis	600 KC	Adj. T1, T2, T3 for maximum output.	For. I.F. Alignment
2	1620 KC			Gang wide open	C1C	Set oscillator to dial scale.
3	600 KC			Set dial near 600 KC	Adjust slug in T6	Adjust T6 for maximum output while rocking gang. Adjust for maximum output regardless of dial accuracy.
4	REPEAT STEPS 2 & 3					
5	1260 KC			1200 KC	C1A	Align loop ant.


ZENITH RADIO
Model "Royal 705M"
Chassis 7MT45Z8, 7MT45Z9
* 421-13
121-311
MATCHED PAIR
* 421-12
121-310
DRIVER
* 421-8
121-243
2ND I.F.
* 421-7
121-242
1ST I.F.
* 421-6
121-244
CONV.
* 421-6
121-244
R.F.
CHASSIS 7MT45Z8 & 7MT45Z9
D.P.S.T. SWITCH ON VOLUME CONTROL
BT1
6V TOTAL
28 BATTERIES
4 REQ'D
SP1
J1
T1
T2
T3
T4
T5
T6
X1
R1
5K
VOLUME CONTROL
NOTES:
ALL RESISTORS ARE CARBON, 1/2 WATT, 10% TOLERANCE UNLESS OTHERWISE SPECIFIED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
D.C. VOLTAGES SHOWN ARE MEASURED FROM CHASSIS WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER HAVING 11 MEGOHMS INPUT RESISTANCE.
DENOTES CHASSIS
BATTERY CURRENT DRAIN APPROX. 12MA WITH VOLUME CONTROL AT MINIMUM.
SPEAKER IMPEDANCE 16 AT 400 CPS.
* USED ON CHASSIS 7MT45Z9
ZENITH RADIO
Model "Royal 705M"
Chassis 7MT45Z8, 7MT45Z9
EARPHONE JACK
BATTERY CASE
T1, 1ST I.F. TRANSFORMER
T3, 3RD I.F. TRANSFORMER
T2, 2ND I.F. TRANSFORMER
121-311 OUTPUT MATCHED PAIR
T4, DRIVER TRANSFORMER
T5, OSCILLATOR TRANSFORMER
T6, R.F. TRANSFORMER
121-244 R.F.
121-242 1ST I.F.
121-244 CONV.
121-243 2ND I.F.
121-310 DRIVER
T1, T2, T3, T6
GROUND LUG
T5
COLOR CODE
IF 455 KC.
PNP TRANSISTORS
COLLECTOR
EMITTER
BASE
SOLDERED IN TYPE TRANSISTORS
121-310 & 121-311
421-6,7,8,12&13
121-242 TO 121-244 INCL.

ZENITH RADIO Model "Royal 755M" Chassis 8MT41Z2




ZENITH RADIO
Model "Royal 180"
Chassis 8MT50Z8, 8MT50Z9
* 421-13
121-311
OUTPUT
MATCHED
PAIR
* 421-12
121-310
DRIVER
* 421-11
121-309
1ST AUDIO
* 421-8
121-243
2ND I.F.
* 421-7
121-242
1ST. I.F.
* 421-6
121-244
MIXER
* 421-8
121-243
OSC.
OFF-ON SWITCH & VOLUME CONTROL
* 421-8 OSCILLATOR 121-243 OSCILLATOR T5 OSCILLATOR TRANSFORMER Adj. AT 600 KC.
* 421-11 1ST AUDIO 121-309 1ST AUDIO
* 421-12 DRIVER 121-310 DRIVER
DRIVER TRANSFORMER
EARPHONE JACK
* 421-13 OUTPUT (MATCHED PAIR) 121-311 OUTPUT
OSCILLATOR TRIMMER Adj. AT 1620 KC.
ANTENNA TRIMMER Adj. AT 1240 KC.
* 421-6 MIXER 121-244 MIXER
T1 1ST. I.F. 455 Kc. TRANSFORMER
* 421-7 1ST I.F. 121-242 1ST. I.F.
T2 2ND. I.F. 455 KC. TRANSFORMER
T3 3RD. I.F. 455 KC. TRANSFORMER
* 421-8 2ND. I.F. 121-243 2ND. I.F.
* INDICATES PARTS AND TRANSISTORS USED IN CHASSIS 8MT5029 ONLY.
SHOWN WITH GANG IN FULL CW POSITION AS VIEWED FROM FRONT OF CHASSIS.
1/2 TURN
2 COMPLETE TURNS
TUNING KNOB
1/2 TURN
PULLEY
SPRING
1/2 TURN
DIAL CORD DRIVE
1/2 TURN
NOTES:
ALL RESISTORS ARE CARBON, 1/2 WATT ±10% TOLERANCE UNLESS OTHERWISE SPECIFIED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
D.C. VOLTAGES SHOWN ARE MEASURED FROM GROUND WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER
* INDICATES PARTS AND TRANSISTORS USED IN CHASSIS 8MT5029 ONLY.
SPEAKER IMPEDANCE 80 OHMS.



SCHEMATIC FOR CHASSIS 8MT51Z8 & 8MT51Z9

● 421-8
121-243
OSC.

IF 455 KC

● DENOTES PARTS USED ON CHASSIS 8MT51Z9

NOTES:

ALL RESISTORS ARE CARBON. 1/2 WATT ± 10% TOLERANCE UNLESS OTHERWISE SPECIFIED.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

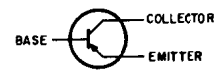
ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

D.C. VOLTAGES SHOWN ARE MEASURED FROM GROUND WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER.

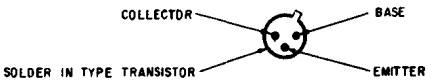
SPEAKER IMPEDANCE 80 OHMS.

DENOTES ⏚ (GROUND)

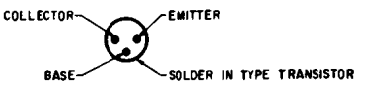
PNP TRANSISTOR

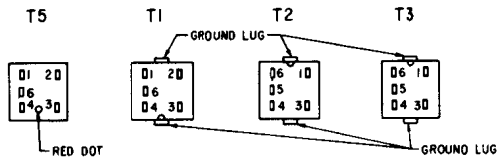


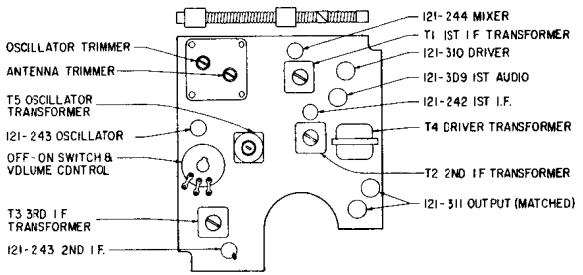
121-242 TO 121-244 INCL.



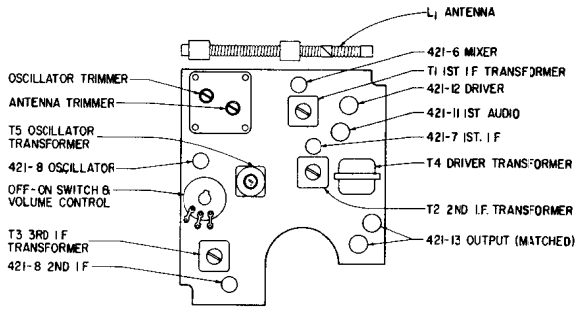
121-309, 121-310, 121-311, 421-6, 7, 8, 11, 12, & 13







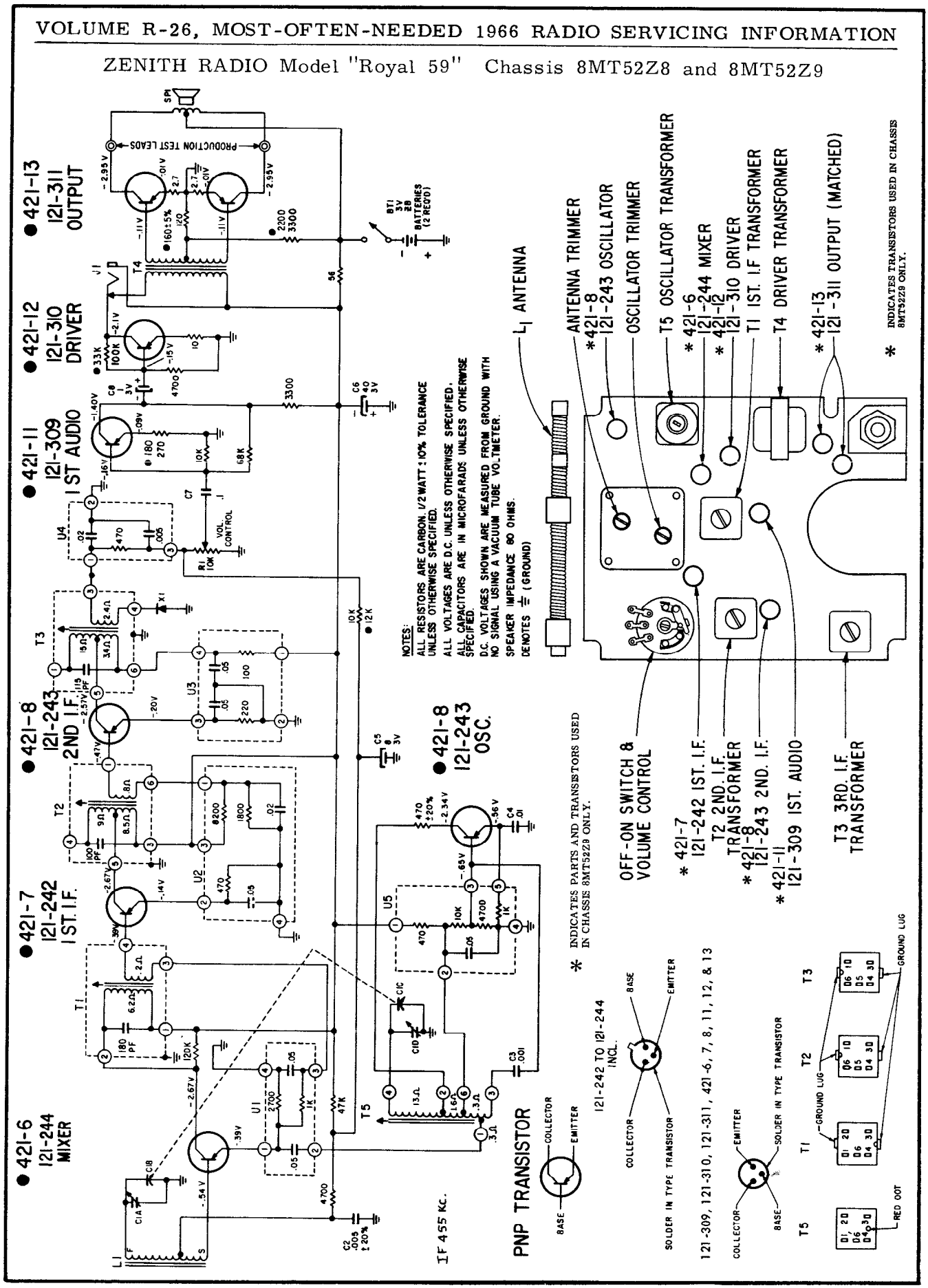
TRANSISTOR AND TRIMMER LAYOUT
CHASSIS 8MT51Z8



TRANSISTOR AND TRIMMER LAYOUT
CHASSIS 8MT51Z9

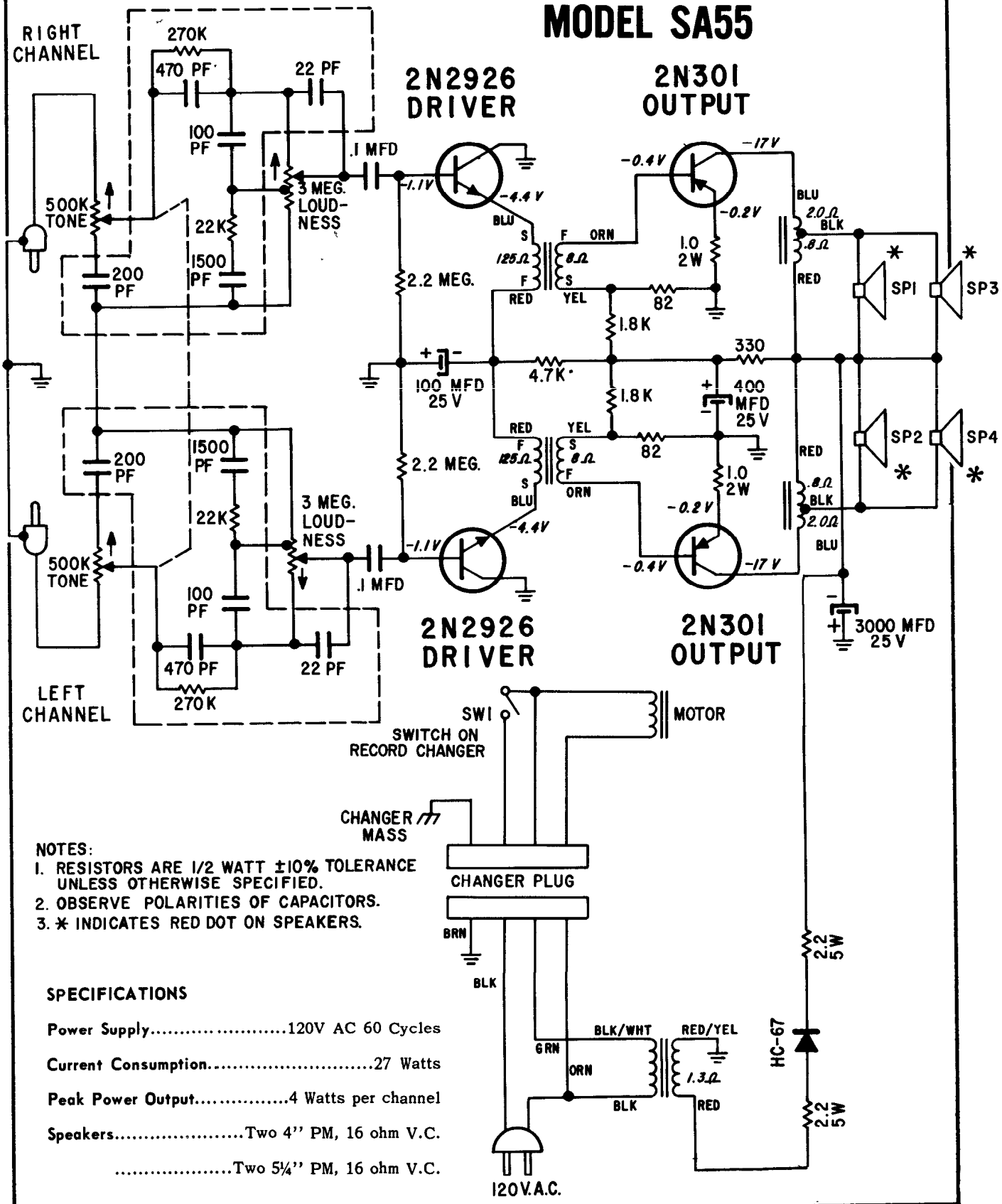
ZENITH RADIO Model "Royal 80"
Chassis 8MT51Z8 and 8MT51Z9

ZENITH RADIO Model "Royal 59" Chassis 8MT52Z8 and 8MT52Z9



ZENITH RADIO CORPORATION

MODEL SA55

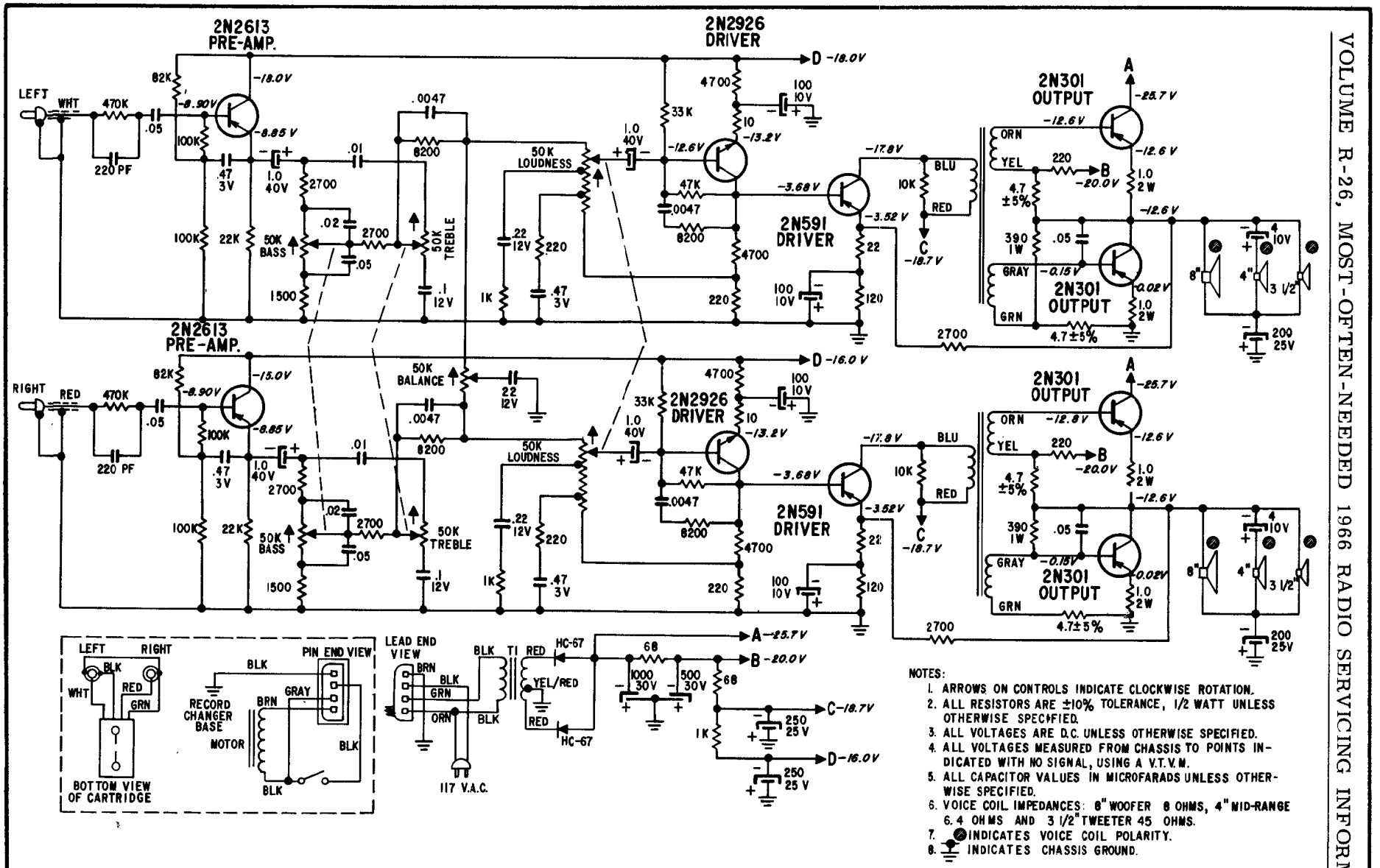


NOTES:

1. RESISTORS ARE 1/2 WATT ±10% TOLERANCE UNLESS OTHERWISE SPECIFIED.
2. OBSERVE POLARITIES OF CAPACITORS.
3. * INDICATES RED DOT ON SPEAKERS.

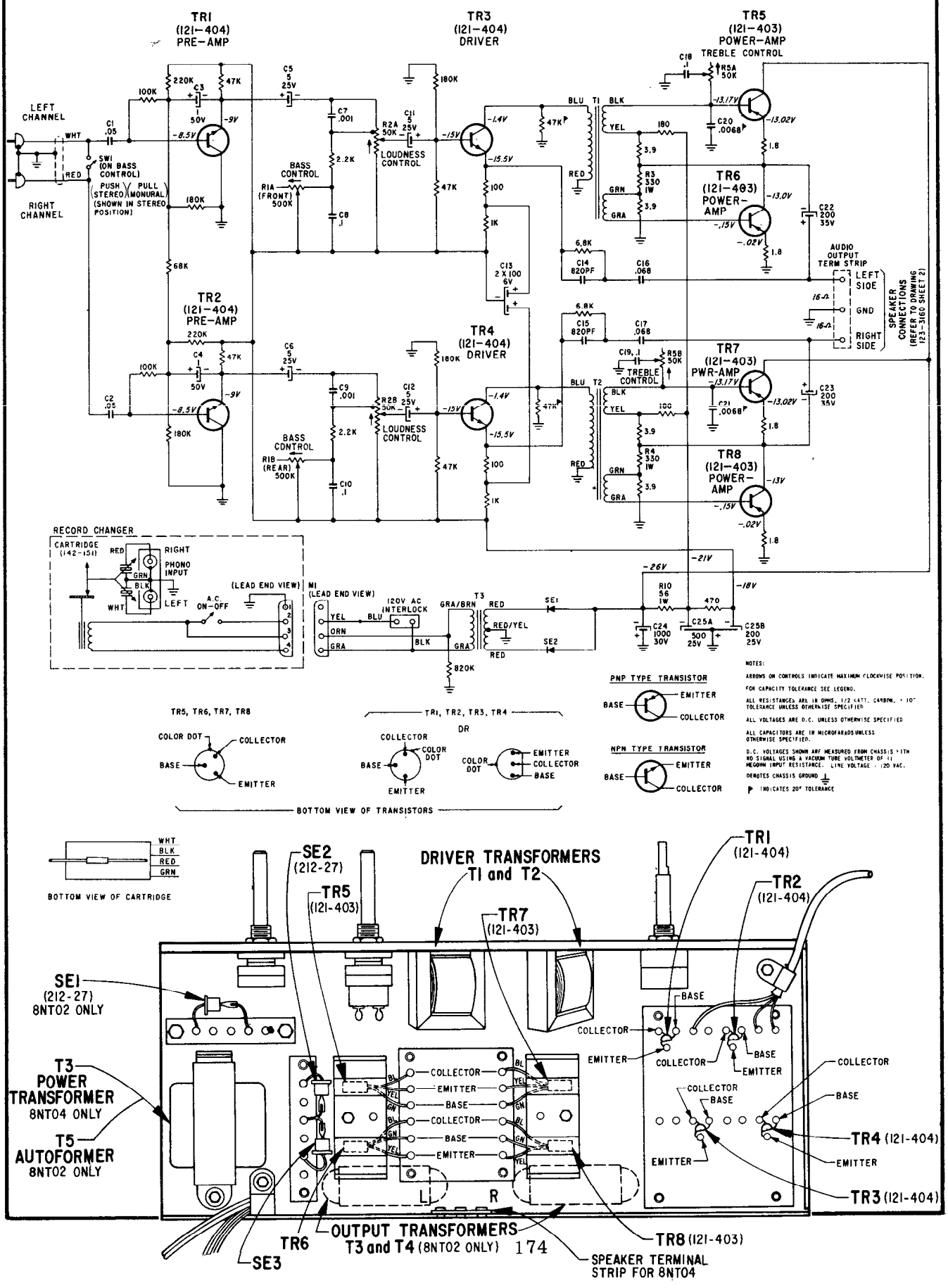
SPECIFICATIONS

Power Supply	120V AC 60 Cycles
Current Consumption	27 Watts
Peak Power Output	4 Watts per channel
Speakers	Two 4" PM, 16 ohm V.C.
	Two 5¼" PM, 16 ohm V.C.



ZENITH RADIO **MODEL MPS90**

ZENITH RADIO Model 8NT04 Amplifier



INDEX

Under each manufacturer's name are listed that make chassis and models in numerical order, at left. The corresponding page number at right of each listing refers to the first page of each section dealing with such material.

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