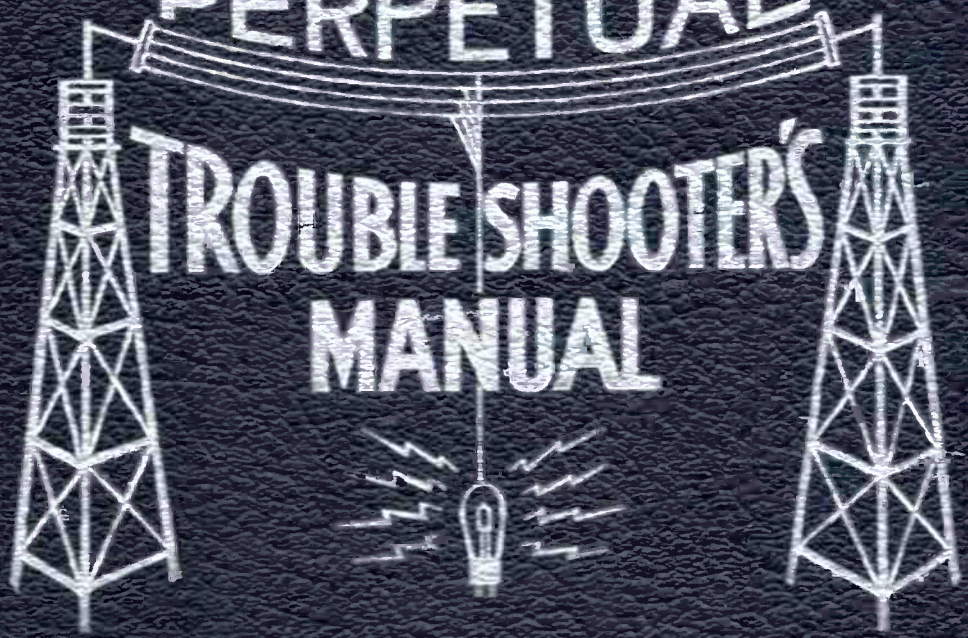
VOLUME VI

PERPETUAL TROUBLE SHOOTER'S MANUAL



JOHN F. RIDER

PERPETUAL

TROUBLE SHOOTER'S MANUAL

VOLUME VI

by

JOHN F. RIDER

Published by

JOHN F. RIDER

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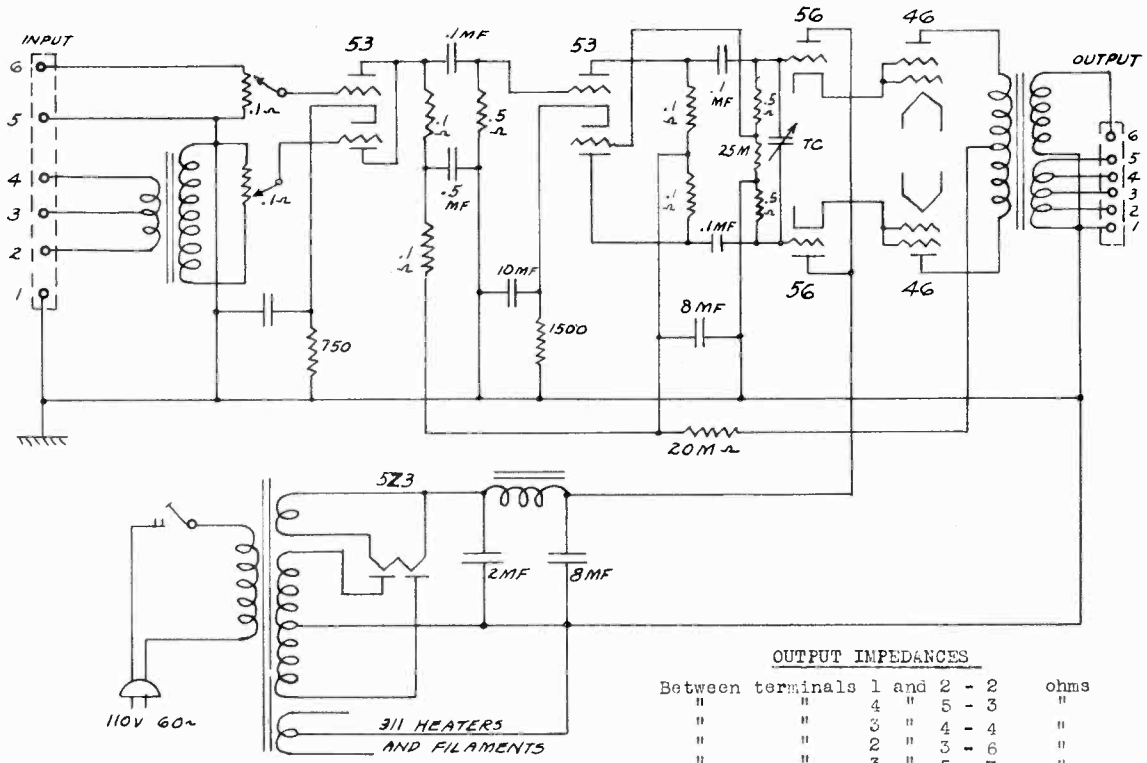
Printed in U.S.A.

ACRATEST PRODUCTS

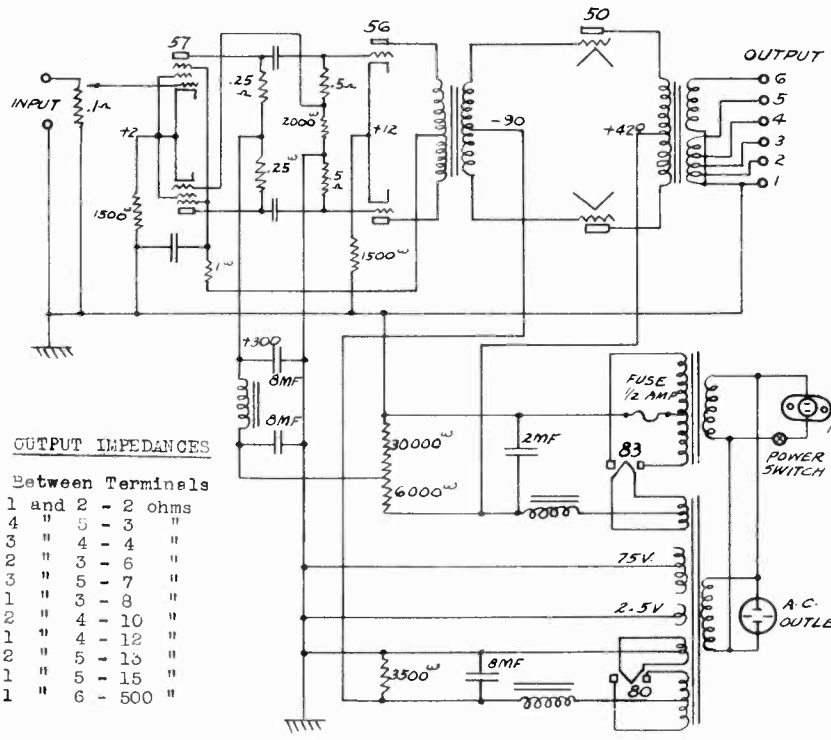
MODEL 37
MODELS 196,197
Schematics
Impedances



MODEL 37 AMPLIFIER

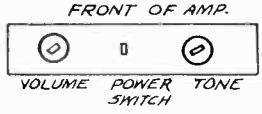
OUTPUT IMPEDANCES

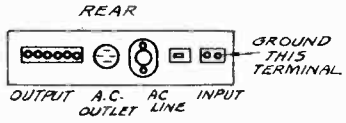
Between terminals			and		ohms
1	and	2	-	2	ohms
4	"	5	-	3	"
3	"	4	-	4	"
2	"	3	-	6	"
3	"	5	-	7	"
1	"	3	-	8	"
2	"	4	-	10	"
1	"	4	-	12	"
2	"	5	-	13	"
1	"	5	-	15	"
1	"	6	-	500	"



OUTPUT IMPEDANCES

Between Terminals					
1	and	2	-	2	ohms
4	"	5	-	3	"
3	"	4	-	4	"
2	"	3	-	6	"
3	"	5	-	7	"
1	"	3	-	8	"
2	"	4	-	10	"
1	"	4	-	12	"
2	"	5	-	13	"
1	"	5	-	15	"
1	"	6	-	500	"





AC OUTLET IS CONTROLLED BY POWER SWITCH AND CAN BE USED FOR AC SPEAKERS, TUNERS, ETC.

11/7/34 REVISED

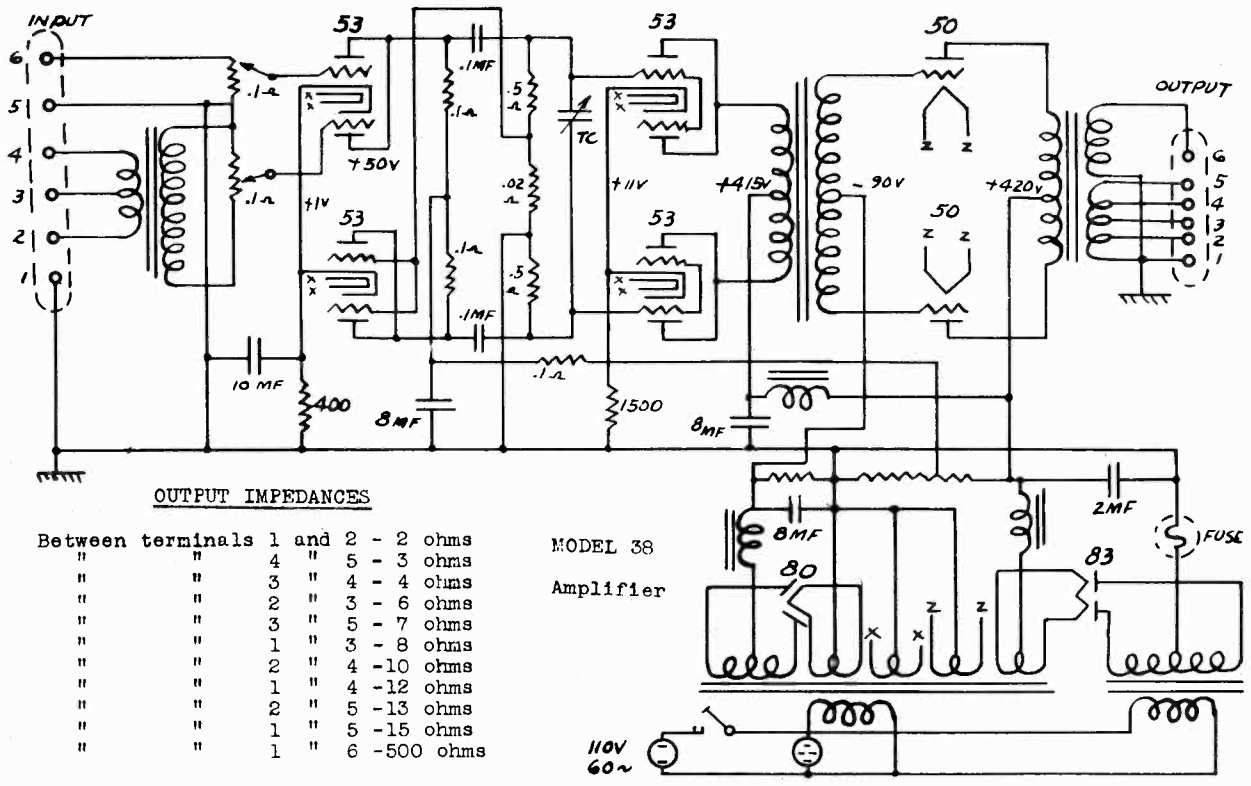
30 Watt AMPLIFIERS

MODEL 196 115 VOLTS

MODEL 197 230 VOLTS

MODEL 38
MODELS 198,199
Schematics
Impedances

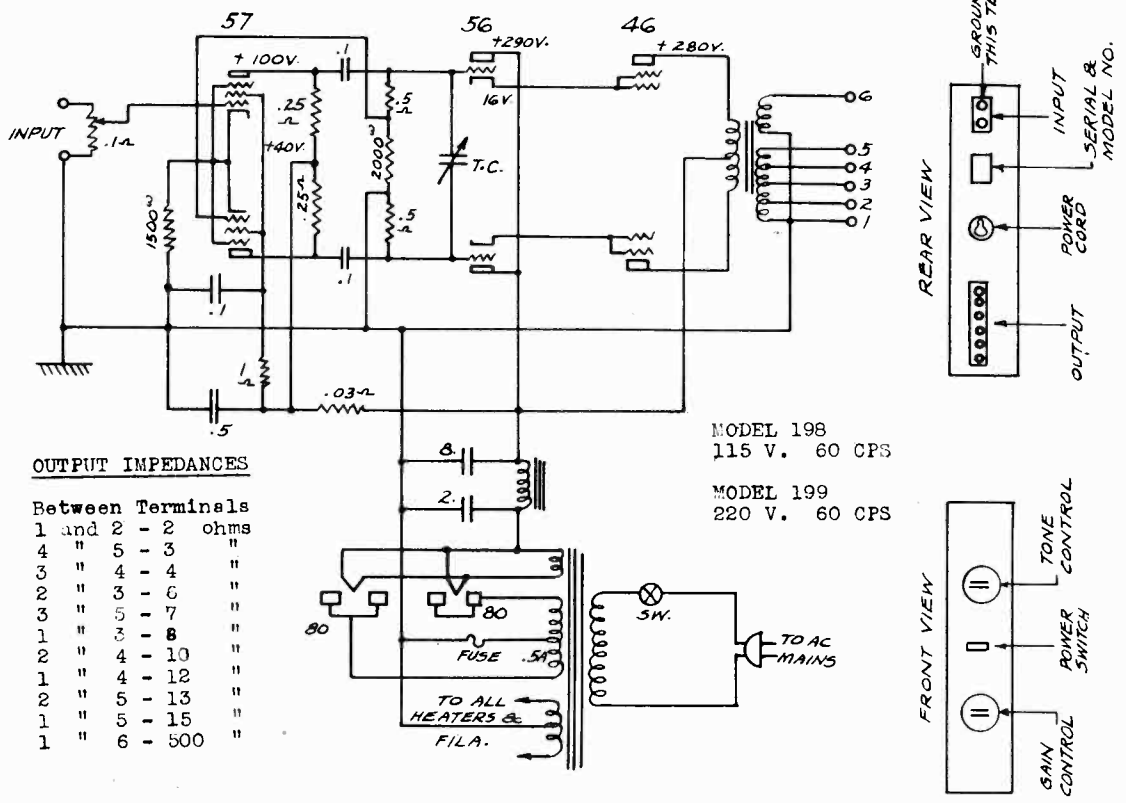
ACRATEST PRODUCTS



OUTPUT IMPEDANCES

Between terminals	1	and	2	- 2	ohms
"	"		4	" 5 - 3	ohms
"	"		3	" 4 - 4	ohms
"	"		2	" 3 - 6	ohms
"	"		3	" 5 - 7	ohms
"	"		1	" 3 - 8	ohms
"	"		2	" 4 -10	ohms
"	"		1	" 4 -12	ohms
"	"		2	" 5 -13	ohms
"	"		1	" 5 -15	ohms
"	"		1	" 6 -500	ohms

MODEL 38
Amplifier



OUTPUT IMPEDANCES

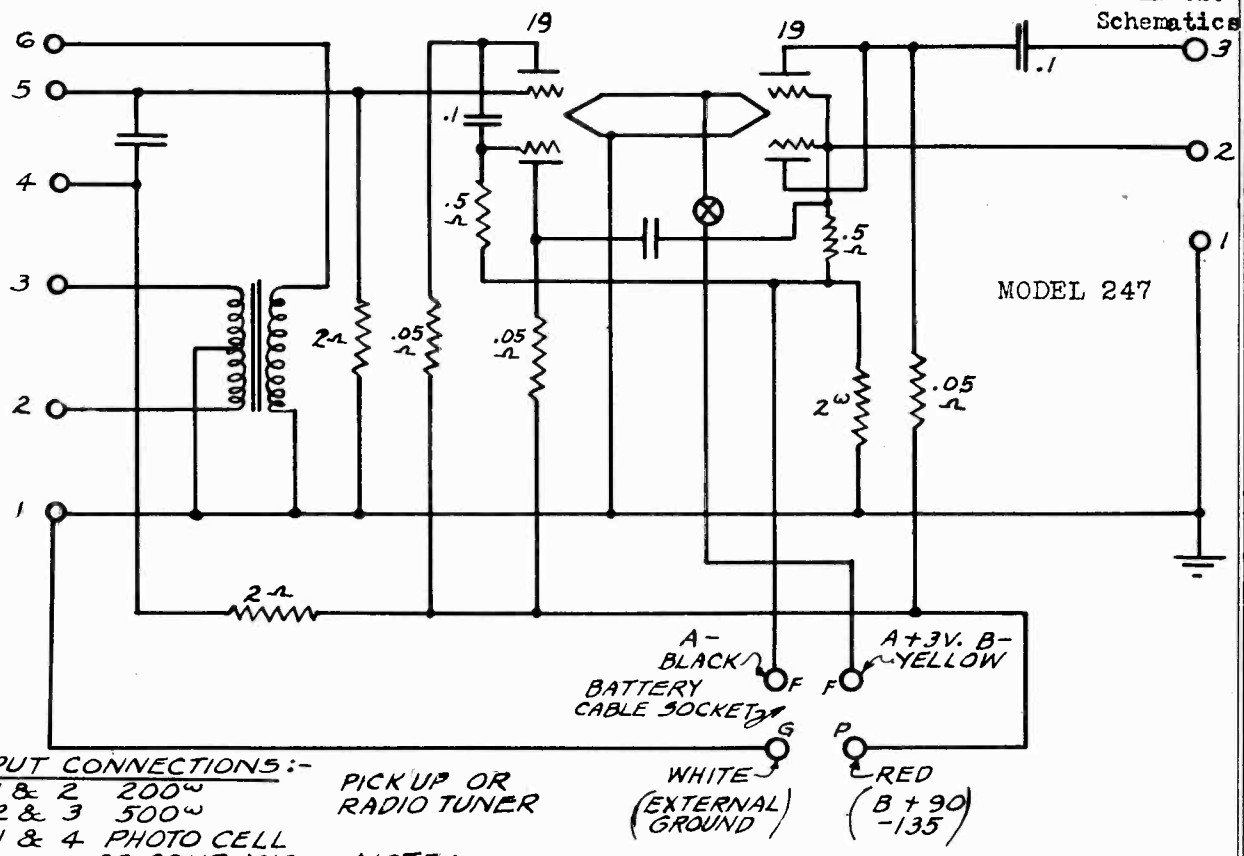
Between Terminals					
1	and	2	-	2	ohms
4	"	5	-	3	"
3	"	4	-	4	"
2	"	3	-	6	"
3	"	5	-	7	"
1	"	3	-	8	"
2	"	4	-	10	"
1	"	4	-	12	"
2	"	5	-	13	"
1	"	5	-	15	"
1	"	6	-	500	"

MODEL 198
115 V. 60 CPS

MODEL 199
220 V. 60 CPS

ACRATEST PRODUCTS

MODEL 247
MODEL 728
Schematics

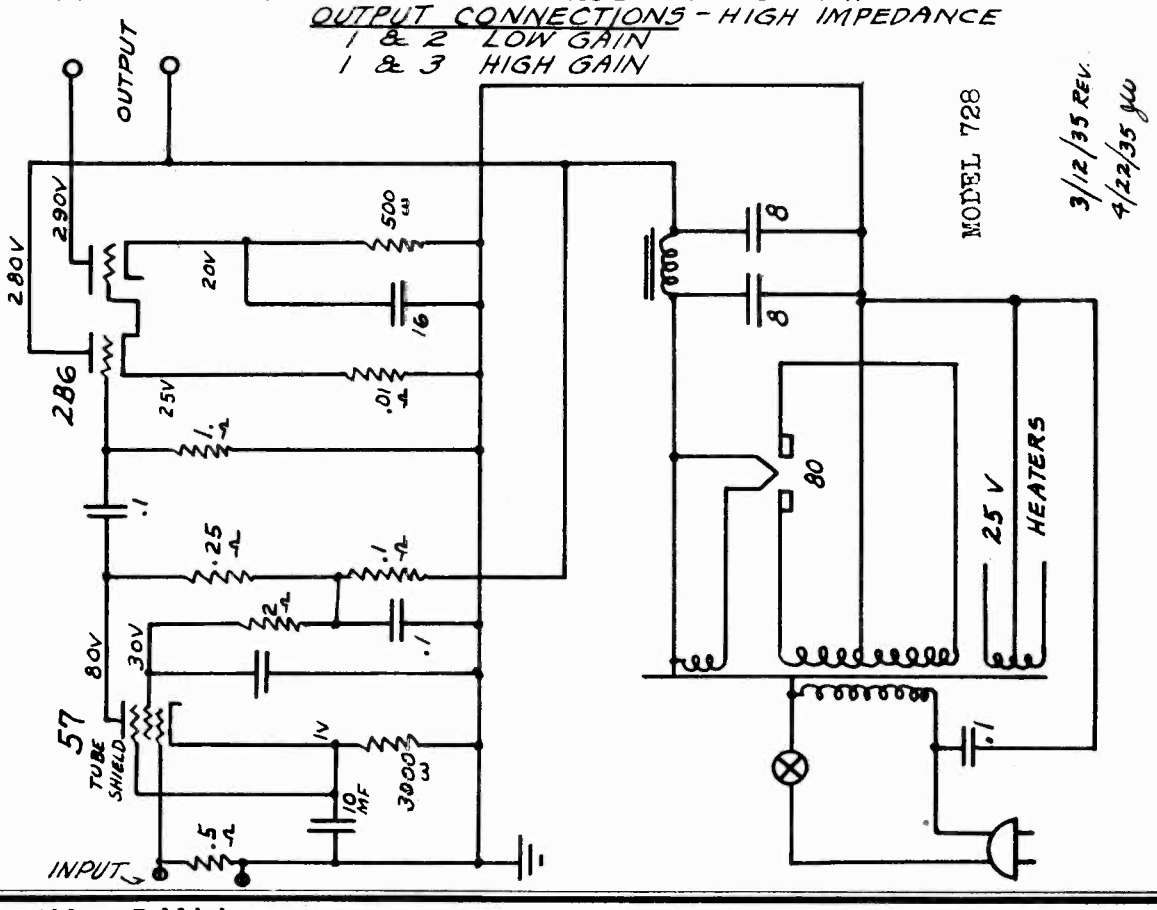


INPUT CONNECTIONS:-
1 & 2 200Ω
2 & 3 500Ω
1 & 4 PHOTO CELL OR COND. MIC.
1 & 5 CRYSTAL MIC. HI-IMPEDANCE

PICK UP OR RADIO TUNER

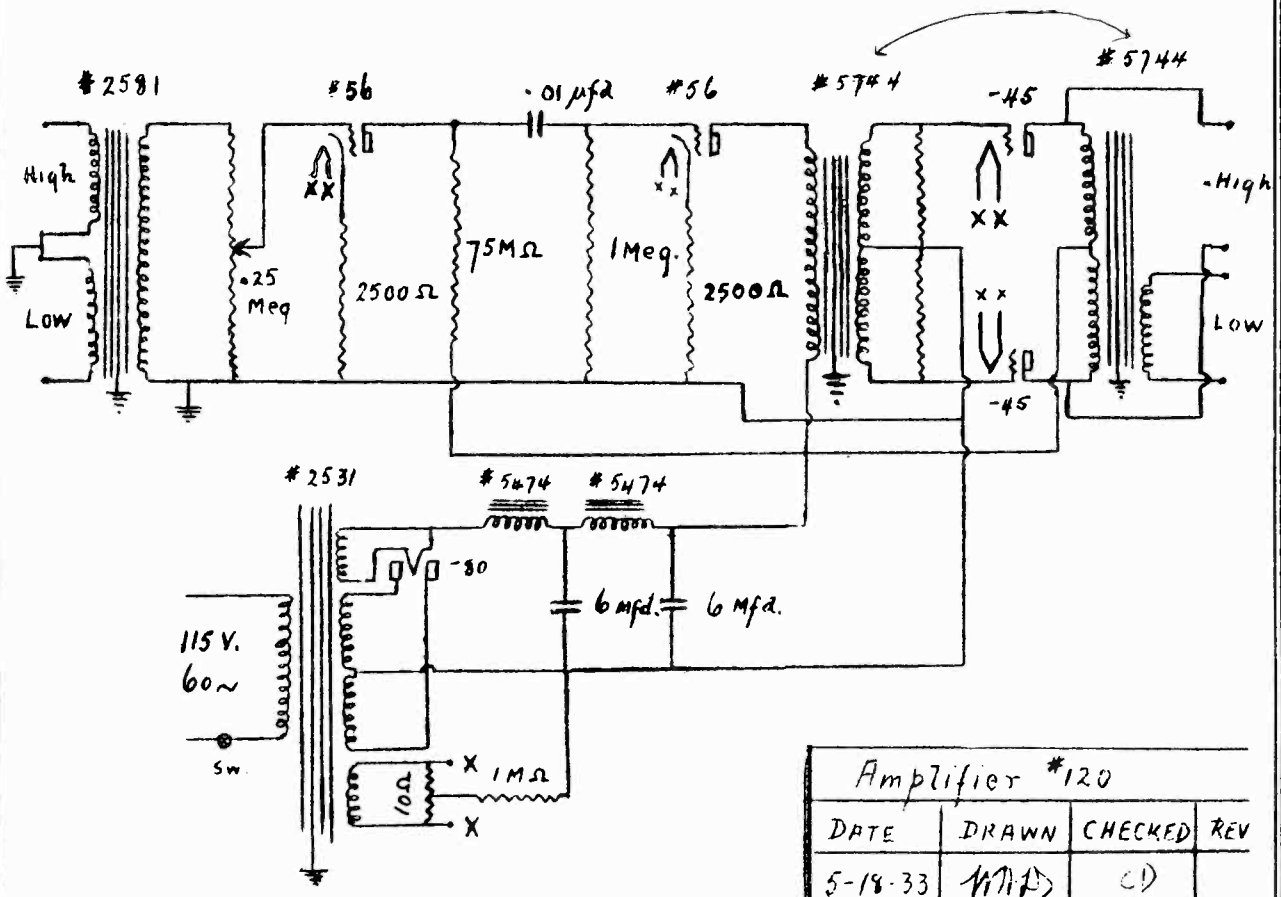
NOTE:- TERMINALS 5 & 6 MUST BE SHORT CIRCUITED WHEN USING 200Ω OR 500Ω INPUT.

OUTPUT CONNECTIONS - HIGH IMPEDANCE
1 & 2 LOW GAIN
1 & 3 HIGH GAIN

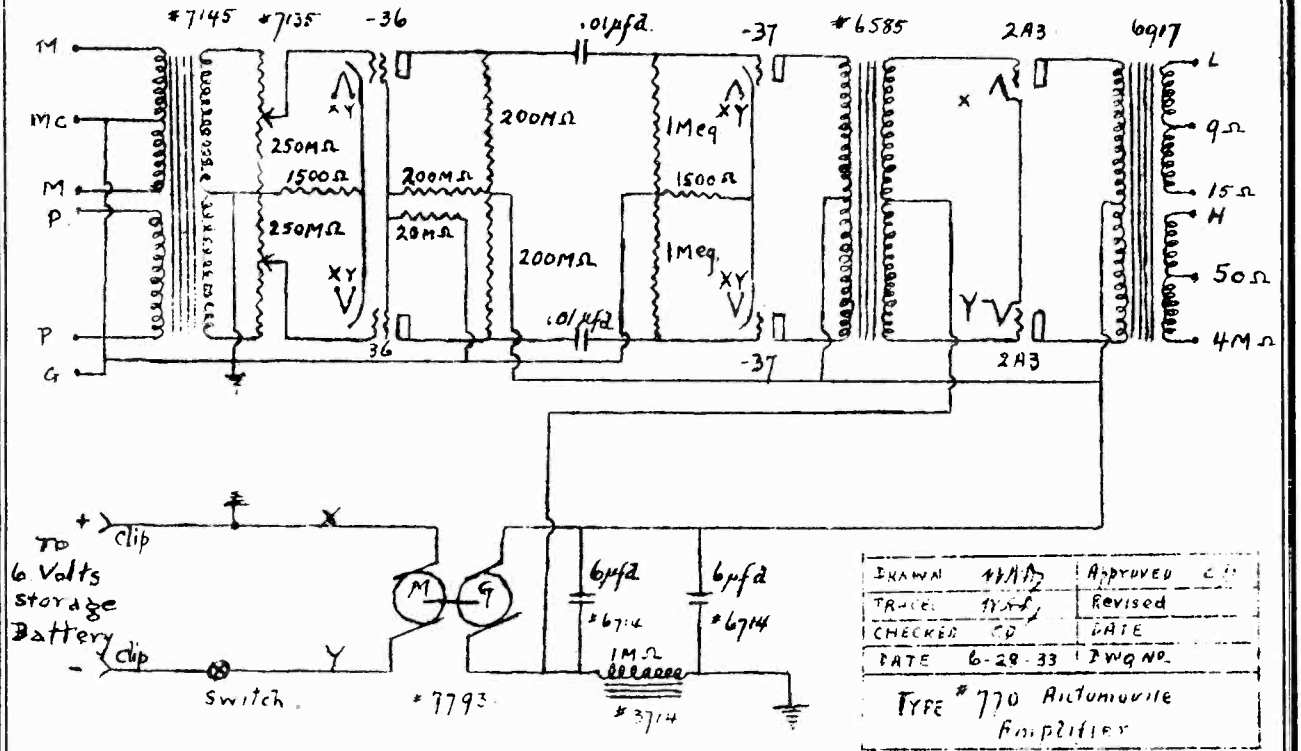


MODEL 120
MODEL 770
Schematics

ACRATEST PRODUCTS



Amplifier #120			
DATE	DRAWN	CHECKED	REV
5-18-33		CD	



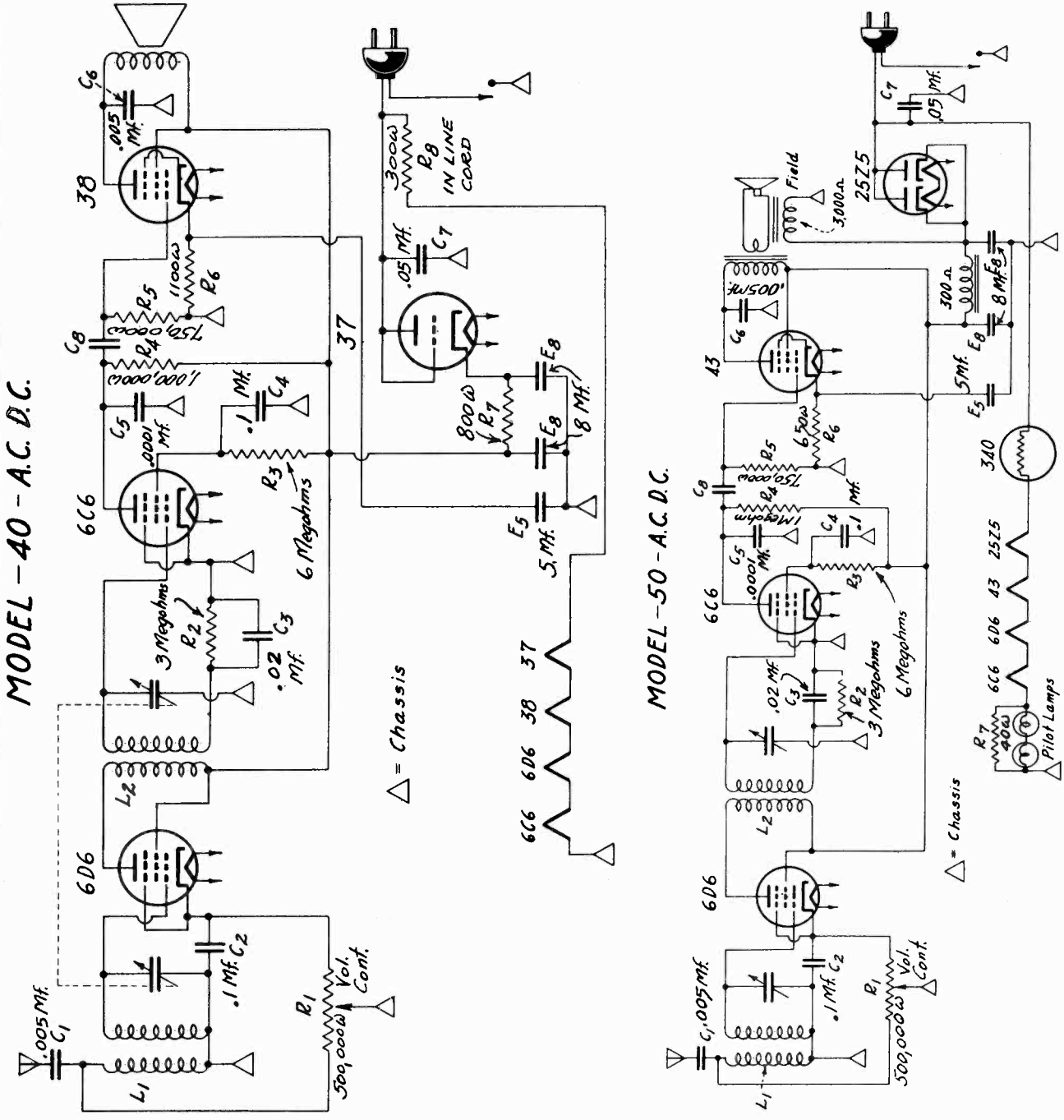
DRAWN		Approved	CD
TRACED		Revised	
CHECKED	CD	DATE	
DATE	6-28-33	DWG NO.	

TYPE #770 Automobile Amplifier

Air King

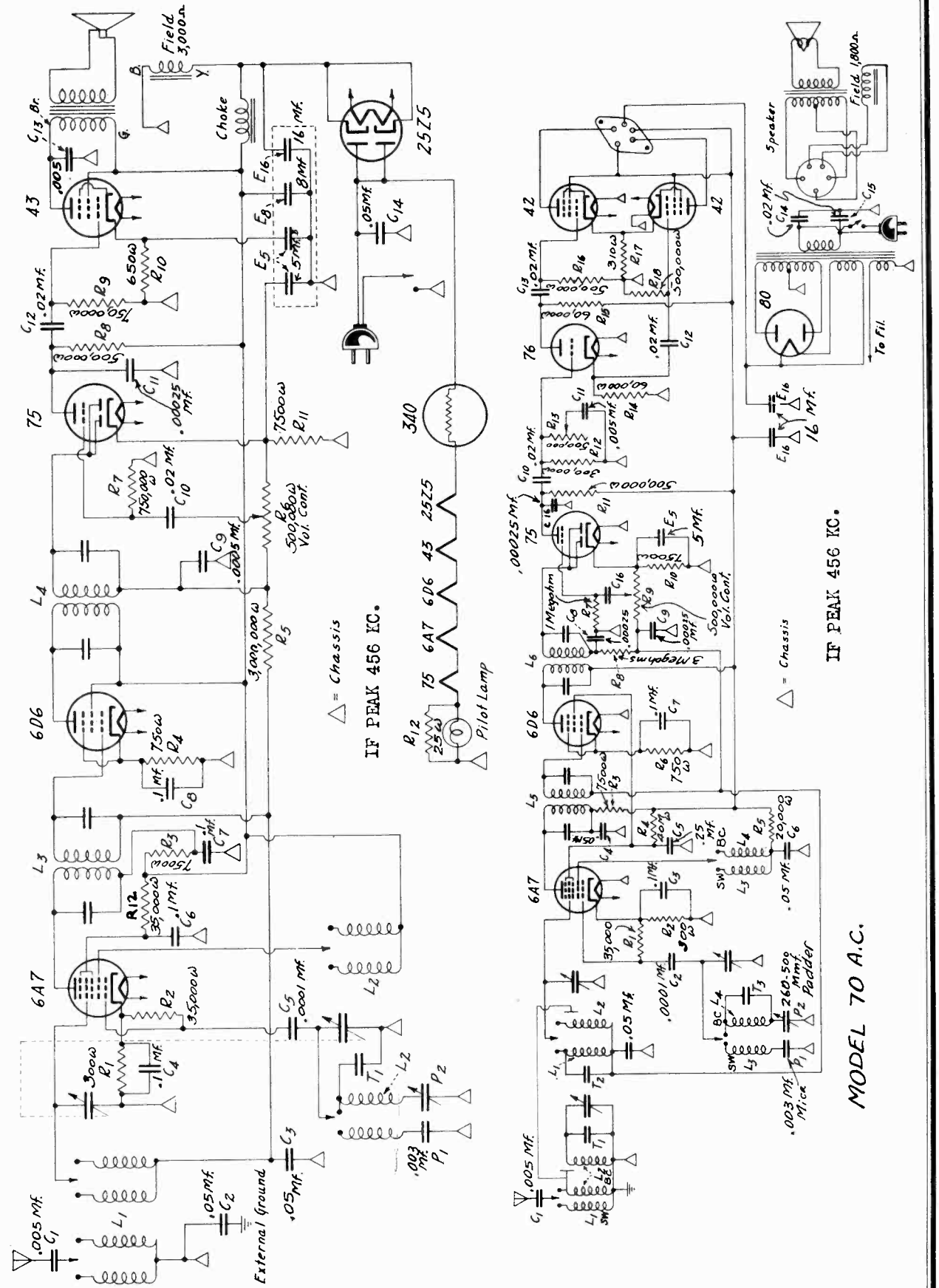
AIR KING PRODUCTS CORP.

MODEL 40
MODEL 50
Schematics



MODEL 66
MODEL 70
Schematics

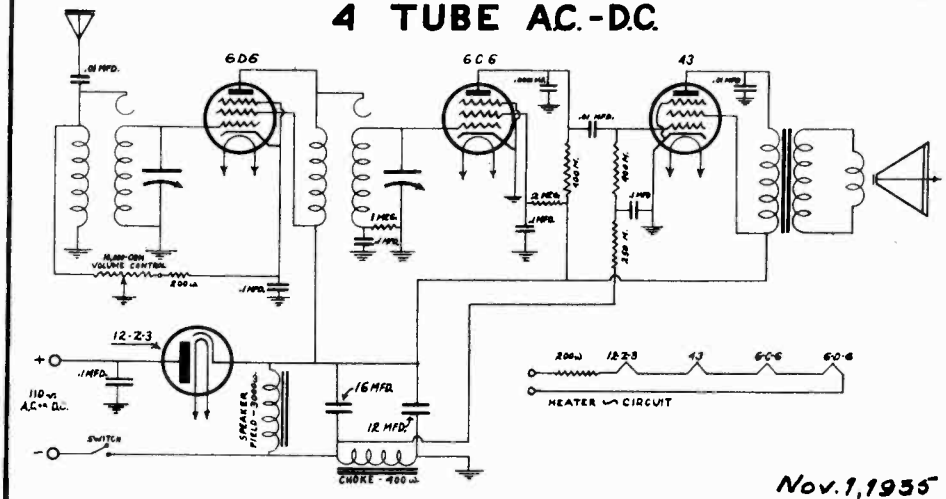
AIR KING PRODUCTS CORP.



ALLIED RADIO CORP.

MODEL G-9503
MODEL G-9505
MODEL G-9511-13
Schematics

4 TUBE A.C.-D.C.

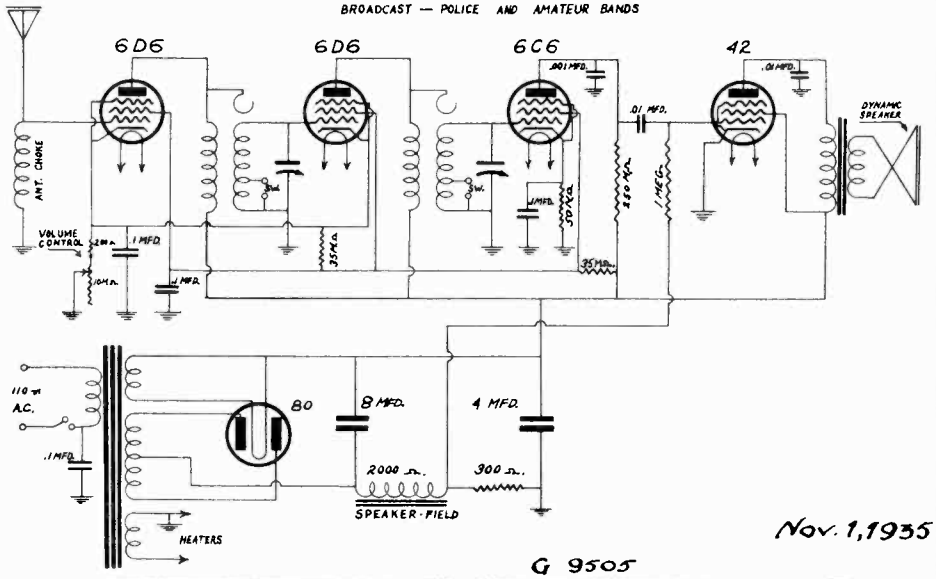


Nov. 1, 1935

G 9503

T.R.F. - 5 TUBE - 2 BANDS

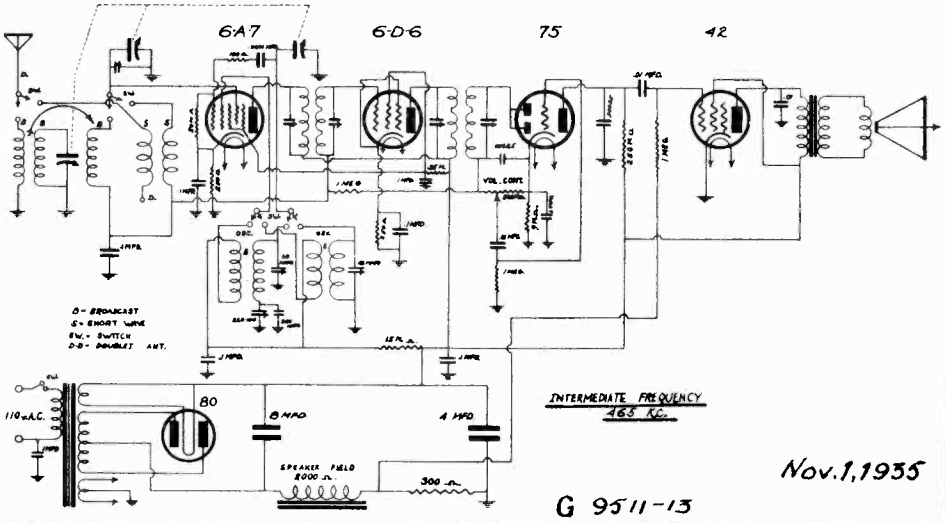
BROADCAST — POLICE AND AMATEUR BANDS



Nov. 1, 1935

G 9505

SPLIT-BAND • 5 TUBE SUPER • BROADCAST AND 18 TO 55-METER-BANDS



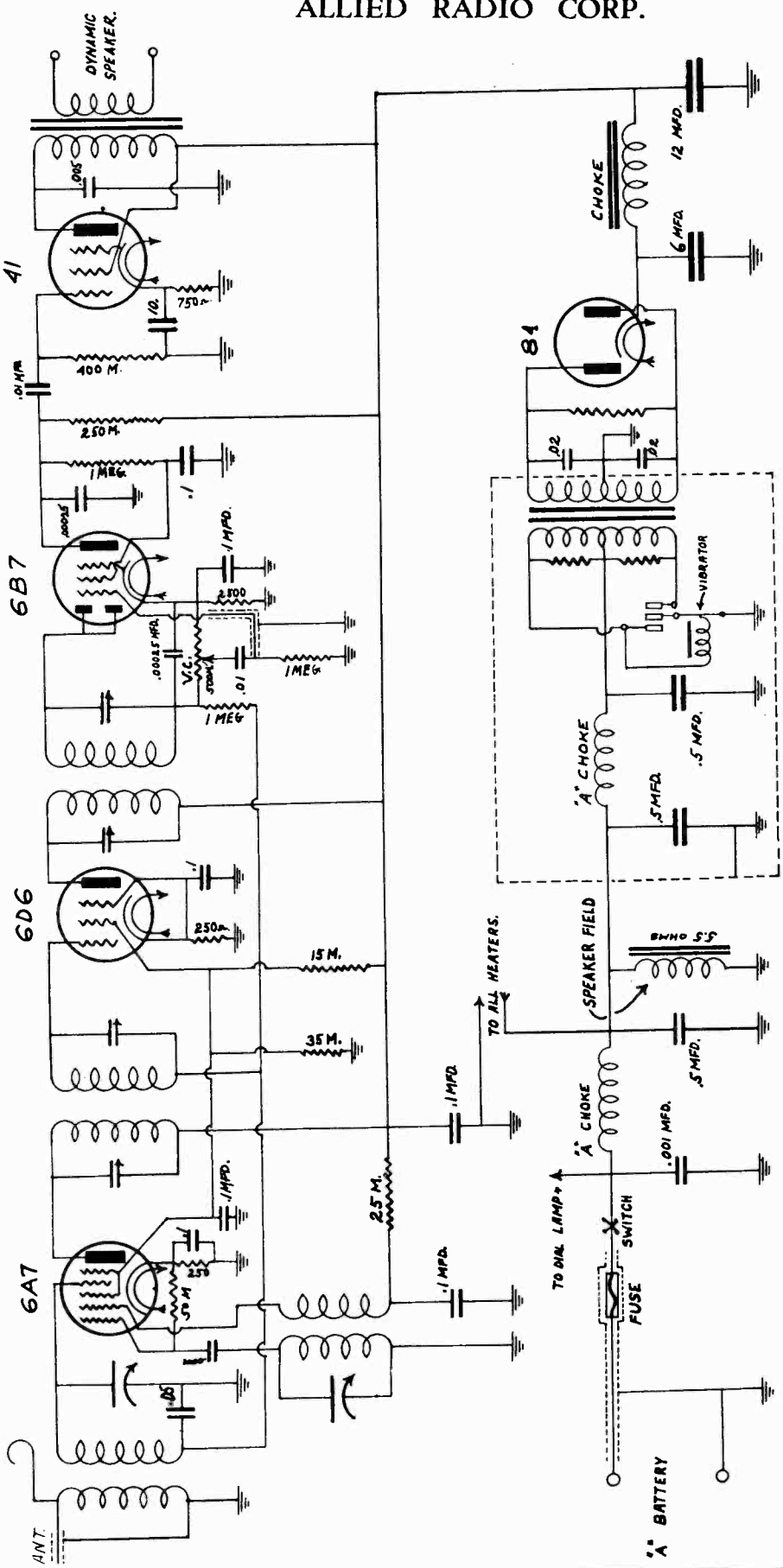
Nov. 1, 1935

G 9511-13

MODELS G-9515, G-9881
Schematic

ALLIED RADIO CORP.

5 TUBE AUTO RADIO



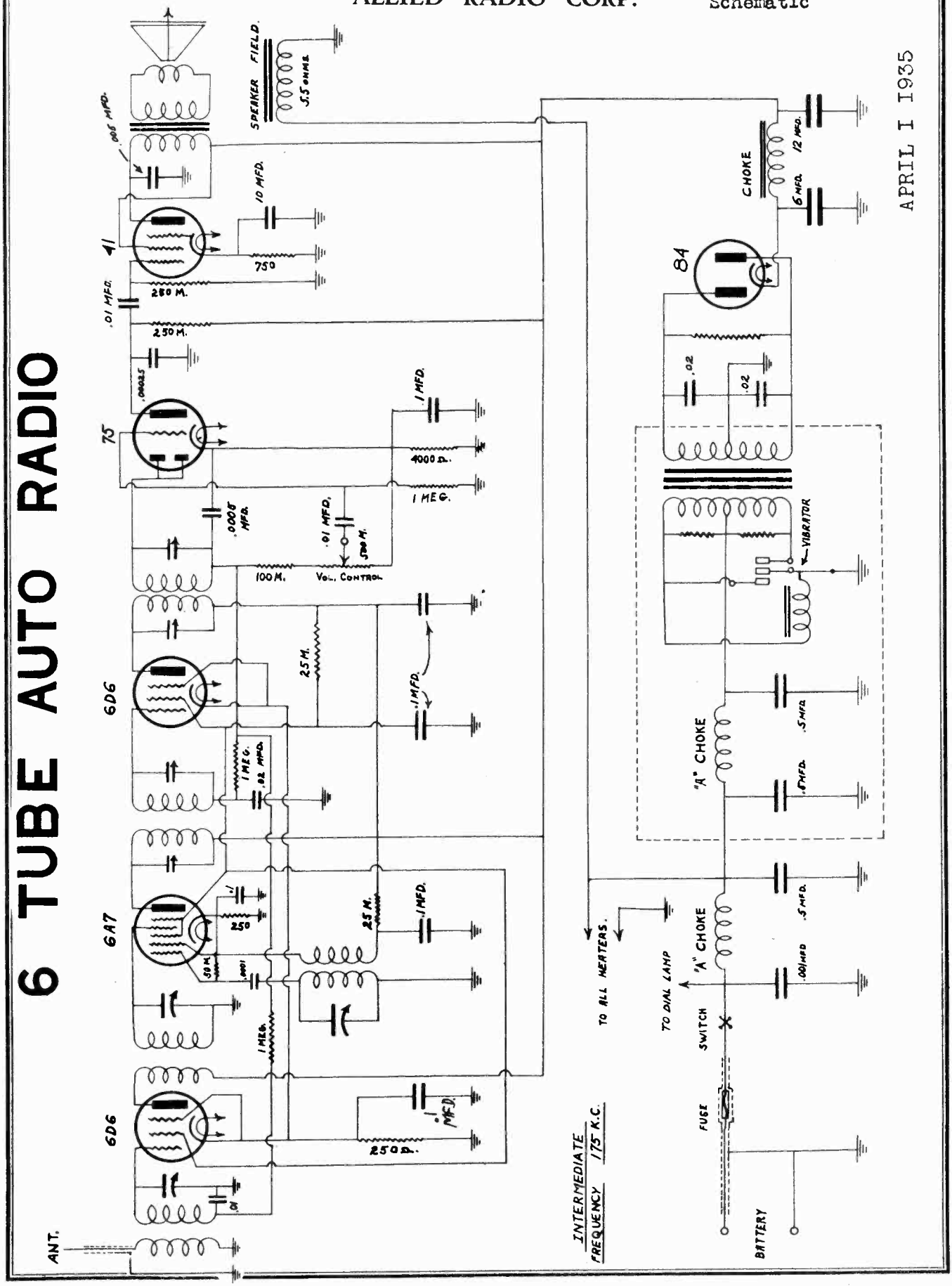
APRIL I 1935 INTERMEDIATE FREQUENCY 456 K.C.

ALLIED RADIO CORP.

MODELS G-9517, G-9882
Schematic

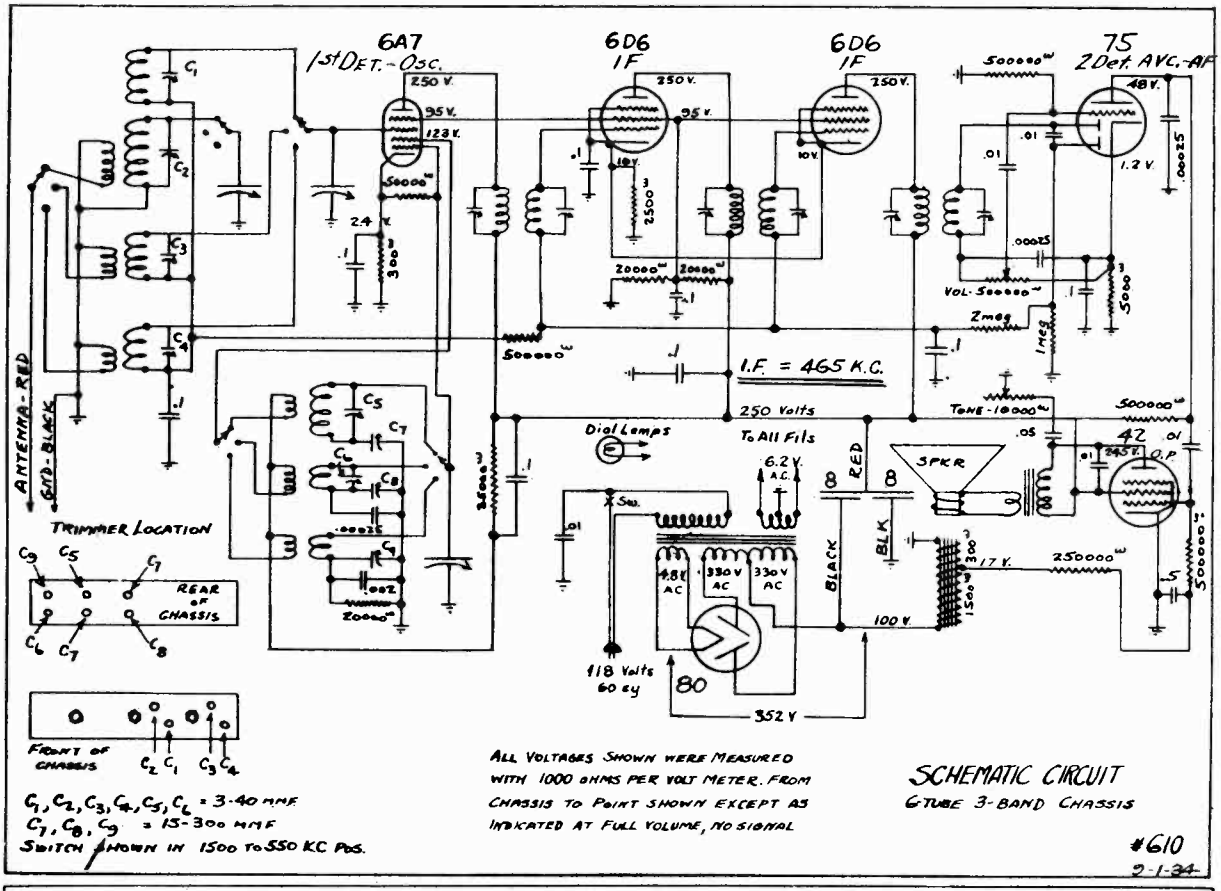
APRIL I 1935

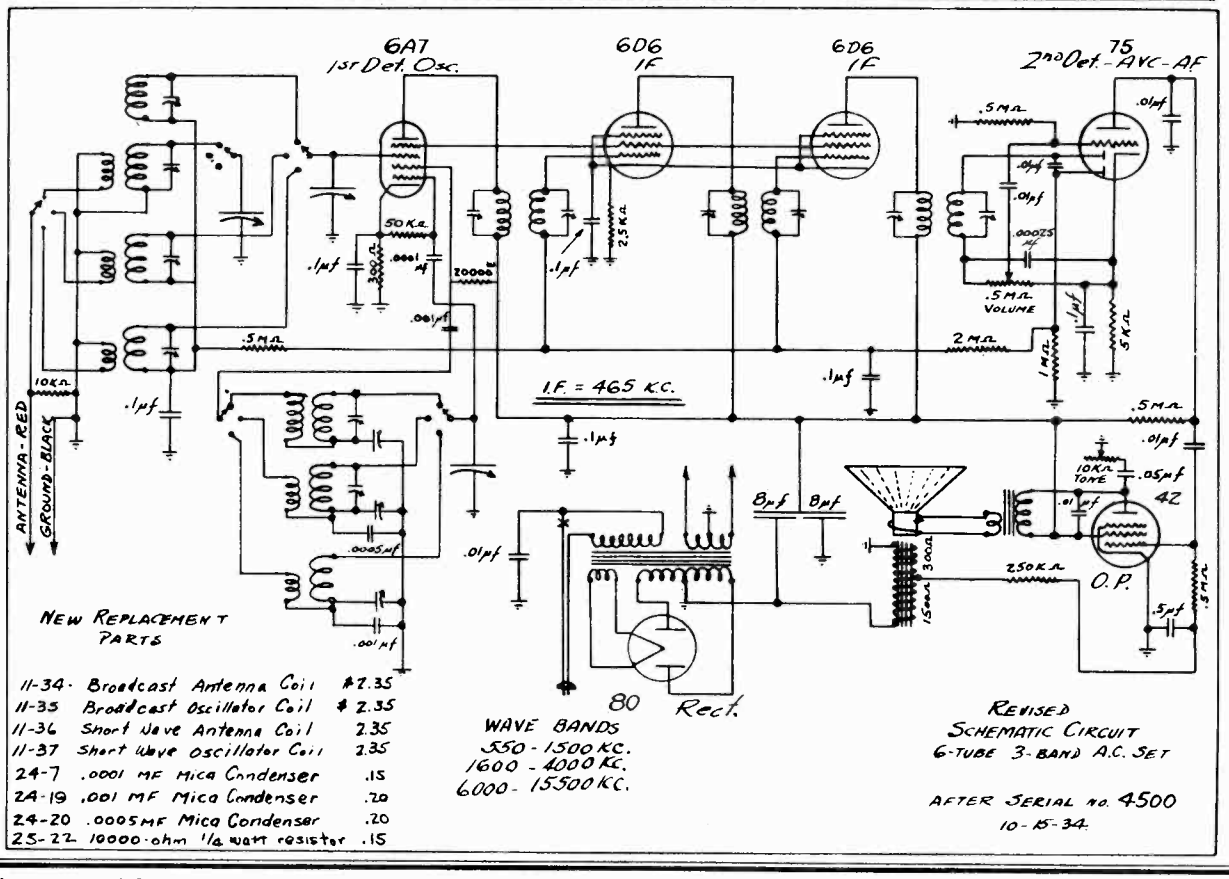
6 TUBE AUTO RADIO



MODEL G-9533
Two Types
Schematics

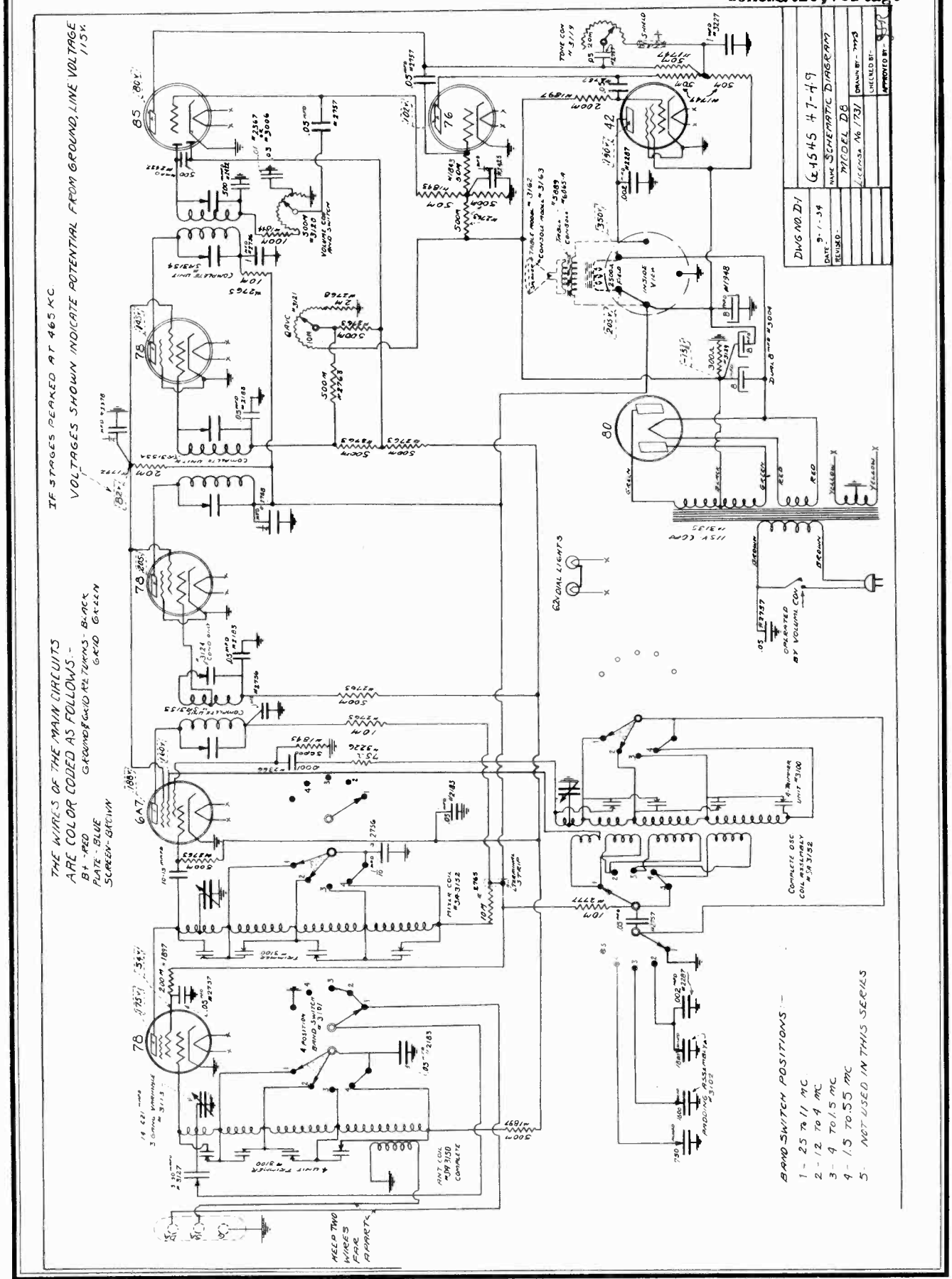
ALLIED RADIO CORP.





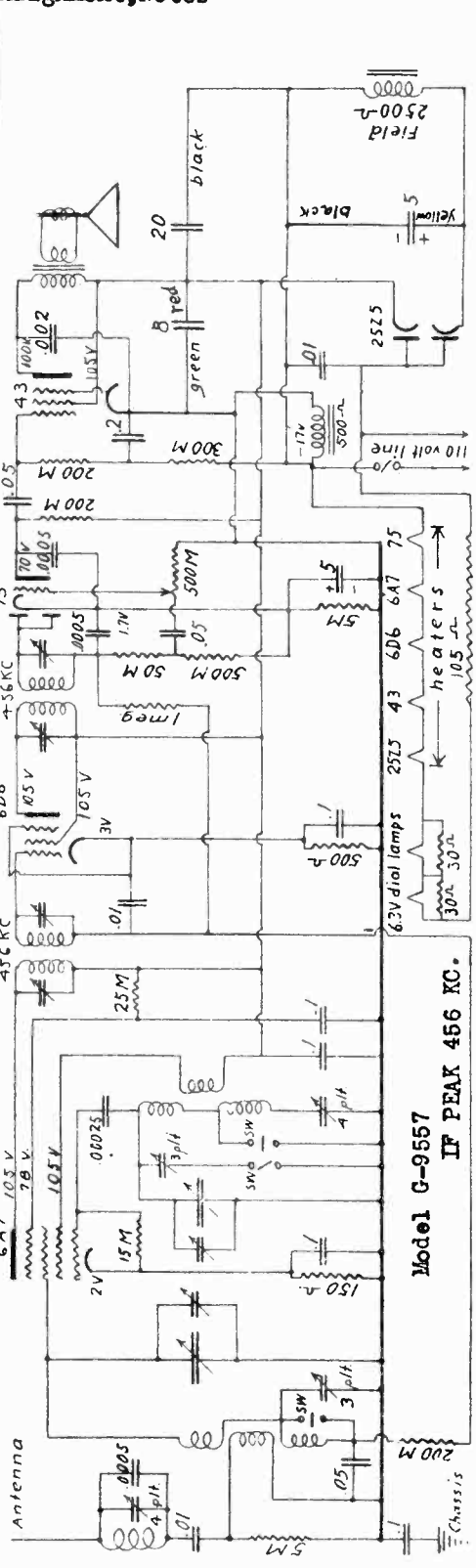
ALLIED RADIO CORP.

MODEL G-9545, G-9547, G-9549
Schematic, Voltage



MODEL G-9551
MODEL G-9557
Schematics, Voltage
Alignment, Notes

ALLIED RADIO CORP.



CAUTION—This instrument is equipped for operation on 110 volts D. C. or A. C., any frequency from 25 to 133 cycles per second. Before attempting to operate on any other voltage be sure that the proper adaptors are connected and the instructions accompanying them are understood. Special adaptor can be secured from the factory at a slight extra cost, for operating this receiver on 220 volt A. C. or D. C. Cord for 110 volt or 220 volt heats moderately, as the cord contains resistance necessary for operation at these voltages.

The 20-foot aerial packed with the set may be unwound and hung outside a window or stretched along the floor under a rug after attaching one end to the antenna lead from the back of the set, and is ordinarily all the aerial required.

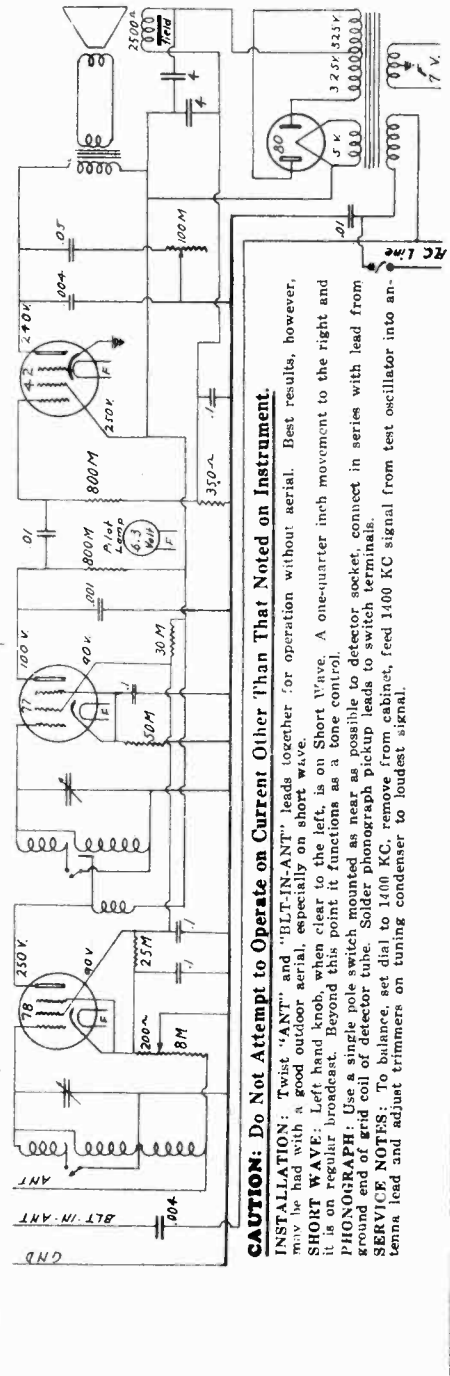
No ground connection should be used. Sometimes results are better if the tip of the antenna wire is connected to an outside aerial.

NOTE—When operating on D. C. current and set fails to operate after waiting a reasonable length of time for tubes to heat up, reverse power supply plug.

To remove set from cabinet, disconnect from power supply, remove knobs, remove back if compact model, and unscrew the four felt-headed screws on bottom of cabinet. To rebalance set, remove from cabinet. Intermediates are first balanced by feeding a 456 KC signal into grid of 6A7 tube and adjusting trimmers in top of the two tall cans to greatest volume. Adjust wave trap in rear flange of chassis by turning the trimmer screw until a 456 KC signal applied to the antenna lead cannot be heard. Next, set band switch to broadcast position (counter-clock), turn tuning knob to 1400 KC, feed a 1400 KC signal into antenna lead and adjust trimmers on tuning condenser to greatest volume. Next, set band switch to long-wave (clockwise), turn tuning knob to 350 KC, feed a 350 KC signal into the antenna lead and adjust the two 3-plate trimmers on the under side of the panel to greatest volume. Turn tuning knob to 150 KC, set test oscillator to this frequency and adjust the 4-plate section of dual trimmer to maximum volume. Repeat the operations at 350 KC and 150 KC until trimming at one frequency does not affect the other.

NOTE—Should it be necessary to write to the factory for parts or information, always give the serial number of the set as stamped on the back of the chassis.

PHONOGRAPH—Install a single pole double-throw toggle switch and two pin jacks at a convenient place on the chassis near the 75 tube. Disconnect the .05mfd. condenser from volume control and attach to one side of toggle switch, connect disconnected volume control terminal to middle terminal of switch, other side of switch to one side of phonograph pickup, and other side of pickup to "B" minus.



CAUTION: Do Not Attempt to Operate on Current Other Than That Noted on Instrument.

INSTALLATION: Twist "ANT" and "BLT-IN-ANT" leads together for operation without aerial. Best results, however, may be had with a good outdoor aerial, especially on short wave.

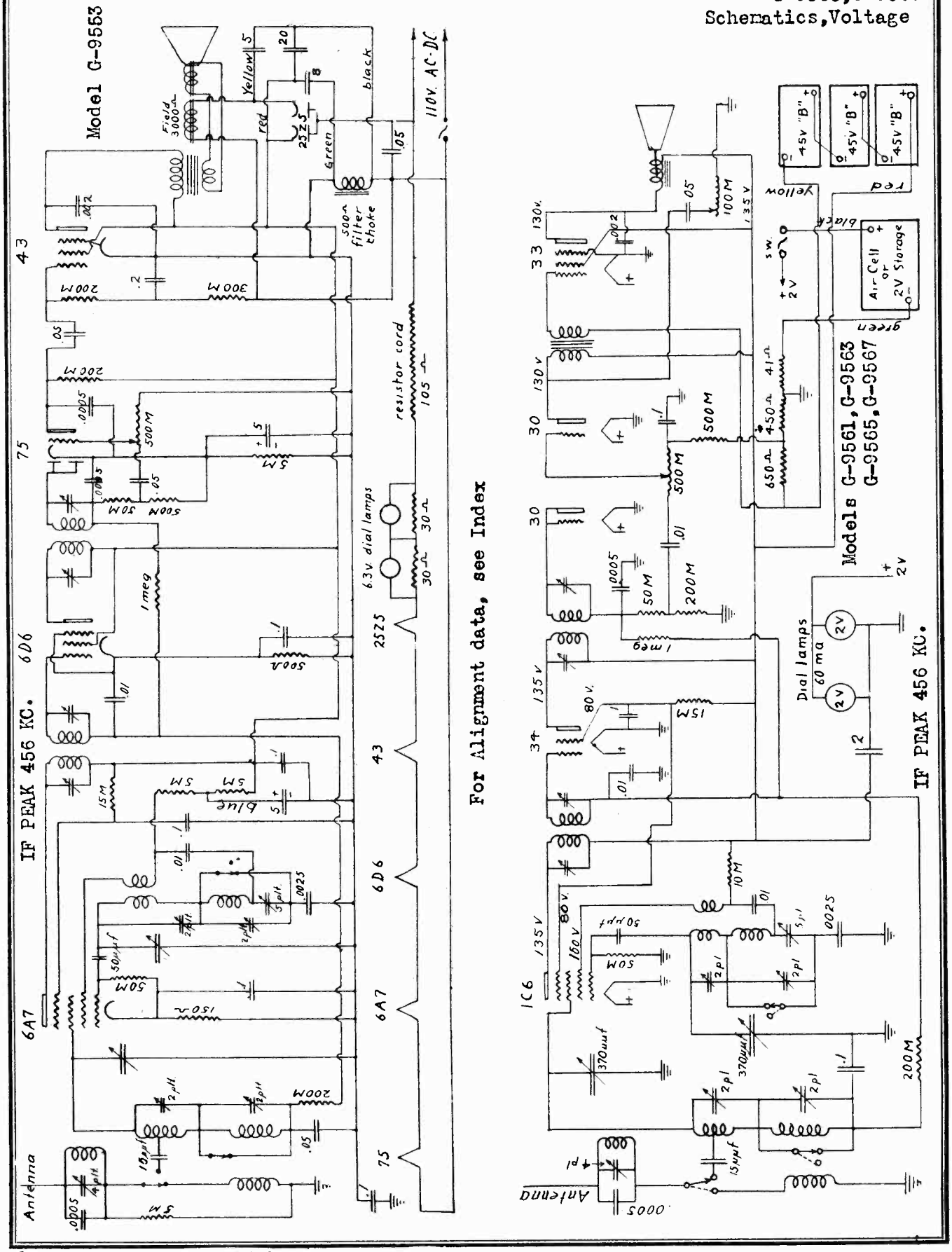
SHORT WAVE: Left hand knob, when clear to the left, is on Short Wave. A one-quarter inch movement to the right and it is on regular broadcast. Beyond this point it functions as a tone control.

PHONOGRAPH: Use a single pole switch mounted as near as possible to detector socket, connect in series with lead from ground end of grid coil of detector tube. Solder phonograph pickup leads to switch terminals.

SERVICE NOTES: To balance, set dial to 1400 KC, remove from cabinet, feed 1400 KC signal from test oscillator into antenna lead and adjust trimmers on tuning condenser to loudest signal.

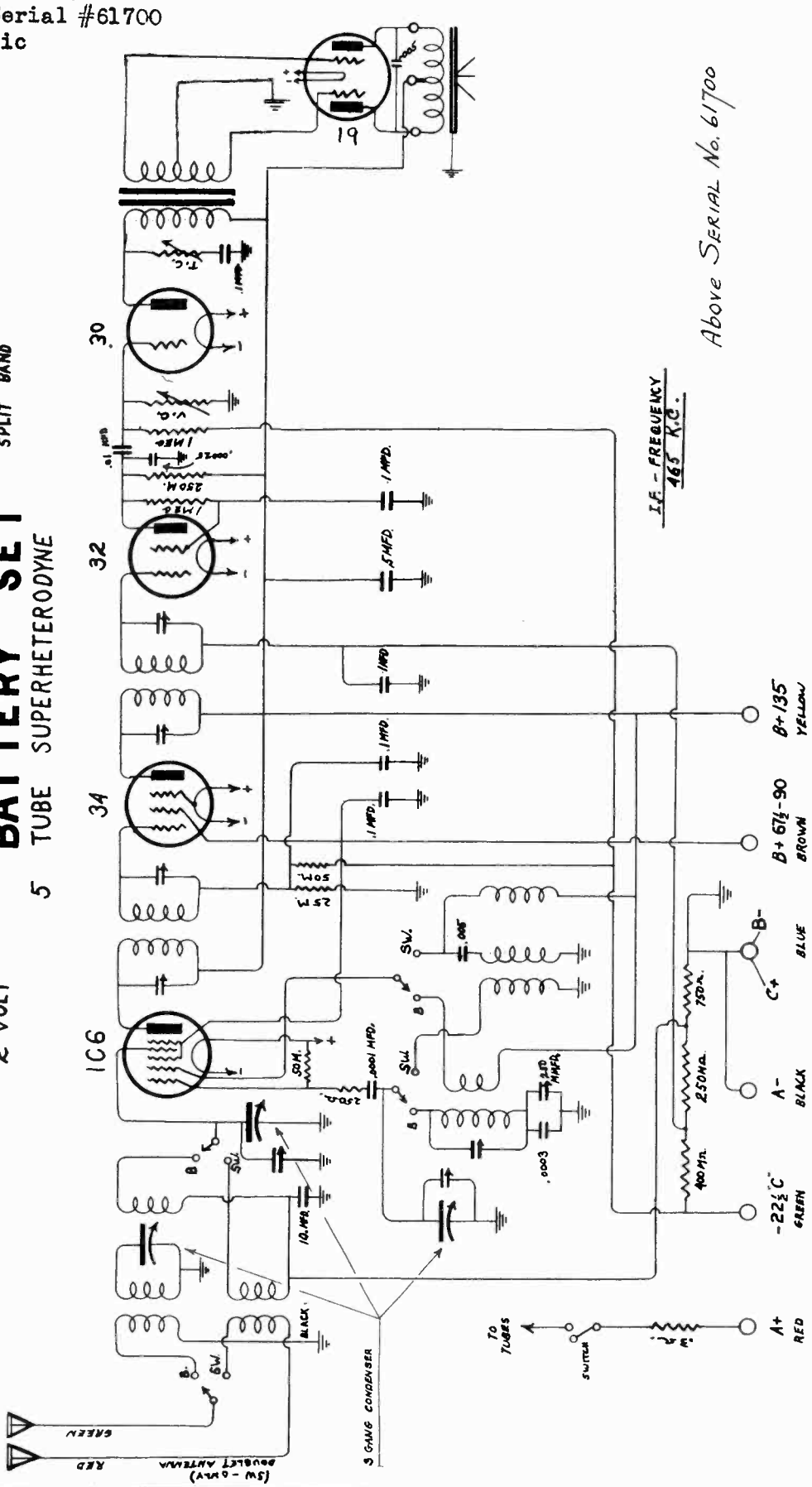
ALLIED RADIO CORP.

MODEL G-9553
MODEL G-9561, G-9563,
G-9565, G-9567
Schematics, Voltage



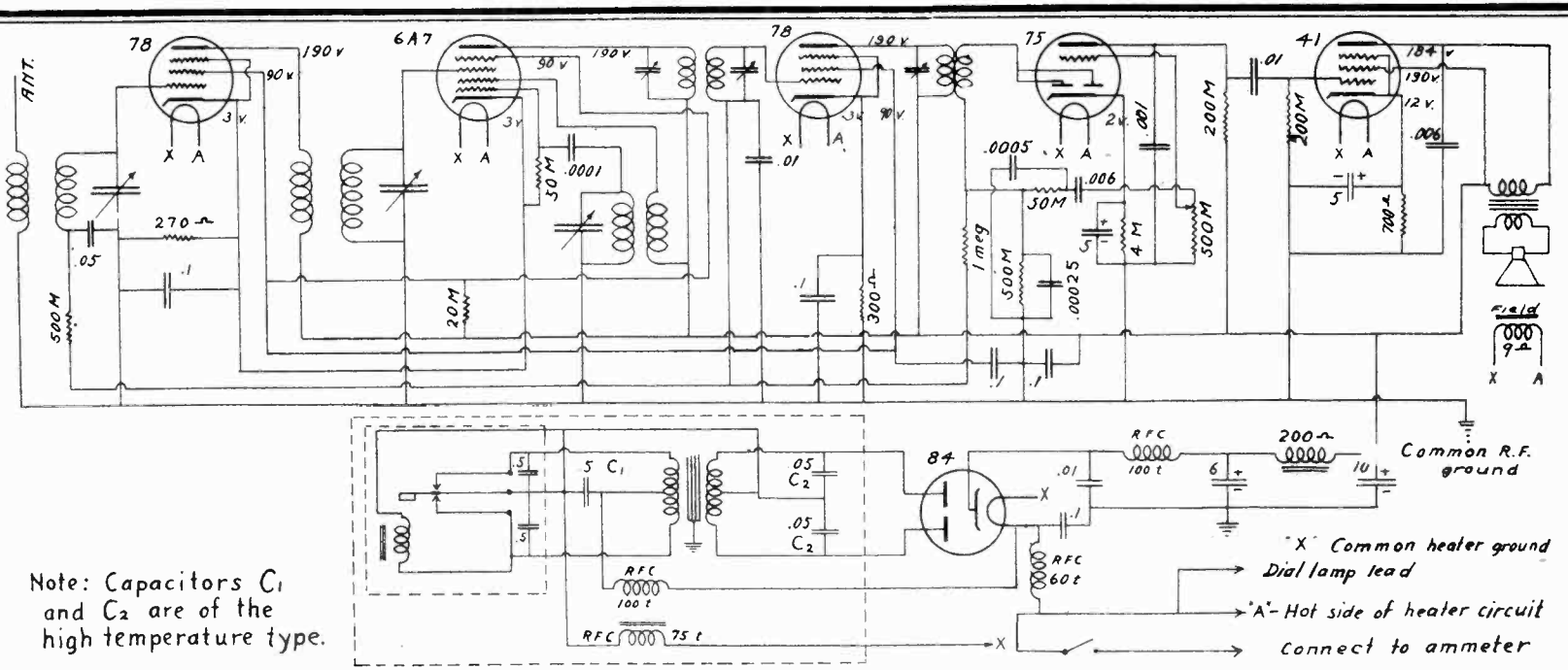
MODEL G-9561, G-9563,
G-9565, G-9567
Above Serial #61700
Schematic

ALLIED RADIO CORP.



ALLIED RADIO CORP.

MODEL G-9599
Schematic, Data
Voltage



Note: Capacitors C_1 and C_2 are of the high temperature type.

BALANCING I-F. COILS. These are trimmed through the tops of the tall cans by means of a small screwdriver and a 5-16" socket wrench. Remove chassis from cabinet and feed signal from test oscillator into grid cap of the 6A7.

BALANCING R-F. COILS. Tuning control must be attached to tuning condenser shaft with pointer set to 530 when condenser is turned to maximum. Tune in a weak signal at its proper dial marking near 1400 and adjust first and second trimmers on variable from front of chassis for loudest signal. If signal does not come at proper dial setting, carefully adjust rear trimmer on variable to shift signal to its proper location and then readjust first and second trimmers. After reinstalling set in car, slightly readjust the first trimmer through hole in top of cabinet.

Determine most satisfactory mounting position on bulkhead which should be at the left hand side or directly in front of steering column. Spot the mounting bolt location and drill ½" diameter hole. Insert bolt through hole and assemble washer and nut on engine side. Hang receiver over bolt head and tighten nut.

Attach flexible shafts to control unit by first inserting shaft as far in as possible and then tighten set screws of shaft housing, being careful it is not so tight as to cause shaft to bind in housing.

Mount control unit on steering column in approximately correct position, set pointer to 530 on dial, turn upper control of receiver to extreme clockwise position, carefully place right hand shaft in position on upper receiver control and left hand shaft on lower control and tighten set screws securely.

Adjust control unit position so that shafts leave set with least amount of bend possible and fasten securely in this position. Trial of controls will show best location for smooth operation.

Attach heavy rubber covered lead to ammeter terminal.

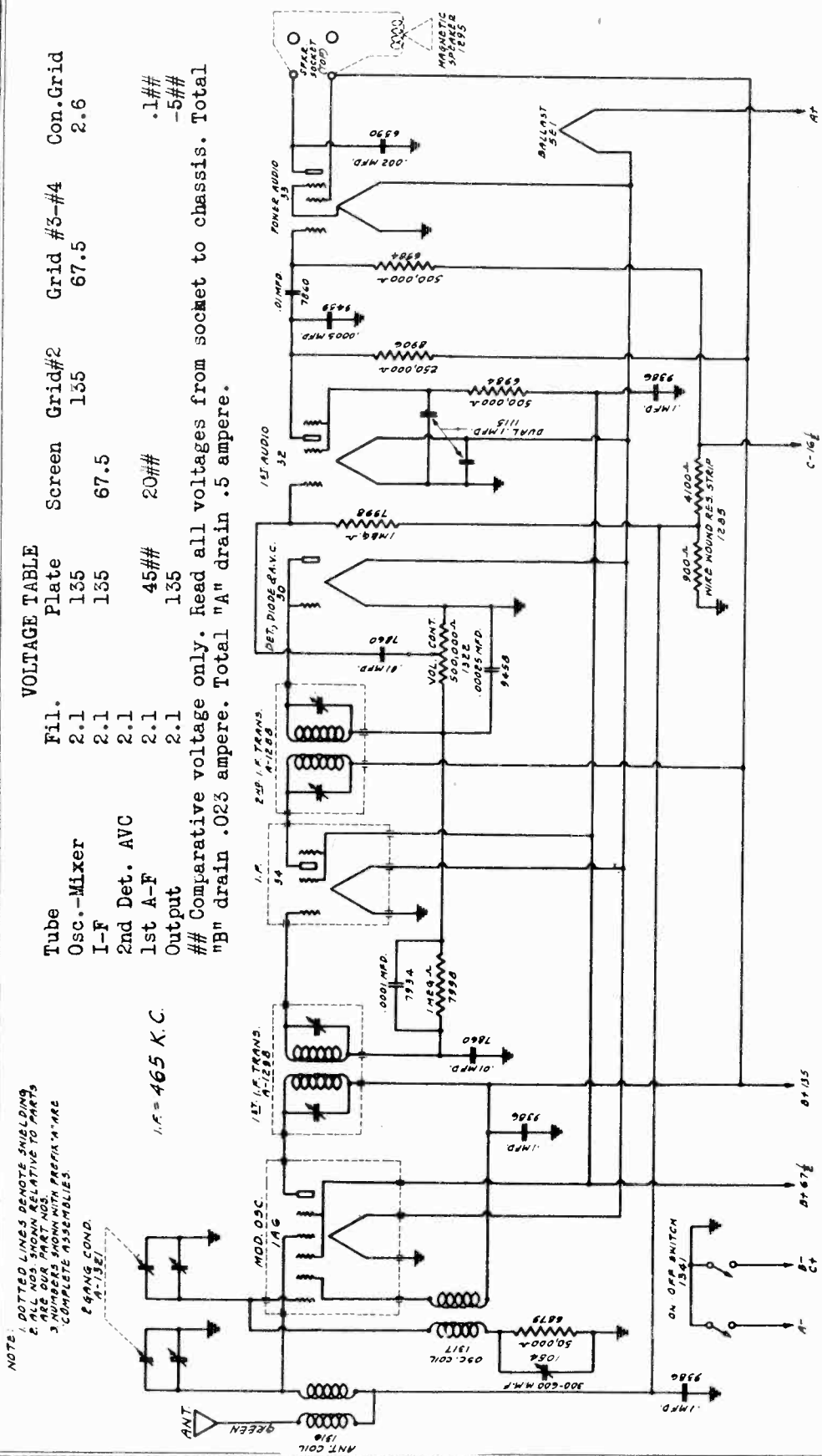
Connect pilot light wire from control head to short black wire on set, making connection close to set, and tape up joint. Ground shield by loosening screw under nearest corner of set and connecting wire therefrom to end of shield and tighten up screw.

Disconnect ignition leads from spark plugs, attach one suppressor to top of each plug and reattach the ignition lead to free end of suppressor. Disconnect center wire from distributor head, and substitute distributor suppressor, then plug center wire into free end of suppressor.

Attach generator bypass condenser to generator frame by means of screw holding cut-out. Connect wire from condenser to generator side of cut-out switch.

MODEL G-9611, G-9613
Schematic, Voltage
Alignment

ALLIED RADIO CORP.



VOLTAGE TABLE

Tube	Fil.	Plate	Screen	Grid#2	Grid #3-#4	Con.Grid
Osc.-Mixer	2.1	135		135	67.5	2.6
I-F	2.1	135	67.5			
2nd Det. AVC	2.1					.1##
1st A-F	2.1	45##	20##			-5##
Output	2.1	135				

Comparative voltage only. Read all voltages from socket to chassis. Total "B" drain .023 ampere. Total "A" drain .5 ampere.

INTERMEDIATE ALIGNMENT

Align at 465 kc. Two types of i-f trimmers are used in this receiver. One type has two parallel holes in the top of the shield, one for each trimmer. The other type has a brass hex nut for one trimmer, the other intermediate trimmer being adjusted by means of of the trimmer screw located within the brass hex nut.

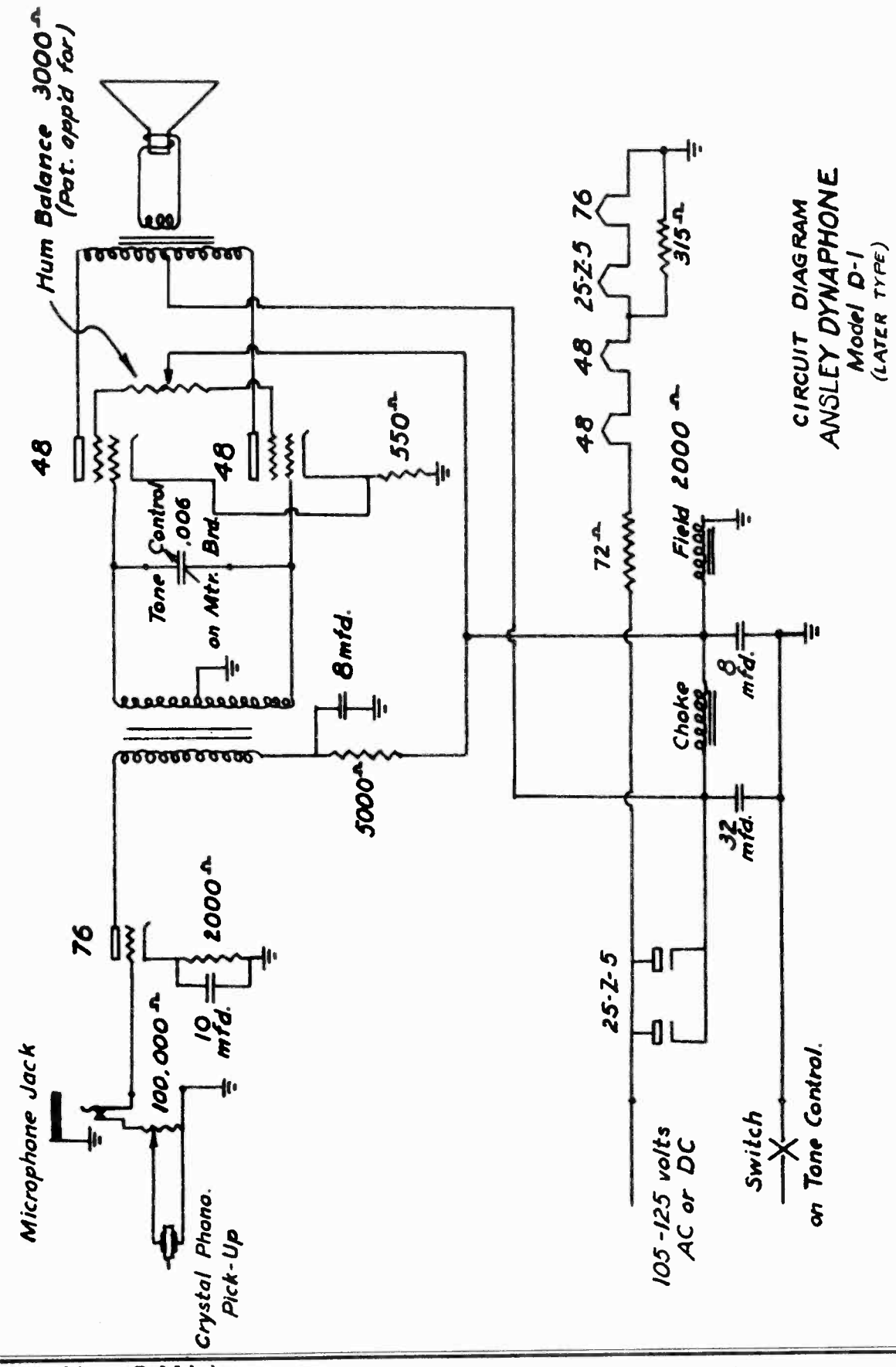
MIXER-OSCILLATOR ALIGNMENT

Connect test oscillator to antenna post and ground or chassis. Set test oscillator and receiver dial to 1720 kc. Then adjust trimmer condenser located on top of the oscillator (front section) unit of the gang condenser.

Then tune the receiver to 600 kc. and reset the test oscillator to this frequency. Then rock the tuning condenser slightly to the right and left, while adjusting the 600 kc. oscillator padding condenser, which is accessible through the hole provided on the front of the chassis. Repeat all the adjustments for maximum output.

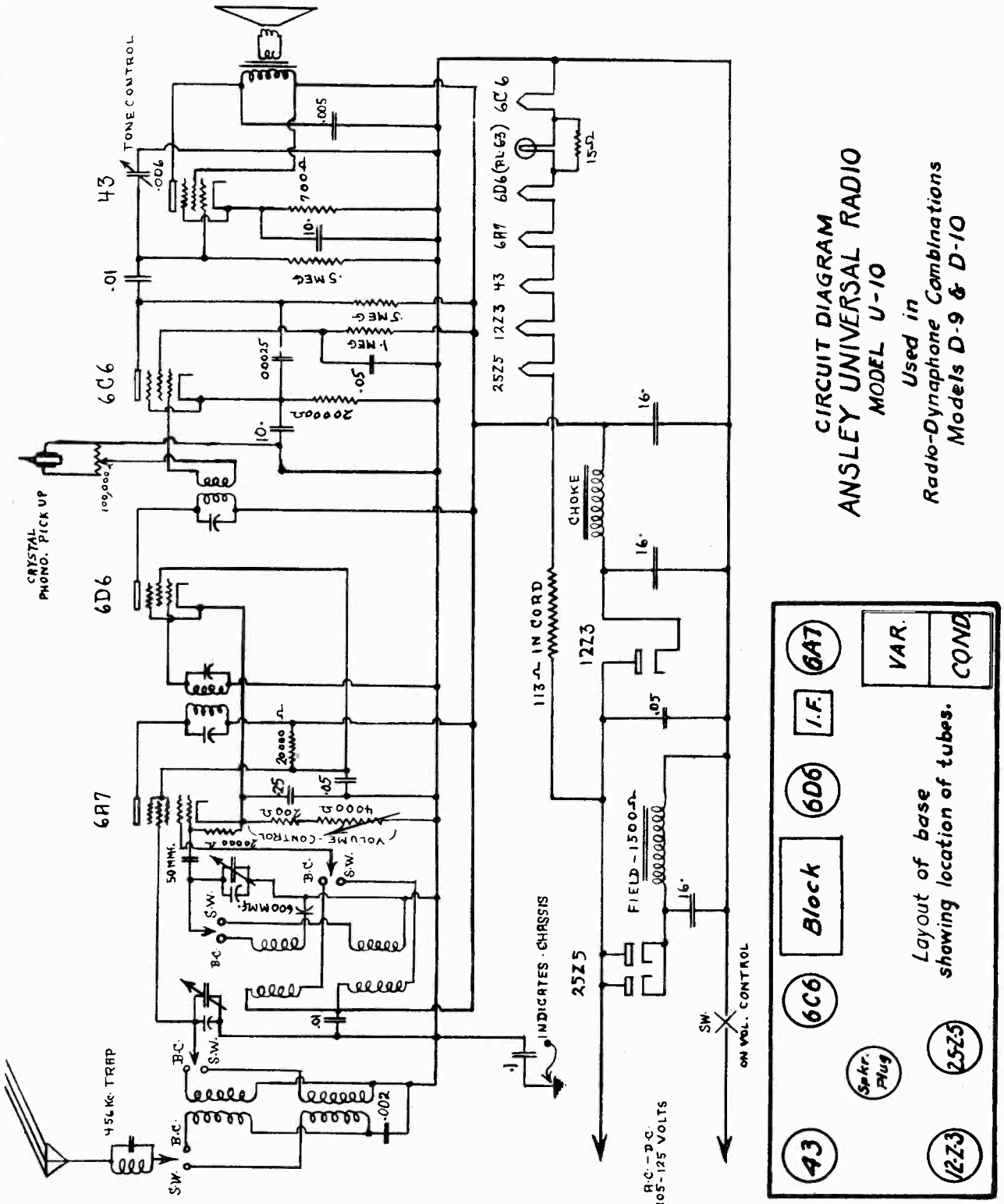
ANSLEY RADIO LABORATORIES

MODEL D-1
Dynaphone, Late Type
Schematic



MODEL U-10
Schematic
Socket

ANSLEY RADIO LABORATORIES



ATWATER-KENT MFG. CO.

MODEL 112
Schematic
Voltage, Notes

In early Model 112, the volume control is oblong shaped and in sets using this type of control, a .1 MF condenser is connected in series with the lead at the top end of the volume control, and a .5 Ω resistor is connected from the bottom end of the .1 Ω resistor (in series with volume control) to the cathode of the 2B7 tube.

The voltages in this diagram were made with the 250-volt scale of a 1000 Ω per volt D. C. voltmeter.

I.F.=472½ K.C.

FREQUENCY RANGE SWITCH SHOWN IN 10-18 MC POSITION.

TONE CONTROL SHOWN IN HIGH-FIDELITY POSITION.

In early sets, contact 19 on T5 is grounded and contact 41 on T9 is grounded. In later sets, these contacts are not grounded, but connected to condensers C9A and C14A and resistors R3A and R7A as shown. The osaillator screen voltage was increased by adding R8A and C16A as shown. Early oscillator screen connections shown in dotted lines.

SEE NOTE

For Parts List, see Index

October, 1934.

MODEL 112
Alignment, Trimmers
Socket

ATWATER-KENT MFG. CO.

ADJUSTING TRIMMER CONDENSERS (Contd.)

I. F. TRIMMERS.

Connect an I. F. test oscillator to the 1st-detector tube by means of the I. F. coupling unit shown in Fig. 1. Adjust the I. F. oscillator to 472½ KC. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter with the radio volume control on full. **Put tone control in 2nd-position from right.**

Put balancing unit A (shown in Fig. 2) across trimmer A21 and peak A22.

Put unit A across A22 and peak A21.

Put unit A across A19 and peak A20.

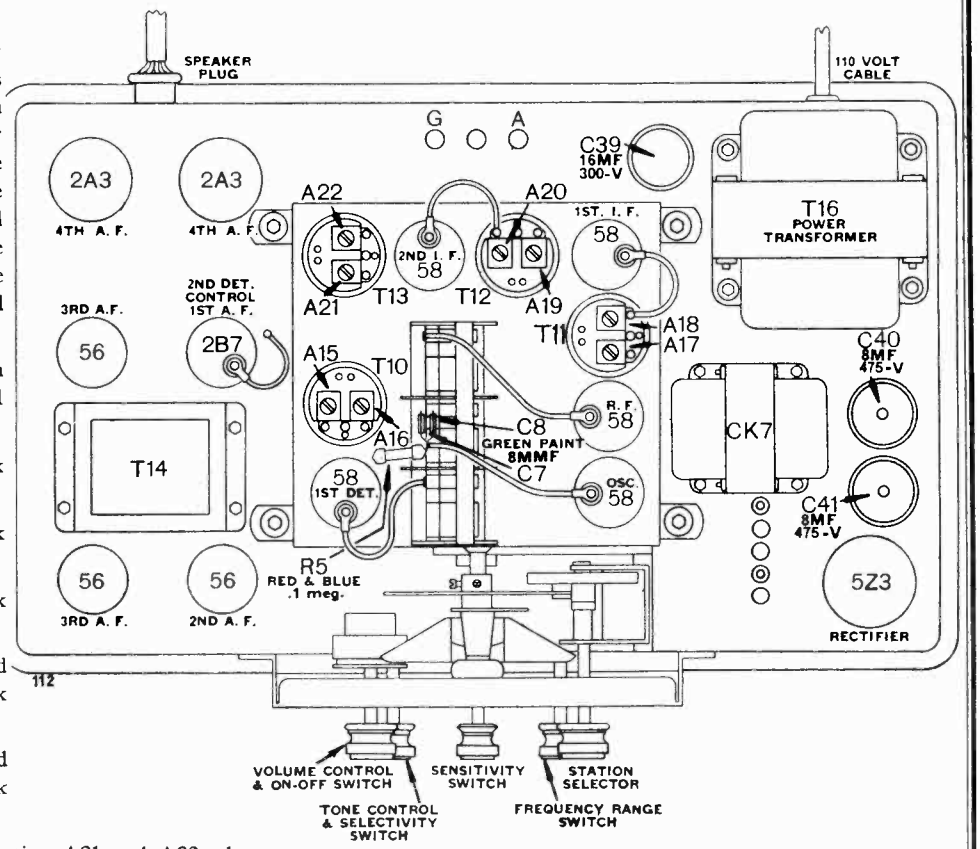
Put unit A across A20 and peak A19.

Put one unit A across A17 and another unit A across A15; peak A18 and A16.

Put one unit A across A18 and another unit A across A16; peak A17 and A15.

In case of instability while adjusting A21 and A22, place an extra balancing unit A across A18.

Remove the I. F. coupling unit and the balancing units and seal the trimmer screws.



R. F. TRIMMERS.

Connect an R. F. oscillator to the antenna and ground terminals of the set. Use the weakest possible signal to give a reading on the output meter. Loosen the trimmer screws for the frequency range or ranges that are to be re-adjusted.

10 to 18 MC range. Tune oscillator exactly to 18 MC and turn tuning knob of set so indicator is at 18 MC mark. Adjust trimmers A14, A4 and A12 for peak output.

4 to 10 MC range. Tune oscillator exactly to 10 MC and turn set to 10 MC mark on the 4 to 10 MC range. Peak trimmers A13, A3 and A11.

1.5 to 4 MC range. Tune oscillator to 4 MC and turn set to the 4 MC mark on the 1.5 to 4 MC scale. Peak trimmers A7, A2 and A8. Tune oscillator to 1.5 MC and, with set at 1.5. peak A10. Repeat adjustments on A7 and A10 if necessary.

Broadcast range. Tune oscillator and set to 1500 KC. Peak trimmers A6, A1 and A9. Tune oscillator to 560 KC and turn set to the 560 KC mark. Peak A5. Repeat adjustments on A6 at 1500 and A5 at 560 if necessary.

TUNING MECHANISM

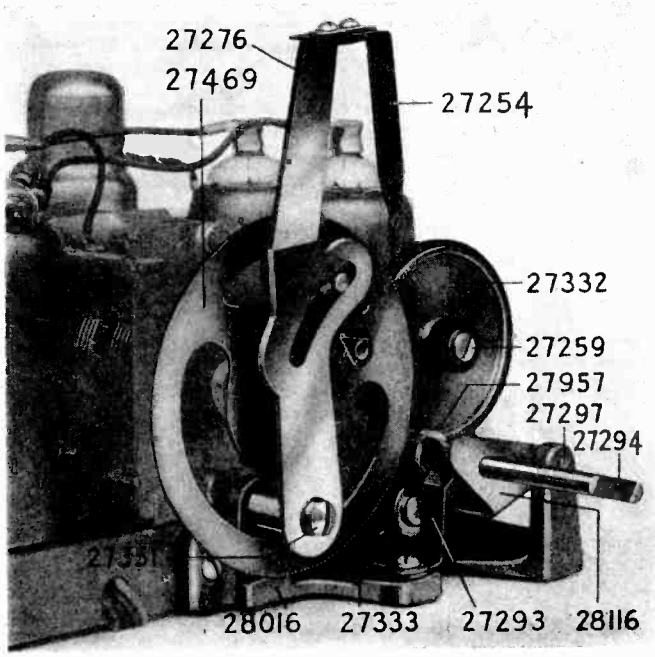


Illustration of parts in dual-speed compensated tuning mechanism in Models 112, 318, 447 and 559.

TRIMMERS ON MODEL 112

	10-18 MC Range	4-10 MC Range	1.5-4 MC Range	540-1600 KC Range
R. F.	A4	A3	A2	A1
1st-Detector	A12	A11	A8	A9
Oscillator	A14	A13	A7	A6
Tracking	None	None	A10	A5

The I. F. trimmers are A15 to A22, inclusive.

ATWATER-KENT MFG. CO. MODEL 112 Trimmer Notes

ADJUSTING TRIMMER CONDENSERS

EQUIPMENT.

1. OSCILLATOR. The oscillator should extend from the lowest I. F. frequency (125 KC in Atwater Kent sets) to at least 18 MC. The oscillator should have a good attenuator and should be well shielded. If the oscillator is not well shielded, it may be difficult to peak the pre-selector trimmers on some models, owing to pick-up by the 1st-detector grid circuit. In general, it is advisable to connect an .00025MFD fixed condenser in series with the oscillator pick-up lead at the antenna terminal of the set.

2. OUTPUT METER. Use a sensitive output meter and keep the radio volume control turned on full volume. This is necessary to minimize the effect of the automatic-volume-control action of the set which would otherwise prevent sharp peaking of the trimmers.

3. BALANCING UNIT. Build two of the Type "A" balancing units and one of the I. F. coupling units shown below. These are required for correct adjustment of Atwater Kent super-heterodynes. The Type "B" balancing unit, also described, is used on earlier models of Atwater Kent sets.

(These Atwater Kent units may be purchased from your distributor.)

To use the I. F. coupling unit, place it on the grid cap of the 1st-detector tube as shown, and clip the lead (that ordinarily goes to the 1st-detector grid cap) to the left-hand end of the 10,000 Ω resistor as shown.

4. Use a non-metallic screw driver for adjustment of the trimmers.

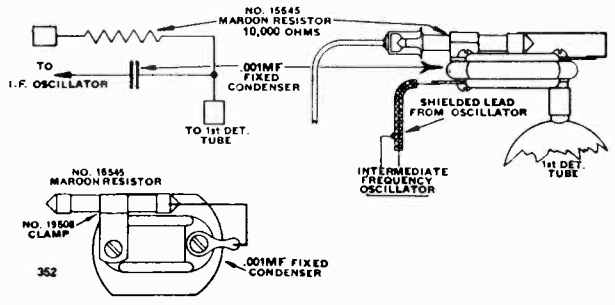


Fig. 1. I. F. Coupling unit, part No. 42590.

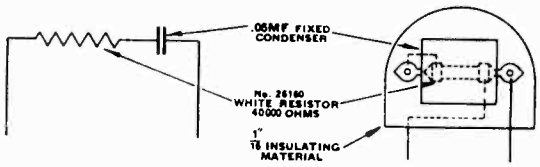


Fig. 2. Balancing unit "A," part No. 42610.

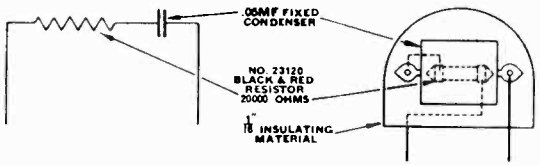


Fig. 3. Balancing unit "B," part No. 42620.

GENERAL NOTES.

1. Do not make any trimmer adjustments and do not disturb the dial gear or the dial indicator adjustments unless absolutely necessary.

2. With all-wave sets, it is very desirable to use a test oscillator that extends to 18 MC (18,000 KC). If you attempt to use harmonics of a broadcast oscillator, you are likely to use the wrong harmonic and set the trimmers incorrectly.

3. When using a test oscillator, you will experience "double-spot" or image reception, particularly on the highest frequency range of the set. The double-spot point is twice the I. F. frequency below the correct point. For instance, if a set has an I. F. frequency of 472½ kilocycles, and you are tuning in an 18 MC signal, the double-spot or image will be twice 472½ or 945 KC (.94 MC) below 18. In such a case you will hear the signal at 18 MC and also at 17.06 MC. In properly aligned sets of six tubes or more, the image should be weaker than the desired signal.

4. Because of the facts mentioned in paragraphs 2 and 3 above, it is very desirable, wherever possible, first to check the short-wave dial calibration and determine how far, and in what direction, the readings are "off." This should be done on actual reception of short-wave stations of known frequency. This pre-checking will assist you in selecting the correct harmonic (in case you are using a broadcast oscillator), and it will also minimize possibility of confusing the correct signal and the image signal.

5. On oscillator trimmers there may be two different settings at which the signal is received. Always use the *first* of these two positions as you screw the trimmer in from a loose or minimum-capacity position. THIS IS IMPORTANT.

6. On sets with a combined oscillator and 1st-detector tube, tune the set to a quiet point near 1000 KC while adjusting the I. F. trimmers.

OSCILLATOR GOVERNS DIAL ACCURACY.

It is essential to understand definitely that in a super-heterodyne the dial calibration depends on the oscillator circuit of the set, providing that the I. F. trimmers are correctly aligned. The pre-selector (R. F. and 1st-detector) trimmers do not affect the dial calibration but simply affect sensitivity.

If the dial calibration of one or more of the frequency ranges of the set is "off," check the oscillator trimmer, the oscillator tracking condenser and tracking trimmer, and the oscillator transformer for the particular range or ranges in question.

The oscillator **trimmer** is used to adjust the **high-frequency** end of the particular range.

The oscillator **tracking condenser** adjusts the **low-frequency** end of the particular range.

In Atwater Kent sets the fixed tracking condenser on the broadcast range (and in some models also on the police range) is shunted with an adjustable tracking trimmer condenser. The adjustable tracking trimmer condenser is not used on the high-frequency ranges.

The adjustment of the trimmers for the high-frequency and low-frequency end of a particular range is slightly interlocking. For example, assume that the broadcast range of a set is off calibration. First turn the tuning knob so the dial pointer is at 1500 KC and, using a 1500 KC signal, peak the broadcast oscillator trimmer. Then turn the set to 560 KC and, using a 560 KC signal, peak the oscillator broadcast tracking trimmer for maximum output. This adjustment will have slightly affected the previous adjustment at 1500 KC so it will be necessary to repeat the adjustment at 1500 KC and also possibly at 560 KC.

If adjustment of the oscillator trimmer and the oscillator tracking trimmer does not correct the dial readings, it may be necessary to replace the fixed oscillator tracking condenser or the oscillator transformer for that particular range.

Naturally, the I. F. trimmers should be checked, and adjusted if necessary, before any attempt is made to align the R. F. or oscillator trimmers.

GENERAL PROCEDURE

First check the I. F. trimmers. If reception is satisfactory and the dial calibration is correct on the broadcast range, it is safe to assume that the I. F. trimmers are correctly adjusted.

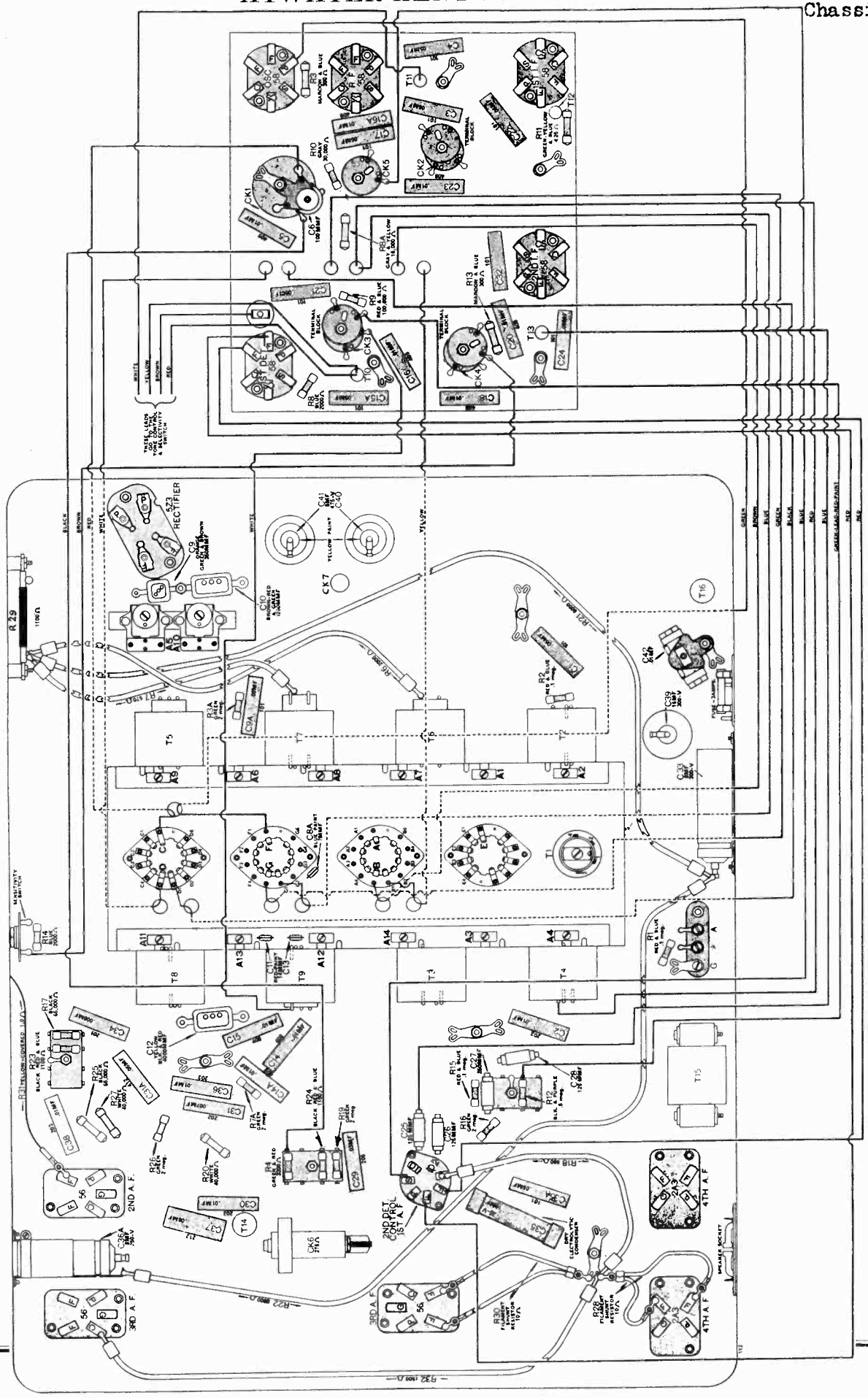
If the dial calibration is "off" (or the set is weak) on only one range, adjust the trimmers for that range only. If this does not correct the trouble, inspect the resistors, condensers, transformers, and switch contacts associated with that particular range.

In checking a set, do not disturb the position of the wiring any more than necessary.

ATWATER-KENT MFG. CO.

MODEL 112
Chassis

MODEL 112



This chart shows all connections between the upper unit and the lower base.

MODEL 112

Replacement Parts

27287		Var. cond. assem.
25601		Rubber grommet
27301		Washer
22649		Screw
27286		Range switch
27272		Crank arm
35380		Reflector assem.
38379		Front panel assem.
27554		Escutcheon
27674		Vol. control, .5 U
27314		Vol. cont. mtg. bracket
27587		Tone cont. switch
27317		Mtg. bracket for above
38740		Sensitivity switch assem.
27628		Shaft and blade for above
27472		Antenna jumper
25913		R. F. coil shield
25056		I. F. T. shield
26255		I. F. T. shield insul.
25058		I. F. T. shield cover without hole
25059		I. F. T. shield cover with hole
25906		Filter choke cover
25758		Power trans. cover
15331		Audio trans. lid
23774		Fuse (3 amp.)
27057		Bottom cover
22683		Tube shield
23743		Aux. tube shield
27334		Tone cont. cond. clamp
27249		Mica for trimmers on strips
17109		Screw for above
17064		Insul. washer for above
27072		Station directory, F-1131
27545		Inst. folder, F-1143
27864		Shipping container
27728		Knob vol. control and tuning
27494		Knob, tone control
27358		Knob, range switch
26571		Knob, silencing
28115		Spring (large knob)
28114		Spring (small knob)

TRANSFORMERS

T1	38310	No. 1 R. F. T., broadcast
T2	38340	No. 1 H. F., 1st range
T3	38360	No. 1 H. F., 2nd range
T4	38380	No. 1 H. F., 3rd range
T5	38320	No. 2 R. F. T., broadcast
T6	38330	Oscillator T., broadcast
T7	38350	No. 2 H. F., 1st range
T8	38370	No. 2 H. F., 2nd range
T9	38390	No. 2 H. F., 3rd range
T10	27448	No. 1 I. F. T.
T11	27449	No. 2 I. F. T.
T12	27451	No. 3 I. F. T.
T13	27452	No. 4 I. F. T.
T14	39730	Audio trans.
T15	39740	Output trans.
T16	26257	Power trans.

CHOKES

CK1	17015	R. F. plate choke
CK2	19210	R. F. plate circuit choke
CK3	19210	1st det. plate circuit choke
CK4	19210	2nd I. F. plate circuit choke
CK5	19210	R. F. 1st I. F. screen choke
CK6	28372	1st A. F. plate choke
CK7	25894	Audio filter choke

TRIMMERS

38770		Single trimmer
32880		Double I. F. trimmer

CONDENSERS*

C1	31160	.05 MF (101)
C2	27630	.01 MF (203)
C3	31160	.05 MF (101)
C4	31160	.05 MF (101)
C5	32810	.01 MF (409)
C6	22220	100 MMF (mica), 450-V.
C7	25661	8 MMF (green), 500-V.
C8	25661	8 MMF (green), 500-V.
C8A	36220	7 MMF (blue)
C9	27391	350 MMF (orange, green and brown)
C9A	31160	.05 MF (101)
C10	27389	1250 MMF (brown, red and green)
C11	34470	14 MMF (red on T8)
C12	27392	4000 MMF (yellow, black and red)
C13	34470	14 MMF (red on T9)
C14	32810	.01 MF (409)
C14A	32810	.01 MF (409)
C15	32810	.01 MF (409)
C15A	31160	.05 MF (101)
C16	32810	.01 MF (409)
C16A	32810	.01 MF (409)
C17	31160	.05 MF (101)
C18	32810	.01 MF (409)
C20	32810	.01 MF (409)
C21	31160	.05 MF (101)
C22	31160	.05 MF (101)
C23	32810	.01 MF (409)
C24	31160	.05 MF (101)
C25	39340	125 MMF (mica)
C26	39340	125 MMF (mica)
C27	33670	250 MMF (mica), 500-V.
C28	39340	125 MMF (mica)
C29	29530	.03 MF (206)
C30	27630	.01 MF (203)
C31	36670	.007 MF (202)
C31A	36490	.05 MF (412)
C32	31160	.05 MF (101)
C33	25384	8 MF, 300-V.
C34	28040	.005 MF (201)
C35	25379	10 MF, 25-V.
C35A	31160	.01 MF (101)
C36	27630	.01 MF (203)
C36A	25385	8 MF, 250-V.
C37	35420	.08 MF (212)
C38	27630	.01 MF (203)
C39	27583	16 MF, 300-V.
C40	28031	8 MF, 475-V.
C41	28031	8 MF, 475-V.
C42	23250	.01 MF, 450-V.

PARTS FOR TUNING MECHANISM

(See illustration on page 6.)

27469		Dial gear
27276		Pointer arm
27254		Dial pointer
27332		Counter shaft gear (lge.)
27333		Idler gear (sml.)
27259		Gear screw
27957		Broadcast pinion gear
28116		Gear frame
27351		Screw (5/32" dia.)
27294		Tuning shaft
28016		Tuning bracket
27293		Detention spring
27298		Shaft spacer
27297		Bracket holding pin

RESISTORS

R1	30340	Red-blue, .1 U, 1/3-W.
R2	30340	Red-blue, .1 U, 1/3-W.
R3	37530	Maroon-blue, 300 Ω, ½-W.
R3A	30370	Green, 2 U, 1/3-W.
R4	30380	Green-red, 3300 Ω, 1/3-W.
R5	20980	Red-blue, .1 U, ½-W.
R6	33230	Flexible, 2000 Ω
R7	33210	Flexible, 670 Ω
R7A	30370	Green, 2 U, 1/3-W.
R8	33250	Blue, 2000 Ω, 1/3-W.
R8A	20960	Gray-yellow 15,000 Ω, ½-W.
R9	30340	Red-blue, .1 U, 1/3-W.
R10	31840	Gray, 30,000 Ω, 1/3-W.
R11	37540	Green-yellow-blue, 425 Ω, ½-W.
R12	30350	Black-purple, .5 U, 1/3-W.
R13	37530	Maroon-blue, 300 Ω, ½-W.
R14	33250	Blue, 2000 Ω, 1/3-W.
R15	30340	Red-blue, .1 U, 1/3-W.
R16	30370	Green, 2 U, 1/3-W.
R17	31980	Black, 65,000 Ω, 1/3-W.
R18	23780	Flexible, 550 Ω
R19	30370	Green, 2 U, 1/3-W.
R20	26160	White, 40,000 Ω, ½-W.
R21	24340	Flexible, 8000 Ω
R22	24340	Flexible, 8000 Ω
R23	31480	Black-red-blue, 1100 Ω, 1/3-W.
R24	31480	Black-red-blue, 1100 Ω, 1/3-W.
R25	21040	Black, 65,000 Ω, ½-W.
R26	30370	Green, 2 U, 1/3-W.
R27	26160	White, 40,000 Ω, ½-W.
R28	17077	Flexible, 10 Ω
R29	19180	Iron core, 1100 Ω
R30	17077	Flexible, 10 Ω
R31	16081	Flexible, .6 Ω
R32	20380	Flexible, 1500 Ω

SOCKETS

22734		5 prong (56)
22735		4 prong (2A3)
26111		7 prong
24494		6 prong (58)
22733		6 prong (2a5-55)
22689		4 prong (rect.)
21336		4 prong (speaker)
18449		Fuse

112 SPEAKER No. 36700

26243		Diaphragm
23668		Cable and plug
35080		Field coil (325 Ω)
15079		Speaker plug

CABINET PARTS

25925		Wing nut
21142		Washer
25742		Clamp (large)
25746		Clamp bolt

* Voltages for condensers are determined by the first numeral of the code number on the condenser.
Example: 101=100 volts, 202=200 volts, 403=450 volts.

Ω=ohms. U=megohms.

PARTS LIST FOR MODEL 511

Tune•O•Matic

28913		Front panel assem.
27923		Escutcheon
25689		Shadow tuning meter
27675		Range switch
22678		R-F. coil shield
23774		Fuse (3 amp.)
22683		Tube shield
23743		Aux. tube shield
27289		Tone control switch
27829		Base cover
25906		Filter choke cover
25758		Power T. cover
27732		Vol. control, .5 meg.
27682		Var. cond. assem.
27828		On-off switch
28556		Wrench
28296		Dealer inst. folder, F 1207
28297		Customer inst. folder F 1208
28572		Shipping container (wood)
29013		Shipping container (chassis)
26569		Knob, vol. cont. and tuning
27495		Knob, tone and silencing
26571		Knob, range switch

TRANSFORMERS

T1	40560	No. 1 R. F. T.
T2	40570	No. 2 R. F. T.
T3	40580	No. 3 R. F. T.
T4	40590	Oscillator T.
T5	28172	No. 1 I. F. T.
T6	28173	No. 2 I. F. T.
T7	28174	No. 3 I. F. T.
T8	28175	No. 4 I. F. T.
T9	40760	Audio T.
T10	40770	Output T.
T11	26257	Power T.

RESISTORS

R1	30340	Red, blue, .1 U, ⅓ W.
R2	37530	Maroon, blue, 300 Ω, ½ W.
R3	37530	Maroon, blue, 300 Ω, ½ W.
R4	31980	Black, 65,000 Ω, ½ W.
R5	30340	Red, blue, .1 U, ⅓ W.
R6	20950	Maroon, 10,000 Ω, ½ W.
R7	36430	Blue, yellow, 5000 Ω, ½ W.
R8	30340	Red, blue, .1 U, ⅓ W.
R9	37540	Blue, yellow, green, 425 Ω, ½ W.
R10	24340	Flexible, 8000 Ω.
R11	24340	Flexible, 8000 Ω.
R12	30350	Black, purple, .5 U, ⅓ W.
R13	31480	Blue, red, black, 1100 Ω ½ W.
R14	39130	Green, gray, red, 2500 Ω, ⅓ W.
R15	31980	Black, 65,000 Ω, ½ W.
R16	30340	Red, blue, .1 U, ⅓ W.
R17	39790	Blue, green, red, 500 Ω, ½ W.
R18	30370	Green, 2 U, ⅓ W.
R19	26160	White, 40,000 Ω, ½ W.
R21	39790	Blue, green, red, 500 Ω.
R22	30370	Green, 2 U, ⅓ W.
R23	30370	Green, 2 U, ⅓ W.
R24	16081	Flexible, .6 Ω.
R25	26160	White, 40,000 Ω, ½ W.
R26	20380	Flexible, 1500 Ω.
R27	17077	Flexible, 10 Ω.
R28	19180	Iron core, 1100 Ω.
R29	17077	Flexible, 10 Ω.
R30	31860	Flexible, 1.0 Ω.

CONDENSERS*

C1	31160	.05 MF (101)
C2	31530	.1 MF (102)
C3	31160	.05 MF (101)
C4	26820	.05 MF (208)
C5	35840	50 MMF, 500-V.
C6	31530	.1 MF (102)
C7	27391	350 MMF (orange, green, brown)
C8	27598	3700 MMF (orange, violet, red)
C9	26820	.05 MF (208)
C10	31160	.05 MF (101)
C11	31160	.05 MF (101)
C12	26820	.05 MF (208)
C13	31530	.1 MF (102)
C14	31530	.1 MF (102)
C15	29530	.03 MF (206)
C16	26820	.05 MF (208)
C17	26820	.05 MF (208)
C18	39340	125 MMF
C19	39340	125 MMF
C20	39340	125 MMF
C21	28130	500 MMF (402)
C22	29890	.005 MF (408)
C23	27630	.01 MF (203)
C24	25385	8 MF, 250-V.
C28	25379	10 MF, 25-V.
C29	27630	.01 MF (203)
C30	39650	.004, .001 MF (419)
C31	35420	.08 MF (212)
C32	23250	.01 MF, line cond., 450-V.
C33	22538	8 MF, 475-V.
C34	22538	8 MF, 475-V.
C35	27911	16 MF, 300-V.
C36	25384	8 MF, 300-V.

*Voltages for condensers are determined by the first numeral of the code number which is found on the condenser.
Example: 101 = 100 volts, 202 = 200 volts, 403 = 450 volts.

CHOKES

CK1	19210	1st det. filter
CK2	19210	Screen
CK3	25894	Filter choke

TRIMMERS

39430		Double R. F. trimmer
38770		Tracking trimmer (A8)
32880		Double I. F. trimmer

SOCKETS

24492		4-prong (2A3)
24493		5-prong
22689		4-prong, (rect.)
21336		4-prong, (spkr.)
26111		7-prong
24494		6-prong
18449		Fuse

40870 CLOCK ASSEMBLY

The only parts sold separately are those listed below.

28317		Spool assembly
27697		Cord assembly
27818		Cord check
28373		Cord and plug assem.
27811		Time adj. knob
27797		Crystal
27798		Retaining ring
28911		Shipping container

Ω=ohms. U=megohms.

TUNE-O-MATIC PARTS

28237		Disc and bushing assem.
27735		Gear friction disc fibre
27737		Gear friction spring
28236		Cam
27741		Disc spacer
28238		Station selector disc
27742		Disc spacer spring
28229		Collar
27736		Worm gear
27744		Worm shaft support
27753		Bearing (left hand)
27752		Bearing (right hand)
27526		Ball bearing
28233		Small wheel
28232		Large wheel
28231		Shaft and worm
27784		Locknut
27783		Thrust screw
40860		Solenoid coil
27352		Rubber pad for above
28301		Contact fingers
28234		Knob gear
27836		Knob shaft
22717		Dial pointer arm
28235		Dial gear
27646		Gear stop
22649		Pointer arm screw
22651		Pointer arm washer
25857		Bracket
28302		Reversal switch
27758		Spring
28405		Disc cover
28433		Motor assem.
27774		Plunger
27767		Felt washer for the above
27775		Plunger hanger wire
28371		Switch shield

REMOTE CONTROL No. 41940

28494		Control switch
42450		Resistor, 150 Ω
28816		Dial assem.
28299		Lamp, 6-8-v., frosted
24278		Knob
25865		Escutcheon
28753		Base cover
28655		Cable and plug assem. (15-wire)
28648		Cable (11-wire)
28926		Base assem.
28925		Box
28469		Cable clamp
28657		Wood screw
28219		Spring in lamp socket
28218		Washer in lamp socket
28815		Socket assembly
28658		Inst. sheet, F-1214
28659		Shipping container

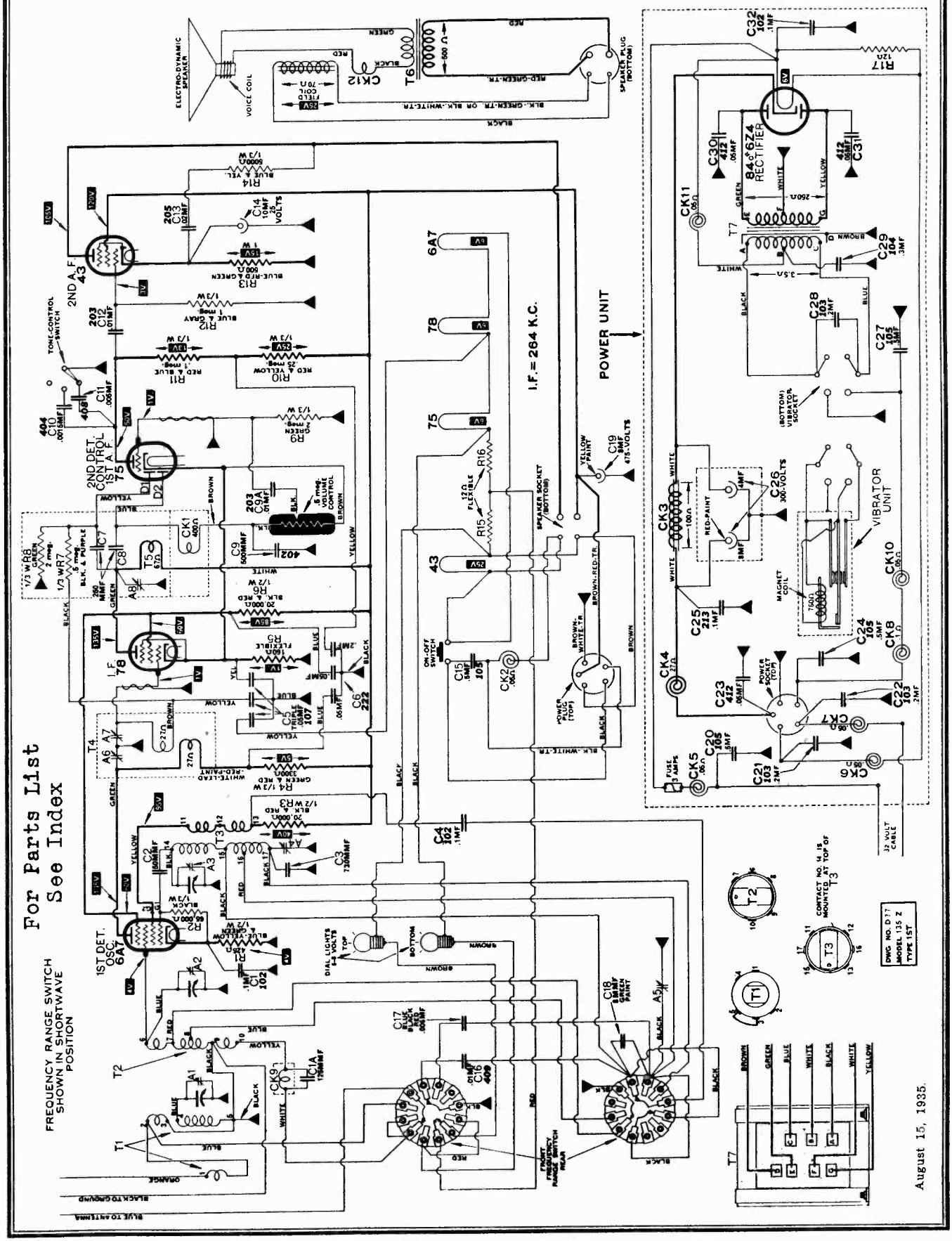
MODEL 511 SPEAKER

26243		Diaphragm
23668		Cable and plug assem.
35080		Field coil (325Ω)
15079		Plug (only)

ATWATER-KENT MFG. CO.

ATWATER-KENT MFG. CO.

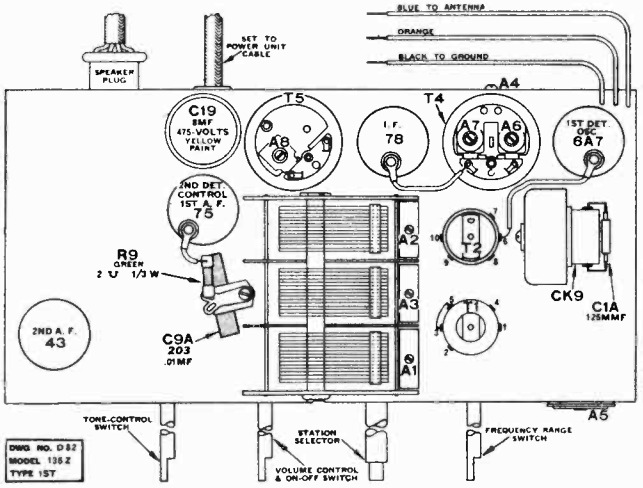
MODELS 135Z, 215Z
Schematic, Voltage



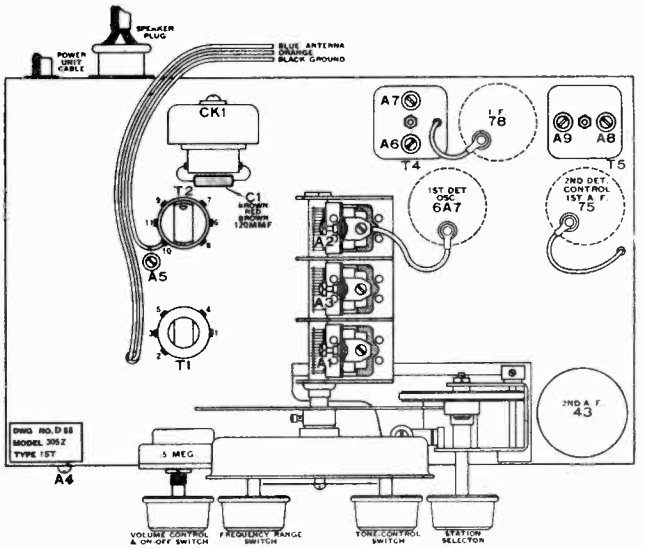
MODELS 135Z,215Z
MODELS 305Z,565Z
Trimmers,Socket
Aligrment

ATWATER-KENT MFG. CO.

ADJUSTING TRIMMER CONDENSERS



MODELS 135Z AND 215Z



MODELS 305Z AND 565Z

A1—Preselector, 1500 KC.
A2—1st-detector, 1500 KC.
A3—Oscillator, 15 MC.
A4—Tracking, 560 KC.
A5—Oscillator, 1500 KC.
A6—1st-detector plate, 264 KC.
A7—I. F. grid, 264 KC.
A8—I. F. plate, 264 KC.

A1—Preselector, 1500 KC.
A2—1st-detector, 1500 KC.
A3—Oscillator, 15 MC.
A4—Tracking, 560 KC.
A5—Oscillator, 1500 KC.
A6—1st-detector plate, 264 KC.
A7—I. F. grid, 264 KC.
A8—I. F. plate, 264 KC.
A9—2nd-detector, 264 KC.

EQUIPMENT.

1. OSCILLATOR. The oscillator should cover the I. F. and R. F. frequencies. It should be well shielded and have a good attenuator. If the oscillator is not well shielded, it may be difficult to peak the pre-selector trimmers, owing to pick-up by the 1st-detector grid circuit. In general, it is advisable to connect an .00025 MFD fixed condenser in series with the pick-up lead at the antenna terminal of the set.

2. OUTPUT METER. Use a sensitive output meter and keep the radio volume control turned on full volume, and the tone control at high pitch. This is necessary to minimize the effect of the automatic volume control action of the set which would otherwise prevent sharp peaking of the trimmers.

3. I. F. COUPLING UNIT. Purchase from your distributor one of the special Atwater Kent I. F. coupling units No. 42590. This is placed on the grid cap of the I. F. or the 1st-detector tube, as specified, and the lead that normally connects to the grid cap is attached to the coupling unit.

4. Use a non-metallic screw driver for adjustment of the trimmers.

GENERAL NOTES.

1. Do not tamper with the trimmer adjustments unless the necessity is clearly apparent.

2. On the oscillator trimmer there are two different settings at which the signal will be received. Always use the *first* of these two positions as you screw the trimmer in from a loose or minimum-capacity position. THIS IS IMPORTANT.

3. Check the I. F. trimmers first.

4. In checking the set, do not disturb the position of the wiring any more than necessary.

DIAL CALIBRATION.

The dial calibration depends on the oscillator circuit of the set, providing that the I. F. trimmers are correctly aligned to their specified frequency. The pre-selector (R. F. and 1st-detector) trimmers do not affect the dial calibration, but simply affect sensitivity.

The oscillator trimmer is used to adjust the high-frequency end of the scale.

The oscillator tracking condenser adjusts the low-frequency end of the scale.

If adjustment of the oscillator trimmer and the oscillator tracking trimmer condenser does not correct the dial readings, it may be necessary to replace the fixed oscillator tracking condenser or the oscillator transformer.

Naturally the I. F. trimmers should be checked and adjusted, if necessary, before any attempt is made to align the R. F. or oscillator trimmers.

PROCEDURE

I. F. TRIMMERS.

Connect I. F. test oscillator (264 KC) to I. F. grid by means of regular I. F. coupling unit. Peak A8 (and A9 in 305Z, 565Z). Connect I. F. oscillator to 1st-detector grid and peak A7, A6.

DIAL POINTER ADJUSTMENT.

With rotor of variable condenser fully meshed, dial indicator should be at 538 KC.

R. F. TRIMMERS.

Connect an R. F. oscillator to antenna and ground of set.

Short-wave range. With oscillator and dial at 15 MC, peak A3. Use the first point on the trimmer, as it is screwed in from a loose or minimum-capacity position.

Police range. No trimmers on this range.

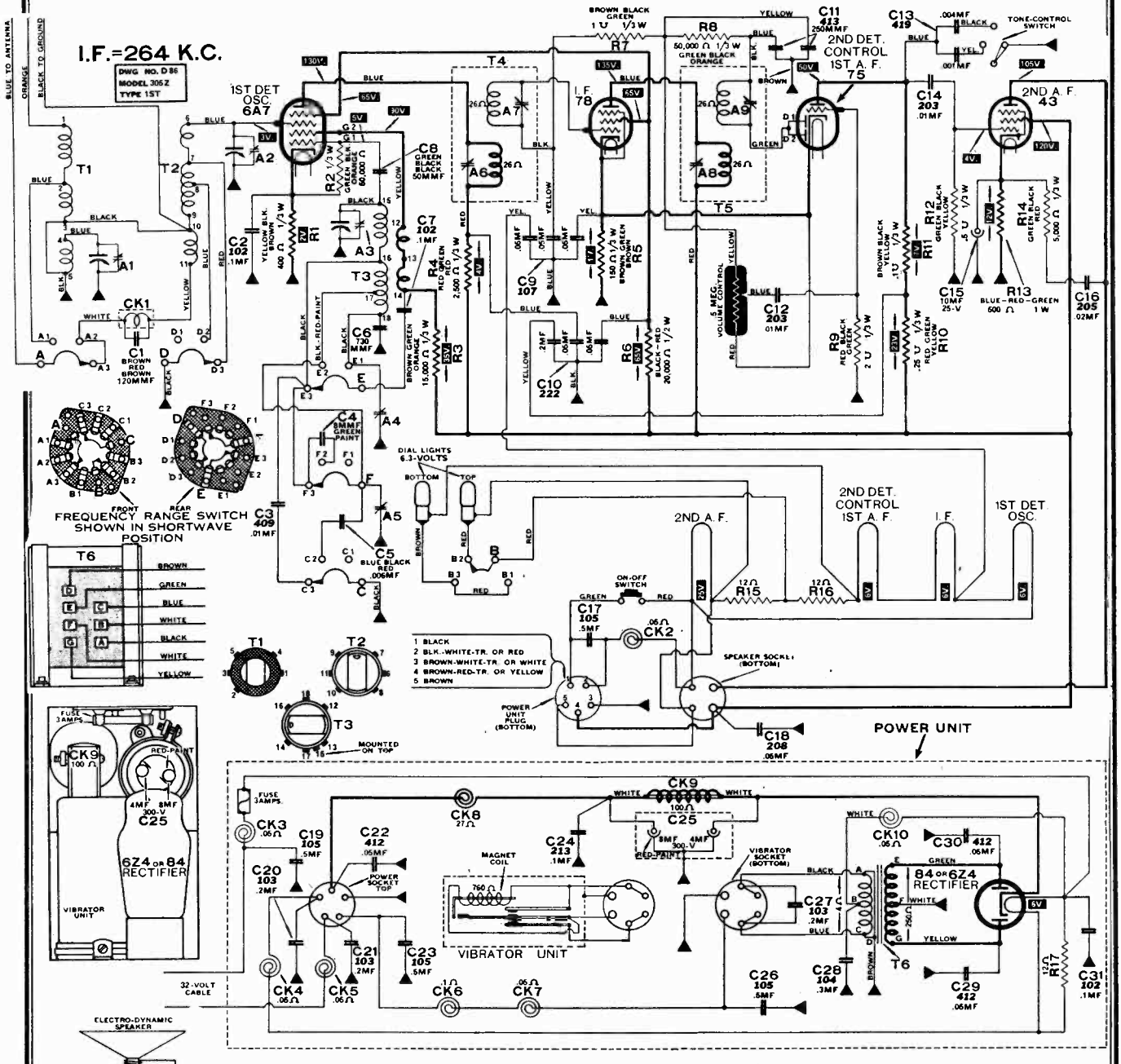
Broadcast range. With oscillator and dial at 1500 KC, peak A5, A2 and A1. With oscillator and dial at 560 KC, peak A4.

MODELS 305Z, 565Z
Schematic, Voltage
SPU Layout

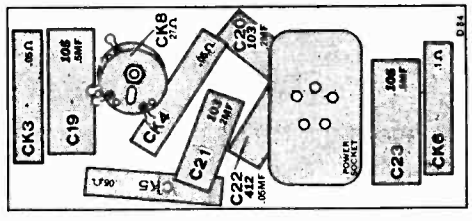
ATWATER-KENT MFG. CO.

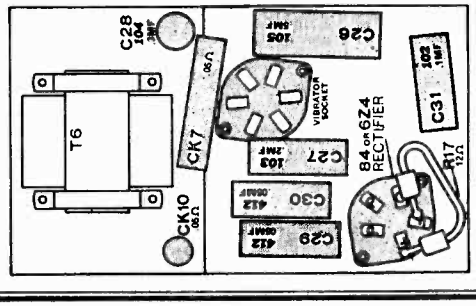
MODELS 305Z AND 565Z

For Parts List See Index



Charts Showing Location of Parts in Power Unit.

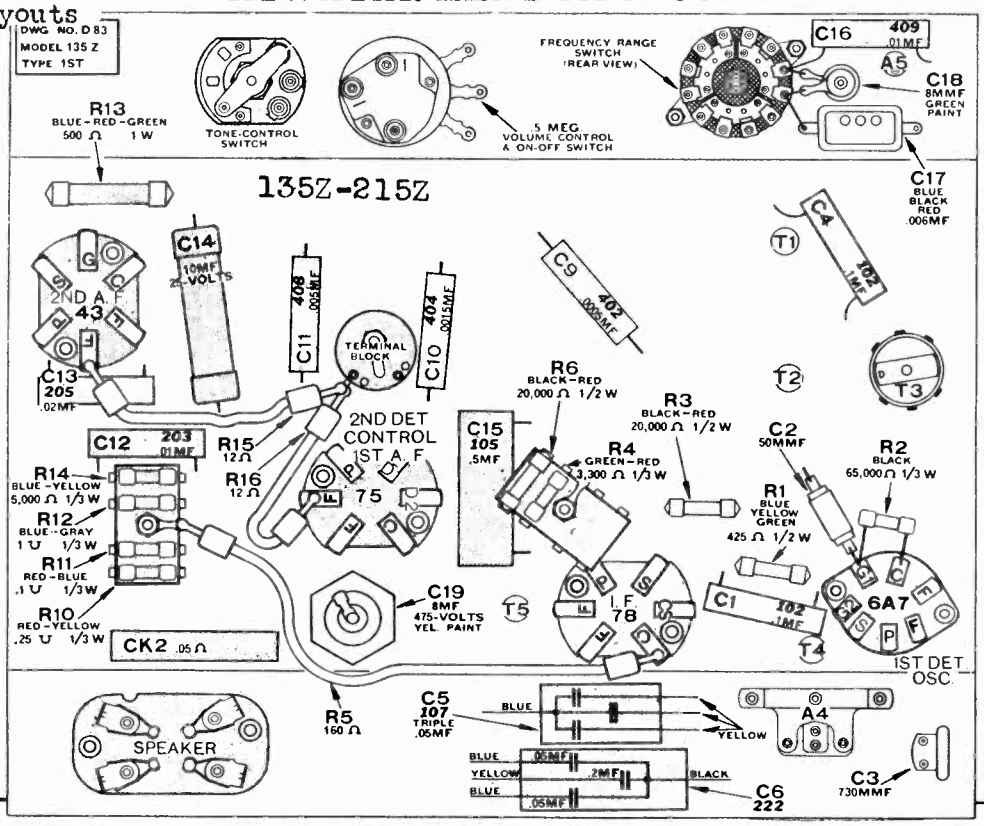


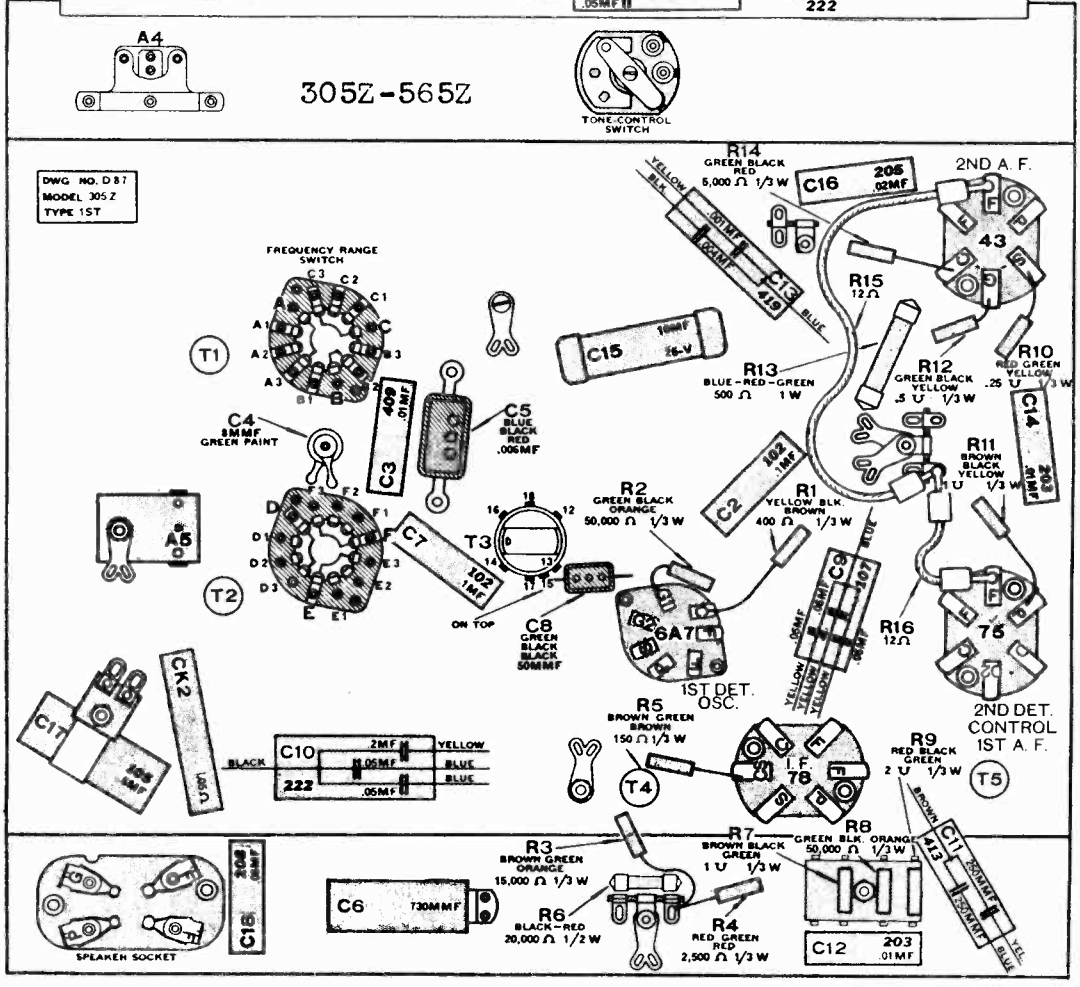


August 15, 1935.

MODELS 135Z,215Z
MODELS 305Z,565Z
Chassis Layouts

ATWATER-KENT MFG. CO.





PARTS LIST

MODELS 305Z AND 565Z

For part numbers of tubular resistors and condensers, refer to lists in previous supplements.

30039	Cabinet with screen	
29984	Screen	
29759	Escutcheon and crystal	
28961	Vol. control, .5 U	
42750	Tone control switch assembly	
29101	Shaft and blade for above	
45130	Range switch	
27431	Variable cond. assem.	
29583	Dial holder	
29582	Dial plate (305Z)	
29901	Dial plate (565Z)	
45170	Pilot light socket assem.	
29846	Lamp, 6.3-V. (bayonet)	
28577	Cable and plug assem. (5-prong)	
22683	Tube shield	
29183	Shield for T4, T5	
31151	Base cover (565Z)	
24327	Shield for trap choke	
28946	Knob without dot	
28947	Knob with dot	
28063	Spring	
29576	Inst. Sheet (F1259)	
46920	Shipping Container (305Z)	
46940	Shipping container (565Z)	

TRIMMERS

A4	39630	(Front of chassis)
A5	28843	(Top of chassis)
A6, 7	29119	Double I. F. (on T4)
A8, 9	29119	Double I. F. (on T5)

RESISTORS

R15, 16, 17	41840	12 Ω, flexible

TRANSFORMERS

T1	43060	No. 1 R. F. T.
T2	44970	No. 2 R. F. T.
T3	43080	Osc. trans.
T4	45420	No. 1 I. F. T.
T5	45150	No. 2 I. F. T.
T6	41820	Power T.
T7	21672	Output T.

CONDENSERS

C1	41650	120 MMF, 500-V., on wave trap
C4	25661	8 MMF, 500-V.
C5	25035	6000 MMF, 450-V.
C6	45080	730 MMF, 100-V.
C8	29603	50 MMF, 450-V.
C15	25379	10 MF, 25-V. (electrolytic)
C25	26995	8 MF, 4 MF, 300-V.

CHOKES

CK1	41020	Wave trap assembly
CK6	41780	Double layer choke
CK8	36620	R. F. +B filter choke
CK9	27011	A. F. +B filter choke (iron core)

Chokes not listed above are No. 36630.

SOCKETS

21336	4-prong speaker socket
24494	6-prong tube socket on chassis
26111	7-prong tube socket
21337	5-prong cable socket on power unit
26985	5-prong tube socket on power unit
26986	6-prong vibrator socket

POWER UNIT

(Models 135Z, 215Z, 305Z, 565Z)

41910	Power unit complete with vibrator and 84 tube
28845	Power unit less 84 tube
28452	Power unit container
26094	Power unit lid
28915	Side cover
28449	Vibrator
27038	Vibrator cover tube
23774	Fuse, 3 amps.
18449	Fuse socket

Condensers, chokes, etc., in the power unit are listed separately for the different models.

135Z, 305Z SPEAKER No. 42700

19465	Diaphragm
35310	Field coil, 70 Ω
21672	Output transformer
23657	Small choke
19487	Cable and plug assembly

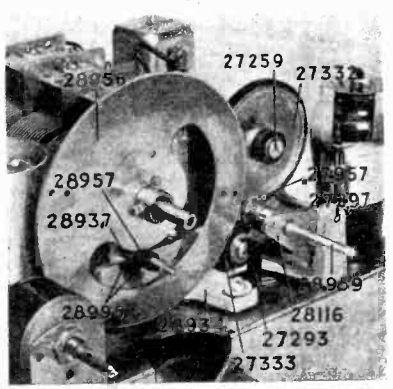
215Z, 565Z SPEAKER No. 42800

20737	Diaphragm
35310	Field coil, 70 Ω
21672	Output transformer
25525	Small choke
19789	Cable and plug assembly

Illustration of Dual-Speed Tuning Mechanism in Models 305Z, 565Z, etc.

PARTS FOR TUNING MECHANISM

28944	Condenser mounting bracket (rear)
28934	Tuning gear bracket
28995	Gear stop stud
28956	Tuning gear
27947	Dial pointer holder
27696	Screw for the above
29759	Escutcheon and crystal assem.
27522	Dial pointer
27535	Dial pointer screw
28116	Gear frame
27332	Large gear (rubber tired)
27333	Small gear (rubber tired)
28959	Tuning shaft
27957	Broadcast pinion gear
27297	Pin
27293	Detention spring



August 15, 1935.

PARTS LIST

MODELS 135Z AND 215Z

For part numbers of tubular resistors and condensers, refer to lists in previous supplements.

28831	Cabinet with screen	
27908	Screen	
28531	Escutcheon and crystal	
27425	Volume control, .5 U	
39620	Tone control switch assembly	
28192	Tone control shaft and blade	
41670	Range switch	
27431	Variable condenser	
27692	Tuning gear	
28281	Front and back plate assembly	
28594	Tuning shaft assembly	
22657	Dial rubber and bushing	
28354	Dial plate holder	
27947	Dial pointer holder	
27523	Dial plate (135Z)	
28537	Dial plate (215Z)	
27522	Dial pointer	
42130	Dial light socket assembly, less lamp	
28878	Lamp socket	
28218	Fibre washer for lamp socket	
28219	Spring for lamp socket	
28299	Lamp, 6-8 volts, frosted	
28577	Cable and plug assembly (5-prong)	
22683	Tube shield	
25056	Shield for T4, T5	
24327	Shield for trap choke	
27985	Base plate (215Z)	
27496	Knob, volume control	
24278	Knob, tuning (front)	
27498	Knob, tuning (back)	
27495	Knob, tone control	
26569	Knob, frequency range	
27952	Instruction sheet, F-1159	
28741	Shipping container (135Z)	
28739	Shipping container (215Z)	

TRANSFORMERS

T1	39820	No. 1 R. F. T.
T2	39830	No. 2 R. F. T.
T3	39840	Oscillator trans.
T4	28625	No. 1 I. F. T.
T5	27791	No. 2 I. F. T.
T6	21672	Output trans.
T7	41820	Power trans.

RESISTORS

R5	28950	160 Ω, flexible
R15, 16, 17	41840	12 Ω, flexible

CONDENSERS

C1A	41650	125 MMF, 500-V.
C2	35840	50 MMF, 500-V.
C3	39660	730 MMF, 100-V.
C7, 8	33670	250 MMF, 500-V.
C14	25379	10 MF, 25-V. (dry electrolytic)
C17	25035	.006 MF, 450-V.
C18	25661	8 MMF, 500-V.
C19	22538	8 MF, 475-V. (electrolytic)
C19	27585	8 MF, 350-V. in some sets
C26	26995	8 MF, 4 MF, 300-V. (electrolytic)

TRIMMERS

A4	39630	Rear of chassis
A5	38890	Front of chassis
A6, 7	32880	On T4
A8	40610	On T5

CHOKES

CK1	27792	In No. 2, I. F. T., assembly
CK3	27011	Filter choke (iron core)
CK4	36620	+B R. F. filter
CK8	41780	Double-layer choke on power unit
CK9	41020	Trap choke and condenser assembly

Chokes not listed above are No. 36630.

SOCKETS

21336	4-prong speaker socket
26985	5-prong tube socket on power unit
21337	5-prong cable socket on power unit
26986	6-prong socket on power unit
24494	6-prong tube socket on chassis
26111	7-prong tube socket

POWER UNIT

(Models 135Z, 215Z, 305Z, 565Z)

41910	Power unit complete with vibrator and 84 tube
28845	Power unit less 84 tube
28452	Power unit container
26094	Power unit lid
28915	Side cover
28449	Vibrator
27038	Vibrator cover tube
23774	Fuse, 3 amps.
18449	Fuse socket

Condensers, chokes, etc., in the power unit are listed separately for the different models.

135Z, 305Z SPEAKER No. 42700

19465	Diaphragm
35310	Field coil, 70 Ω
21672	Output transformer
23657	Small choke
19487	Cable and plug assembly

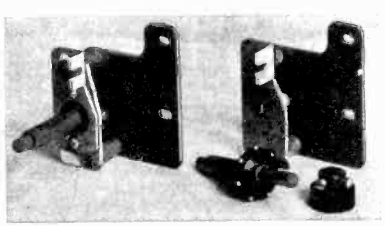
215Z, 565Z SPEAKER No. 42800

20737	Diaphragm
35310	Field coil, 70 Ω
21672	Output transformer
25525	Small choke
19789	Cable and plug assembly

Illustration of Early and Late Type Vernier Drive Arrangements used in Models 135Z, 215Z, etc.

The early type is superseded by the late type and parts for the early type are NOT furnished. When any part of the early type drive requires replacement, it is necessary to install the complete new type assembly, which consists of two parts: No. 28281, front-and-back-plate assembly; and No. 28594, tuning shaft assembly.

The dial rubber and bushing, No. 22657, is the same in both types.



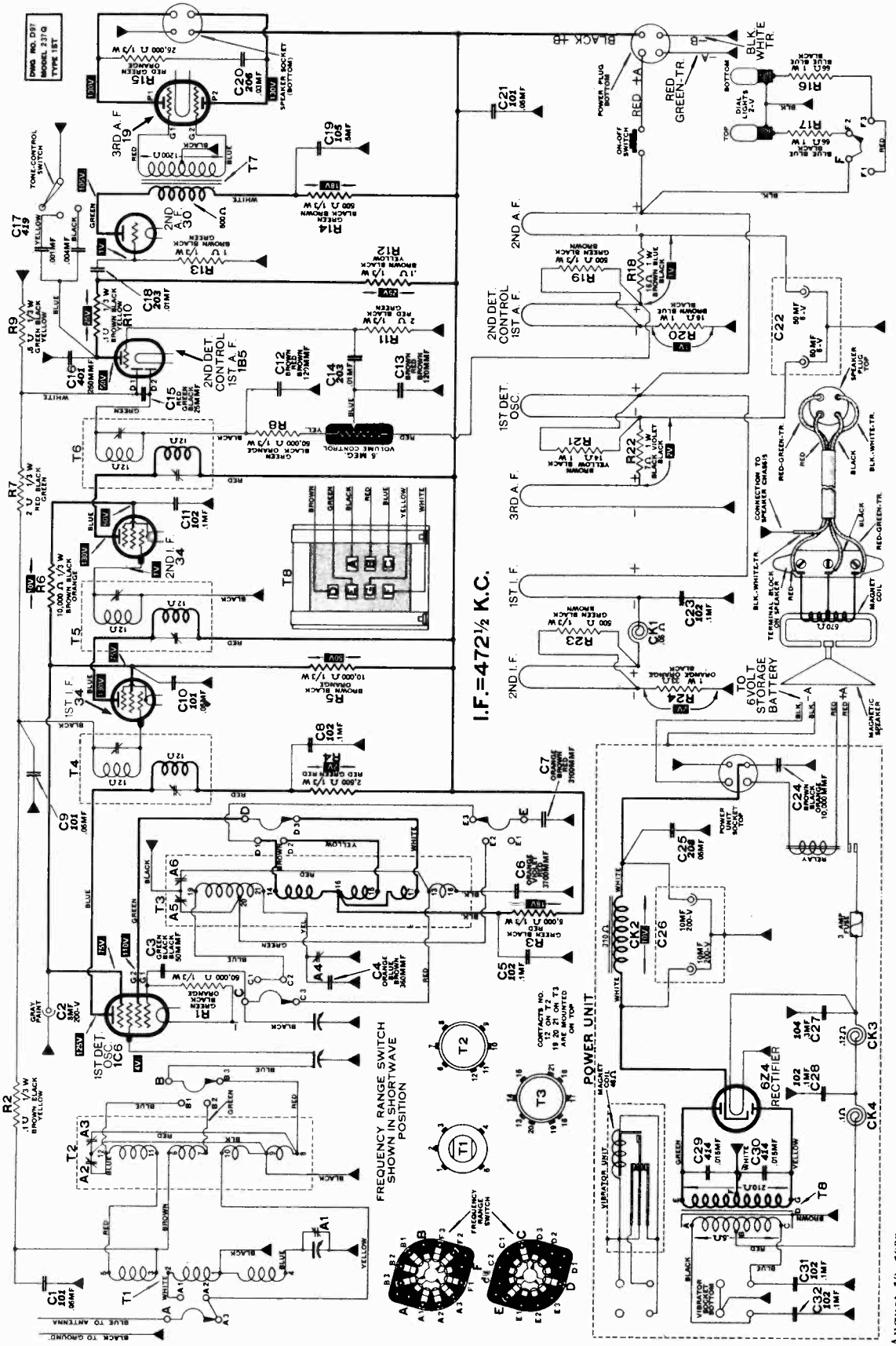
EARLY TYPE LATE TYPE

August 15, 1935.

MODELS 237Q, 467Q
Schematic, Voltage

ATWATER-KENT MFG. CO.

TENTATIVE SERVICE DATA
MODELS 237Q AND 467Q

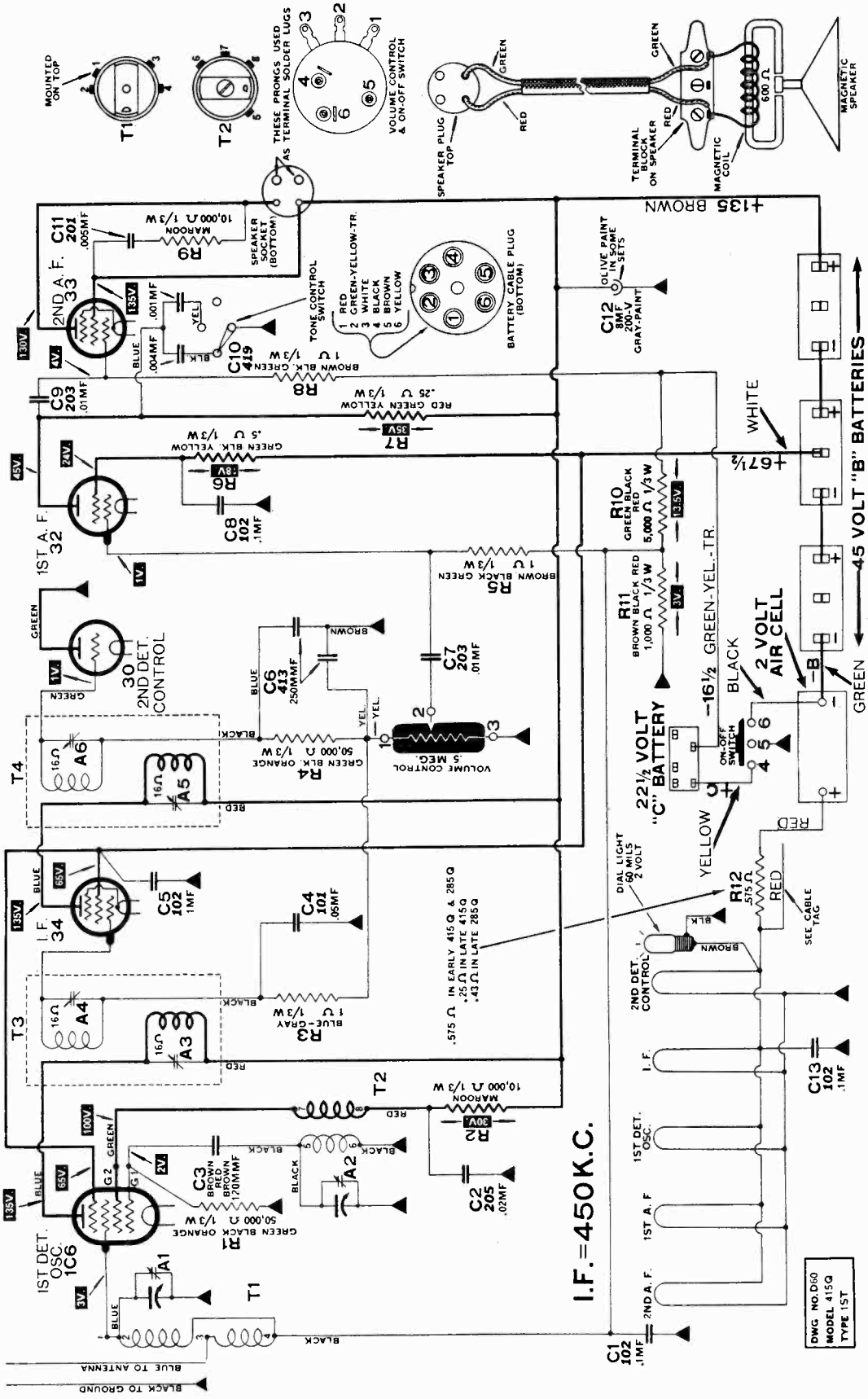


For Alignment Data
See Index.

MODELS 285Q, 415Q
Schematic, Voltage

ATWATER-KENT MFG. CO.

MODELS 285Q AND 415Q

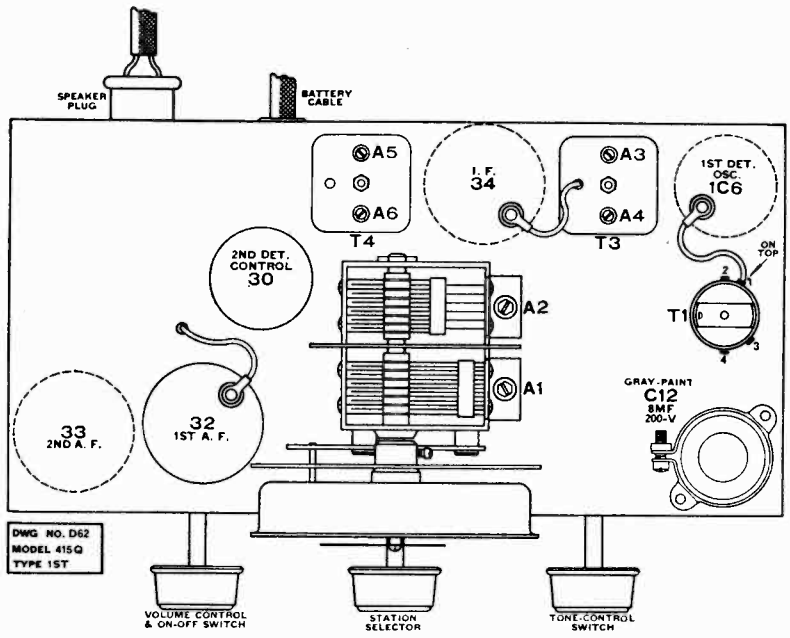


CHANGES. In late sets trimmer A1 is omitted; resistor R10 is 7500 ohms and resistor R11 is 1500 ohms.

June, 1935

MODELS 285Q, 415Q
Trimmers, Chassis
Alignment

ATWATER-KENT MFG. CO.

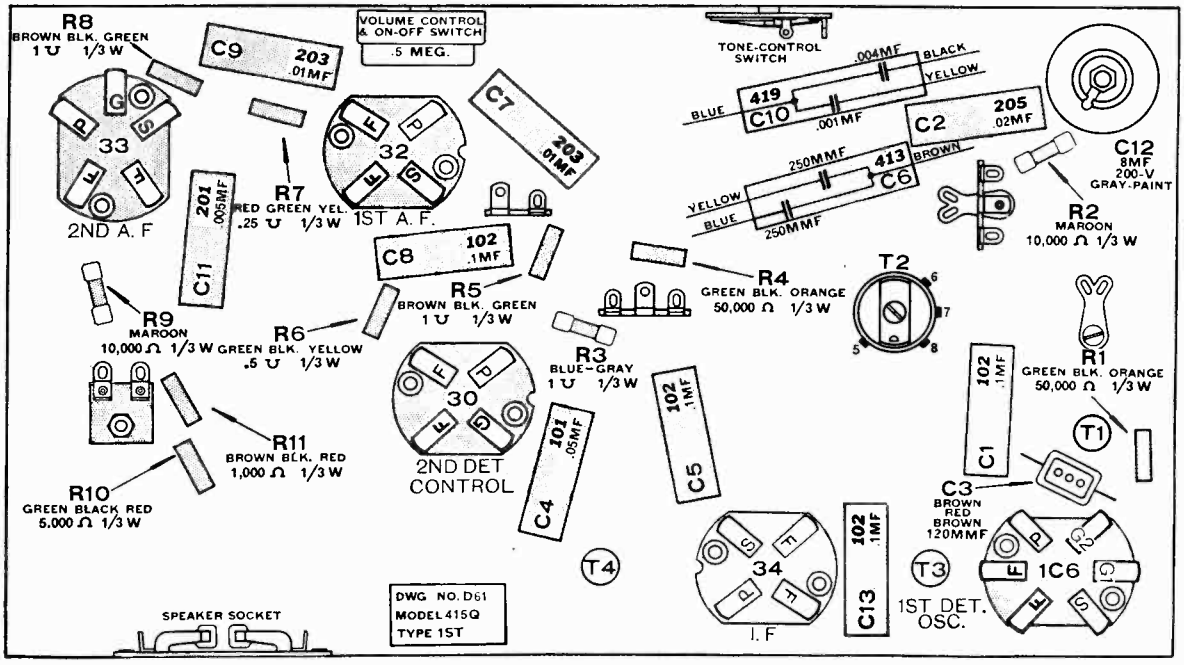


ADJUSTING TRIMMERS

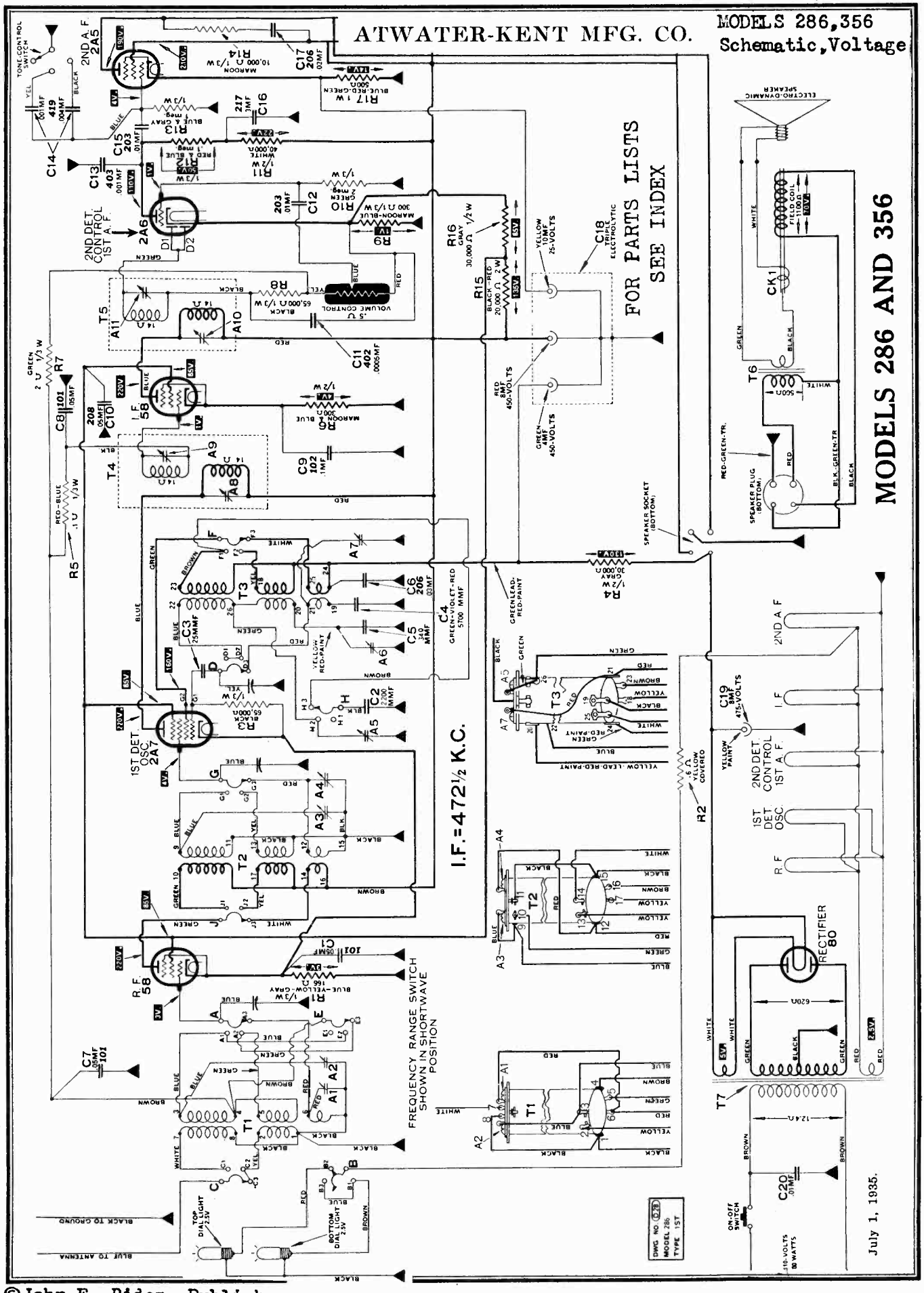
I. F. Connect I. F. test oscillator (450 KC) to I. F. tube by means of regular I. F. coupling unit. Adjust A6 and A5 for maximum output. Connect coupling unit to 1st-detector and peak A4 and A3.

DIAL. With rotor of variable condenser fully meshed, dial indicator should be at 545 KC.

R. F. Connect R. F. test oscillator (1700 KC) to antenna and ground. With dial at 1700 KC, Peak A1 and A2. (On late sets A1 is not used.)



In late sets, R10 is 7500 ohms, and R11 is 1500 ohms.



MODELS 286,356
Trimmers, Chassis
Alignment

ATWATER-KENT MFG. CO.

MODELS 286 AND 356

I. F. TRIMMERS.

Connect test oscillator (472½ KC) to I. F. tube by means of regular I. F. coupling unit. Peak A10, A11. Connect oscillator to 1st-detector tube and peak A8, A9.

DIAL POINTER ADJUSTMENT.

With rotor of variable condenser fully meshed, dial indicator should be at 535 KC.

R. F. TRIMMERS.

Connect an R. F. oscillator to antenna and ground of set.

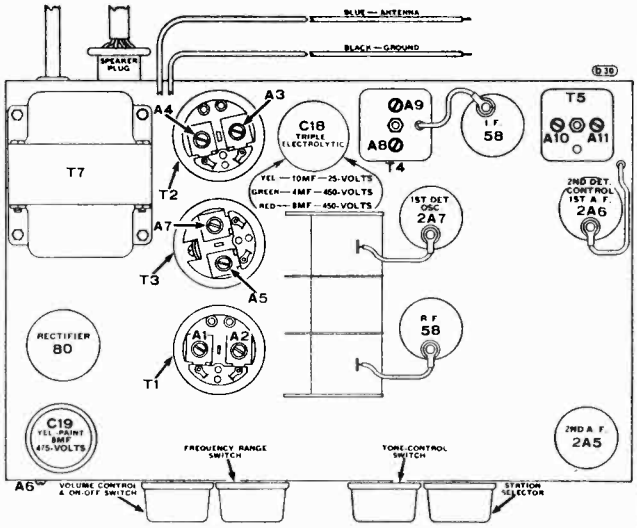
Short-wave range. With oscillator and dial at 15 MC, peak A7, A4, A1.

Police range. No trimmers on this range.

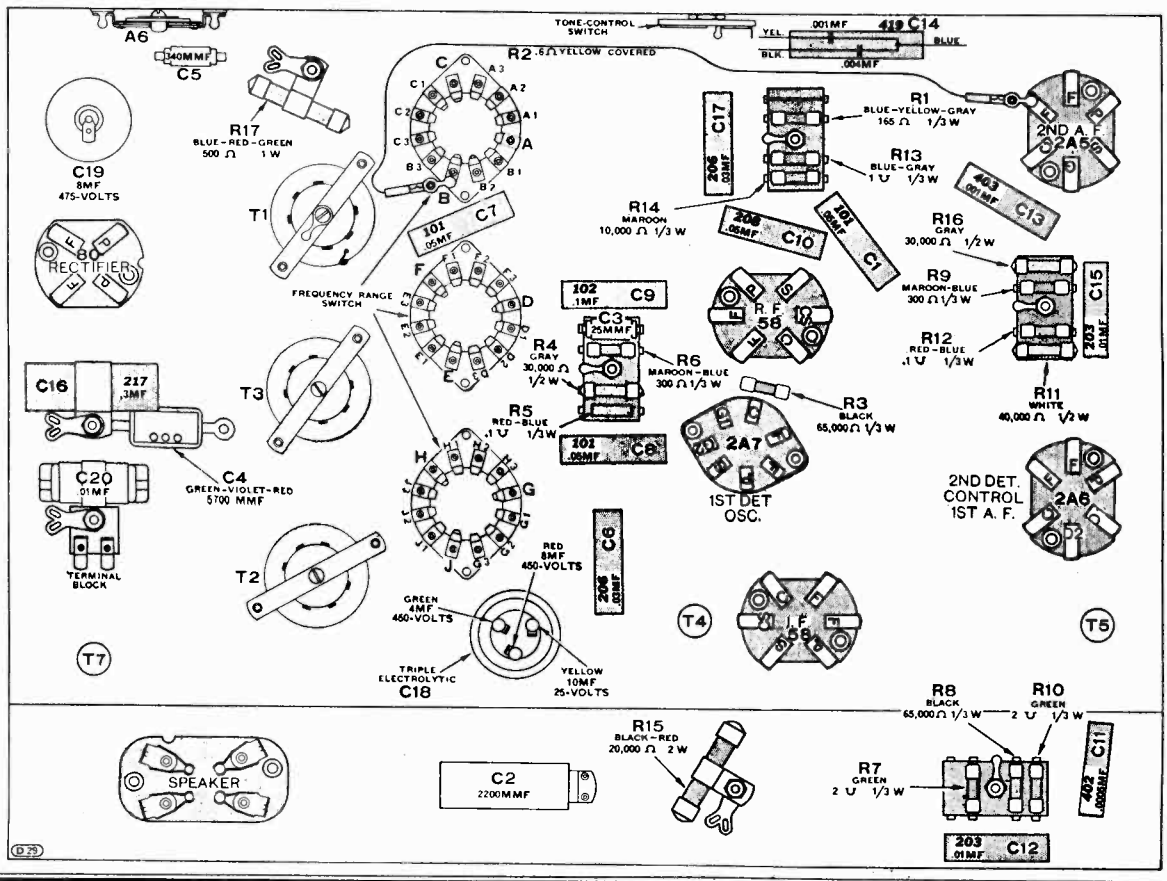
Broadcast range. With oscillator and dial at 1500 KC, peak A5, A3, A2. With oscillator and dial at 560 KC, peak A6.

TRIMMERS

A1—R. F., 15 MC.
A2—R. F., 1500 KC.
A3—1st-detector, 1500 KC.
A4—1st-detector, 15 MC.
A5—Oscillator, 1500 KC.
A6—Oscillator, 560 KC.
A7—Oscillator, 15 MC.
A8—1st-detector plate, 472½ KC.
A9—I. F. grid, 472½ KC.
A10—I. F. plate, 472½ KC.
A11—2nd-detector, 472½ KC.

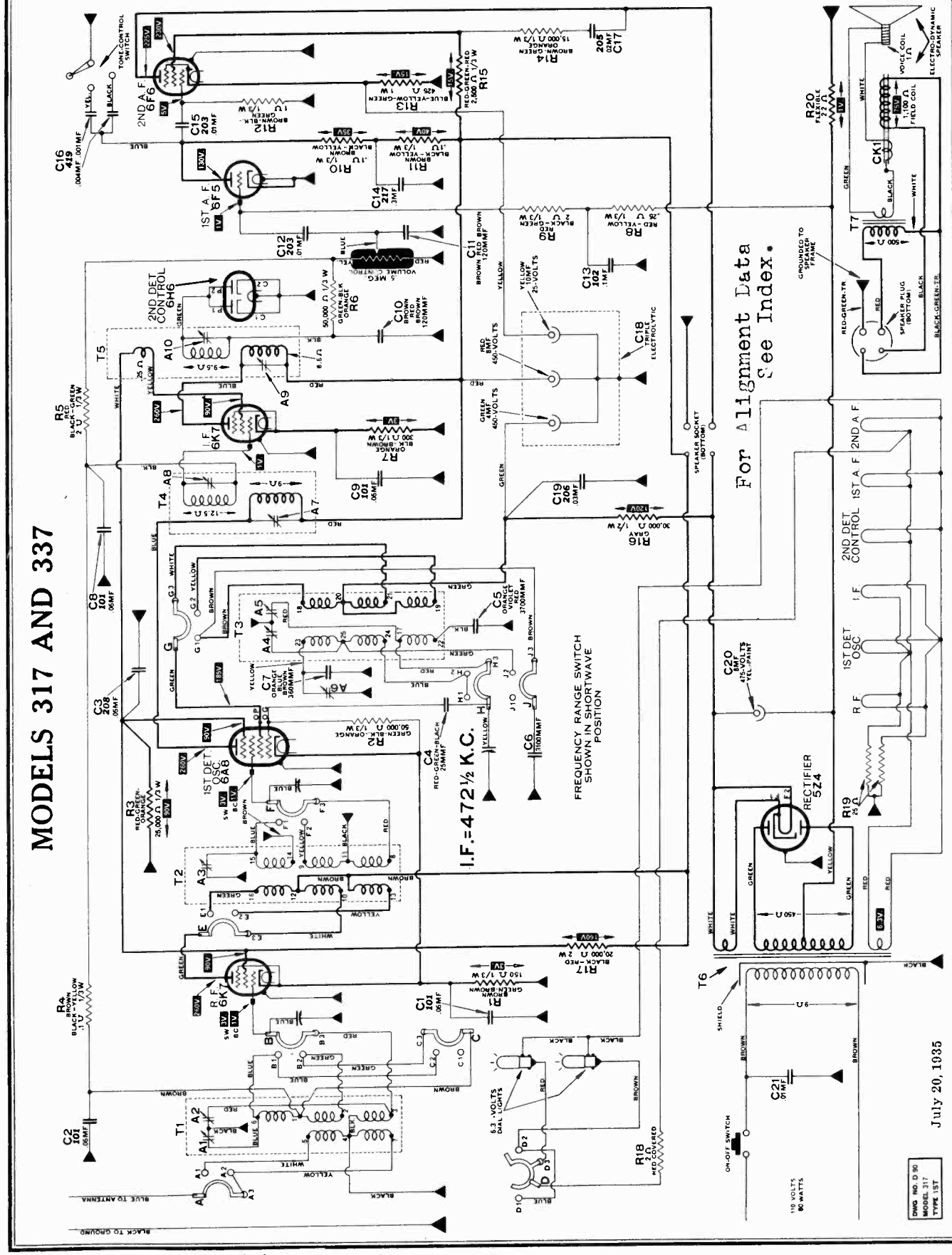


Trimmer location, Models 286, 356



ATWATER-KENT MFG. CO.

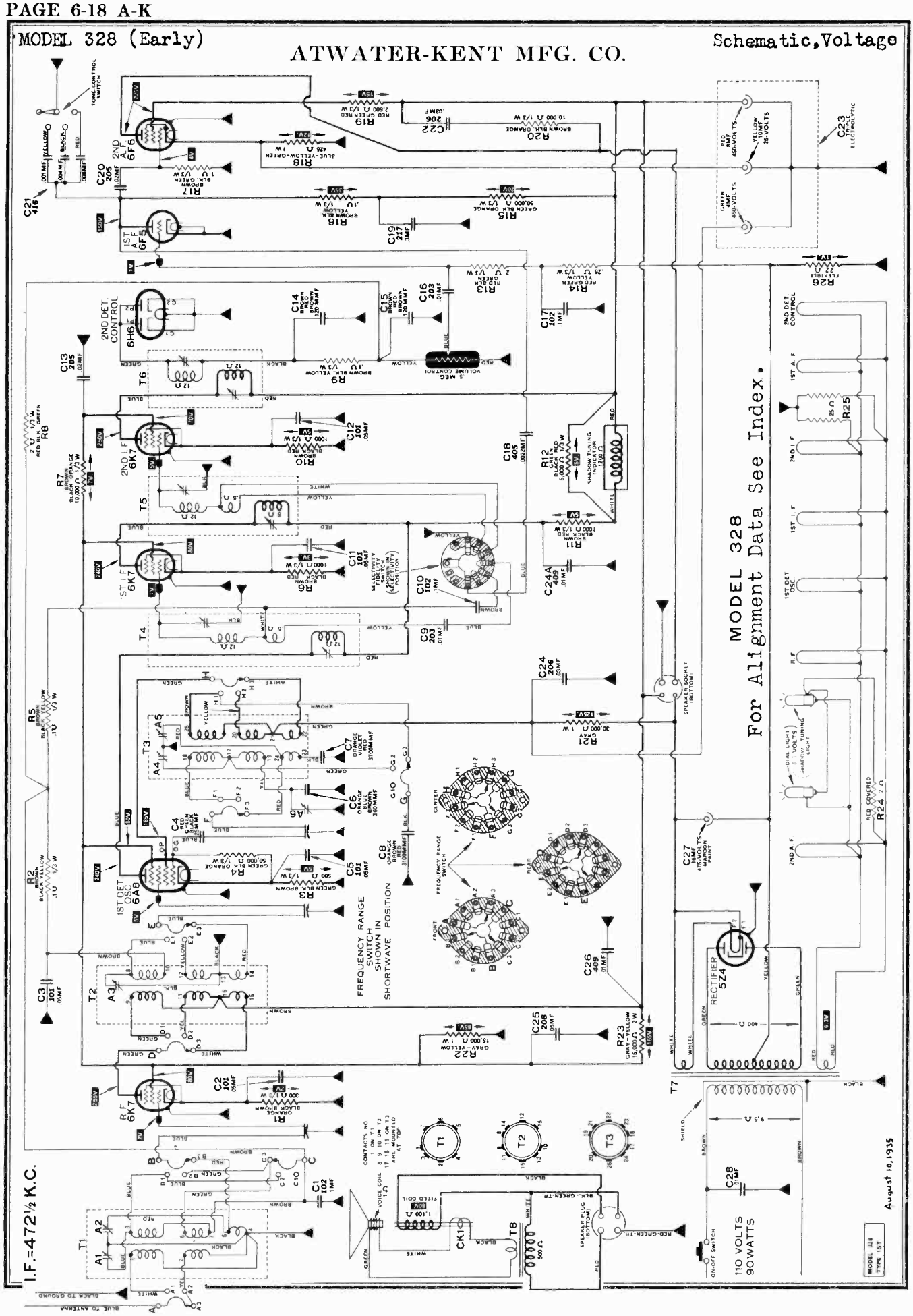
MODELS 317,337 (Early)
Schematic, Voltage



MODEL 328 (Early)

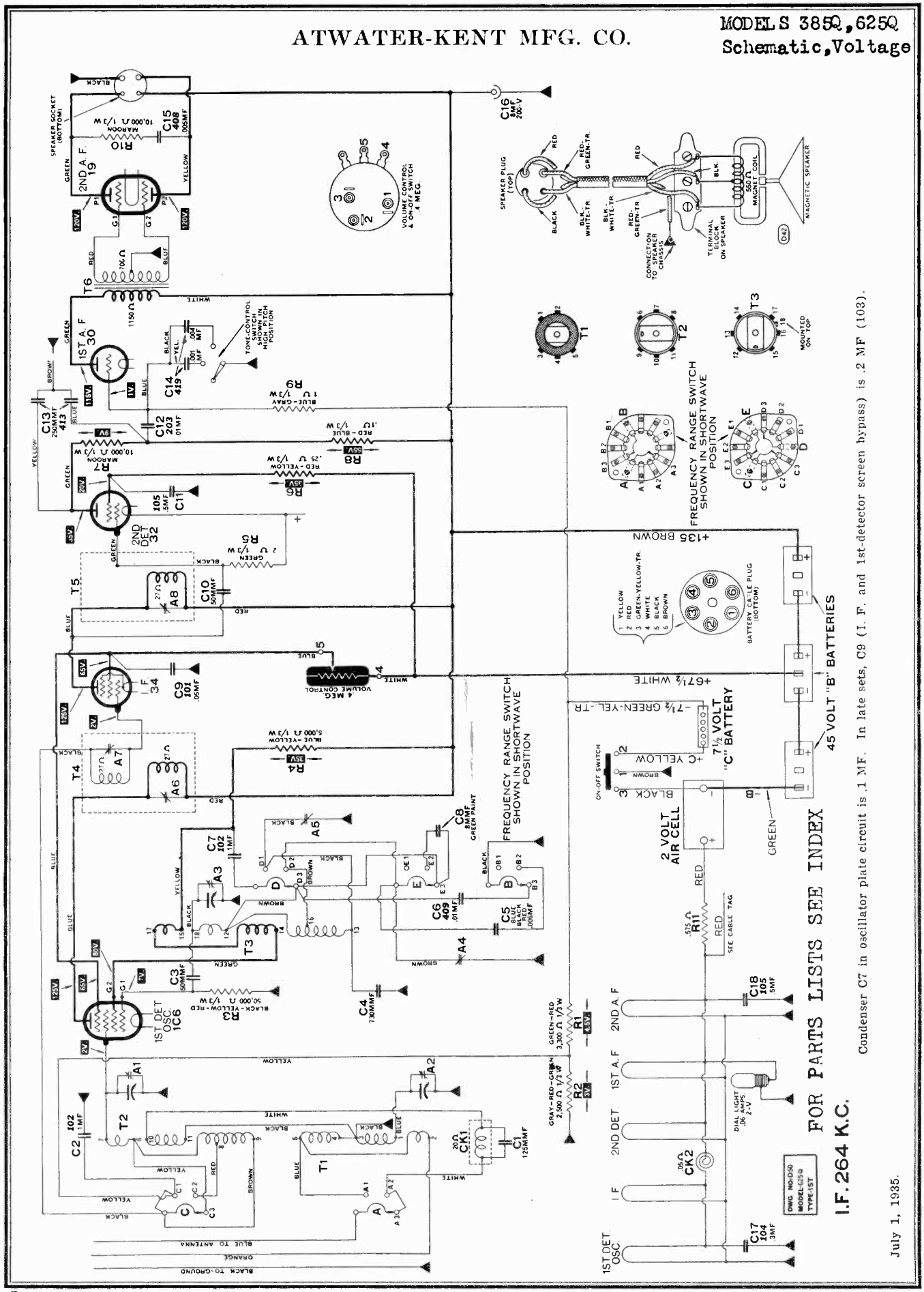
ATWATER-KENT MFG. CO.

Schematic, Voltage



ATWATER-KENT MFG. CO.

MODELS 385Q, 625Q
Schematic, Voltage



MODELS 385Q, 625Q
Trimmers, Socket
Chassis, Aligrment

ATWATER-KENT MFG. CO.

MODELS 385Q AND 625Q

I. F. TRIMMERS.

Connect I. F. test oscillator (264 KC) to I. F. tube by means of regular I. F. coupling unit. Peak A8. Connect I. F. oscillator to 1st-detector tube and peak A6, A7.

DIAL POINTER ADJUSTMENT.

With rotor of variable condenser fully meshed, dial indicator should be at 535 KC.

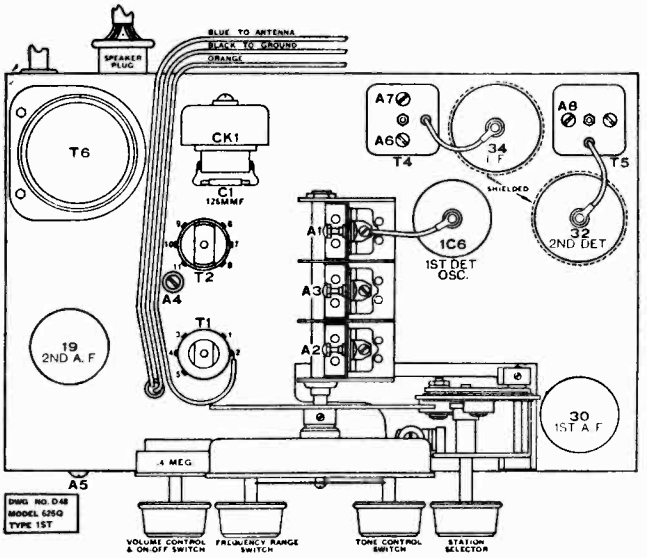
R. F. TRIMMERS.

Connect an R. F. oscillator to the antenna and ground of set.

Short-wave range. With oscillator and dial at 15 MC, peak A3.

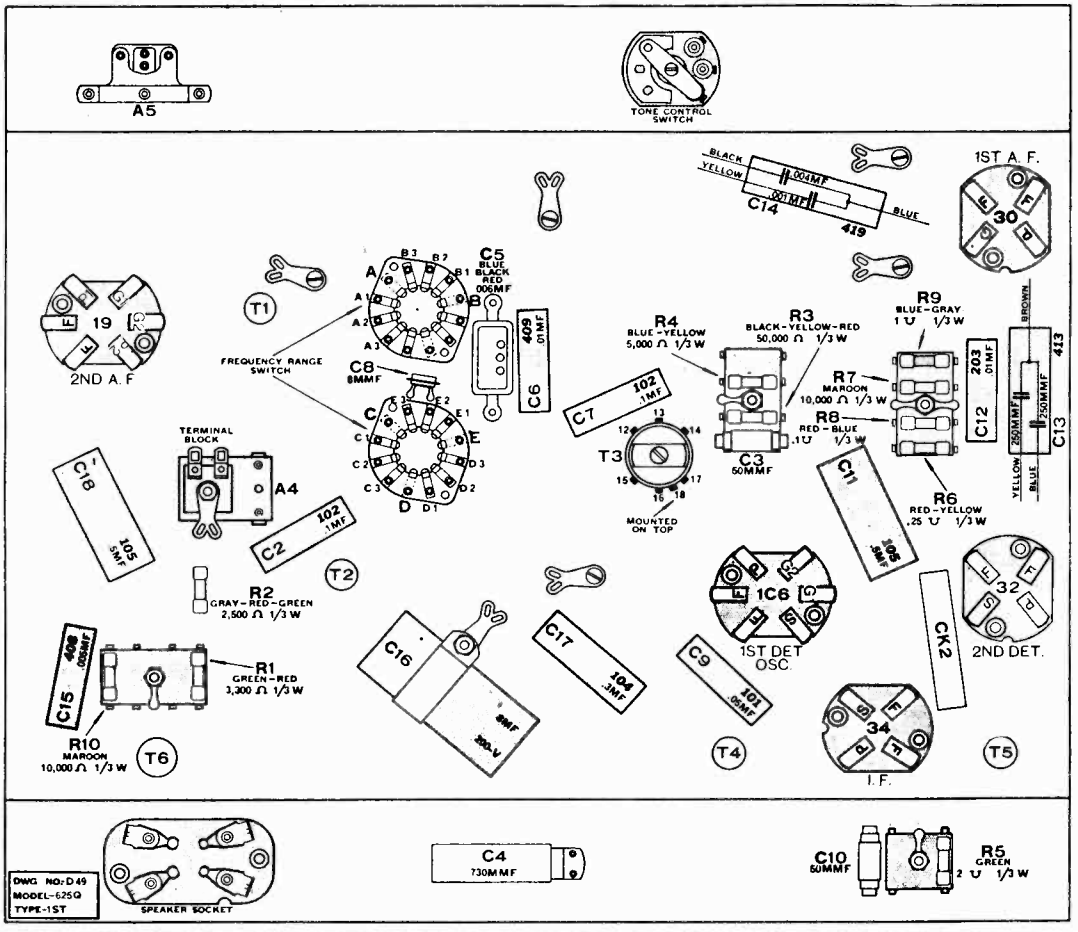
Police range. No trimmers on this range.

Broadcast range. With oscillator and dial at 1500 KC, peak A4, A1, A2. With oscillator and dial at 560 KC, peak A5.



TRIMMERS

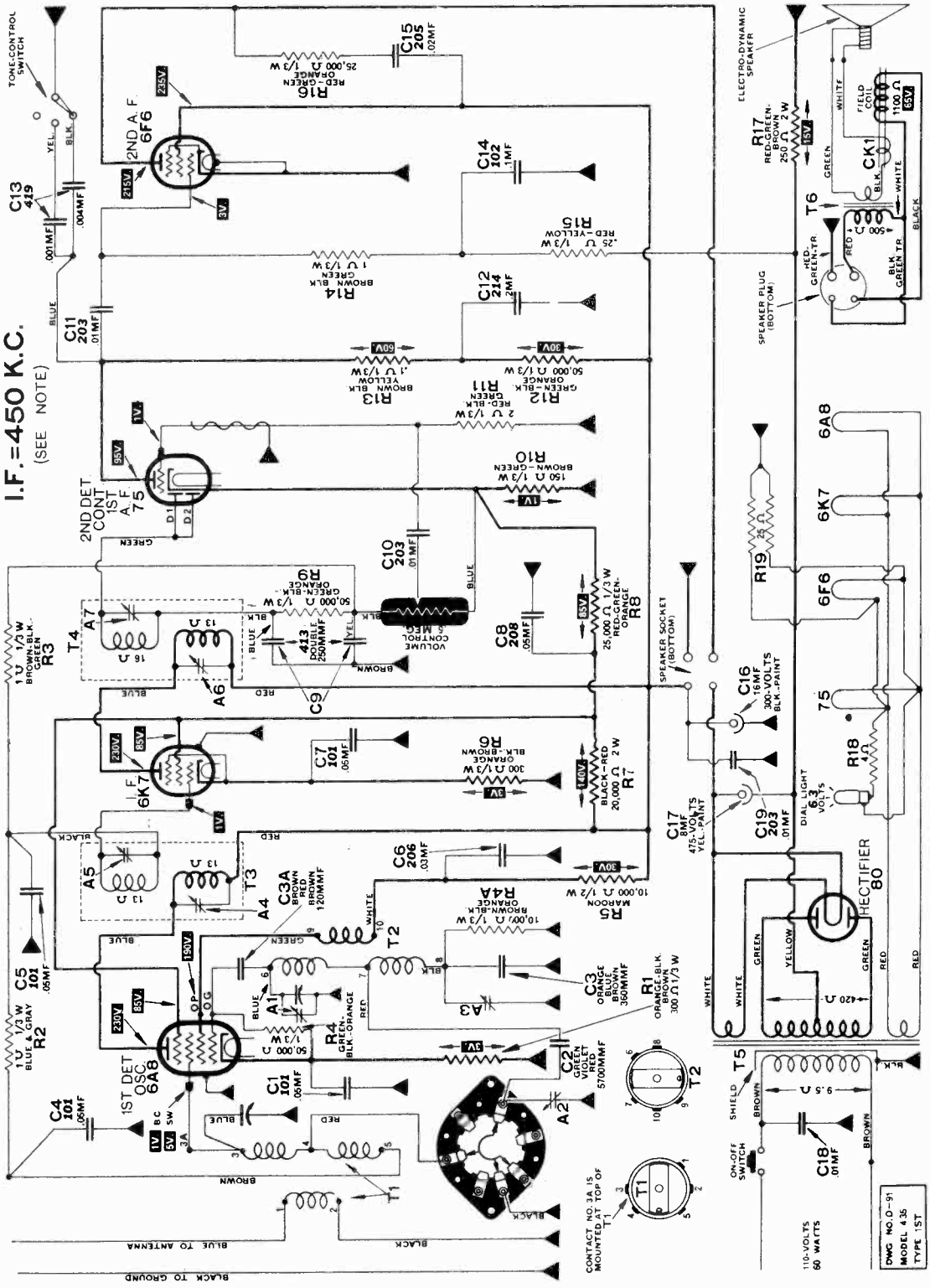
A1—1st-detector, 1500 KC.
A2—Pre-selector, 1500 KC.
A3—Oscillator, 15 MC.
A4—Oscillator, 1500 KC.
A5—Oscillator, 560 KC.
A6—1st-detector plate, 264 KC.
A7—I. F. grid, 264 KC.
A8—I. F. plate, 264 KC.



ATWATER-KENT MFG. CO.

MODEL 435 (Early)
Schematic, Voltage

MODEL 435 DIAGRAM



The frequency-range switch is shown in the short-wave position.

The I. F. in some Model 435 sets is 472½ KC and a label to this effect is attached to the rear of the chassis. The I. F. transformers and trimmers, etc., are exactly the same for either 450 or 472½ KC.

July 20, 1935.

MODELS 286,356
MODELS 385Q,625Q
MODELS 475,735
Parts Lists

ATWATER-KENT MFG. CO.

MODELS 286, 356

29404		Cabinet with screen (356)
29127		Screen (356)
28531		Escutcheon and crystal
28954		Range switch
28961		Vol. control
42750		Tone control switch assem.
29101		Shaft and blade for the above
28946		Knob without dot (tuning and range)
28947		Knob with dot (volume and tone)
27432		Var. condenser
28968		Dial holder
28542		I. F. T. shield
27933		T1, T2 shield
27932		T3 shield
40090		Dial light socket assem.
27676		Dial lamp, 2.5-V (frosted)
22683		Tube shield
25058		R. F. T. shield cover
15213		Tube shield (R. F.)
29038		Shipping container (286)
29135		Shipping container (356)
29017		Instruction sheet, F-1217

TRANSFORMERS

T1	42560	No. 1 R. F. T.
T2	42570	No. 2 R. F. T.
T3	42580	Osc. trans.
T4	28527	No. 1 I. F. T. (includes trimmers)
T5	28528	No. 2 I. F. T. (includes trimmers)
T6	21672	Output trans.
T7	28084	Power trans.

RESISTORS

R2	16081	.6 Ω dial light resis.

CONDENSERS

C2	40380	2200 MMF, 100-V.
C3	33930	25 MMF, 500-V.
C4	27599	5700 MMF, 450-V.
C5	41580	340 MMF, 500-V.
C18	27592	Triple elec., 4 MF, 8 MF, 450-V., 10 MF, 25-V.
C19	28031	8 MF, 475-V.
C20	23250	.01 MF, 450-V., line cond.

TRIMMERS

A1, 2	39430	On T1
A3, 4	39430	On T2
A5, 7	39430	On T3
A6	39630	Front of chassis (560 KC)

SOCKETS

24492	4 prong
24494	6 prong
26111	7 prong
21336	Speaker

475 and 286 SPEAKER No. 41800

25525	Small choke
21260	Field coil (1100 Ω)
21672	Output transformer
20737	Diaphragm
27611	Cable and plug
15079	Plug

735 and 356 SPEAKER No. 41900

25525	Small choke
21260	Field coil (1100 Ω)
21672	Output transformer
19465	Diaphragm
28345	Cable and plug
15079	Plug

MODELS 475, 735

29403		Cabinet with screen (735)
29143		Screen (735)
28531		Escutcheon and crystal assem.
27431		Variable condenser
42750		Tone control switch assem.
29101		Shaft and blade for the above
28961		Volume control, .5 U
28986		Range switch
28946		Knob without dot
28947		Knob with dot
28968		Dial holder
29121		Dial plate (735)
29089		Dial plate (475)
29183		I. F. T. shield
41020		Wave trap assem. (264 KC)
40090		Dial light socket assem.
27676		Dial lamp, 2.5-V. (frosted)
22683		Tube shield
28993		Base cover (475)
29133		Instruction sheet, F-1217
29184		Shipping container (735)
29038		Shipping container (475)

TRANSFORMERS

T1	43060	No. 1 R. F. T.
T2	43070	No. 2 R. F. T.
T3	43080	Osc. trans.
T4	43290	No. 1 I. F. T.
T5	43310	No. 2 I. F. T.
T6	21672	Output trans. (on speaker)
T7	25191	Power trans.

RESISTORS

R1	16081	.6 Ω dial light

CONDENSERS

C1	41650	125 MMF, 500-V.
C2	25035	.006 MF, 450-V.
C3	25661	8 MMF, 500-V.
C7	42830	800 MMF, 100-V.
C9	33930	25 MMF, 500-V.
C20	25379	10 MF, 25-V.
C21	28031	8 MF, 475-V.
C22	27585	8 MF, 350-V.

TRIMMERS

A4	28843	Osc. trimmer
A5	39630	On front of chassis
A6, 7	29119	On T4
A8, 9	29119	On T5

CHOKES

CK2	25525	On speaker

SOCKETS

24492	4 prong
24494	6 prong
26111	7 prong
21336	Speaker

PARTS FOR TUNING MECHANISM

(Used in all sets in this supplement)

28944	Condenser mounting bracket (rear)
28934	Tuning gear bracket
28995	Gear stop stud
28956	Tuning gear
27947	Dial pointer holder
27696	Screw for the above
28531	Escutcheon and crystal assem.
27522	Dial pointer
27535	Dial pointer screw
28116	Gear frame
27332	Large gear (rubber tired)
27333	Small gear (rubber tired)
28959	Tuning shaft
27957	Broadcast pinion gear
27297	Pin
27293	Detention spring

MODELS 385Q, 625Q

28986		Range switch
42750		Tone control switch assembly
29101		Shaft and blade for above
29251		Volume control, .4 U
40090		Dial light socket assembly
26721		Lamp, 2-V., .06 amp.
27431		Variable cond. assem.
29262		Dial holder
28531		Escutcheon and crystal assem.
29228		Dial plate (625Q)
29229		Dial plate (385Q)
29282		Tube shield (paper)
29183		I. F. T. shield
24327		Wave trap shield
29236		Instruction sheet, F-1238
29038		Shipping container (385Q)
29135		Shipping container (625Q)
30032		Cabinet with screen (625Q)
29127		Screen
28993		Base cover
41020		Wave trap assem. (264 KC)

CABLES

29331		Male cable and plug assembly (625Q)
29673		Female cable and socket assem. (385Q and 625Q)
30036		Male cable and plug assem. (385Q)
29055		Battery socket assembly
29054		Battery plug assembly
29227		Battery cable tag, F-1234

TRANSFORMERS

T1	43060	Antenna trans.
T2	44040	1st-det. trans.
T3	44050	Osc. trans.
T4	44070	No. 1 I. F. transformer
T5	44170	No. 2 I. F. transformer
T6	44240	Audio transformer

RESISTORS

R11	40330	.575 Ω (on cable)
	44230	1.03 Ω (in envelope)

CONDENSERS

C1	41650	125 MMF, 500-V.
C3	35840	50 MMF, 500-V.
C4	43970	730 MMF, 100-V.
C5	25035	.006 MF, 450-V., blue, blk., red
C8	25661	8 MMF, 500-V.
C10	35840	50 MMF, 500-V.
C16	22472	8 MF, 200-V., dry electro.

TRIMMERS

A4	28843	Osc. BC trimmer
A5	39630	Osc. track cond.
A6, 7	29119	On No. 1 I. F. T.
A8	29119	On T5, No. 2 I. F. T.

CHOKES

CK2	44160	Filament choke

SOCKETS

24492	4 prong
24494	6 prong
21336	Speaker

385Q SPEAKER No. 46800
625Q SPEAKER No. 46700

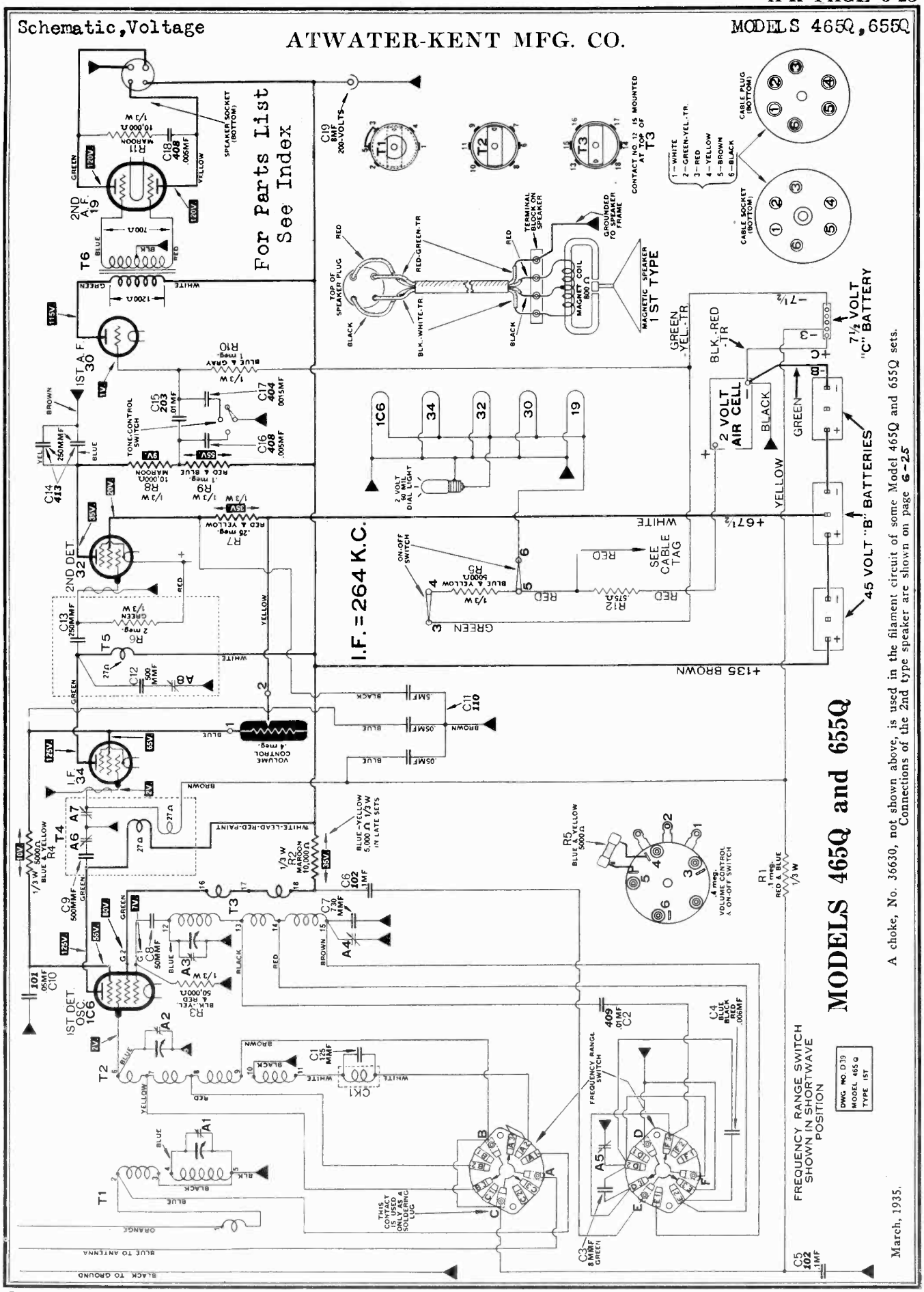
28974	Cone housing (625Q)
28979	Cone housing (385Q)
19469	Segment
29074	Cable and plug assembly
29075	Diaphragm assembly
29076*	Sound unit complete
29077	Drive rod
17868	Drive rod nut

* Parts for this unit are not sold separately.

Schematic, Voltage

ATWATER-KENT MFG. CO.

MODELS 465Q, 655Q

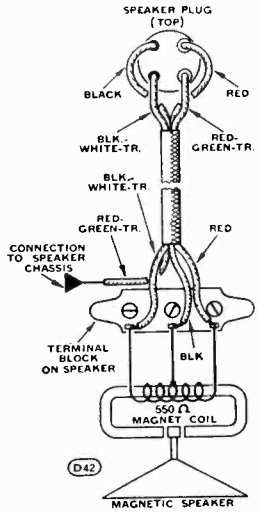


A choke, No. 36630, not shown above, is used in the filament circuit of some Model 465Q and 655Q sets. Connections of the 2nd type speaker are shown on page 6-25.

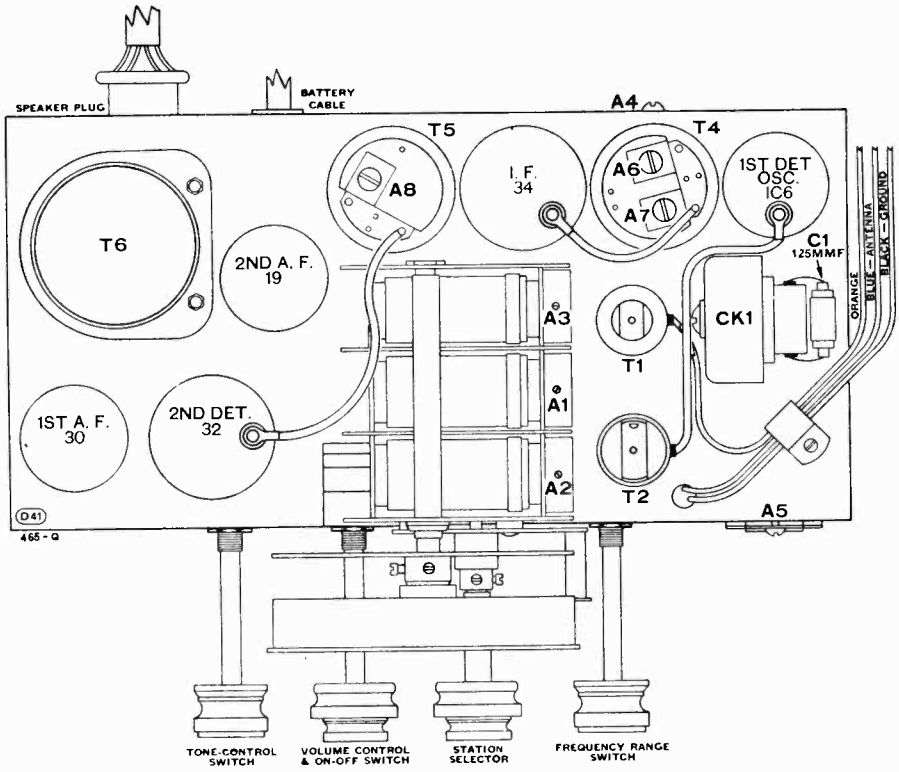
March, 1935.

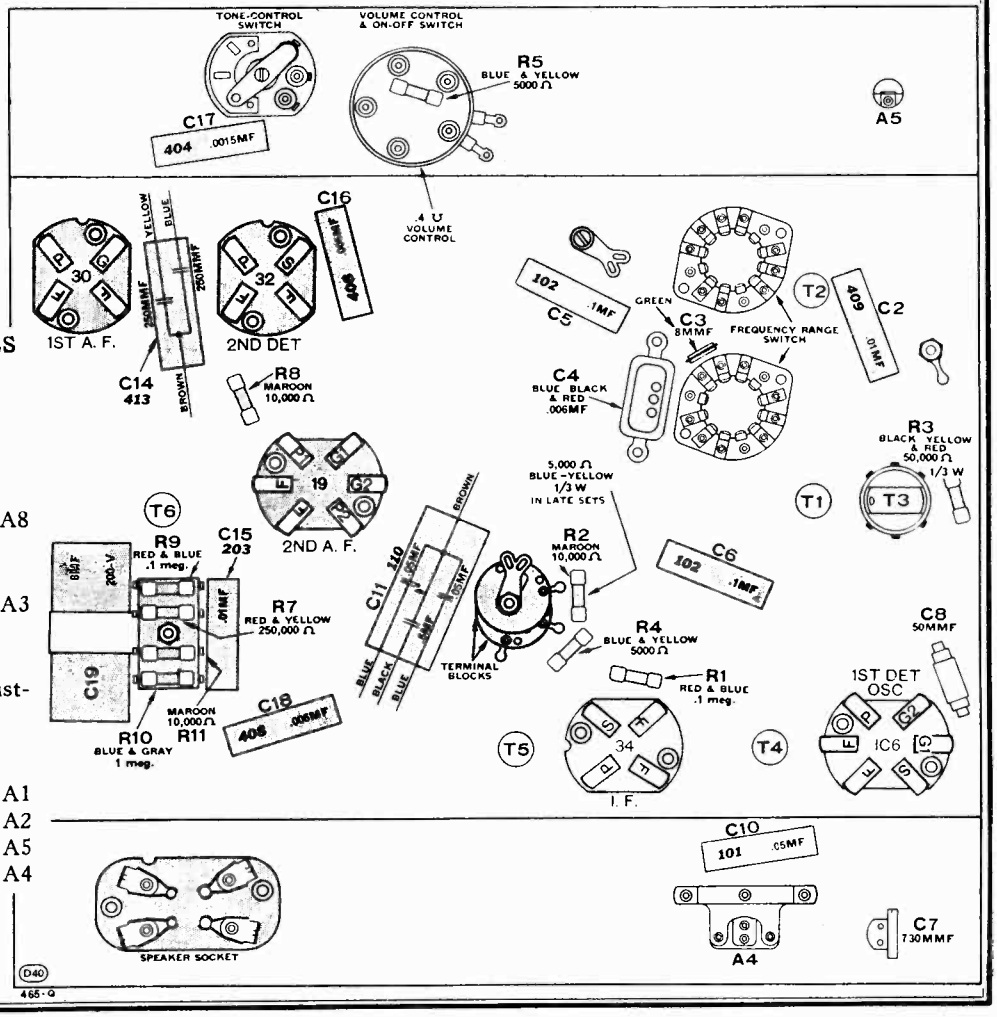
MODELS 465Q, 655Q
Trimmers, Socket
Chassis

ATWATER-KENT MFG. CO.



2ND TYPE





TRIMMERS ON MODELS 465Q and 655Q

I. F. TRIMMERS

I. F. (264 KC).....A6, A7, A8

5.3 to 16 MC RANGE

Oscillator (15MC).....A3

1.6 to 4.8 MC RANGE

There are no trimmer adjustments for this range.

540 to 1600 KC RANGE

Antenna (1500 KC).....A1
1st-Det. (1500 KC).....A2
Oscillator (1500 KC).....A5
Tracking (560 KC).....A4

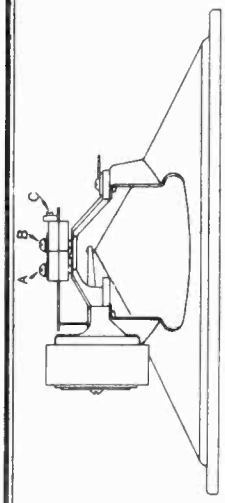
MODELS 465Q, 655Q
Speaker Data, Alignment
MODELS 768Q, 978Q
Speaker Data

ATWATER-KENT MFG. CO.

SERVICE DATA

MODELS 465Q, 655Q, 768Q and 978Q

SPEAKER ADJUSTMENT

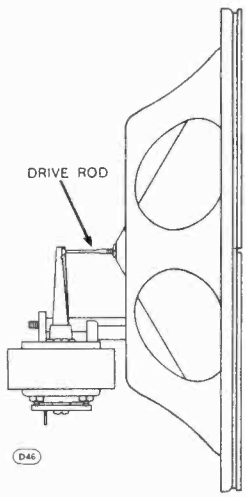


1st TYPE

1st Type: When adjustment is required, place set and speaker in operation and tune in a signal. Loosen screw A and tighten B, or vice versa, in order to center the armature in the magnet gap. If the armature is not correctly centered, it may strike against one pole of the magnet and cause chattering. If the speaker overloads or chatters only on a very strong signal, turn screw C anti-clockwise. This tightens the armature movement. In general it is not advisable to disturb the adjustment of screw C.

2nd Type: There are no centering adjustments on the 2nd type speaker used in late models 465Q and 655Q. If the unit becomes open or requires adjustment, it is necessary to replace the complete sound unit.

The diaphragm is clamped to the drive rod between two nuts. When installing a new diaphragm or unit, turn the rear nut back on the drive rod, fasten the diaphragm or unit to cone housing, and turn rear nut forward until it touches apex of diaphragm. Put the front nut on drive rod and tighten securely.



2nd TYPE

SYNCHRONIZING TRIMMER CONDENSERS

MODELS 465Q and 655Q

I. F. TRIMMERS.

Connect an I. F. test oscillator to the 1st-detector tube by means of the standard I. F. coupling unit described in January, 1935, supplement. Adjust the I. F. oscillator to 264KC. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter with the radio volume control on full. Turn the set to a quiet point near 1000 KC.

Peak trimmers A6, A7, and A8. Remove the I. F. coupling unit and seal the I. F. trimmers.

DIAL POINTER ADJUSTMENT.

With the variable condenser all the way in, the dial pointer should be set at 535 KC.

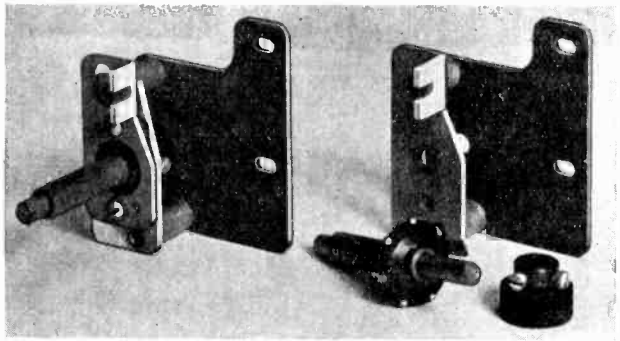
R. F. TRIMMERS.

Connect an R. F. test oscillator to the antenna and ground terminals of set. Use the weakest possible oscillator signal. Loosen the trimmer screws.

Short-wave range. Oscillator at 15 MC, and set turned to 15 MC mark, peak trimmer A3.

Police range. There are no trimmer adjustments for this range.

Broadcast range. Oscillator at 1500 KC, and dial pointer at 1500 KC mark, peak trimmers A5, A2 and A1. Tune oscillator and set to 560 KC. Peak A4. Repeat adjustments on A5 at 1500 KC and A4 at 560 KC if necessary.



EARLY TYPE LATE TYPE

*Illustration of Early and Late Type Vernier Drive Arrangements used in Models 465Q, 655Q, etc.

The early type is superseded by the late type and parts for the early type are NOT furnished. When any part of the early type drive requires replacement, it is necessary to install the complete new type assembly, which consists of two parts: No. 28281, front-and-back-plate assembly; and No. 28594, tuning shaft assembly.

The dial rubber and bushing, No. 22657, is the same in both types.

PARTS LIST FOR MODEL 465Q

28832		Cabinet with screen
28518		Baffle board with screen
28531		Esc. and crystal assem.
27431		Var. cond. assembly
27692		Tuning gear
28281		Front and back plate assem.
28594		Tuning shaft assem.
22657		Dial rubber
28356		Dial plate holder
27523		Dial plate
27947		Dial pointer holder
27522		Dial pointer
27535		Dial pointer screw
22683		Tube shield (1C6)
15213		Tube shield (32)
14180		Range switch
27495		Knob (tone control)
27496		Knob (vol. control)
26569		Knob (range)
27498		Knob (tuning, large)
24278		Knob (tuning, small)
28827		Lamp socket
26526		Ferrule and bushing
26524		Spring
26721		Pilot lamp (2-V., 60 mils.)
25056		No. 1 I. F. T. shield
28239		No. 2 I. F. T. shield
27966		Vol. control, .4 U
29003		Battery cable and plug assem (male)
29004		Battery cable and socket assem (female)
29055		Battery socket assembly
29054		Battery plug assembly
15739		Battery cable clamp
26688		Battery cable tag F-1116
39620		Tone control switch assem.
28192		Shaft and blade for the above
20093		Mtg. nut for vol. control and tone control
28663		Shipping container
27953		Instruction folder F-1160

TRANSFORMERS

T1	41250	No. 1 R. F. T.
T2	41260	No. 2 R. F. T.
T3	41270	Oscillator trans.
T4	28164	No. 1 I. F. T.
T5	28165	No. 2 I. F. T.
T6	40660	Audio input trans.

WAVE TRAP

41020		Trap assembly (264KC)
28458		Choke only (CK1)
41650		125 MMF, 500-V. condenser (C1)
24327		Shield

RESISTORS

R1	30340	.1 U, ⅓ watt, red, blue
R2*	30320	10,000 Ω, ⅓ watt, maroon
R3	30330	50,000 Ω, ⅓ watt, black, yellow, red
R4	36430	5000 Ω, ⅓ watt, blue, yellow
R5	36430	5000 Ω, ⅓ watt, blue, yellow
R6	30370	2 U, ⅓ watt, green
R7	31970	.25 U, ⅓ watt, red, yellow
R8	30320	10,000 Ω, ⅓ watt, maroon
R9	30340	.1 U, ⅓ watt, red, blue
R10	30360	1 U, ⅓ watt, blue, gray
R11	30320	10,000 Ω, ⅓ watt, maroon
R12	40330	.575 Ω, wire wound
—	40340	1.03 Ω, wire wound (for use with 3-V. "A" battery)

*If set fails to operate over entire dial, with partially used "B" batteries, change R2 to 5000 ohms (No. 36430, blue and yellow).

CONDENSERS

C1	41650	125 MMF, mica
C2	32810	.01 MF, 400-V. (409)
C3	28341	8 MMF, 500-V., mica
C4	25035	.006 MF, blue, black, red, mica
C5	31530	.1 MF, 100-V. (102)
C6	31530	.1 MF, 100-V. (102)
C7	39660	730 MMF, 100-V., mica
C8	35840	50 MMF, 500-V., mica
C9	36510	500 MMF, 500-V., mica
C10	31160	.05 MF, 100-V. (101)
C11	31920	.05, .05, and .5, 100-V (110)
C12	36510	500 MMF, 500-V., mica
C13	33670	250 MMF, 500-V., mica
C14	33630	250 and 250 MMF, 400-V. (413)
C15	27630	.01 MF, 200-V (203)
C16	29890	.005 MF, 400-V. (408)
C17	36650	.0015 MF, 400-V. (404)
C18	29890	.005 MF, 400-V. (408)
C19	22472	8 MF, 200-V., electrolytic

TRIMMERS

A4	39630	Rear of chassis
A5	38890	Front of chassis
A6, 7	32880	On T4 (double)
A8	40610	On T5 (single)

CHOKES

CK1	28458	264KC trap choke
CK2	36630	Filament choke

SOCKETS

21336		4 prong (speaker)
24492		4 prong
24494		6 prong

465-Q SPEAKER No. 42900 (1st type)

655-Q SPEAKER No. 45900 (1st type)

28348	Cable and plug assembly
27128	Magnet
27129	Magnet clamping plate
8188	8/32 hex. nut
9898	No. 6 lock washer
23318	No. 2 washer
27138	Clamping block top
27139	Clamping block bottom
27141	Adjusting screw, 6/32
27142	Cover plate
27143	Mounting bracket
27144	Sound unit assembly, less magnets
27145	Conehead assembly
27146	Coil
27147	Armature
27211	Mount. brackets, pair (655-Q)
27148	Spring
27149	Terminal

465-Q SPEAKER No. 46700 (2d type)

655-Q SPEAKER No. 46800 (2d type)

28974	Cone housing (465-Q)
28979	Cone housing (655-Q)
19469	Segment
29074	Cable and plug assembly
29075	Diaphragm assembly
29076*	Sound unit complete
29077	Drive rod
17868	Drive rod nut

*Parts for this unit are not sold separately.

MODEL 655-Q

For parts not listed below refer to Model 465-Q.

27985	Base plate
28661	Shipping container
29011	Cable and plug assem. (male)
29012	Cable and socket assem. (female)
28629	Cabinet with screen
27904	Screen
27292	Var. cond. assem.
27922	Range switch assem.
28253	Battery cable and plug (male)
28254	Battery cable and socket
29056	Battery plug assem. (male)
29057	Battery socket assem.
27254	Dial pointer
27869	Dial and frame assembly
27262	Dial frame only
27511	Dial plate
27962	Escutcheon
28896	Front panel assembly
26721	Dial lamp (2-V., 60 mils.)
27965	Vol. control .5 U
28907	Tone control switch assem.
28908	Shaft and blade for the above
38740	Sensitivity switch assem.
27628	Shaft and blade for the above
28946	Knob (tuning and range)
28947	Knob (vol. and tone)
26571	Knob (sensitivity)
27695	Battery cable tag F1155
27951	Inst. sheet F1158
27993	Shipping container

TRANSFORMERS

T1	41080	BC antenna trans.
T2	41090	BC and 4-12 det. trans.
T3	41120	1.6-4.5, 12-22 det. trans.
T4	41110	BC and 4-12 osc. trans.
T5	41130	1.6-4.5, 12-22 osc. trans.
T6	28166	No. 1 I. F. T.
T7	28167	No. 2 I. F. T.
T8	28168	No. 3 I. F. T.
T9	40710	Audio input trans.

RESISTORS

R1	30340	.1 U, red, blue, ⅓ watt
R2	31970	.25 U, red, yellow, ⅓ watt
R3	15545	10,000 Ω, maroon, 1 watt
R4	36430	5000 Ω, blue, yel., ⅓ w.
R5	36430	5000 Ω, blue, yel., ⅓ w.
R6	30380	3300 Ω, green, red, ⅓ w.
R7	30350	.5 U black, purple, ⅓ w.
R8	30370	2 U green, ⅓ watt
R9	30360	1 U blue, gray, ⅓ watt
R10	30340	.1 U red, blue, ⅓ watt
R11	30340	.1 U, red, blue, ⅓ watt
R12	30390	20,000 Ω, black, red, ⅓ w
R13	37530	300 Ω, maroon, blue, ½ watt
R14	37540	425 Ω, blue, yel., green, ½ w.
R15	39790	500 Ω, blue, red, green, ½ watt
R15A	30320	10,000 Ω, maroon, ⅓ watt
R16	30360	1 U, blue, gray, ⅓ watt
R17	30350	.5 U, black, purple, ⅓ watt
R18	31970	.25 U, red, yellow, ⅓ watt
R19	40330	.575 Ω, wire wound
—	40350	1.03 Ω, wire wound (for use with 3-V. "A" battery)

CHOKES

CK1	23530	Filament choke
CK2	27792	2nd det. plate choke

SHIELDS

27932	Shield for T1, 3
27933	Shield for T2
25056	Shield for T6, 7, 8
27335	Shield for T4, 5
22683	Tube shield (30-1C6)
15213	Tube shield (32-34)
25059	I. F. T. shield cover (with hole)
25058	I. F. T. shield cover (without hole)

CONDENSERS

C1	31160	.05 MF, 100-V. (101)
C2	31160	.05 MF, 100-V. (101)
C3	35840	50 MMF, mica, 500-V.
C4	28118	360 MMF, mica, 100-V.
C5	27598	.0037 MF, orange, violet, red
C6	39290	1350 MMF, mica, 400-V.
C7*	27599	.0057 MF, green, violet, red
C8	36510	500 MMF, mica, 500-V.
C9	31160	.05 MF, 100-V. (101)
C10	26820	.05 MF, 200-V. (208)
C10A	26820	.05 MF, 200-V. (208)
C11	36510	500 MMF, mica, 500-V.
C12	36510	500 MMF, mica, 500-V.
C13	35290	125 MMF, mica, 500-V.
C14	35290	125 MMF, mica, 500-V.
C15	26820	.05 MF, 200-V. (208)
C16	26820	.05 MF, 200-V. (208)
C17	27630	.01 MF, 200-V. (203)
C18	31510	.5 MF, 100-V. (105)
C19	32390	.05, .05, .2 MF, 200-V. (222)
C20	27630	.01 MF, 200-V. (203)
C21	33620	250 MMF, 400-V. (401)
C22	38260	.001, .004, .008 MF, 400-V. (416)
C23	29530	.03 MF, 200-V. (206)
C24	22472	8 MF, 200-V. dry electrolytic
C25	31150	.3 MF, 100-V. (104)

*In some sets C7 is .006 MF (No. 25035), blue, black, red. Either the .0057 or the .006 may be used for replacement.

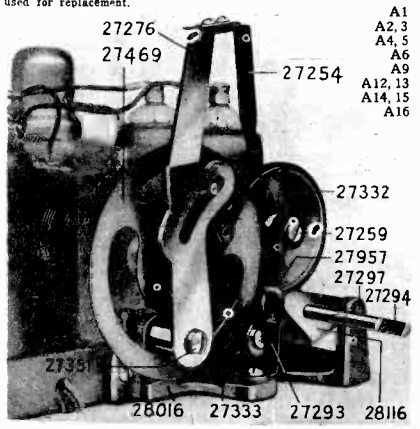


Illustration of parts in dual-speed compensated tuning mechanism in Models 768Q, 978Q, etc.

PARTS FOR TUNING MECHANISM

27469		Dial gear
27276		Pointer arm
27254		Dial pointer
27332		Counter shaft gear (large)
27333		Idler gear (small)
27259		Gear screw
27957		Broadcast pinion gear
28116		Gear frame
27351		Screw (5/32" dia.)
27294		Tuning shaft
28016		Tuning bracket
27293		Detention spring
27298		Shaft spacer
27297		Bracket holding pin

768-Q SPEAKER No. 43100

978-Q SPEAKER No. 43200

28348	Cable and plug assembly
27128	Magnet
27129	Magnet clamping plate
8188	8/32 hex. nut
9898	No. 6 lock washer
23318	No. 2 washer
27138	Clamping block top
27139	Clamping block bottom
27141	Adjusting screw, 6/32
27142	Cover plate
27143	Mounting bracket
27145	Conehead assembly
28976	Coil
27147	Armature
27211	Mount. brackets, pair (978-Q)
27148	Spring
27149	Terminal

MODEL 978-Q

For parts not listed below refer to Model 768-Q.

28897	Front panel assem.
27963	Escutcheon
27832	Base cover
28256	Battery cable and plug (male)
28254	Battery cable and socket (female)

TRIMMERS

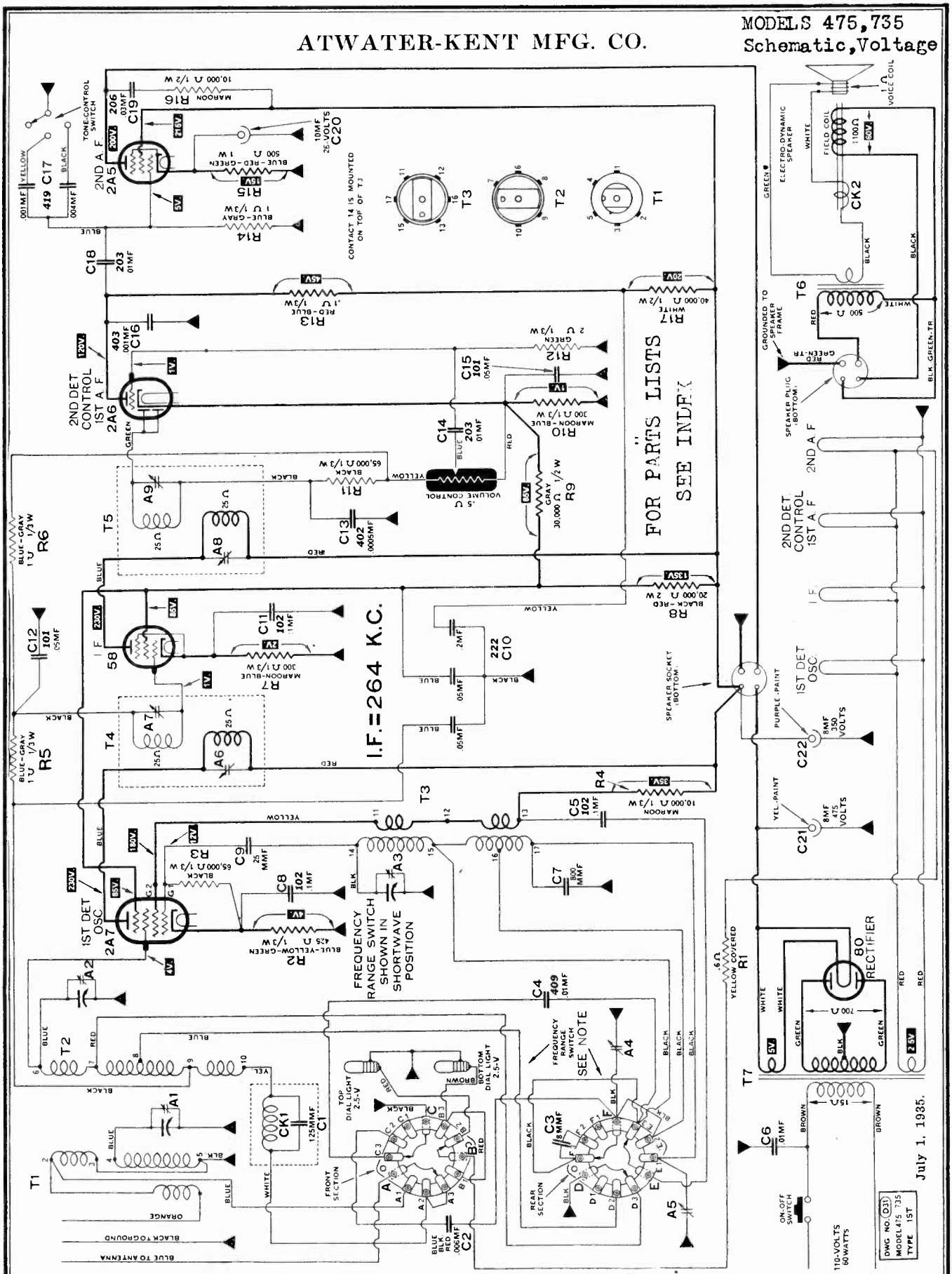
A1	38180	Single trimmer on T1
A2, 3	39430	Double trimmer on T2
A4, 5	39430	Double trimmer on T3
A6	39420	560 KC tracking
A9	39420	1.6 MC tracking
A12, 13	32880	Double trimmer on T6
A14, 15	32880	Double trimmer on T7
A16	40610	Single trimmer on T8
	39140	Strip of four trimmers

Ω = ohms.

U = megohms.

ATWATER-KENT MFG. CO.

MODELS 475, 735
Schematic, Voltage



The dial light switch arm connects to the top light when range switch is in "short-wave" position; connects bottom light at "police"; and connects both lights at "broadcast." In late sets R9 is 1 watt, and R4 (oscillator plate) is ½ watt.

MODELS 475,735
Trimmers,Socket
Chassis,Alignment

ATWATER-KENT MFG. CO.

MODELS 475 AND 735

I. F. TRIMMERS.

Connect I. F. test oscillator (264 KC) to I. F. tube by means of regular I. F. coupling unit. Peak A9, A8. Connect I. F. oscillator to 1st-detector tube and peak A7, A6.

DIAL POINTER ADJUSTMENT.

With rotor of variable condenser fully meshed, dial indicator should be at 535 KC.

R. F. TRIMMERS.

Connect an R. F. oscillator to antenna and ground of set.

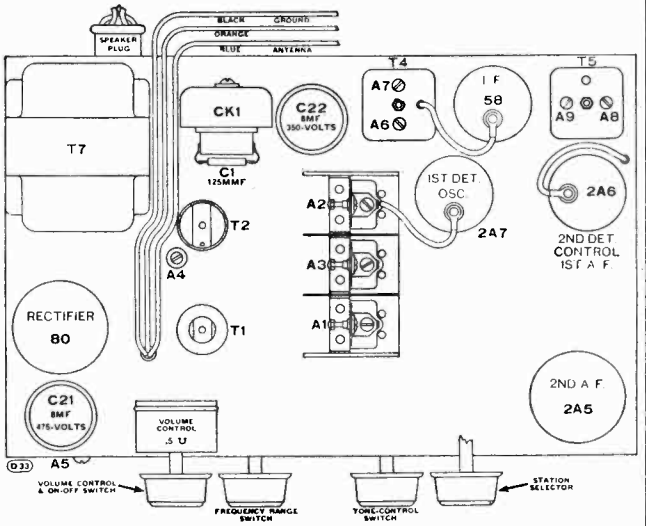
Short-wave range. With oscillator and dial at 15 MC, peak A3. Use the first point on the trimmer, as it is screwed in from a loose or minimum-capacity position.

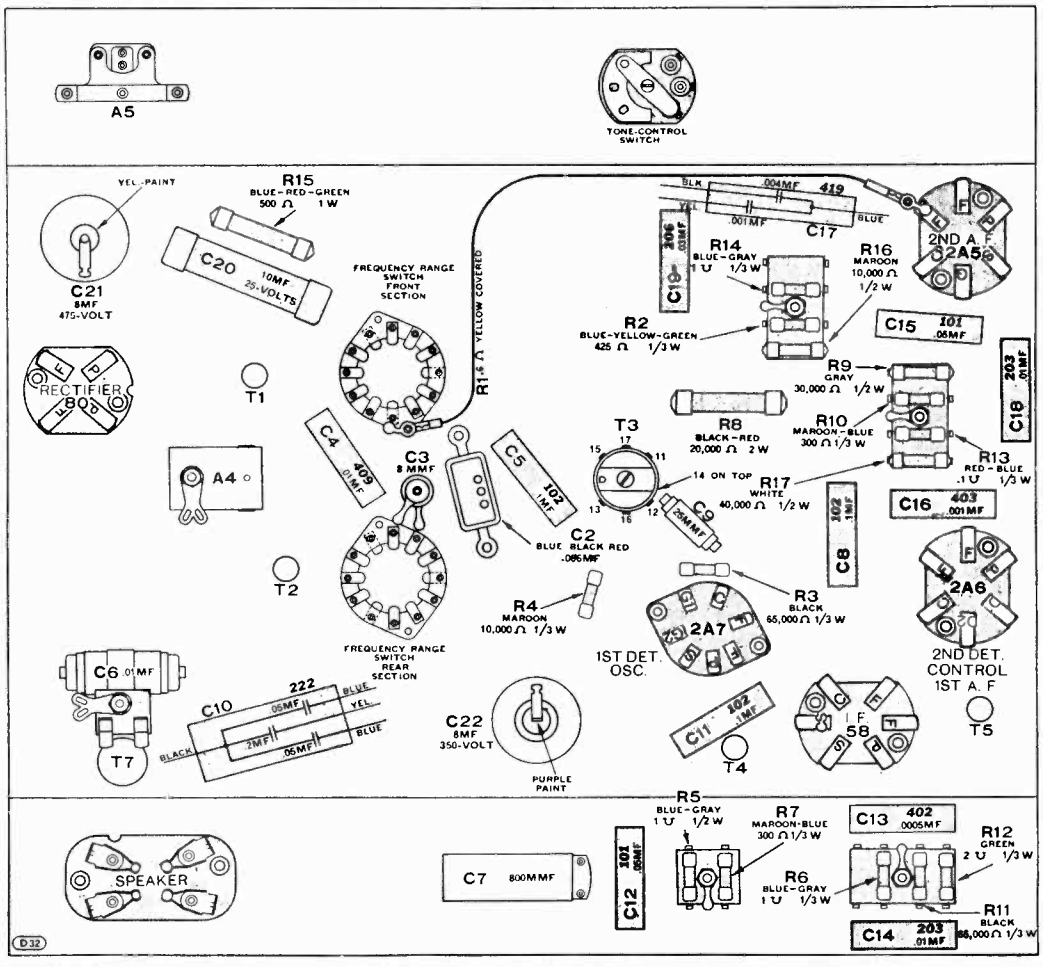
Police range. No trimmers on this range.

Broadcast range. With oscillator and dial at 1500 KC, peak A4, A2 and A1. With oscillator and dial at 560 KC, peak A5.

TRIMMERS

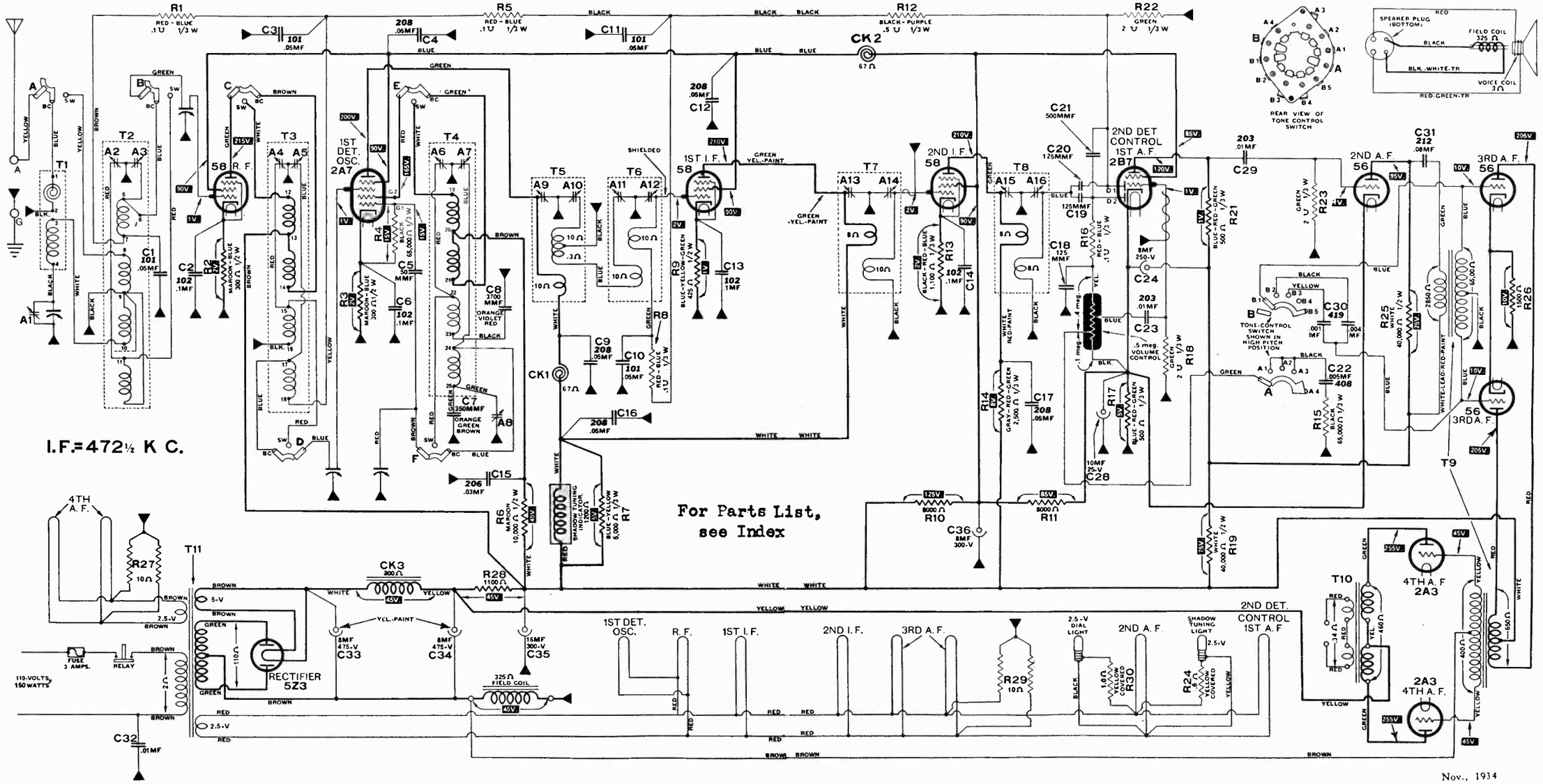
A1—1st-detector, 1500 KC.
A2—1st-detector, 1500 KC.
A3—Oscillator, 15 MC.
A4—Oscillator, 1500 KC.
A5—Oscillator, 560 KC.
A6—1st-detector plate, 264 KC.
A7—I. F. grid, 264 KC.
A8—I. F. plate, 264 KC.
A9—2nd-detector, 264 KC.





MODEL 511
Schematic
Voltage

ATWATER-KENT MFG. CO.



Model 511 has two frequency ranges: the broadcast range (BC) covers 540 to 1600 kilocycles, and the short-wave range (SW) covers 5500 to 15500 kilocycles.

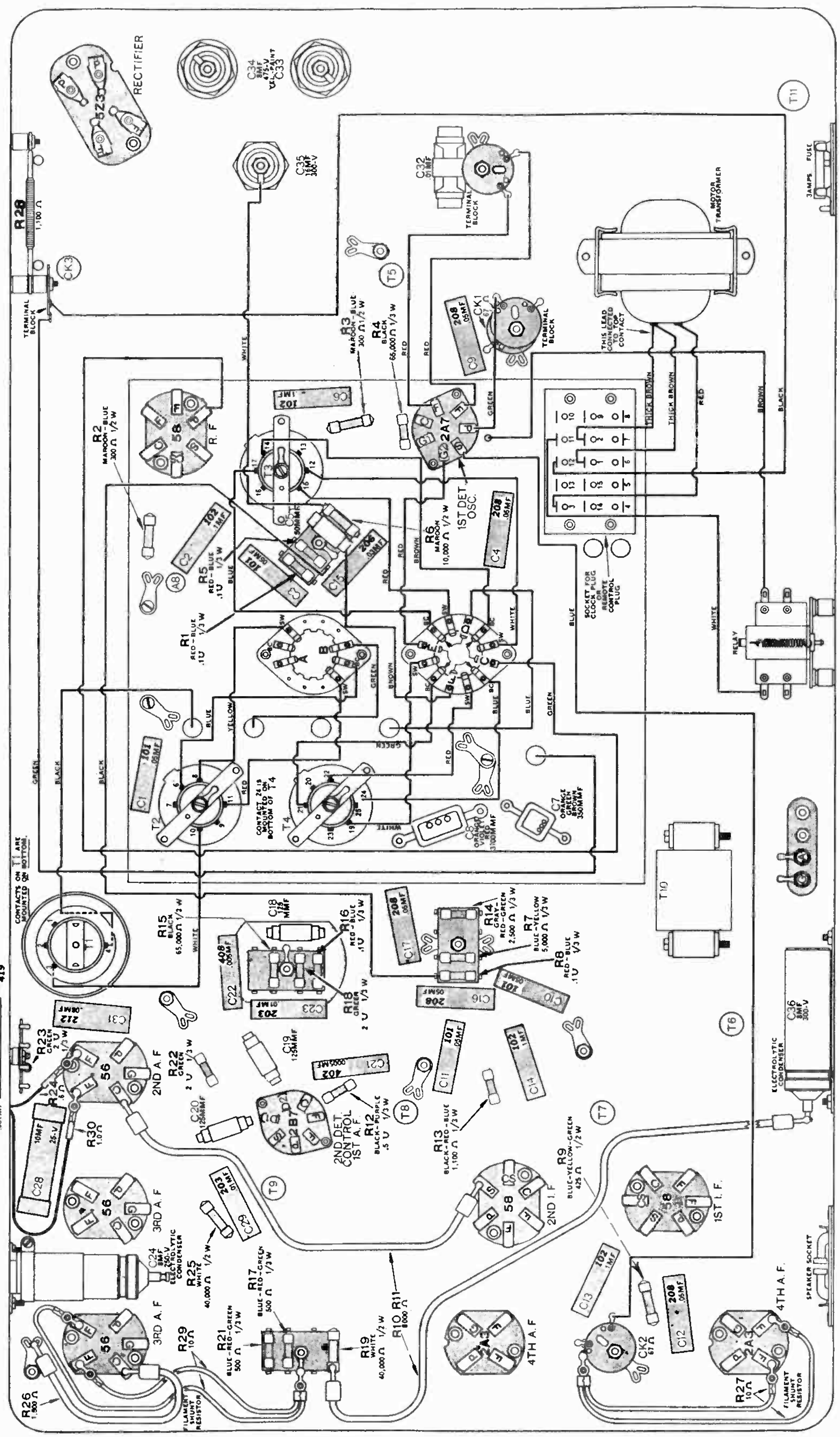
Only the late type audio circuit is shown above. In early sets, the plate circuit of the 2B7 is similar to that used in Model 112.

Nov., 1934

MODEL 511 (Late)
Chassis Wiring

ATWATER-KENT MFG. CO.

BOTTOM VIEW MODEL 511 (Late Type)



This illustration shows the connections from the top base to the main chassis assembly.

SERVICING THE Tune•O•Matic MECHANISM

In addition to the simplicity of design and operation of the TUNE-O-MATIC, the rugged construction and positive adjustments are such that, under normal conditions of operation, it WILL NOT be necessary for the Service Man to make ANY mechanical adjustments on this mechanism, other than that of setting the station selector discs.

However should the initial adjustments of any part of the mechanism become changed at any time, it will cause the mechanism to function unsatisfactorily and corrective adjustments will be necessary. Several of the probable sources of trouble in this respect have been tabulated below, with a brief statement of the adjustments required. For additional details in regard to the latter, reference should be made to the respective sections under ADJUSTMENTS.

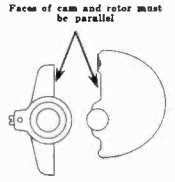
TROUBLE OBSERVED	ADJUSTMENT REQUIRED
1. Reversal switch control cam does not operate reversing switch.	1. Loosen reversal switch mounting screws and move bakelite switch base to the right or left as required. (See Adjustments—Sec. A.)
2. Motor does not drive mechanism through complete operating cycle.	2. Check bearing adjustments. Check large and small pulley adjustments. Check for continuous contact between selector disc and contact finger in question.
3. Mechanism runs continuously.	3. Reversal switch does not trip or does not make contact after it does trip. (See also, instructions—clock assembly adjustments.)
4. Difficulty in manual tuning.	4. Loosen setscrew of reversal switch control cam on condenser shaft and relieve pressure of clutch-spring on clutch-disc gear sufficiently to allow tuning knob to turn easily during manual operation, but not enough to cause it to slip during automatic operation.

MECHANICAL NOISE DURING OPERATION OF MECHANISM

CAUSED BY	REMEDY
1. Dry worm and gear.	1. Use graphite sparingly.
2. "Squeak" in motor bearings.	2. ONE DROP of 3 in 1 oil.
3. Improper mesh of worm and gear.	3. See that gear is centered in worm, and meshes about half the depth of the teeth.
4. Worm shaft loose in bearings.	4. See Adjustments Sec. B.
5. Solenoid plunger hangar wire does not hold plunger snugly.	5. Pinch ends of hangar wire with pliers.
6. Solenoid plunger and mounting arm vibrate.	6. Set spacing between plunger and top of solenoid to ½" by adjustment of large pulley.
7. Felt washer omitted between top of plunger and plunger mounting arm.	7. Replace with Part No. 27767.
8. Pointer control gear teeth in contact with metal of pointer control pinion instead of bakelite section.	8. Adjust pointer control gear on condenser shaft.
9. Noise from selector disc dust cover.	9. Tighten mounting screws and make sure that cover does not contact clutch-disc gear.

ADJUSTMENTS

SEC. A. Failure of reversal switch control cam to operate reversal switch in either maximum positions may be corrected by adjusting solenoid switch position as previously mentioned. If further adjustment is necessary it should be made as follows: Checking the reversal switch by manual operation of the large pointer control gear—in position of minimum capacity of the gang condenser, the pointer control gear is adjusted on the condenser shaft so that the stop arm attached to the gear makes contact with the pointer control pinion gear. Take notice, however, that the reverse switch is tripped to the OFF position by reversal switch control cam, when the stop is within approximately 1/8" of the pointer control pinion gear. In the position of maximum capacity of the gang condenser, it may be necessary to move the reversal switch control cam slightly in a clockwise direction (when facing the rear of the mechanism) on the condenser shaft, in order that the reversal switch will be tripped to the ON position when the gang condenser is within 1/16" of complete mesh. It should be noted that when the proper adjustment has been made, the contact faces of the reversal switch cam are parallel to the flat edge of the condenser rotors.



SEC. B. Improper adjustment of large and small pulleys. The large pulley is adjusted first, so that when it makes contact with the lower portion of the motor driving-nib, the space between the solenoid plunger and the top of the solenoid is approximately one-half inch. The small pulley is then adjusted so that there is about 1/32" space between large pulley and motor driving-nib when the driving-nib is in contact with the small pulley. This adjustment should place the small pulley in a position of positive contact with the motor driving-nib when the solenoid is not energized. If it does not, the mechanism will fail to return from the position of maximum mesh of the gang condenser.

Improper adjustment of worm shaft bearings will cause heating and partial or complete "freezing" of the shaft and bearing. To adjust the worm gear drive shaft bearings, the bearing adjusting screw is turned clockwise until a slight movement of the small pulley is observed, indicating contact of the shaft and the bearing. The adjusting screw is then given ¼ additional turn in the same direction and the lock nut tightened.

RELAY

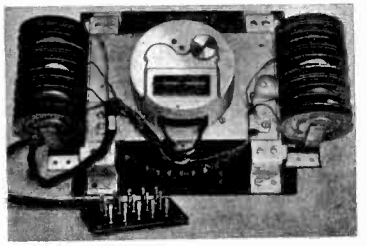
No trouble should be experienced with the OFF and ON relay used in conjunction with the TUNE-O-MATIC mechanism. Any tendency for contacts to stick may be removed by the use of emery cloth. In cases where buzzing of the relay occurs, it should be noted whether the armature seats properly.

STATION SELECTOR DISCS

Tension collar at rear of station discs may be loosened if station selector discs are difficult to set. However sufficient pressure should be retained to keep the discs in the position which they have been set, while the mechanism is in operation.

SERVICING TUNE-O-MATIC CLOCK ASSEMBLY

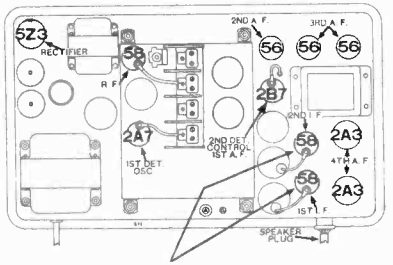
The TUNE-O-MATIC clock assembly is illustrated at right. No attempt should be made to make adjustments on any part of the clock assembly unit other than pointed out below. Where major adjustments are required, the complete unit must be removed from the cabinet and returned to the distributor.



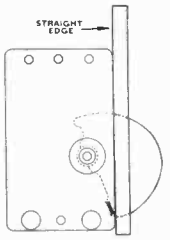
In cases where the contact arm, on the rear of the jack panel, jumps a noticeable period of time before or after the MINUTE hand reaches each successive 15 minute mark on the clock face, it will be necessary to set both the hour hand and the minute hand on 12, when the contact arm is on the 12 o'clock jack. To make this adjustment the clock crystal should be carefully removed, by releasing the crystal retaining spring (use narrow blade screwdriver), to allow access to the clock hands. Turn the knurled clock-hand adjusting knob on the rear of the clock until the hand is almost at 12, then allow the clock to run on its own power. The instant the contact arm jumps to the 12 o'clock jack see that both the hour and the minute hand are within the black mark at 12. Both hands are held on their respective shafts by friction only, and therefore may be moved in either direction manually to the 12 o'clock position. After the hands have been adjusted as indicated above, the relation of the minute hand and the time the contact arm jumps to the succeeding positions may be checked at other points on the clock face in a like manner, and if found satisfactory, the clock crystal should be replaced and the retaining spring adjusted.

For any adjustments of the clock assembly unit relative to the clock mechanism, sluggish break and make action of the jack contact arm from one position to the next, etc., will require that the complete clock assembly be returned to the distributor.

It may be well to note that if any selector cord tip, after being released from a time selector jack, should become lodged against a selector cord tip of another station, the TUNE-O-MATIC mechanism will operate continuously until the cord tip is dislodged from its contact with the cord tip in the jack. The same action will occur if the contact arm should lodge on two jack contacts.



SPECIAL ALUMINUM SHIELDS ARE PLACED OVER THESE TWO TUBES
Top View, Model 511



This illustration shows the correct position of the variable condenser rotor for a dial-pointer setting of 1575 KC. The straight-edge is held firmly against the front mounting plate of the variable condenser and the rotor is turned so the spacing bar (shown as a small black oblong) is just touching the straight edge. The straight edge is a strip of bakelite or hard rubber ¼" thick, ⅝" wide, and 6" long. The ⅝" side is held against the mounting plate.

See section on "Dial Pointer Adjustment"

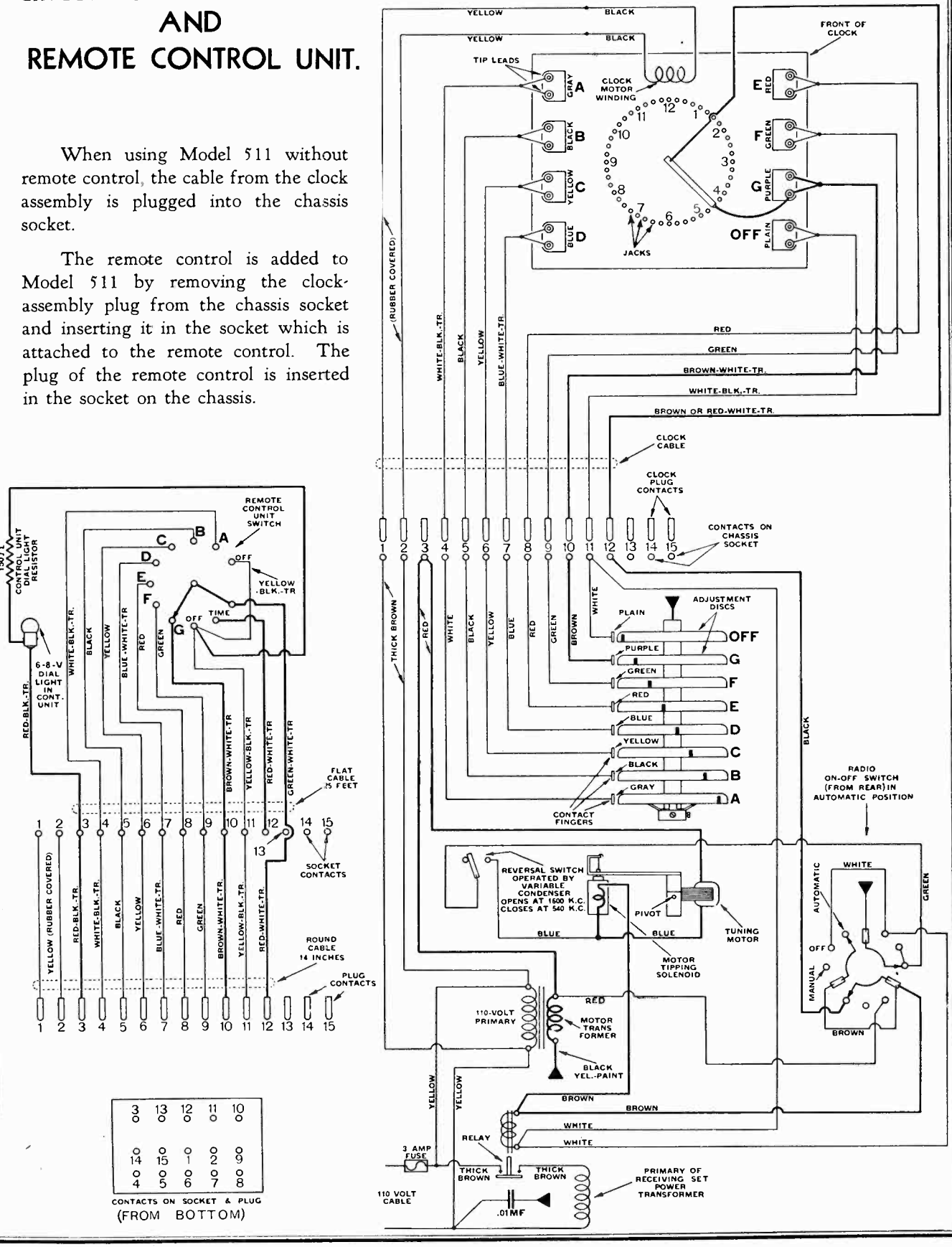
ATWATER-KENT MFG. CO.

MODEL 511
Automatic Tuning, Clock, Control Units Schematic

CIRCUIT OF AUTOMATIC TUNING MECHANISM, CLOCK ASSEMBLY, AND REMOTE CONTROL UNIT.

When using Model 511 without remote control, the cable from the clock assembly is plugged into the chassis socket.

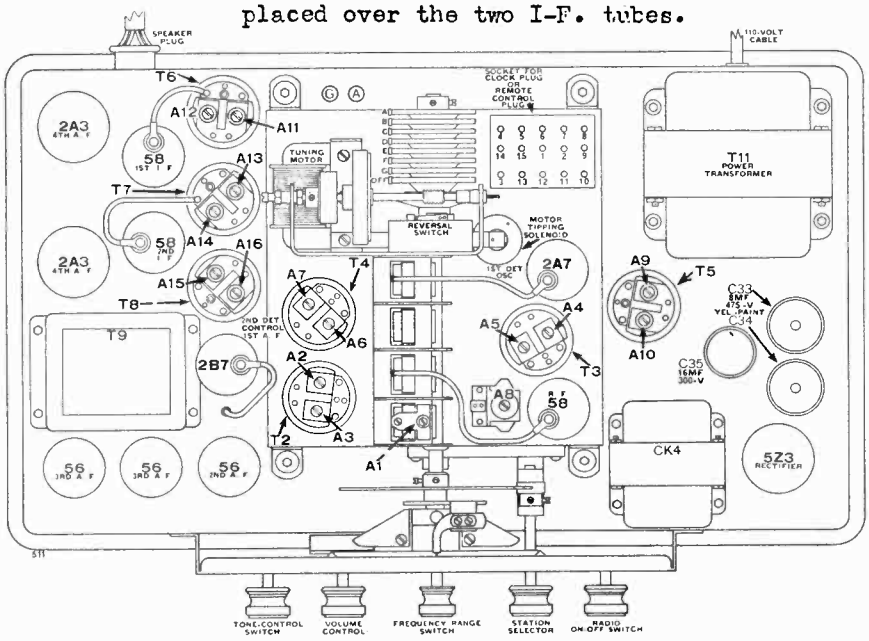
The remote control is added to Model 511 by removing the clock-assembly plug from the chassis socket and inserting it in the socket which is attached to the remote control. The plug of the remote control is inserted in the socket on the chassis.



MODEL 511
Trimmers, Socket,
Alignment Data

ATWATER-KENT MFG. CO.

Special aluminum shields are placed over the two I-F. tubes.



TOP VIEW MODEL 511

	5.4 to 15.5 M.C.	540 to 1600 K.C.
R. F.	A2	A1 & A3
1st-Detector ...	A4	A5
Oscillator	A6	A7
Tracking	None	A8

I. F. Trimmers are A9 to A16 inclusive

DIAL POINTER ADJUSTMENT.

If the dial gear and indicator have not been tampered with, leave them alone; but if they have been changed in any way, reset as follows:

1. Loosen the two set screws which hold pointer gear on condenser shaft.
2. Turn condenser to minimum.
3. See illustration at bottom of page 13. Place straight-edge gauge in vertical position with the long flat face against the front mounting plate of the variable condenser as shown. Turn the condenser until the front edge of the rotor spacing bar just touches the straight edge. Hold the condenser in this position and move the pointer arm so the pointer is at 1575 KC, after which tighten the set screws to hold the dial gear securely.
4. Loosen the screws which hold the pointer to the pointer arm, and adjust the pointer so that when the condenser is completely meshed, the pointer is at 530 KC.

Recheck at 1575 KC and repeat proceedure 3 and 4 if necessary.

EQUIPMENT.

1. OSCILLATOR. The oscillator should extend from the lowest I. F. frequency (125 KC in Atwater Kent sets) to at least 18 MC. The oscillator should have a good attenuator and should be well shielded. If the oscillator is not well shielded, it may be difficult to peak the pre-selector trimmers on some models, owing to pick-up by the 1st-detector grid circuit. In general, it is advisable to connect an .00025MFD fixed condenser in series with the oscillator pick-up lead at the antenna terminal of the set.

2. OUTPUT METER. Use a sensitive output meter and keep the radio volume control turned on full volume. This is necessary to minimize the effect of the automatic-volume-control action of the set which would otherwise prevent sharp peaking of the trimmers.

3. BALANCING UNIT. Build or purchase from your distributor two of the Type "A" balancing units and one of the I. F. coupling units shown on right. These are required for correct adjustment of Atwater Kent super-heterodynes. The coupling unit is placed on the grid cap of the 1st-detector tube, and the lead that normally connects to the grid cap is attached to the end of the maroon resistor as shown.

4. Use a non-metallic screw driver for adjustment of the trimmers.

I. F. TRIMMERS.

Connect an IF test oscillator to the 1st-detector tube by means of the IF coupling unit shown in FIG. 1. Adjust the IF oscillator to 472½ K.C. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter with the radio volume control full on. Put tone control in 2nd position from right.

Put unit A on A15 and peak A16.
Put unit A on A16 and peak A15.
Put unit A on A13 and peak A14.
Put unit A on A14 and peak A13.
Put one unit A on A11 and one on A 9. Peak A12 and A10.
Put one unit A on A12 and one on A10. Peak A11 and A 9.

In case of instability while adjusting A15 and A16, place an extra balancing unit A across A12.

Remove the I. F. coupling unit and the balancing units and seal the trimmers.

R. F. TRIMMERS.

Connect an RF oscillator to the antenna and ground terminals of the set. Use the weakest possible oscillator signal to give a reading on the output meter. Loosen the trimmer screws for the range or ranges that are to be re-adjusted.

5.4 to 15.5 MC range. Tune test oscillator to 15 MC. Turn oscillator trimmer A6 "in", stopping at the peak of position where the signal is first heard as the trimmer is turned in. Then tune the set to 14.06 MC and note whether the oscillator signal is present at this frequency and considerably weaker than at 15 MC. If so, the oscillator trimmer adjustment is correct and the R.F. trimmers A2 and A4 should be peaked at 15 MC.

Broadcast range. Tune test oscillator and set to 1500 KC. Turn trimmer A7 "in" until oscillator signal is heard and peaked. Peak R.F. trimmers A1, A3, and A5. Tune test oscillator and set to 560KC. Peak A8. Go back and forth between A7 at 1500 and A8 at 560 until both of these frequencies come in at the correct points on the dial.

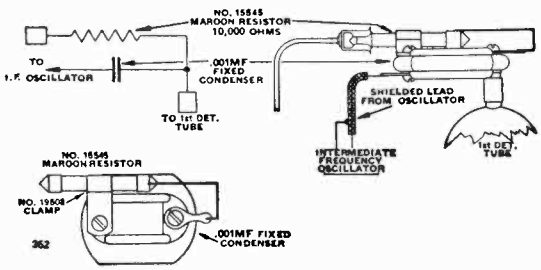


Fig. 1. I. F. Coupling unit, Part No. 42590

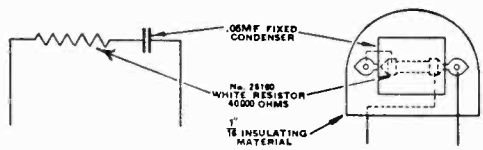
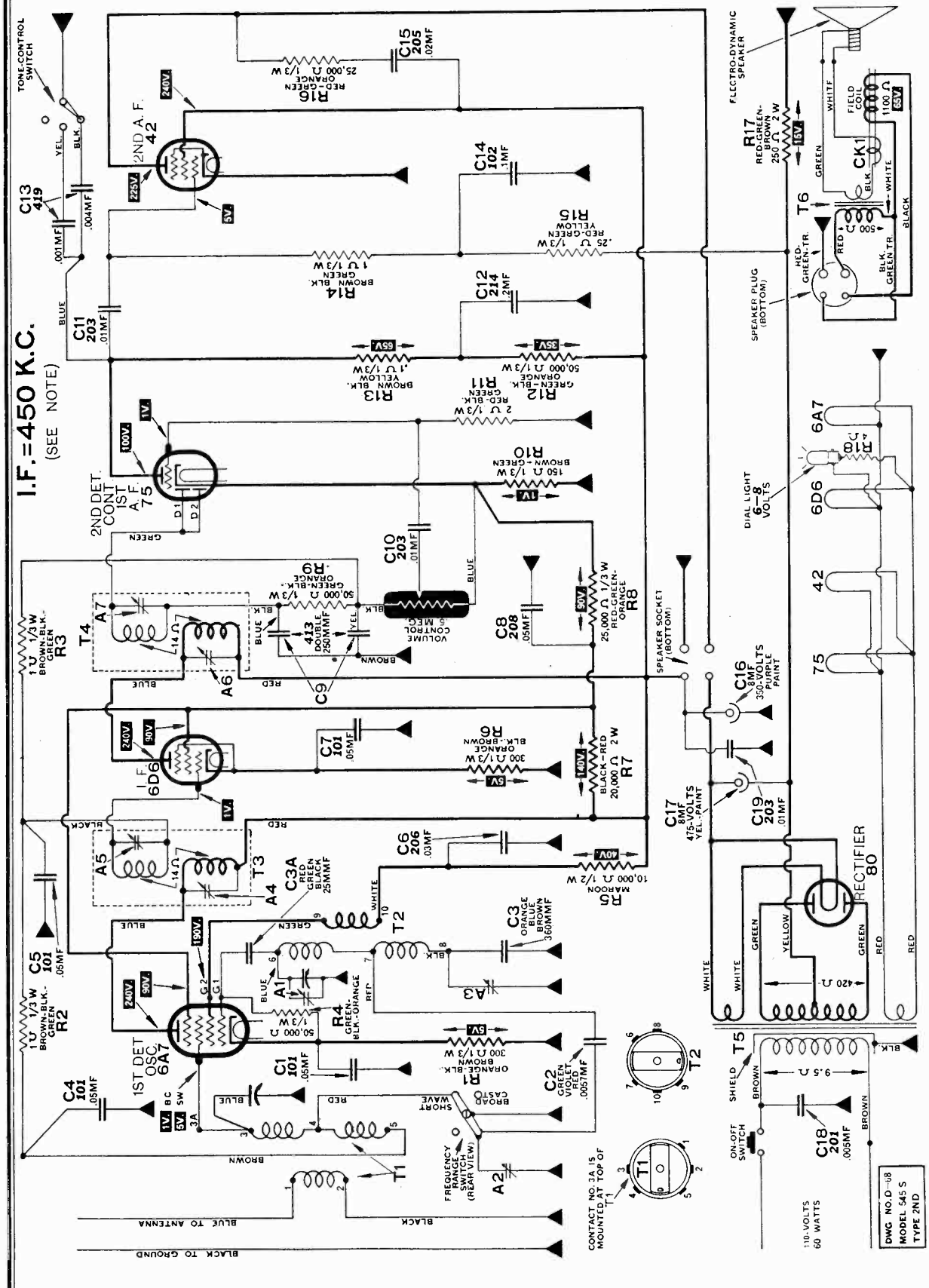


Fig. 2. Balancing unit "A," Part No. 42610

ATWATER-KENT MFG. CO.

MODEL 545
Schematic, Voltage



The I. F. in some Model 545 sets is 472½ KC and a label to this effect is attached to the rear of the chassis. The I. F. transformers and trimmers, etc., are exactly the same for either 450 or 472½ KC.

June, 1935

CHANGES. Early Model 545 has 2.5-volt tubes and the circuit is similar to that shown above. Late sets have .01 MF line bypass; electrolytic C16 is 300 V, 16 MF; a filament-shunt resistor of 25-ohms (tapped at 12.5) is added and the filament circuit is not grounded except through this resistor; dial light in late sets is 6.3 volts.

MODEL 545
Trimmers, Socket,
Chassis, Alignment

ATWATER-KENT MFG. CO.

ADJUSTING TRIMMERS

I. F. Connect I. F. test oscillator (450* KC) to I. F. tube by means of regular I. F. coupling unit. Peak A7 and A6. Connect coupling unit to 1st-detector and peak A5 and A4.

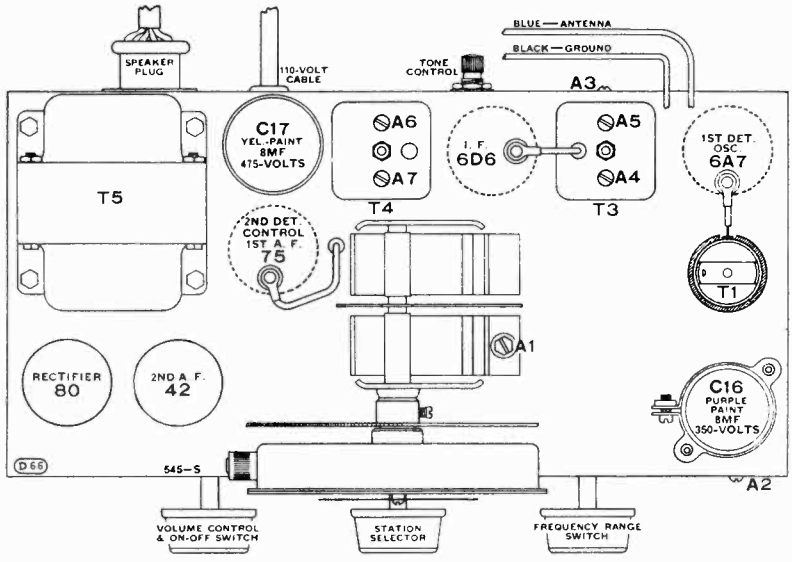
DIAL. With rotor of variable condenser fully meshed, dial indicator should be at 540 KC.

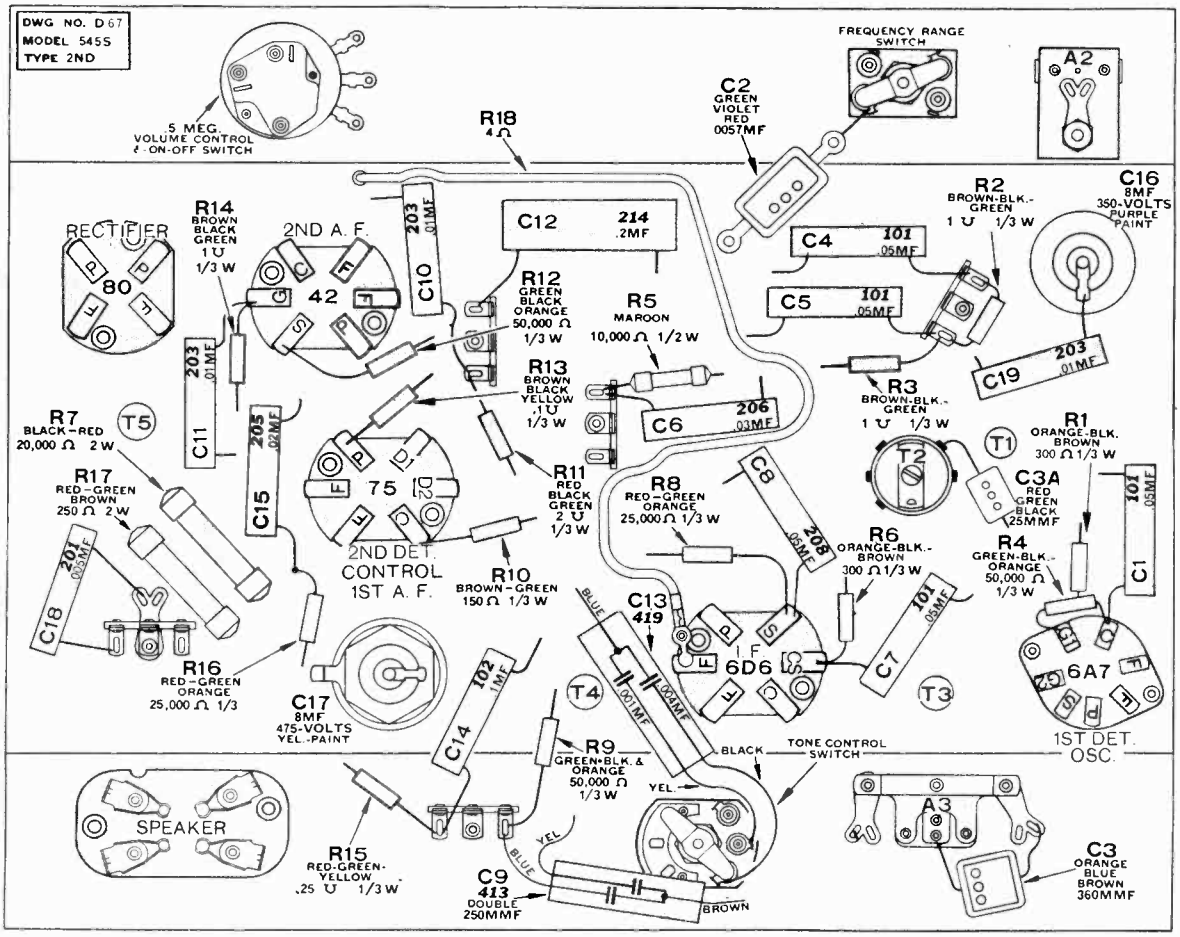
R. F. Connect a 6 MC oscillator to antenna and ground. Peak A1. With oscillator and dial at 1700 KC, peak A2. With oscillator and dial at 540 KC, peak A3

	Short-Wave Range	Broadcast Range
1st Detector		.....
Oscillator	A1	A2
Tracking		A3

The I. F. trimmers are A4 to A7, inclusive.

*In some Model 545 sets, the I. F. is 472½ KC and a label to this effect is attached to rear of chassis.

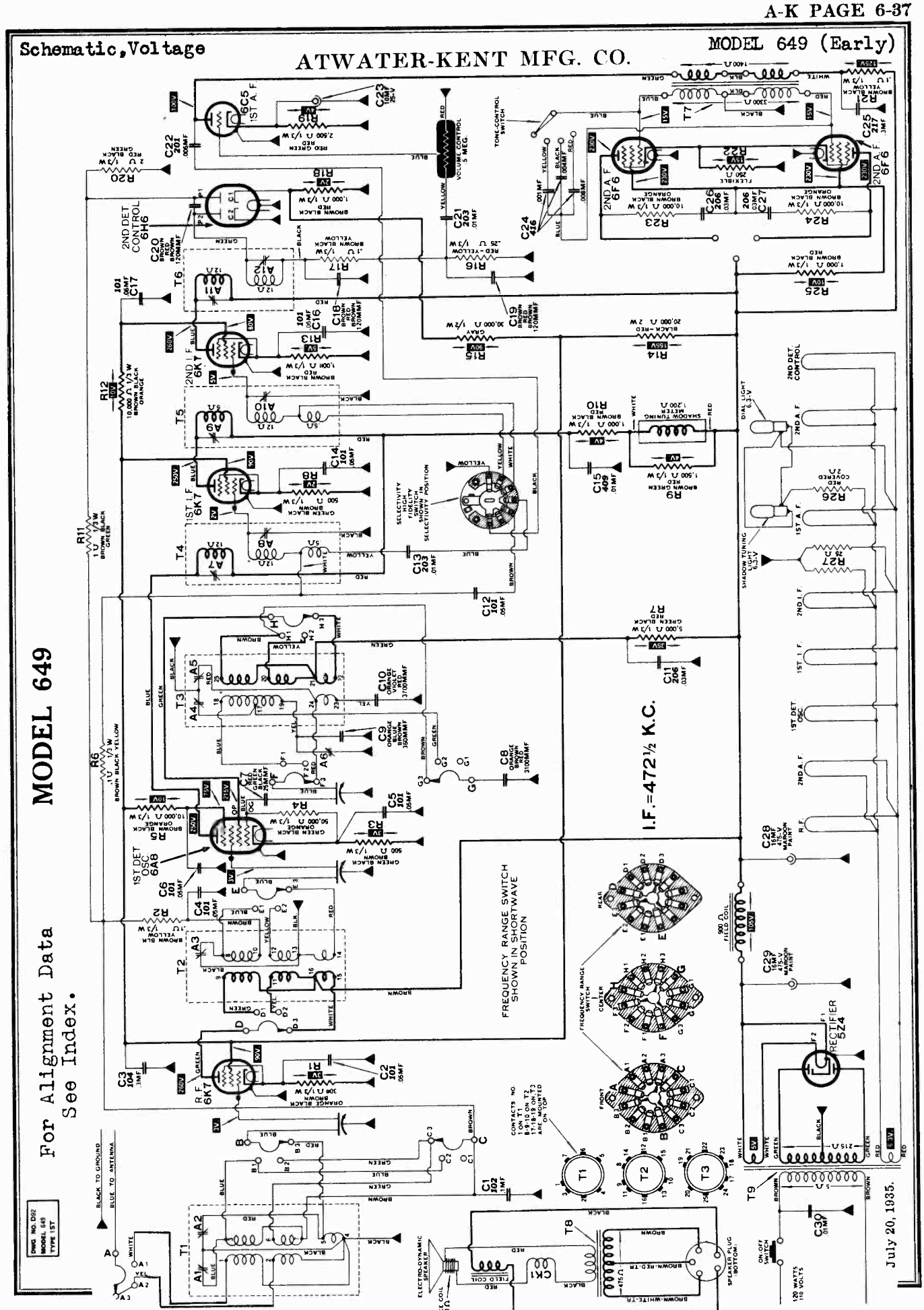




Schematic, Voltage

ATWATER-KENT MFG. CO.

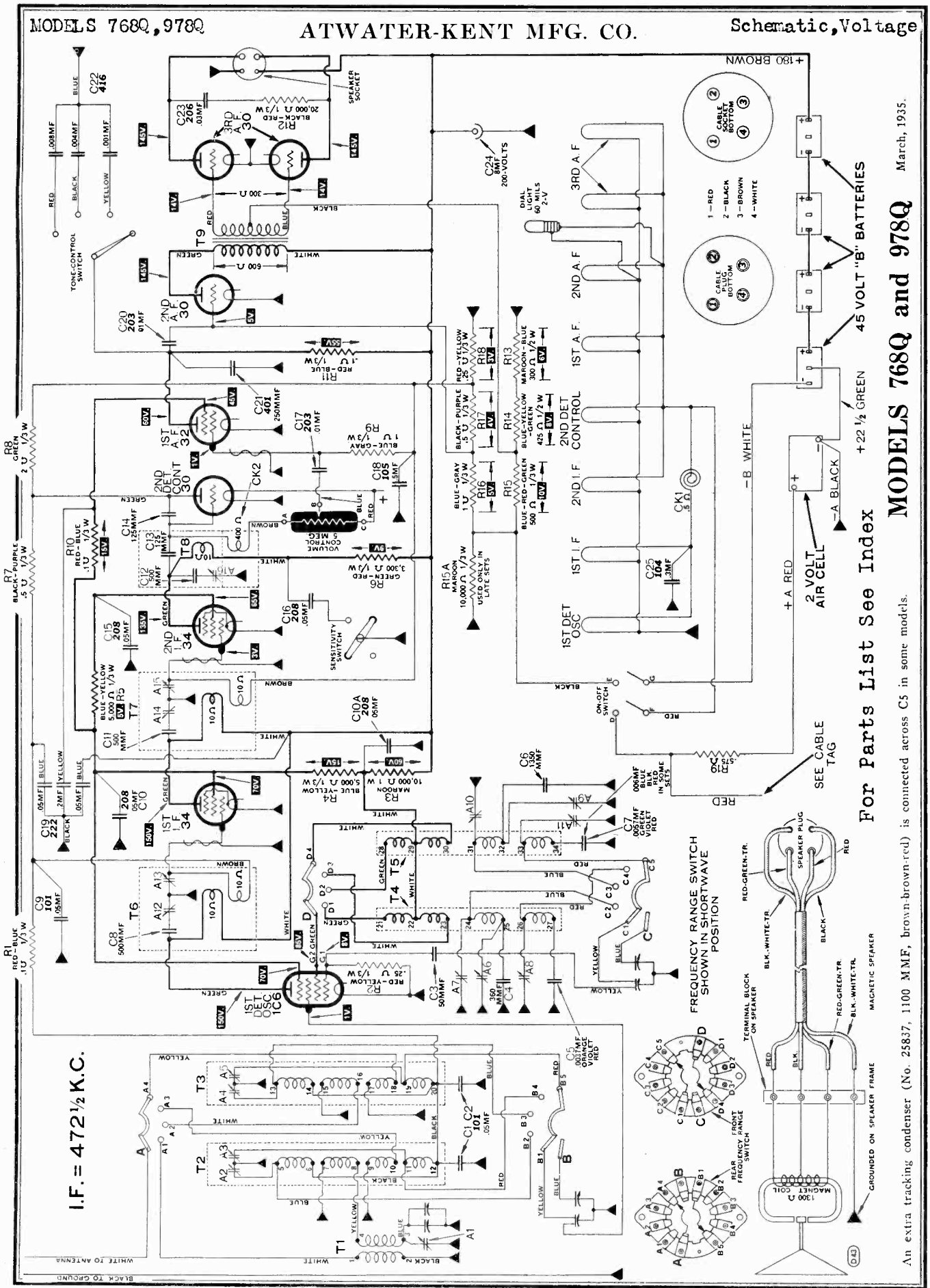
MODEL 649 (Early)



MODELS 768Q, 978Q

ATWATER-KENT MFG. CO.

Schematic, Voltage



An extra tracking condenser (No. 25837, 1100 MMF, brown-brown-red) is connected across C5 in some models.

MODELS 768Q, 978Q
Chassis
Alignment

ATWATER-KENT MFG. CO.

MODELS 768Q and 978Q

I. F. TRIMMERS.

Connect an I. F. test oscillator to the 1st-detector tube by means of the standard I. F. coupling unit described in the January, 1935, supplement. Adjust the test oscillator to 472½ KC. Connect a sensitive output meter to the set. Use the weakest oscillator signal that will give a reading on the output meter with the radio volume control on full.

Peak A16. Then peak A15, 14, 13, and 12, using a 40000-ohm balancing unit alternately in the usual manner. Remove the coupling unit and seal the I. F. trimmers.

DIAL POINTER ADJUSTMENT.

This procedure is the same as for Models 447 and 318

R. F. TRIMMERS.

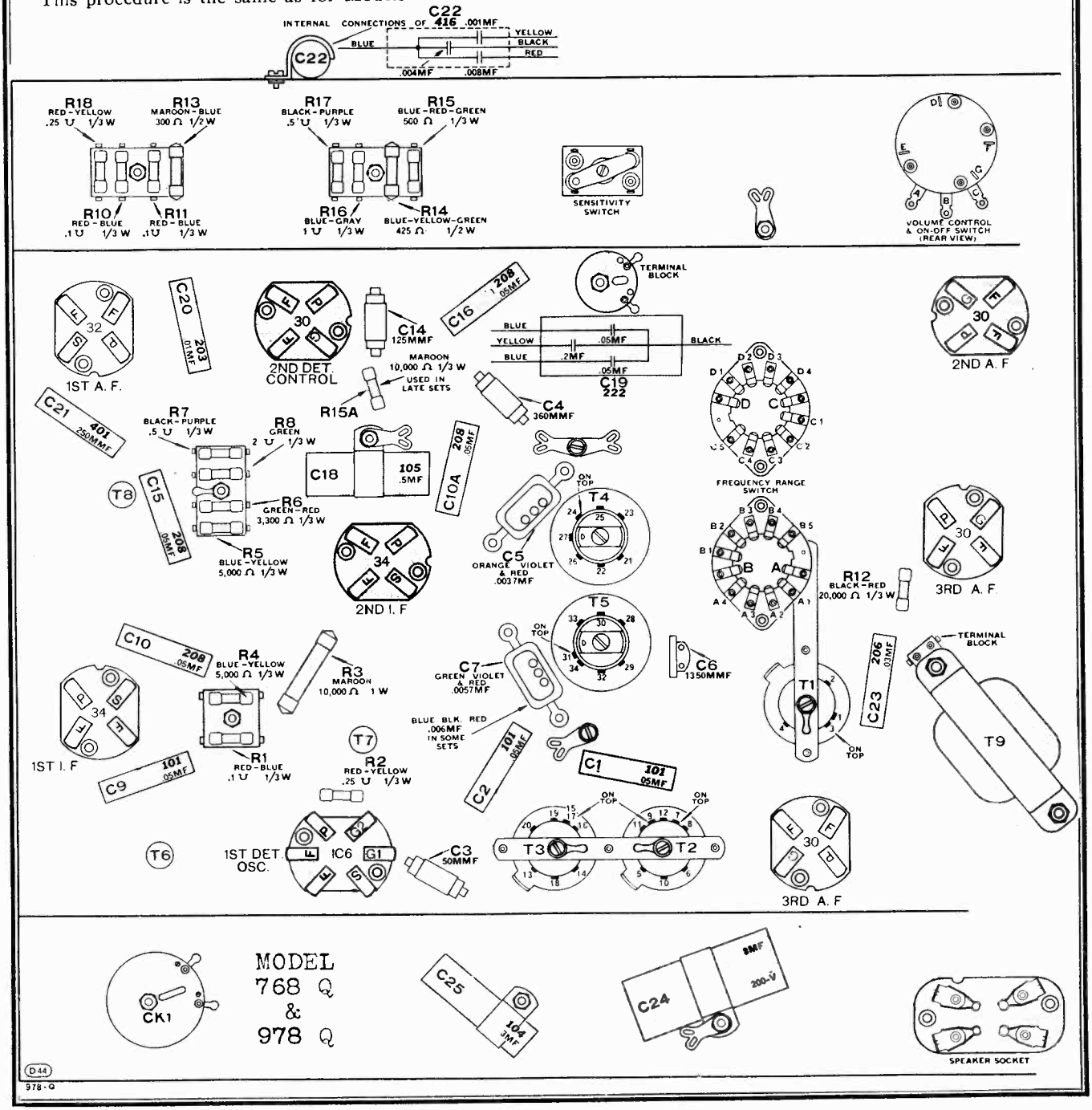
12 to 22.5 MC range. Oscillator at 18 MC, dial pointer at 18 MC, peak trimmers A11, and A5.

4.6 to 12.2 MC range. Oscillator and pointer at 12 MC, peak trimmers A8, and A3.

1.6 to 4.6 MC range. Oscillator and pointer at 4 MC, peak trimmers A10, and A4.

Tune oscillator to 1.7 with pointer at 1.7, peak A9.

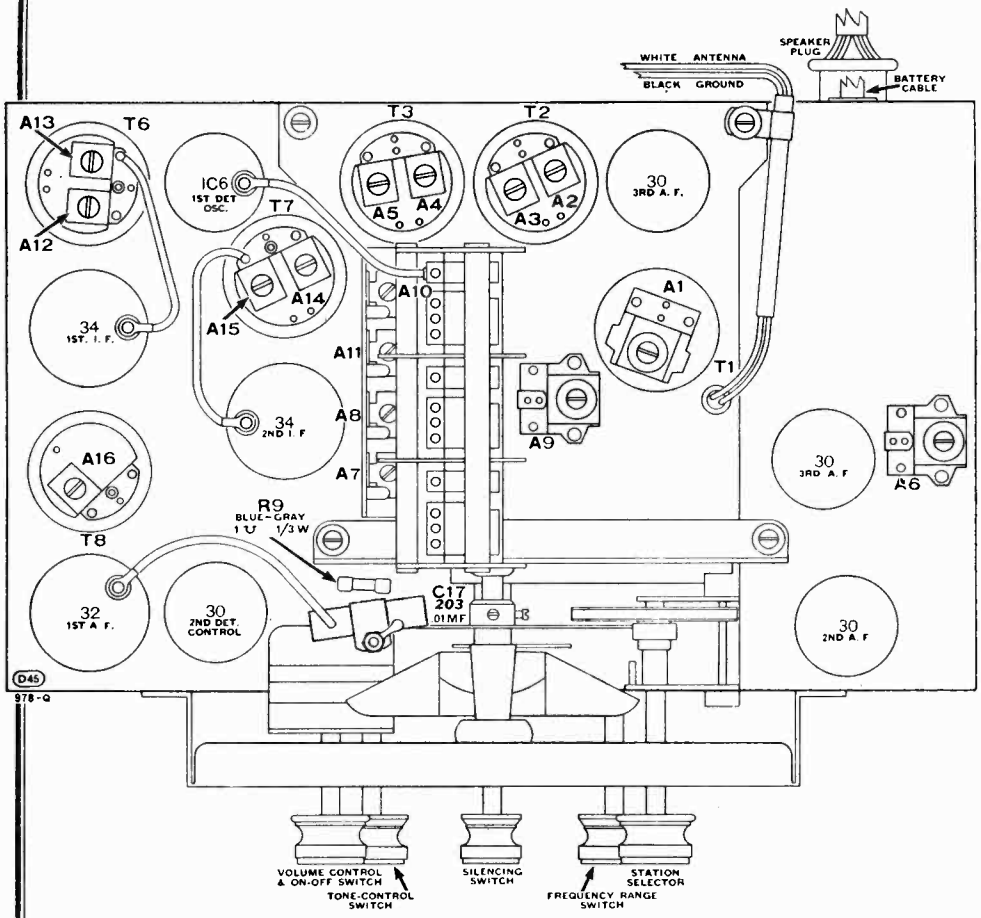
Broadcast range. Oscillator at 1500 KC, and pointer at 1500 KC, peak A7, A1, and A2. With oscillator and dial pointer at 560, peak A6.



MODELS 768Q, 978Q
Socket, Trimmers
Battery Connections

ATWATER-KENT MFG. CO.

TOP VIEW, MODELS 768Q and 978Q



TRIMMERS ON MODELS 768Q and 978Q

(See page 1 for trimmer adjustment data.)

I. F. TRIMMERS

I. F. (472½ KC)....A12 to A16

12 to 22.5 MC RANGE

1st-Det. (18 MC).....A5
Oscillator (18 MC).....A11

4.6 to 12.2 MC RANGE

1st-Det. (12 MC).....A3
Oscillator (12 MC).....A8

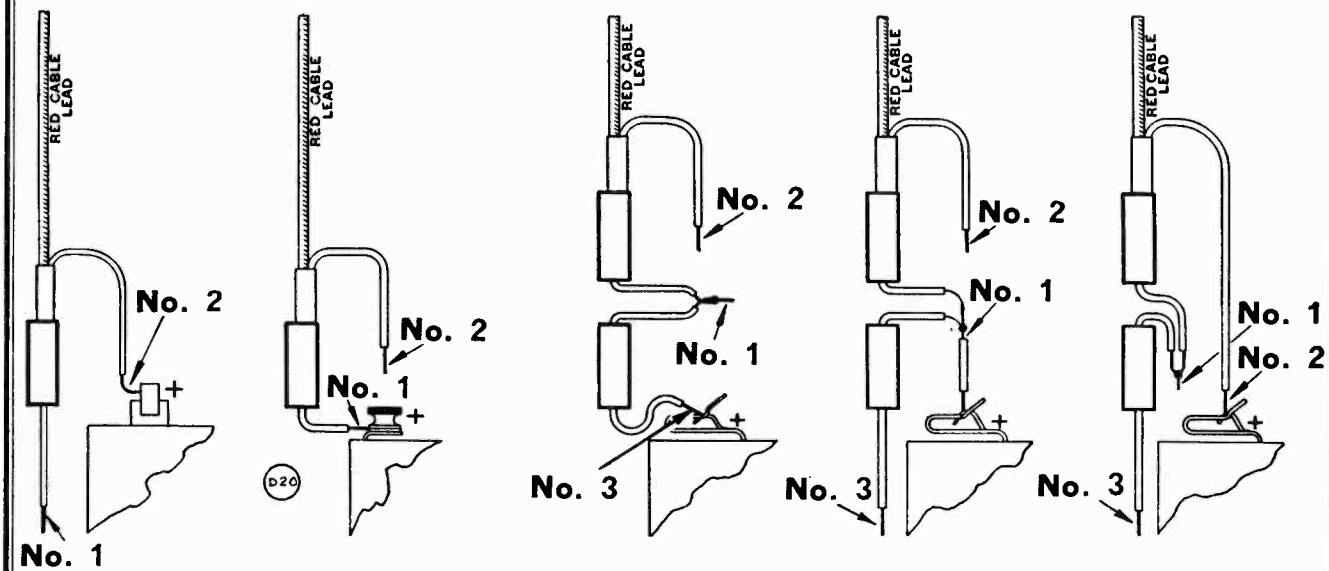
1.6 to 4.6 MC RANGE

1st-Det. (4 MC).....A4
Oscillator (4 MC).....A10
Tracking (1.7 MC).....A9

540 to 1600 KC RANGE

Antenna (1500 KC).....A1
1st-Det. (1500 KC).....A2
Oscillator (1500 KC).....A7
Tracking (560 KC).....A6

CONNECTIONS FOR DIFFERENT TYPES OF "A" BATTERIES



2-VOLT STORAGE CELL
Connect No. 2 as shown, do not use No. 1

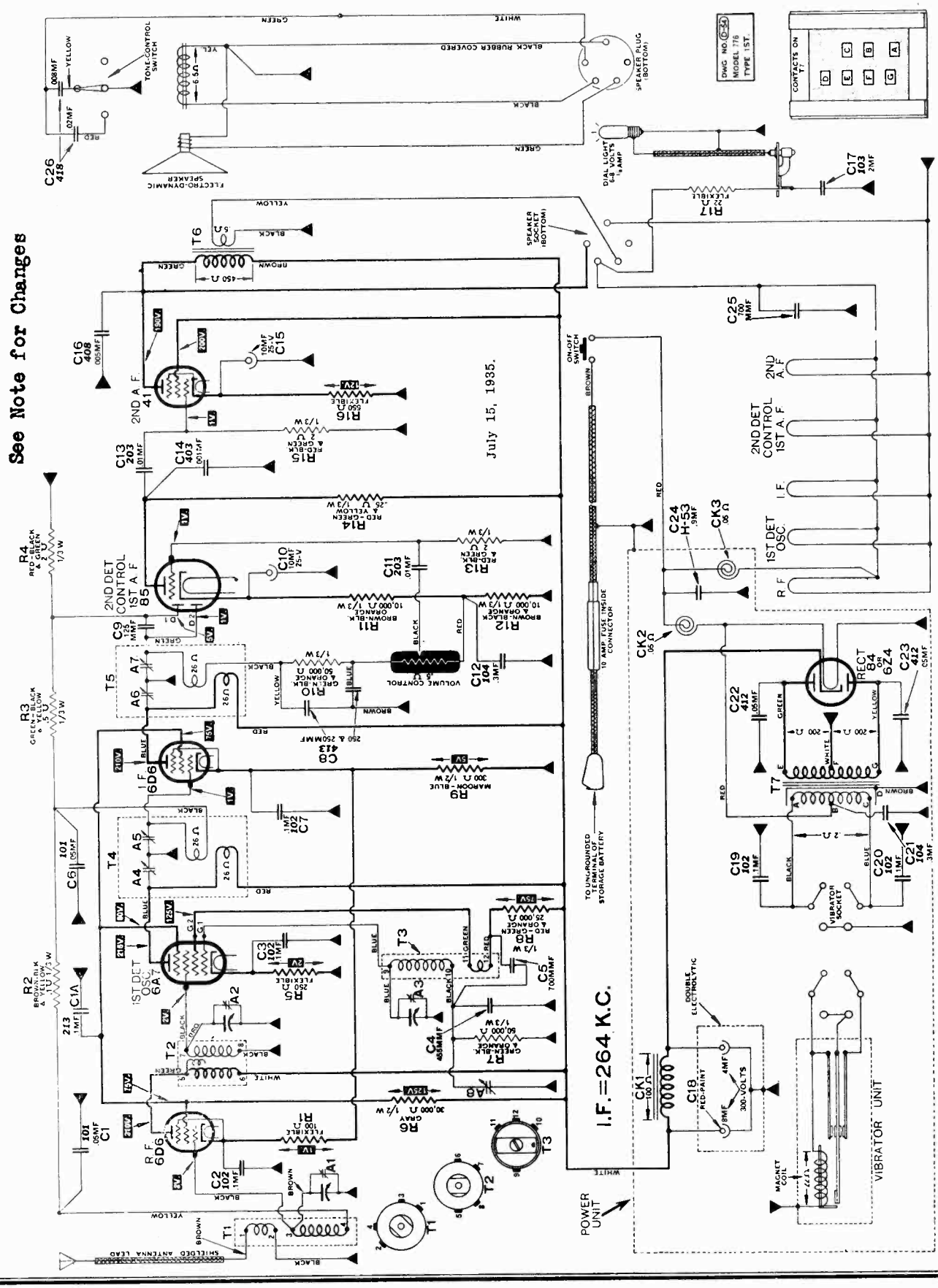
2-VOLT AIR CELL
Connect No. 1 as shown, do not use No. 2

Connections when battery is fresh | Connections after 300 hours' use | Connections after 600 hours' use

3-VOLT DRY "A" BATTERY
(Use Extra Resistor Furnished in Envelope with Set)

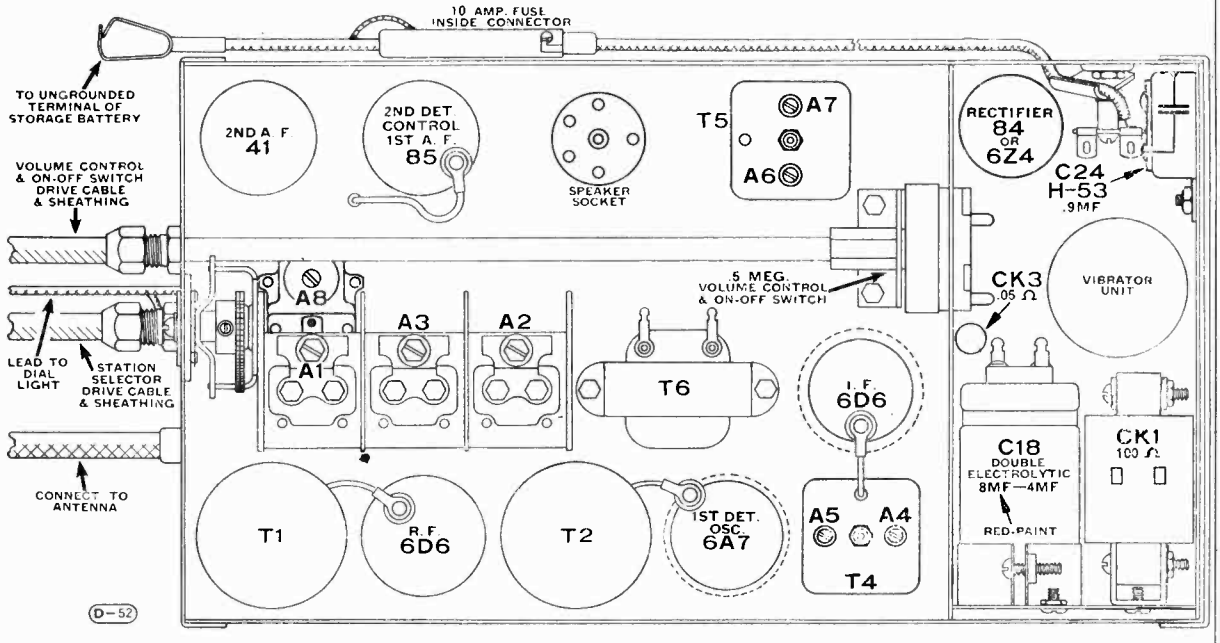
ATWATER-KENT MFG. CO.

MODEL 776
Schematic, Voltage



MODEL 776
Socket, Trimmers
Chassis
Changes

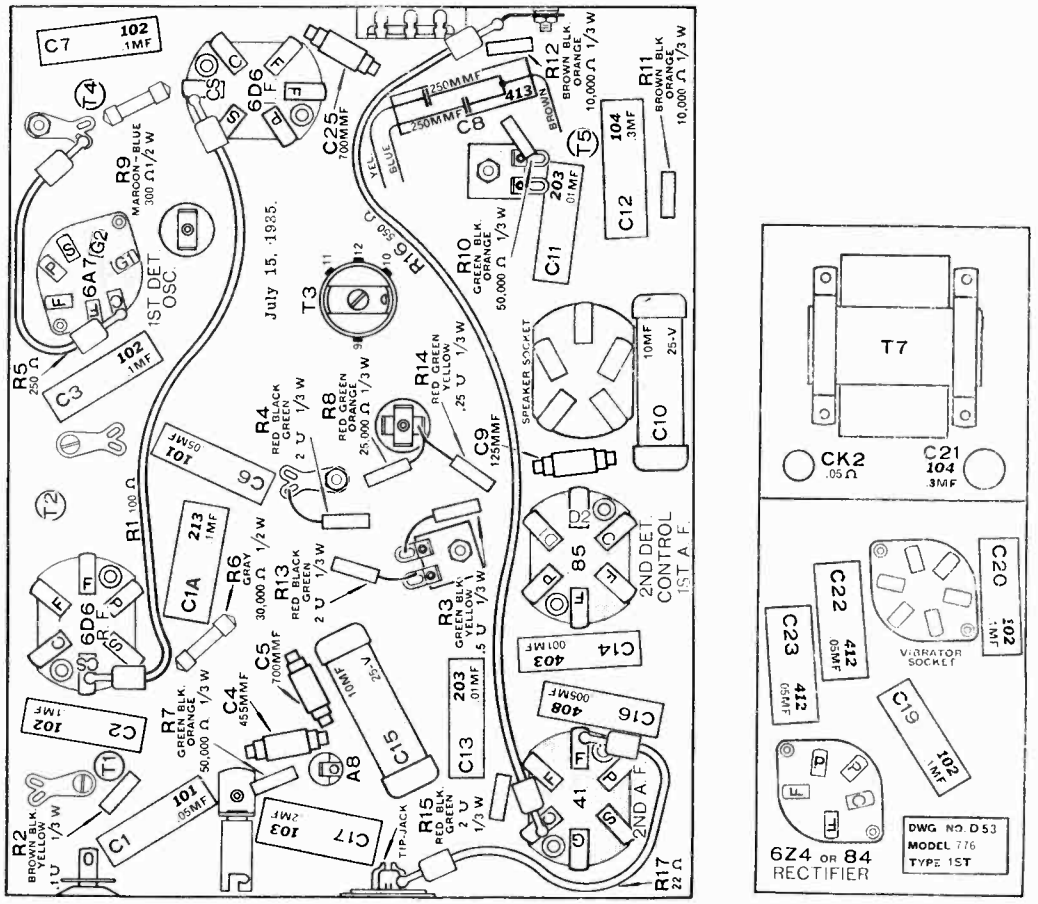
ATWATER-KENT MFG. CO.



In early sets R11 is 5,000 ohms with a drop of 4 volts and R12 is 15,000 ohms with a drop of 10 volts. In late sets these two resistors are each 10,000 ohms and there is approximately 6 volts across each. (At the same time this change was made, the 1st-A. F. plate resistor, R14 was changed from .1 meg. to .25 meg. With the .1 meg. resistor, the drop across it is 55 volts, and the plate voltage is 125. With the .25 meg. resistor, the plate voltage is lower. All voltages are measured with the 250-volt scale of a 1,000-ohm-per-volt voltmeter.)

The voltage across R11 regulates the "squelch" or minimum-signal level at which the 2nd-detector begins to function. The combined voltage across R11 and R12 acts as the bias on the AVC and the 1st-A. F. grid.

Early Model 776 sets do not have tone control, and the "A" filter circuit is slightly different from that shown. C17 in the lower right-hand part of the diagram is .2 MF.



MODEL 776
Alignment
Parts List

ATWATER-KENT MFG. CO.

PARTS LIST FOR MODEL 776

For part numbers of tubular resistors and condensers, refer to lists in previous supplements.

29296	Cabinet body, complete, less lid
29297	Inner plate with spring
29298	Tuning cable chuck and plate less nut
29225	Vol. control chuck less nut
29226	Chuck nut
26523	Rubber gasket
26128	Thumbscrew (specify gold finish)
29233	Instruction folder, F-1235
21143	Plug suppressor
21144	Distributor suppressor
23260	1 MF, 200-V. condenser (K 1)
38270	Filter cond., .5 MF (224)
26098	Antenna cable
26099	Battery cable
26611	Shipping container
26462	Variable condenser
29286	Shield for T3
27095	Shield for T1 and T2
29183	I. F. T. shield
26505	Volume control .5 U
26033	Volume control mounting bracket
29224	Volume control hex. nut
29232	Volume control shaft-tube support
29279	Volume control shaft tube
44340	Tone control switch assembly
30037	Tone control shaft and blade
26451	Tube shield (cardboard)
29094	Terminal card

SOCKETS

24493	5-prong socket
24494	6-prong socket (85, 41)
27023	6-prong socket (6D6)
26111	7-prong socket
26572	Tip jack

TRANSFORMERS

T1	38010	No. 1 R. F. T.
T2	43840	No. 2 R. F. T.
T3	43860	Osc. trans.
T4	43640	No. 1 I. F. T.
T5	43650	No. 2 I. F. T.
T6	26982	Output T.
T7	26291	Power T.

RESISTORS

R1	20040	100 Ω, flexible
R5	31830	250 Ω, flexible
R16	23780	550 Ω, flexible
R17	16840	22 Ω, flexible

CONDENSERS

C4	43910	455 MMF, 500-V.
C5	36510	700 MMF, 500-V.
C9	35290	125 MMF, 500-V.
C10, 15	25379	10 MF, 25-V. (electrolytic)
C18	26995	8 MF-4 MF, 300-V. (electrolytic)
C24	45530	.9 MF (H53)
C25	36510	700 MMF, 500-V.

TRIMMERS

A4, 5	29119	On T4
A6	29119	On T5
A7	39420	Under var. cond.

POWER UNIT

43940	Power unit complete with tube
29289	Power unit container
27005	Vibrator
27038	Vibrator cover tube
26985	5-prong socket (rectifier)
26986	6-prong socket (vibrator)
27011	Filter choke (iron core)
36630	Choke (48-turn)
29264	Clamp for 48-turn choke
29094	Terminal card
29252	"A" lead from power unit
26291	Power transformer
26995	Electrolytic cond., 4 and 8 MF, 300-V.

SPEAKER

26851	Speaker less cable
29293	Lid with metal screen
26448	Plug only
19508	Cond. clamp
26826	Cone head assem.
26827	Field coil (6.5 Ω)

CONTROL UNIT

(The key numbers refer to illustration on facing page.)

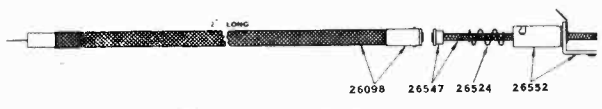
1	30001	Case
2	30003	Bezel
3	30016	Dial plate
4	30002	Crystal
5	29341	Remote control complete with mounting parts less cables
6	30011	Key knob (volume)
7	30008	Tuning knob
8	30009	Tuning knob set screw
9	30023	Case mounting screw
10	30017	Pointer shaft
11	30007	Drive-shaft retaining screw
12	30038	Key retaining spring
13	30022	Post mounting screw
14	27118	6-8-volt dial light (green)
15	30013	Dial light socket and lead less lamp
16	30005	Drive shaft (gear)
17	30004	Dial pointer
18	30021	Lock washer
19	30006	Drive-shaft washer
20	29338	Strap and bushing
21	30015	Pointer gear
22	30014	Pointer pinion gear
23	26894	"U" washer, blued
24	30012	"U" washer, flat
25	29254	Vol. control cable assem.
26	29339	Steering post mtg. bracket
27	26105	Tuning cable assem.
	30019	Sheath-clamping screw

Part Number	Description
26943	Universal mounting bracket for control unit in Models 666, 816, 926, 936, for mounting control head at lower edge of instrument panel.

The mounting plates and bracket listed below are for Model 776 control unit

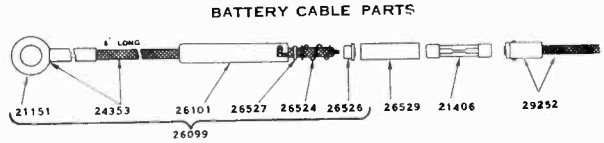
30025	1934 Ford ..... Dash finish.
30029	Universal mounting bracket for flush mounting of control head at lower edge of instrument panel. This type mounting may be used on all General Motors and other cars for which there are no mounting plates available. Also for cars which do not have the cut-out space in instrument panel.
29592	1935 Chrysler Air Stream ..... Vertical wood-grain finish.
30027	1935 Plymouth, Dodge, DeSoto ..... Horizontal wood-grain finish.
29591	1935 Ford ..... Taupe finish.
30028	1935 Hudson and Terraplane ..... Dash finish.
30026	1934 Chrysler, Plymouth, Dodge ..... Black finish.

ANTENNA CABLE PARTS



Ω = ohms. U = megohms.

BATTERY CABLE PARTS



I. F. COUPLING UNIT. Purchase from your distributor one of the special Atwater Kent I. F. coupling units No. 42590. This is placed on the grid cap of the I. F. or the 1st-detector tube, as specified, and the lead that normally connects to the grid cap is attached to the coupling unit.

GENERAL NOTES.

1. Do not tamper with the trimmer adjustments unless the necessity is clearly apparent.

2. On the oscillator trimmer there are two different settings at which the signal will be received. Always use the *first* of these two positions as you screw the trimmer in from a loose or minimum-capacity position. THIS IS IMPORTANT.

3. Check the I. F. trimmers first.

4. In checking the set, do not disturb the position of the wiring any more than necessary.

DIAL CALIBRATION.

The dial calibration depends on the oscillator circuit of the set, providing that the I. F. trimmers are correctly aligned to their specified frequency. The pre-selector (R. F. and 1st-detector) trimmers do not affect the dial calibration, but simply affect sensitivity.

The oscillator trimmer is used to adjust the high-frequency end of the scale.

The oscillator tracking condenser adjusts the low-frequency end of the scale.

If adjustment of the oscillator trimmer and the oscillator tracking trimmer condenser does not correct the dial readings, it may be necessary to replace the fixed oscillator tracking condenser or the oscillator transformer.

Naturally the I. F. trimmers should be checked and adjusted, if necessary, before any attempt is made to align the R. F. or oscillator trimmers.

PROCEDURE

I. F. TRIMMERS.

Connect I. F. test oscillator (264 KC) to I. F. tube by means of the regular I. F. coupling unit. Peak A6, A7. Connect I. F. oscillator to 1st-detector tube and peak A4, A5.

DIAL POINTER ADJUSTMENT.

Connect oscillator (560 KC) to antenna and ground and peak A8 while rocking the variable condenser for maximum sensitivity. Then adjust dial pointer to 560 KC mark by turning the adjustment nut at rear of control unit.

R. F. TRIMMERS.

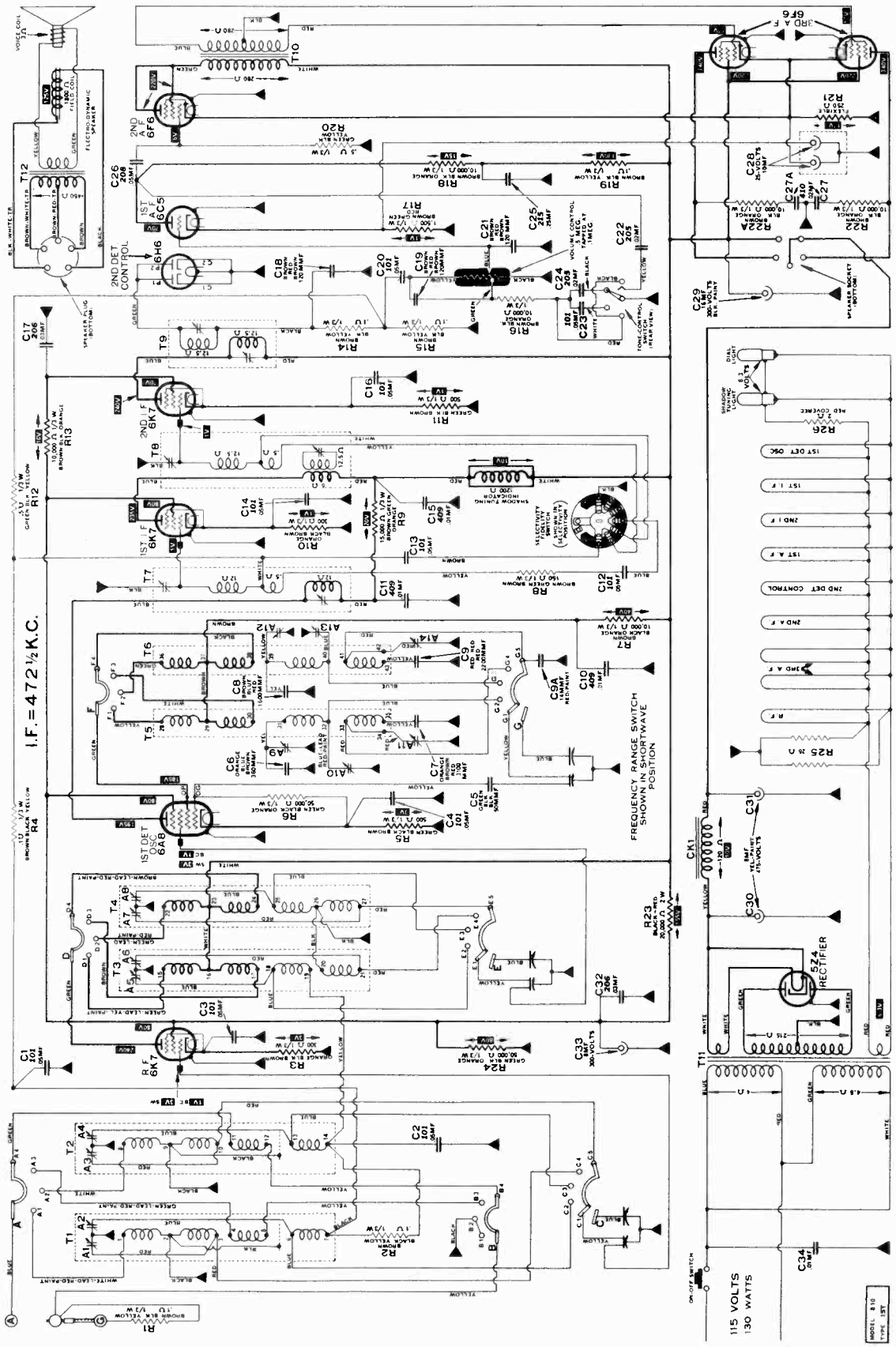
Connect R. F. oscillator to antenna and ground of set.

With oscillator and dial at 1500 KC, peak A3, A2, A1. Check frequency alignment at 560 KC.

Part Number	Description
21144	Distributor suppressor, 15,000 Ω.
27943	.5 MF, 200-V., condenser for Ford cars.
21143	Plug suppressor, 15,000 Ω.
23520	Ignition filter. (Used in early models of Atwater Kent motor car receivers.)
38270	.5 MF, 200-V. condenser.
23260	1 MF, 200-V., condenser (K1)

MODEL 810
Schematic, Voltage

ATWATER-KENT MFG. CO.

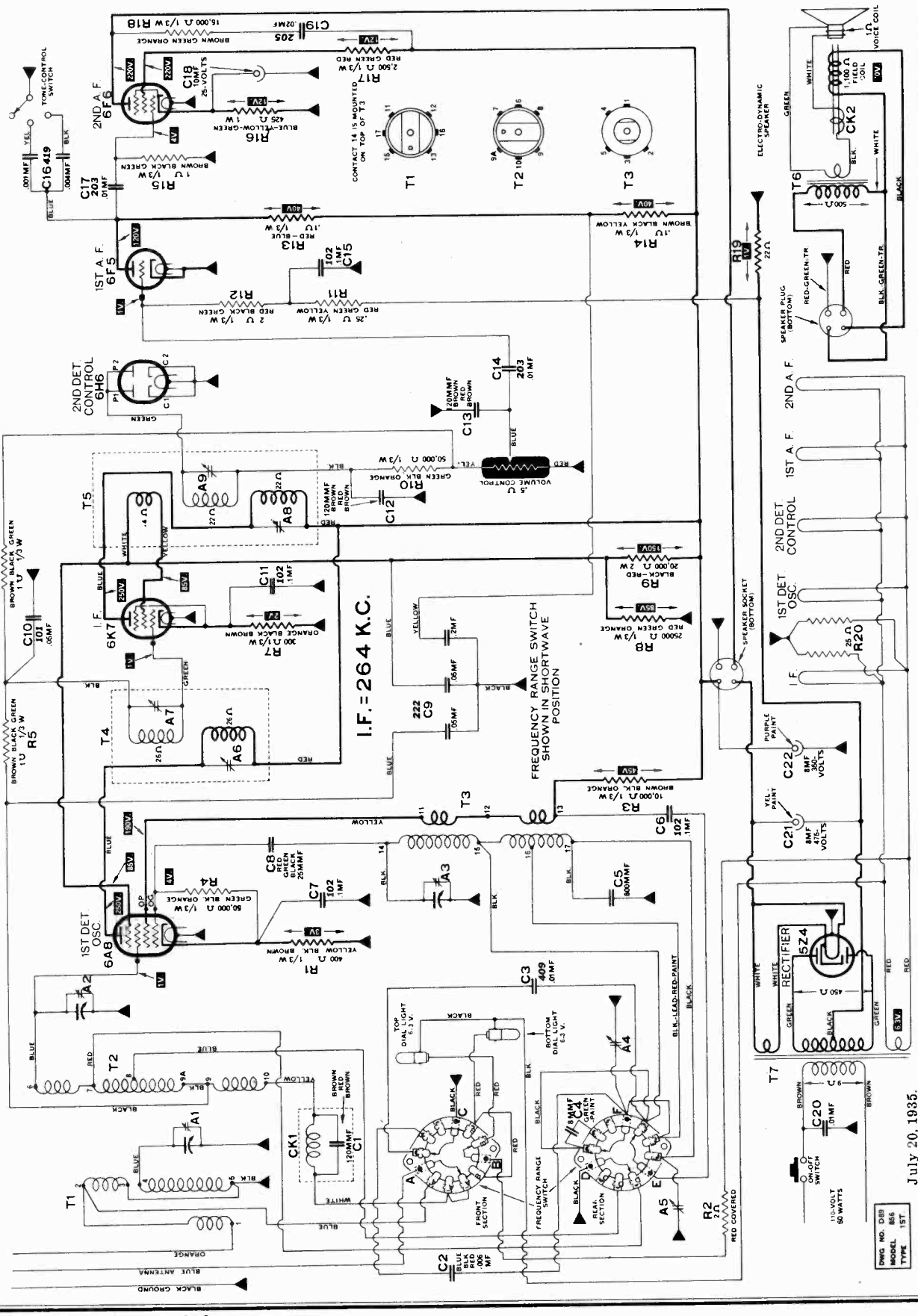


MODELS 856,976 (Early)
Schematic, Voltage

ATWATER-KENT MFG. CO.

MODELS 856 AND 976

For Alignment Data
See Index.



MODELS 237Q,467Q
MODELS 317,337
MODELS 856,976
Trimmers,Alignment

ATWATER-KENT MFG. CO.

ATWATER KENT RADIO

ADJUSTING TRIMMER CONDENSERS

MODELS 237Q, 317, 328, 337, 467Q, 649, 810, 856 AND 976

GENERAL DATA.

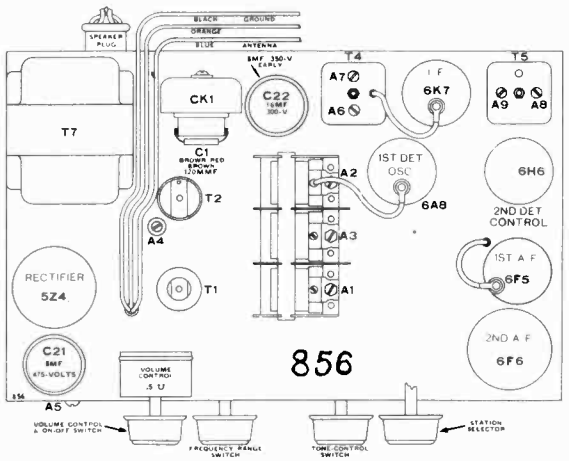
When adjusting trimmers, keep the radio volume control turned on full, keep the tone control at "high," and turn the selectivity-fidelity switch (used in some models) to "selectivity."

Use the weakest possible oscillator signal that will give a reading on a sensitive output meter.

Use an Atwater Kent No. 42590 coupling unit to couple the I. F. oscillator to set. The coupling unit may be purchased from any Atwent Kent distributor, and is a necessity for correct I. F. alignment of Atwater Kent receivers.

On trimmers in the oscillator circuit, it may be found that there are two peaks (one peak where the oscillator frequency is higher than the signal by an amount equal to the I. F. frequency, and the second peak where the oscillator is lower than the signal by an amount equal to the I. F. frequency). The first peak (as the trimmer is screwed in from a loose or minimum-capacity position) is the correct peak.

On the 5- and 6-tube models, always peak the short-wave oscillator trimmer, which is mounted on variable condenser, before peaking the broadcast trimmer.



MODELS 856 AND 976

I. F. TRIMMERS.

Connect I. F. test oscillator (264 KC) to I. F. tube by means of regular I. F. coupling unit No. 42590. Peak A9 and A8. Connect I. F. oscillator to the 1st-detector grid and peak A7 and A6.

DIAL POINTER ADJUSTMENT.

With the variable condenser fully meshed, the dial pointer should be set at 535 KC.

R. F. TRIMMERS.

Connect an R. F. oscillator to the antenna and ground terminals of set.

Short-wave range. With oscillator and dial at 18 MC, peak A3.

Police range. No trimmers on this range.

Broadcast range. With oscillator and dial at 1500 KC, peak A4, A2 and A1. With oscillator and dial at 560 KC, peak A5.

MODELS 317 AND 337

I. F. TRIMMERS.

Connect I. F. test oscillator (472½ KC) to I. F. tube by means of regular I. F. coupling unit No. 42590. Peak A9 and A10. Connect I. F. oscillator to grid of 1st-detector and peak A7 and A8.

DIAL POINTER ADJUSTMENT.

With variable condenser fully meshed, the dial pointer should be set at 538 KC.

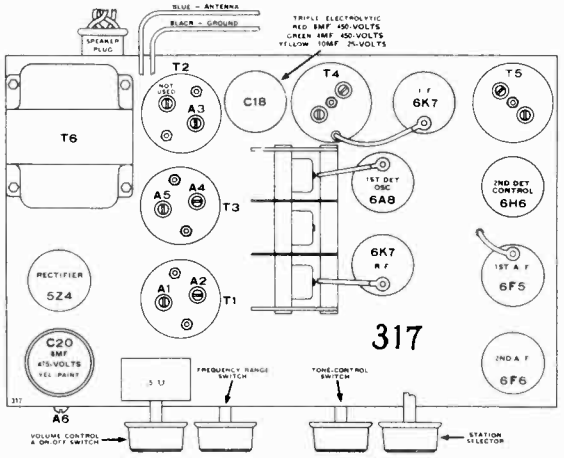
R. F. TRIMMERS.

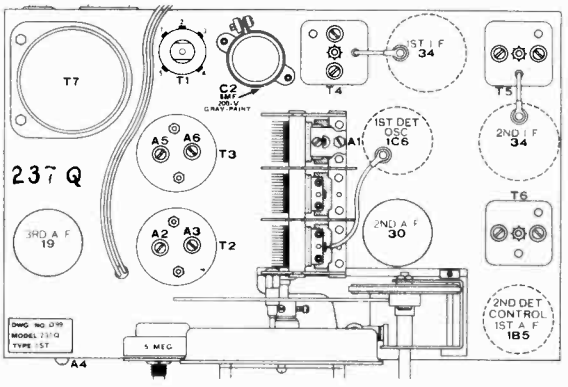
Connect an R. F. test oscillator to the antenna and ground leads of set.

Short-wave range. With oscillator and dial at 18 MC, peak A5 and A2.

Police range. No trimmer adjustments on this range.

Broadcast range. With oscillator and dial at 1500 KC, peak A4, A3 and A1. With oscillator and dial at 560 KC, peak A6.





MODELS 237Q AND 467Q

I. F. TRIMMERS.

Connect I. F. test oscillator (472½ KC) to 2nd-I. F. grid by means of regular I. F. coupling unit No. 42590. Peak two trimmers on top of T6.

Connect oscillator to 1st-I. F. grid and peak two trimmers on top of T5.

Connect oscillator to 1st-detector grid and peak two trimmers on T4.

DIAL POINTER ADJUSTMENT.

With the variable condenser fully meshed, the dial pointer should be set slightly below 540 KC.

R. F. TRIMMERS.

Connect an R. F. oscillator to the antenna and ground leads of set.

Short-wave range. Oscillator at 18 MC, and dial pointer at 18 MC, peak A6 and A3.

Police range. No trimmer adjustments for this range.

Broadcast range. Oscillator at 1500 KC, and dial pointer at 1500 KC, peak A5, A2 and A1. Tune oscillator to 560 KC, and with dial pointer at 560 KC mark, peak A4. Repeat adjustment of A5 at 1500 KC and A4 at 560 KC, if necessary.

ATWATER-KENT MFG. CO.

TRIMMERS ON MODEL 810

	12 to 18 MC range	4.6 to 12.2 MC range	1.6 to 4.6 MC range	540 to 1600 KC range
R. F.	A3	A1	A4	A2
1st-DET.	A7	A6	A8	A5
OSCILLATOR	A14	A11	A13	A10
TRACKING			A12	A9

There are six I. F. trimmers, two on top of each I. F. transformer (T7, 8, 9). These are adjusted at 472½ KC.

MODELS 328 AND 649

I. F. TRIMMERS.

Connect I. F. test oscillator (472½ KC) to grid of 2nd-I. F. tube by means of regular I. F. coupling unit No. 42590. Peak two trimmers on top of T6. Connect I. F. oscillator to grid of 1st-I. F. and peak two trimmers on top of T5. Connect I. F. oscillator to grid of 1st-detector and peak two trimmers on top of T4.

DIAL POINTER ADJUSTMENT.

Refer to instructions under Model 810.

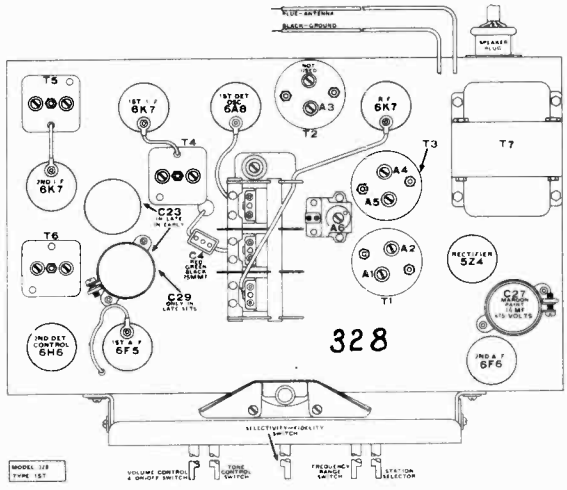
R. F. TRIMMERS.

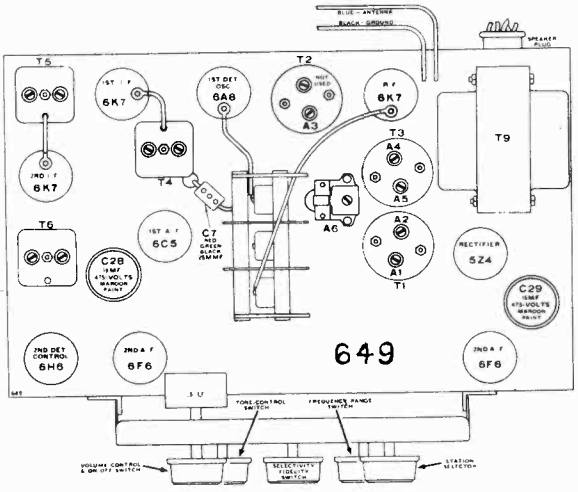
Connect an R. F. test oscillator to the antenna and ground terminals of set. Loosen the trimmer screws for the range or ranges that are to be adjusted.

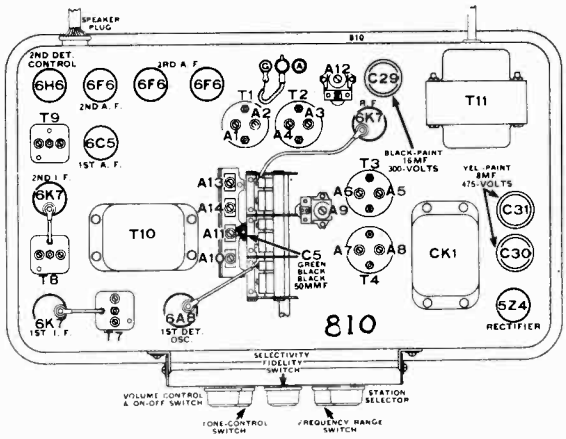
Short-wave range. Oscillator at 18 MC, dial at 18 MC, peak A5 and A2.

Police range. No trimmer adjustments for this range.

Broadcast range. Oscillator at 1500 KC and dial at 1500 KC, peak A4, A3 and A1. Oscillator and dial at 560 KC, peak A6.







MODEL 810

I. F. TRIMMERS.

Connect a sensitive output meter to set. Connect I. F. test oscillator (472½ KC) to grid cap of 2nd-I. F. tube, using an Atwater Kent No. 42590 coupling unit. Use the weakest possible oscillator signal that will give a reading on the output meter, and peak two trimmers on T9.

Connect oscillator to 1st-I. F. grid cap and peak two trimmers on T8.

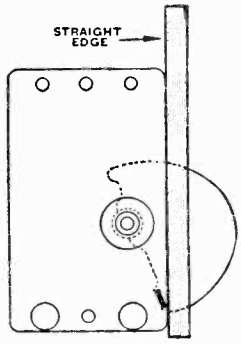
Connect oscillator to 1st-detector grid cap and peak two trimmers on T7.

DIAL POINTER ADJUSTMENT.

If the dial gear and indicator have been changed in any way, reset as follows:

1. Loosen the two set screws which hold pointer gear on condenser shaft.
2. Turn condenser to minimum.
3. See illustration below. Place straight-edge gauge in vertical position with the long flat face against the front mounting plate of the variable condenser as shown. Turn the condenser until the front edge of the rotor spacing bar just touches the straight edge. Hold the condenser in this position and move the pointer arm so the pointer is at 1520 KC (1580 KC in 328, 649), after which tighten the set screws to hold the dial gear securely.
4. Loosen the screws which hold the pointer to the pointer arm, and adjust the pointer so that when the condenser is completely meshed, the pointer is at 535 KC.

Recheck at 1520 KC (1580 KC in 328, 649) and repeat procedure 3 and 4, if necessary.



This illustration shows the correct position of the variable condenser rotor for a dial pointer setting of 1520 KC (1580 KC in 328, 649). The straight edge is held firmly against the front mounting plate of the variable condenser and the rotor is turned so the spacing bar (shown as a small black oblong) is just touching the straight edge. The straight edge is a strip of bakelite or hard rubber ¼" thick, ⅝" wide, and 6" long. The ⅝" side is held against the mounting plate.

R. F. TRIMMERS.

12 to 18 MC range. Oscillator and dial pointer at 18 MC, peak A14, A7 and A3.

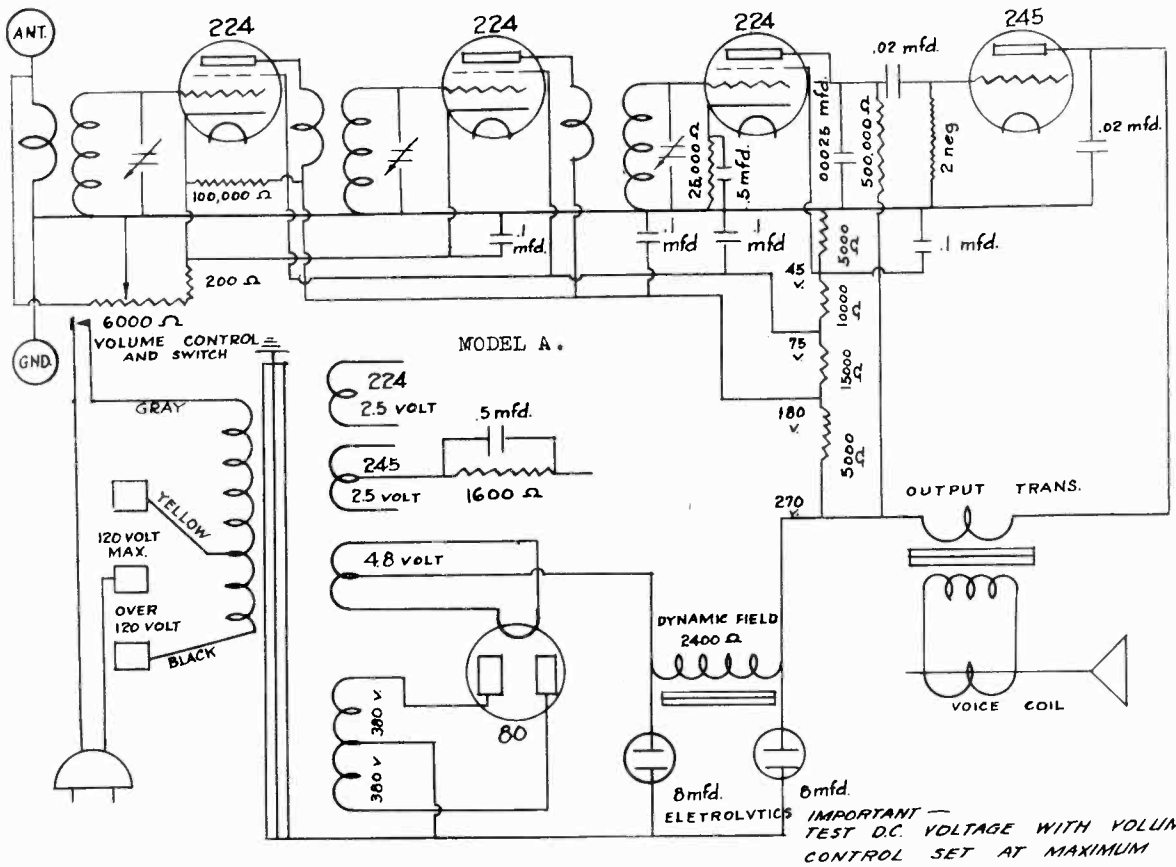
4.6 to 12.2 MC range. Oscillator and pointer at 12 MC, peak A11, A6 and A1.

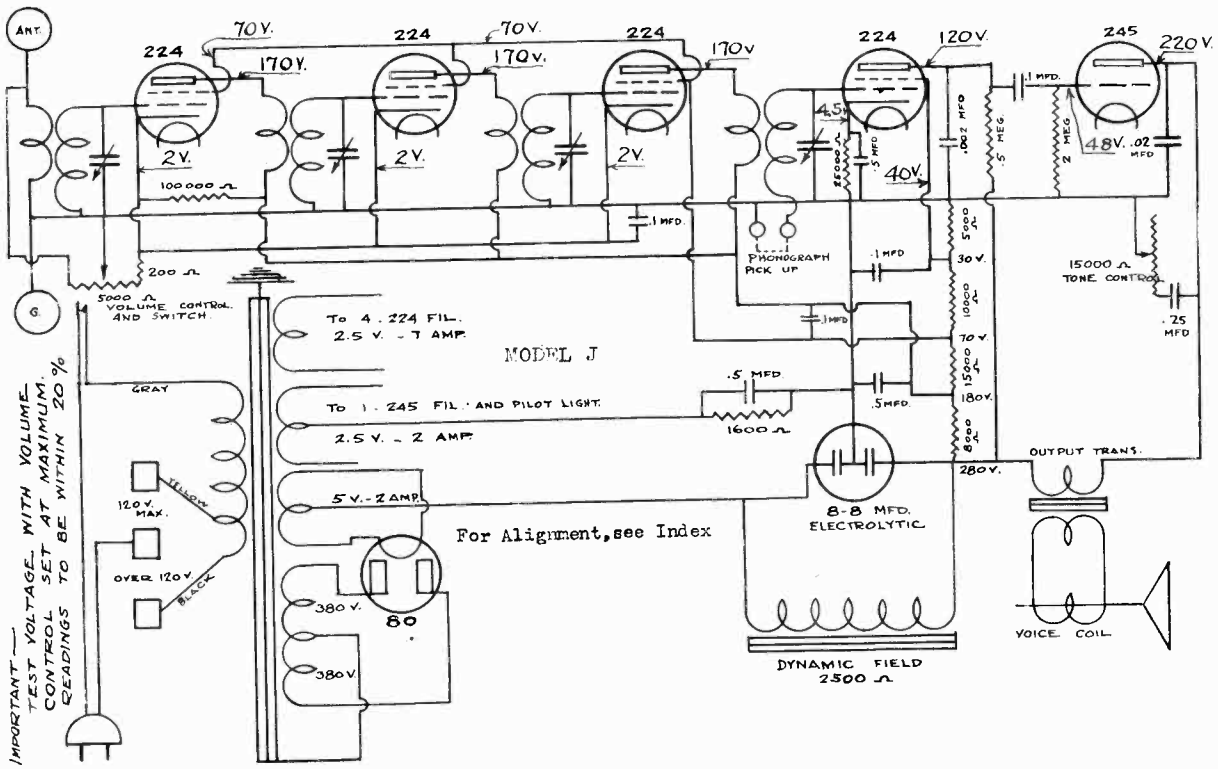
1.6 to 4.6 MC range. Oscillator and pointer at 4 MC, peak A13, A8 and A4. Tune oscillator to 1.7 MC, and with pointer at 1.7, peak A12.

540 to 1600 KC range. Oscillator and pointer at 1500 KC, peak trimmers A10, A5 and A2. Oscillator and pointer at 540 KC, peak A9.

AUSTIN RADIO MFG. CO.

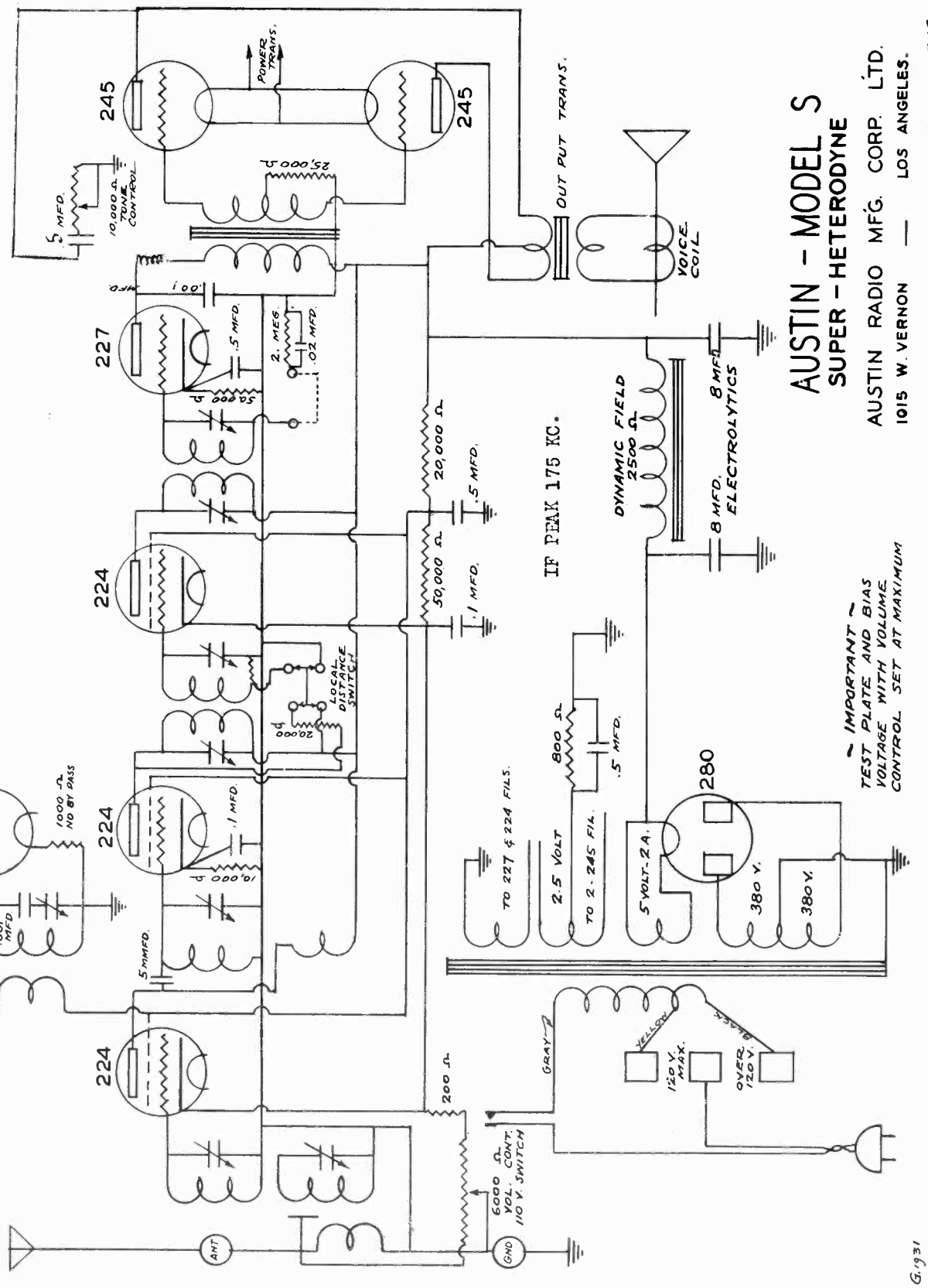
MODEL A
MODEL J
Schematic, Voltage





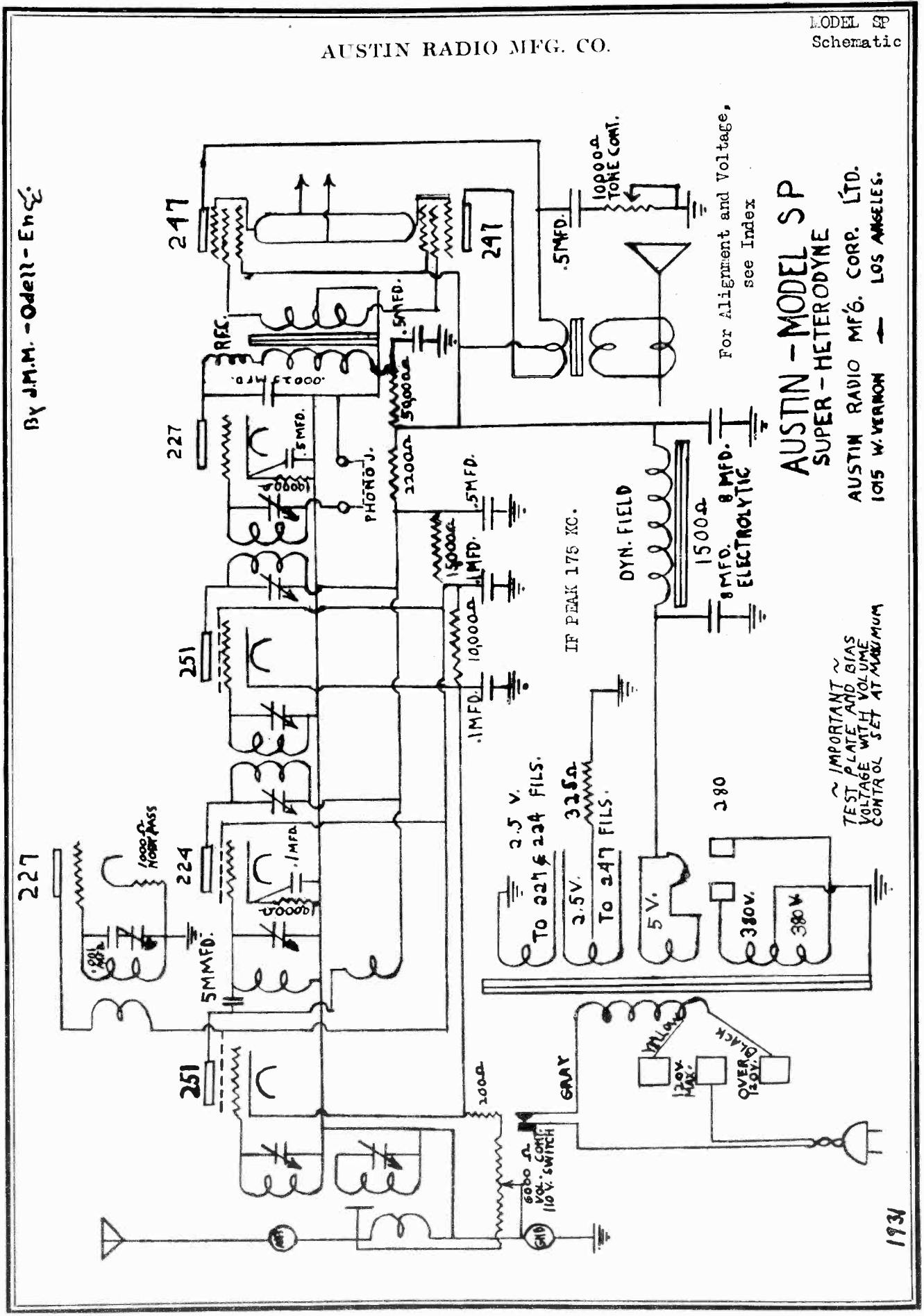
MODEL S
Schematic

AUSTIN RADIO MFG. CO.



AUSTIN RADIO MFG. CO.

MODEL SP
Schematic



MODEL J
MODEL SP
Alignment, Voltage

AUSTIN RADIO MFG. CO.

MODEL SP

(a) Intermediate frequency amplifier adjustment.
The intermediate frequency amplifier has four tuning adjustments, accessible thru holes underneath the chassis. The amplifier should be peaked at 175 kilocycles.

(b) Tuning condenser adjustment.
The four gang tuning condenser has four trimming condensers located on the top of the condenser unit. These should be all set at maximum (clockwise) and then reversed one full revolution. Set condenser dial at approximately 1350 K.C. and re-adjust all trimmers for maximum response. Then set condenser at approximately 650 K.C. and obtain maximum response by bending the split roter plates.

Testing

All plate, screen, cathode or bias voltage readings must be made with a volt meter having a resistance of at least 1000 ohms per volt. Readings should be taken with the volume control full on with no signal.

R.F. amplifier plate voltage	190
Oscillator plate	60
Het. Det. plate	190
I. F. plate	190
Det. plate	110
Audio plate	230
R.F. & I.F. screens	60
R.F. cathode	2.8
Osc. cathode	2.5
Het. Det. cathode	4.8
I.F. cathode	3
Det. cathode	8.2
Audio bias	18
Audio screen bias	248

Balancing

MODEL J

Set all trimmer condensers on the gang variable condenser to maximum by turning adjusting screws to right (clockwise) and then reverse one complete revolution. Tune some station in at approximately 1400 kilocycles on the dial and adjust all trimmers for maximum signal strength. Next turn dial to approximately 700 kilocycles. Bend the split rotor plates on the variable gang condenser to accomplish the same condition of maximum signal strength.

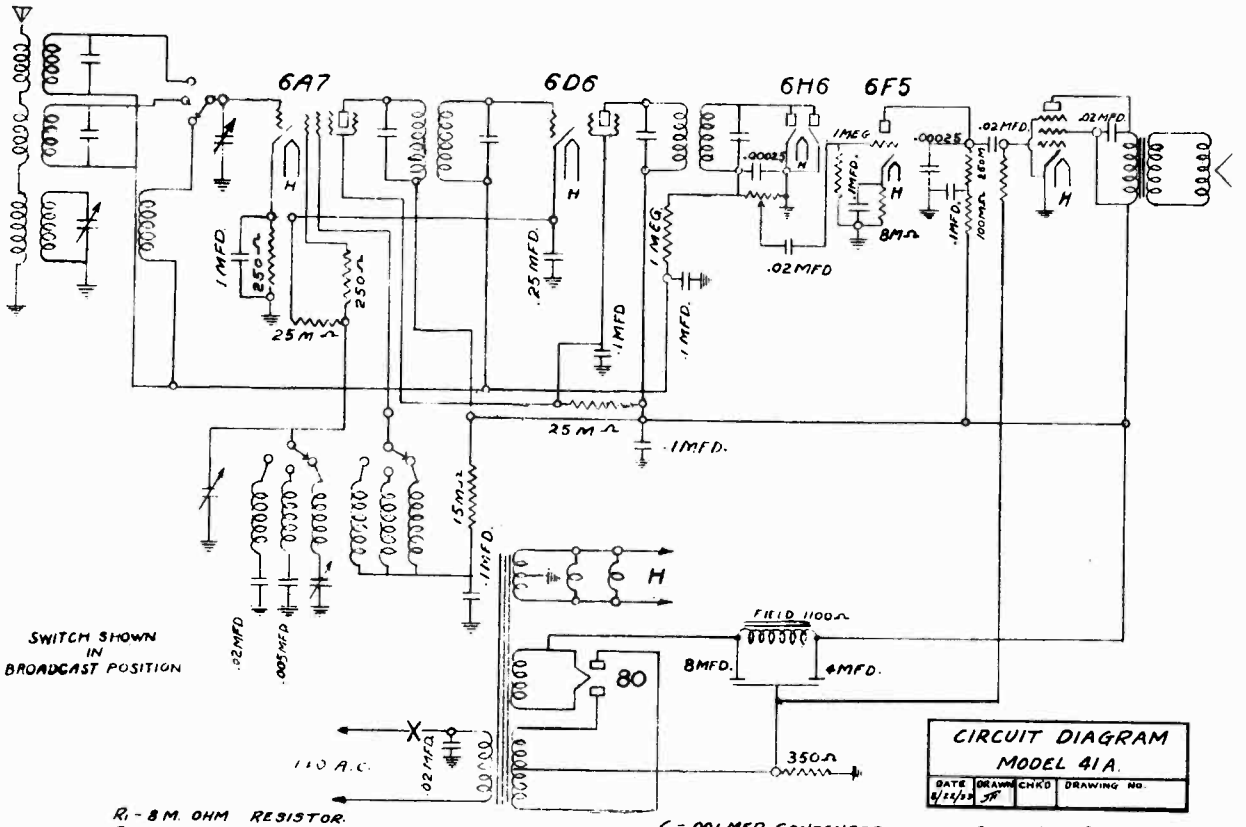
Testing

All readings of direct current voltage should be made with a high resistance voltmeter of at least 1000 ohms per volt. The following readings should be obtained with an allowable variation of 15%, with volume control set at maximum.

R.F. Plate voltage		170.
R.F. Screen	"	70.
R.F. Cathode	"	2.
Det. Plate	"	120.
Det. Screen	"	40.
Det. Cathode	"	4.5
Audio Plate	"	220.
Audio Bias	"	48.

MODEL GT-16A
MODEL 41-A
Schematics

BALKEIT RADIO CO.



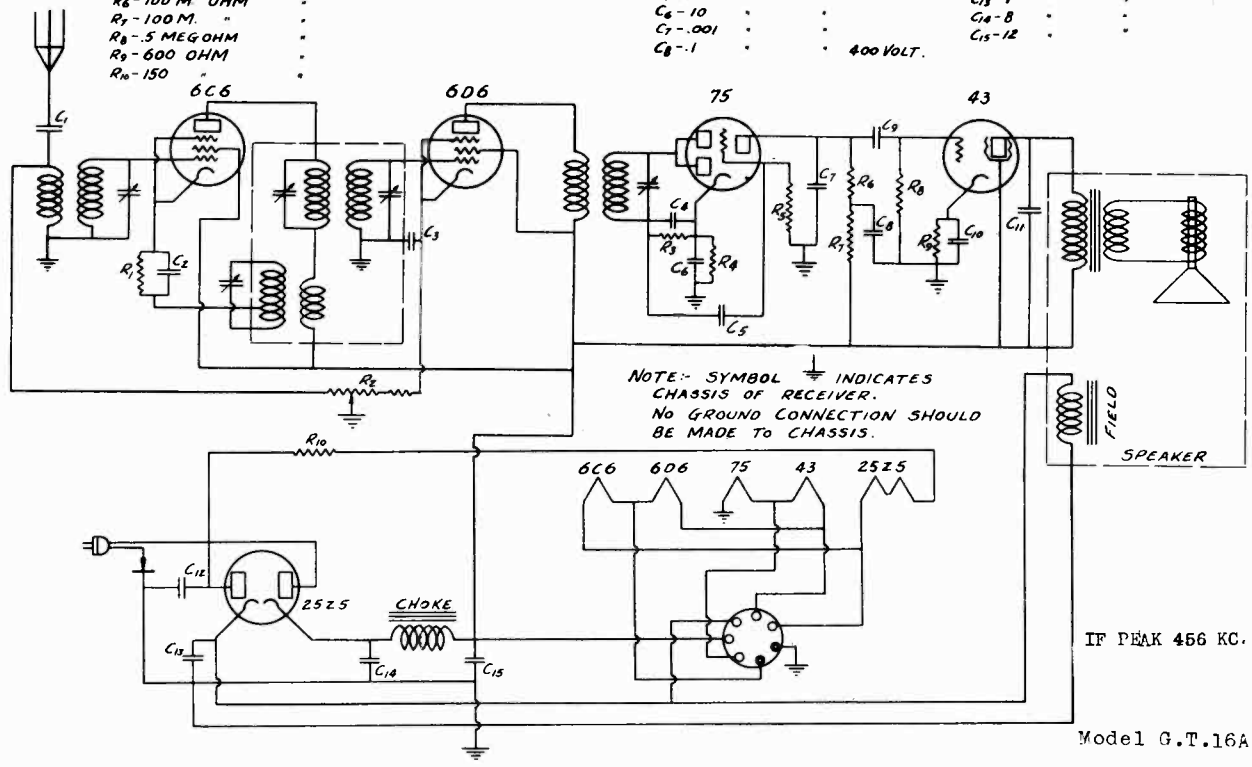
CIRCUIT DIAGRAM
MODEL 41A.

DATE	DRAWN	CHK'D	DRAWING NO.
8/24/33	JF		

R_1 - 8 M. OHM RESISTOR.
R_2 - 300 M. OHM VOLUME CONTROL WITH 250 OHM FIXED BIAS RESISTOR.
R_3 - .5 MEGOHM RESISTOR.
R_4 - 8 M. OHM "
R_5 - .5 MEGOHM "
R_6 - 100 M. OHM "
R_7 - 100 M. "
R_8 - .5 MEGOHM "
R_9 - 600 OHM "
R_{10} - 150 "

C_1 - .001 MFD. CONDENSER
C_2 - .002 " "
C_3 - .1 " "
C_4 - .00015 " "
C_5 - .01 " "
C_6 - 10 " "
C_7 - .001 " "
C_8 - .1 " " 400 VOLT.

C_9 - .01 MFD. CONDENSER
C_{10} - 10 " "
C_{11} - .006 " "
C_{12} - .01 " "
C_{13} - 4 " "
C_{14} - 8 " "
C_{15} - 12 " "



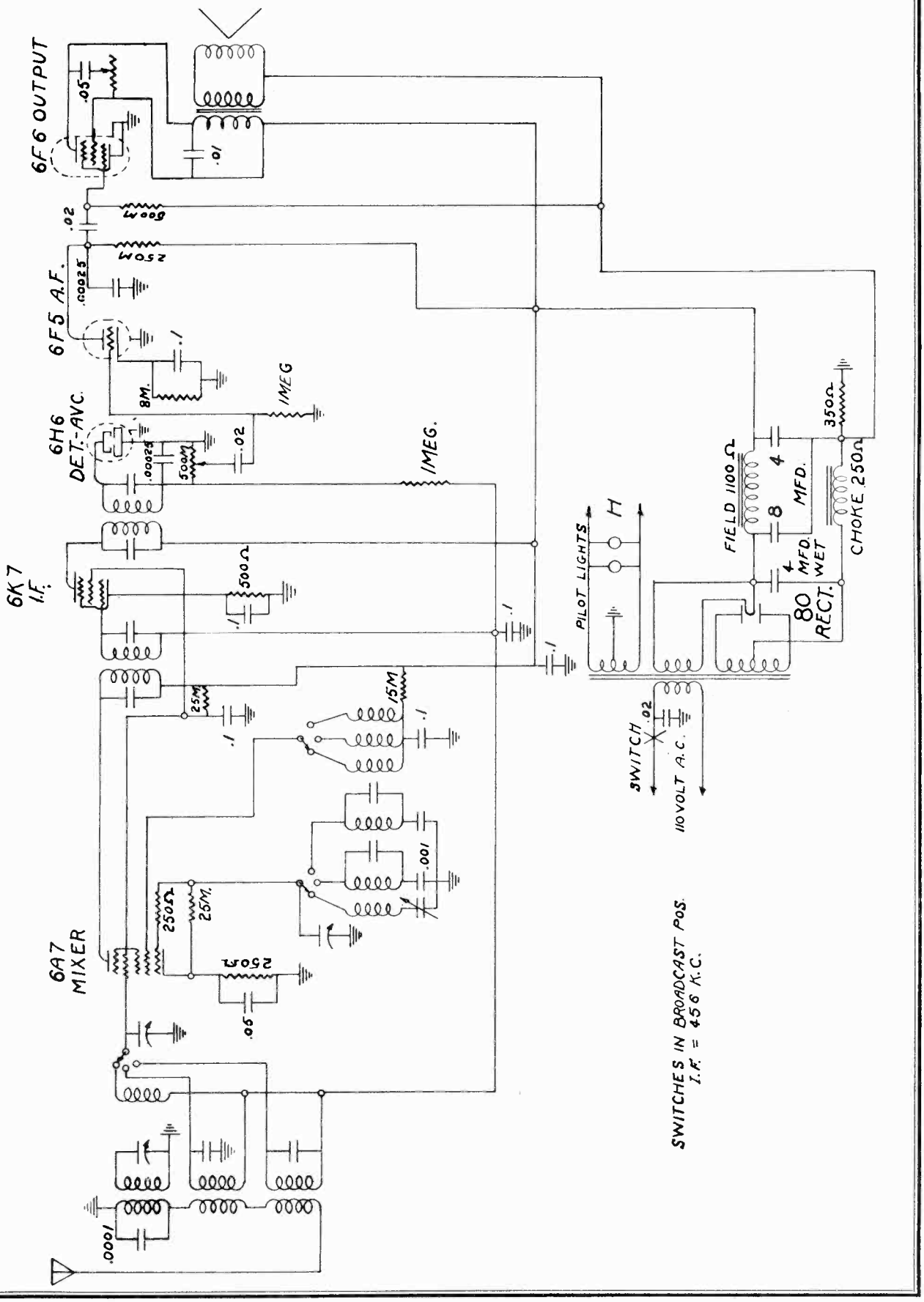
NOTE:- SYMBOL ⏚ INDICATES CHASSIS OF RECEIVER. NO GROUND CONNECTION SHOULD BE MADE TO CHASSIS.

IF PEAK 456 KC.

Model G.T.16A

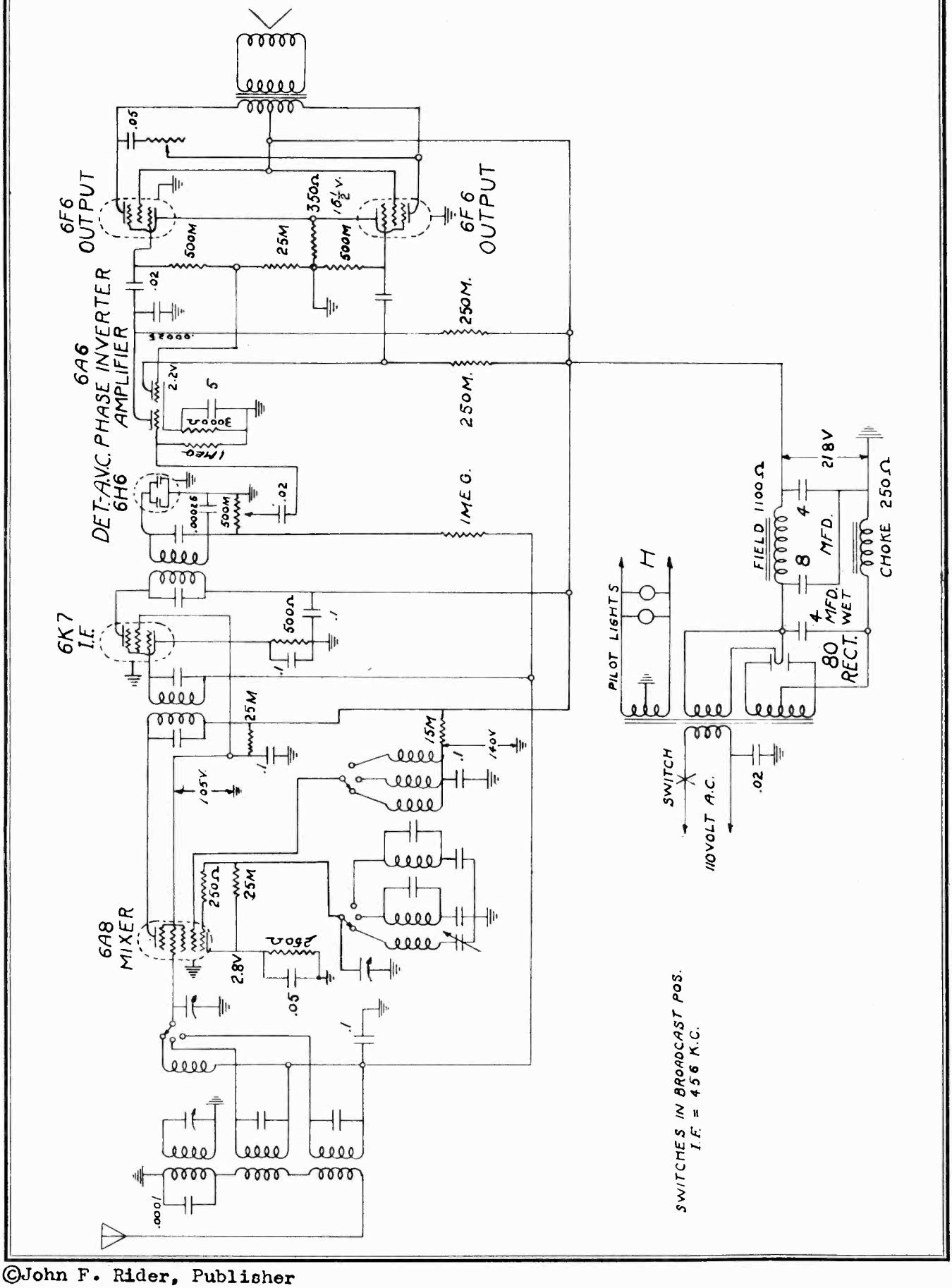
MODELS G-18A, G-19B
Schematic

BALKEIT RADIO CO.



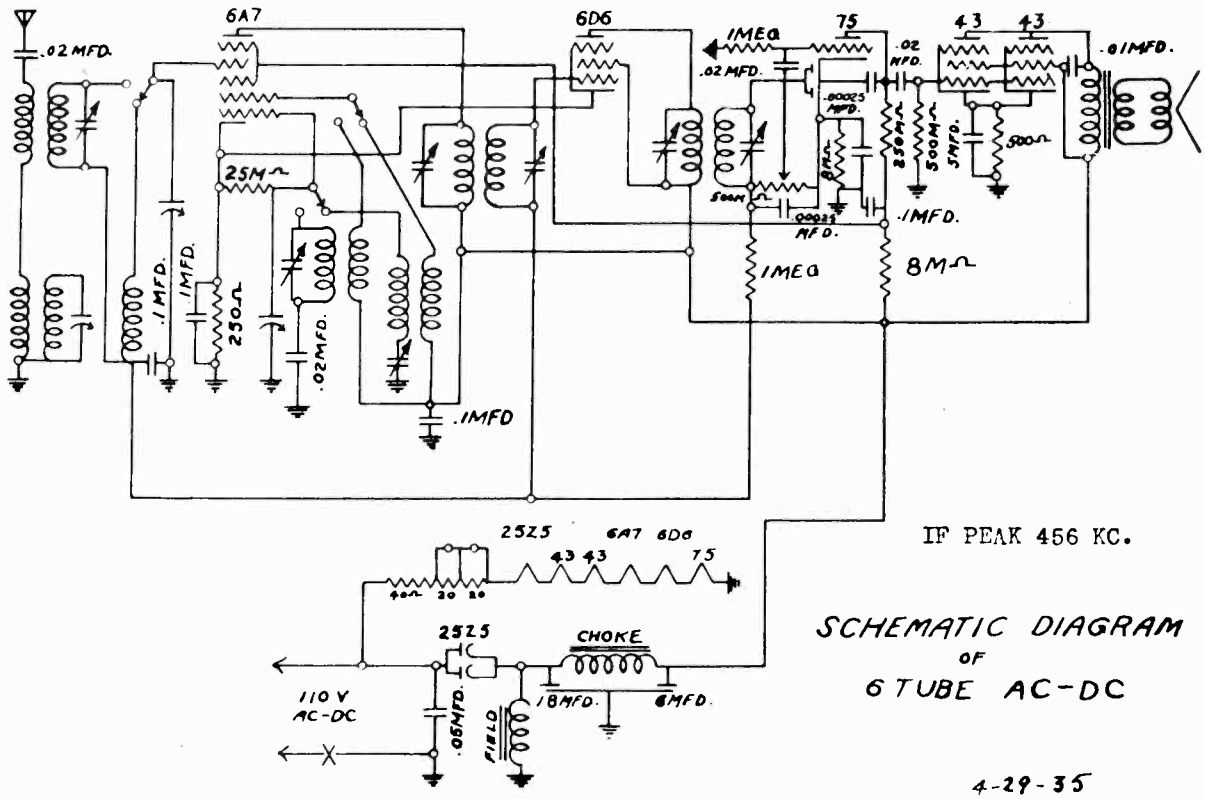
BALKEIT RADIO CO.

MODELS GT-20, GT-200X.
Schematic



MODEL GT-33
Schematic, Alignment

BALKEIT RADIO CO.



IF PEAK 456 KC.

SCHEMATIC DIAGRAM
OF
6 TUBE AC-DC

4-29-35

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456,600,1400,3000 and 10,000 K.C. and an output meter to be connected across the primary or secondary of the output transformers.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

CAUTION: Do not let the test oscillator come in direct contact with the receiver Chassis.

I.F. ALIGNMENT Adjust the test oscillator to 456 K.C. and connect the output to the grid of the 1st detector tube (6A7) through a .05 or .1 mfd. condenser. If desired the ground on the test oscillator can be connected to the chassis ground. Align all four I.F. Trimmers to peak or maximum reading on the output meter.

R.F. ALIGNMENT Adjust the test oscillator to 1400 K.C. and connect the output to the antenna post through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak. This adjusts the receiver on scale. Then adjust the two front gang trimmers to peak.

Next rest the dial pointer on the receiver and the test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the preselector or R. F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustments at that frequency to be sure they have not been thrown out of adjustment.

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the Dial. The oscillator trimmer is located underneath the chassis and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

SERVICE HINTS

CAUTION: Be very careful in handling the receiver chassis as it is connected to one side of the power line.

LOW VOLUME This may be caused by weak or defective tubes (Replace with set of tubes known to be in good condition)open antenna coil, open or shorted by-pass condensers or defective wave change switch. Poor receiving locations such as steel buildings may require extra antenna to get good reception.

LOW VOLTAGE Low voltage may be caused by a defective rectifier tube, open filter condenser or shorted by-pass condensers.

HUM Excessive hum may be caused by a defective tube,open or shorted by-pass condensers or open audio grid leads.

DISTORTED REPRODUCTION This may be caused by a defective 75 or 43 tube or a ground or open in the automatic volume control circuit. Check all circuits with an ohmmeter or continuity tester.

OSCILLATION Most trouble from oscillation is due to open by-pass condensers in the R.F. or I.F. circuits. Test each condenser with another condenser in parallel.

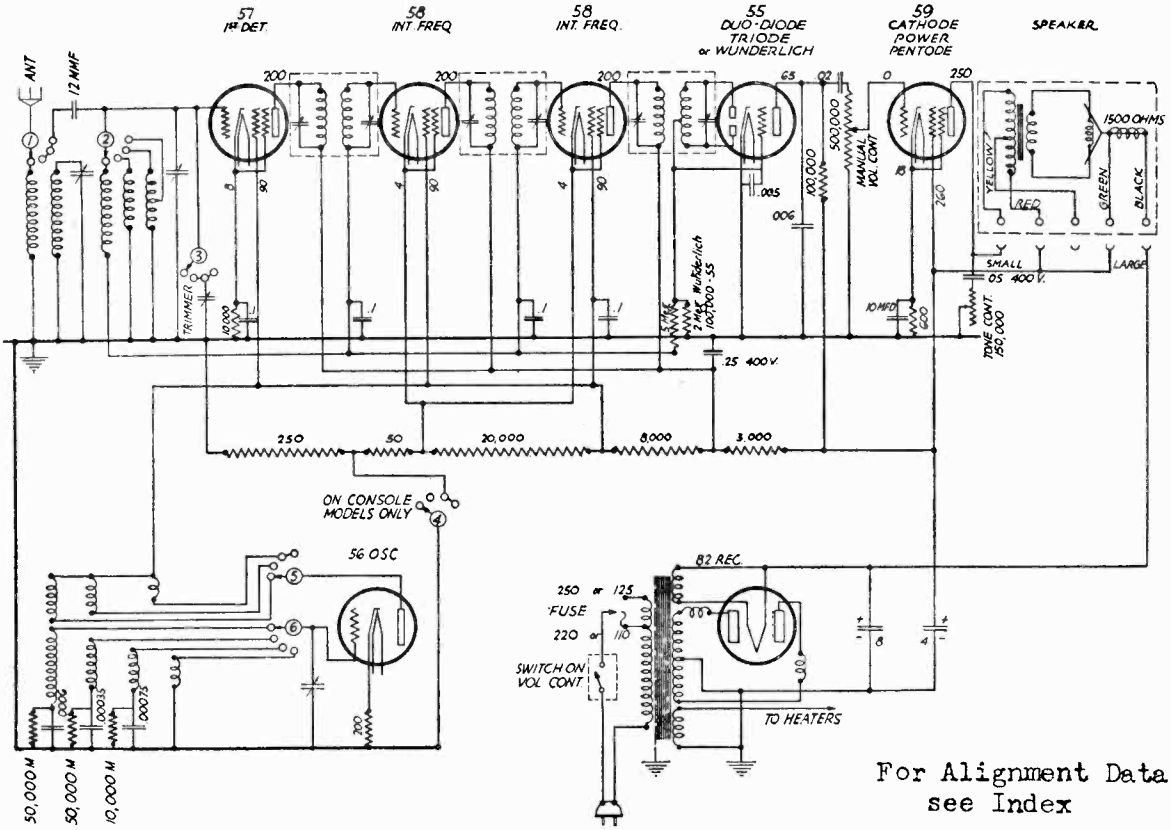
The grid lead on the 75 tube may also cause a howl if it runs too close to the 42 tube.

MODEL P
Two Types
Schematic, Voltage

BARKER BROS.

7 TUBE MODELS (Compact and Consoles)

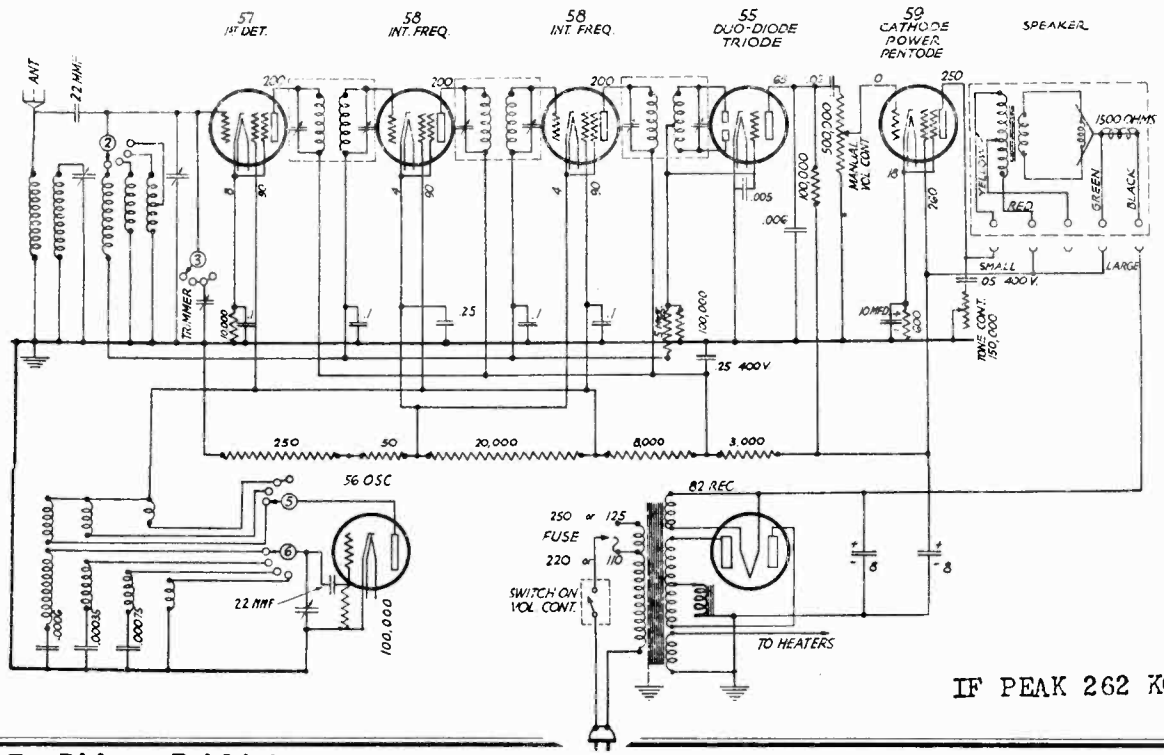
Without Rear Fuse and Cover



For Alignment Data, see Index

7 TUBE MODELS (Compact and Consoles)

With Rear Fuse and Cover

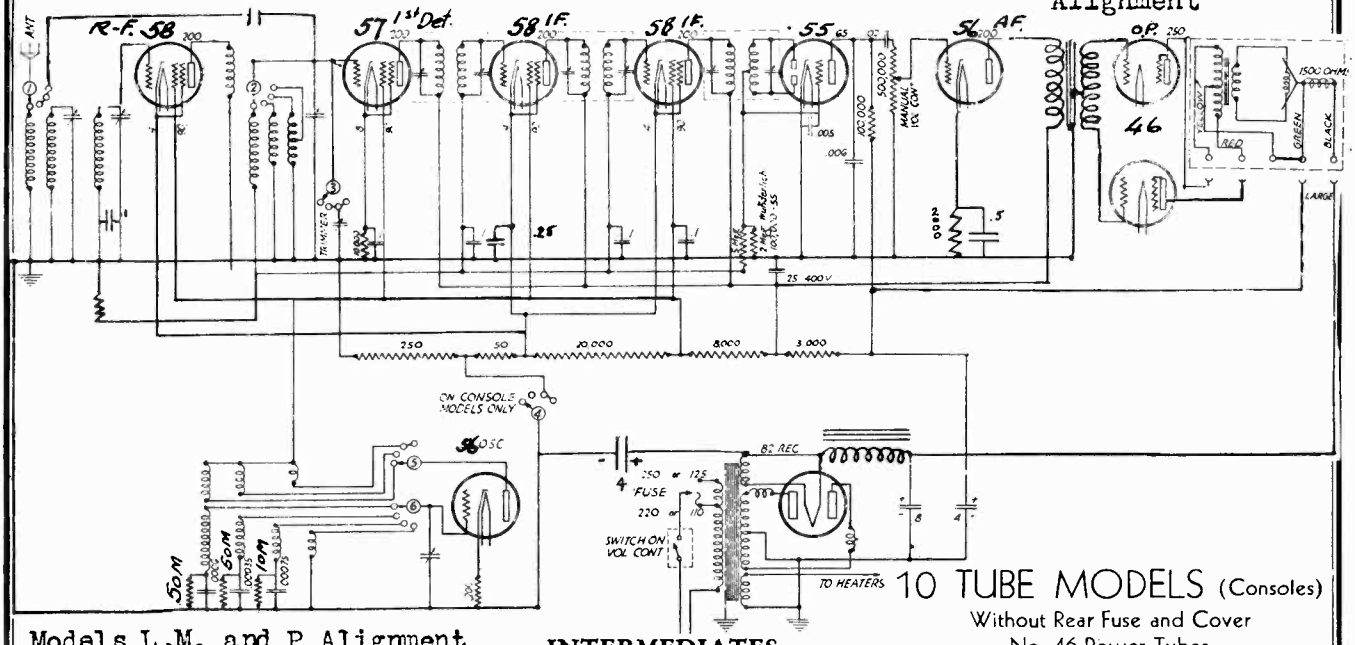


IF PEAK 262 KC.

MODEL P
Alignment

BARKER BROS.

MODEL L
MODEL M
Schematic, Voltage
Alignment



10 TUBE MODELS (Consoles)
Without Rear Fuse and Cover
No. 46 Power Tubes

Models L, M, and P Alignment

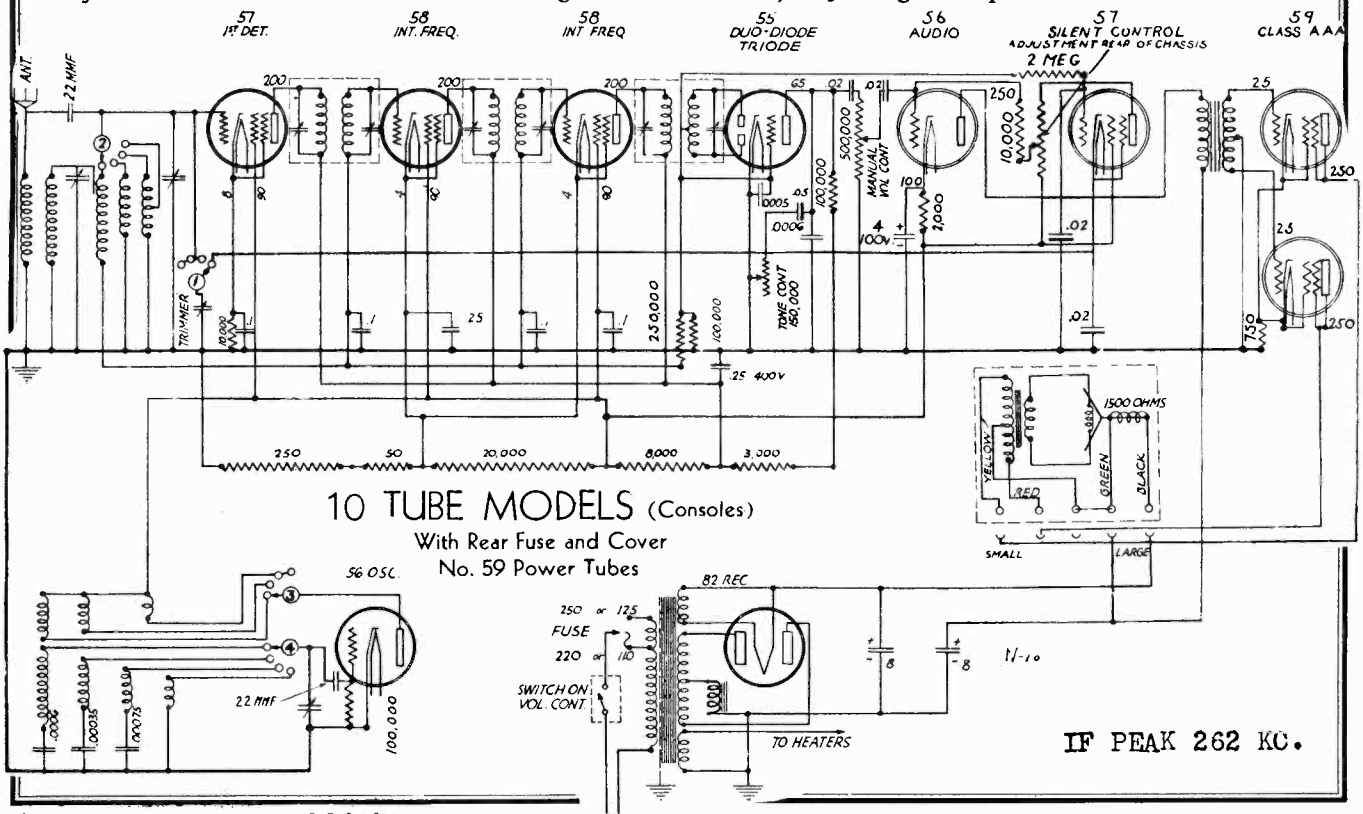
INTERMEDIATES

Connect a 262 K.C. oscillator to the first detector grid (No. 57 tube next to the dial) leaving grid cap in place. Remove oscillator tube (No. 56). Set dial at 100. Hook up vacuum tube volt meter as described and carefully adjust 6 varitor screws for maximum gain (minimum reading of meter). Don't flat top any stages. Have all shields in place. Keep volume control at lowest level.

CONDENSER GANG

Set dial at 100 when gang is at maximum position and tighten dial set screws. Tune in a station (or use an oscillator) to a known frequency signal around 1400 K.C. Carefully adjust oscillator section of gang until frequency is correct on dial.

If the intermediates are balanced on 262 K.C., the dial will now track within 5 K.C. over the entire dial. Adjust first detector section for maximum gain and follow by adjusting band pass trimmers.



10 TUBE MODELS (Consoles)
With Rear Fuse and Cover
No. 59 Power Tubes

IF PEAK 262 KC.

MODEL GT-156BA
Alignment Data

BALKEIT RADIO CO.

ALIGNMENT DATA

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 3000 and 10,000 K. C. and an output meter to be connected across the speaker terminals.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

I.F. ALIGNMENT Adjust the test oscillator to 1400 K.C. and connect the output to the antenna wire through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak. This adjusts the receiver on scale. Then adjust the front or R.F. trimmer to peak.

Next rest the dial pointer on the receiver and test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the R.F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustment at that frequency to be sure they have not been thrown out of adjustment.

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the dial. The oscillator trimmer is located underneath the chassis and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

SERVICE HINTS

VIBRATOR Vibrator noise may be due to the following: a discharged "A" battery, high resistance connections on battery terminals, a defective vibrator or a loose cover on the vibrator can.

The vibrator unit is a plug-in type and can be removed for replacement very easily. This unit should last a very long time as current through the contact points is very small.

Never leave the power switch turned on when the "A" battery is too low to make the receiver function as this is liable to seriously injure the vibrator or vibrator transformer. Never remove any of the tubes when the power switch is turned on as they are connected in a series parallel circuit.

MICROPHONICS The two volt type of tubes used in this receiver are ordinarily more microphonic than heater types. They can be detected by touching each tube with the finger tips. Another source might be caused by the dial glass touching the front or escutcheon plate.

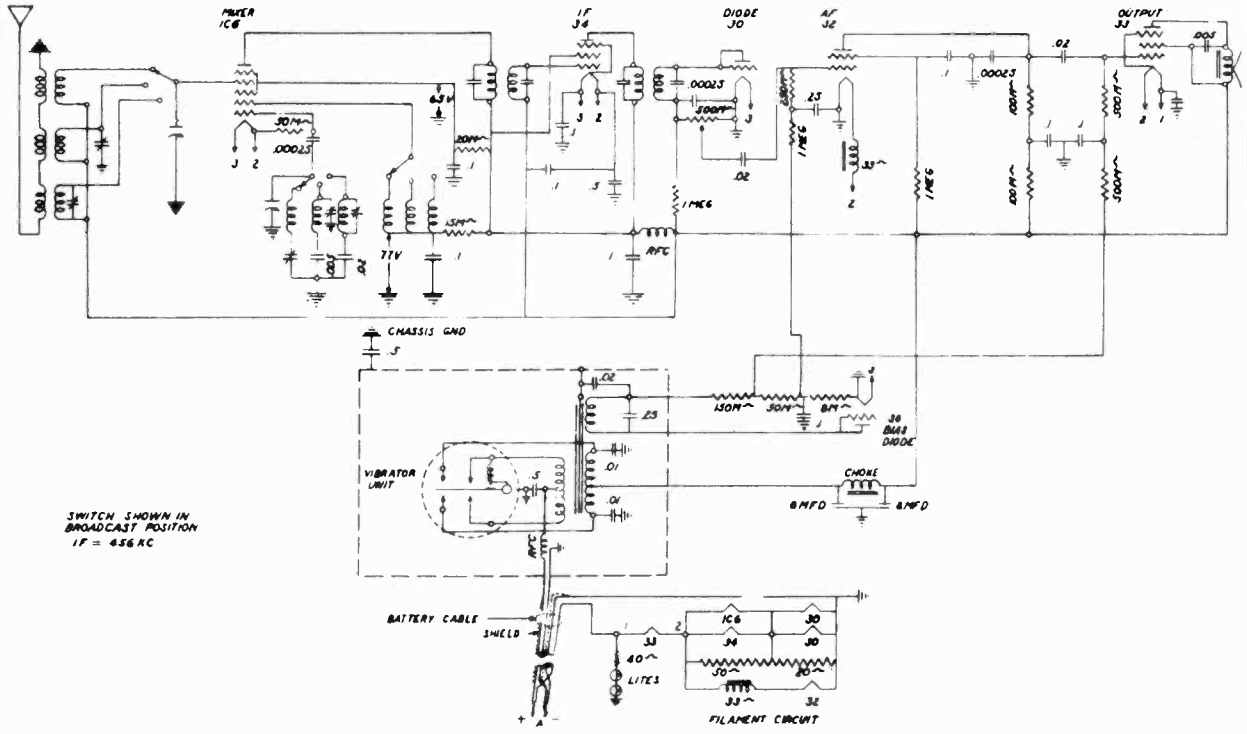
LOW VOLUME This trouble may be caused by weak or defective tubes (replace with set of tubes known to be in good condition); antenna disconnected from the receiver· open antenna coil or open or shorted by-pass condensers.

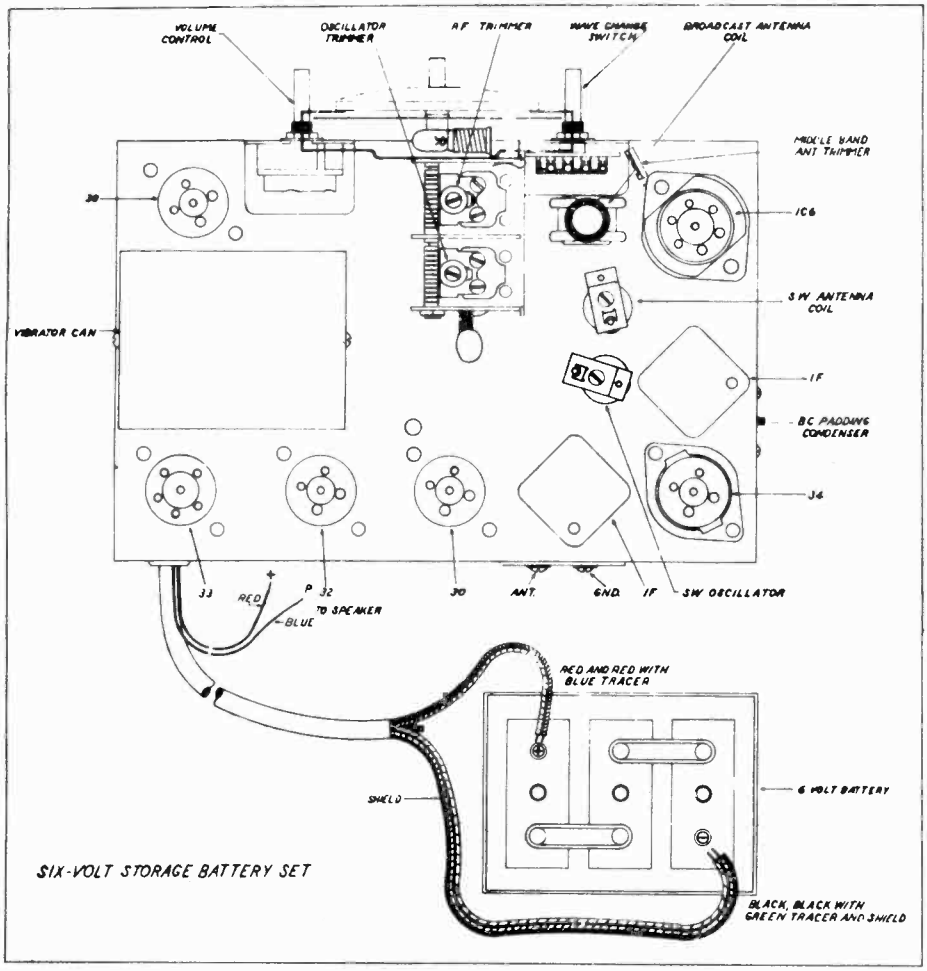
Some localities remote from broadcasting stations may require an extra long antenna of about two hundred feet.

LOW VOLTAGE Low voltage may be caused by a low battery, a defective vibrator, corroded battery terminal or shorted by-pass condensers. Increasing the length of battery leads might cause low voltage ard vibrator noise.

BALKEIT RADIO CO.

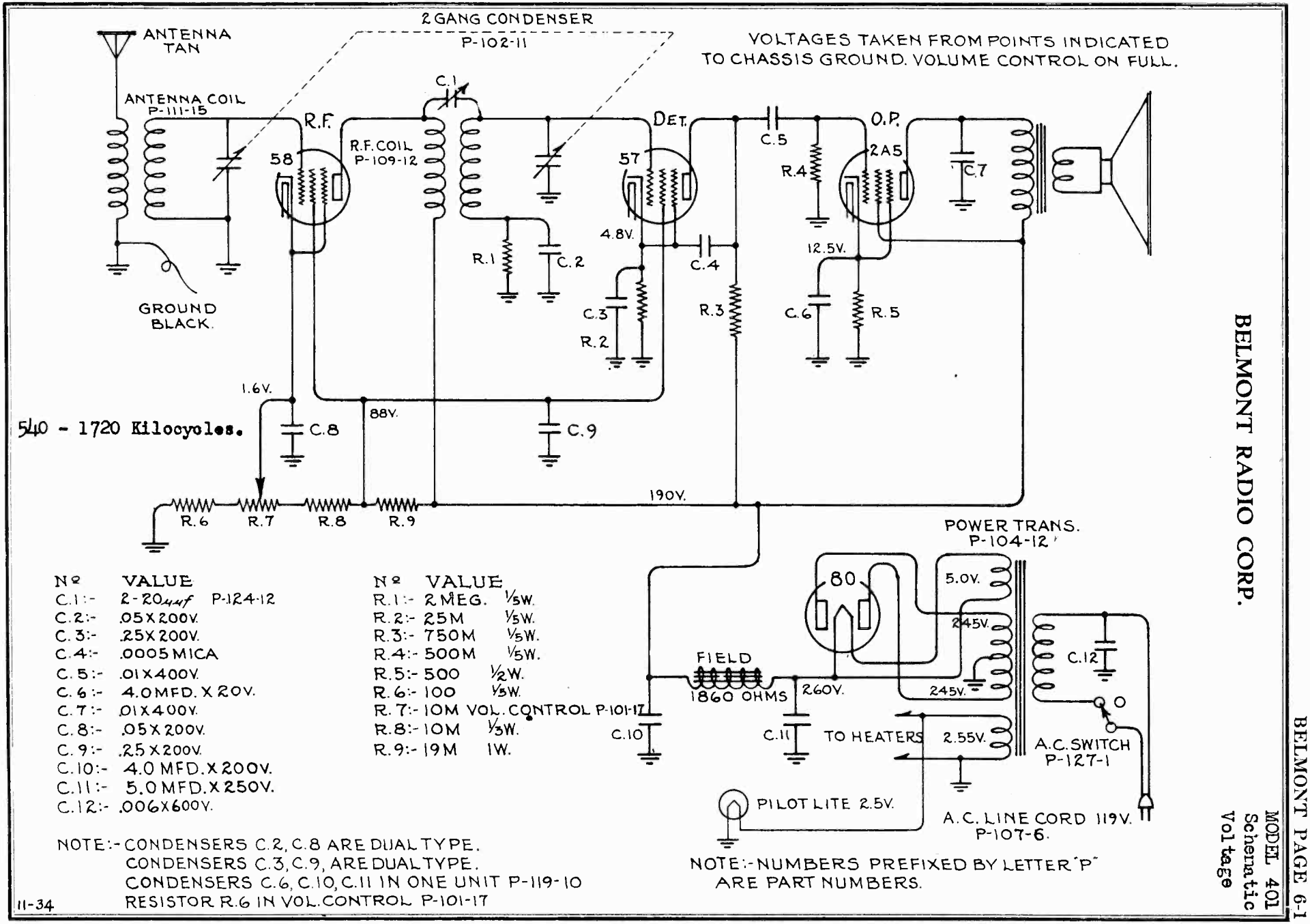
MODEL GT-156BA
Schematic, Socket
Trimmers





BELMONT RADIO CORP.

MODEL 401
Schematic
Voltage



No	VALUE
C.1:-	2-20 $\mu\mu f$ P-124-12
C.2:-	.05X200V.
C.3:-	.25X200V.
C.4:-	.0005 MICA
C.5:-	.01X400V.
C.6:-	4.0 MFD. X 20V.
C.7:-	.01X400V.
C.8:-	.05X200V.
C.9:-	.25X200V.
C.10:-	4.0 MFD. X 200V.
C.11:-	5.0 MFD. X 250V.
C.12:-	.006X600V.

No	VALUE
R.1:-	2 MEG. 1/5W.
R.2:-	25M 1/5W.
R.3:-	750M 1/5W.
R.4:-	500M 1/5W.
R.5:-	500 1/2W.
R.6:-	100 1/5W.
R.7:-	10M VOL. CONTROL P-101-17
R.8:-	10M 1/3W.
R.9:-	19M 1W.

NOTE:- CONDENSERS C.2, C.8 ARE DUAL TYPE.
CONDENSERS C.3, C.9, ARE DUAL TYPE.
CONDENSERS C.6, C.10, C.11 IN ONE UNIT P-119-10
RESISTOR R.6 IN VOL. CONTROL P-101-17

NOTE:- NUMBERS PREFIXED BY LETTER "P" ARE PART NUMBERS.

MODEL 401

SERVICE MANUAL FOUR TUBE A.C. - T.R.F. RECEIVER

105-125 Volts, 60 Cycle Alternating Current - 40 Watts

FOR VOLTAGES IN EXCESS OF 125, A SPECIAL TRANSFORMER IS REQUIRED, ALSO FOR 25 CYCLES. A UNIVERSAL TRANSFORMER IS NOT AVAILABLE FOR THIS MODEL.

SERVICE NOTES

Should it ever become necessary or desirable to realign this receiver the proper procedure is as follows:

Before attempting any adjustment, the set must be disconnected from the power supply, the tubes should be checked, aerial inspected and connections cleaned if necessary. To remove chassis from cabinet, pull off volume, selector and switch knobs and remove the three bolts which fasten chassis to cabinet.

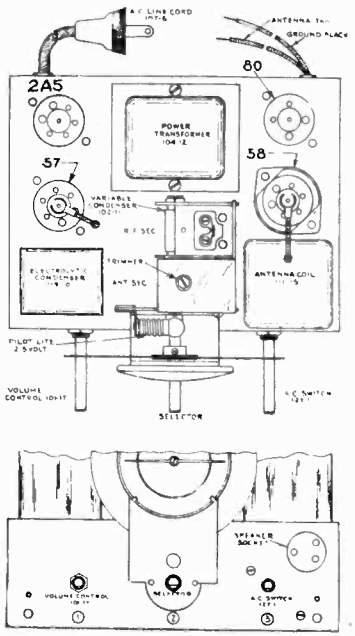
ALIGNMENT:

1. With an external oscillator set at 1720 kilocycles connected to the grid of the type 58 R.F. tube (cap at top of tube) and with the variable condenser at its minimum capacity position, plates entirely out of mesh, adjust trimmer on R.F. coil (accessible from the under side of the chassis) to resonance. Use as a resonance indicator an output meter connected across the primary of the speaker input transformer or by means of an adapter to the plate and screen terminals of the type 2A5 output tube.
2. Re-set external oscillator to 1400 kilocycles and connect in series with a 50 mmfd. condenser, to the tan antenna lead and black ground lead and adjust the antenna trimmer (front section of variable condenser - see illustration) to resonance. When making this adjustment, rock the condenser back and forth with the selector knob while adjusting the trimmer until maximum output is obtained.
3. Bend plates of antenna, front section of condenser, to resonance with external oscillator set at 1200, 1000, 800, 600 kilocycles. Output should be fairly uniform over the entire band, dropping off slightly at the higher frequencies.

NOTES:

The pilot light used is a 2.5 volt, type T-41-G3½. It can be replaced without removing the chassis from the cabinet, by removing the clip which fastens the assembly to the gang condenser (see illustration).

Voltages from chassis ground to different points are indicated on the schematic circuit diagram and should be measured with a voltmeter having a resistance of 1000 ohms per volt.



From left to right, when facing the set, the controls are as follows:

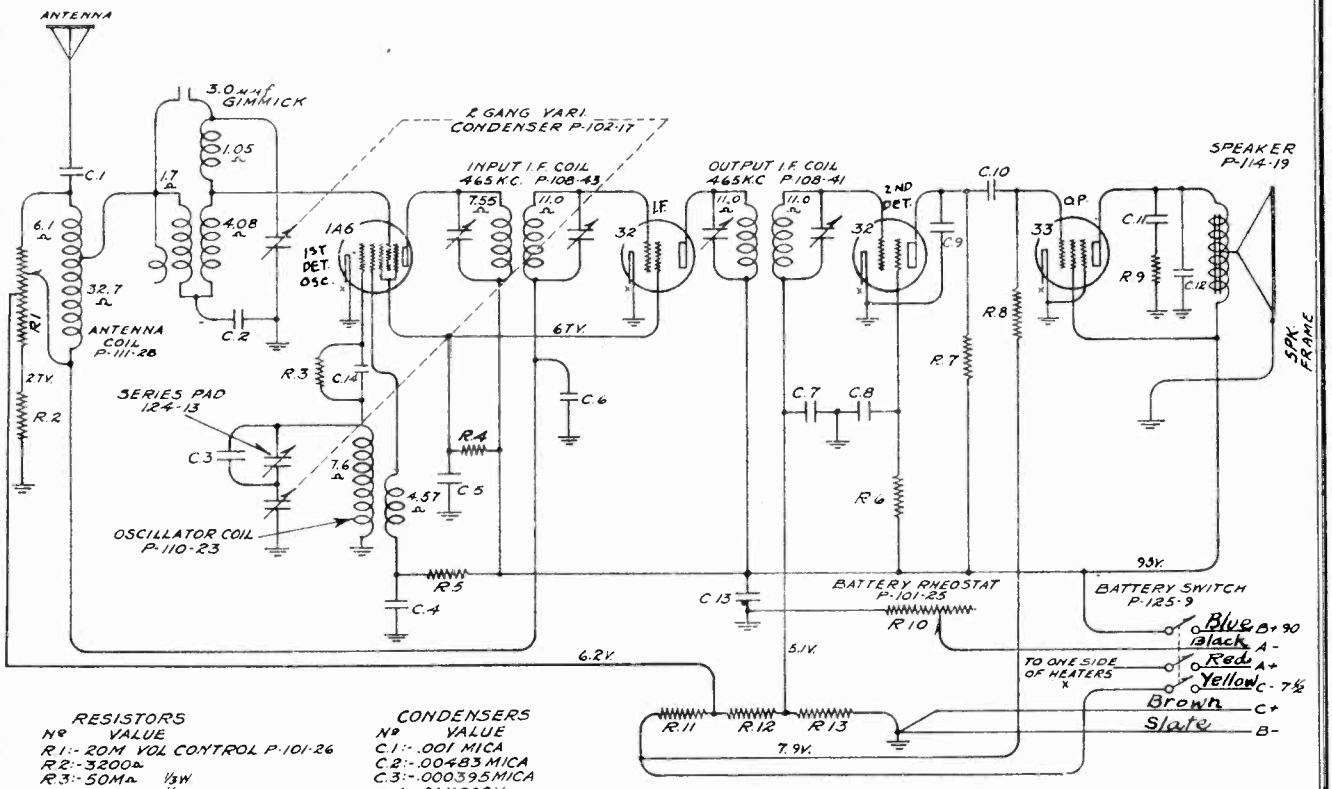
(1) Volume control. Clockwise, right turn, increases volume.

(2) Center control, station selector. The top half of the pointer traverses a scale calibrated directly in kilocycles the bottom half a scale calibrated in meters. This scale is provided for your convenience, some stations are listed in kilocycles, others in meters.

(3) Right rotation turns set on, left rotation turns set off. When turning receiver on dial will become illuminated. It is necessary to wait approximately 45 seconds for the tubes to heat up after turning set on.

BELMONT RADIO CORP.

MODEL 404
Schematic, Voltage
Socket, Trimmers



RESISTORS

Nº	VALUE
R1	20M VOL CONTROL P-101-26
R2	3200Ω
R3	50MΩ ⅓W
R4	11MΩ ⅓W
R5	10MΩ ⅓W
R6	3 MEGΩ ⅓W
R7	750MΩ ⅓W
R8	500MΩ ⅓W
R9	35MΩ ⅓W
R10	4Ω BAT. RHEOSTAT P-101-25
R11	1300Ω
R12	1920Ω
R13	9800Ω ⅓W

CONDENSERS

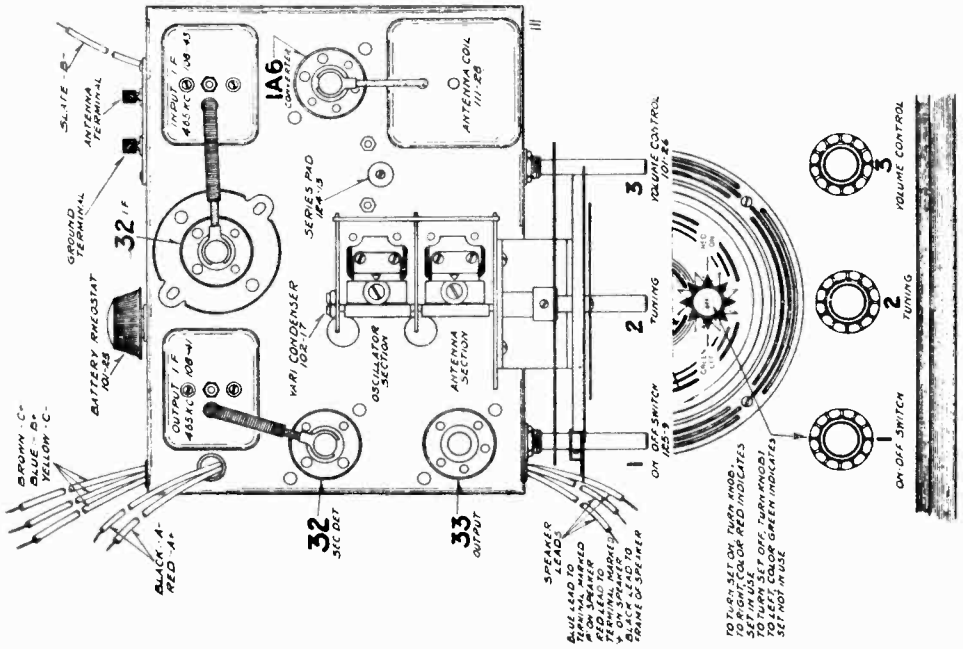
Nº	VALUE
C1	.001 MICA
C2	.00483 MICA
C3	.000395 MICA
C4	.01 X 200V
C5	.05 X 200V
C6	.25 X 200V
C7	.05 X 200V
C8	.01 X 200V
C9	.00025 MICA
C10	.01 X 400V
C11	.01 X 400V
C12	.0005 MICA
C13	.25 X 200V
C14	.00025 MICA

- NOTE -

R. 2, R. 11, R. 12 ARE IN ONE UNIT. P-106-21
C. 4, C. 5 ARE IN ONE UNIT P-118-11
C. 6, C. 13 " " " " P-118-5
C. 7, C. 8 " " " " P-118-11
NUMBERS PREFIXED BY LETTER 'P' ARE PART Nºs
ALL VOLTAGES INDICATED ARE WITH NEW BATTERIES, VOLUME CONTROL ON FULL

IF PEAK 465 KC.

Serial No. 5D115200A and up



BATTERIES NEEDED

The following batteries are needed.

2 ..... 45 volt "B" Batteries.
1 ..... 7½ Volt "C" Battery.
1 ..... 3 Volt Dry "A" Battery or 2 Volt Storage Battery.

MODEL 404
Alignment, Parts
Battery Data

BELMONT RADIO CORP.

LIST OF REPAIR PARTS
Serial No. 5D115200A and up

Part No.	DECRIPTION	No. Used In Set
	CONDENSERS	
	Unless Otherwise Listed— All Molded Mica Condensers	
	Unless Otherwise Listed— All Dual Section Tubular Paper By-Pass Condensers	
100-5	1 Mfd. x 120 V.—Plus 50%: Minus 10%	1
100-11	.01 x 400 V. + or — 25%	2
120-27	.00483 Mica—Type MH + or — 5%	1
	RESISTORS	
106-21	Metal Clad Resistor	1
	All Carbon Resistors	
	COILS	
108-41	Output I.F. Coil Assembly Complete	1
108-43	Input I.F. Coil Assembly Complete	1
110-23	Oscillator Coil Complete	1
111-28	Antenna Coil Assembly Complete	1

	MISCELLANEOUS	
101-25	Filament Rheostat—4 Ohms	1
101-26	Volume Control	1
102-17	Two Gang Variable Condenser	1
112-19	Drive Disc Assembly Complete	1
112-65	Bakelite Escutcheon with Glass	1
112-93	Dial Scale	1
112-94	"On-Off" Indicator Complete with Hub and Scr	1
112-95	Drive and Bracket Assembly Complete	1
113-34	Antenna and Ground Strip	1
114-19	Six Inch Magnetic Speaker	1
115-37	Tube Shield	1
124-13	Type J-2-S Series Pad with Insulating Washer	1
125-9	"On-Off" Switch	1
131-2	Bakelite Knob	3
131-12	Bakelite Knob with Arrow	1
130	Complete Set of Connecting Wires	1

SERVICE DATA

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt.

All voltages as indicated on diagram, are measured with a new set of batteries.

Resistances of coil windings are indicated in ohms on the schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

ALIGNING INSTRUCTIONS

CAUTION: No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as run down batteries, defective tubes, poor installations, open or grounded antenna systems, defective condensers and resistors. In order to properly align this chassis, an oscillator (generator) is necessary.

All adjustments should be made with a non-metallic screw driver.

BROADCAST BAND ALIGNMENT:

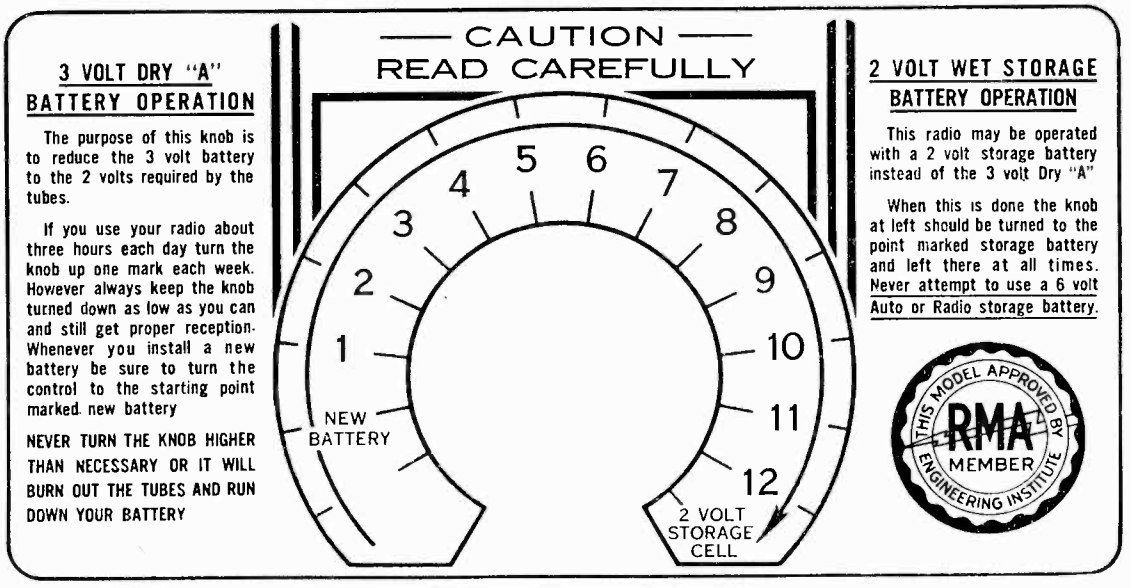
1. Set external oscillator to 1720 K.C. and connect it in series with a 200 mmfd. condenser to the antenna and ground posts.
   (a) With variable condenser in its minimum capacity position, plates entirely out of mesh, adjust oscillator trimmer (rear section of variable condenser) to resonance.
   (b) Re-set external oscillator to 1400 K.C. Rotate variable condenser, pick up signal and adjust antenna trimmer (front section of variable condenser) to resonance.
   (c) Re-set external oscillator to 600 K.C., move dial pointer to 600 K.C., and adjust series pad, part number 124-13 (see top view), to resonance. While making this adjustment, slowly rock variable condenser to and fro until maximum output is obtained.
   (d) Check for sensitivity at 800, 1000, 1200 K.C. DO NOT BEND PLATES.

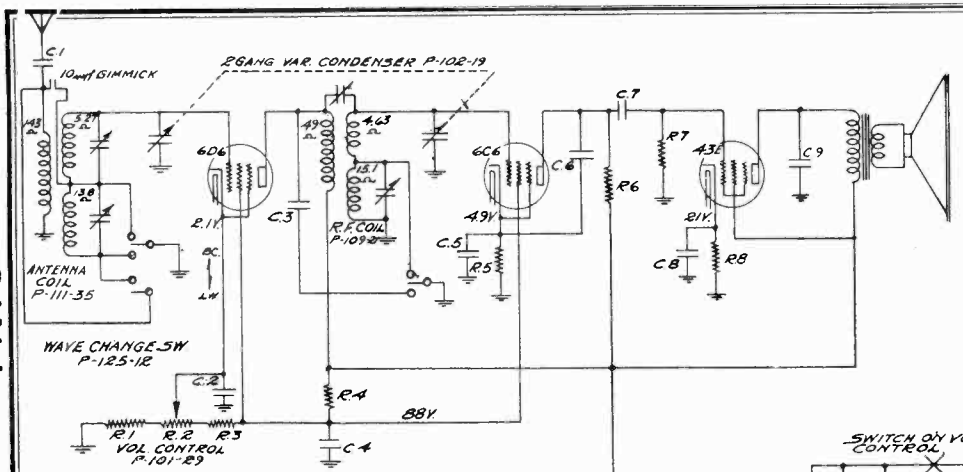
ALIGNING I.F. TRANSFORMERS: (465 K.C.)

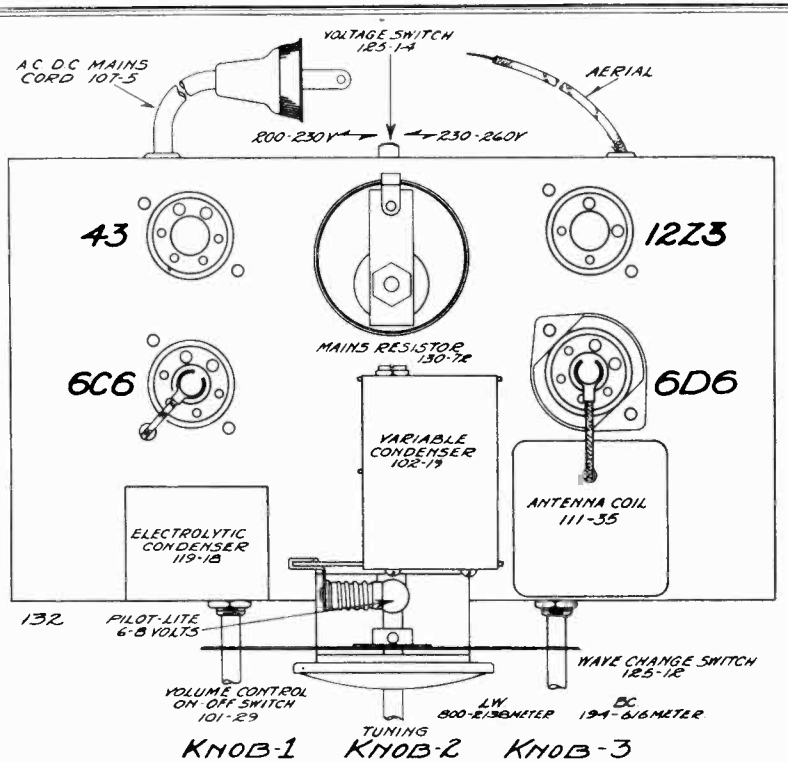
1. With volume control full on and with variable condenser at its minimum capacity position, plates entirely out of mesh, and with external oscillator set at 465 K.C. connected in series with a .1 mfd. condenser, to the grid of the 1A6 tube (cap at top of tube), adjust I.F. transformers, parts number 108-41 and 108-43, to resonance. Both of these transformers have two (2) adjustments each, they are accessible from the tops of the cans (for location see top view).

   Use as a resonance indicator an output meter connected across the outside terminals of the speaker or by means of an adapter to the plate and screen of the type 33 output tube. Maximum deflection of the volt meter indicates resonance.
   Use only enough signal to get a readily readable output.
   A low range output meter or the low scale of a multi-range meter should be used.

PICTURE OF INSTRUCTIONS ATTACHED TO BACK OF CHASSIS







C.1—.001 mica
C.2—.05x200v
C.3—.0003 mica
C.4—.25x200v
C.5—.25x200v
C.6—.0005 mica
C.7—.01x400v
C.8—4.0 mfd x25v
C.9—.01x400v
C.10—8.0 mfd x200v
C.11—10.0 mfd x300v
C.12—.1x400v

R.1—100 ohm in vol. cont.
R.2—10M vol. cont. P-101-29
R.3—10M 1/2 w
R.4—12M 1.0w
R.5—25M 1/5w
R.6—750M 1/5w
R.7—500M 1/5w
R.8—500 1w
R.9—117 60w
R.10—524 60w
R.11—60 1w

NOTE:

C.4 and C.5 in one unit—P-118-5
C.8, C.10, C.11 in one unit—P-119-18
R.9 and R.10 in one unit—P-130-72
R.8, R.11 in one unit—P-106-22
Voltages taken from points indicated to chassis ground.
Vol. control on full. Line voltage switch at 230-260 v. position.
Numbers prefixed by letter "P" are part nos.
Serial No. 5G130820A and up.

NOTE:—Buffer Resistor (106-24) of 300 Ohms added in series with cathode of 12Z3 tube not shown on diagram.

REPAIR PARTS LIST—MODEL 444

Serial No. 5G130820A and up

RESISTORS

106-22	500-60	Ohm—1 Watt—Candohm Resistor Strip			
106-24	300	Ohm— 2 Watt—Metal Clad Resistor			
130-1	25M	Ohm—1/2 Watt—20%— 9 Volts Carbon	100-1	.1	x 400 Volt Tubular
130-3	500M	Ohm—1/2 Watt—20%—100 Volts Carbon	100-9	.05	x 200 Volt Tubular
130-17	10M	Ohm—1/2 Watt—20%— 50 Volts Carbon	100-11	.01	x 400 Volt Tubular
130-37	750M	Ohm—1/2 Watt—20%— 50 Volts Carbon	118-9	.25 - .25	x 200 Volt Dual Tubular
130-49	12M	Ohm— 1 Watt—20%—100 Volts Carbon	119-18	10-8-4	Mfd. Electrolytic Condenser
130-72	641	Ohm Vitreous Resistor	129-1	.001	Mica—Type MW—20%
			129-2	.0005	Mica—Type MT—20%
			129-36	.0003	Mica—Type MT—10%

CONDENSERS

COILS

109-21	R.F. Coil and Trimmer Assembly Complete
111-35	Antenna Coil Complete with Can

SPEAKERS

114-23	Five Inch Dynamic

MISCELLANEOUS

		Tolerance Percent	Color of Dot
101-29	Volume Control and Switch		
102-19	Two Gang Variable Condenser		
107-5	Line Cord and Plug		
112-15	Glass Dial Crystal Only		
112-16	Dial Pointer		
112-19	Dial Drive Disc Complete		
112-60	Dial Bracket—Drive Complete		
112-61	Pilot Light Clip		
112-109	Dial Scale		
112-66	Bakelite Escutcheon with Glass Complete		
115-37	Resistor Shield		
116-5	Pilot Light Bulb, T-50, 6-8 Volt	2 1/2 %	White
125-12	Wave Change Switch	5%	Green
125-14	Voltage Switch	10%	Blue
115-22	Tube Shield	15%	Yellow
131-2	Bakelite Knob	20%	Red
131-8	Springs for Bakelite Knob	More than 20%	None
134-22	Felt Washer—(Under Knob)		
135-14	Dial Pointer Screw		

All resistors and mica condensers are RMA color coded—specify value and/or resistor or condenser (per schematic diagram) and model number.

Mica condensers are coded with an additional dot indicating tolerance:

MODEL 444
Alignment
Notes

BELMONT FOUR TUBE TWO-BAND RECEIVER

Model 444

Tuning Range

194— 616 Meters
800—2136 Meters

TUBE COMPLEMENT:

1 6D6—Super control R.F. pentode as R.F. Amplifier.
1 6C6—R.F. pentode as second detector.
1 43E—Special pentode output amplifier.
1 12Z3—Rectifier.

POWER INPUT:

This receiver is designed for A.C. (any frequency) and D.C. operation over a range of 200-260 V. A line voltage switch is provided for operation from 200 to 230 and from 230 to 260 volts. The switch is mounted on the back flange of the chassis and the proper position is indicated by stamping the chassis with the voltage ranges. Chassis are sent from the factory in the high voltage position. In order to change the switch position, it is necessary to remove the back of the cabinet.

In case it is desired to use the receiver on 110 V. A.C. it is necessary to use a 110 to 220 volt transformer, having a power capacity of approximately 80 watts.

ALIGNMENT

No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. To remove the chassis, pull knobs off, remove the three bolts by which chassis is fastened and the speaker plug which you will find on the rear flange of the chassis panel.

RESONANCE INDICATOR:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 43E output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range voltmeter should be used.

DUMMY ANTENNAS:

Dummy (1)—Consists of .1 mfd. condenser in series with the ungrounded lead of the external oscillator.
Dummy (2)—Consists of 100 mmf. condenser in series with the ungrounded lead of the external oscillator.

TEST FREQUENCIES:

	Meters	Kilocycles
Long Wave Band	2000	150
	1200	250
	857.1	350
	800	375
Broadcast Band	500	600
	300	1000
	214.3	1400
	193.4	1550

ALIGNMENT BROADCAST BAND:

1. Turn wave band switch to broadcast position (clockwise rotation).
2. Connect external oscillator to antenna lead through dummy (2) and set to 193.4 M.
3. Open condenser plates all the way (completely out of mesh) and align all broadcast trimmers:
   (a) Lower hole in B.C. antenna coil shield (111-35). See top view.
   (b) Trimmer on R.F. coil nearest end of chassis.
4. Set external oscillator to 214.3 meters. Tune in signal with receiver and realign broadcast antenna coil (3a) while rocking gang condenser to and fro until maximum output is obtained.
5. Check sensitivity and tracking at 300 and 500 meters.

ALIGNMENT LONG WAVE BAND:

1. Turn switch to long wave position (counter-clockwise).
2. Clip external oscillator on R.F. grid through dummy (1) and set at 800 meters.
3. With plates of variable condenser completely out of mesh, adjust long wave R.F. trimmer for maximum output:
   (a) Trimmer on R.F. coil (No. 109-21) toward center of chassis.
4. Clip external oscillator on to antenna lead through dummy (1) and set at 857.1 meters.
5. Tune receiver to signal and adjust long wave antenna trimmer for maximum output:
   (a) Upper hole in antenna coil (No. 111-35) can.
6. Check tracking and sensitivity at 1200 and 2000 meters.

SERVICE NOTES

To check for open by-pass condensers, shunt each condenser with another of similar capacity and of the same voltage rating, which is known to be good, until the defective unit is located. Open by-pass condensers frequently cause oscillation and distorted tone. Defective and shorted electrolytic filter condensers cause excessive hum, motor-boating, low volume and a reduction in all D.C. voltages. Open or shorted electrolytic and by-pass condensers (across bias resistor of type 43E tube) will cause low volume and distorted tone.

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a voltmeter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram.

All voltages are measured with 230 volt mains and the switch in the 230-260 volt position.

Resistance of coils and transformer windings are indicated in ohms on schematic circuit diagram.

BELMONT RADIO CORP.

MODEL 541
Schematic, Voltage
Socket, Trimmers

CONDENSERS

No	VALUE
C.1 :-	.001 MICA
C.2 :-	6-44 f GIMMICK
C.3 :-	.05 X 200 V.
C.4 :-	.05 X 200 V.
C.5 :-	3 PL. SECTION
C.6 :-	.05 X 200 V.
C.7 :-	.1 X 200 V.
C.8 :-	.0005 MICA
C.9 :-	.0005 MICA
C.10 :-	.01 X 600 V.
C.11 :-	.01 X 600 V.
C.12 :-	.003 X 600 V.
C.13 :-	.05 X 200 V.
C.14 :-	.1 X 200 V.
C.15 :-	.006 X 600 V.
C.16 :-	8.0 MFD. X 100 V.
C.17 :-	12.0 MFD. X 100 V.
C.18 :-	4.0 MFD. X 100 V.
C.19 :-	.1 X 400 V.
C.20 :-	2 PL. SECTION

RESISTORS

No	VALUE
R.1 :-	300 Ω
R.2 :-	2 MΩ ½ W.
R.3 :-	180 Ω ½ W.
R.4 :-	250 MΩ ½ W.
R.5 :-	250 Ω ½ W.
R.6 :-	250 MΩ ½ W.
R.7 :-	250 MΩ ½ W.
R.8 :-	50 MΩ ½ W.
R.9 :-	100 MΩ ½ W.
R.10 :-	301 MΩ ½ W.
R.11 :-	28 MΩ ½ W.
R.12 :-	101 MΩ ½ W.
R.13 :-	500 MΩ
R.14 :-	500 MΩ
R.15 :-	126 Ω
R.16 :-	40 Ω
R.17 :-	900 Ω

NOTE:-
C.3 & 4 IN DUAL UNIT P-118-7
C.6, 7, 12, 13, 14, & 15 IN ONE UNIT P-145-6
C.16, 17, & 18 IN ONE UNIT P-119-7
R.1, 2 & 3 IN ONE UNIT P-106-15
R.15, IN LINE CORD P-107-1
R.6, 7, & 8, C.8, 9, & 10 IN OUTPUT I.F. CAN P-108-23.
R.13 & 14 ONE UNIT. VOL. CONTROL P-101-13
C.5, & 20 DUAL PADDER P-124-9
NUMBERS PREFIXED BY LETTER "P" ARE PART NOS.

VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND
VOLUME CONTROL ON FULL
A GIMMICK IS AN IMPROVISED CAPACITY FORMED BY TWISTING WIRES.

MODEL 541

SERVICE MANUAL FIVE TUBE TWO BAND SUPERHETERODYNE WITH A.V.C.

105-125 Volts Alternating (any cycles) or Direct Current - 40 Watts

FOR VOLTAGES IN EXCESS OF 125 AND UP TO 270 VOLTS AN EXTERNAL RESISTOR MUST BE USED SUCH AS AN ADDITIONAL LENGTH OF SPECIAL RESISTANCE CORD.

200-590 Meters - 1000-2000 Meters

The tube complement of this chassis is as follows:

1 Type 6D6 - remote cut-off pentode as oscillator and first detector
1 Type 6D6 - remote cut-off pentode as intermediate frequency amplifier (456 k.c.)
1 Type 75 - duplex diode triode as a diode detector AVC and first AF amplifier
1 Type 43E - pentode output A.F. amplifier
1 Type 25Z5 - high vacuum rectifier.

SERVICE NOTES

Should it ever become necessary or desirable to re-align this receiver the proper procedure is as follows:

Before attempting any adjustments, the set must be disconnected from the power supply and the chassis removed from the cabinet. To remove the chassis, pull off the volume, selector and wave changing switch knobs, remove the back and four screws that fasten the chassis to the cabinet. Insert plug in receptacle and proceed as follows:

I.F. ALIGNMENT:

1. With volume control on full, at the extreme right of its rotation, and with variable condenser at its maximum capacity position (extreme right of its rotation) make the following adjustments:
   (a) Connect an external oscillator adjusted to 456 kilocycles, in series with a .1 mfd. condenser, to the control grid (cap at top of the 6D6 tube), located directly in back of the variable condenser.
   (b) Adjust trimming condensers of both input (108-22) and output (108-23) I.F. transformers (see top view of chassis) to resonance. Use a resonance indicator and output meter connected across the primary of the speaker input transformer or between the plate and screen terminals of the type 43E tube, by means of an adapter. Maximum deflection on the meter indicates resonance.
   Note: There are two trimmer adjustments on each I.F. transformer, they are accessible from the back of the chassis.

BROADCAST ALIGNMENT:
(200-590 Meters)

1. The broadcast band is aligned first. Rotate wave changing switch to the extreme left of its rotation. (Switch located directly under dynamic speaker).
   (a) Attach an external oscillator set at 1550 kilocycles, to the grid of the 6D6 tube, located in back of the variable condenser. With variable condenser at its minimum capacity position, extreme left of its rotation, plates entirely out of mesh, adjust the trimmer of the oscillator (rear section of the variable condenser) to resonance.
   (b) Re-set external oscillator to 1400 kilocycles. Change connection of oscillator output lead from cap of 6D6 to tan antenna wire. Rotate variable condenser until signal is picked up, then adjust antenna trimmer (front shaft section of variable condenser) to resonance.
   (c) Check output at 1200-1000-800-600 kilocycles. Bend plates of antenna section, front shaft of variable condenser, if required (do not bend plates of oscillator, rear, section of variable condenser).

LONG WAVE ALIGNMENT:
(1000-2000 Meters)

1. Rotate wave changing switch to the extreme right of its rotation.
   (a) With external oscillator set at 350 kilocycles and connected to the tan antenna lead, rotate variable condenser until signal is picked up, then adjust long wave shunt padder. This adjustment is accessible from the top of the chassis, between the variable condenser and the speaker and is the rear hole marked "shunt" on the top view of the chassis. When making this adjustment, care must be taken to hold the receiver to the frequency of the external oscillator by rocking variable condenser as the padder is adjusted, until maximum output is obtained.
   (b) Re-set external oscillator to 150 kilocycles. Pick up oscillator signal by rotating variable condenser and adjusting the long wave series padder, adjustable from top of chassis, adjustment located between speaker and variable condenser, front hole marked "series" on top view. When making this adjustment, the receiver must be held to the oscillator frequency by rocking the variable condenser as the padder is adjusted until maximum output is obtained.
   (c) After adjusting long wave series padder, as explained in "B", recheck adjustment of shunt padder, as explained in "A". DO NOT BEND PLATES.

NOTES:

The pilot lights are connected in series. Should one burn out, the other will not light. To replace them it is necessary to remove chassis from cabinet. The lamps used are 6-8 volts, .15 amperes.

Voltages from chassis to different points are indicated on the schematic circuit diagram and should be measured with a volt meter having a resistance of 1000 ohms per volt.

To convert kilocycles to meters, divide 300,000 by the frequency in kilocycles.

PARTS LIST

MODEL 541

When ordering parts, always specify part and model number as well as serial number of chassis.

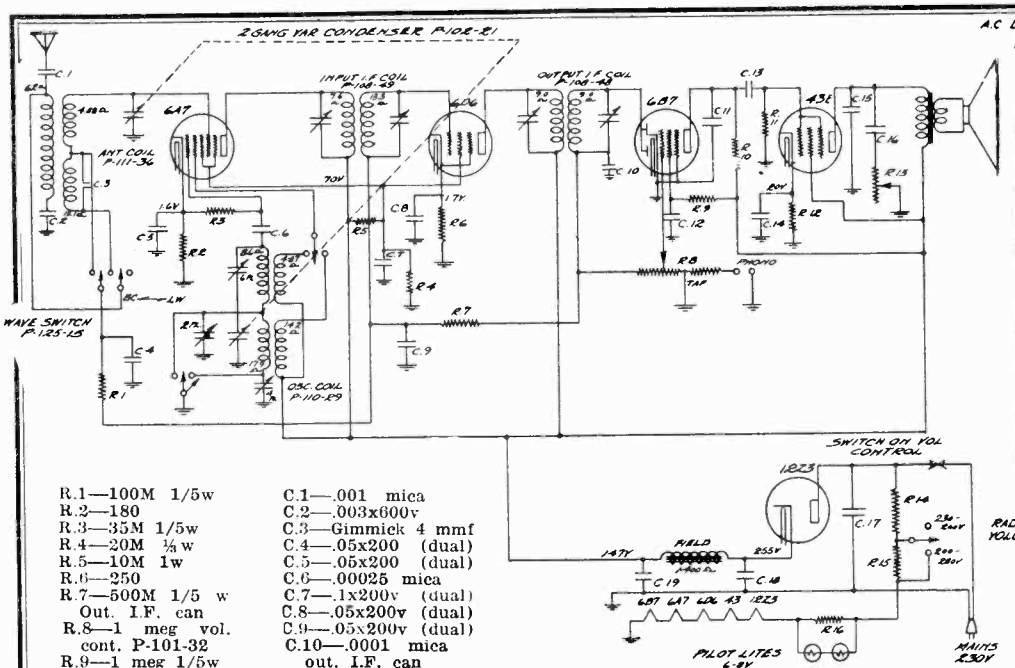
PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101-13	Pheno-Radio Volume Control	112-52	Selector Scale (541)
102-8	Two Gang Variable Condenser	112-53	Volume Scale (541)
105-7	Choke - 600 Ohms	115-22	No. 01360 Tube Shield
106-1	40 Ohm Metal Clad Resistor	115-23	Tube Shield Base
106-15	2480 Ohm Metal Clad Resistor	116-5	6-8 Volt Pilot Light
107-1	Cord & Plug (126 Ohms)	119-7	12-8-5 Mfd. Electrolytic Cond.
108-22	Input I.F. Transformer	124-9	Dual Padder (2 Plate Plus 3 Plate)
108-23	Output I.F. Transformer	126-3	Wave Change Switch
110-9	Oscillator Coil	131-1	Small Knob (Tone & L.W. Switch)
111-10	Antenna Coil	131-6	Knob (Volume & Selector)
112-11	Pilot Light Bracket	145-6	.209 Mfd. By-Pass Cond. Block
		171-1	Phono-jack

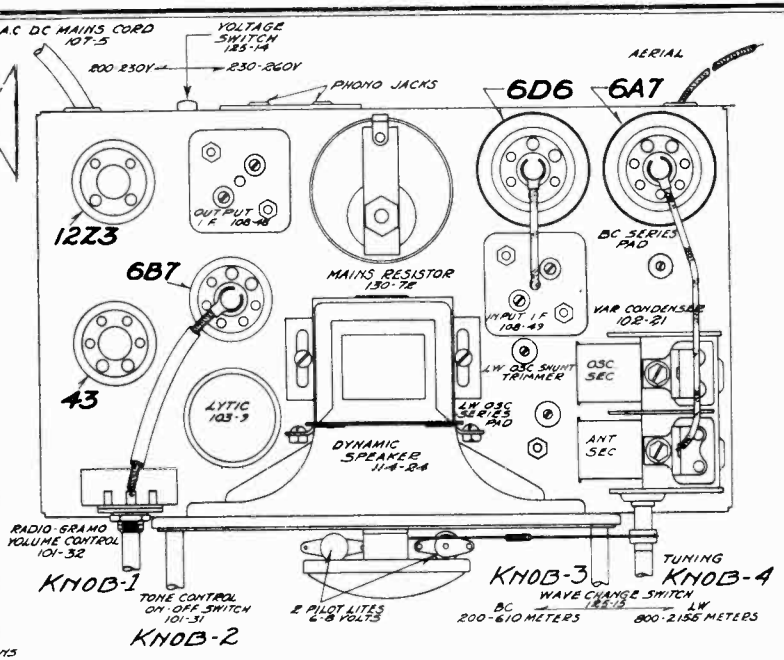
All resistors are RMA coded - specify value and/or resistor number (per schematic diagram) and model number.

When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.

BELMONT RADIO CORP.

MODELS 544, 545
Schematic, Voltage
Socket, Trimmers
Parts List





NOTE:—Above diagram of Model 544-545 exactly the same except speaker is mounted in cabinet and dial is mounted on bracket secured to chassis.

R.1—100M 1/5w
R.2—180
R.3—35M 1/5w
R.4—20M 1/3 w
R.5—10M 1w
R.6—250
R.7—500M 1/5 w Out. I.F. can
R.8—1 meg vol. cont. P-101-32
R.9—1 meg 1/5w
R.10—250M 1/5 w
R.11—500M 1/5w
R.12—500 1w
R.13—50M tone cont. P-101-31
R.14—524
R.15—117
R.16—60

C.1—.001 mica
C.2—.003x600v
C.3—Gimmick 4 mmf
C.4—.05x200 (dual)
C.5—.05x200 (dual)
C.6—.00025 mica
C.7—.1x200v (dual)
C.8—.05x200v (dual)
C.9—.05x200v (dual)
C.10—.0001 mica out. I.F. can
C.11—.0001 mica
C.12—.1x200v (dual)
C.13—.01x400v
C.14—4 mfd. x25v
C.15—.016x400v
C.16—.05x400v
C.17—.1x400v
C.18—10 mfd. x250v
C.19—8 mfd. x200v

Voltages taken from points indicated to chassis ground.

Volume control on, full.
Numbers prefixed by letter "P" are part nos.

NOTE:

C.4 and C.5 in one unit—P-118-7
C.8 and C.9 in one unit—P-118-7
C.14, C.18 and C.19 in one unit—P-103-9
R.2, R.6 and R.16 in one unit—P-106-23
R.14 and R.15 in one unit—P-130-72
C.7 and C.12 in one unit—P-118-1

Serial No. 5G132551A and up.

NOTE:—Buffer Resistor (106-24) of 300 Ohms added in series with cathode of 12Z3 not shown on diagram.

REPAIR PARTS LIST—MODEL 544-545

Serial No. 5G132551A and up

CONDENSERS

Part No.	Description
100-1	.1 x 400 Volt Tubular
100-11	.01 x 400 Volt Tubular
100-12	.003 x 600 Volt Tubular
100-28	.016 x 400 Volt—.05 x 400 Volt Dual Tubular
103-9	10 x 8 x 4 Electrolytic
118-1	.1 - .1 x 200 Volt Dual Tubular
118-7	.05 - .05 x 200 Volt Dual Tubular
129-1	.001 Mica—Type MT—20%
129-5	.0001 Mica—Type MT—20%
129-12	.00025 Mica—Type MT—20%

RESISTORS

106-23	Candohm Resistor Strip
106-24	300 Ohm— 2 Watt—Metal Clad Resistor
130-3	500M Ohm—1/3 Watt—20%—100 Volt Carbon
130-19	1Meg Ohm—1/3 Watt—20%—100 Volt Carbon
130-20	100M Ohm—1/3 Watt—20%— 50 Volt Carbon
130-21	20M Ohm—1/3 Watt—20%— 20 Volt Carbon
130-45	250M Ohm—1/3 Watt—20%— 20 Volt Carbon
130-57	35M Ohm—1/3 Watt—20%— 50 Volt Carbon
130-72	641 Ohm—Vitreous Enamel Resistor
130-77	10M Ohm— 1 Watt—20%—100 Volt Carbon
130-78	500 Ohm— 1 Watt—20%— 25 Volt Wire Wound

COILS

108-48	Output I.F. Transformer Complete with Can
108-49	Input I.F. Transformer Complete with Can
110-29	Oscillator Coil Assembly Complete
111-36	Antenna Coil Complete

SPEAKERS

114-24	Six Inch Dynamic (FOR MODEL 544 ONLY)—Plug and Bracket
114-25	Six Inch Dynamic (FOR MODEL 545 ONLY)—Leads—Less Bracket

MISCELLANEOUS

Part No.	Description
101-31	Tone Control and Switch
101-32	Volume Control—Less Switch
102-21	Two Gang Variable Condenser
107-5	Line Cord and Plug
107-9	Pilot Light Assembly
112-111	Dial Drive Complete with Dial
112-112	Metal Escutcheon Only
115-22	Tube Shield
115-37	Resistor Shield
116-5	Pilot Light Bulb, 6-8 Volt, T-50
124-14	J-6-S Single Padder
124-20	J-4-2D Dual Padder
125-14	Voltage Switch
125-15	Band Switch
131-2	Bakelite Knob
131-8	Springs for Bakelite Knob
134-22	Felt Washer (Under Knob)
171-2	Phono-jack Assembly

BELMONT Model 544 and 545

FIVE TUBE TWO BAND SUPERHETERODYNE

With A. V. C., 200-260 Volts Alternating (any frequency) or Direct Current

200-610 Meters — 800-2155 Meters

DESCRIPTION

The tube complement of this chassis is as follows:

1—Type 6A7—Remote cut-off pentagrid converter as oscillator and first detector.

1—Type 6D6—Remote cut-off pentode as intermediate frequency amplifier (465 k.c.)

1—Type 6B7—Duplex diode pentode as a diode detector AVC and first A.F. amplifier.

1—Type 43E—Pentode output A.F. amplifier.

1—Type 12Z3—High vacuum rectifier.

SERVICE NOTES

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a voltmeter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram.

IN ORDER TO PREVENT SIGNAL FROM ACTING UPON AVC AND EFFECTING ACCURACY OF VOLTAGE MEASUREMENTS, AERIAL AND GROUND LEADS SHOULD BE SHORT CIRCUITED WHILE MAKING MEASUREMENTS.

All voltages should be measured with the switch in the high voltage position with 230 volts, A.C. or D.C., on the line. In case it is impossible to secure the exact mains voltage, suitable allowances should be made.

Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Excessive hum, stuttering, low volume and a reduction in all D.C. voltages is usually caused by a shorted electrolytic condenser, open by-pass condensers frequently cause oscillation and distorted tone.

Dial Replacement:

To replace broken or frayed drive cord, turn set off (on model 545 only, pull out speaker plug), remove four chassis mounting bolts, four knobs and withdraw chassis from cabinet. Take off drive bracket assembly by removing two nuts and bolts, which hold same to chassis.

Remove old cord by taking out the set screws that hold it in place, salvaging the spring. Put both set screws back in place as they were, knotting a new piece of fish line 10-inches long around the set screw on the dial drive, about 3 inches from one end. Fasten drive assembly to chassis with nuts and bolts.

With the heads of the set screws pointing opposite each other, namely, east and west, pull cord tightly and knot it around the set screw on condenser shaft. Tie one side of the spring to a loose end of the cord, threading the other end of cord through opposite side of spring. Pull tightly and tie in place while spring is in tension. Cut off hanging ends of cord (on model 545 only, plug in speaker), put chassis back in cabinet and fasten in place.

ALIGNING INSTRUCTIONS

Should it ever become necessary or desirable to re-align this receiver, the proper procedure is as follows:

CAUTION: NO ALIGNING ADJUSTMENTS SHOULD BE ATTEMPTED WITHOUT FIRST THOROUGHLY CHECKING OVER ALL OTHER POSSIBLE CAUSES OF TROUBLE, SUCH AS POOR INSTALLATIONS, OPEN OR GROUNDED ANTENNA SYSTEMS, LOW LINE VOLTAGES, DEFECTIVE TUBES, CONDENSERS AND RESISTORS.

In order to properly align this chassis, an oscillator (generator) is absolutely necessary.

Before attempting any adjustments, the set must be disconnected from the power supply and the chassis removed from the cabinet. To remove the chassis, pull off the volume, selector, tone control and wave changing switch knobs, remove the back and the four screws that fasten the chassis to the cabinet. Insert plug in receptacle and proceed as instructed.

In the case of the Model 544, the speaker is an integral part of the chassis and will be removed with the chassis. In the case of the Model 545, however, the speaker is fastened to the cabinet and connected to the chassis by a plug. It is generally not necessary to remove the speaker from the cabinet, as the cabinet can be tilted in such a manner as to permit alignment with speaker in cabinet adjacent to chassis.

Resonance Indicator:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 43E output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

NOTE: All trimmer adjustments are made from the top of chassis.

Dummy Antennae

Two dummy antennae are required:

Dummy (1)—consists of a .1 mfd. condenser in series with the external oscillator.

Dummy (2)—consists of a 200 mmfd. condenser and a 20 ohm resistor in series with each other and in series with the external oscillator.

TEST FREQUENCIES:

	Meters	Kilocycles
Long Wave	2000	150
	857	350
	800	375
I.F.	645.1	465
Broadcast	545	550
	214.3	1400
	200	1500

I. F. ALIGNMENT:

645.1 Meters (465 Kilocycles)

1. Connect external oscillator adjusted to 645.1 meters in series with "Dummy 1" to the grid of type 6A7 tube (cap at top of tube).
2. Open variable condenser until dial pointer reads 200 meters.
3. Set wave changing switch in broadcast position, extreme left of its rotation (see top view for location of switch).
4. Adjust input (part 108-49) and output (part 108-48) I. F. transformer trimmers to resonance (maximum deflection on an output meter). NOTE: There are two (2) adjustments on each transformer, they are accessible from the top of the shield can.
5. Remove oscillator clip from 6A7 tube.

BROADCAST BAND ALIGNMENT:

1. With wave changing switch still in broadcast position (left rotation) and with variable condenser in its minimum capacity position (plates entirely out of mesh), set dial at 200 meters.
2. Connect external oscillator set at 200 meters in series with "Dummy 2", to the tan antenna lead.
3. Adjust broadcast oscillator trimmer to resonance (this is adjustment on top of variable condenser rear section).
4. Re-set variable condenser until dial pointer reads exactly 545 meters.
5. Re-set external oscillator to exactly 545 meters.
6. Tune in oscillator signal by adjusting broadcast oscillator series pad (this adjustment accessible from the top of chassis, it is located directly behind variable condenser—see top view).
7. Re-set dial and external oscillator to 200 meters and re-adjust trimmer of rear section of variable condenser as in "3".
8. Re-set external oscillator to 214.3 meters (1400 K. C.) and tune in signal by rotating condenser (moving pointer).
9. Adjust broadcast antenna trimmer to resonance (this adjustment located on top of front section of variable condenser).
10. Re-set external oscillator to 545 meters, tune in oscillator signal by rotating variable condenser (moving pointer) and while slowly rocking condenser to and fro, adjust broadcast oscillator series pad to resonance (maximum deflection on output of meter).

LONG WAVE BAND ALIGNMENT:

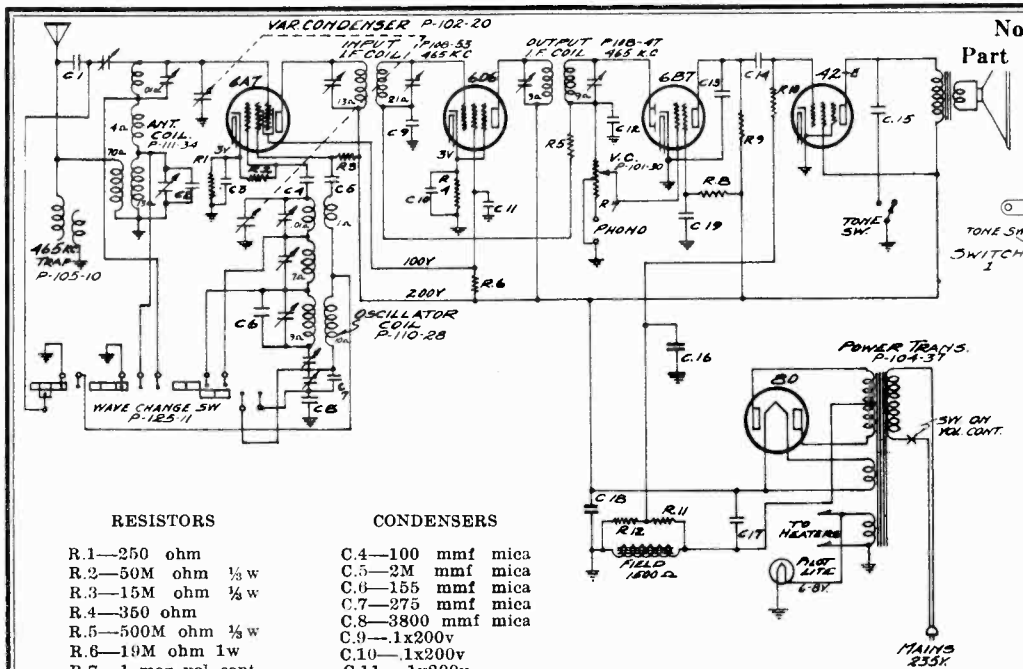
1. Set wave changing switch in long wave position (extreme right of its rotation).
2. Connect external oscillator set at 800 meters in series with "Dummy 1", to the grid of type 6A7 tube (cap at top of tube).
3. Set variable condenser in its minimum capacity position (plates entirely out of mesh), dial pointer reading 800 meters.
4. Tune in external oscillator signal by adjusting long wave oscillator shunt trimmer (this adjustment is accessible from top of chassis and is located to the left of variable condenser rear hole—see top view).
5. Re-set external oscillator and move dial pointer to exactly 2000 meters.
6. Tune in external oscillator signal by adjusting long wave oscillator series pad (this adjustment is accessible from top of chassis, located to the left of variable condenser front hole).
7. Re-set external oscillator and move dial pointer to 800 meters and re-check adjustment "4".

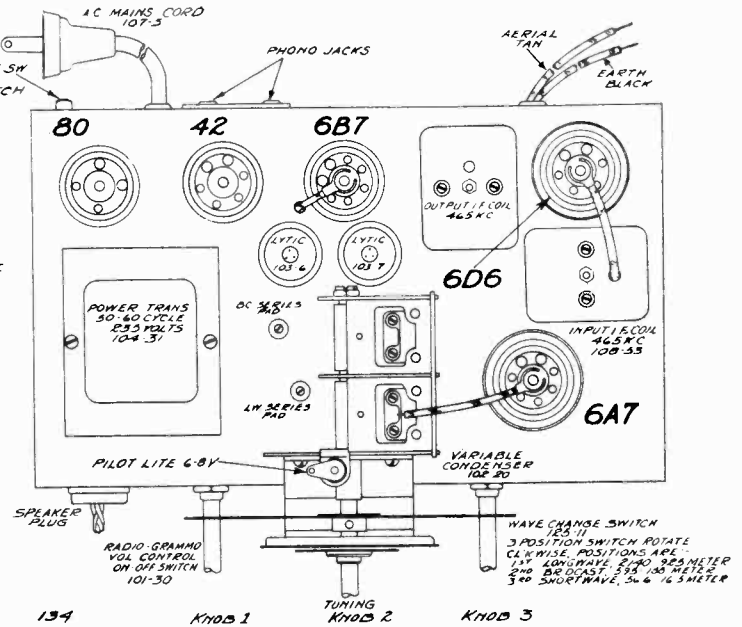
IMPORTANT: It is necessary to make the following adjustments when installing a new replacement antenna coil:

(1) Connect external oscillator set at 857 meters in series with "Dummy 2", to tan antenna lead and adjust gimmick condenser (by unwinding) on antenna coil (gimmick is capacity formed by winding fine wire over a larger wire) for maximum deflection on output meter. While making this adjustment on the gimmick, rock variable condenser to and fro to make certain that set is still in tune with external oscillator.

(2) Re-set external oscillator to 2000 meters, tune in signal by rotating variable condenser and adjust long wave series pad as in "6" until maximum output is obtained.

Note—On some chassis part 108-53 was in error marked 108-38. Part 108-53 is the correct number for this input I. F. transformer.





142

134

RESISTORS

R.1—250 ohm
R.2—50M ohm ⅓ w
R.3—15M ohm ⅓ w
R.4—350 ohm
R.5—500M ohm ⅓ w
R.6—19M ohm 1w
R.7—1 meg vol. cont.
R.8—1 meg ⅓ w
R.9—250M ohm ⅓ w
R.10—500M ohm ⅓ w
R.11—800M ohm ⅓ w
R.12—201M ohm ⅓ w

CONDENSERS

C.1—20 mmf mica
C.2—35 mmf mica
C.3—.1x200v
C.4—100 mmf mica
C.5—2M mmf mica
C.6—155 mmf mica
C.7—275 mmf mica
C.8—3800 mmf mica
C.9—.1x200v
C.10—.1x200v
C.11—.1x200v
C.12—250 mmf mica
C.13—250 mmf mica
C.14—.02x400v
C.15—.025x400v
C.16—.1x200v
C.17—8.0x350v P-103-6
C.18—8.0x300v P-103-7
C.19—.1x200v

NOTE:

C.9 & C.11 in one unit P-118-1
C.10 & C.19 in one unit P-118-1
Voltages taken from points indicated to chassis ground
Vol. control on full.
Numbers prefixed by letter "P" are part Nos.

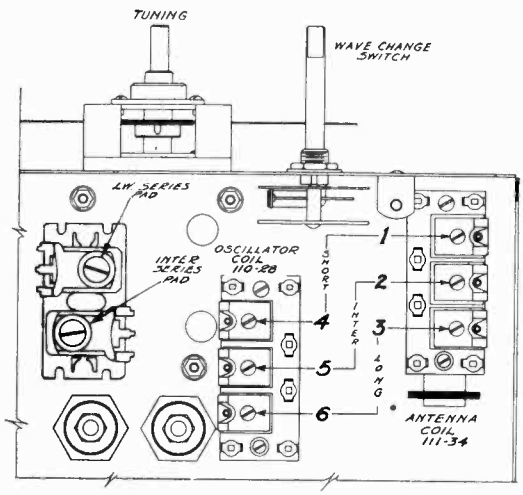
REPAIR PARTS LIST—MODEL 555

Serial No. 5G131400A and up

Part No.	DESCRIPTION
CONDENSERS	
100-19	.006 x 600 Volt Tubular
100-20	.1 x 200 Volt Tubular
100 26	.02 x 400 Volt Tubular
100-27	.025 x 400 Volt Tubular
103-6	8 Mfd. x 350 Volt Electrolytic
103-7	8 Mfd. x 300 Volt Electrolytic
118-1	.1 - .1 x 200 Volt Dual Tubular
129-3	.00002 Mica—Type MT —20%
129-5	.0001 Mica—Type MT —20%
129-6	.002 Mica—Type MW—20%
129-12	.00025 Mica—Type MT —20%
129-29	.0038 Mica—Type MW—2½ %
129-33	.000275 Mica—Type MT — 5%
129-35	.000035 Mica—Type MT —10%
129-46	.000155 Mica—Type MT — 5%
RESISTORS	
130-3	500M Ohm—⅓ Watt— 50 Volt—20% Carbon
130-8	201M Ohm—⅓ Watt— 50 Volt—10% Carbon
130-11	250M Ohm—⅓ Watt— 50 Volt—20% Carbon
130-19	1Meg Ohm—⅓ Watt— 50 Volt—20% Carbon
130-32	250 Ohm—½ Watt— 10 Volt—20% Wire Wound
130-34	19M Ohm— 1 Watt—100 Volt—20% Carbon
130-46	800M Ohm—⅓ Watt— 50 Volt—10% Carbon
130-52	50M Ohm—⅓ Watt— 50 Volt—20% Carbon
130-73	15M Ohm—⅓ Watt— 50 Volt—20% Carbon
130-74	350 Ohm—⅓ Watt— 10 Volt—20% Wire Wound
COILS	
105-10	Wave Trap Coil Complete
108-47	Output I.F. Transformer Complete with Can
108-53	Input I.F. Transformer Complete with Can
110-28	Oscillator Coil Complete
111-34	Antenna Coil Complete
TRANSFORMERS	
104-31	50/60 Cycle—235 Volt Primary
104-37	40 Cycle—235 Volt Primary
104-38	25 Cycle—235 Volt Primary
104-39	Universal—40 Cycle Primary
104-40	Universal—25 Cycle Primary
SPEAKERS	
114-15	Six Inch Dynamic Speaker
MISCELLANEOUS	
101-30	Volume Control and Switch
102-20	Two Gang Variable Condenser
107-5	Line Cord & Plug
112-15	Glass Dial Crystal Only
112-19	Dial Drive Disc Complete
112-16	Dial Pointer
112-26	Planetary Drive Complete
112-40	Pilot Light Bracket
112-62	Drive Bracket Assembly Complete with Ring
112-66	Bakelite Escutcheon with Glass Complete
112-75	Compression Spring Only
112-98	Dial Scale
115-22	Tube Shield
116-5	Pilot Light Bulb, 6-8 Volt, T-50
124-19	J-6-4D Dual Padder
125-11	Wave Change Switch
131-2	Bakelite Knob
131-8	Springs for Bakelite Knob
134-22	Felt Washer (Under Knob)
135-14	Dial Pointer Screw
143-1	Tone Switch
171-2	Phono-jack Assembly

MODEL 555
Trimmers
Alignment, Notes

BELMONT RADIO CORP.



ALIGNING I. F. TRANSFORMERS:

1. With volume control full on, the extreme right of its rotation, and with wave changing switch in the broadcast position, center of its rotation, and with variable condenser at its minimum capacity position, plates entirely out of mesh, adjust the I.F. transformers (two adjustments at the top of parts number 108-47 and 108-53—see top view).

   (a) Connect external oscillator which has been adjusted to 645.1 meters in series with I.F. dummy antenna, to the control grid cap of the type 6D6 tube and chassis ground. Adjust output I.F. transformer, part number 108-47, to resonance.

   (b) Move generator output clip from grid of 6D6 to grid cap of 6A7 tube and align input I.F. transformer, part number 108-53.

   (c) With generator connected to grid of type 6A7 tube, re-adjust output I.F. transformer, part number 108-47, to resonance.

BROADCAST BAND ALIGNMENT:

(188-595 meters)

1. With wave changing switch in the broadcast position, center of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with broadcast dummy antenna to tan antenna and black ground leads and make the following adjustments:

   (a) With external oscillator set at 187.5 meters, adjust oscillator trimmer to resonance, for location of this adjustment, number 5, see diagram.

   (b) Re-set external oscillator to 214.3 meters, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance. For location of this adjustment, number 2, see diagram.

   (c) Re-set external oscillator to 500 meters and adjust series pad to resonance, rotate condenser and move dial pointer to 500 meters by gently rocking condenser to and fro. Pick up oscillator signal while adjusting series pad to resonance, maximum deflection on an output meter. This adjustment is accessible from the top of the chassis and is located between variable condenser and power transformer, rear hole see top view—part number 124-19.

   (d) Check for tracking and sensitivity at 300 meters.

SHORT WAVE BAND ALIGNMENT:

(16.5-56.6 meters)

1. Set wave changing switch to short wave position, extreme right of its rotation, set dial pointer to 16.7 meters.

   (a) With external oscillator adjusted to 16.7 meters and connected in series with short wave dummy antenna to tan antenna and black ground leads, adjust the oscillator short wave trimmer until generator signal is picked up. For location of this adjustment, number 4, see diagram.

   (b) Adjust short wave antenna trimmer to resonance. For location of this adjustment, number 1, see diagram.

   (c) Re-set external oscillator to 50 meters, rotate condenser, move dial pointer to 50 meters, and check for tracking and sensitivity. Do not bend plates. **Note: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall at a higher wave length.**

LONG WAVE BAND ALIGNMENT:

(925-2140 Meters)

1. With wave changing switch in long wave position (extreme left of its rotation) and with variable condenser in its minimum capacity position (plates entirely out of mesh), make the following adjustments:

   (a) With external oscillator set at 923 meters and connected in series with "Dummy 2" to the tan antenna lead, adjust rear trimmer of oscillator coil (adjustment No. 6, see diagram) until oscillator signal is picked up.

   (b) Adjust rear trimmer of antenna coil to resonance with oscillator (adjustment No. 3, see diagram).

   (c) Re-set external oscillator to 2000 meters and rotate variable condenser (move pointer) and pick up oscillator signal, adjust L.W. pad (front adjustment accessible from top of chassis and located between variable condenser and power transformer) to resonance. While making this adjustment, slowly rock variable condenser to and fro until maximum output is obtained.

SERVICE NOTES:

To check for open by-pass condensers, shunt each condenser with another of similar capacity and of the same voltage rating, which is known to be good, until the defective unit is located. Open by-pass condensers frequently cause oscillation and distorted tone. Defective and shorted electrolytic filter condensers cause excessive hum, motor-boating, low volume and a reduction in all D.C. voltages. Open or shorted electrolytic and by-pass condensers (across bias resistor of type 42E tube) will cause low volume and distorted tone.

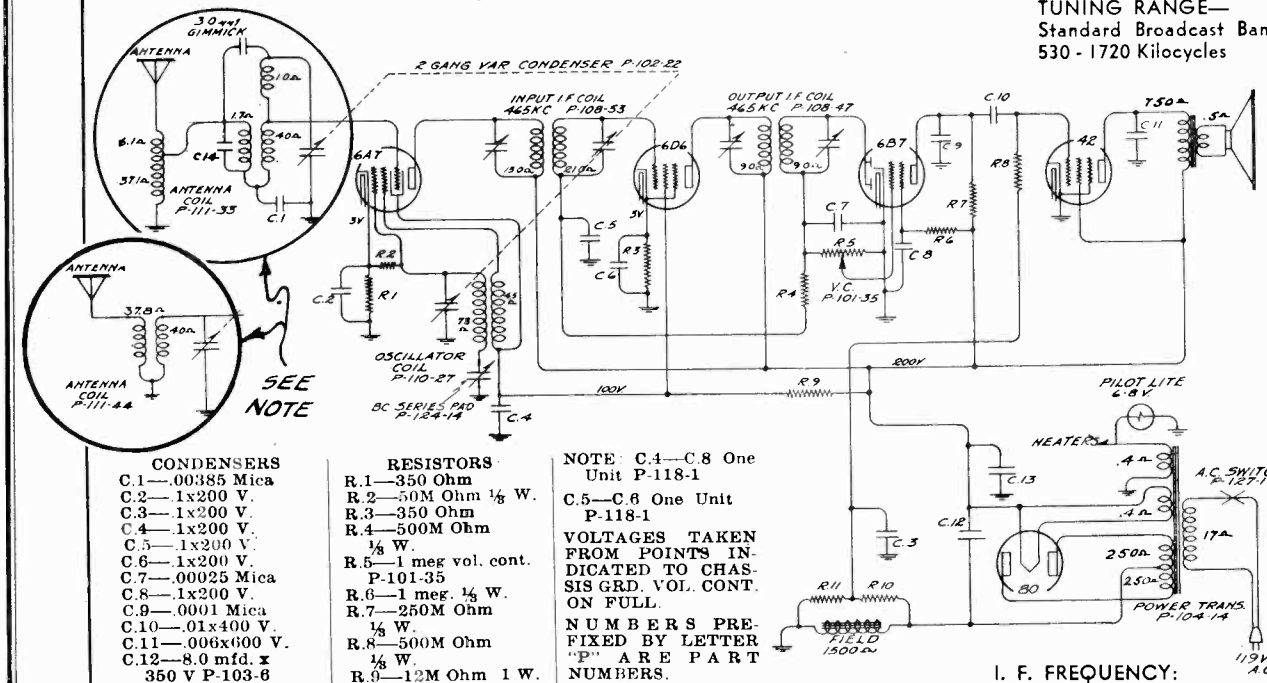
Should the planetary vernier dial drive mechanism fail to function properly, it will probably be found to be due to a cracked or broken compression spring. The drive may be disassembled to replace the compression spring (part number 112-31) by removing the two screws which fasten it to the dial bracket. Before re-assembling all parts should be carefully cleaned and a small amount of vaseline applied to the ball bearings. All other dial parts are hardened and should cause no trouble.

BELMONT RADIO CORP.

MODEL 578 (Two Types)
Serial 5G133670A to 5K173250A and
Above Serial 5K173250A
Schematic, Voltage, Parts

MODEL 578—5G133670A—5K173250A

TUNING RANGE—
Standard Broadcast Band
530 - 1720 Kilocycles



CONDENSERS

C.1—.00385 Mica
C.2—.1x200 V.
C.3—.1x200 V.
C.4—.1x200 V.
C.5—.1x200 V.
C.6—.1x200 V.
C.7—.00025 Mica
C.8—.1x200 V.
C.9—.0001 Mica
C.10—.01x400 V.
C.11—.006x600 V.
C.12—8.0 mfd. x 350 V P-103-6
C.13—8.0 mfd. x 300 V P-103-7
C.14—110 mfd. Either external Mica Cond. or cap. winding in coil.

RESISTORS

R.1—350 Ohm
R.2—50M Ohm ⅛ W.
R.3—350 Ohm
R.4—500M Ohm ⅛ W.
R.5—1 meg vol. cont. P-101-35
R.6—1 meg. ⅛ W.
R.7—250M Ohm ⅛ W.
R.8—500M Ohm ⅛ W.
R.9—12M Ohm 1 W.
R.10—800M Ohm ⅛ W.
R.11—201M Ohm ⅛ W.

NOTE: C.4—C.8 One Unit P-118-1

C.5—C.6 One Unit P-118-1

VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GRD. VOL. CONT. ON FULL.

NUMBERS PREFIXED BY LETTER "P" ARE PART NUMBERS.

I. F. FREQUENCY:
465 K.C.

NOTE:-

Beginning with 5K173250A, Antenna Coil No. 111-44 replaced No. 111-33, and capacities C1—.00385 mfd. and C14—.00011 mfd. were eliminated. Note: On early models C14 was a capacity winding on the primary of the No. 111-33 Antenna Coil.

See revised diagram

REPAIR PARTS LIST
MODEL 578 - SERIES A
Serial No. 5G133670A and up

PART NO.	DESCRIPTION
	CONDENSERS
100-11	.01 x 400 Volt Tubular Condenser
100-19	.006 x 600 Volt Tubular Condenser
100-20	.1 x 200 Volt Tubular Condenser
103-6	8 Mfd. x 350 Volt Electrolytic Condenser
103-7	8 Mfd. x 300 Volt Electrolytic Condenser
118-1	Dual .1 x 200 Volt Tubular
129-5	.0001 Mica - Type MT - 20%
129-12	.00025 Mica - Type MT - 20%
129-43	.00385 Mica - Type MW - 5%
	RESISTORS
130-3	500M Ohm - ⅛ Watt - 20% - 100 Volt Carbon
130-8	201M Ohm - ⅛ Watt - 10% - 20 Volt Carbon
130-11	250M Ohm - ⅛ Watt - 20% - 50 Volt Carbon
130-12	50M Ohm - ⅛ Watt - 20% - 20 Volt Carbon
130-19	1 Meg Ohm - ⅛ Watt - 20% - 100 Volt Carbon
130-46	800M Ohm - ⅛ Watt - 10% - 100 Volt Carbon
130-49	12M Ohm - 1 Watt - 20% - 100 Volt Carbon
130-74	350 Ohm - ⅛ Watt - 20% - 10 Volt Wire Wound
	COILS
108-47	Output I.F. Transformer Complete
108-53	Input I.F. Transformer Complete
110-27	Oscillator Coil Complete
111-33	Antenna Coil Complete
111-44	Antenna Coil SK173250A-up
	TRANSFORMERS
104-14	50/60 Cycle Power Transformer
104-17	Universal Power Transformer - 40 Cy. Primary
104-18	25 Cycle Power Transformer
	SOCKETS
121-6	Six Prong Socket - Type 42
121-6	Six Prong Socket - Type 6D6
121-7	Seven Prong Socket - Type 6B7
121-7	Seven Prong Socket - Type 6A7
121-8	Five Prong Socket - Type Speaker
121-9	Four Prong Socket - Type 80
	SPEAKER
114-15	Six Inch Dynamic Speaker
114-16	Five Inch Dynamic Speaker
	MISCELLANEOUS
101-35	Volume Control - Less Switch
102-22	Two Gang Variable Condenser
107-5	Line Cord & Plug
112-15	Dial Crystal Only
112-16	Dial Pointer
112-19	Drive Disc Assembly Complete
112-40	Pilot Light Bracket
112-60	Drive Bracket Assembly Complete
112-66	Bakelite Escutcheon Complete with Glass
112-113	Dial Scale
115-22	Tube Shield
116-5	6-8 Volt. T-50 Pilot Light Bulb
124-14	Type J-6-S Series Pad
127-1	Line Switch
131-2	Bakelite Knob
135-14	Dial Pointer Screw

MODEL 578, Series A
Socket, Trimmers
Alignment

BELMONT RADIO CORP.

Model 578—Series A

5-TUBE A. C. SUPERHETERODYNE RECEIVER

DESCRIPTION

Tubes

The Tube complement of this chassis is as follows:

1 Type 6A7—pentagrid electron coupled oscillator and first detector.
1 Type 6D6—remote cut-off pentode as I.F. amplifier.
1 Type 6B7—duplex diode pentode as diode detector, A.V.C. and A.F.
1 Type 42—pentode output tube.
1 Type 80—high vacuum rectifier.

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram

All voltages are measured with 119 volts on the primary of the power transformer.

Resistance of coils and transformer windings are indicated in ohms on schematic circuit diagram.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 40 and 60 cycles and with primary taps for 108, 125, 150, 220 and 250 volts (see illustrations) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

ALIGNING INSTRUCTIONS

Description of various dummy antennas used and referred to in these instructions:

(1) I.F. Dummy—Consists of a .1 mfd. condenser connected in series with the external oscillator.

(2) Broadcast Dummy—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Resonance Indicator:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 42 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range volt meter should be used.

Alignment

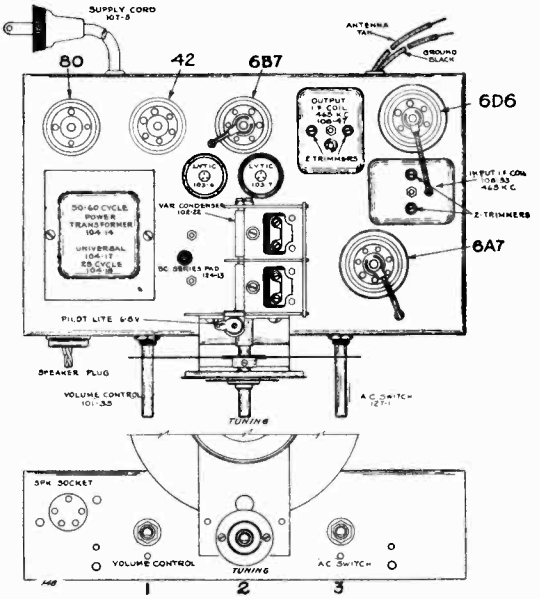
No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. To remove the knobs, pull them off and to take the chassis out of the cabinet, remove the three holts by which it is fastened and the speaker plug which you will find on the front flange of the chassis panel.

Aligning I. F. Transformers

1. With volume control full on, the extreme right of its rotation, and with variable condenser at its minimum capacity position, plates entirely out of mesh, adjust the I.F. transformers (two adjustments at the top of parts number 108-53 and 108-47)

   (a) Connect external oscillator which has been adjusted to 465 kilocycles in series with I.F. dummy antenna, to the control grid cap of the type 6D6 tube and chassis ground. Adjust output I.F. transformer, part number 108-47, to resonance.

   (b) Move generator output clip from grid of 6D6 to grid cap of 6A7 tube and align input I.F. transformer, part number 108-53.



(c) With generator connected to grid of type 6A7 tube, readjust output I.F. transformer, part number 108-47, to resonance.

R. F. Alignment—
(530 - 1720 Kilocycles)

1. With gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with broadcast dummy antenna to tan antenna and black ground leads and make the following adjustments:

   (a) With external oscillator set at 1720 kilocycles, adjust oscillator trimmer, (rear of gang condenser).

   (b) Re-set external oscillator to 1400 kilocycles, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance, (front section of gang condenser).

   (c) Re-set external oscillator to 600 kilocycles and adjust series pad to resonance, rotate condenser and move dial pointer to 600 kilocycles by gently rocking condenser to and fro. Pick up oscillator signal while adjusting series pad to resonance, maximum deflection on an output meter. This adjustment is accessible from the top of the chassis and is located between variable condenser and power transformer.

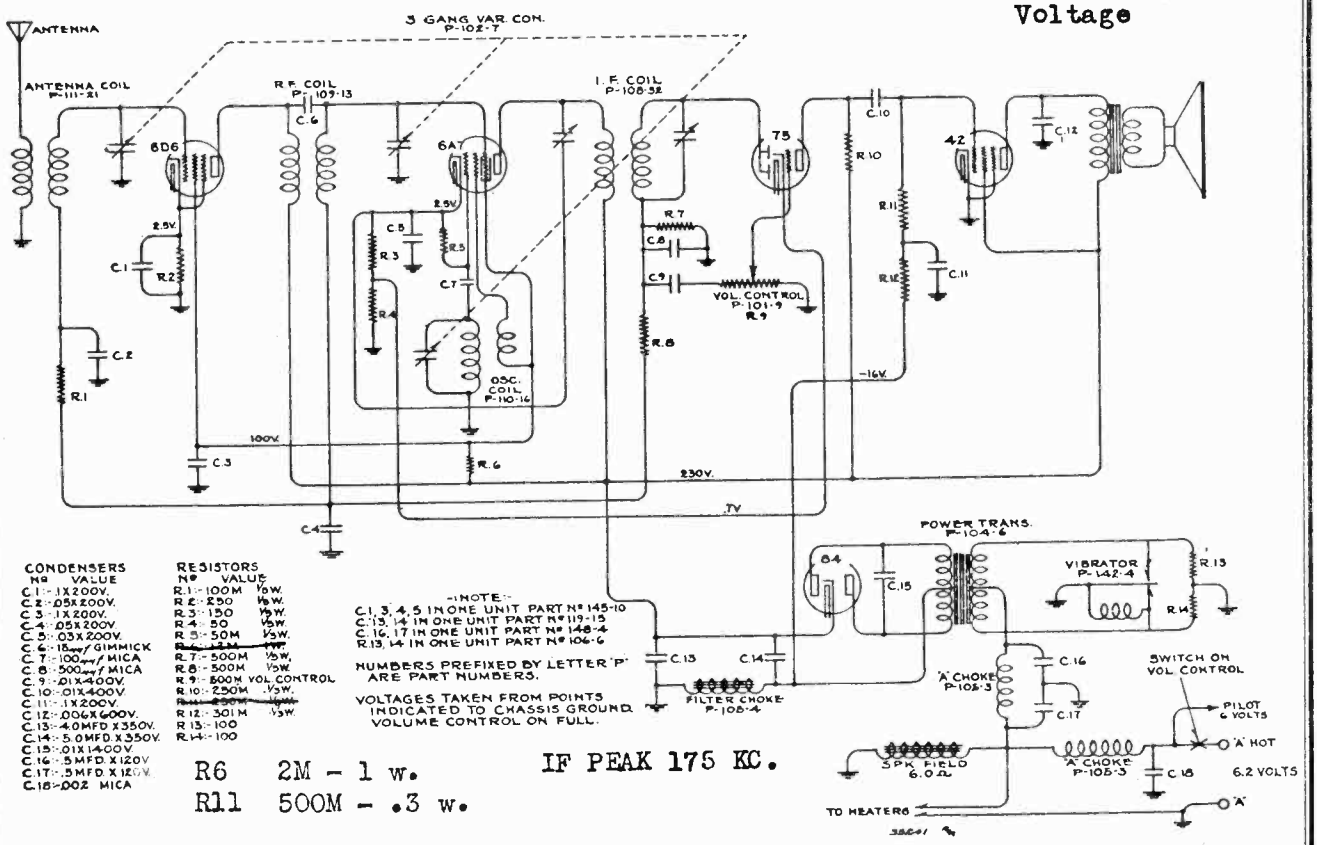
25 Cycle Chassis differ only from 60 cycle chassis in that part number 104-18 transformer is used in place of 50/60 cycle transformer, part number 104-14.

Service Notes

To check for open by-pass condensers, shunt each condenser with another of similar capacity and of the same voltage rating, which is known to be good, until the defective unit is located. Open by-pass condensers frequently cause oscillation and distorted tone. Defective and shorted electrolytic filter condensers cause excessive hum, motor-boating, low volume and a reduction in all D.C. voltages. Open or shorted electrolytic and by-pass condensers (across bias resistor of type 42 tube) will cause low volume and distorted tone.

BELMONT RADIO CORP.

MODEL 580
Schematic, Socket Voltage



CONDENSERS		RESISTORS	
No	VALUE	No	VALUE
C.1	.1X200V.	R.1	100M ½W.
C.2	.05X200V.	R.2	250 ½W.
C.3	.1X200V.	R.3	150 ½W.
C.4	.05X200V.	R.4	50 ½W.
C.5	.03X200V.	R.5	50M ½W.
C.6	18 mmf GIMMICK	R.6	2M 1W.
C.7	100 mmf MICA	R.7	500M ½W.
C.8	500 mmf MICA	R.8	500M ½W.
C.9	.01X400V.	R.9	500M VOL. CONTROL
C.10	.01X400V.	R.10	250M ½W.
C.11	.1X200V.	R.11	500M ½W.
C.12	.006X600V.	R.12	301M ½W.
C.13	40MFD. X350V.	R.13	100
C.14	5.0MFD. X350V.	R.14	100
C.15	.01X1400V.		
C.16	.5MFD. X120V.		
C.17	.5MFD. X120V.		
C.18	.002 MICA		

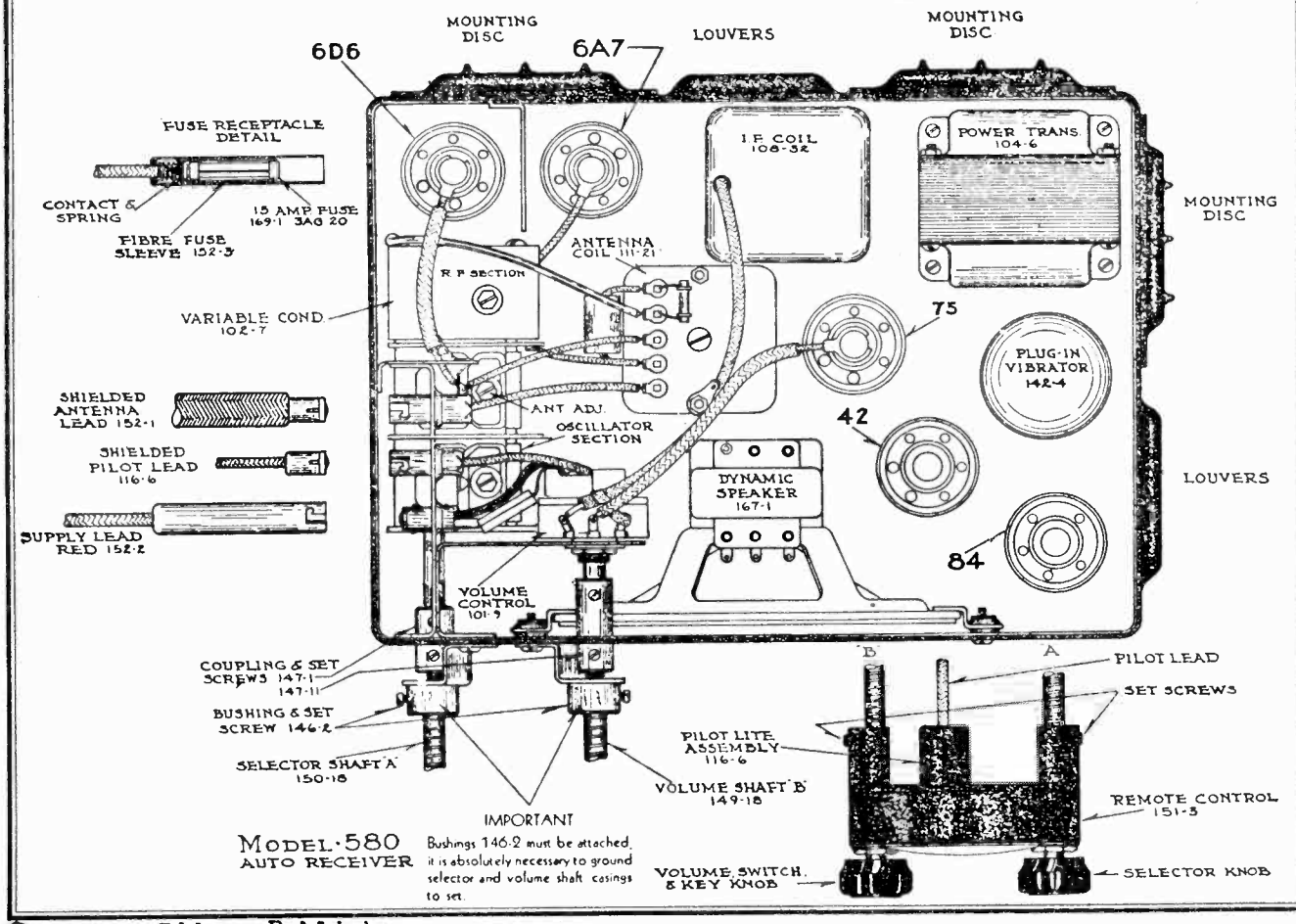
-NOTE-
C.1, 3, 4, 5 IN ONE UNIT PART No. 145-10
C.13, 14 IN ONE UNIT PART No. 119-15
C.16, 17 IN ONE UNIT PART No. 148-4
R.13, 14 IN ONE UNIT PART No. 106-6

NUMBERS PREFIXED BY LETTER 'P' ARE PART NUMBERS.

VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. VOLUME CONTROL ON FULL.

R6 2M - 1 w.
R11 500M - .3 w.

IF PEAK 175 KC.



MODEL-580 AUTO RECEIVER

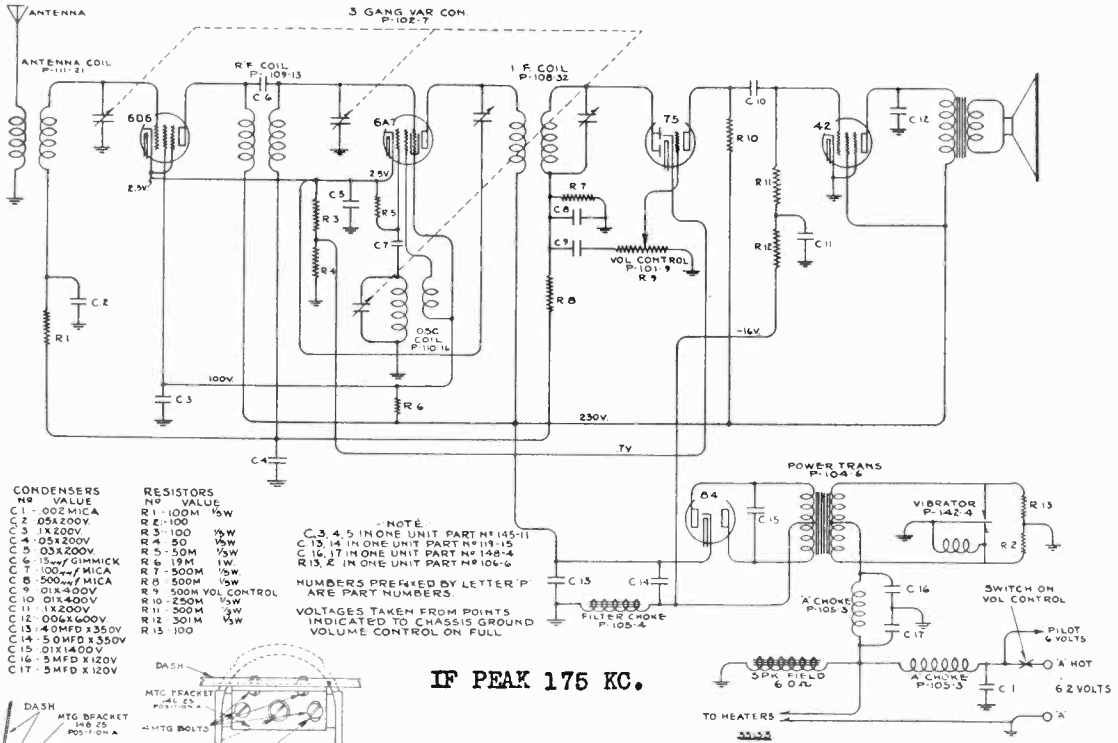
Bushings 146-2 must be attached, it is absolutely necessary to ground selector and volume shaft casings to set.

MODEL 580 Revised
Above Serial 11501

BELMONT RADIO CORP.

Model 580

Schematic, Voltage
Parts List



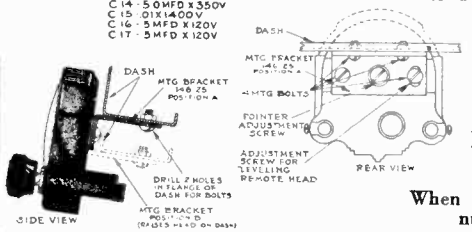
CONDENSERS		RESISTORS	
No	VALUE	No	VALUE
C1	.002 MICA	R1	100M ½W
C2	.05 X 200V.	R2	100
C3	.1 X 200V	R3	100 ½W
C4	.05 X 200V	R4	50 ½W
C5	.03 X 200V	R5	50M ½W
C6	15 μμf GIMMICK	R6	1.9M 1W
C7	100 μμf MICA	R7	500M ½W
C8	500 μμf MICA	R8	500M ½W
C9	.01 X 400V	R9	500M VOL CONTROL
C10	.01 X 400V	R10	250M ½W
C11	.1 X 200V	R11	300M ½W
C12	.006 X 600V	R12	301M ½W
C13	40 MFD X 350V	R13	100
C14	5.0 MFD X 350V		
C15	.01 X 1400V		
C16	5 MFD X 120V		
C17	5 MFD X 120V		

NOTE
C.3.4.5 IN ONE UNIT PART No 145-11
C.13.14 IN ONE UNIT PART No 119-15
C.16.17 IN ONE UNIT PART No 148-4
R13.2 IN ONE UNIT PART No 106-6

NUMBERS PREFIXED BY LETTER 'P' ARE PART NUMBERS.

VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND VOLUME CONTROL ON FULL

IF PEAK 175 KC.



REPAIR PARTS—MODEL 580

Serial No. 11501 and up

When ordering parts, always specify part and model number as well as serial number of chassis.

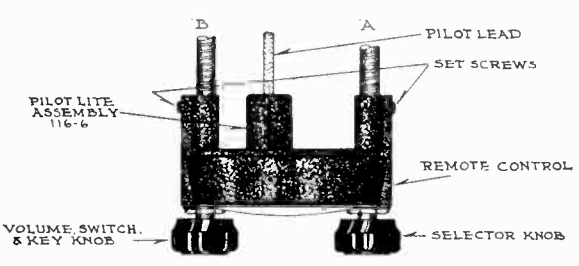
Part No.	Description	List Price Each
101-9	Volume Control with Switch	$1.35
102-7	Three Gang Geared Variable Condenser	4.00
104-6	Vibrator Transformer	3.00
105-3	"A" Choke—40T—No. 16E—½" Dia.	.10
105-4	380 Ohm Filter Choke	.85
106-6	200 Ohm Center Tapped Resistor	.25
108-32	Output I. F. Transformer Complete, less can and resistor and Condenser Assembly (175 K. C.)	1.75
109-13	R. F. Coil	1.00
110-16	Osc. Coil & bracket	.75
111-21	Antenna Coil	1.00
115-18	Special partition shield	.20
116-5	6-8 Volt T-50 pilot lamp, screw base	.10
116-14	6-8 volt T-51 frosted glass bayonet base lamp	.13
116-6	Pilot light assembly, complete, less bulb	.40
119-15	5-4 Mfd. 300 Volt Electrolytic Filter Condenser	2.50
135-5	⅜x3" carriage bolt	.05
140-4	Container complete with top and bottom	2.50
142-4	Plug-In Vibrator	4.50
145-11	By-Pass Block	.75
146-1	Special bracket including battery, antenna, pilot light cable fittings, but less antenna coil volume control	.40
146-2	Bushing and bracket complete	.20
147-1	Selector Control Coupling	.10
147-11	Volume control coupling	.10
148-1	.5 Mfd. Generator Condenser	.50
148-3	.5 Mfd. Ammeter Condenser	.40
148-4	Dual .5 Mfd. x 120 Volt Condenser	.75
148-6	Special Ford ignition condenser	.60
152-1	Antenna cable	.40
152-2	Battery cable	.35
152-3	Fuse Insulating Sleeve	.05
167-1	Dynamic Speaker	5.00
168-1	Spark-plug type suppressor Universal)	.30
168-2	Distributor plug-type suppressor	.40
168-3	Cable type suppressor	.40
169-1	15 Ampere Fuse (3AG-15)	.05
	Unless otherwise listed, all Carbon Resistors	.20
	Unless otherwise listed, all Single Section Tubular Paper By-Pass Condensers	.25
	Unless otherwise listed, all Dual Section Tubular Paper By-Pass Condensers	.50
	Unless otherwise listed, all Molded Mica Condensers	.25
	All Sockets	10
	Plate antenna	3.50

REMOTE CONTROL PARTS

Part No.	Description	List Price Ea
112-39	Selector Control Shaft	.20
112-41	Idler Gear	.15
112-42	Pointer Shaft	.05
112-43	Volume Control Shaft, Key type less knob	.10
112-85	Volume control shaft less knob	.05
112-44	Pointer (Specify White or Black)	.05
112-45	Bezel (Crystal Retainer)	.15
112-46	Celluloid Dial Crystal	.15
112-48	Pointer Shaft Gear	.05
112-89	Dial	.25
131-5	Black bakelite remote control knobs	.15
146-8	Die Cast Remote Control Mounting Bracket	.30
146-12	Steering Column Strap	.15
146-25	Dash Mounting Bracket	.15
147-3	Selector Control Bushing for 112-39 shaft	.10
147-4	Volume Control Bushing for 112-43-112-85 shaft	.10
149-18	Flexible Volume Control Cable—18"	1.25
149-24	Flexible Volume Control Cable—24"	1.50
150-18	Flexible Selector Cable—18"	1.25
150-24	Flexible Selector Cable—24"	1.50
151-7	Remote Control Head, less flexible shafts, with pilot assemblies and with knobs and mounting hardware	4.90

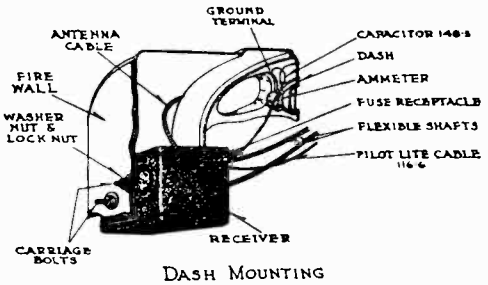
PILOT LIGHT:

Pilot light assembly, part number 116-9, plugs into the set and to the rear of the remote control unit (see illustrations).

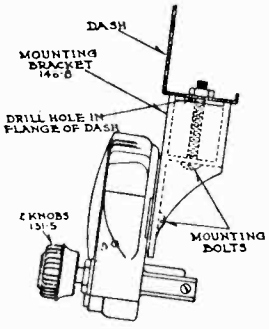


BELMONT RADIO CORP.

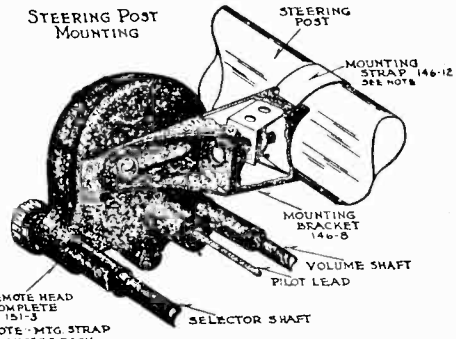
MODEL 580
Installation Details
Parts List

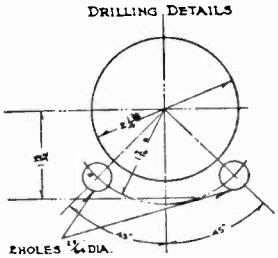


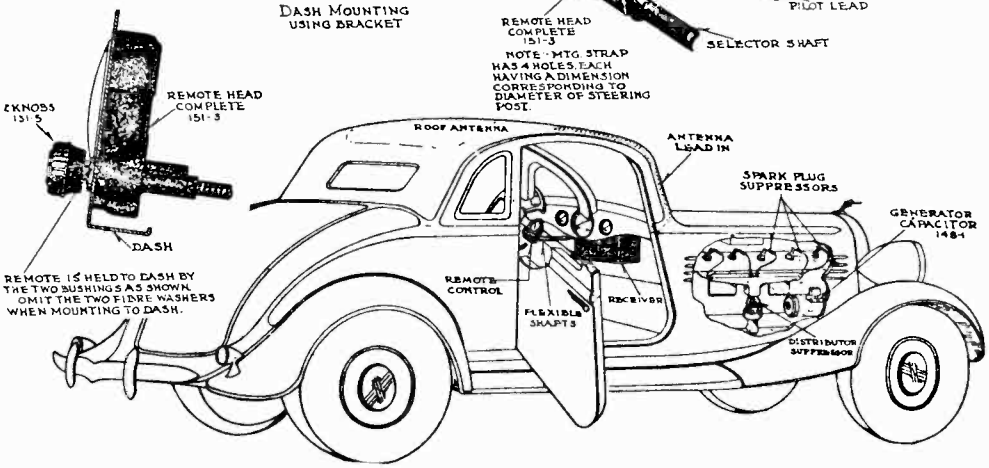
DASH MOUNTING



DASH MOUNTING USING BRACKET







PARTS LIST—MODEL 580
Serial No. 10001 and up

When ordering parts, always specify part and model number as well as serial number of chassis.

Part No.	Description
101-9	Volume Control with Switch
102-7	Three Gang Geared Variable Condenser
104-6	Vibrator Transformer
105-3	"A" Choke—40T—No. 16E—½" Dia.
105-4	380 Ohm Filter Choke
106-6	200 Ohm Center Tapped Resistor
108-32	Output I. F. Transformer Complete, less can and resistor and Condenser Assembly (175 K. C.)
109-13	R. F. Coil
110-16	Osc. Coil & bracket
111-21	Antenna Coil
115-18	Special partition shield
116-5	6-8 Volt T-50 pilot lamp
116-6	Pilot light assembly, complete, less bulb
119-15	6-3 Mfd. 350 Volt Electrolytic Filter Condenser
135-5	⅝x3" carriage bolt
140-4	Container complete with top and bottom
142-4	Plug-In Vibrator
145-10	By-Pass Block
146-1	Special bracket including battery, antenna, pilot light cable fittings, but less antenna coil volume control
146-2	Bushing and bracket complete
147-1	Selector Control Coupling
147-11	Volume control coupling
148-1	.5 Mfd. Generator Condenser
148-3	.5 Mfd. Ammeter Condenser
148-4	Dual .5 Mfd. x 120 Volt Condenser
152-1	Antenna cable
152-2	Battery cable
152-3	Fuse Insulating Sleeve
167-1	Dynamic Speaker
168-1	Spark-plug type suppressor
168-2	Distributor plug-type suppressor
168-3	Cable type suppressor
168-4	Special Ford spark-plug suppressor
169-1	15 Ampere Fuse (3AG-15)

REMOTE CONTROL PARTS

Part No.	Description
112-39	Selector Control Shaft
112-41	Idler Gear
112-42	Pointer Shaft
112-43	Volume Control Shaft
112-44	Pointer (Specify White or Black)
112-45	Dial Crystal Retainer
112-46	Celluloid Dial Crystal
112-48	Pointer Shaft Gear
112-89	Dial
131-5	Black bakelite remote control knobs
134-8	Black Fibre Washer for Volume and Selector Control Bushings
146-8	Die Cast Remote Control Mounting Bracket
146-12	Steering Column Strap
147-3	Selector Control Bushing
147-4	Volume Control Bushing
149-18	Volume Control Shaft—18"
149-24	Volume Control Shaft—24"
150-18	Selector Shaft—18"
150-24	Selector Shaft—24"
151-3	Remote Control Head, less flexible shafts, with pilot assemblies and with knobs and mounting hardware

Note: Part No. 145-10 consisting of four separate sections can be replaced with tubular single section condensers at 25c each. It will not be necessary to replace the entire unit should any section thereof fail.

Vibrators can be reconditioned at a cost of $2.25 each, if the old unit is returned.

All resistors are RMA color coded—specify value and/or resistor number (per schematic diagram) and model number.

When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.

INSTALLATION AND SERVICE INSTRUCTIONS
MODEL 580
FIVE TUBE-SUPERHETERODYNE AUTO RADIO

TUBE COMPLEMENT:

1—Type 6D6—remote cut-off pentode as an R. F. amplifier.
1—Type 6A7—pentode as an oscillator and first detector.
1—Type 75 —duplex diode triode second detector automatic volume control and first audio.
1—Type 42 —pentode output tube.
1—Type 84 —high vacuum full wave rectifier.

ACCESSORIES:

The carton of accessories packed with this set contains the following:
1—No. 152-1 shielded plug-in type antenna cable.
1—No. 152-2 plug-in battery cable.
1—No. 149-18 flexible volume control shaft (slotted fitting).
1—No. 150-18 flexible selector shaft (key fitting).
2—No. 146-2 brackets for anchoring flexible shafts to set container.
2—No. 135-5—3" x 5/8" carriage bolts and nuts for mounting set to bulk head.
2—No. 134-1—3/8" x 1" iron washers.
2—No. 134-2—3/8" lockwashers.
6—No. 154-2 set screws, 4 for attaching flexible cables to set, 2 for anchoring cables to brackets.
4—No. 155-6—No. 6 x 1/4" binding head self-tapping screws for attaching brackets (No. 146-2).
6—168-1—Spark plug type suppressors.
1—168-2—Distributor type suppressor.
1—No. 148-1 generator condenser.
1—No. 148-3 ammeter condenser.
1—No 151-3 remote control head
1—No. 116-6 pilot light assembly complete.
1—No 146-8 Die cast mounting bracket.
1—No. 146-12 Steering column strap.
1—No. 116-5 6-8 volt bulb.
1—No 169-1 15 amp. fuse.
1—No. 152-3 Fuse insulating sleeve.

RECEIVER INSTALLATION:

Determine most satisfactory or desirable mounting position. In most cases it will be found that the receiver can be mounted on the car bulk head, above and to the right of the steering post.

Use the paper emplate included with these instructions and which is the same size as the set. Mark location for two mounting bolts if mounted on the long side and for one mounting bolt if mounted on the short side.

Then drill two (2) one-half inch (1/2") holes, making certain that the paint around the hole on the engine side of fire wall or bulk head is scraped clean to insure a good ground connection between receiver and the frame of the car. Assemble brackets number 146-2 to case with self-tapping screws.

Insert bolts through dash, assemble plain, lockwashers and nuts on engine side, then hang receiver over bolt heads and tighten nuts securely.

Mount the remote control unit on steering column by means of mounting bracket or attach to instrument panel or under dash (see illustration).

Two flexible shafts are furnished, one with a slotted fitting on one end, which is the volume control shaft (number 149-18), the other is the selector shaft, with key fitting at one end (number 150-18).

Make certain that the outer casings of flexible shafts go into remote control bushings for approximately five-sixteenths of an inch and tighten set screws to secure cables. If cables are pushed too far into remote control head, shafts will not turn freely. Always try to install drive shafts in as straight a line as possible from remote control to set. AVOID SHARP BENDS IN CABLES.

IMPORTANT—READ CAREFULLY:

We are prepared to exchange, without charge, our standard number 149-18 and 150-18, eighteen inch cables for twenty-four inch cables, number 149-24 and 150-24. You will find that 99% of the installations can be made with the standard eighteen inch cables, and bear in mind that the shorter the cable, the smoother the drive.

DASH MOUNTING FOR THE REMOTE CONTROL HEAD:

The majority of the new 1935 model automobiles have provisions made for mounting the remote control head of an auto radio on the dash. We have available special escutcheon plates for this purpose which can be secured upon request at an additional cost of $1.00. *When requesting escutcheon plates specify make and model of the car, also the finish of the dash.*

Following is a list of 1935 model automobiles which contain removable ash tray receivers and which are able to accommodate the *remote control head of our model 580 auto receiver.*

Chrysler Airstream	Nash	Reo
Dodge	Packard	Ford V-8
Plymouth	Graham DeLuxe	
De Soto Airstream	Hupmobile	

Following is a list of 1935 model automobiles which do not contain ash tray receivers but with the aid of the special drilling dimensions furnished herewith the left hand panel on the dash may be drilled to accommodate our regular remote control head.

La Fayette (Nash)	Graham (Standard)
Franklin	Studebaker

For installation of our remote control head on the following cars we recommend standard steering column or dash mounting with the aid of a bracket:

Auburn	Terraplane	De Soto & Chrysler Airflow
Buick	Pontiac	Hudson
Cadillac	Chevrolet—Standard	Lincoln
La Salle	& De Luxe	Oldsmobile

Many of the 1931 model automobiles contain the same size ash tray receiver as the 1935 models and naturally installation of the remote control head can be made on these models.

We have found that our model 580 auto receiver will fit above the steering column on the fire wall of 75% of the late model automobiles and for dash mounting of the remote control head this location works out very satisfactorily.

The Cadillac, La Salle, Chevrolet, Pontiac and Oldsmobile 1935 automobiles have special blank escutcheon plates on the dash which are intended for remote control heads for auto receivers. The cut-out behind these blank escutcheons will not accommodate our remote control head and for installation in these models we recommend using standard steering column mounting for the remote control head or dash mounting using a bracket as illustrated in drawings contained herein.

DIAL ADJUSTMENT:

Mount control head to steering column by means of bracket and strap or under dash by means of bracket or to instrument panel (see illustrations). Attach cables as above. Tune set to some station of a known frequency (between 800 and 1200 K.C.), hold selector knob, then with a screw driver adjust the slotted screw on back of the control head, and in that way adjust the dial pointer to the correct frequency setting.

CONNECTIONS TO BATTERY:

The battery cable, number 152-2, (red wire with fuse receptacle at one end and terminal lug at other end) must be connected to battery terminal of ammeter. At the same time connect ammeter capacitor, number 148-3, to battery terminal of ammeter, other end of condenser to any convenient grounded screw on back of instrument panel. Make certain that insulating sleeve is slipped over fuse when fuse is placed in receptacle, before inserting in receiver (see illustration). All bypass leads should be as short as possible.

When connected properly, the discharge due to current drawn by the receiver should not indicate on the ammeter. This is important, since if improperly connected, as shown by the deflection of ammeter, additional motor interference may be encountered.

PILOT LIGHT:

Pilot light assembly, part number 116-6, a shielded cable, plugs into the set and to the rear of the remote control unit (see illustrations).

ANTENNA CONNECTION:

The antenna is connected to the receiver by means of the antenna cable, number 152-1. The antenna wire is the single black wire projecting from the end of the cable. Splice this wire to the roof antenna lead and ground the pig-tail shielding as close to the corner post of the car as possible.

OPERATION:

Place key (knob) in lock of left hand control of the remote control unit. After waiting approximately 45 seconds for tubes to heat up, rotate station selector, right hand knob, until a desirable program is heard. De-tuning will very seriously affect the tone quality of this receiver.

MOTOR NOISE SUPPRESSION:

The ignition system of every automobile generates high frequency electrical interference. This high frequency interference arising from the ignition coil, the distributor and the spark plugs must be properly suppressed in order to obtain satisfactory reception. Each car will present more or less an individual problem but there is a definite procedure to follow which holds true in every case.

This first essential procedure is to disconnect the high tension leads to the spark plugs and attach the spark plug suppressors (168-1) (for V 8 Fords 168-4) the special distributor type suppressor (168-2) which is inserted in the center contact of the distributor as indicated in the illustration of a typical installation. (NOTE V 8 FORD USES NO DISTRIBUTOR SUPPRESSOR.) For cap type distributor, exchange the standard plug type distributor suppressor (168-2) for a special cable type suppressor (168-3) from your dealer. In some few cases, such as Buicks it is sometimes necessary to use cable type (168-3) suppressors. This type of suppressor is inserted in the leads running from the distributor to the spark plugs and which are concealed underneath the metal plate which covers the spark plugs.

After the spark and distributor suppressors have been properly fastened the next in importance is the generator condenser (148-1), this filters a high pitched whining noise which would otherwise be heard as the motor is accelerated.

It is sometimes necessary in cars where the ignition coil is located under the dash, to use an additional capacitor (148-1) obtainable from your dealer. It must be installed between the battery side of the ignition coil and the frame of the car. Next connect capacitor (148-3) from the battery side of ammeter to frame of car. This is necessary in practically every installation and a good connection to the frame of the car is of utmost importance.

After standard suppression has been applied and the hood clamped down to prevent radiation, the receiver should be turned on and the dial turned off a station, with the volume control at maximum. If motor noise is still objectionable the next step is to determine whether the interference is originating through chassis pickup or from the antenna.

To check for chassis pickup, disconnect the antenna from the antenna cable and ground the antenna lead to shield of cable, or remove antenna cable. Chassis pickup can be reduced by reducing the gap between plug contacts and the rotating arm in the distributor head. To do this, apply solder to the end of the rotor arm. Replace the rotor in the distributor and turn the engine over slowly with the crank in order to clean the excess solder. The rotor should not brush or wipe the contacts inside the distributor cap, but should just clear them. As an additional precaution check the breaker points. They should be thoroughly cleaned and adjusted or new points installed if they are badly worn. The ignition system of a car must be kept in good condition and leaky cracked high tension wires and bad spark plugs should be replaced. In many cars the low tension battery leads, etc., are grouped together with the high tension wires. These leads will very often pick up motor noise and feed it into the receiver through the battery circuit. In cases such as these it will be necessary to separate the low tension from the high tension wires and run them through another hole if they run from the engine compartment up to the instrument panel. This condition is particularly true on the V 8 Ford as the battery and primary leads run through a special tube which also houses the high tension leads. Shield and ground these leads. It is also necessary on V 8 Fords to install a capacitor between the primary terminal of the coil and ground.

Cars with floating power must have the motor bonded to the bulkhead and again to the frame to provide a direct path for the high frequency interference developed in the ignition system. 3/8" copper braid will be necessary, SMALL DIAMETER WIRE WILL NOT DO. Bond flexible shaft leads, such as free wheeling, choke wires, etc., which pick up motor noise and reradiate it into the car. In extreme cases it has been found necessary to ground the steering column. Free wheeling cables should be grounded at the point at which they go through the fire wall of the car.

On cars which have a wooden bulkhead it is necessary to line the motor side with thin sheet metal and ground. This will prevent interference from entering the inside of the car and from there being picked up by the antenna. It is also necessary in some installations to connect a capacitor from the hot side of the dome light wire to frame of the car. This lead can usually be found by referring to the electrical wiring diagram of the car. If the ignition coil is mounted inside the driving compartment, it may be necessary to shield the high tension lead running from the coil to the distributor. This cannot be done effectively, however, if the wire has rubber insulation. Where the car is so equipped this wire should be replaced with a good quality high tension wire such as Packard cable. When applying the shield over this wire be sure that it terminates at least an inch from both ends of the lead and that the shield is grounded at both ends; one end under the dash and the other to the engine. It may be necessary to by-pass the electrical connections of all gauges such as oil, water, gas (Hudson-Terraplane).

The foregoing rules should remove any trace of chassis pickup. Now connect the antenna to the receiver and test for motor noise pickup. It is entirely probable that if any noise is present it will be very slight and only noticeable between stations.

No absolute rule for complete motor noise elimination can be specified inasmuch as many times two cars of the same make present entirely different problems and require bonding or shielding at different points.

A word or two concerning antennas; naturally the performance of any radio depends on the effectiveness of the antenna. The later model cars are coming through with very good Antennas, already installed and no trouble should be experienced from this angle with of course an occasional exception. The older cars present a more difficult problem and naturally the service man will have to take cases of this nature into consideration. Many of the older cars on the market today have a wire network in the roof which is nothing more than ordinary chicken wire.

This wire network acts as a support to the roof and is in the majority of cases grounded directly to the body of the car at the point at which the roof meets the sides of the body. Service men frequently tack antennas to the underside of the top material in these cars, this is not satisfactory. There are but two things to do. Either an underslung (plate or strap) antenna must be used or the wire network must be cut from all grounds to the car. If this is done this network will in itself make a very good antenna, but it will be necessary to cut the wire network back for a distance of at least three inches from all sides of the car.

When running the lead-in up the corner post of the car to the roof antenna ground it every few inches to the frame of the body of the car. If this is not possible insulate it, otherwise scratchy noises will result.

Shield high tension leads.

The ignition system of car must be kept in good condition.

It is advisable to advance the generator charging rate in order to compensate for the additional drain of the receiver on car storage battery. THIS SHOULD BE DONE BY A COMPETENT SERVICE STATION.

BALANCING SET TO ANTENNA:

When this set has been installed and is ready for operation it may be found necessary (depending on antenna) to balance set to this antenna. This is accomplished as follows:

With the receiver tuned to a very weak station, about 130 to 140 (1300 to 1400 kilocycles) on the dial, adjust the antenna trimmer with a screw driver until maximum volume is attained. To reach the antenna trimmer remove the plug button from the top of the case.

SERVICE NOTES:

Model 580 is a five tube superheterodyne receiver with an intermediate frequency of 175 kilocycles and a tuning range of from 530 to 1550 kilocycles.

This receiver has been carefully designed to facilitate servicing, the top and bottom covers are both removable, any part is replaceable without removing the chassis from the cabinet. All adjustments are made without removing the chassis from the cabinet.

Should it ever become necessary or desirable to re-align this receiver, the proper method is as follows:

I. F. ALIGNMENT:

1. With variable condenser at its maximum capacity position and with volume control full on, connect in series with a .1 mfd. condenser, an oscillator set at 175 kilocycles to the grid cap of the 6A7 tube.

2. Adjust trimming condensers of I. F. transformer, part number 108-32 (two adjustments) to resonance, as indicated on an output meter connected across the primary terminals of the speaker input transformer or between the plate and screen terminals of the type 42 output tube. The connection to the tube can be made by means of an adapter. Maximum deflection of the meter indicates resonance.

Note: I. F. transformer adjustments are accessible from the bottom of the chassis—the bottom cover must be removed.

R. F. ALIGNMENT:

1. Attach oscillator connected in series with a 200 mmfd. condenser to the antenna lead and with the variable condenser at its minimum capacity position (extreme right of its rotation) and with an oscillator set at 1550 kilocycles, adjust condenser trimmer of oscillator section (Front shaft end) to resonance.

2. Re-set oscillator to 1400 kilocycles, rotate variable condenser to pick up signal, adjust antenna (center section) and R. F. (rear section) trimmers to resonance.

3. Check alignment at 1400-1000-600-530 kilocycles by setting oscillator to these frequencies and picking up signal by rotating condenser.

4. Bend slotted plates of antenna and R. F. sections only if necessary. UNDER NO CIRCUMSTANCES BEND PLATES OF OSCILLATOR SECTION.

NOTES:

Voltages from chassis to different points are indicated on schematic circuit diagram, and should be measured with a voltmeter having a resistance of 1000 ohms per volt.

Failure to operate, noisy or weak reception, may be due to defective tubes or poor contact between cap on top of tube and grid clip.

Tubes may be checked by replacing with another tube which is known to be good.

If fuse blows out frequently, and insulating sleeve has been properly placed over fuse, the trouble probably is in the vibrator and vibrator should be replaced.

NEVER ATTEMPT TO ADJUST VIBRATOR POINTS.

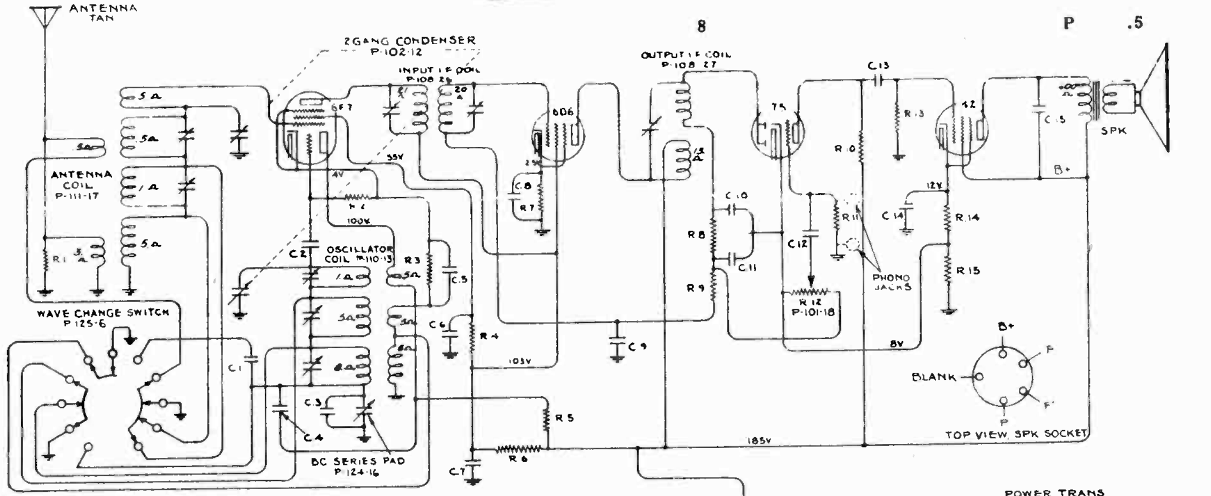
Case rattles may be due to one or more of the following:

Loose screws in top or bottom covers. Loose elements in tubes. Loose tube shield. Loose R. F. coil shield. Loose grill cloth.

MODEL 585
Series A,B,C
Schematics,Voltage

BELMONT RADIO CORP.

SERIES A



LEGEND

CONDENSERS

Nº	VALUE
C 1	2870 μμf MICA
C 2	100 " "
C 3	475 "
C 4	.1 X 200V
C 5	.1 X 200V.
C 6	.1 X 200V
C 7	.1 X 200V
C 8	.1 X 200V
C 9	.1 X 200V.
C 10	500 μμf MICA
C 11	500 μμf MICA
C 12	.05 X 200V
C 13	.01 X 400V
C 14	4.0 MFD X 25V
C 15	.015 X 400V.
C 16	3.0 MFD X 250V
C 17	4.0 MFD X 300V

RESISTORS

Nº	VALUE	
R 1	800 Ω	⅓W.
R 2	50M Ω	"
R 3	700 Ω	
R 4	100M Ω	"
R 5	20M Ω	½W.
R 6	19M Ω	½W.
R 7	200 Ω	
R 8	50M Ω	⅓W
R 9	1 MEG	"
R 10	250M Ω	"
R 11	2 MEG.	"
R 12	500M Ω	VOL. CONTROL
R 13	500M Ω	⅓W.
R 14	500 Ω	"
R 15	35 Ω	

NOTE

C.7, C.9 ARE IN ONE UNIT P-118-1
C.14, C.16, C.17 ONE UNIT LYTIC P-119-11
R.7, R.14, R.15, ONE UNIT P-106-18

NUMBERS PREFIXED BY LETTER "P" ARE PART NUMBERS.

VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. VOLUME CONTROL ON FULL

WAVE CHANGE SWITCH P-125-6 - 3 POSITIONS ROTATING CL'KWISE -
1ST POSITION - BC 1720 - 540 KC
2ND " - MW. 7.6 - 2.3 MC
3RD " - SW. 23.0 - 7.5 MC
SWITCH SHOWN AT SW. POSITION

TUNING RANGE—SERIES A:
Standard Broadcast Band
540 - 1720 Kilocycles
Intermediate Band
2.3 - 7.6 Megacycles
Short Wave Band
7.5 - 23.0 Megacycles

TUNING RANGE—SERIES B & C:
Standard Broadcast Band
530 - 1720 Kilocycles
Intermediate Band
2.35 - 7.7 Megacycles
Short Wave Band
7.6 - 19.0 Megacycles

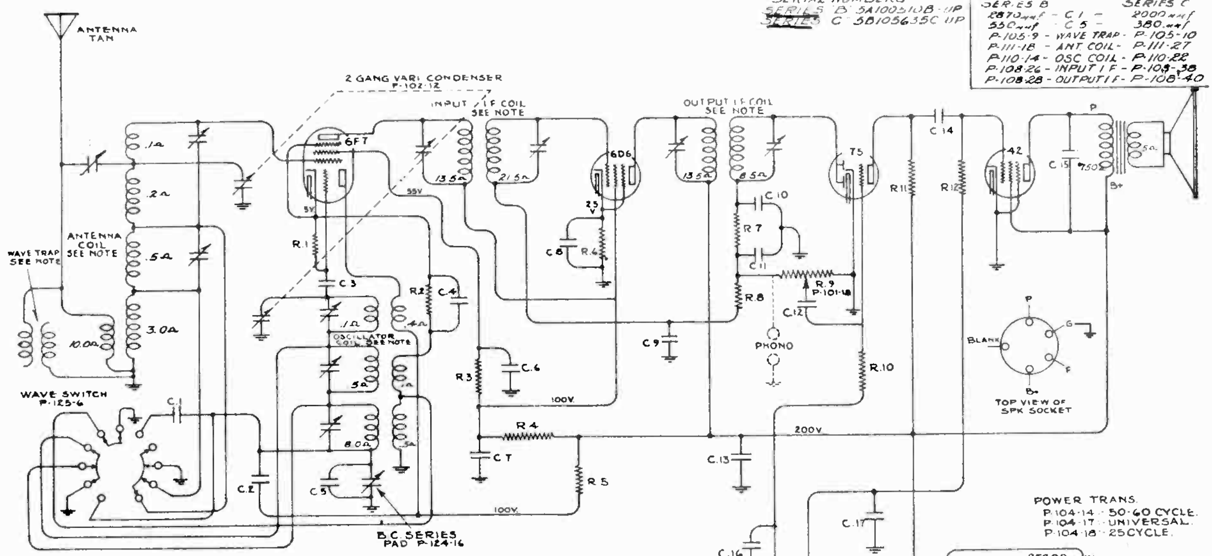
I. F. FREQUENCY:

Series A, Series B — 370 K.C.
Series C — 465 K.C.

SERIAL NUMBERS
SERIES B 5A100510B - UP
SERIES C 5B105635C UP

NOTE

SERIES B		SERIES C
2870 μμf	C 1	2000 μμf
550 μμf	C 5	380 μμf
P-105-9	WAVE TRAP	P-105-10
P-111-18	ANT. COIL	P-111-27
P-110-14	OSC COIL	P-110-22
P-108-26	INPUT I F	P-108-38
P-108-28	OUTPUT I F	P-108-40



CONDENSERS

Nº	VALUE
C 1	SEE NOTE
C 2	.1 X 200V
C 3	100 μμf MICA
C 4	.1 X 200V
C 5	SEE NOTE
C 6	.1 X 200V
C 7	.1 X 200V
C 8	.1 X 200V
C 9	.1 X 200V.
C 10	100 μμf MICA
C 11	100 μμf MICA
C 12	.05 X 200V.
C 13	8.0 MFD X 300V P-103-7
C 14	.01 X 400V
C 16	.1 X 200V.
C 17	.1 X 200V.
C 18	8.0 MFD X 350V. P-103-6
C 15	.015 x 600V

RESISTORS

Nº	VALUE	
R 1	50M	⅓W
R 2	700	"
R 3	100M	"
R 4	25M	½W
R 5	20M	"
R 6	250	⅓W
R 7	50M	"
R 8	500M	"
R 9	500M	VOL. CONT'L
R 10	1 MEG.	⅓W
R 11	250M	"
R 12	"	"
R 13	15M	"
R 14	180M	"
R 15	800M	"

C.6, C.8 IN DUAL UNIT P-118-1
C.7, C.9 " " " "
C.16, C.17 " " " "

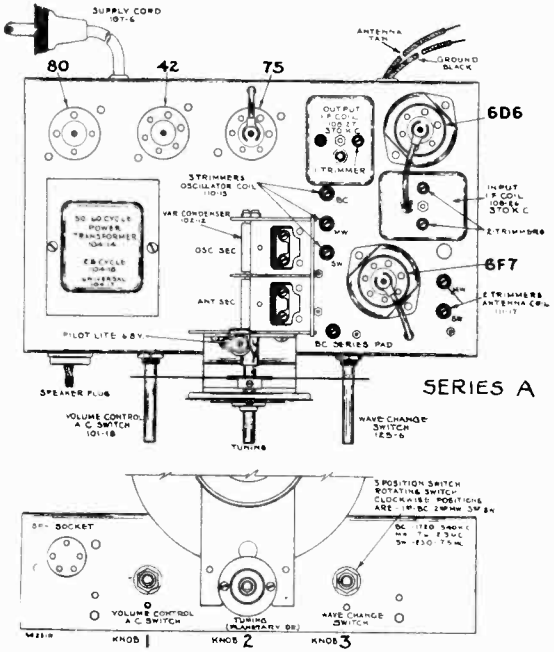
NUMBERS PREFIXED BY LETTER "P" ARE PART NUMBERS.

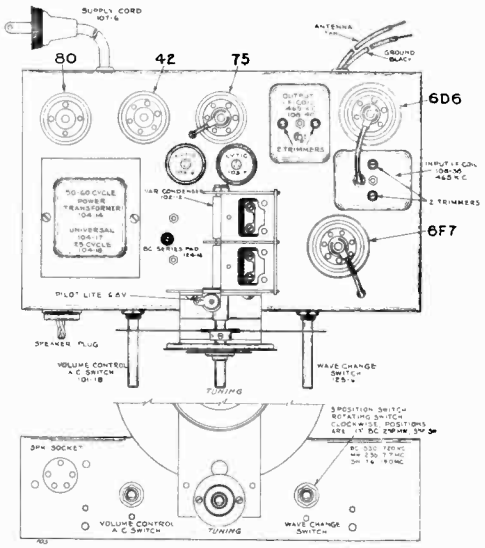
VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. VOLUME CONTROL ON FULL

WAVE SWITCH P-125-6, 3 POSITIONS ROTATING CL'KWISE :-
1ST POSITION - BC. 1720 - 530 KC
2ND " - MW. 7.7 - 2.35 MC
3RD " - SW. 19.0 - 7.6 MC
SWITCH SHOWN AT SW. POSITION

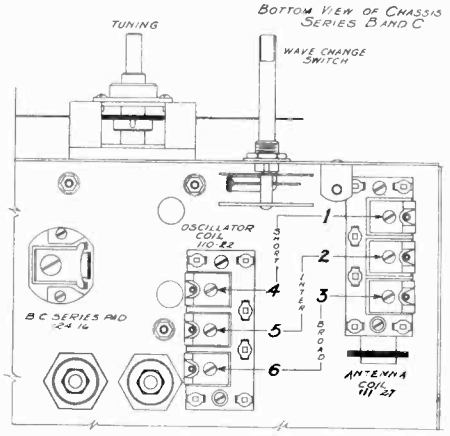
MODEL 585
Series A,B,C
Socket Layouts,Trimmers
Parts, Change Data

BELMONT RADIO CORP.





SERIES B & C



LIST OF REPAIR PARTS - MODEL 585 (SERIES A - B - C)

Parts Used in Ser. A	Parts Used in Ser. B	Parts Used in Ser. C.	DESCRIPTION	Not Used in Set
			CONDENSERS	
100-11	100-11	100-11	.01 x 400V—25%	
100-15	100-15	100-15	.015 x 400V—Plus 10%; Minus 20%	
100-19	100-19	100-19	.006 x 600V—25%	
100-20	100-20	100-20	.1 x 120V—25%	
Not Used	100-22	100-22	.05 x 200—25%	
Not Used	103-6	103-6	8 Mfd. x 350V Electrolytic	
Not Used	103-7	103-7	8 Mfd. x 300V Electrolytic	
118-1	118-1	118-1	Dual .1 x 200V—Plus 50%; Minus 10% (Series B & C use 3 per set)	
119-11	Not Used	Not Used	4-3-4 Mfd. Electrolytic	
119-12	Not Used	Not Used	8-8-4 Mfd. Electrolytic (For 25 Cy. Only	
129-2	129-2	129-2	.0005 Mica—MT—20%	
129-5	129-5	129-5	.0001 Mica—MT—20%	
129-15	129-15	Not Used	.00055 Mica—MT—5%	
129-16	129-16	Not Used	.00287 Mica—MW—5%	
Not Used	Not Used	129-23	.002 Mica—MW—5%	
Not Used	Not Used	129-24	.000425 Mica—MT—5%	
			RESISTORS	
130-3	130-3	130-3	500M Ohm—1/5 Watt—20%—100V—Carbon	
130-11	130-11	130-11	250M Ohm 1/3 Watt—20%—50V—Carbon	
130-12	130-12	130-12	50M Ohm—1/3 Watt—20%—20V—Carbon	
130-19	130-19	130-19	1 Meg Ohm—1/3Watt—20%—100V—Carbon	
130-20	130-20	130-20	100M Ohm—1/5 Watt—20%—50V—Carbon	
Not Used	130-32	130-32	250 Ohm—1/3 Watt—20%—10V—Wire W.	
130-38	Not Used	Not Used	2 Meg Ohm—1/3 Watt—20%—20V—Carbon	
130-39	130-39	130-39	700 Ohm—1/3 Watt—20%—20V—Carbon	
130-40	Not Used	Not Used	10M Ohm—1/2 Watt—20%—150V—Carbon	
130-41	Not Used	Not Used	800 Ohm—1/3 Watt—20%—20V—Carbon	
130-42	130-42	130-42	20M Ohm—1/2 Watt—20%—100V—Carbon	
Not Used	130-44	130-44	25M Ohm—1/2 Watt—20%—150V—Carbon	
Not Used	130-46	130-46	800M Ohm—1/5 Watt—10%—100V—Carbon	
Not Used	130-47	130-47	180M Ohm—1/5 Watt—10%—100V—Carbon	
Not Used	130-48	130-48	15M Ohm—1/5 Watt—10%—20V—Carbon	
			POWER TRANSFORMERS	
104-14	104-14	104-14	50/60 Cycle Power Transformer	
104-17	104-17	104-17	Universal Power Trans.—40 Cy. Primary	
104-18	104-18	104-18	25 Cycle Power Transformer	
			COILS	
Not Used	105-9	Not Used	Antenna Choke Coil	
Not Used	Not Used	105-10	Antenna Choke Coil	
108-26	108-26	Not Used	Input I. F. Transformer Complete	
108-27	Not Used	Not Used	Output I. F. Transformer Complete	
Not Used	108-28	Not Used	Output I. F. Transformer Complete	
Not Used	Not Used	108-38	Input I. F. Transformer Complete	
Not Used	Not Used	108-40	Output I. F. Transformer Complete	
110-13	Not Used	Not Used	Oscillator Coil Complete	
Not Used	110-14	Not Used	Oscillator Coil Complete	
Not Used	Not Used	110-22	Oscillator Coil Complete	
111-17	Not Used	Not Used	Antenna Coil Complete	
Not Used	111-18	Not Used	Antenna Coil Complete	
Not Used	Not Used	111-27	Antenna Coil Complete	
			SOCKETS	
121	121	121	Four Prong Socket—Type 80	
121	121	121	Five Prong Socket—Speaker	
121	121	121	Six Prong Socket—Type 42	
121	121	121	Six Prong Socket—Type 75	
121	121	121	Six Prong Socket—Type 6D6	
121	121	121	Seven Prong Socket—Type 6F7	
			MISCELLANEOUS	
101-18	101-18	101-18	Volume Control	
102-12	102-12	102-12	Two Gang Variable Condenser	
106-18	Not Used	Not Used	Metal Clad Resistor	
107-5	107-5	107-5	Line Cord	

DESCRIPTION

Tubes

The Tube complement of this chassis is as follows:

1 Type 6F7—triode pentode as oscillator and first detector.
1 Type 6D6—remote cut-off pentode as I.F. amplifier.
1 Type 75—duplex diode triode as diode detector, A.V.C. and A.F.
1 Type 42—pentode output tube.
1 Type 80—high vacuum rectifier.

Series "A" chassis are equipped with dry electrolytic filter condensers and are serially numbered on paper tags which are attached to the line cord and to the inside of the cabinet.

Series "B" and "C" chassis are serially numbered on the back flange of the chassis, series "B" beginning with number "5A100510B" and up; series "C" chassis, beginning with number "5B105635C", differs only from series "B" in that the I.F. frequency was changed from 370 to 465 kilocycles.

Series "B" and "C" may be identified by the letter "B" and "C" at the end of the serial numbers.

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagrams of series "A," "B," and "C."

All voltages are measured with 119 volts on the primary of the power transformer.

Resistance of coils and transformer windings are indicated in ohms on schematic circuit diagram.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 40 and 60 cycles and with primary taps for 108, 125, 150, 220 and 250 volts (see illustrations) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

ALIGNING INSTRUCTIONS—SERIES A

Description of various dummy antennas used and referred to in these instructions:

(1) I.F. Dummy—Consists of a .1 mfd. condenser connected in series with the external oscillator.

(2) Broadcast Dummy—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

(3) Intermediate and Short Wave Dummy—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

Resonance Indicator:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 42 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range volt meter should be used.

SERIES A

Alignment

No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. To remove the knobs, pull them off and to take the chassis out of the cabinet, remove the three bolts by which it is fastened and the speaker plug which you will find on the front flange of the chassis.

Aligning I. F. Transformers

1. With volume control full on, the extreme right of its rotation, and with wave changing switch in the broadcast position, extreme left of its rotation, and with variable condenser at its minimum capacity position, plates, entirely out of mesh, adjust the I.F. transformers (adjustments at the top of parts number 108-26 and 108-27—see top view).

(a) Connect external oscillator in series with I.F. dummy antenna. With external oscillator adjusted to 370 kilocycles, in series with I.F. dummy antenna to the control grid cap of the type 6D6 tube and chassis ground, adjust output I.F. transformer, part number 108-27, to resonance.

Note: Output I.F. transformer, part number 108-27, has only one adjustment.

(b) Move generator output clip from grid of 6D6 to grid cap of type 6F7 tube and align input I.F. transformer, part number 108-26, to resonance. NOTE: IT IS EXTREMELY NECESSARY TO ALIGN BOTH I.F. STAGES SEPARATELY.

Broadcast Band Alignment—(540 - 1720 Kilocycles)

1. With wave changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with broadcast dummy antenna to tan antenna lead and black ground lead, make the following adjustments:

(a) Set external oscillator to 1720 kilocycles and adjust oscillator trimmer to resonance. This adjustment is the rear adjustment of a group of three located next to the variable condenser.

(b) Readjust external oscillator to 600 kilocycles and adjust broadcast series pad to resonance by rotating condenser to approximately 600 kilocycles, rocking it slowly to and fro until by adjusting pad maximum output is attained. This adjustment is located at the front of the chassis next to the variable condenser and wave changing switch.

(c) Check for tracking and sensitivity at 1400 and 1000 kilocycles. NOTE: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall below the fundamental.

Short Wave Band Alignment—(7.5 - 23.0 Megacycles)

1. This band is aligned after the I.F. adjustments have been completed. Set wave selector switch in the short wave position, extreme right of its rotation, set pointer of dial to 21 megacycles.

(a) With external oscillator set at 21 megacycles, and connected to the tan antenna lead in series with the short wave dummy and to the black ground lead, adjust the oscillator short wave trimmer until generator signal is picked up. This trimmer is the one closest to the front of the chassis of the group of three trimmers located next to the gang condenser (see top view of chassis).

(b) Adjust short wave antenna trimmer to resonance. This adjustment is to the right of the 6F7 tube and is the one closest to the front of the chassis (see top view).

(c) Re-set external oscillator to 9 megacycles and pick up oscillator signal by rotating variable condenser, moving dial pointer. Check for tracking and sensitivity and do not bend plates. NOTE: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall below the fundamental.

Intermediate Band Alignment—(2.3 - 7.6 Megacycles)

1. With wave selector switch in the center position and with dial pointer set to 7 megacycles, makes the following adjustments:

(a) With external oscillator set at 7 megacycles and connected in series with the short wave dummy antenna to the tan antenna lead and black ground lead, same as for short wave adjustments, adjust center trimmer of oscillator coil, part number 110-13, until 7 megacycle signal is picked up. This is the center adjustment of a group of three located next to the gang condenser (see top view).

(b) Adjust antenna trimmer to resonance, this adjustment is the rear of a group of two located at the right of the chassis next to the 6F7 tube (see top view).

(c) Re-set external oscillator to 2.5 megacycles (2500 kilocycles), pick up signal by rotating condenser and moving dial pointer. Check for tracking and sensitivity. Do not bend plates. NOTE: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall below the fundamental.

Service Notes

To check for open by-pass condensers, shunt each condenser with another of similar capacity and of the same voltage rating, which is known to be good, until the defective unit is located. Open by-pass condensers frequently cause oscillation and distorted tone. Defective and shorted electrolytic filter condensers cause excessive hum, motor-boating, low volume and a reduction in all D.C. voltages. Open or shorted electrolytic and by-pass condensers (across bias resistor of type 42 tube) will cause low volume and distorted tone.

Should the planetary vernier dial drive mechanism fail to function properly, it will probably be found to be due to a cracked or broken compression spring. The drive may be disassembled to replace the compression spring (part number 112-31) by removing the two screws which fasten it to the dial bracket. Before reassembling all parts should be carefully cleaned and a small amount of vaseline applied to the ball bearings. All other dial parts are hardened and should cause no trouble.

Notes—(Series "A" Only)

25 Cycle chassis differ from regular 60 cycle and 40 cycle chassis in that a larger electrolytic filter condenser is used. The regular condenser is part number 119-11 and the larger unit for the 25 cycle chassis is part number 119-12.

Part number 106-18, a metal clad resistor, consists of the following sections with resistances and wattages as noted: one, 500 ohms; one, 35 ohms, one, 200 ohms, all 1/3 watt, plus or minus 10%.

ALIGNING INSTRUCTIONS—SERIES "B" & "C"

NOTE: These instructions are written for series "C". The instructions are identical for series "B", except that for series "B" the I.F. frequency is 370 kilocycles and for series "C", 465 kilocycles. Also, the I.F. transformers are different:

Series "B"
Part No. 108-26—Input I. F. Trans.
Part No. 108-28—Output I. F. Trans.
Series "C"
Part No. 108-38—Input I. F. Trans.
Part No. 108-40—Output I. F. Trans.

Description of various dummy antennas used and referred to in these instructions:

(1) I.F. Dummy—Consists of a .1 mfd. condenser connected in series with the external oscillator.

(2) Broadcast Dummy—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

(3) Intermediate and Short Wave Dummy—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

Resonance Indicator:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 42 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range volt meter should be used.

Alignment

No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. To remove the knobs, pull them off and to take the chassis out of the cabinet, remove the three bolts by which it is fastened and the speaker plug which you will find on the front flange of the chassis panel.

Aligning I. F. Transformers

1. With volume control full on, the extreme right of its rotation, and with wave changing switch in the broadcast position, extreme left of its rotation, and with variable condenser at its minimum capacity position, plates entirely out of mesh, adjust the I.F. transformers (two adjustments at the top of parts number 108-38 and 108-40—see top view).

(a) Connect external oscillator which has been adjusted to 465 kilocycles in series with I.F. dummy antenna, to the control grid cap of the type 6D6 tube and chassis ground. Adjust output I.F. transformer, part number 108-40, to resonance.

(b) Move generator output clip from grid of 6D6 to grid cap of 6F7 tube and align input I.F. transformer, part number 108-38.

(c) With generator connected to grid of type 6F7 tube, readjust output I.F. transformer, part number 108-40, to resonance.

Broadcast Band Alignment—(530 - 1720 Kilocycles)

1. With wave changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with broadcast dummy antenna to tan antenna and black ground leads and make the following adjustments:

(a) With external oscillator set at 1720 kilocycles, adjust oscillator trimmer to resonance, for location of this adjustment, number 6, see diagram.

(b) Re-set external oscillator to 1400 kilocycles, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance. For location of this adjustment, number 3, see diagram.

(c) Re-set external oscillator to 600 kilocycles and adjust series pad to resonance, rotate condenser and move dial pointer to 600 kilocycles by gently rocking condenser to and fro. Pick up oscillator signal while adjusting series pad to resonance, maximum deflection on an output meter. This adjustment is accessible from the top of the chassis and is located between variable condenser and power transformer, see top view—part number 124-16.

(d) Check for tracking and sensitivity at 1000 kilocycles.

NOTE (Series "B" and "C" Only)

25 Cycle Chassis differ only from 60 cycle chassis in that part number 104-18 transformer is used in place of 50/60 cycle transformer, part number 104-14.

Short Wave Band Alignment—(7.6 - 19.0 Megacycles)

1. This band is aligned after the I.F. adjustments have been completed. Set wave changing switch to short wave position, extreme right of its rotation, set dial pointer to 18 megacycles.

(a) With external oscillator adjusted to 18 megacycles and connected in series with short wave dummy antenna to tan antenna and black ground leads, adjust the oscillator short wave trimmer until generator signal is picked up. For location of this adjustment, number 4, see diagram.

(b) Adjust short wave antenna trimmer to resonance. For location of this adjustment, number 1, see diagram.

(c) Re-set external oscillator to 9 megacycles, rotate condenser, move dial pointer to 9 megacycles and check for tracking and sensitivity. Do not bend plates. NOTE: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall below the fundamental.

Intermediate Band Alignment—(2.35 - 7.7 Megacycles)

1. With wave changing switch in center position, and with dial pointer set to 7 megacycles, make the following adjustments:

(a) With external oscillator set at 7 megacycles and connected in series with short wave dummy antenna, as for short wave adjustments, adjust trimmer of oscillator coil, part number 110-22 until 7 megacycle signal is picked up. For location of this adjustment, number 5, see diagram.

(b) Adjust antenna trimmer to resonance, adjustment number 2, see diagram.

(c) Re-set external oscillator to 2.5 megacycles (2500 kilocycles), rotate variable condenser, move pointer, pick up oscillator signal and check for tracking and sensitivity. NOTE: It is extremely necessary in making all of the above adjustments that the fundamental signal of the oscillator be tuned in and not the image frequency, which will fall below the fundamental.

Service Notes

To check for open by-pass condensers, shunt each condenser with another of similar capacity and of the same voltage rating, which is known to be good, until the defective unit is located. Open by-pass condensers frequently cause oscillation and distorted tone. Defective and shorted electrolytic filter condensers cause excessive hum, motor-boating, low volume and a reduction in all D.C. voltages. Open or shorted electrolytic and by-pass condensers (across bias resistor of type 42 tube) will cause low volume and distorted tone.

Should the planetary vernier dial drive mechanism fail to function properly, it will probably be found to be due to a cracked or broken compression spring. The drive may be disassembled to replace the compression spring (part number 112-31) by removing the two screws which fasten it to the dial bracket. Before re-assembling all parts should be carefully cleaned and a small amount of vaseline applied to the ball bearings. All other dial parts are hardened and should cause no trouble.

OPERATION

CONTROLS.—The three control knobs on the front of the cabinet, in sequence from left to right are (see illustration):

KNOB 1.—*Volume Control and "On-Off" Switch Are Combined.* When turning on, a click will be heard and the dial will light. Wait approximately 45 seconds for the tubes to heat up. Turn knob all the way to the left to turn set off.

KNOB 2.—*Tuning.* The upper end of the pointer covers the standard broadcast band scale, which is marked in kilocycles, the lower end of the pointer covers the intermediate and short wave bands. The lower scale is the short wave band, marked in megacycles, the short heavy lines on this scale are marked in meters. It is at these points that many foreign broadcasters may be heard. The inner scale, marked in megacycles, includes the 49 meter broadcasting channel, which is shown by the short heavy line, it also includes amateurs and police calls.

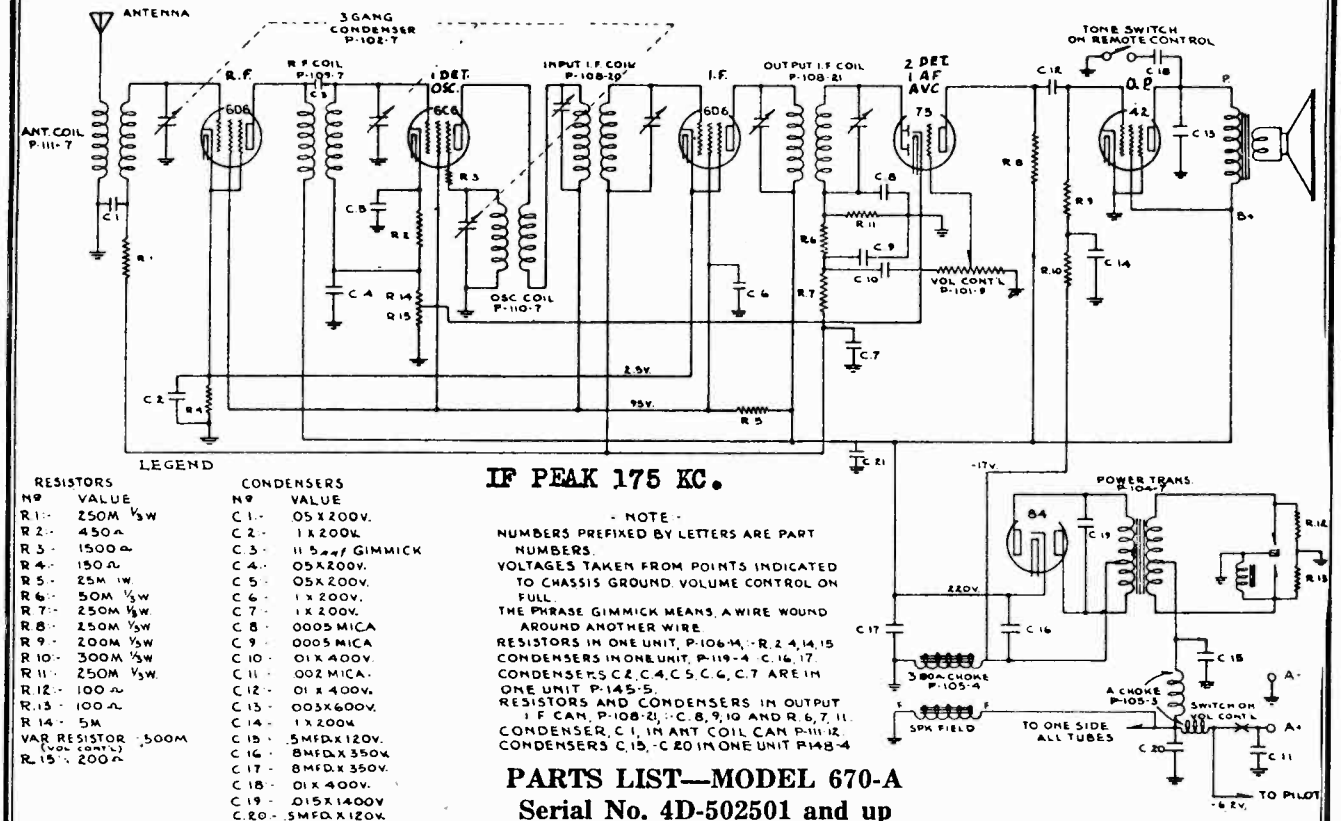
KNOB 3.—*Wave Changing Switch.* The knob is marked with three dots and the cabinet with a pin. When the right hand dot is in line with the pin, the switch is set in the broadcast band position, when center dot is opposite pin, the intermediate band is in position and when the left dot is opposite pin, the short wave band is connected. Switch turned all the way left—broadcast position, center intermediate, all the way right—short wave.

BELMONT RADIO CORP.
MODEL 585
Series A,B,C
Alignment Data

BELMONT PAGE 6-21

MODEL 670-A
Schematic, Voltage
Parts List

BELMONT RADIO CORP.



RESISTORS		CONDENSERS	
No	VALUE	No	VALUE
R 1 -	250M 1/3W	C 1 -	.05 X 200V.
R 2 -	450Ω	C 2 -	1 X 200V.
R 3 -	1500Ω	C 3 -	11.5 mmf GIMMICK
R 4 -	150Ω	C 4 -	.05 X 200V.
R 5 -	25M 1W	C 5 -	.05 X 200V.
R 6 -	50M 1/3W	C 6 -	1 X 200V.
R 7 -	250M 1/3W	C 7 -	1 X 200V.
R 8 -	250M 1/3W	C 8 -	.0005 MICA
R 9 -	200M 1/3W	C 9 -	.0005 MICA
R 10 -	300M 1/3W	C 10 -	.01 X 400V.
R 11 -	250M 1/3W.	C 11 -	.002 MICA.
R 12 -	100Ω	C 12 -	.01 X 400V.
R 13 -	100Ω	C 13 -	.003 X 600V.
R 14 -	5M	C 14 -	1 X 200M
VAR. RESISTOR (VOL. CONT'L) R. 15 -	500M 200Ω	C 15 -	.5 MFD. X 120V.
		C 16 -	8 MFD. X 350V.
		C 17 -	8 MFD. X 350V.
		C 18 -	.01 X 400V.
		C 19 -	.015 X 1400V
		C 20 -	.5 MFD. X 120V.
		C 21 -	.01 X 400V

IF PEAK 175 KC.

- NOTE -

NUMBERS PREFIXED BY LETTERS ARE PART NUMBERS.
VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. VOLUME CONTROL ON FULL.
THE PHRASE GIMMICK MEANS, A WIRE WOUND AROUND ANOTHER WIRE.
RESISTORS IN ONE UNIT, P-106-14, - R. 2, 4, 14, 15
CONDENSERS IN ONE UNIT, P-119-4 - C. 16, 17.
CONDENSERS C.2, C.4, C.5, C.6, C.7 ARE IN ONE UNIT P-145-5.
RESISTORS AND CONDENSERS IN OUTPUT I.F. CAN, P-108-21, - C. 8, 9, 10 AND R. 6, 7, 11.
CONDENSER, C. 1, IN ANT. COIL CAN P-111-12.
CONDENSERS C. 15, - C. 20 IN ONE UNIT P-148-4

PARTS LIST—MODEL 670-A
Serial No. 4D-502501 and up

When ordering parts, always specify part and model number as well as serial number of chassis.

Part No.	Description
101-9	Volume Control with Switch
101-12	Tone Control Assembly, complete
102-7	Three Gang Geared Variable Condenser
104-6	Vibrator Transformer
105-3	"A" Choke—40T—No. 16E—½" Dia.
105-4	380 Ohm Filter Choke
106-6	200 Ohm Center Tapped Resistor
106-14	5800 Ohm Metal Clad Resistor
108-20	Input I. F. Transformer completely assembled in can (175 K. C.)
108-21	Output I. F. Transformer complete with can, but less resistor and Condenser Assembly (175 K. C.)
	Resistor and Condenser Assembly for 108-21
109-7	R. F. Coil
110-7	Osc Coil & bracket
111-7	Antenna Coil
112-43	Volume Control Shaft complete with knob
115-18	Special partition shield
115-22	Tube shield
116-5	6-8 Volt T-50 pilot lamp
116-6	Pilot light assembly, complete, less bulb
119-4	8-8 Mfd. x 350 Volt Electrolytic Filter Condenser
142-1	Plug-In Vibrator
145-5	.4 Mfd. By-Pass Block
146-14	Special bracket including battery antenna, pilot light and tone control cable fittings, but less antenna coil volume control
148-4	Dual .5 Mfd. 120 Volt Condenser
161-1	20 Ampere fuse
147-1	Selector Control Coupling
147-2	Bushing and bracket complete
147-11	Volume control coupling
135-5	⅜x3" carriage bolt
140-3	Container complete with top and bottom
148-1	.5 Mfd. Generator Condenser
148-3	.5 Mfd. Ammeter Condenser
149-18	Volume Control Shaft—18"
149-24	Volume Control Shaft—24"
150-18	Selector Shaft—18"

Part No.	Description
150-24	Selector Shaft—24"
151-2	Remote Control Head, less flexible shafts, less tone control and pilot assemblies, but with knobs and mounting hardware
152-1	Antenna cable
152-2	Battery cable
131-5	Black bakelite remote control knobs
146-8	Die Cast Remote Control Mounting Bracket
146-12	Steering Column Strap
168-1	Spark-plug type suppressor
168-2	Distributor plug-type suppressor
168-3	Cable type suppressor
168-4	Special Ford spark-plug suppressor
	Unless otherwise listed, all Carbon Resistors
	Unless otherwise listed, all Single Section Tubular Paper By-Pass Condensers
	Unless otherwise listed, all Dual Section Tubular Paper By-Pass Condensers
	Unless otherwise listed, all Molded Mica Condensers
	All Sockets
167-1	Dynamic Speakers
	Plate antenna (clamps to frame of car)

Note: Part No. 145-5 consisting of five separate sections can be replaced with tubular single section condensers at 25c each. It will not be necessary to replace the entire unit should any section thereof fail.

Vibrators can be reconditioned at a cost of $3.00 each, if the old unit is returned.

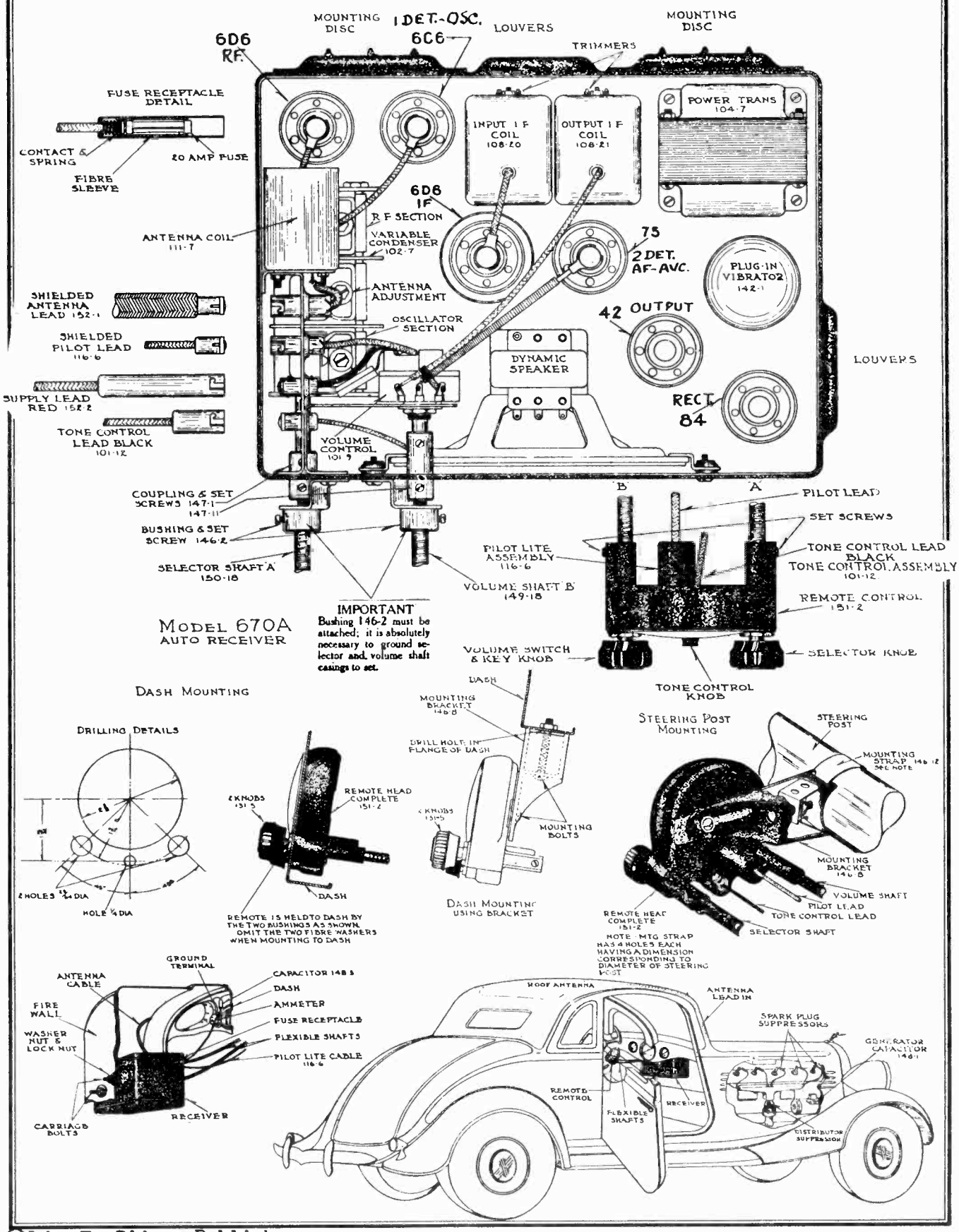
All resistors are RMA color coded—specify value and/or resistor number (per schematic diagram) and model number.

When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.

We cannot supply speaker cones only. We can replace a speaker on which a cone has been damaged for $1.50, if defective speaker is returned, transportation charges prepaid.

BELMONT RADIO CORP.

MODEL 670-A
Socket, Trimmers
Installation Details



MODEL 670-A
Alignment
Installation Data

BELMONT RADIO CORP.

BALANCING SET TO ANTENNA:

When this set has been installed and is ready for operation it may be found necessary (depending on antenna) to balance set to this antenna. This is accomplished as follows:

With the receiver tuned to a very weak station, about 130 to 140 (1300 to 1400 kilocycles) on the dial, adjust the antenna trimmer with a screw driver until maximum volume is attained. To reach the antenna trimmer remove the plug button from the top of the case.

I. F. ALIGNMENT:

1. With variable condenser at its maximum capacity position and with volume control full on, connect in series with a .1 mfd. condenser, an oscillator set at 175 kilocycles to the grid cap of the 6C6 tube.

2. Adjust trimming condensers of both input and output I. F. transformers, parts number 108-20 and 108-21 (see top view of chassis) to resonance with an oscillator, as indicated on an output meter connected across the primary terminals of the speaker input transformer or between the plate and screen terminals of the type 42 output tube. The connection to the tube can be made by means of an adapter. Maximum deflection on the output meter indicates resonance.

Note: Each I. F. transformer has two adjustments, both of these adjustments on both transformers are accessible through holes located in the back of the case between the two mounting plates and directly under the louvres.

R. F. ALIGNMENT:

1. Attach oscillator connected in series with a 200 mmfd. condenser to the antenna lead and with the variable condenser at its minimum capacity position (extreme right of its rotation) and with an oscillator set at 1550 kilocycles, adjust condenser trimmer of oscillator section (Front shaft end) to resonance.

2. Re-set oscillator to 1400 kilocycles, rotate variable condenser to pick up signal, adjust antenna (center section) and R. F. (rear section) trimmers to resonance.

3. Check alignment at 1500-1000-800-600-530 kilocycles by setting oscillator to these frequencies and picking up signal by rotating condenser.

4. Bend slotted plates of antenna and R. F. sections only if necessary. UNDER NO CIRCUMSTANCES BEND PLATES OF OSCILLATOR SECTION.

NOTES:

Voltages from chassis to different points are indicated on schematic circuit diagram, and should be measured with a voltmeter having a resistance of 1000 ohms per volt.

Failure to operate, noisy or weak reception, may be due to defective tubes or poor contact between cap on top of tube and grid clip.

Tubes may be checked by replacing with another tube which is known to be good.

If fuse blows out frequently, and insulating sleeve has been properly placed over fuse, the trouble probably is in the vibrator and vibrator should be replaced.

NEVER ATTEMPT TO ADJUST VIBRATOR POINTS.

Case rattles may be due to one or more of the following:

Loose screws in top or bottom covers. Loose elements in tubes. Loose tube shield. Loose R. F. coil shield. Loose grill cloth.

RECEIVER INSTALLATION:

Determine most satisfactory or desirable mounting position. In most cases it will be found that the receiver can be mounted on the car bulk head, above and to the right of the steering post.

Use the cardboard template which is the same size as set and mark location for two mounting bolts, if mounted on the long side aud one bolt if on the short side.

Then drill two (2) one-half inch (½") holes, making certain that the paint around the hole on the engine side of fire wall or bulk head is scraped clean to insure a good ground connection between receiver and the frame of the car. Assemble brackets number 146-2 to case with self-tapping screws.

Insert bolts through dash, assemble plain, lockwashers and nuts on engine side, then hang receiver over bolt heads and tighten nuts securely.

Mount the remote control unit ou steering column by means of mounting bracket or attach to instrument panel or under dash (see illustration).

Two flexible shafts are furnished, one with a slotted fitting on one end, which is the volume control shaft (number 149-18), the other is the selector shaft, with key fitting at one end (number 150-18).

Make certain that the outer casings of flexible shafts go into remote control bushings for approximately five-sixteenths of an inch and tighten set screws to secure cables. If cables are pushed too far into remote control head, shafts will not turn freely. Always try to install drive shafts in as straight a line as possible from remote control to set. AVOID SHARP BENDS IN CABLES.

IMPORTANT—READ CAREFULLY:

We are prepared to exchange, without charge, our standard number 149-18 and 150-18, eighteen inch cables for twenty-four inch cables, number 149-24 and 150-24. You will find that 99% of the installations can be made with the standard eighteen inch cables, and bear in mind that the shorter the cable, the smoother the drive.

DIAL ADJUSTMENT:

Mount control head to steering column by means of bracket and strap or under dash by means of bracket or to instrument panel (see illustrations). Attach cables as above. Tune set to some station of a known frequency (between 800 and 1200 K.C.), hold selector knob, then with a screw driver adjust the slotted screw on back of the control head, and in that way adjust the dial pointer to the correct frequency setting.

CONNECTIONS TO BATTERY:

The battery cable, number 152-2, (red wire with fuse receptacle at one end and terminal lug at other end) must be connected to battery terminal of ammeter. At the same time connect ammeter capacitor, number 148-3, to battery terminal of ammeter, other end of condenser to any convenient grounded screw on back of instrument panel. Make certain that insulating sleeve is slipped over fuse when fuse is placed in receptacle, before inserting in receiver (see illustration). All hypass leads should be as short as possible.

When connected properly, the discharge due to current drawn by the receiver should not indicate on the ammeter. This is important, since if improperly connected, as shown by the deflection of ammeter, additional motor interference may be encountered.

PILOT LIGHT:

Pilot light assembly, part number 116-6, a shielded cable, plugs into the set and to the rear of the remote control unit (see illustrations).

TONE CONTROL:

The tone control assembly, part number 101-12, attaches to the back of the remote control head by means of a special screw and plugs into the set (see illustrations).

ANTENNA CONNECTION:

The antenna is connected to the receiver by means of the antenna cable, number 152-1. The antenna wire is the single black wire projecting from the end of the cable. Splice this wire to the roof antenna lead and ground the pig-tail shielding as close to the corner post of the car as possible.

OPERATION:

Place key (knob) in lock of left hand control of the remote control unit. After waiting approximately 45 seconds for tubes to heat up, rotate station selector, right hand knob, until a desirable program is heard. De-tuning will very seriously affect the tone quality of this receiver. Tone control knob located between two black knobs (see illustrations) is a BASS and TREBLE switch, it is not a variable tone control. Turning it to the right makes the BASS connection, turning it to the left makes the TREBLE connection. You will note that the BASS position assists materially in reducing interference from static, street car lines and other high pitched disturbances.

MOTOR NOISE SUPPRESSION:

The ignition system of every automobile generates high frequency electrical interference. This high frequency interference arising from the ignition coil, the distributor and the spark plugs must be properly suppressed in order to obtain satisfactory reception. Each car will present more or less an individual problem hut there is a definite procedure to follow which holds true in every case.

This first essential procedure is to disconnect the high tension leads to the spark plugs and attach the spark plug suppressors (168-1) (for V 8 Fords 168-4) the special distributor type suppressor (168-2) which is inserted in the center contact of the distributor as indicated in the illustration of a typical installation. (NOTE V 8 FORD USES NO DISTRIBUTOR SUPPRESSOR.) For cap type distributor, exchange the standard plug type distributor suppressor (168-2) for a special cable type suppressor (168-3) from your dealer. In some few cases, such as Buicks it is sometimes necessary to use cable type (168-3) suppressors. This type of suppressor is inserted in the leads running from the distributor to the spark plugs and which are concealed underneath the metal plate which covers the spark plugs.

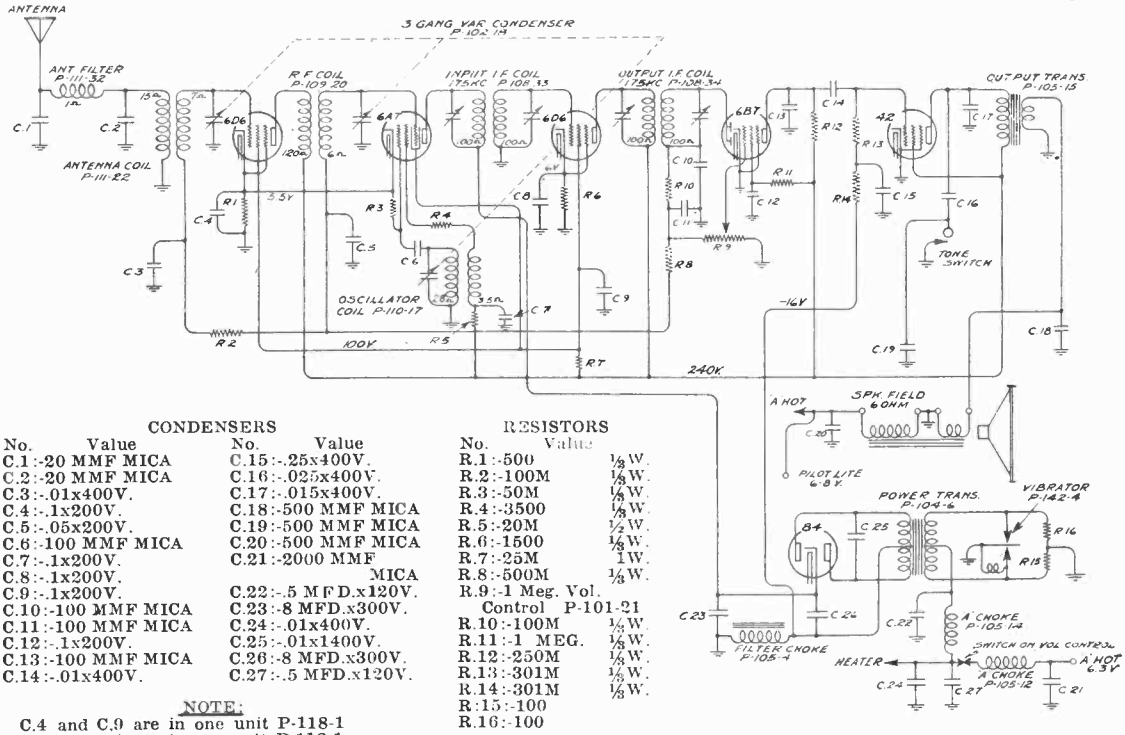
After the spark and distributor suppressors have been properly fastened the next in importance is the generator condenser (148-1), this filters a high pitched whining noise which would otherwise be heard as the motor is accelerated.

It is sometimes necessary in cars where the ignition coil is located under the dash, to use an additional capacitor (148-1) obtainable from your dealer. It must be installed between the battery side of the ignition coil and the frame of the car. Next connect capacitor (148-3) from the battery side of ammeter to frame of car. This is necessary in practically every installation and a good connection to the frame of the car is of utmost importance.

MODEL 680
Schematic, Voltage
Socket, Trimmers

BELMONT RADIO CORP.

MODEL 680



CONDENSERS

No.	Value
C.1	-20 MMF MICA
C.2	-20 MMF MICA
C.3	-.01x400V.
C.4	-.1x200V.
C.5	-.05x200V.
C.6	-100 MMF MICA
C.7	-.1x200V.
C.8	-.1x200V.
C.9	-.1x200V.
C.10	-100 MMF MICA
C.11	-100 MMF MICA
C.12	-.1x200V.
C.13	-100 MMF MICA
C.14	-.01x400V.
C.15	-.25x400V.
C.16	-.025x400V.
C.17	-.015x400V.
C.18	-500 MMF MICA
C.19	-500 MMF MICA
C.20	-500 MMF MICA
C.21	-2000 MMF MICA
C.22	-.5 MFD.x120V.
C.23	-8 MFD.x300V.
C.24	-.01x400V.
C.25	-.01x1400V.
C.26	-8 MFD.x300V.
C.27	-.5 MFD.x120V.

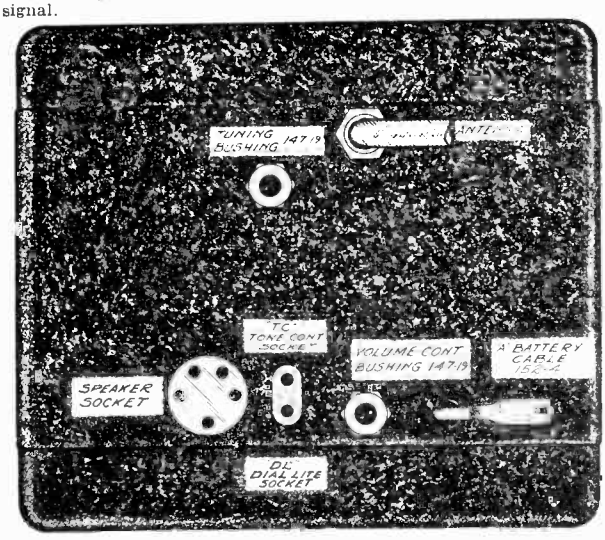
RESISTORS

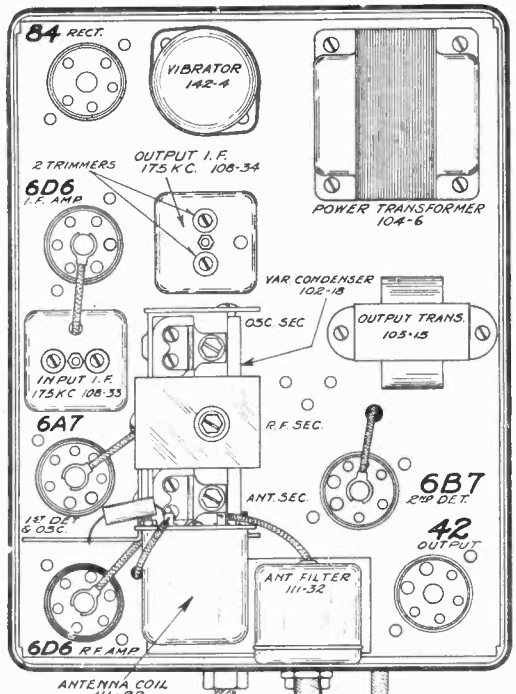
No.	Value
R.1	-500 1/3W.
R.2	-100M 1/3W.
R.3	-50M 1/3W.
R.4	-3500 1/3W.
R.5	-20M 1/2W.
R.6	-1500 1/3W.
R.7	-25M 1W.
R.8	-500M 1/3W.
R.9	-1 Meg. Vol. Control P-101-21
R.10	-100M 1/3W.
R.11	-1 MEG. 1/3W.
R.12	-250M 1/3W.
R.13	-301M 1/3W.
R.14	-301M 1/3W.
R.15	-100
R.16	-100

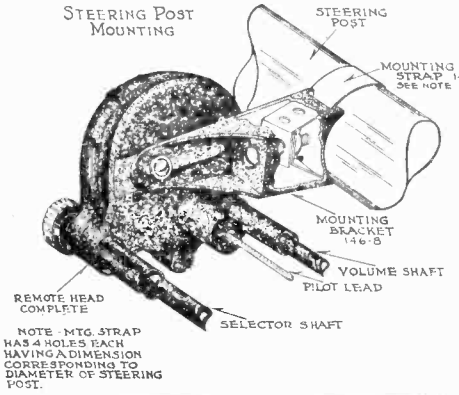
NOTE:
C.4 and C.9 are in one unit P-118-1
C.7 and C.8 are in one unit P-118-1
C.26 and C.23 are in one unit P-119-17
R.16 and R.15 are in one unit P-106-6
Numbers prefixed by letter "P" are part numbers.
Voltages taken from points indicated to chassis ground. Vol. control on full, no signal.

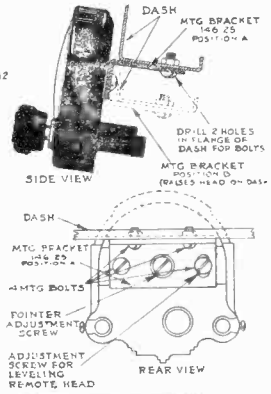
Serial No. 60001 and up.

IF PEAK 175 KC.









MODEL 680
Alignment
Parts List

BELMONT RADIO CORP.

DUMMY ANTENNAS:

The dummy antennas referred to in the following instructions are:
"I.F. Dummy" —A .1 mfd. condenser connected in series with the test oscillator output lead.
"Broadcast Dummy"—A 200 mmfd. condenser connected in series with the output lead of the test oscillator.

RESONANCE INDICATOR:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and the screen of the type 42 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

I.F. ALIGNMENT:

1. With variable condenser in its minimum capacity position (plates entirely out of mesh) and with volume control full on, connect test oscillator set at 175 K.C., in series with I.F. dummy antenna, to the grid cap of the type 6A7 tube.
2. Adjust trimmer condensers of both input (108-33) and output (108-34) I.F. transformers to resonance with oscillator. See top view for location of these transformers. There are two adjustments on each and they are accessible from the top of the transformer shield and should be adjusted with an insulated screw driver.

BROADCAST ALIGNMENT:

1. With variable condenser in its minimum capacity position, connect test oscillator set at 1550 K.C. and in series with broadcast dummy, to the antenna lead of receiver.
2. Adjust oscillator trimmer of variable condenser to resonance (this adjustment is on the end section of the three gang condenser—see top view).
3. Shift test oscillator to 1400 K.C. and pick up signal by rotating condenser and adjust R.F. (center) and antenna (front) trimmers to resonance, see top view.
   (a) Check for sensitivity at 1000, 800 and 600 K.C. by setting test oscillator to these frequencies and picking up the signal by rotating variable condenser. Under no circumstances bend plates of oscillator section, bend R.F. and antenna plates only if absolutely necessary.

SERVICE NOTES:

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram.

In order to prevent signal from acting upon A.V.C. and affecting accuracy of voltage measurements, aerial and ground leads should be short circuited while making measurements.

All voltages are to be measured with 6.3 volts input to receiver. Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good. If fuse blows out frequently and insulating sleeve has been properly placed over fuse, the trouble is probably in the vibrator, it should be replaced. Do not attempt to make any adjustments on the vibrators.

REPAIR PARTS - MODEL 680

Serial No. 60001 and up

When ordering parts, always specify part and model number as well as serial number of chassis.

Part No.	Description	List Price Ea.
	CONDENSERS	
	Unless otherwise listed, all single section tubular paper by-pass condensers	$ .25
	Unless otherwise listed, all dual section tubular paper by-pass condensers	.50
	Unless otherwise listed, all molded mica condensers	.25
119-17	Dual 8 mfd. electrolytic filter condenser	2.25
148-1	.5 Mfd. Generator Condenser	.50
148-3	.5 Mfd. Ammeter Condenser	.40
148-5	.5 Mfd. x 120 Volt Condenser	.50
148-6	Special Ford Ignition Coil Condenser	.60
	COILS	
105-12	"A" Choke - 28 Turns No. 12 Wire	.10
105-14	"A" Choke - 37 Turns No. 12 Wire	.10
108-33	Input I.F. Transformer Complete with Shield	1.50
108-34	Output I.F. Transformer Complete with Resistors and Condensers, Mounted in Shield	2.50
109-20	R.F. Coil Complete - Less Shield	1.00
110-17	Oscillator Coil Complete with Bracket	.75
111-22	Antenna Coil Complete - Less Shield	1.00
111-32	Antenna Filter Assembly Complete with Shield and Antenna Cable	1.50
	RESISTORS	
	Unless otherwise listed, all carbon resistors	.20
106-6	200 Ohm Center Tapped Resistor	.25
168-2	Distributor Suppressor	.40
168-3	Cable Type Suppressor	.40
	TRANSFORMERS	
104-6	Power Transformer	3.00
105-4	380 Ohm Filter Choke	.85
105-15	Output Audio Transformer	1.50
	MISCELLANEOUS	
101-21	Volume Control with Switch	1.35
102-18	Three Gang Variable Condenser	4.00
113-30	Two Lug Terminal Strip	.05
113-37	Terminal Strip	.05
115-34	Antenna and R.F. Coil Shield	.15
114-21	Speaker Chassis Only	5.00
114-22	Ford Header speaker chassis only	5.00
128-4	Complete Speaker Housing for 114-21	2.50
128-5	Ford speaker housing for 114-22	2.50
140-5	Set Case less Covers	1.00
140-6	Covers for Above	1.25
142-4	Plug-in Vibrator	4.50
147-19	Flexible Cable Control Bushing	.10
152-2	Battery Cable & Fuse Assembly	.35
152-3	Fuse Insulating Sleeve	.05
152-4	Chassis Battery Cable Assembly	.30
152-6	Antenna Cable	.50
152-8	Speaker Cable with Plug for 114-21	1.00
152-9	Special Ford Header speaker cable and plug	1.25
153-4	Special Speaker-Tone Control-Dial Light Socket Assembly	.25
160-11	Mounting Studs Complete with Nut & Washer	.05
169-1	15 Amp. Fuse (3AG-15)	.05
	All Sockets	.10
123-1	Dome Lite Filter	.90
	Plate Antenna	3.50
	REMOTE CONTROL PARTS	
112-30	Selector Control Shaft	.20
112-41	Idler Gear	.15
112-42	Pointer Shaft	.05
112-85	Volume Control Shaft	.10
112-45	Bezel (Crystal Retainer)	.15
112-46	Celluloid Dial Crystal	.15
112-48	Pointer Shaft Gear	.05
112-96	Celluloid dial	.25
116-13	6-8 Volt, T-51 Bulb Bayonet Base	.10
116-14	6-8 volt T-51 frosted glass bayonet lamp	.13
116-9	Pilot Light Assembly	.45
116-11	Tone Control Assembly Unit Complete	.35
131-5	Black Bakelite Remote Control Knobs	.15
146-8	Die Cast Remote Control Mounting Bracket	.30
146-12	Steering Column Strap	.15
146-25	Dash Mounting Bracket	.15
147-3	Selector Control Bushing for 112-39 Shaft	.10
147-4	Volume Control Bushing for 112-43 Shaft	.10
149-25	Flexible Volume Control Cable - 24"	1.50
150-25	Flexible Selector Control Cable - 24"	1.50
151-7	Remote Control Head complete with Steering Column Bracket	5.00
	Dash Mounting Kit (specify make and year of car)	1.25
151-8	Special General Motors Control Head	7.00
	Dash Mounting Kits for 1935 Chevrolet and Pontiac for use with 151-8 head	1.50
	Dash Mounting Kits for 1935 Oldsmobile for use with 151-8 head	1.75

Vibrators can be reconditioned at a cost of $3.00 each, if the old unit is returned.

All resistors are RMA color coded - specify value and/or resistor number (per schematic diagram) and model number.

When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.

Mica condensers are coded with an additional dot indicating tolerance:

Tolerance Percent	Color of Dot
2½%	White
5%	Green
10%	Blue
15%	Yellow
20%	Red
More Than 20%	None.

All prices quoted are list and are subject to the usual trade discounts. Shipments are F.O.B. our Factory. When remitting in advance, please include postage.

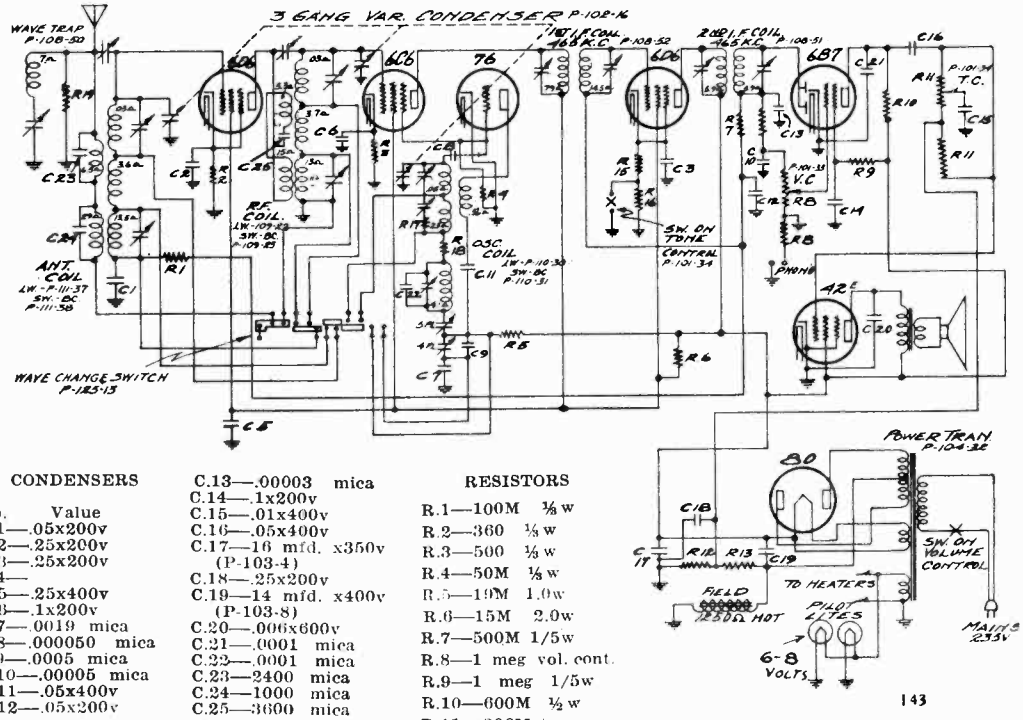
WE CANNOT SUPPLY SPEAKER PARTS, CONES, TRANSFORMERS OR FIELDS SEPARATELY. WE CAN REPLACE OR REPAIR A DAMAGED SPEAKER FOR $2.00 NET, IF IT IS RETURNED TO OUR FACTORY TRANSPORTATION CHARGES PREPAID.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

BRC - CHICAGO

MODEL 755
Schematic, Socket
Parts, Layout

BELMONT RADIO CORP.



I. F. Frequency — 465 Kilocycles

CONDENSERS

No.	Value
C.1	.05x200v
C.2	.25x200v
C.3	.25x200v
C.4	—
C.5	.25x400v
C.6	.1x200v
C.7	.0019 mica
C.8	.000050 mica
C.9	.0005 mica
C.10	.00005 mica
C.11	.05x400v
C.12	.05x200v
C.13	.00003 mica
C.14	.1x200v
C.15	.01x400v
C.16	.05x400v
C.17	16 mfd. x350v (P-103-4)
C.18	.25x200v
C.19	14 mfd. x400v (P-103-8)
C.20	.006x600v
C.21	.0001 mica
C.22	.0001 mica
C.23	2400 mica
C.24	1000 mica
C.25	3600 mica

RESISTORS

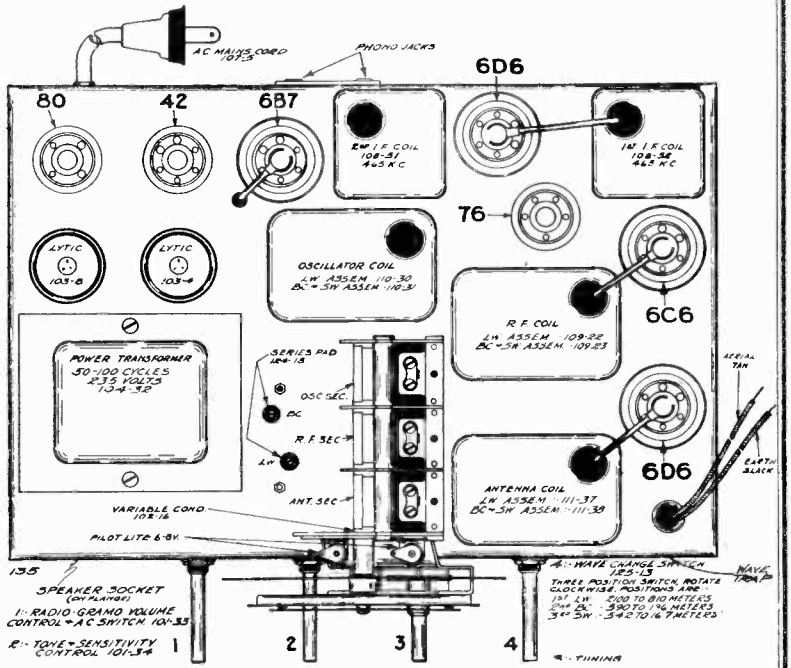
R.1—100M 1/3 w
R.2—360 1/3 w
R.3—500 1/3 w
R.4—50M 1/3 w
R.5—19M 1.0w
R.6—15M 2.0w
R.7—500M 1/5w
R.8—1 meg vol. cont.
R.9—1 meg 1/5w
R.10—600M 1/2 w
R.11—300M tone control
R.12—250M 1/3 w
R.13—750M 1/5 w
R.15—360 1/3 w
R.16—30M 1/3 w
R.17—100 1/3 w
R.18—50 1/3 w
R.19—10M 1/3 w

NOTE:

C.14, C. 13. In dual unit.
P.118-12 numbers prefixed by letter "P" are part Nos.
Voltages taken from points indicated to chassis ground.
Set not tuned to strong signal. Tone control clockwise.
Serial No. 5G131980A and up
143

TUNING RANGE:

Long Wave Band
810-2100 Meters.
Broadcast Band
196-590 Meters.
Short Wave Band
16.7-54.5 Meters.

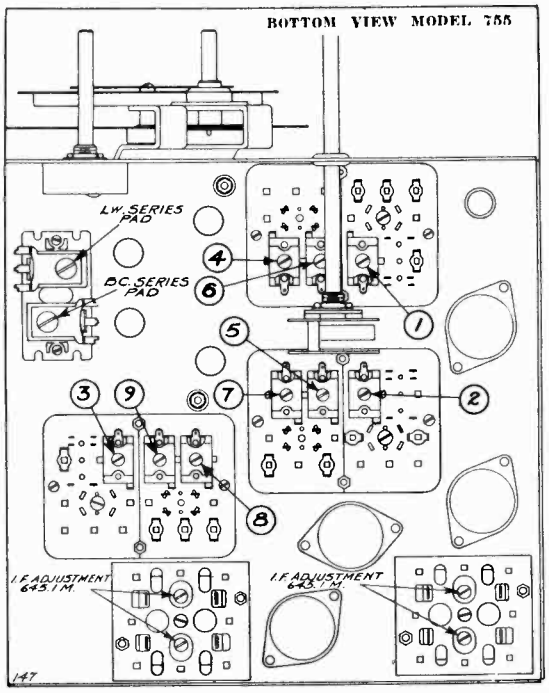


Serial No. 5G131980A and up

Part No.	Description
	SPEAKERS
114-13	Six Inch Dynamic
114-17	Eight Inch Dynamic
	MISCELLANEOUS
101-33	Volume Control and Switch
101-34	Wizard Control and Switch
102-16	Three Gang Variable Condenser
	TRANSFORMERS
104-32	50/60 Cycle—235 Volt Primary
104-33	40 Cycle—235 Volt Primary
104-34	25 Cycle—235 Volt Primary
104-35	Universal—40 Cycle Primary
104-36	Universal—25 Cycle Primary
	COILS
108-50	Wave Trap Coil and Trimmer Complete
108-51	Output I.F. Transformer Complete—Less Can
108-52	Input I.F. Transformer Complete—Less Can
109-22	Long Wave R.F. Coil Complete—Less Can
109-23	Broadcast and Short Wave R.F. Coil Complete—Less Can
110-30	Long Wave Oscillator Coil Complete—Less Can
110-31	Broadcast and Short Wave Oscillator Coil Complete—Less Can
111-37	Long Wave Antenna Coil Complete—Less Can
111-38	Broadcast and Short Wave Antenna Coil Complete—Less Can

MODEL 755
Trimmers
Alignment

BELMONT RADIO CORP.



Dummy Antennas

The following dummy antennas are used in aligning the receiver, and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast and long wave)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Short Wave—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

ALIGNING I.F. TRANSFORMERS (465K.C.) (645.1 Meters)

Each of these I.F. transformers have two adjustments, both of which are accessible from the underside of chassis (see bottom view).

1. With volume control full on, the extreme right of its rotation, and with wave changing switch in the broadcast position, center of its rotation, and with variable condenser set to approximately 550 meters, make the following adjustments:

   (a) Connect external oscillator set at 645.1 meters, in series with "Dummy 1", to the control grid cap of the type 6D6 tube, located between the two I.F. transformers, and adjust the output I.F. transformer to resonance.

   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6D6 to grid cap to 6C6 and adjust input I.F. transformer to resonance.

   (c) With oscillator still connected to 6C6, re-adjust output I.F. transformer.

   (d) Disconnect oscillator from 6C6 and connect oscillator through "Dummy 2" to antenna lead (tan), adjust wave trap trimmer for a minimum response. (Adjustment located on right front chassis apron).

LONG WAVE BAND ALIGNMENT:

(810-2100 Meters)

1. With wave changing switch in the long wave position, extreme left of its rotation, and with external oscillator set at 2,000 meters and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:

   (a) Adjust long wave series pad to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the electrolytic condenser. See top view.

   (b) Re-set external oscillator and move dial pointer to 855 m. and adjust oscillator (adjustment number 3), R.F. (adjustment number 2) and antenna (adjustment number 1) to resonance. See bottom view for location of these adjustments.

   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL OSCILLATOR IN FREQUENCY AND ABOVE IN WAVELENGTHS.

SHORT WAVE BAND ALIGNMENT:

(16.7-54.5 Meters)

1. With wave changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17.7 m., and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:

   (a) Move dial pointer to 17.7 meters and adjust short wave oscillator (adjustment number 8), short wave R.F. (adjustment number 7) and short wave antenna (adjustment number 6) to resonance.

   (b) Re-set external oscillator to 50 meters and pick up signal by rotating variable condenser and check for sensitivity.

INTERMEDIATE OR BROADCAST BAND ALIGNMENT:

(196-590 Meters)

1. With wave changing switch in the intermediate wave position, center of its rotation, and with external oscillator set at 545 meters and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:

   (a) Rotate variable condenser to approximately 545 meters tune in oscillator signal and adjust B.C. series pad (see top view) to resonance. Slowly rock condenser to and fro while making this adjustment to be sure maximum output is obtained.

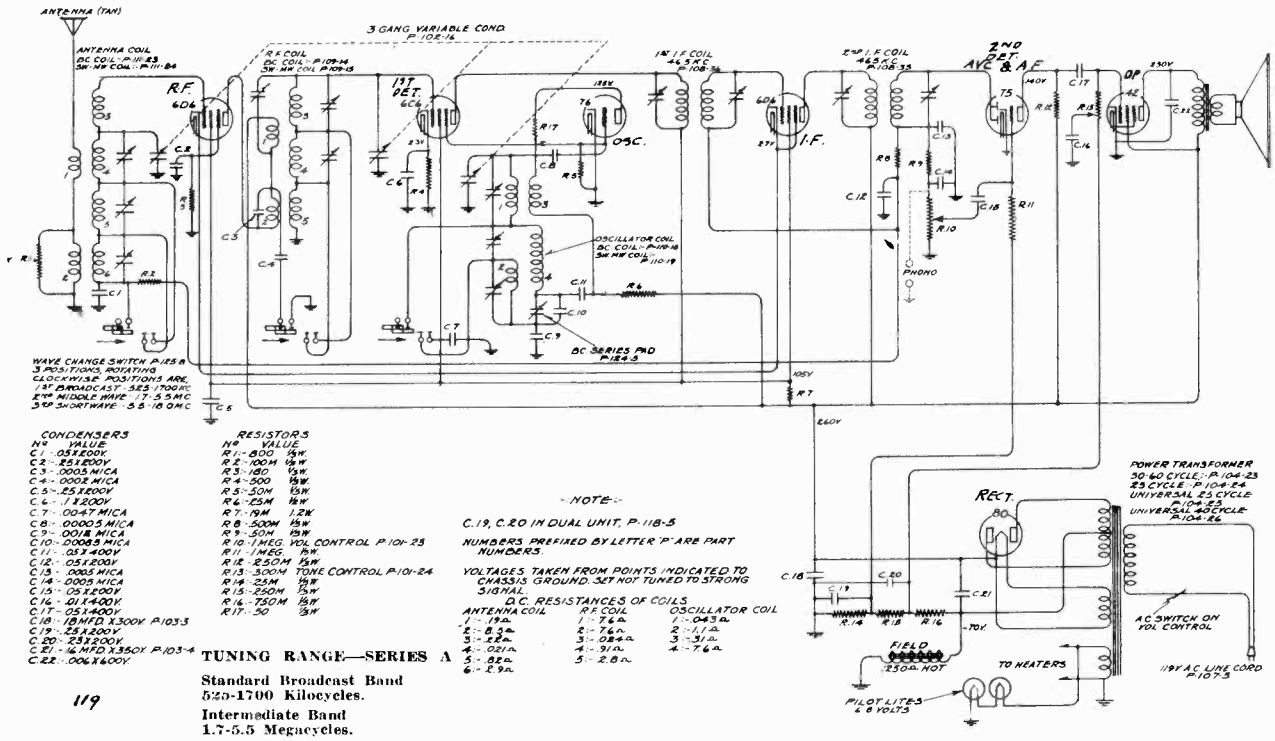
   (b) Set external oscillator at 231 meters, rotate condenser, pick up signal and adjust intermediate wave R.F. (adjustment number 5), intermediate wave antenna (adjustment number 4) and intermediate wave oscillator (adjustment number 9) to resonance.

   (c) Re-check long wave alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17.7 meter short wave and 231 meter broadcast adjustments.

BELMONT RADIO CORP.

MODEL 777
Series A & B
Schematics
Voltage

SERIES A



CONDENSERS

No	VALUE
C.1	.05 X 200V.
C.2	.25 X 200V.
C.3	.0005 MICA
C.4	.0002 MICA
C.5	.25 X 200V.
C.6	.1 X 200V.
C.7	.0047 MICA
C.8	.00005 MICA
C.9	.0018 MICA
C.10	.00085 MICA
C.11	.05 X 400V.
C.12	.05 X 200V.
C.13	.0005 MICA
C.14	.0005 MICA
C.15	.05 X 200V.
C.16	.01 X 400V.
C.17	.05 X 400V.
C.18	18 MFD. X 300V. P-103-3
C.19	.25 X 200V.
C.20	.25 X 200V.
C.21	.16 MFD. X 350V. P-103-4
C.22	.006 X 600V.

RESISTORS

No	VALUE
R.1	800 ½W.
R.2	100M ½W.
R.3	180 ½W.
R.4	500 ½W.
R.5	.50M ½W.
R.6	.25M ½W.
R.7	.19M 1.2W.
R.8	.500M ½W.
R.9	.50M ½W.
R.10	.1 MEG. VOL CONTROL P-101-23
R.11	.1 MEG. ½W.
R.12	.250M ½W.
R.13	.300M TONE CONTROL P-101-24
R.14	.25M ½W.
R.15	.250M ½W.
R.16	.750M ½W.
R.17	.50 ½W.

-NOTE-
C.19, C.20 IN DUAL UNIT, P-118-5
NUMBERS PREFIXED BY LETTER "P" ARE PART NUMBERS.
VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. SET NOT TUNED TO STRONG SIGNAL.

D.C. RESISTANCES OF COILS

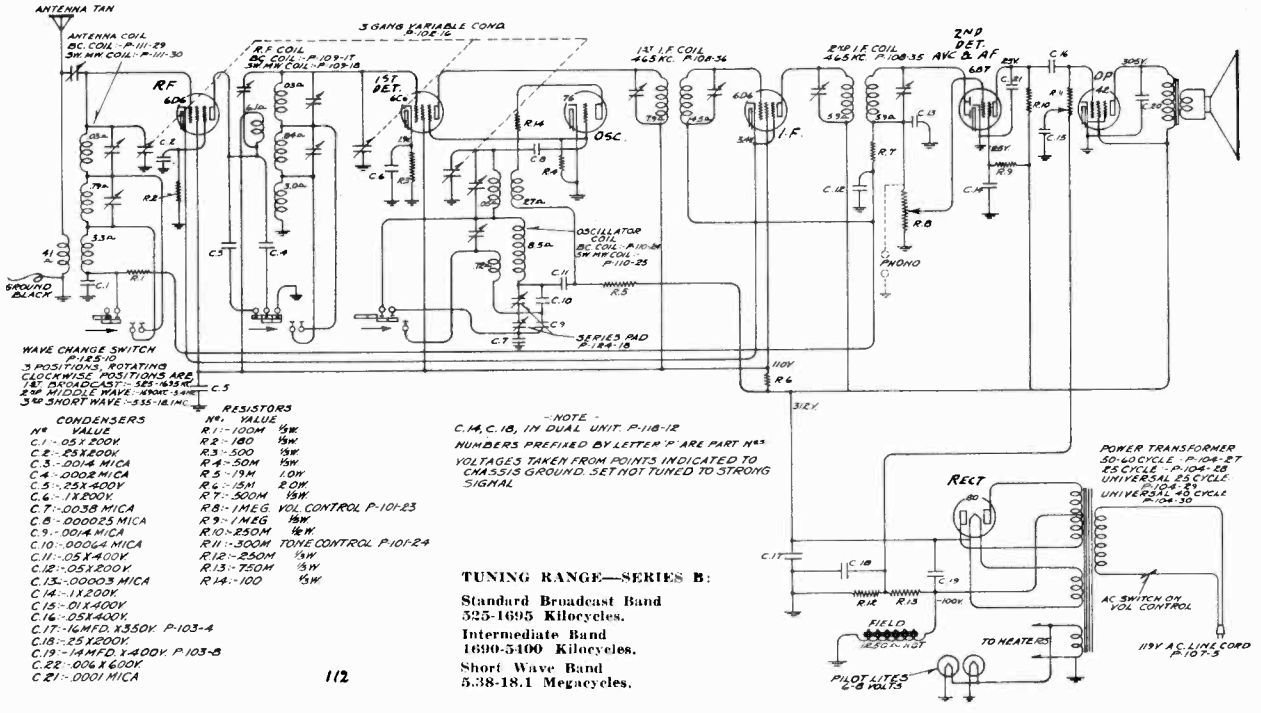
ANTENNA COIL	R.F. COIL	OSCILLATOR COIL
1 - 19 Ω.	1 - 76 Ω.	1 - .043 Ω.
2 - 8.3 Ω.	2 - 76 Ω.	2 - 1.1 Ω.
3 - 1.2 Ω.	3 - .084 Ω.	3 - .31 Ω.
4 - .021 Ω.	4 - .91 Ω.	4 - 76 Ω.
5 - .82 Ω.	5 - 2.8 Ω.	
6 - 2.9 Ω.		

TUNING RANGE—SERIES A

Standard Broadcast Band
525-1700 Kilocycles.
Intermediate Band
1.7-5.5 Megacycles.
Short Wave Band
5.5-18.0 Megacycles.

I. F. Frequency — 465 Kilocycles

SERIES B



CONDENSERS

No	VALUE
C.1	.05 X 200V.
C.2	.25 X 200V.
C.3	.0014 MICA
C.4	.0002 MICA
C.5	.25 X 400V.
C.6	.1 X 200V.
C.7	.0038 MICA
C.8	.000025 MICA
C.9	.0014 MICA
C.10	.00064 MICA
C.11	.05 X 400V.
C.12	.05 X 200V.
C.13	.00003 MICA
C.14	.1 X 200V.
C.15	.01 X 400V.
C.16	.05 X 400V.
C.17	.16 MFD. X 350V. P-103-4
C.18	.25 X 200V.
C.19	.14 MFD. X 400V. P-103-8
C.22	.006 X 600V.
C.21	.0001 MICA

RESISTORS

No.	VALUE
R.1	100M ½W.
R.2	180 ½W.
R.3	500 ½W.
R.4	.50M ½W.
R.5	.19M 1.0W.
R.6	.15M 2.0W.
R.7	.500M ½W.
R.8	.1 MEG. VOL CONTROL P-101-23
R.9	.1 MEG ½W.
R.10	.250M ½W.
R.11	.300M TONE CONTROL P-101-24
R.12	.250M ½W.
R.13	.750M ½W.
R.14	.100 ½W.

-NOTE-
C.14, C.18, IN DUAL UNIT. P-118-12
NUMBERS PREFIXED BY LETTER "P" ARE PART NOS.
VOLTAGES TAKEN FROM POINTS INDICATED TO CHASSIS GROUND. SET NOT TUNED TO STRONG SIGNAL

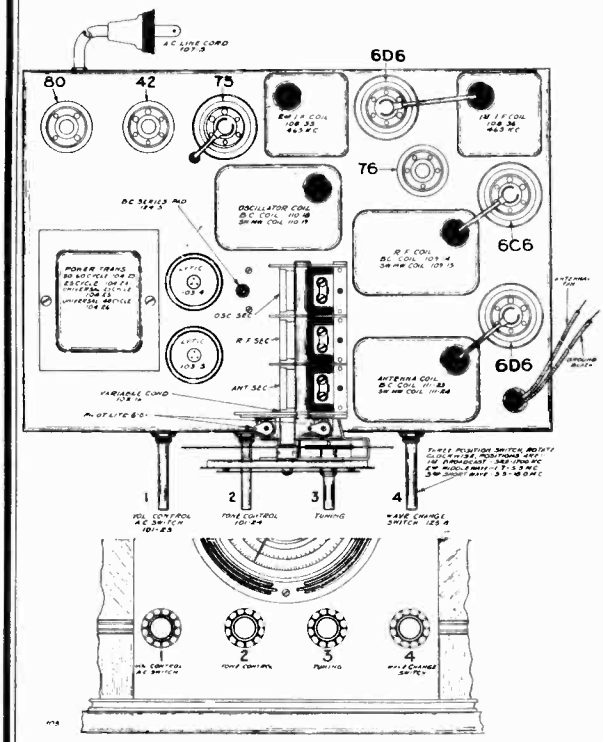
TUNING RANGE—SERIES B:

Standard Broadcast Band
525-1695 Kilocycles.
Intermediate Band
1690-5400 Kilocycles.
Short Wave Band
5.38-18.1 Megacycles.

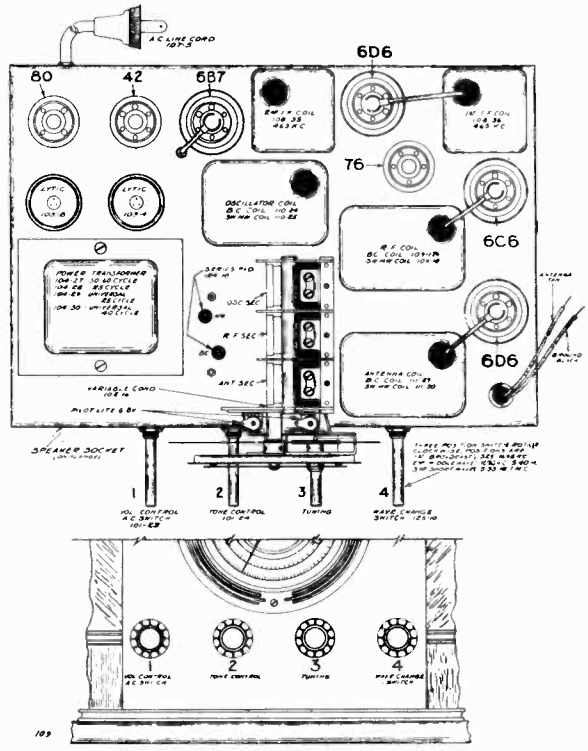
MODEL 777
Series A & B
Trimmers, Socket
Parts, Layouts

BELMONT RADIO CORP.

TOP VIEW - SERIES A



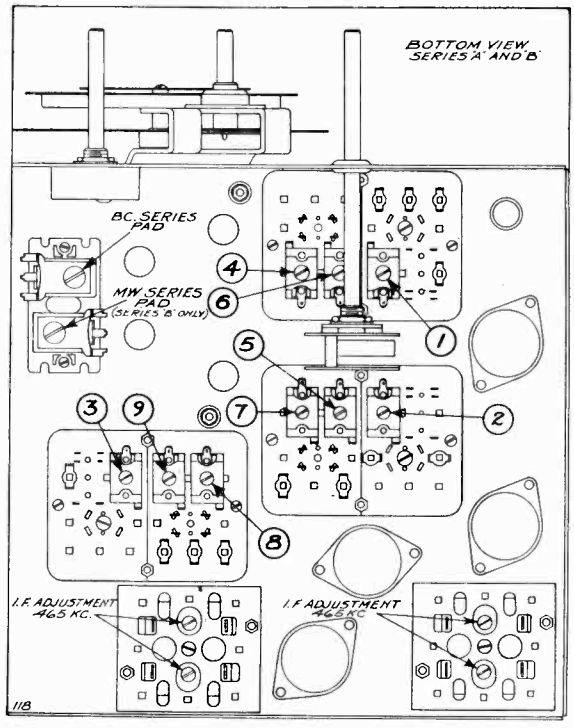
TOP VIEW - SERIES B



REPAIR PARTS LIST - MODEL 777
SERIES "A" & "B"

Parts Used In Ser. A Only	Parts Used In Ser. B Only	DESCRIPTION	List Price Each
		CONDENSERS	
		Unless Otherwise Listed—All Molded Mica	$0.25
		Unless Otherwise Listed—All Single Section Tubular Paper By-Pass	.25
		Unless Otherwise Listed—All Dual Section Tubular Paper By-Pass	.50
103-3	Not Used.	18 Mfd. x 300 V. Electrolytic	1.35
103-4	103-4	16 Mfd. x 350 V. Electrolytic	1.35
Not Used.	103-8	14 Mfd. x 400 V. Electrolytic	1.35
129-20	Not Used.	.0047 Mica—Type MH + or — 5%	.50
Not Used.	129-29	.0038 Mica—Type MW + or — 2½%	.50
		RESISTORS	
		Unless Otherwise Listed—All Resistors	.20
Not Used.	130-61	15M Ohm—2 Watt + or — 20%—180 V.	.40
		COILS	
108-35	108-35	Output I.F. Coil Assembly Complete—Less Can	1.50
108-36	108-36	Input I.F. Coil Assembly Complete—Less Can	1.50
109-14	Not Used.	Broadcast R.F. Coil Assembly Complete—Less Can	1.00
109-15	Not Used.	Mid-Wave & Short Wave R.F. Coil Assembly Complete—Less Can	1.50
Not Used.	109-17	Broadcast R.F. Coil Assembly Complete—Less Can	.70
Not Used.	109-18	Mid-Wave & Short Wave R.F. Coil Assembly Complete—Less Can	1.50
110-18	Not Used.	Broadcast Oscillator Coil Assembly Complete—Less Can	.50
110-19	Not Used.	Mid-Wave & Short Wave Oscillator Coil Assembly Complete—Less Can	1.25
Not Used.	110-24	Broadcast Oscillator Coil Assembly Com.—Less Can	.75
Not Used.	110-25	Mid-Wave & Short Wave Oscillator Coil Assembly Complete—Less Can	1.50
111-23	Not Used.	Broadcast Antenna Coil Assembly Com.—Less Can.	1.00
111-24	Not Used.	Mid-Wave & Short Wave Antenna Coil Assembly Complete—Less Can	1.50
Not Used.	111-29	Broadcast Antenna Coil Assembly Com.—Less Can	1.00
Not Used.	111-30	Mid-Wave & Short Wave Antenna Coil Assembly Complete—Less Can	1.50
		TRANSFORMERS	
104-23	Not Used.	50/60 Cycle Power Transformer	3.50
104-24	Not Used.	25 Cycle Power Transformer	5.00
104-25	Not Used.	Universal—25 Cycle Primary	7.50
104-26	Not Used.	Universal—40 Cycle Primary	6.00
Not Used.	104-27	50/60 Cycle Power Transformer	4.50
Not Used.	104-28	25 Cycle Power Transformer	7.00
Not Used.	104-29	Universal—25 Cycle Primary	7.50
Not Used.	104-30	Universal—40 Cycle Primary	7.00
		SPEAKERS	
114-13	114-13	Six Inch Speaker	6.00
114-17	114-17	Eight Inch Speaker	6.50
114-18	114-18	Ten Inch Speaker	8.00

		MISCELLANEOUS	
101-23	101-23	Volume Control and Switch	
101-24	101-24	Tone Control	
102-16	102-16	Three Gang Variable Condenser	
107-5	107-5	Line Cord and Plug	



MODEL 777
Series A & B
Alignment

BELMONT RADIO CORP.

NOTE: IN SERIES B THE TYPE 75 WAS REPLACED BY TYPE 6B7, DUPLEX DIODE PENTODE AS A SECOND DETECTOR, A.V.C. AND AUDIO.

Series A and B chassis are serially numbered on the back flange of the chassis, series A beginning with number "5B104021A" and up, series B chassis beginning with number "5D114175B" and up. Series A and B may be identified by the letter "A" and "B" at the end of the serial numbers.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 40 and 60 cycles and with primary taps for 108, 125, 150, 220 and 250 volts (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

SERVICE NOTES

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagrams of series A and B.

IN ORDER TO PREVENT SIGNAL FROM ACTING UPON AVC AND AFFECTING ACCURACY OF VOLTAGE MEASUREMENTS, AERIAL AND GROUND LEADS SHOULD BE SHORT CIRCUITED WHILE MAKING MEASUREMENTS.

All voltages are to be measured with 119 volts on the primary of the power transformer.

ALIGNING INSTRUCTIONS

Dummy Antennas

The following dummy antennas are used in aligning both series A and B and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Intermediate and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

Resonance Indicator:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 42 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

ALIGNMENT PROCEDURE SERIES A ONLY

The following adjustments to be made after the I.F.'s have been aligned as explained above.

BROADCAST BAND ALIGNMENT:

1. With wave changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 550 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:
   (a) Adjust broadcast series pad to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the electrolytic condenser. See top view.
   (b) Re-set external oscillator to 1500 K.C., move dial pointer to 1500 K.C. and adjust oscillator (adjustment number 3), R.F. (adjustment number 2) and antenna (adjustment number 1) to resonance. See bottom view for location of these adjustments.
   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL.

SHORT WAVE BAND ALIGNMENT:

1. With wave changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 8), short wave R.F. (adjustment number 7) and short wave antenna (adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

INTERMEDIATE BAND ALIGNMENT:

1. With wave changing switch in the intermediate position center of its rotation, and with external oscillator set at 5 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 5 megacycles and adjust intermediate wave oscillator (adjustment number 9), intermediate wave R.F. (adjustment number 5) and intermediate antenna (adjustment number 4) to resonance.
   (b) Re-set external oscillator to 1800 K.C. and pick up signal by rotating variable condenser and check for sensitivity.
   (c) Re-check broadcast sensitivity as outlined under "Broadcast Band Alignment".

Series "A" chassis have no intermediate band series oscillator pad adjustment.

ALIGNMENT PROCEDURE SERIES B ONLY

The following adjustments to be made after the I.F.'s have been aligned as explained above.

BROADCAST BAND ALIGNMENT:

1. With wave changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 600 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:
   (a) Adjust broadcast series pad to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the electrolytic condenser. See top view.
   (b) Re-set external oscillator to 1400 K.C., move dial pointer to 1400 K.C. and adjust oscillator (adjustment number 3), R.F. (adjustment number 2) and antenna (adjustment number 1) to resonance. See bottom view for location of these adjustments.
   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL.

SHORT WAVE BAND ALIGNMENT:

1. With wave changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 8), short wave R.F. (adjustment number 7) and short wave antenna (adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

INTERMEDIATE BAND ALIGNMENT:

1. With wave changing switch in the intermediate wave position, center of its rotation, and with external oscillator set at 1800 K.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Rotate variable condenser to approximately 1800 K.C., tune in oscillator signal and adjust M.W. series pad (see top view) to resonance. Slowly rock condenser to and fro while making this adjustment to be sure maximum output is obtained.
   (b) Set external oscillator at 5 M.C., rotate condenser, pick up signal and adjust intermediate wave R.F. (adjustment number 5), intermediate wave antenna (adjustment number 4) and intermediate wave oscillator (adjustment number 9) to resonance.
   (c) Re-check broadcast alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17 M.C. short wave and 5 M.C. intermediate wave adjustments.

ALIGNING I.F. TRANSFORMERS (465 K.C.)

Series A and B.

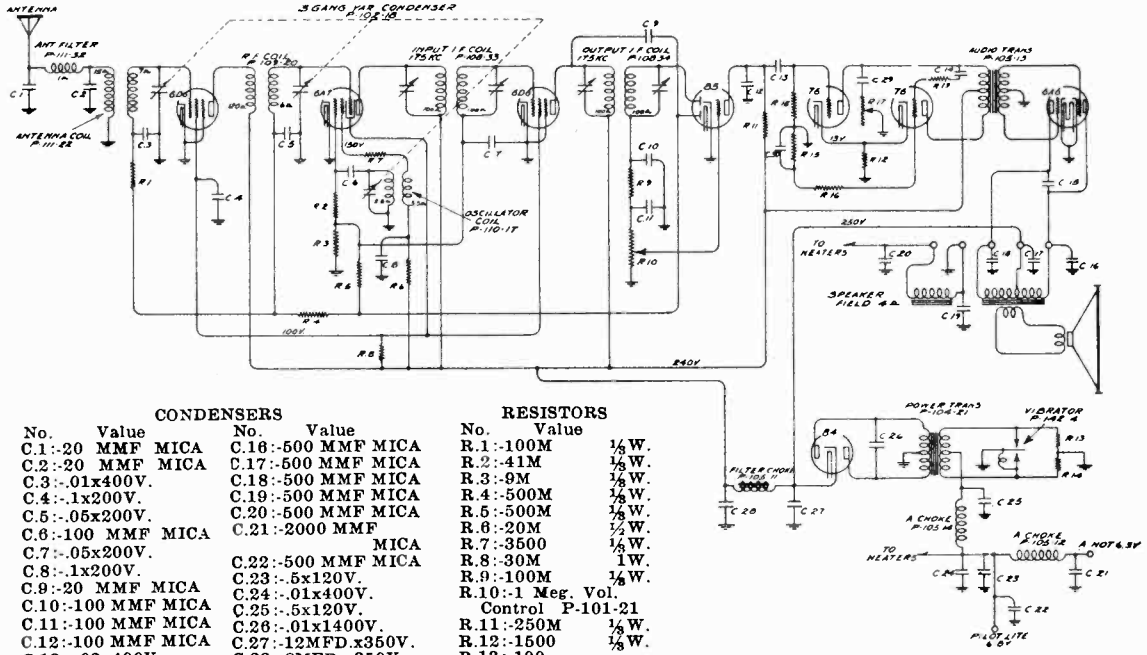
Series A—Part No. 108-35 Output I.F. Transformer
Series A—Part No. 108-36 Input I.F. Transformer
Series B—Part No. 108-35 Output I.F. Transformer
Series B—Part No. 108-36 Input I.F. Transformer

These I.F. transformers have two adjustments, both of which are accessible from the underside of chassis (see bottom view).

1. With volume control full on, the extreme right of its rotation, and with wave changing switch in the broadcast position, extreme left of its rotation, and with variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6D6 tube, located between the two I.F. transformers, and adjust the output I.F. transformer to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6D6 to grid cap to 6C6 and adjust input I.F. transformer to resonance.
   (c) With oscillator still connected to 6C6, re-adjust output I.F. transformer.

MODEL 880
Series A & B
Schematics, Voltage

BELMONT RADIO CORP.



CONDENSERS

No.	Value	No.	Value
C.1	-20 MMF MICA	C.16	-500 MMF MICA
C.2	-20 MMF MICA	C.17	-500 MMF MICA
C.3	-.01x400V.	C.18	-500 MMF MICA
C.4	-.1x200V.	C.19	-500 MMF MICA
C.5	-.05x200V.	C.20	-500 MMF MICA
C.6	-100 MMF MICA	C.21	-2000 MMF MICA
C.7	-.05x200V.	C.22	-500 MMF MICA
C.8	-.1x200V.	C.23	-.5x120V.
C.9	-20 MMF MICA	C.24	-.01x400V.
C.10	-100 MMF MICA	C.25	-.5x120V.
C.11	-100 MMF MICA	C.26	-.01x1400V.
C.12	-100 MMF MICA	C.27	-12MFD.x350V.
C.13	-.02x400V.	C.28	-8MFD.x350V.
C.14	-.02x400V.	C.29	-.025x400V.
C.15	-.006x600V.	C.30	-.01x400V.

NOTE:
C.4 and C.8 are in one unit P-118-1
C.27 and C.28 are in one unit P-119-16
R.13 and R.14 are in one unit P-106-6
Numbers prefixed by letter "P" are part numbers.
Voltages taken from points indicated to chassis ground. Vol. control on full, no signal.

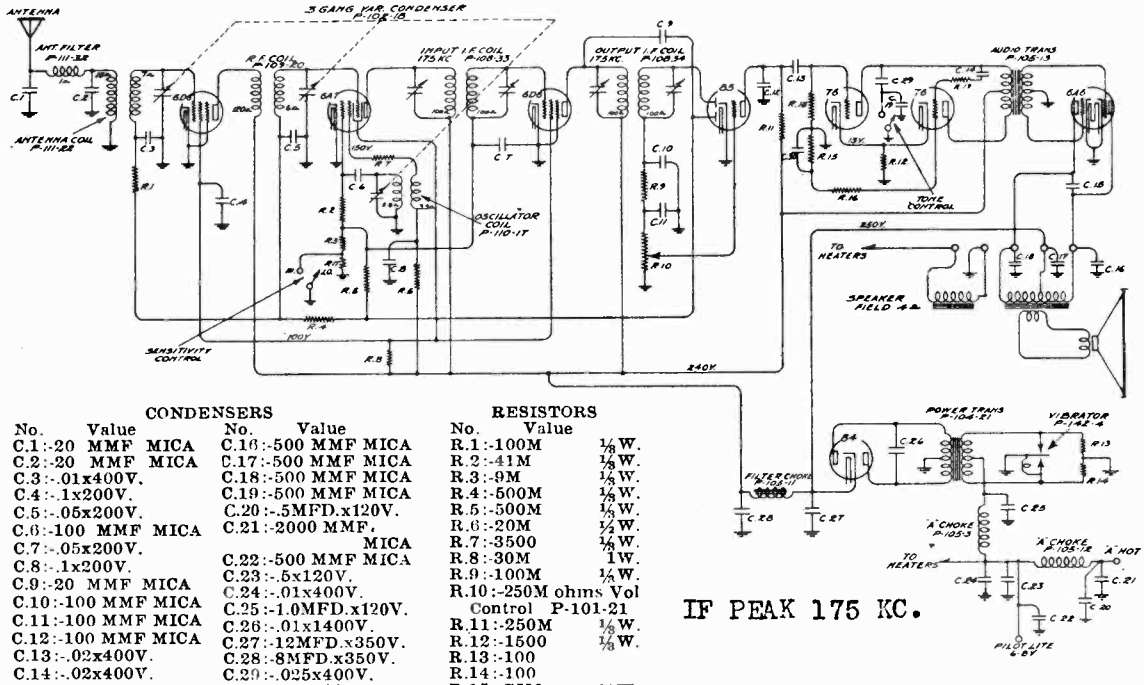
RESISTORS

No.	Value	
R.1	-100M	⅛ W.
R.2	-41M	⅛ W.
R.3	-9M	⅛ W.
R.4	-500M	⅛ W.
R.5	-500M	⅛ W.
R.6	-20M	½ W.
R.7	-3500	⅛ W.
R.8	-30M	1W.
R.9	-100M	⅛ W.
R.10	-1 Meg. Vol. Control P-101-21	
R.11	-250M	⅛ W.
R.12	-1500	⅛ W.
R.13	-100	
R.14	-100	
R.15	-75M	⅛ W.
R.16	-90M	⅛ W.
R.17	-Switch	
R.18	-500M	⅛ W.
R.19	-1 Meg.	⅛ W.

Serial No. 80001 and up.

MODEL 880 Series A

IF PEAK 175 KC.



CONDENSERS

No.	Value	No.	Value
C.1	-20 MMF MICA	C.16	-500 MMF MICA
C.2	-20 MMF MICA	C.17	-500 MMF MICA
C.3	-.01x400V.	C.18	-500 MMF MICA
C.4	-.1x200V.	C.19	-500 MMF MICA
C.5	-.05x200V.	C.20	-.5MFD.x120V.
C.6	-100 MMF MICA	C.21	-2000 MMF, MICA
C.7	-.05x200V.	C.22	-500 MMF MICA
C.8	-.1x200V.	C.23	-.5x120V.
C.9	-20 MMF MICA	C.24	-.01x400V.
C.10	-100 MMF MICA	C.25	-1.0MFD.x120V.
C.11	-100 MMF MICA	C.26	-.01x1400V.
C.12	-100 MMF MICA	C.27	-12MFD.x350V.
C.13	-.02x400V.	C.28	-8MFD.x350V.
C.14	-.02x400V.	C.29	-.025x400V.
C.15	-.006x600V.	C.30	-.01x400V.

NOTE:
C.4 and C.8 are in one unit P-118-1
C.27 and C.28 are in one unit P-119-16.
R.13 and R.14 are in one unit P-106-6
Numbers prefixed by letter "P" are part numbers.
Voltages taken from points indicated to chassis ground. Vol. control on full, no signal.

RESISTORS

No.	Value	
R.1	-100M	⅛ W.
R.2	-41M	⅛ W.
R.3	-9M	⅛ W.
R.4	-500M	⅛ W.
R.5	-500M	⅛ W.
R.6	-20M	½ W.
R.7	-3500	⅛ W.
R.8	-30M	1W.
R.9	-100M	⅛ W.
R.10	-250M ohms Vol Control P-101-21	
R.11	-250M	⅛ W.
R.12	-1500	⅛ W.
R.13	-100	
R.14	-100	
R.15	-75M	⅛ W.
R.16	-90M	⅛ W.
R.17	-4M	⅓ W.
R.18	-500M	⅛ W.
R.19	-1 Meg.	⅛ W.

Series A 80001 up

Series B 81002 up

IF PEAK 175 KC.

Model 880 Series B

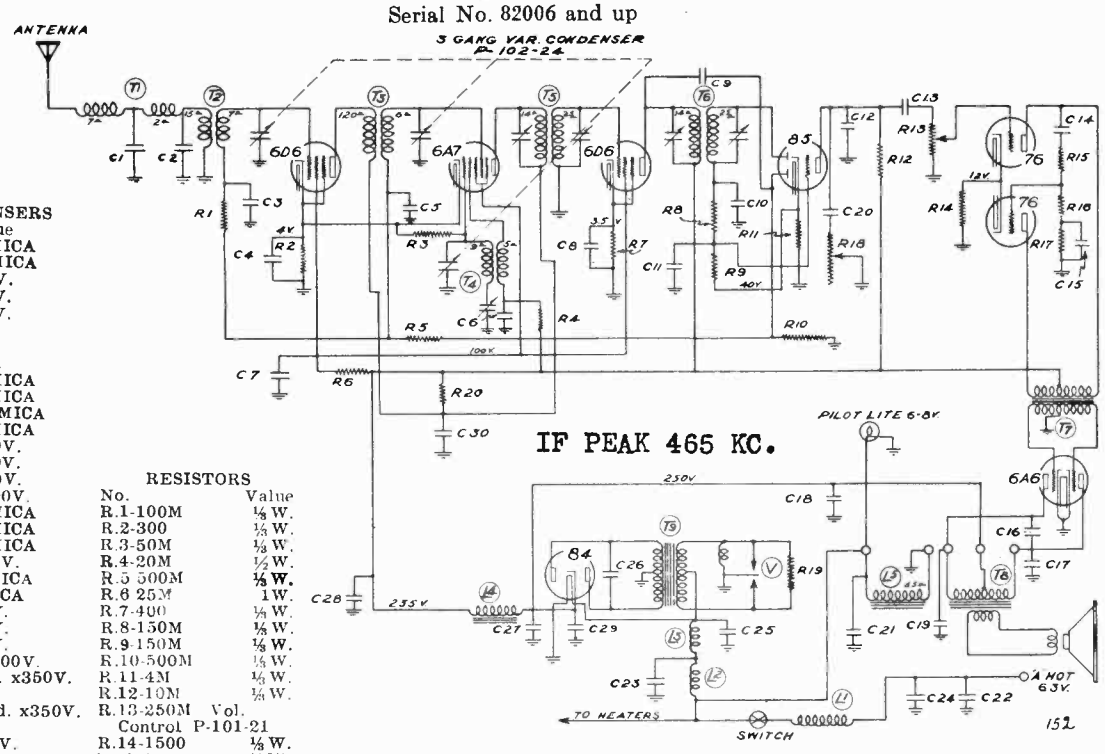
Serial No. 80001 and up

BELMONT RADIO CORP.

MODEL 880
Series C
Schematic, Voltage
Data

Model 880 Series C

Serial No. 82006 and up



CONDENSERS

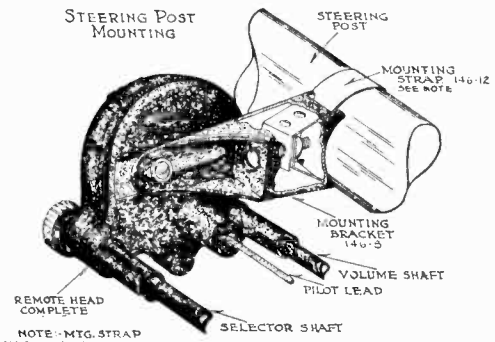
No.	Value
C.1-	.00009 MICA
C.2-	.00002 MICA
C.3-	.01x400V.
C.4-	.25x200V.
C.5-	.05x200V.
C.6-	.1x200V.
C.7-	.1x200V.
C.8-	.1x200V.
C.9-	.00002 MICA
C.10-	.0001 MICA
C.11-	.00005 MICA
C.12-	.0001 MICA
C.13-	.02x400V.
C.14-	.02x400V.
C.15-	.01x400V.
C.16-	.006x600V.
C.17-	.0005 MICA
C.18-	.0005 MICA
C.19-	.0005 MICA
C.20-	.05x400V.
C.21-	.0005 MICA
C.22-	.002 MICA
C.23-	.5x120V.
C.24-	.5x120V.
C.25-	.5x120V.
C.26-	.015x1400V.
C.27-	8.0 mfd. x350V. P-119-16
C.28-	12.0 mfd. x350V. P-119-16
C.29-	.01x400V.
C.30-	.1x400V.
117-2	Dash Mounting Bracket
117-1	Bracket Steering Column
Dash	Mounting Assembly

RESISTORS

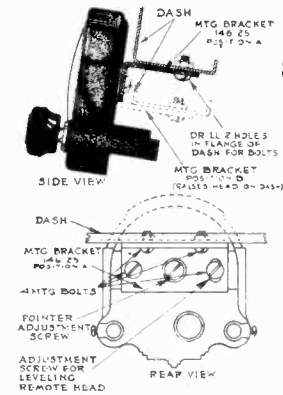
No.	Value
R.1-	100M ⅓ W.
R.2-	300 ⅓ W.
R.3-	50M ⅓ W.
R.4-	20M ½ W.
R.5	500M ⅓ W.
R.6	25M 1 W.
R.7-	400 ⅓ W.
R.8-	150M ⅓ W.
R.9-	150M ⅓ W.
R.10-	500M ⅓ W.
R.11-	4M ⅓ W.
R.12-	10M ⅓ W.
R.13-	250M Vol. Control P-101-21
R.14-	1500 ⅓ W.
R.15-	1 meg ⅓ W.
R.16-	91M ⅓ W.
R.17-	75M ⅓ W.
R.18-	100M Tone Control P-101-39
R.19-	200 ⅓ W.
R.20-	1500 ⅓ W.

PARTS

No.	Part No.
T1-Antenna Filter	P-111-43
T2-Antenna Coil	P-111-42
T3-R.F. Coil	P-109-20
T4-Oscillator Coil	P-110-34
T5-Input I.F. Coil	P-108-56
T6-Output I.F. Coil	P-108-57
T7-Audio Trans.	P-105-13
T8-Output Trans.	
T9-Power Trans.	P-104-21
L1-"A" Choke	P-105-18
L2-"A" Choke	P-105-18
L3-"A" Choke	P-105-19
L4-Filter Choke	P-105-11
L5-Speaker Field	
V-Vibrator	142-4



STEERING POST & DASH MTGS. SERIES A, B, & C



Its tube complement is as follows: SERIES C

1 Type 6D6—remote cut-off pentode as an R.F. amplifier.
1 Type 6A7—electron coupled oscillator as first detector and converter.
1 Type 6D6—remote cut-off pentode and I.F. amplifier (465 K.C.)
1 Type 85 —duplex diode triode second detector and A.V.C.
2 Type 76 —triodes, push-pull first audio.
1 Type 6A6—class B output.
1 Type 84 —high vacuum rectifier.

ACCESSORIES:

The carton of accessories packed with this set contains the following:

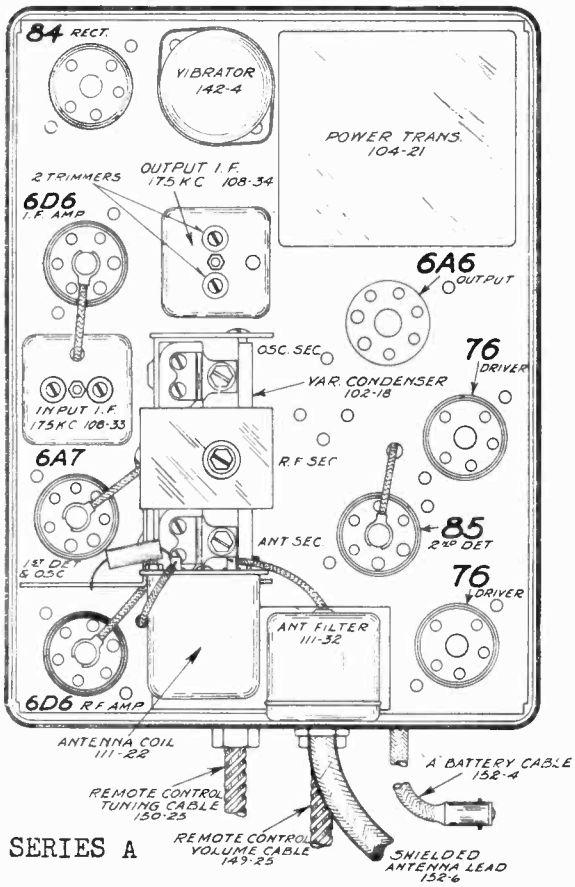
1—No. 152-2 plug-in battery cable.
1—No. 149-25 flexible volume control cable (slotted fitting).
1—No. 150-25 flexible selector cable (key fitting).
2—No. 154-2 set screws for 147-19 bushings.
2—No. 160-11 3" x $\frac{5}{16}$" carriage bolts and nuts for mounting set to bulk head.
2—No. 134-1—Iron washers.
2—No. 134-2—Lockwashers.
1—No. 168-2—Distributor type suppressor.
1—No. 148-1 generator condenser.
1—No. 148-3 ammeter condenser.
1—No. 117-1 Steering column bracket.
1—No. 122-6 remote control head complete with 107-8 and 116-13.
1—No. 152-3 Fuse insulating sleeve.
1—No. 169-1 15 amp. fuse.

GENERATOR INTERFERENCE:

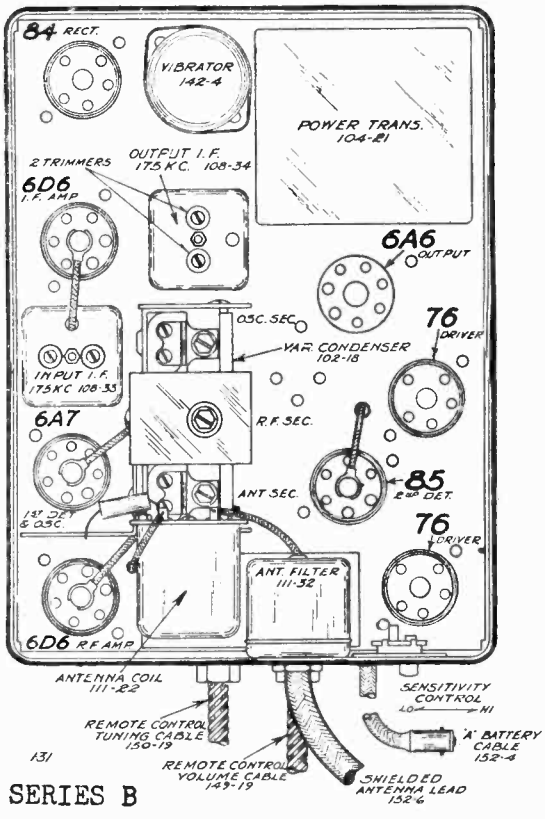
Remove the generator cutout mounting screw and fasten the condenser (148-1) bracket on the generator cutout mounting lug. Replace the cutout mounting screw and tighten down securely. Connect the condenser lead to the battery terminal of the cutout The generator condenser is absolutely necessary as it is used to eliminate a high pitched whining noise which would otherwise be heard as the motor is accelerated.

MODEL 880
Series A,B,C
Socket,Trimmers

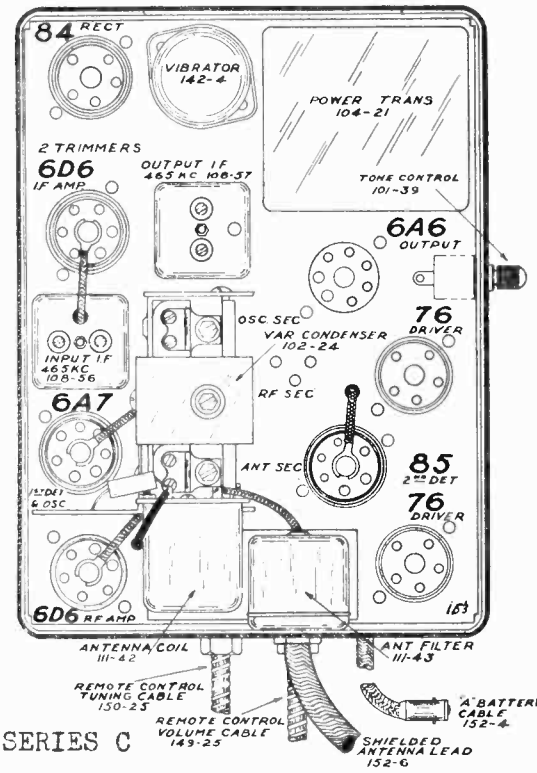
BELMONT RADIO CORP.



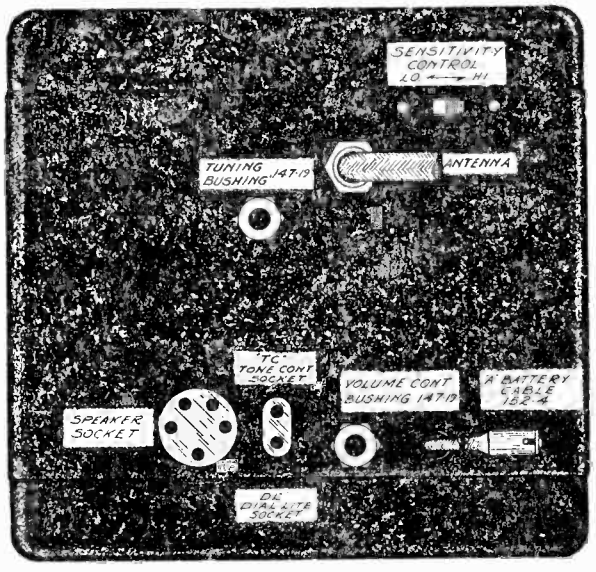
SERIES A



SERIES B



SERIES C



Arrangemnet of Series A & C is similar to Series B, except that Series A & C have no Sensitivity Control Switch

MODEL 880
Series A,B,C
Alignment,Parts

BELMONT RADIO CORP.

DUMMY ANTENNAS:
The dummy antennas referred to in the following instructions are:
"I.F. Dummy" —A .1 mfd. condenser connected in series with the test oscillator output lead.
"Broadcast Dummy"—A 200 mmfd. condenser connected in series with the output lead of the test oscillator.

RESONANCE INDICATOR:
Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the two plates of the type 6A6 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

I.F. ALIGNMENT: Series A & B
1. With variable condenser in its minimum capacity position (plates entirely out of mesh) and with volume control full on, connect test oscillator set at 175 K.C., in series with I.F. dummy antenna, to the grid cap of the type 6A7 tube.
2. Adjust trimmer condensers of both input (108-33) and output (108-34) I.F. transformers to resonance with oscillator. See top view for location of these transformers. There are two adjustments on each and they are accessible from the top of the transformer shield and should be adjusted with an insulated screw driver.

BROADCAST ALIGNMENT:
1. With variable condenser in its minimum capacity position, connect test oscillator set at 1550 K.C. and in series with broadcast dummy, to the antenna lead of receiver.
2. Adjust oscillator trimmer of variable condenser to resonance (this adjustment is on the end section of the three gang condenser—see top view).
3. Shift test oscillator to 1400 K.C. and pick up signal by rotating condenser and adjust R.F. (center) and antenna (front) trimmers to resonance, see top view.
   (a) Check for sensitivity at 1000, 800 and 600 K.C. by setting test oscillator to these frequencies and picking up the signal by rotating variable condenser. Under no circumstances bend plates of oscillator section, bend R.F. and antenna plates only if absolutely necessary.

I.F. ALIGNMENT: Series C
1. With variable condenser in its minimum capacity position (plates entirely out of mesh) and with volume control full on, connect test oscillator set at 465 K.C., in series with I.F. dummy antenna, to the grid cap of the type 6A7 tube.
2. Adjust trimmer condensers of both input (108-56) and output (108-57) I.F. transformers to resonance with oscillator. See top view for location of these transformers. There are two adjustments on each and they are accessible from the top of the transformer shield and should be adjusted with an insulated screw driver.

BROADCAST ALIGNMENT:
1. With variable condenser in its minimum capacity position, connect test oscillator set at 1550 K.C. and in series with broadcast dummy, to the antenna lead of receiver.
2. Adjust oscillator trimmer of variable condenser to resonance (this adjustment is on the end section of the three gang condenser—see top view).

SERVICE NOTES:
Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram.

In order to prevent signal from acting upon A.V.C. and affecting accuracy of voltage measurements, aerial and ground leads should be short circuited while making measurements.

All voltages are to be measured with 6.3 volts input to receiver. Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

3. Shift test oscillator to 1400 K.C. and pick up signal by rotating condenser and adjust R.F. (center) and antenna (front) trimmers to resonance, see top view.
4. Re-set external oscillator to 600 K.C. and adjust series pad to resonance, rotate condenser and move dial pointer to 600 K.C. by gently rocking condenser to and fro. Pick up oscillator signal while adjusting series pad to resonance. This adjustment is accessible from the bottom of the chassis.
   (a) Check for sensitivity at 1000, 800 and 600 K.C. by setting test oscillator to these frequencies and picking up the signal by rotating variable condenser. Under no circumstances bend plates of oscillator section, bend R.F. and antenna plates only if absolutely necessary.

SERIES A & B REPAIR PARTS - MODEL 880

Serial No. 8000i and up

Part No.	Description	List Price Ea.
	CONDENSERS	
	Unless otherwise listed, all single section tubular paper by-pass condensers	$ .25
	Unless otherwise listed, all dual section tubular paper by-pass condensers	.50
	Unless otherwise listed, all molded mica condensers	.25
119-16	8-12 Mfd. - 350 Volt Electrolytic Filter Condenser	2.50
148-1	.5 Mfd. Generator Condenser	.50
148-3	.5 Mfd. Ammeter Condenser	.40
148-5	.5 Mfd. x 120 Volt Condenser	.50
148-6	Special Ford Ignition Coil Condenser	.60
	COILS	
105-12	"A" Choke - 28 Turns No. 12 Wire	.10
105-14	"A" Choke - 37 Turns No. 12 Wire	.10
108-33	Input I.F. Transformer Complete with Shield	1.50
108-34	Output I.F. Transformer Complete with Resistors and Condensers, Mounted in Shield	2.50
109-20	R.F. Coil Complete - Less Shield	1.00
110-17	Oscillator Coil Complete with Bracket	.75
111-22	Antenna Coil Complete - Less Shield	1.00
111-32	Antenna Filter Assembly Complete with Shield and Antenna Cable	1.50
	RESISTORS	
	Unless otherwise listed, all carbon resistors	.20
106-6	200 Ohm Center Tapped Resistor	.25
168-2	Distributor Suppressor	.40
168-3	Cable Type Suppressor	.40
	TRANSFORMERS	
104-21	Power Transformer	4.00
105-11	380 Ohm Filter Choke	.85
105-13	Input Audio Transformer	1.75
	MISCELLANEOUS	
101-21	Volume Control with Switch	1.35
102-18	Three Gang Variable Condenser	4.00
113-30	Two Lug Terminal Strip	.05
113-36	Terminal Strip	.05
115-34	Antenna and R.F. Coil Shield	.15
114-20	Speaker Chassis Only	10.00
128-4	Complete Speaker Housing	2.50
140-5	Set Case less Covers	1.00
140-6	Covers for Above	1.25
142-4	Plug-in Vibrator	4.50

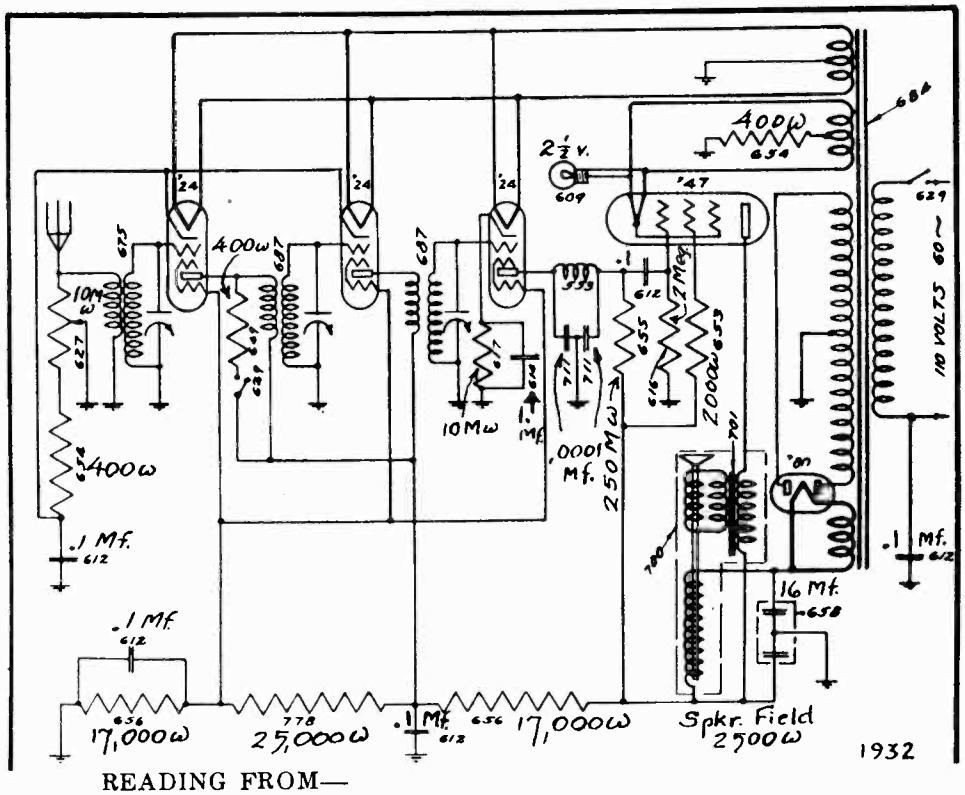
REPAIR PARTS - MODEL 880 Otherwise same as Series A & B - SERIES C *82006 and up Sensitivity Control is not used

109-31	.5 Mfd. x 120 Volt Condenser	.60
148-6	Special Ford Ignition Coil Condenser	.60
124-21	.15-S Series Padder	.50
	COILS	
105-18	"A" Choke L1-L2, 32½ Turns, No. 14 wire	.10
105-19	"A" Choke, L3, 60 Turns, No. 18 wire	.15
108-56	Input I.F. Transformer Complete with Shield	1.50
108-57	Output I.F. Transformer Complete with Resistors and Condensers, Mounted in Shield	2.50
106-20	R.F. Coil Complete - Less Shield	1.00
110-34	Oscillator Coil Complete with Bracket	.75
111-42	Antenna Coil Complete - Less Shield	1.00
111-43	Antenna Filter Assembly Complete with Shield and Antenna Cable	1.50
	RESISTORS	
	Unless otherwise listed, all carbon resistors	.20
130-84	200 Ohm Resistor ½ Watt	.15
	MISCELLANEOUS	
101-39	Tone Control	1.00
101-21	Volume Control with Switch	1.35
102-24	Three Gang Variable Condenser	4.00
	Plate Antenna	3.50
147-10	Flexible Cable Control Bushing	.10
152-2	Battery Cable & Fuse Assembly	.35
152-3	Fuse Insulating Sleeve	.05
152-4	Chassis Battery Cable Assembly	.30
152-6	Antenna Cable	.50
152-7	Speaker Cable with Plug	1.00
153-4	Special Speaker-Tone Control-Dial Light Socket Assembly	.25
160-11	Mounting Studs Complete with Nut & Washer	.05
169-1	15 Amp. Fuse (3AG-15)	.05
	All Sockets	.10
123-1	Dome Lite Filter	.90
	REMOTE CONTROL PARTS	
112-39	Selector Control Shaft	.20
112-41	Idler Gear	.15
112-42	Pointer Shaft	.05
112-85	Volume Control Shaft	.10
112-45	Bezel (Crystal Retainer)	.15
112-46	Celluloid Dial Crystal	.15
112-48	Pointer Shaft Gear	.05
112-97	Glass Dial	.35
112-108	Metal Disc Pointer	.10
116-13	6-8 Volt, T-51 Bulb Bayonet Base	.10
116-9	Pilot Light Assembly	.45
116-11	Tone Control Assembly Unit Complete	.35
131-5	Black Bakelite Remote Control Knobs	.15
134-32	Fibre Dial Mask	.05
146-8	Die Cast Remote Control Mounting Bracket	.30
146-12	Steering Column Strap	.15
146-25	Dash Mounting Bracket	.15
147-3	Selector Control Bushing for 112-39 Shaft	.10
147-4	Volume Control Bushing for 112-43 Shaft	.10
149-25	Flexible Volume Control Cable - 24"	1.50
150-25	Flexible Selector Control Cable - 24"	1.50
151-6	Remote Control Head Complete with Sterling Column Bracket	5.00
	Dash Mounting Kit (specify make and year of car)	1.25
151-8	Special General Motors Control Head	7.00
	Dash Mounting Kits for 1935 Chevrolet and Pontiac for use with 151-8 head	1.50
	Dash Mounting Kits for 1935 Oldsmobile for use with 151-8 head	1.75

MODEL A-50-A
Schematic, Voltage

CALVERT MOTOR ASSOCIATES

SCHEMATIC WIRING DIAGRAM OF THE Calvert 5-TUBE RADIO



D. C. Voltages

READING FROM—

Chassis (ground)	to plates of R. F. tubes	130 to 150 volts
" "	to plate of Detector	75 to 95 volts
" "	to plate of Pentode	215 to 235 volts
" "	to screen of R. F. tubes	45 to 65 volts
" "	to screen of Detector	45 to 65 volts
" "	to screen of Pentode	215 to 235 volts
" "	to cathode of R. F. tubes	1.5 to 2.5 volts
" "	to Cathode of Detector	4 to 6 volts
" "	to pentode Filament Center Tap	14 to 18 volts

A. C. Voltages

1st R. F., 2nd R. F., Detector and Pentode Filaments	2.3 to 2.5 volts
Rectifier Filament	4.8 to 5.1 volts
Ground to plates of 280	approximately 375 volts

NOTE: Filament Voltages may be measured with a Weston Triple Range (0-4, 0-8, 0-150) Type 528 AC Voltmeter. The high voltage on the Rectifier Plates should be measured with a double range (300, 0-600) Type Weston AC Voltmeter.

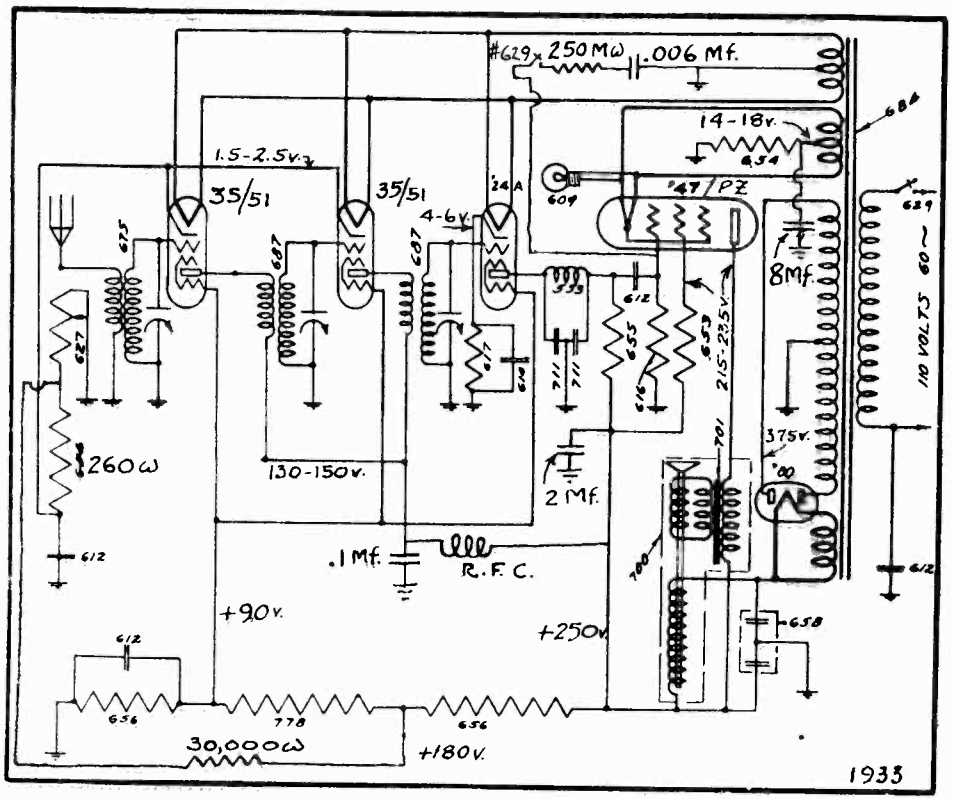
Operation of Set

Also Use of Local and Distance Switch

After set is turned on it will be some time before the set will operate due to the tubes heating up. Turn Volume Control full on then rotate dial until station is heard, turn Volume Control until desired volume is reached.

If in the vicinity where a strong local is being received turn local and distance switch (found on left side of cabinet) to local position.

385 Tube Shielding Can
386 Antenna Coil Shielding Can
553 700 turn R. F. Choke
605 Grid Grip
609 2½ volt Pilot Light
612 .1 Mfd. Condenser
614 1. Mfd. Condenser
616 2 megohm Resistor, ½ watt
617 10,000 ohm Resistor, ½ watt
627 10,000 ohm Centralab Volume Control
629 Toggle Switch
649 400 ohm Resistor, ½ watt
653 2,000 ohm Resistor, ½ watt
654 400 ohm Resistor, one watt
655 250,000 ohm Resistor, ½ watt
656 17,000 ohm Resistor, ½ watt
658 16 Mfd. Filter Condenser
663 Four prong socket
674 Five prong socket
675 Antenna Coil
687 R. F. Coil
684 Power Transformer
700 Dynamic Speaker with Output Transformer. Magnavox Speaker Model 144, 2,500 ohm field.
701 Output Transformer only for Single Pentode
711 .0001 Mfd. Condenser.
778 25,000 ohm Resistor, ½ watt.



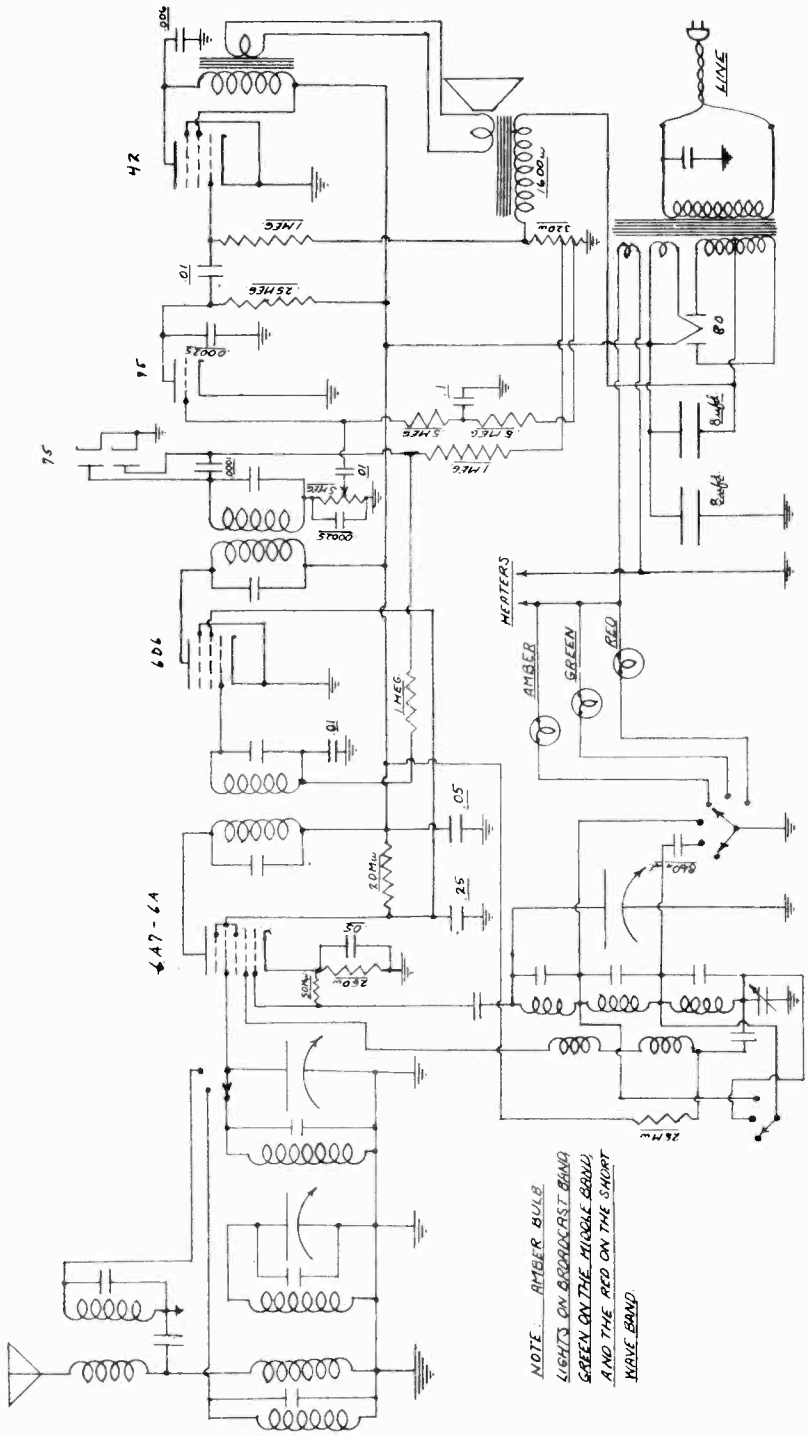
The same chassis is used for Model A52A as is used for Model A51A. The following tubes are used in Model A52A with the suppressor grids connected as usual.

1st R-F. Stage	Type 58
2nd R-F. Stage	" 58
Detector	" 57
Output Stage	" PZ/47
Rectifier	" 80

1934

MODEL 357
Schematic
Data

CAVALCADE RADIO CO.



6-Tube Super heterodyne AC Receiver
For use on 110 volts AC only

This radio is a six-tube Superheterodyne type which operates ON AC CURRENT ONLY at a frequency of 60 cycles and at 110 volts.
It covers three wave bands, as follows:

Standard Broadcast band - 540-1750 kc - AMBER light
Police and Amateur band - 1650-5000 kc - GREEN light
Short wave, American & Foreign - 18-5.7 meg.-RED light

Antenna and Ground

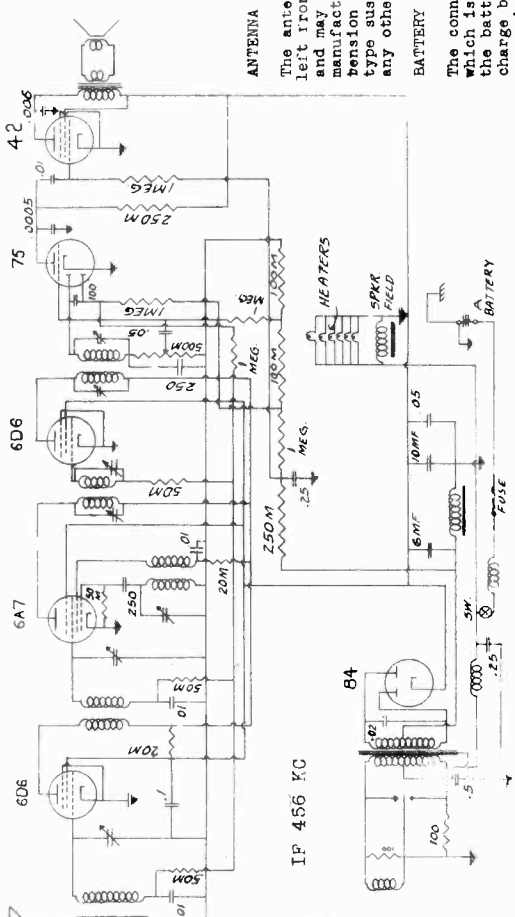
An outside antenna is desirable with this radio in order to obtain the maximum in performance. With an efficient outside antenna, foreign reception is guaranteed. The short red wire in the rear should be connected to the antenna. It is desirable to have this antenna clear of surrounding objects and as high as possible from the ground. The black wire is the grounding terminal. If the lighting circuit is not already grounded, reception will be improved by connecting this black wire to the cold water pipe or radiator; otherwise the ground wire can be left free.

Operation of Set

The right hand knob switches on the set, and thereafter acts as the volume control. The upper middle knob is the station selector with which the stations are tuned in. The lower middle knob is the variable tone control, allowing you to control the tone for base or sharp timbre. The left hand knob controls the three wave bands of the set. When turned to the extreme left, the broadcast band is on, showing an AMBER light; switched to the center, the police and amateur band is on, showing a GREEN light; the extreme right brings in the short wave, showing a RED light. Success with short wave requires more careful tuning than with the broadcast band and necessitates study of a chart to ascertain location of the principal short wave broadcasting stations. Air conditions are not always favorable to short wave reception, under which conditions nothing can be done, but with reasonable atmospheric clearance, good foreign reception may be had.

MODEL 359
Schematic
Installation Data

CAVALCADE RADIO CO.



Chassis in metal container
2 Flexible shafts
1 Tuning control head with pilot light
1 "A" battery cable with fuse
1 Antenna lead
1 Bolt, Nut, and Washer

ANTENNA CONNECTION:

The antenna is a shielded lead which is fastened into the hole at the left front edge of the container fitting into a Delco-Remy receptacle and may be fastened to aerial provided for this purpose by most car manufacturers. In case there is no aerial in the automobile, an extension of shielded wire may be brought down to an aerial of the strap type suspended between the front and rear axles beneath the car, or any other type of automobile antenna.

BATTERY CONNECTION:

The connections to the "A" battery are made with the shielded lead which is brought out to the right rear of the set and is connected to the battery side of the ammeter. This will be indicated by no discharge being shown on the ammeter. The shielding is grounded to a convenient bolt or nut that may be loosened near the ammeter under which it may be tightened.

OPERATION OF SET:

To operate the set, turn the left hand knob to the right and the pilot bulb in the control head will light, showing that the set is connected. After a minute or less, the tubes should be warmed up and by turning the right hand control the stations desired may be tuned in whose frequency may be found on the dial. Adjust the volume by means of the left hand knob and do not turn off the station as distortion will occur unless it is tuned to the center of the signal.

ELIMINATION OF MOTOR NOISE:

A car of the later type and in good mechanical condition will usually require no suppressors with this set. However, if the body of the car has loosened at joints due to wear, electrical disturbances may be caused which will require bonding of these parts together with heavy braided conductors, soldered across this portion. If considerable motor noises are heard in set they will reach the set through two paths. First, through the "A" battery connection, which is common to the generator and may be corrected by a condenser either from the battery side to the ammeter to ground or a condenser placed across the charging terminal of the generator to ground. Second, by means of actual radiation from the ignition wireswhichcan be can be reduced by shielding the antenna lead up to the antenna proper. Also, if necessary, suppressors may be inserted on spark plugs and distributor head.

IF SET DOES NOT PLAY:

If after all the above instructions have been followed and set does not operate, the top of the radio case may be removed by unloosening the six screws holding it and ascertaining if all the tubes are lit and fully pressed into sockets, and be sure that all grid caps fastened to the tubes are in place. If tubes fail to light, check the fuse in shielded lead connected to ammeter. If there is no light buzzing sound from set when turned on and set does not play, remove the vibrator contained in can in right rear of set which plugs into socket in the manner of a tube and replace. If the above instructions are carried out and the set still does not play, consult reliable service man.

ASSEMBLY AND MOUNTING:

The set may be mounted by means of a 3/8 inch machine bolt placed through a hole in the center of a space to clear 9⅜ x 7 inches, and having no obstruction within 7 inches from its surface which will then clear the auto chassis. The rear of the set can then be joined to the head of this bolt, and the nut attached to the bolt and tightened against the opposite side of the partition, leaving the set in a rigid mounting. If, however, sufficient space cannot be found when mounting in this manner, the set may also be mounted from one of the smaller ends. This requires a space 7⅛ x 7 inches, having no obstruction in front of it for a distance of 9⅜ inches. In this position the speaker should face towards the floor board, or if at one side of the car, toward the center.

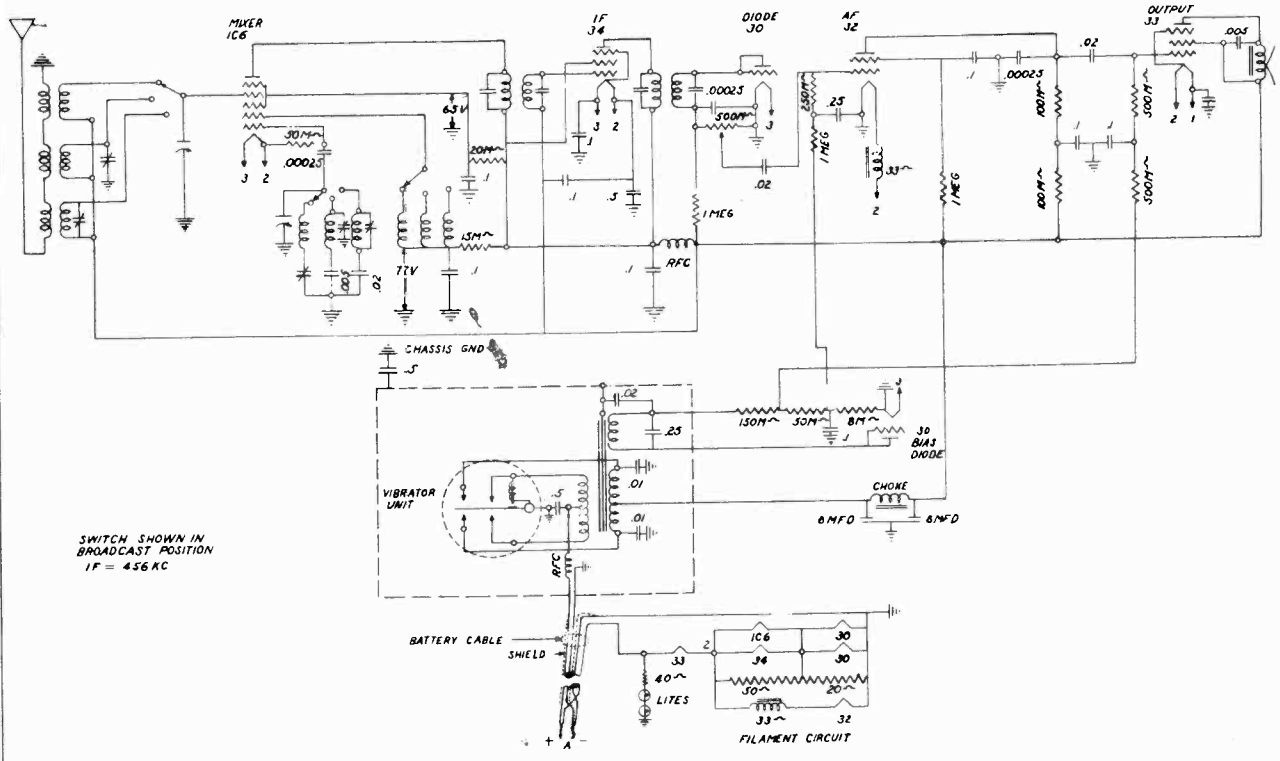
The two flexible shafts should first be connected to the radio. One shaft has two screw-driver shaped ends; this shaft is for the tuning control. One end is inserted in the center hole of the radio and twisted until well engaged; then the set screw is tightened. The other end is inserted into the hole in the rear of the right hand knob on the control head, which is the tuning knob. The other shaft has one screw-driver end and one slotted end. The slotted end fits into the hole in the rear of the left hand knob of the control head, which is the volume control knob. The screw-driver end fits into the edge hole of the radio case, and must be well engaged in the slot before set screw is tightened. Set screws for these shafts must be tightened on the control head as well.

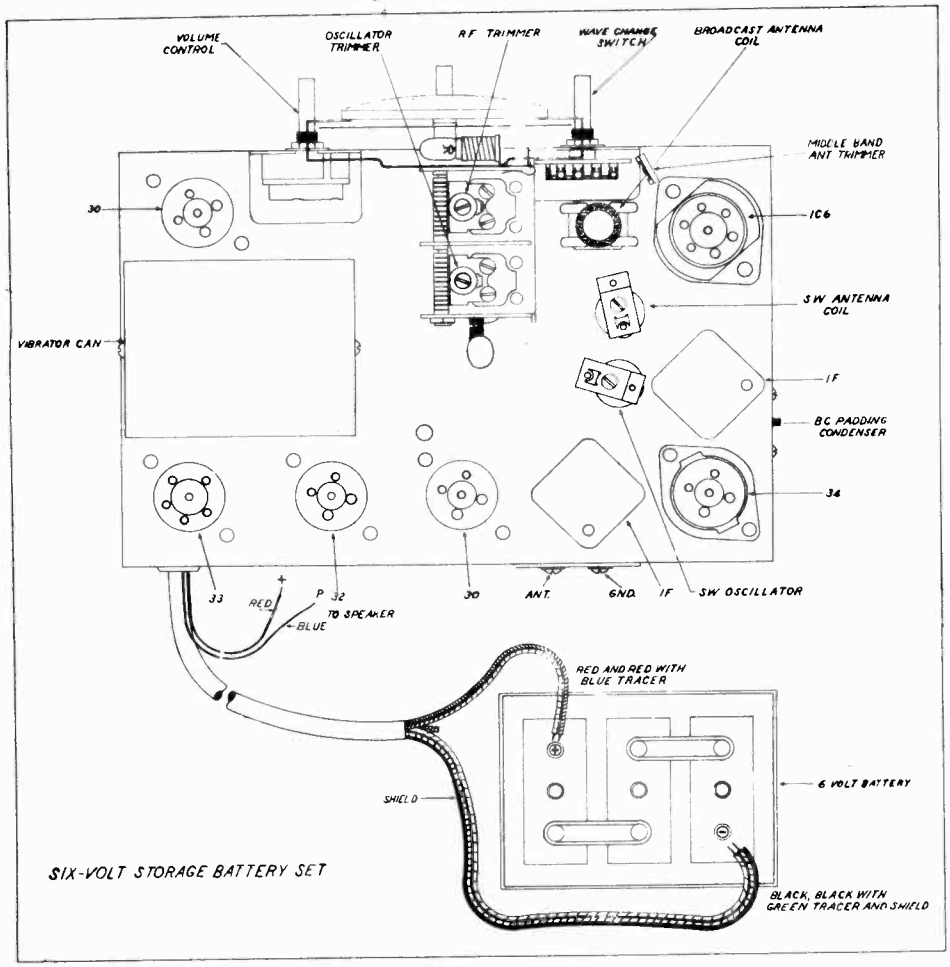
CONTROL MOUNTING:

The control head can next be secured to the steering column by means of the strap or bracket supplied for this purpose, or may be fastened to the dash itself in various positions. The pilot light already attached to control and in position, should be removed from the socket in the rear of the control head. Rotate the tuning knob (right hand knob) clockwise as far as it will go; then, by means of a small screwdriver inserted in the pilot light socket, turn the pointer on the dial until it reaches the right hand end of the scale. There there is no screw in pilot light socket, this type of control is self adjusting by rotating the pointer clear to one end of scale and then to other, which automatically sets the pointer in proper position.

MODEL 3511
Schematic
Socket, Trimmers

CAVALCADE RADIO CO.





MODEL 3511
Alignment
Data

CAVALCADE RADIO CO.

ALIGNMENT DATA

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 3000 and 10,000 K. C. and an output meter to be connected across the speaker terminals.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

I.F. ALIGNMENT Adjust the test oscillator to 1400 K.C. and connect the output to the antenna wire through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak. This adjusts the receiver on scale. Then adjust the front or R.F. trimmer to peak.

Next rest the dial pointer on the receiver and test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the R.F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustment at that frequency to be sure they have not been thrown out of adjustment.

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the dial. The oscillator trimmer is located underneath the chassis and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

SERVICE HINTS

VIBRATOR Vibrator noise may be due to the following: a discharged "A" battery, high resistance connections on battery terminals, a defective vibrator or a loose cover on the vibrator can.

The vibrator unit is a plug-in type and can be removed for replacement very easily. This unit should last a very long time as current through the contact points is very small.

Never leave the power switch turned on when the "A" battery is too low to make the receiver function as this is liable to seriously injure the vibrator or vibrator transformer. Never remove any of the tubes when the power switch is turned on as they are connected in a series parallel circuit.

MICROPHONICS The two volt type of tubes used in this receiver are ordinarily more microphonic than heater types. They can be detected by touching each tube with the finger tips. Another source might be caused by the dial glass touching the front or escutcheon plate.

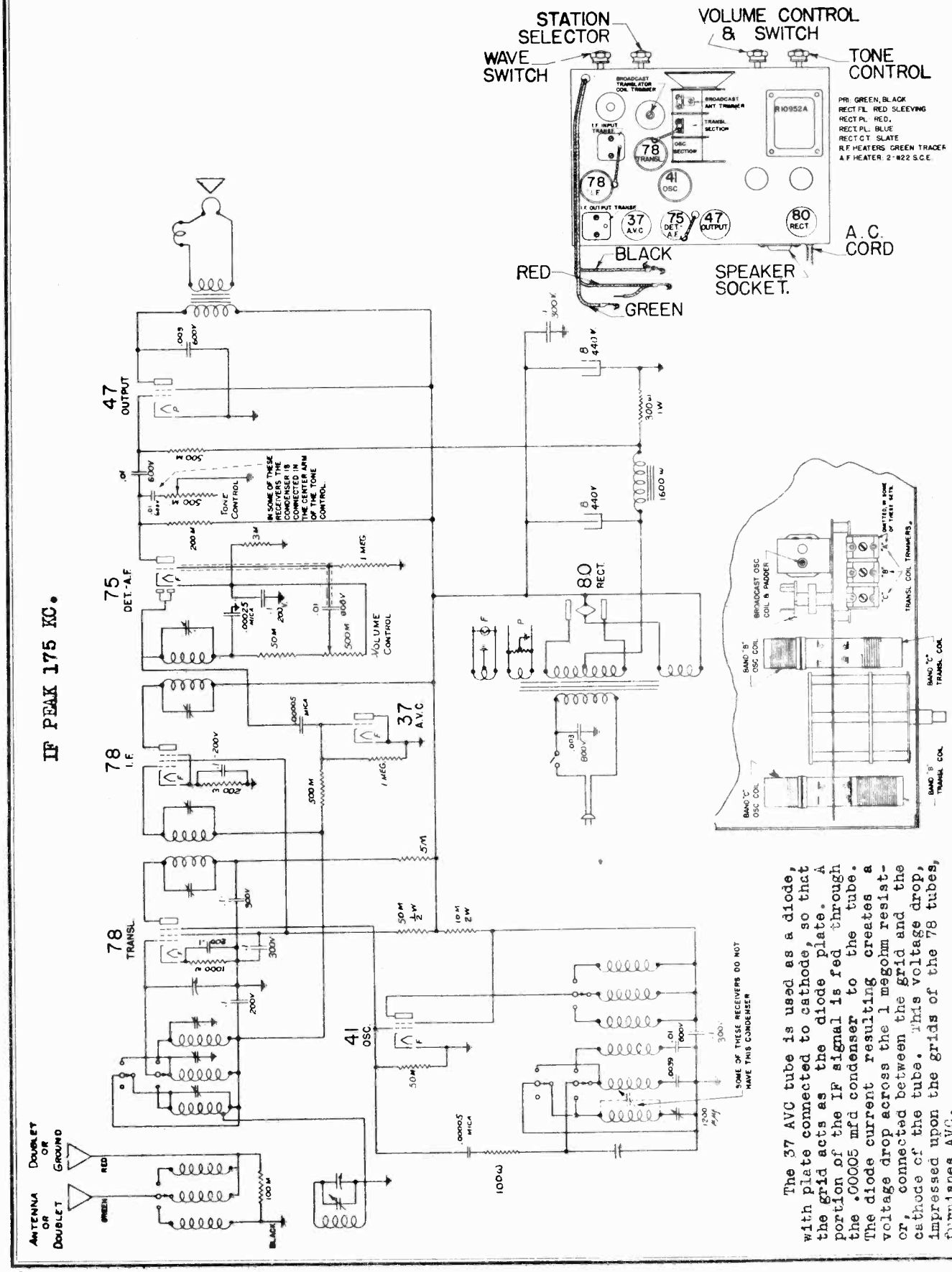
LOW VOLUME This trouble may be caused by weak or defective tubes (replace with set of tubes known to be in good condition); antenna disconnected from the receiver: open antenna coil or open or shorted by-pass condensers.

Some localities remote from broadcasting stations may require an extra long antenna of about two hundred feet.

LOW VOLTAGE Low voltage may be caused by a low battery, a defective vibrator, corroded battery terminal or shorted by-pass condensers. Increasing the length of battery leads might cause low voltage ard vibrator noise.

COLONIAL RADIO CORP.

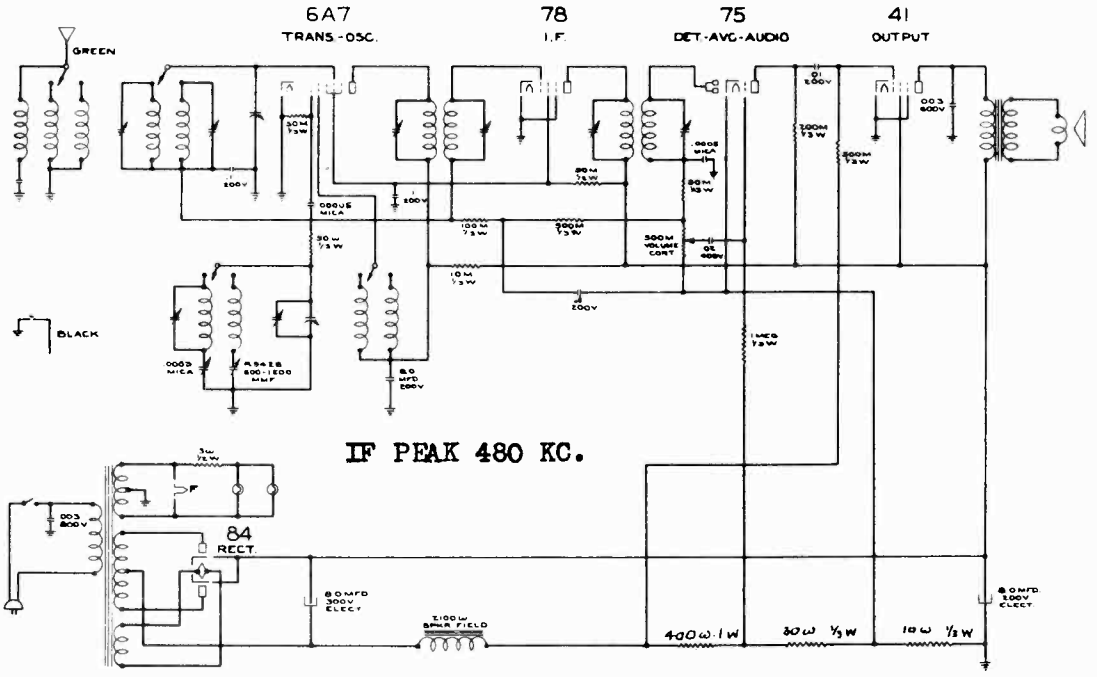
MODEL 605
Schematic
Socket, Trimmers

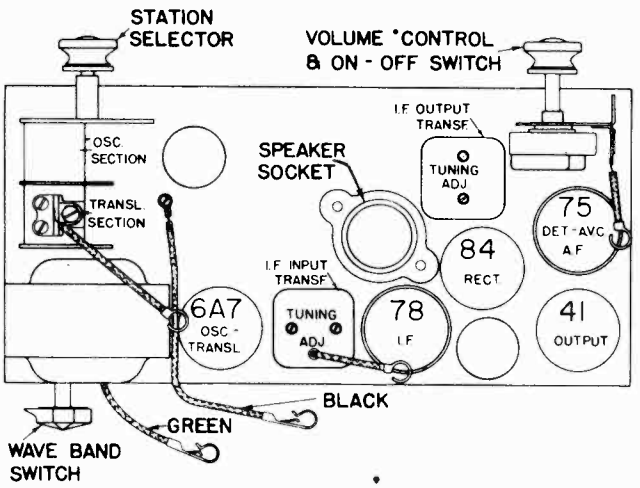


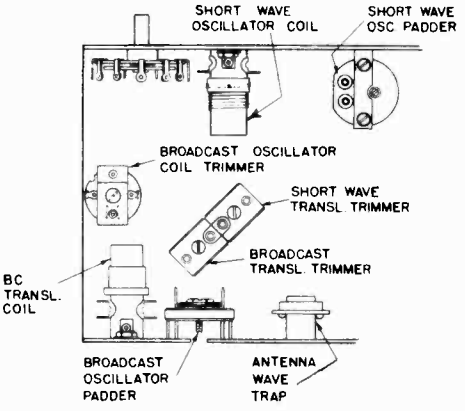
The 37 AVC tube is used as a diode, with plate connected to cathode, so that the grid acts as the diode plate. A portion of the IF signal is fed through the .00005 mfd condenser to the tube. The diode current resulting creates a voltage drop across the 1 megohm resistor, connected between the grid and the cathode of the tube. This voltage drop, impressed upon the grids of the 78 tubes, furnishes AVC.

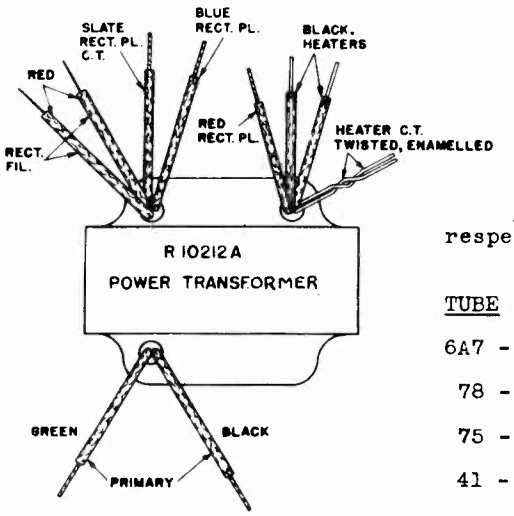
MODEL 662
Schematic, Voltage
Socket, Trimmers

COLONIAL RADIO CORP.









POWER TRANSFORMER CONNECTIONS - MODELS 651 & 662

TUBE VOLTAGE CHART

All readings are to be taken between the chassis and the respective element of each tube.

TUBE	PLATE	SCREEN	OSCILLATOR SECTION PLATE
6A7 - Osc-Transl	140	60	140
78 - IF	185	60	
75 - AVC-DET-AF	85		
41 - Output	175	185	

COLONIAL RADIO CORP.

MODEL 662

The COLONIAL Model 662 is a five tube superheterodyne, almost identical with Model 651 except for the frequency coverage of its short wave range. The short wave range of the 651 is approximately 5500 kc to 18,000 kc, covering American and Foreign short wave broadcasting. The short wave range of the Model 662 is from approximately 1600 kc to 5200 kc, covering amateur, aircraft, and police transmissions.

Because of the difference in frequency range, the Model 662 uses a conventional type antenna whereas the Model 651 has provision for a short wave doublet antenna.

The tubes and their functions are:

6A7 - Oscillator-Translator
78 - IF
75 - Detector-AVC-AF
41 - Output
84 - Rectifier

In order to prevent interference from code stations, when the receiver is located near the coast, a wave trap is corporated in the antenna circuit. Although this trap is shown in the schematic as a coil with a series condenser, actually it consists of two multi-layer coils wound on top of each other, with one end of each coil left unconnected. The distributed capacity between the coils is represented by the condenser in the schematic. The design of the coil is such that the combination of distributed capacity and inductance is resonant at about 600 meters, which is the frequency used by ships and also is very near the IF frequency of the receiver.

The 75 Detector-AVC-AF Circuit:

The IF signal existing at the IF output transformer secondary is impressed between the diode plates and the cathode of the 75 tube, in series with the 50 M ohm resistor and the 500 M ohms of the volume control. Diode current flows, creating voltage drops across these resistances. Only the drop across the volume control resistance is used for AVC voltage. The control grid returns of the 6A7 and 78 tubes are connected through filter resistances to one end of the volume control. This end is negative in respect to the other end of the control, so that the voltage drop across it, due to the diode current, is impressed as negative bias on the control grids of the 6A7 and 78 tubes. Any increase in signal strength increases the voltage drop across the volume control and so increases the negative bias on the 6A7 and 78 tubes, with a resultant decrease in tube amplification. Since increases in signal strength are offset by decreases in tube amplification, the input to the detector tends to remain at a constant value.

Any desired portion of the audio component across the volume control can be picked off by the movable arm of the control and fed through the .02 mfd. condenser to the triode section of the 75 tube. It is there amplified and then coupled to the 41 output tube.

ALIGNMENT PROCEDURE

The IF Stages:

1. Connect the output meter across the loud speaker voice coil.

2. Connect the ground lead of the test oscillator to the receiver chassis.

3. Connect the other lead of the test oscillator, in series with a .1 mfd. condenser, to the grid of the 78 tube, leaving the grid clip attached to the cap.

4. Set the test oscillator to 480 kc and tune the IF output transformer. The locations of the tuning adjustments are shown in the Service Illustration.

5. Change the test oscillator connection to the control grid cap of the 6A7 tube and adjust the IF input transformer.

6. Repeat the adjustments to secure greater accuracy.

Always use as low an output as possible from the test oscillator in order to render the AVC action of the set inoperative.

RF Alignment; Short Wave:

The short wave range must be aligned before the broadcast range.

1. Set the test oscillator to 5175 kc and couple its output to the green antenna lead of the receiver, leaving the antenna connected.

2. Put the wave switch in the short wave position and open the variable condenser plates all the way. Then adjust the trimmer on the variable con-

MODEL 662
Alignment, Part 2
Parts List

COLONIAL RADIO CORP.

denser for maximum output.

3. Set the test oscillator to 4500 kc and adjust the short wave translator coil trimmer for maximum output.

4. Set the test oscillator to 1700 kc and tune in its signal. Then slowly rotate the condenser back and forth a degree or two and, at the same time, adjust the short wave oscillator padder for maximum output.

5. Repeat the 5175 kc and 4500 kc adjustments. Always use the lowest possible output from the test oscillator.

RF Alignment; Broadcast:

1. Set the test oscillator to 1630 kc, leaving it coupled to the receiver's antenna lead as for short wave alignment.

2. With the wave band switch in the broadcast position, open the variable condenser plates all the way. Then adjust the broadcast oscillator coil trimmer for maximum output.

3. Set the test oscillator to 1400 kc and tune in its signal. Then adjust the broadcast translator trimmer for maximum output.

4. Set the test oscillator to 600 kc and tune in its signal. Then slowly rotate the variable condenser back and forth a degree or two and, at the same time, adjust the broadcast oscillator padder for maximum output.

5. Repeat the 1630 kc and 1400 kc adjustments, always using the lowest possible output from the test oscillator.

PART NO.	DESCRIPTION
R8297A	Board - Terminal, double
R8308A	Board - Terminal, triple
R9446A	Board - Terminal, 4 terminals
R10859	Cabinet -
R10198	Coil - Translator, broadcast
R10199	Coil - Oscillator, broadcast
R9829M	Coil - Translator, short wave
R9829N	Coil - Oscillator, short wave
R9565	Coil - Antenna wave trap
R11198	Condenser - Variable
R9204	Condenser - 8 mfd. 300 volts, electrolytic
R8748	Condenser - 8 mfd. 200 volts, electrolytic
R9426	Condenser - Padding, 1200 mmf.
R9975	Condenser - Padding, 300 mmf.
R10197	Condenser - Trimmer
R6444	Condenser - .1 mfd. 200 volts
R9818	Condenser - .02 mfd. 400 volts
R8432	Condenser - .01 mfd. 200 volts
R7681	Condenser - .003 mfd. 600 volts
R10096	Condenser - .003 mfd. 800 volts
R6760	Condenser - .0005 mfd. mica
R8621	Condenser - .00005 mfd. mica
R10604	Control - Volume with switch
R7566	Cord - AC line
R11212	Escutcheon - Wave switch
R10980	Grommet - Variable condenser mounting
R11213	Indicator - Station selector
R10246	Indicator - Volume control
R11204	Instruction leaflet
R10240	Knob - Station selector
R10247	Knob - Volume control
R8278	Knob - Wave switch
R2288	Lamp - Pilot
R5346B	Lead - Antenna
R5345D	Lead - Ground
R10379A	Pointer
R7585	Resistor - 1 megohm, 1/3 watt carbon
R7228	Resistor - 500 M ohms, 1/3 watt carbon
R6638	Resistor - 200 M ohms, 1/3 watt carbon
R7586	Resistor - 100 M ohms, 1/3 watt carbon
R6637	Resistor - 50 M ohms, 1/3 watt carbon
R6445	Resistor - 50 M ohms, 1/2 watt carbon
R7587	Resistor - 10 M ohms, 1/3 watt carbon
R6632	Resistor - 50 ohms, 1/3 watt carbon
R10364	Resistor - 30 ohms, 1/3 watt carbon
R10493	Resistor - 10 ohms, 1/3 watt carbon
R8066	Resistor - 400 ohms, 2 watts, flexible
R10204	Resistor - 3 ohms, 1 watt, flexible (Pilot light circuit)
R10206	Shield - Electrolytic condenser
R9360	Shield - Tube
R8366	Socket - 4 prong
R8253	Socket - 5 prong
R8092	Socket - 6 prong
R8072	Socket - 7 prong
R10363D	Socket - Pilot light, with volume control mounting bracket
R10373A	Socket - Pilot light, with bracket (mounted on variable condenser)
S10248A	Speaker
R10207	Switch - Wave
R10208A	Transformer - IF input
R10209	Transformer - IF output
R10212B	Transformer - Power

MODEL L4, ML4

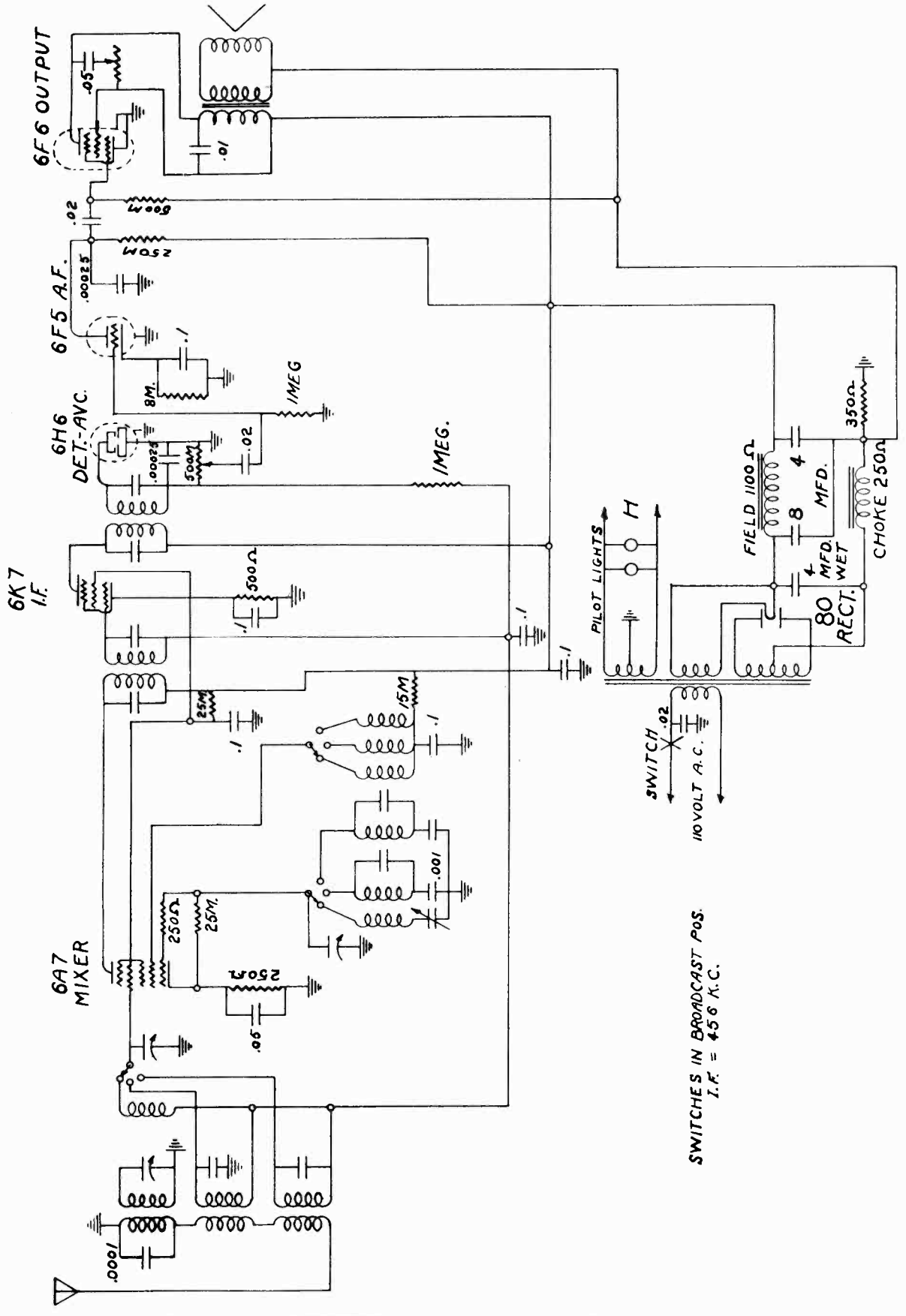
CONTINENTAL RADIO & TELEV. CO.

Schematic, Voltage

MODELS L2, ML156, ML266

Schematic

CONTINENTAL RADIO & TELEV. CO.



CONTINENTAL RADIO & TELEV. CO.

MODELS 137X, 150X, 171X
Schematic, Alignment

ALIGNMENT DATA

The Alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456,600,1400,3000 and 10,000 K.C. and an output meter to be connected across the primary or secondary of the output transformers.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

I.F. ALIGNMENT Adjust the test oscillator to 456 K.C. and connect the output to the grid of the 1st detector tube (6A7) through an .05 or .1 mfd condenser. If desired the ground on the test oscillator can be connected to the chassis ground. Align all four I.F. trimmers to peak or maximum reading on the output meter.

R.F. ALIGNMENT Adjust the oscillator to 1400 K.C. and connect the output to the antenna post through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak.

Next rest the dial pointer on the receiver and the test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the preselector or R.F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustments at that frequency to be sure they have not been thrown out of adjustment.

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the Dial. The oscillator trimmer is located underneath the chassis set and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

SERVICE HINTS

LOW VOLUME This may be caused by weak or defective tubes (Replace with set of tubes known to be in good condition), antenna disconnected from the receiver, open antenna coil, open or shorted by-pass condensers, or defective wave change switch.

LOW VOLTAGE Low voltage may be caused by a defective 80 rectifier, low line voltage, a defective power transformer or shorted by-pass condensers.

HUM Excessive hum may be caused by a defective 80 tube, open filter condenser, or open audio grid lead.

DISTORTED REPRODUCTIONS This may be caused by a defective 75 or 42 tube or a ground or open in the automatic volume control circuits. Check all circuits with an ohmmeter or continuity tester.

OSCILLATION Most trouble from oscillation is due to open by-pass or defective filter condenser. The grid lead on the 75 tube may also cause a howl if it runs too close to the 42 tube.

MODEL X-541
Schematic, Alignment

CONTINENTAL RADIO & TELEV. CO.

IF PEAK 456 KC.

SCHEMATIC DIAGRAM OF 6 TUBE AC-DC

4-29-35

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 3000 and 10,000 K.C. and an output meter to be connected across the primary or secondary of the output transformers.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

CAUTION: Do not let the test oscillator come in direct contact with the receiver Chassis.

I.F. ALIGNMENT Adjust the test oscillator to 456 K.C. and connect the output to the grid of the 1st detector tube (6A7) through a .05 or .1 mfd condenser. If desired the ground on the test oscillator can be connected to the chassis ground. Align all four I.F. Trimmers to peak or maximum reading on the output meter.

R.F. ALIGNMENT Adjust the test oscillator to 1400 K.C. and connect the output to the antenna post through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak. This adjusts the receiver on scale. Then adjust the two front gang trimmers to peak.

Next rest the dial pointer on the receiver and the test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the preselector or R.F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustments at that frequency to be sure they have not been thrown out of adjustment.

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the Dial. The oscillator trimmer is located underneath the chassis and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

SERVICE HINTS

CAUTION: Be very careful in handling the receiver chassis as it is connected to one side of the power line.

LOW VOLUME This may be caused by weak or defective tubes (Replace with set of tubes known to be in good condition) open antenna coil, open or shorted by-pass condensers or defective wave change switch. Poor receiving locations such as steel buildings may require extra antenna to get good reception.

HUM Excessive hum may be caused by a defective tube, open or shorted by-pass condensers or open audio grid leads.

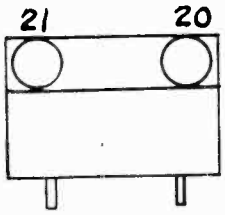
DISTORTED REPRODUCTION This may be caused by a defective 75 or 43 tube or a ground or open in the automatic volume control circuit. Check all circuits with an ohmmeter or continuity tester.

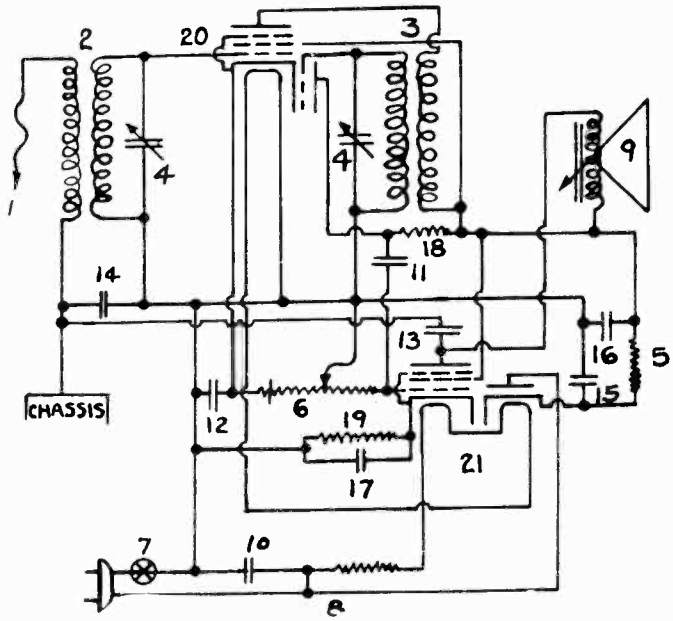
OSCILLATION Most trouble from oscillation is due to open by-pass condensers in the R.F. or I.F. circuits. Test each condenser with another condenser in parallel.

The grid lead on the 75 tube may also cause a howl if it runs too close to the 42 tube.

MODEL 2C1, Sampler
Schematic, Voltage
Socket, Data, Parts

CROSLEY RADIO CORP.





Specifications

Model 2-C-1 is a two tube tuned radio frequency receiver designed for operation from AC or DC 110 Volt electric circuit.

Tubes And Voltage Limits

The following are the tubes and voltages measured from tube contact to negative line with 250,000 ohm 250 Volt voltmeter with receiver in operating condition but with no signal to the antenna, and with a line voltage of 117.5 Volts 60 cy. AC—DC Voltages approximately 90% of values shown.

Tube	Position And Use	Plate	Scr. Grid	Control Grid	Cathode	PL	GL	KL	Filament
6-F-7	R. F. and Regen. Det.	125	125	0	5-30	30	0	—	6.5
12-A-7	A. F. and Rect.	115	125	0	10	117.5	—	135	12.5

VOLTAGE LIMITS ARE PLUS OR MINUS 10% OF VALUES GIVEN

Circuit

Referring to diagram.

The signal enters through antenna and is stepped up by antenna transformer (2) the secondary of which is tuned to the desired signal by one section of the variable condenser (4). This signal activates the pentode section of the 6-F-7 tube. The amplified signal is again stepped up in the R. F. Transformer (3) whose secondary is tuned by the other section of the variable condenser, and this amplified signal is fed into the triode section of the 6-F-7 tube which is operating as a detector. The gain in both sections of this tube is controlled by the volume control (6) which also acts as a grid resistor for the pentode section of the output tube 12-A-7. Resistor (18) serves as the plate resistor for the detector. The signal is coupled to the output pentode through coupling condenser (11) is amplified and then activates the speaker motor. This motor is mechanically connected to the front of the cabinet which serves as the speaker diaphram.

Condenser (12) is the 6-F-7 cathode bypass and condenser (14) is the bypass between chassis and negative line.

The 12-A-7 bias resistor (19) and bypass condenser (17) are combined with condensers (15) and (16) as part of the filter circuit. Resistor (5) is also part of this filter which serves to smooth the B supply from the rectifier section of 12-A-7 tube.

Condenser (10) is the hum modulation suppressor condenser and resistor (8) is a series filament resistor contained in the power supply cable.

Speaker

The front of cabinet is the speaker diaphram. If chassis is to be removed from cabinet the speaker drive rod is unsoldered from speaker motor as explained on instruction card. Do not use glue to fasten front in cabinet. This front is held in place with Hydrolene.

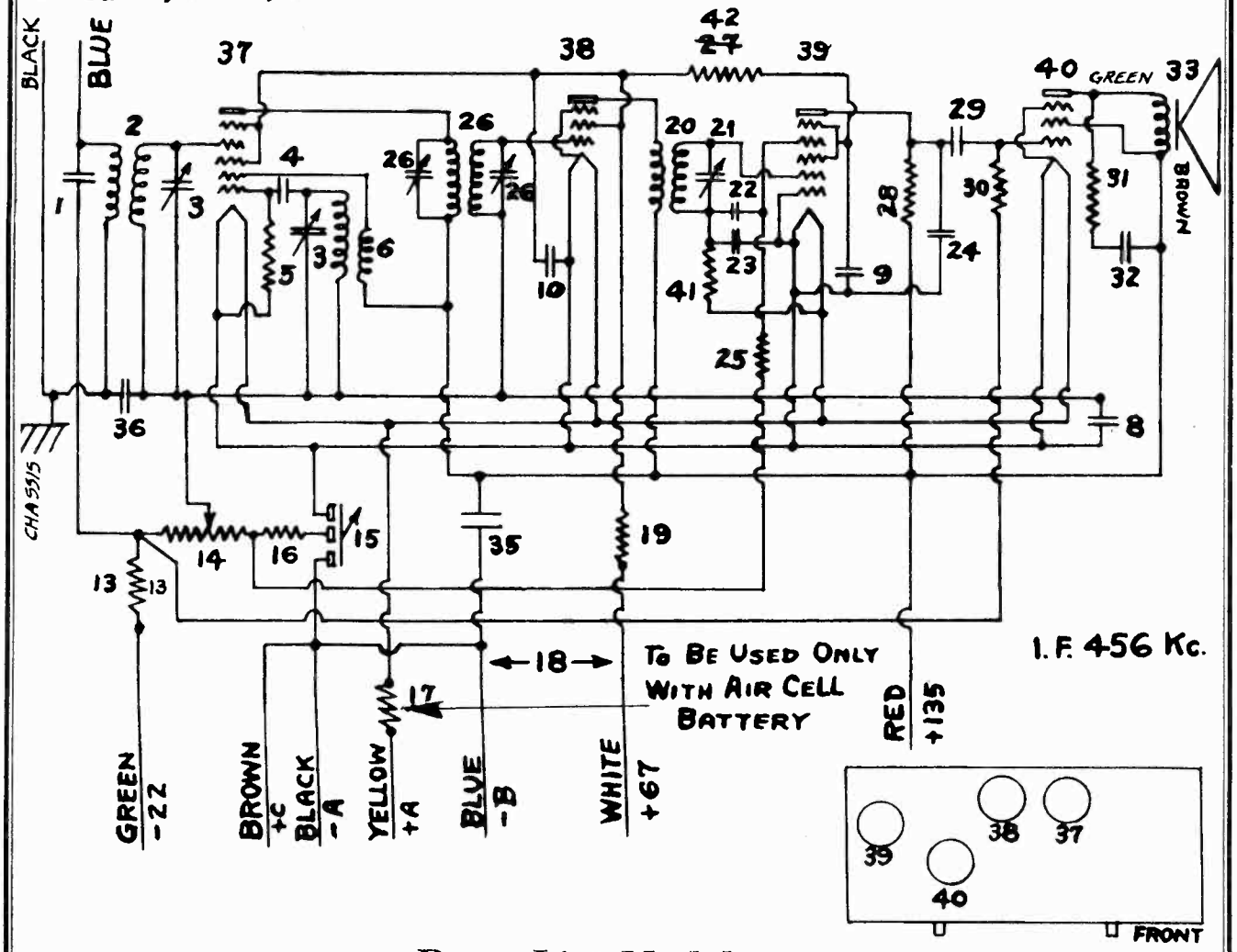
Dec. 1934 **PARTS LIST—MODEL 2-C-1 "Sampler"**

* Figures in 2nd last column refer to parts shown in diagram.

Qty.	Part No.	Description	* Item	List Each
1	G33-32000	Antenna Trans.	2	.55
1	G21-32001	R. F. Trans.	3	.60
1	G8-33001	Variable Condenser	4	2.25
1	W34698B	Volume Control & Switch	6-7	1.00
1	G49-28807	6F7 Socket	20	.10
1	G77-28807	12A7 Socket	21	.10
1	G7-34400	Tube Connector Assem.		.05
1	G8-34400	Tube Connector Assem.		.05
1	B34702B	Resistance Cable and Plug (325 Ohms)	8	.70
1	223M-B	Speaker Unit	9	2.33
1	W34710	Speaker Bracket		.05
		FILTER & BY-PASS CONDENSERS		
1	W34711	.02 Mfd. 110 V.	10	.15
1	W34713	.006 Mfd. 160 V.	11	.15
1	W34712	.25 Mfd. 160 V.	12	.20
1	W34714	.008-.05 Mfd. 160 V.-160 V.	13-14	.20
1	W34704A	16-16-8 Mfd. 100 V.-100 V.-20 V.	15 16-17	2.00
		RESISTORS		
2	W22514	750 Ohm Flex.	5-19	.15
1	21454	1 Megohm	18	.15
1	4AC	Cabinet (Ship Design)		.67
	4AE	Cabinet (Artists Pictures)		.67
1	G1-34822	4AC Cabinet Front		.30
	G2-34822	4AE Cabinet Front		.30
1	B34719	Cabinet Back		.05
1	L-34885	Speaker Pin Assem.		.05
2	W2244B	Knobs		.10

MODEL 4B1, Battery Forty
Schematic, Socket, Parts

CROSLEY RADIO CORP.



Parts List Model 4B1

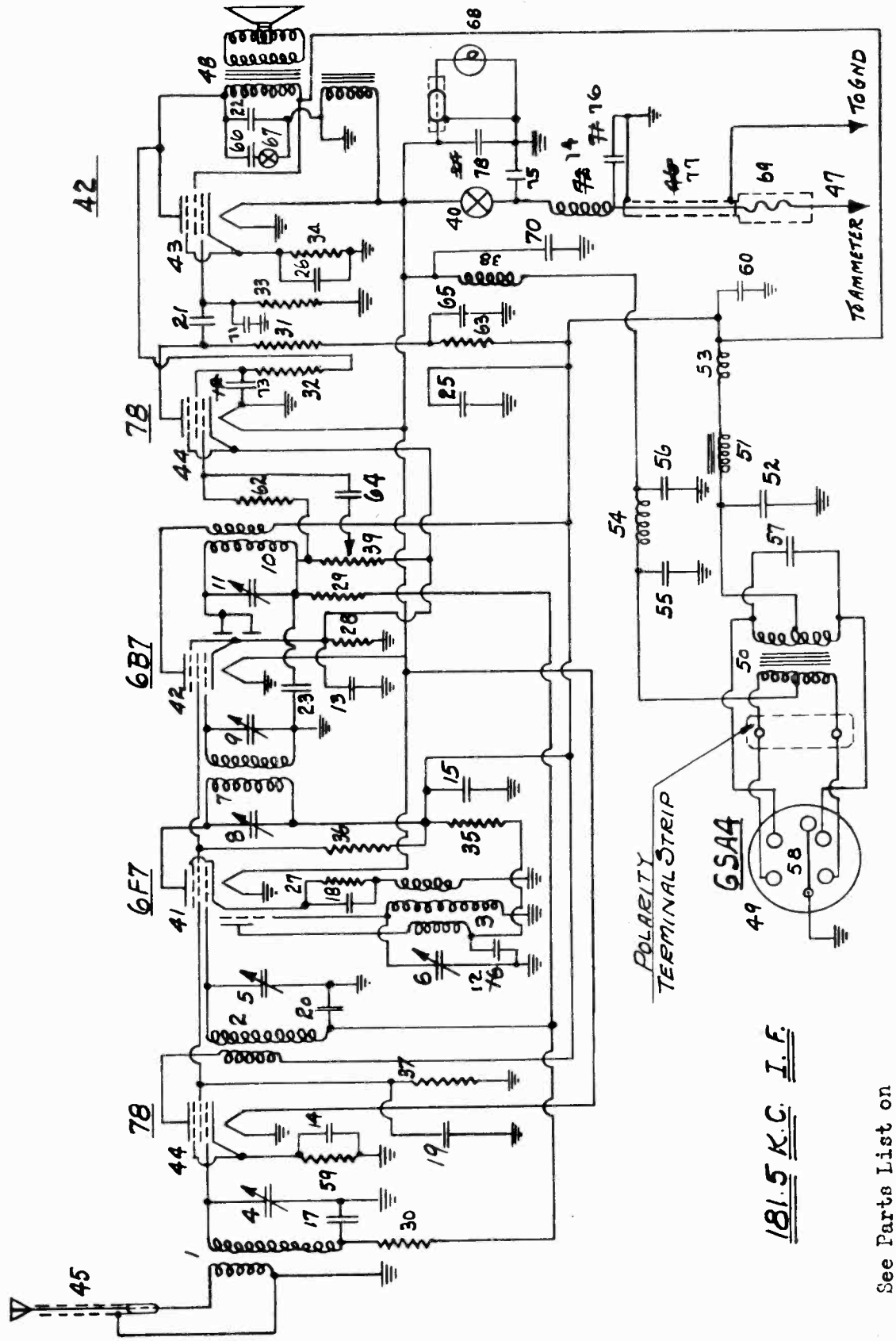
Figures in first column correspond to figures in diagram

1	W	—28621	0.02 Mfd. 200 Volt
2	G27	—32000	Antenna Coil
3	G6	—33001	Variable Cond.
4	W	—5382	0.00025 Mfd.
5		21875	100,000 Ohms
6	G9	—32002	Oscillator Coil
7			
8	W	—28622	0.1 Mfd. 200 Volt
9			0.1 Mfd. 200 Volt
10	W	—30321-A	1.0 Mfd. 160 Volt
11			
12			
13		27121	5,000 Ohms
14	W	—33922-A	Volume Control
15			3 P. S. T. Switch
16	W	—23013	2,000 Ohms
17	G5	—23300	0.6 Ohm
18	G2	—29237	Cable & Marker Assem.
19	W	—21452	1,100 Ohms
20	G13	—32004	2nd I. F. Trans.
21	G5	—33005	I. F. Trimmer Cond.
22	W	—28621	0.02 Mfd. 200 Volt
23	W	—25572	0.0005 Mfd. 400 Volt
24			0.0005 Mfd. 400 Volt
25		—26577	3 Meg.
26	G9	—32004	1st I. F. Trans.
27			
28		21455	300,000 Ohms
29	W	—28621	0.02 Mfd. 200 Volt
30		21454	1 Meg.
31		24814	7,000 Ohms
32	W	—28619	0.006 Mfd. 200 Volt
33		21M	Speaker
34			
35	W	—29910-A	0.25 Mfd. 200 Volt
36	W	—28621	0.02 Mfd. 200 Volt
37	G55	—27975	1A6 Socket
38	G31	—27975	34 Socket
39	G4	—33070	1A6 Socket
40	G36	—27975	33 Socket
41		23785	500,000 Ohms
42		24990	25,000 Ohms

MODEL 5A3, Battery Fiver

CROSLEY RADIO CORP.

Schematic



See Parts List on next page for values.

MODEL 5A3, Battery Fiver
Voltage, Parts List

CROSLEY RADIO CORP.

JUNE 1935

MODEL 5A3—ROAMIO

TUBE VOLTAGES—MODEL 5A3

Type	Where Used	Ef	Ep	Eg	Ec	Esg	Eosc	E Sup-G
78	R. A. Amp	6.0	230	0–30	5.0	100	—	5.0
6F7	Osc.-Mod.	6.0	230	0–30	8.0	100	55	—
6B7	I. F. Amp. Diode Det. A. V. C.	6.0	230	0	3.0	100	—	—
78	Audio Amp.	6.0	60	0–30	3.0	25	—	3.0
42	Output	6.0	220	0	16.0	230	—	—

VOLTAGES MEASURED TO CHASSIS WITH A 500 VOLT 1000 OHMS PER VOLT VOLTMETER.
6 VOLT BATTERY USED.

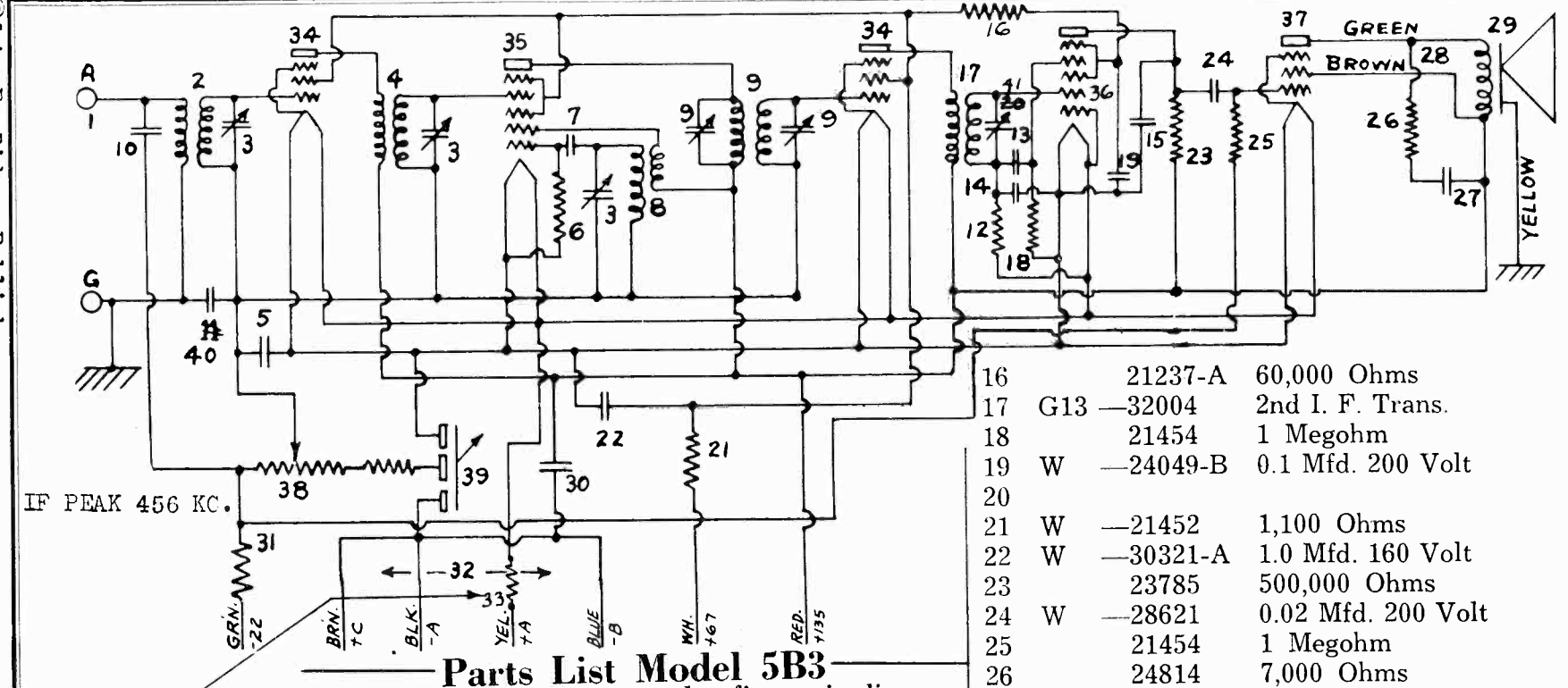
VOLTAGE LIMITS PLUS OR MINUS 10%.

PARTS LIST—MODEL 5A3

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G19—32000	Antenna Coil
	W —30802A	Coil Shield
	W —30026A	Retaining Shield
2	G11—32001	R. F. Coil
	W —30802A	Coil Shield
	W —30877	Insulating Washer
	W —30026A	Retaining Ring
3	G14—32002	Osc. Coil
	W —25025B	Coil Shield
	W —26891	Insulating Washer
	W —21541C	Retaining Ring
4, 5, 6	G2 —33002	Tuning Cond. Gang
7		1st. I. F. Trans.
8, 9	G6 —32003	1st. I. F. Prim. Tuning Cond. 1st. I. F. Sec. Tuning Cond.
10		2nd. I. F. Trans.
11, 12	G7 —32003	2nd. I. F. Sec. Tuning Cond.
13		0.05 Mfd. 400 Volt
14	W —32711A	0.1 Mfd. 200 Volt 4 Section Condenser
15		0.1 Mfd. 200 Volt 0.05 Mfd. 400 Volt
16	Deleted	
17	W —32779B	0.02 Mfd. 200 Volt Condenser
18	W —32781B	0.1 Mfd. 200 Volt Condenser
19	W —32780B	0.05 Mfd. 400 Volt Condenser
20	W —32779B	0.02 Mfd. 200 Volt Condenser
21	W —32780B	0.05 Mfd. 400 Volt Condenser
22	W —23635	0.006 Mfd. 400 Volt Condenser
23	W —32741A	0.0005 Mfd. (Mica) Condenser
24	Deleted See 78	
25, 26	W —32802	8. Mfd. 300 Volt Condenser 8. Mfd. 20 Volt Condenser
27	W —21452	1,100 Ohms Resistor
28	W —28589	350 Ohms Resistor
29	—21454	1 Megohm ½ Watt Resistor
30	—21875	100,000 Ohms Resistor
31	—23403	150,000 Ohms Resistor
32	—21454	1 Megohm Resistor
33	—23875	500,000 Ohm Resistor
34	W —25521	450 Ohm Resistor
35	—32331	55,000 Ohm ½ Watt Resistor
36, 37	W —26525B	15,000 Ohm Resistor 25,000 Ohm Resistor
38	G4 —28067	R F. "A" Choke
39, 40	W —30436A	Level Control Switch
41	G49—27975	6-F-7 Socket
42	G48—27975	6-B-7 Socket
	W —27981A	Tube Shield Base
	W —30964	Tube Shield
43	G25—27975	42 Socket
44	G39—27975	78 Socket
45	L —35108	Antenna Body and Sleeve Assem.
	G1 —32750	Antenna Lead Assem.
46	Deleted See 77	
47	G5 —31701	"A" Cable Assem.

Item No.	Part No.	Description
	W —31102	Fuse Carrier
48	—33B	Speaker
49	LB —32037	6 SA 4 Syncrotube
50	G1 —32769	Power Transformer
51	G11—24628	"B" Filter Choke
52	W —32759	8. Mfd. 300 Volt Condenser
53	G1 —32755	R. F. "B" Choke
54	G6 —28067	R. F. "A" Choke
55	W —30366	0.5 Mfd. 160 Volt Condenser
56	W —30366	0.5 Mfd. 160 Volt Condenser
57	W —32762	0.005 Mfd. 1,000 Volt Condenser
58	G81—27975	6 SA 4 Socket
59	W —21452	1,100 Ohm Resistor
60	W —30741	0.00025 Mfd. (Mica) Condenser
61		
62	W —21454	1 Megohm Resistor
63	W —21237A	60,000 Ohm ¼ Watt Resistor
64	W —32780B	0.05 Mfd. 400 Volt Condenser
65	W —32780B	0.05 7Mfd. 400 Volt Condenser
66	W —32782B	0.01 Mfd. 400 Volt Condenser
67	W —26156A	S. P. S. T. Switch (Tone Control)
68		Dial Light
69	W —32757	12 Amp. Fuse
70	W —32741A	0.0005 Mfd. (Mica) Condenser
71	W —32741A	0,0005 Mfd. (Mica) Condenser
72	Deleted See 74	
73	W —24784	0.25 Mfd. 200 Volt Condenser
74		"A" Choke
75	G8 —31701	.00025 Mfd. Condenser
76		.00025 Mfd. Condenser
77		"A" Lead
78	W —30741	.00025 Mfd. (Mica) Condenser
	B —32783	Antenna Cable
	W —29754C	0.5 Mfd. Condenser (Eliminator)
	L —32810	Remote Control Assembly Complete
	B —30372B	Housing
	G2 —31538	Cover Assm.
	W —30370	Dial Glass only
	B —32812	Dial
	W —30371A	Dial Hand
	G1 —30295	Gear Assm.
	G5 —23472	Knob (Tuning)
	G1 —28036	Knob (Key)
	G7 —25868	Drive Shaft 15" (V. C.)
	G21—25868	Drive Shaft 15" (Tuner)
	G8 —25868	Drive Shaft 30" (V. C.)
	G20—25868	Drive Shaft 30" (Tuner)
	W —26315	1/8 x 1/4 Dog Pt. S. P. Set Screw (4 used)
	W —28029B	Steering Column Bracket
	G1 —28035	Strap Assm.
	R —186	1/8 x 3/4 R. H. Machine Screw (black) (1 used)
	W —20802	No. 10 Shakeproof Washer (black) (4 used)
	R —181	No. 10 x 1/4 R.H. Machine Screw (black) (3 used)
	C —141	1/4 x 1 1/8 Fr. Hd. Machine Screw (2 used)
	W —31539	No. 2–56 x 1/8 R.H. Machine Screw (1 used)
	G17—26317	Dial Light Bracket Assem.
	G8 —32750	Dial Light Lead Assem.



CROSLEY RADIO CORP.

MODEL 5B3, Battery Fiver
Schematic, Socket, Parts

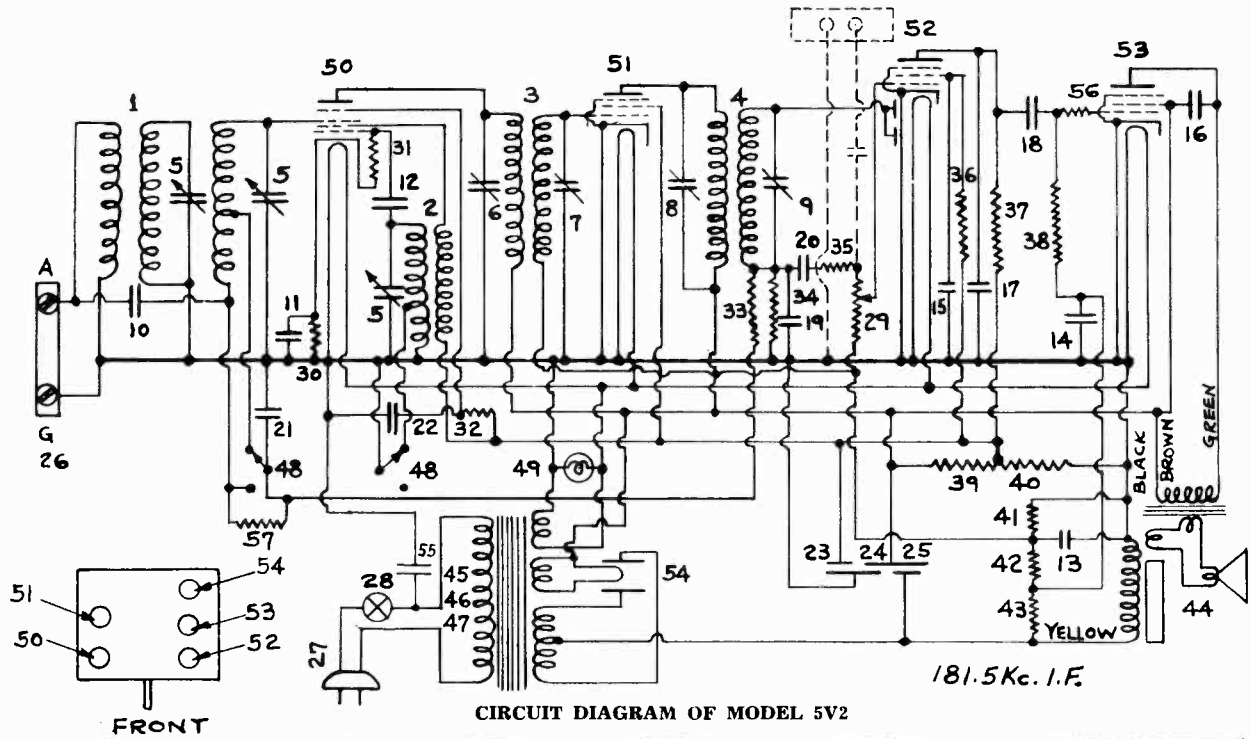
Parts List Model 5B3

Figures in first column correspond to figures in diagram

1	G10	—26719	Ant. Gnd. Term.
2	G10	—32000	Antenna Coil
3	G4	—33002	Tuning Condenser
4	G17	—32001	R. F. Transformer
5	W	—24049-B	0.1 Mfd. 200 Volt
6		21875	100,000 Ohms
7	G1	—34004	.025 Mfd. (Mica)
8	G9	—32002	Oscillator Coil
9	G9	—32004	1st I. F. Trans.
10	W	—28621	.02 Mfd. 200 Volt
11			
12		23785	500,000 Ohms
13	W	—28621	.02 Mfd. 200 Volt
14	W	—26152-A	.00015 Mfd. 400 Volt
15			.0001 Mfd. 400 Volt
16		21237-A	60,000 Ohms
17	G13	—32004	2nd I. F. Trans.
18		21454	1 Megohm
19	W	—24049-B	0.1 Mfd. 200 Volt
20			
21	W	—21452	1,100 Ohms
22	W	—30321-A	1.0 Mfd. 160 Volt
23		23785	500,000 Ohms
24	W	—28621	0.02 Mfd. 200 Volt
25		21454	1 Megohm
26		24814	7,000 Ohms
27	W	—28619	.006 Mfd.
28	W	—27933	Speaker Cable
29		30418	336-3B Speaker
30	W	—29910-A	0.25 Mfd. 200 Volt
31		27121	5,000 Ohms
32	G2	—29237	Battery Cable
33	G2	—23300	Air Cell Resistor .53 Ohms
34	G31	—27975	34 Socket
35	G55	—27975	1A6 Socket
36	G4	—33070	1A6 Flex. Socket
37	G36	—27975	33 Socket
38	W	—32649	Volume Cont. 10,000 Ohms
39			Switch 3. P. S. T.
40	W	—24049-B	0.1 Mfd. 200 Volt
41	G8	—33005	I. F. Tuning Cond.

MODEL 5V2, Fiver DeLuxe
Schematic, Socket, Parts
Voltage

CROSLEY RADIO CORP.



CIRCUIT DIAGRAM OF MODEL 5V2

TUBE VOLTAGES—MODEL 5V2

Type	Where Used	Ef	Ep	Eg	Esg	Ek	Esup	Eg-osc	Ep-osc
6A7	Osc-Mod.	6.5	240	0	90	3	0	-15	125
6D6	I. F.	6.5	240	-3.5	125	0	0	—	—
6B7	Diode-AF	6.5	30	-3.5	40	0	—	—	—
42	Output	6.5	230	-18	240	0	—	—	—
80	Rectifier	5.1	—	—	—	240	—	—	—

ALL VOLTAGES ARE PLUS OR MINUS 10%. ALL DC VOLTAGES ARE MEASURED TO CHASSIS AT 117.5 LINE WITH 1000 OHMS PER VOLT 250-VOLT VOLTMETER. POWER DEMAND IS 50 WATTS AT 110 VOLTS 60 CYCLES.

ALIGNMENT AND SERVICING PROCEDURE SAME AS ON MODEL 5V1.

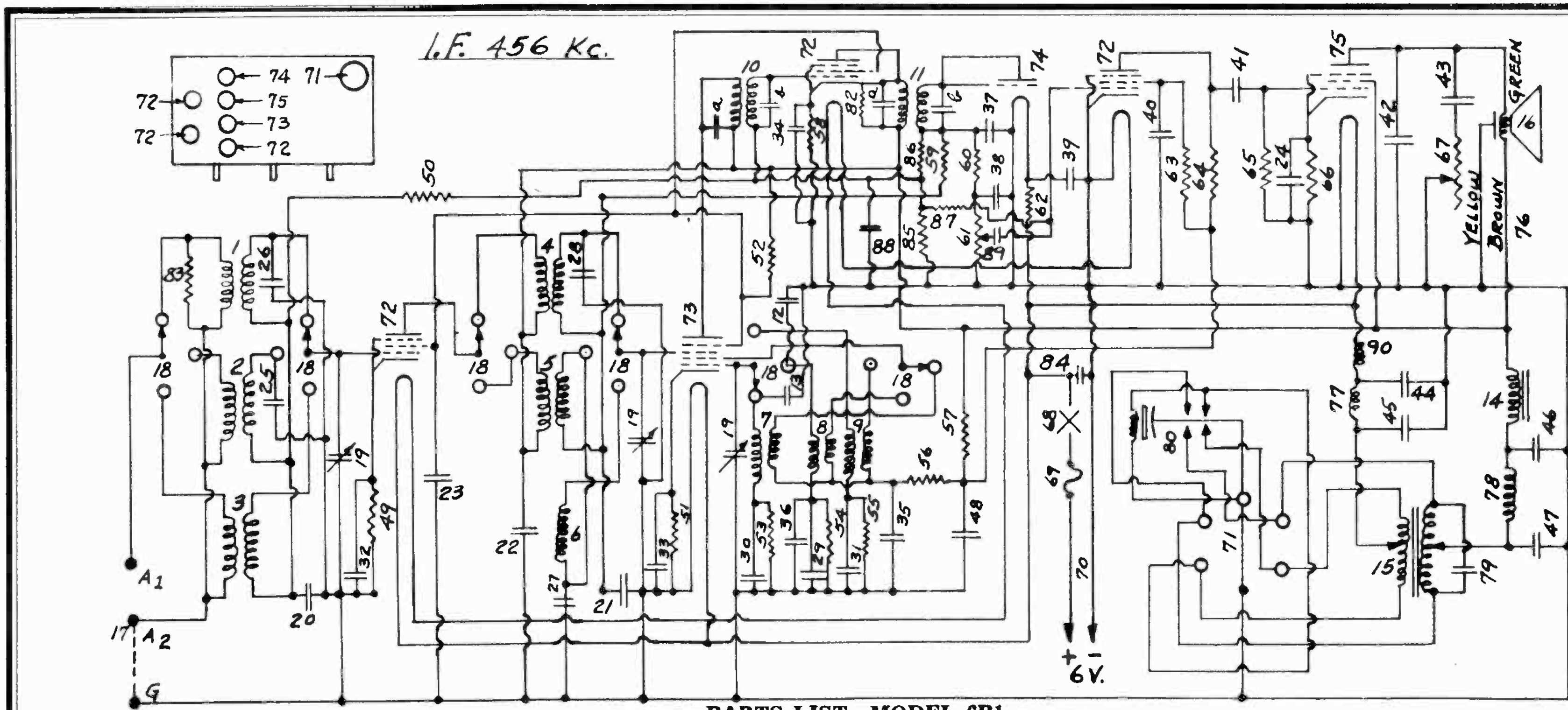
PARTS LIST—MODEL 5V2

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G24—32000	Preselecter Coil
2	G15—32002	Oscillator Coil
	W —25025B	Coil Shield 1"
	W —25200	Coil Socket
	W —26891	Insulating Washer
	W —21451C	Retaining Ring
3	G2 —32003	1st. I. F. Transformer
	W —25024B	Coil Shield
	W —25200	Coil Socket
	W —26891	Insulating Washer
	W —21451C	Retaining Ring
4	G1 —32003	2nd. I. F. Transformer
	W —25024B	Coil Shield
	W —25200	Coil Socket
	W —26891	Insulating Washer
	W —21451C	Retaining Ring
5	G21—33002	Tuning Condenser Gang
	G21—25050	Dial Assembly
	G8 —32075	Drive Wheel Assembly
6	G4 —33005	1st. I. F. Primary Trimmer Condenser
7	W —25008A	1st. I. F. Secondary Trimmer Condenser Adj. Blade only
8	G3 —33005	2nd. I. F. Primary Trimmer Cond.
9	G3 —33005	2nd. I. F. Secondary Trimmer Cond.
10	W —27608	0.0001 Mfd. Condenser
11	W —28621	0.02 Mfd. 200 Volt Condenser
12	W —26571	0.0005 Mfd. 400 Volt Condenser
13	W —30321A	1.0 Mfd. 160 Volt Condenser
14	W —30321A	1.0 Mfd. 160 Volt Condenser
15	W —28621	0.02 Mfd. 200 Volt Condenser
16	W —30323	0.01 Mfd. 200 Volt Condenser
17	W —25537A	0.001 Mfd. 400 Volt Condenser
18	W —30322A	0.03 Mfd. 400 Volt Condenser
19	W —30322A	0.00017 Mfd. 200 Volt Condenser
20	W —29271A	0.006 Mfd. 200 Volt Condenser
21	W —29271A	0.02 Mfd. 400 Volt Condenser
22	W —29271A	0.02 Mfd. 400 Volt Condenser
23	B —30059C	8.0 Mfd. 250 Volt (Yellow) Cond.
24	B —30059C	8.0 Mfd. 450 Volt (Red) Condenser
25	B —30059C	8.0 Mfd. 450 Volt (+Red, —No Code) Condenser
26	G10—26719	Ant.-Gnd. Terminal
27	B —33906A	A. C. Cord and Plug
28	W —33556	A. C. Switch
29	W —33556	Level Control
30	W —25937	275 Ohm Resistor
31	—21237A	60,000 Ohm Resistor
32	—21876	10,000 Ohm Resistor
33	—26577	3 Megohm Resistor
34	—23785	500,000 Ohm Resistor
35	—21455	300,000 Ohm Resistor
36	—23785	500,000 Ohm Resistor
37	—21875	100,000 Ohm Resistor
38	—23785	500,000 Ohm Resistor
39	W —31883	8,500 Ohm Resistor
40	—24990	25,000 Ohm Resistor
41	—21875	100,000 Ohm Resistor
42	—23785	500,000 Ohm Resistor
43	—418C	Speaker
44	W —31007A	Speaker Cable
45	G6 —30745	Power Transformer, 110 Volt, 60 Cy.
46	G7 —30745	Power Transformer, 110 Volt, 25 Cy.
47	G8 —30745	Power Transformer, 220 Volt, 25 Cy.
48	W —33557	D. P. D. T. Switch
49	G14—27812	Dial Light Bracket Assembly
50	G47—27456	6-A-7 Socket
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
51	G75—27456	6-D-6 Socket
	W —27981A	Tube Shield Base
	B —26009D	Tube Shield
52	G48—27456	6-B-7 Socket
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
53	G25—27456	—42 Socket
54	G6 —27456	—80 Socket
55	W —30805	0.01 Mfd. 400 Volt Condenser
56	W —21455	300,000 Ohm Resistor
57	—23013	2,000 Ohm Resistor
	W —32352	Knob (Black)
	W —31585B	Knob (Brown)
	W —31463	Escutcheon

MODEL 6B1, Battery Six
Schematic, Parts
Socket

CROSLEY RADIO CORP.



PARTS LIST—MODEL 6B1

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G20—32000	Low Freq. Ant. Coil
	G5 —31267	Coil Shield Assm.
	W —30026A	Retaining Ring
2	G28—32000	High Freq. Ant. Coil
	G4 —31267	Coil Shield Assem.
	W —30026A	Retaining Ring
3	G31—32000	Police Band Ant. Coil
	G6 —31267	Coil Shield Assm.
	W —26891	Insulating Washer
	W —21541C	Retaining Ring
4	G2 —32001	L. F. R. F. Coil
	W —25024B	Coil Shield
	W —25200	Coil Socket
	W —26891	Insulating Washer
	W —21541C	Retaining Ring
5	G18—32001	H. F. R. F. Coil
	W —30802A	Coil Shield
	W —25200	Coil Socket
	W —30026A	Retaining Ring
6	G19—32001	Pol. Band R. F. Sec. Coil (ON NO. 18 SW)
7	G2 —32002	L. F. Osc. Coil
	G6 —31267	Coil Shield Assm.
	W —26891	Insulating Washer
	W —21541C	Retaining Ring
8	G1 —32002	H. F. Osc. Coil
	W —30802A	Coil Shield
	W —25200	Coil Socket
	W —30026A	Retaining Ring
9	G24—32002	Pol. Band Osc. Coil
	G6 —31267	Coil Shield Assm.
	W —26891	Insulating Washer
	W —21541C	Retaining Ring
10	G34—32004	1st I. F. Trans. Assm.
11	G35—32004	2nd I. F. Trans. Assm.
12	G14—33009	H. F. Osc. Trimmer
13		L. F. Osc. Trimmer
14	G12—28069	L. F. Choke
15	G3 —31618	Power Transformer
	W —33592A	Transformer Spring
16	—426PT	Speaker
17	G24—26719	Ant. Gnd. Terminal
18	B —34443B	6 P. 3 T. Switch
	W —32162C	Shield (metal)
19	C —33075B	Tuning Condenser Gang
	G25—32086	Dial Assembly
	W —34657A	Dial Hand only
	W —34655B	Dial Pointer only
	W —34603	Dial Cap Nut
20	W —32379	0.02 Mfd. 200 Volt Condenser
21	W —32379	0.02 Mfd. 200 Volt Condenser
22		12. Mfd. 250 Volt Condenser
23	W —34896	8. Mfd. 250 Volt Condenser
24		8. Mfd. 25 Volt Condenser
25	G1 —33008	H. F. Ant. Trimmer Condenser
26		L. F. Ant. Trimmer Condenser
27	G9 —33009	H. F. R. F. Trimmer Condenser
28		L. F. R. F. Trimmer Condenser
29	G7 —33006	H. F. Osc. Series Trimmer Condenser
30		L. F. Osc. Series Trimmer Condenser
31	G6 —34000	1350 Mmf. Condenser
32	W —28621	0.02 Mfd. 200 Volt Condenser
33	W —28621	0.02 Mfd. 200 Volt Condenser
34	W —28621	0.02 Mfd. 200 Volt Condenser
35	W —32378	0.01 Mfd. 400 Volt Condenser
36	G11—34000	1400 Mmf. Condenser
37	W —26152A	0.00015 Mfd. 400 Volt Condenser
38		0.0001 Mfd. 400 Volt Condenser
39	W —34897	100 Mmf. 2 Volt Condenser
40	W —28621	0.02 Mfd. 200 Volt Condenser
41	W —28621	0.02 Mfd. 200 Volt Condenser
42	W —31052	0.004 Mfd. 400 Volt Condenser
43		0.05 Mfd. 400 Volt Condenser
44	W —33299	0.5 Mfd. 160 Volt Condenser
45	W —33299	0.5 Mfd. 160 Volt Condenser
46	W —34898	8. Mfd. 300 Volt Condenser
47	W —33301	0.25 Mfd. 300 Volt Condenser
48	W —34899	8. Mfd. 250 Volt Condenser
49	W —30127	450 Ohm Flex. Resistor
50	—23785	500,000 Ohm Resistor
51	W —28589	350 Ohm Flex. Resistor
52	—23616	15,000 Ohm Resistor
53	—21237A	60,000 Ohm Resistor
54	—21453	40,000 Ohm Resistor
55	—33390	30,000 Ohm Resistor
56	—31094	4,500 Ohm Resistor
57	—31094	4,500 Ohm Reisitor
58	W —29585	600 Ohm Flex. Resistor
59	—26577	3 Megohm Resistor
60	—21455	300,000 Ohm Resistor
61	W —32062	Level Control
62	W —24537	60 Ohm Flex. Resistor
63	—21454	1 Megohm Resistor
64	—23403	150,000 Ohm Resistor
65	—21454	1 Megohm Resistor
66	W —21452	1,100 Ohm Flex. Resistor
67	W —32063	Tone Control
68		S. P. S. T. Line Switch
69	W — 7983A	3 Amp. Fuse
	G2 —33339	Fuse Panel Assm.
	W —33310A	Fuse Panel Cover
	W —34223	Insulator
	W — 4072	Thumb Screw
70	B —34902	Battery Cable
71	G1 —33314	Syncrotube Socket
	W —33313B	Rubber Cushion
	See 80	
	W —33312	Rubber Sleeve
	B —33349A	Syncrotube Cover
72	G88—28807	Socket (15)
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
73	G47—28807	Socket (6A7)
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
74	G9 —28807	Socket (30)
75	G15—28807	Socket (38)
76	W —35111	Speaker Cable, 3 wire
77	G6 —28067	Syncronode "A" Choke
78	G1 —24234	Syncronode R. F. "B" Chok
79	W —32762	0.005 Mfd. 1,000 Volt Cond
	B —33317C	Syncronde Cover
80	L —33345	Syncrotube (6 SA4)
81	See 84	
82	—23785	500,000 Ohm Resistor
83	—31094	4,500 Ohm Resistor
84	G4 —34005	0.002 Mfd. Condenser
85	—26577	3 Megohm Resistor
86	—26578	5 Megohm Resistor
87	—26577	3 Megohm Resistor
88	W —28621	0.02 Mfd. 200 Volt Cond
89	W —28621	0.02 Mfd. 200 Volt Cond
90	G2 —32977	R. F. Choke

MODEL 6B1, Battery Six
Chassis, Trimmers

CROSLEY RADIO CORP.

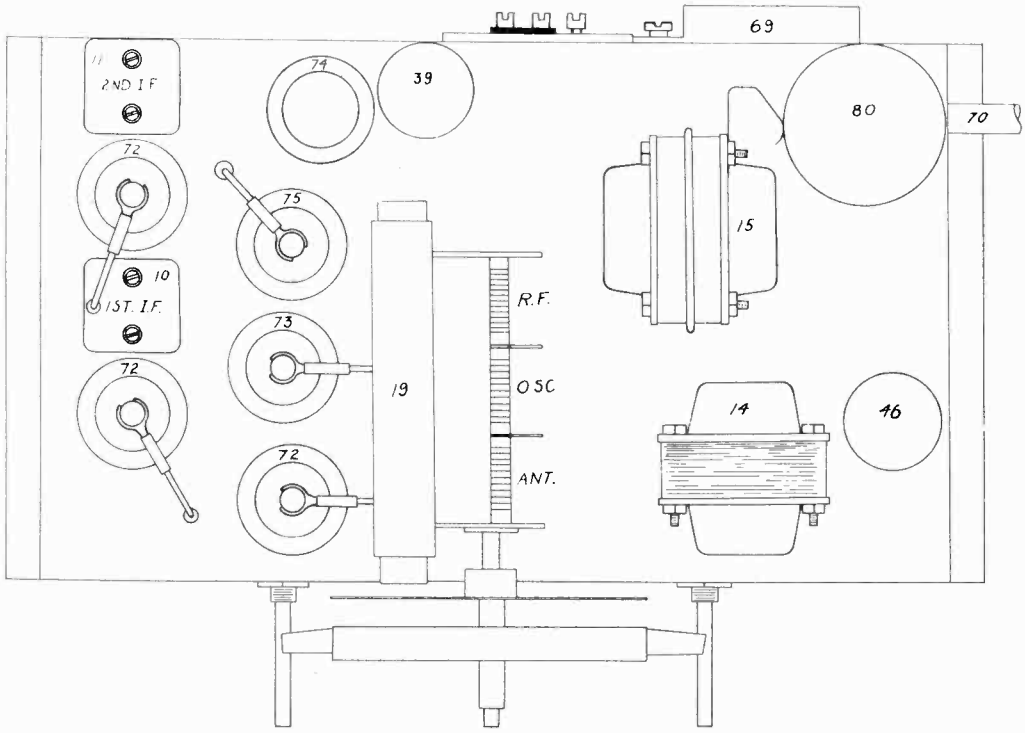


FIG. 2 - TOP VIEW

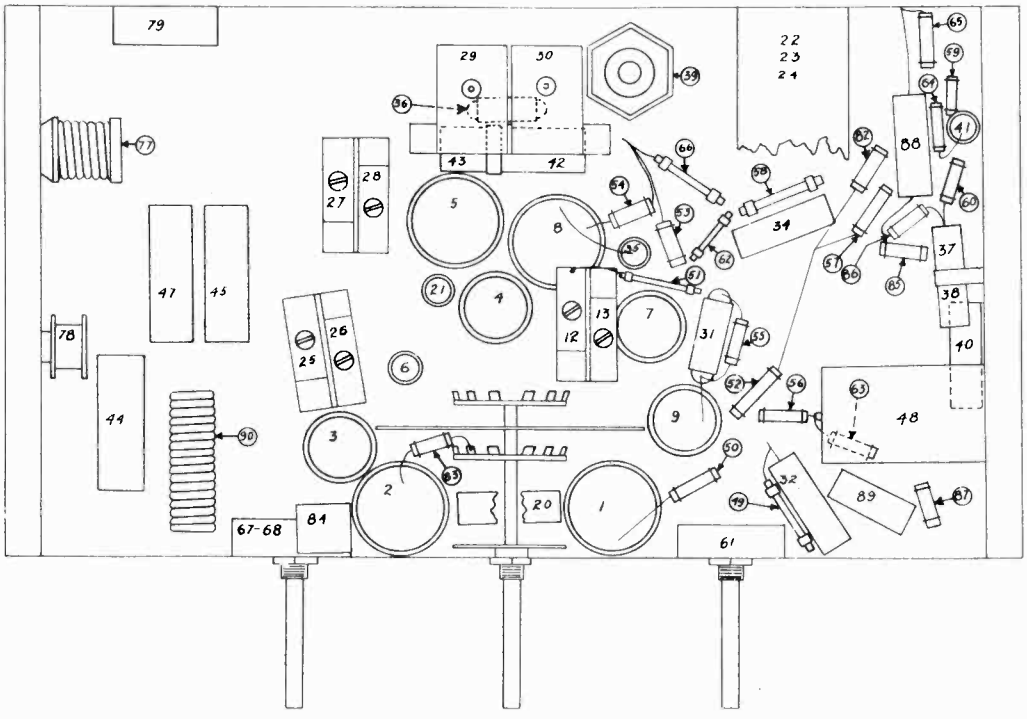


FIG. 3 - BOTTOM VIEW

Osc. Parallel Trimmer Condenser, Band No. 1—Item No. 13.

Osc. Parallel Trimmer Condenser, Band No. 2—Item No. 12.

Osc. Series Trimmer Condenser, Band No. 1—Item No. 30.

Osc. Series Trimmer Condenser, Band No. 2—Item No. 29.

Ant. Parallel Trimmer Condenser, Band No. 1—Item No. 26.

Ant. Parallel Trimmer Condenser, Band No. 2—Item No. 25.

R.F. Parallel Trimmer Condenser, Band No. 1—Item No. 28.

R.F. Parallel Trimmer Condenser, Band No. 2—Item No. 27.

SPECIFICATIONS

The Crosley Model 6B1 is a six tube superheterodyne receiver designed for operation on a six volt storage battery. It tunes in three steps covering the following frequencies:

Band No. 1—540-1725 Kilocycles.

Band No 2—5600-15300 Kilocycles.

Band No. 3—1700-5500 Kilocycles.

Band No. 1 is calibrated on the dial in Myriacycles (10 Kc.) and Bands No. 2 and 3 are calibrated in Megacycles (1000 Kc.). It employs A. V. C., continuously variable tone control, class "A" pentode audio amplification and a band spread pointer, 36-1 ratio.

TUBES AND VOLTAGE LIMITS

The following are the tubes used and the voltages measured from the tube contacts to the chassis with a 250,000 ohm, 250 volt voltmeter with the receiver in full operating condition but with no signal to the antenna and using a six volt storage battery. A low range voltmeter should be used in measuring the filament voltages. Voltage limits are plus or minus 10% of the values given.

TUBE VOLTAGES—MODEL 6B1

Type	Where Used	Ef	Ep1	Ep2	Esg	Eg2	Ek
15	R. F. Amp.	1.98	175		80		2.5
6A7	Osc.-Mod.	5.95	175	145	80	6 to 12	4.0
15	I. F. Amp.	1.98	175		80		2.5
30	Det. & A. V. C.	2.0	0				
15	A. F. Amp.	1.98	90		50 V. C. Full		V. C. Full 0
38	Output	5.95	158		175		18

ALL VOLTAGES GIVEN ARE PLUS OR MINUS 10% AND ARE MEASURED WITH A 250 VOLT (1000 OHMS PER VOLT) VOLTMETER WITH A 6 VOLT BATTERY. A LOW RANGE VOLTMETER USED FOR MEASURING FILAMENTS.

POWER DEMAND APPROXIMATELY 12 WATTS. "A" BATTERY DRAIN AT 6 VOLTS APPROXIMATELY 2 AMP.

CIRCUIT DESCRIPTION

The circuit consists of one stage of R.F. amplification, an oscillator-modulator, one stage of I.F. amplification, diode detector, automatic volume control, two stages of audio amplification and power supply. The R. F. stage employs a Type 15 tube, the oscillator-modulator stage uses a Type 6A7 tube and the I.F. amplifier also uses a Type 15 tube. A Type 30 tube is used as a diode detector and to supply A. V. C. voltage to the control grids of the R.F., oscillator-modulator, I.F. and first A.F. tubes. The first A.F. amplifier employs a Type 15 tube which is resistance coupled to the Type 38 power output pentode tube. A permanent magnet, moving coil type speaker is used and is coupled to the plate of the Type 38 tube through an output transformer which is located on the speaker. A 6SA4 Syncrotube, self-rectifying type vibrator, is used to furnish the "B" power supply.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and should need no readjustment unless some coil or condenser has been replaced. Do not change the setting of any trimmer condenser unless it is definitely known that the adjustment is necessary. If re-alignment is found necessary, the circuits can be properly adjusted only with the use of a modulated test oscillator and an output meter.

CONNECTING OUTPUT METER

The output meter may be connected to the output circuit by connecting one terminal to the plate of the 38 power output tube and the other terminal to the screen grid of the same tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first prong to the left of the filament prongs and the screen grid prong will be the second prong to the left of the filament prongs. Be sure that the meter is protected from D.C. by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

PEAKING I.F. STAGES AT 456 KC.

I. Connect the ground lead of the test oscillator to the chassis frame. Connect a .1 mfd., or larger, condenser in series with the other lead and connect this lead to the grid cap of the 6A7 tube, leaving the tube's grid clip in place. The .1 mfd. condenser is necessary to prevent a short circuit which would remove the bias voltage.

II. Set the test oscillator to 456 kilocycles.

III. Turn the volume control of the receiver on full. Rotate the station selector until the condenser plates are completely meshed and set the band change switch to Band No. 2. Turn the tone control all the way to the left. Be sure the bottom plate of the chassis is securely fastened in place.

IV. (a) Peak both tuning condensers located on top of the 2nd I.F. transformer shown in Fig. 2.

NOTE: Be sure to use the lowest test oscillator output that will give a reasonable scale deflection on the output meter. 20-30 volts output should be sufficient for satisfactory alignment.

(b) Peak both tuning condensers located on top of the 1st I.F. transformer shown in Fig. 2.

V. Repeat operation (IV) to insure accurate adjustment of the I.F. tuning condensers.

PEAKING R.F. CIRCUITS

I. Connecting Test Oscillator To The Receiver:
It is necessary to connect a DUMMY ANTENNA in series with the test oscillator and the antenna terminal of the receiver. On Bands No. 1 and No. 3 this consists of a .0002 mfd. *mica* condenser. On Band No. 2 it consists of a *carbon* resistor of approximately 400 ohms. With the tuning condenser plates completely meshed make certain that the dial pointer is exactly horizontal. If not, loosen the nut and set the pointer horizontal and tighten the nut again. The setting of the band spread pointer is not important.

II. To Peak Band No. 1:

NOTE: Be sure to use the lowest test oscillator output that will give a reasonable scale deflection on the output meter. 20-30 volts output should be sufficient for satisfactory alignment.

(a) Set the band change switch to Band No. 1.

(b) Set the test oscillator to 1400 kilocycles. Rotate the station selector until the dial pointer points to 140 on the dial. Then adjust the oscillator parallel trimmer condenser, Fig. 3, for Band No. 1 for maximum reading on the output meter.

(c) With the same dial setting peak the Ant. and R.F. parallel trimmer condensers for Band No. 1.

(d) Set the test oscillator to 600 kilocycles.

(e) Tune in the 600 kilocycle signal with the station selector, in the region of 60 on the dial, for maximum reading on the output meter.

(f) Close the oscillator series trimmer condenser for Band No. 1, Fig. 3, ⅛ turn and re-tune the station selector to the 600 kilocycle signal for maximum reading on the output meter.

(g) Repeat operation (f) as many times as necessary to obtain the highest reading on the output meter. However, if the meter reads lower after operation (f) open the oscillator series trimmer condenser ⅛ turn and re-tune the station selector to the 600 kilocycle signal, noting the reading on the output meter as above, and repeat as many times as necessary to obtain the highest meter reading. Do not re-set the parallel trimmer condensers at this frequency.

(h) Repeat operations (h) and (c) for more accurate adjustments.

III. To Peak Band No. 2:

(a) Be sure to change the DUMMY ANTENNA as described in (1) under Peaking R.F. Circuits.

(b) Close the oscillator parallel trimmer condenser for Band No. 2 and then open it 2 turns.

(c) Close the R.F. parallel trimmer condenser for Band No. 2 and then open it ⅛ turn.

(d) Close the Ant. parallel trimmer condenser for Band No. 2 and then open it ¼ turn.

(e) Set the test oscillator to 15 megacycles.

(f) Rotate the station selector until the dial pointer points to 15 on the dial (Band No. 2).

(g) Peak the oscillator parallel trimmer condenser for Band No. 2 on the first signal heard when closing this condenser.

NOTE: To check on the adjustment of the oscillator parallel trimmer condenser.

(1) Increase the output of the test oscillator not more than ten times.

(2) Try to tune in the 15 megacycle signal with the station selector at approximately 14 on the dial.

(3) If the 15 megacycle signal is heard at approximately 14 on the dial in addition to 15 on the dial the oscillator parallel trimmer condenser has been aligned on the correct frequency.

(h) Reduce the output of the test oscillator to the previous output and retune the station selector to the 15 megacycle signal at 15 on the dial.

(i) Close the R.F. parallel trimmer condenser for Band No. 2.

(j) Open the R.F. parallel trimmer condenser for Band No. 2 not more than ⅛ turn and re-tune the station selector to the 15 megacycle signal for maximum output.

(k) Repeat operation (j) as many times as necessary to obtain the highest reading on the output meter on the first peak from the closed position.

(l) Close the Ant. parallel trimmer condenser for Band No. 2.

(m) Open the Ant. parallel trimmer condenser for Band No. 2 not more than ⅛ turn and re-tune the station selector to the 15 megacycle signal for maximum output.

(n) Repeat operation (m) as many times as necessary to obtain the highest reading on the output meter on the first peak from the closed position.

(o) Set the test oscillator to 6 megacycles.

(p) Tune in the 6 megacycle signal with the station selector in the region of 6 on the dial (Band No. 2) for maximum reading on the output meter.

(q) Close the oscillator series trimmer condenser for Band No. 2, Fig. 3, ⅛ turn and re-tune the station selector to the 6 megacycle signal for maximum reading on the output meter.

(r) Repeat operation (q) as many times as necessary to obtain the highest reading on the output meter. However, if the meter reads lower after operation (q) open the oscillator series trimmer condenser ⅛ turn and re-tune the station selector to the 6 megacycle signal, noting the reading on the output meter as above, and repeat as many times as necessary to obtain the highest meter reading. Do not re-set the parallel trimmer condenser at this frequency.

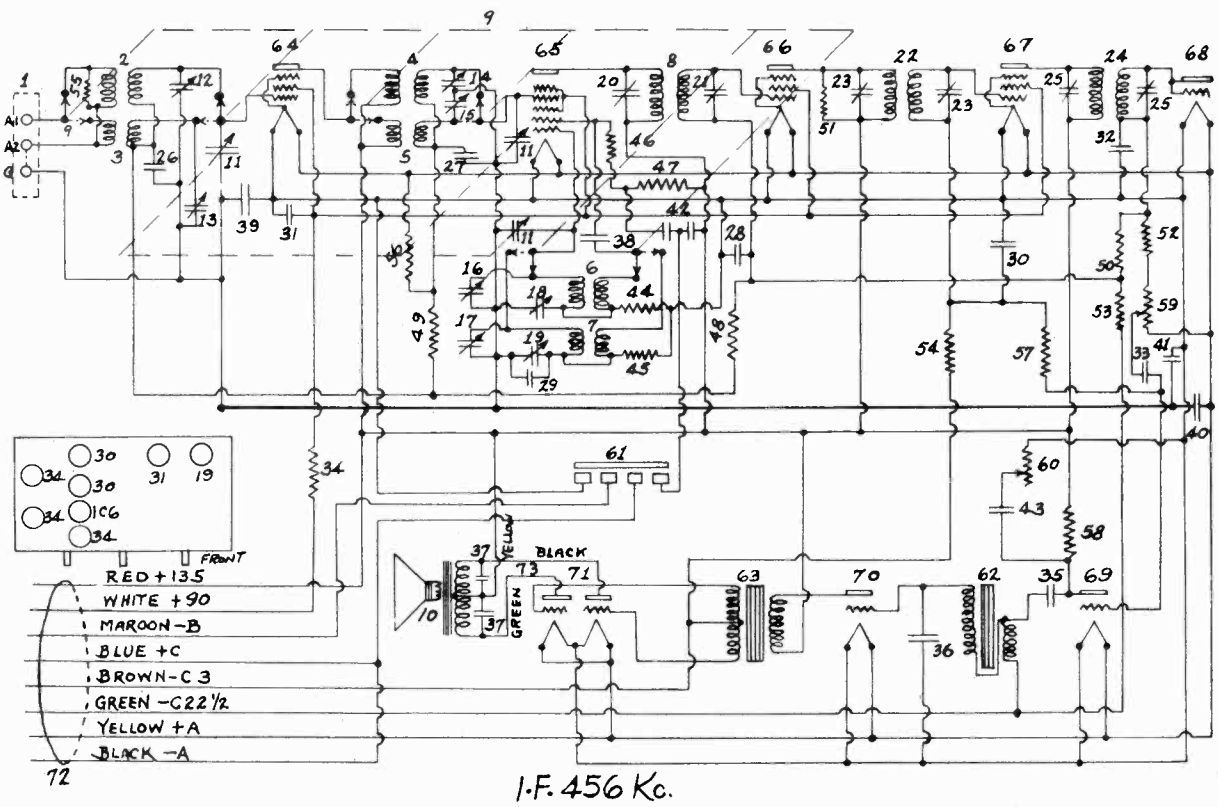
(s) Repeat operations (i), (j) and (k) above in the order given.

(t) Repeat operations (l), (m) and (n) above in the order given.

IV. The circuits of Band No. 3 cannot be aligned as there are no trimmer condensers provided for this band.

MODEL 8B3, Battery 8 AF
Schematic, Parts

CROSLEY RADIO CORP.



I.F. 456 Kc.

Parts List Model 8B3

Figures in first column correspond to figures in diagram

1	G16	—26719	Ant.-Gnd. Term.	38	W	—25435 .003 Mfd. 400 Volt
2	G3	—32000	L. F. Ant. Trans	39	W	—24049-B .1 Mfd. 200 Volt
3	G28	—32000	H. F. Ant. Trans.	40	W	—29910-A .25 Mfd. 200 Volt
4	G2	—32001	L. F. R. F. Trans	41	W	—30321-A 1.0 Mfd. 160 Volt
5	G18	—32001	H. F. R. F. Trans.	42	W	—33990 Dual 8 Mfd. Elect.
6	G2	—32002	L. F. Osc. Trans.	43	W	—27216 .05 Mfd. 200 Volt
7	G21	—32002	H. F. Osc. Trans.	44		21875 100,000 Ohms
8	G1	—32004	1st I. F. Trans.	45		21875 100,000 Ohms
9	B	—34094	Band Change Switch	46		21876 10,000 Ohms
10		—42PM	Speaker	47		27121 5,000 Ohms
11	G25	—33002	Variable Cond.	48		21455 300,000 Ohms
12	G1	—33008	{L. F. Ant. Trim. Cond.	49		21455 300,000 Ohms
13			{H. F. Ant. Trim. Cond.	50		26577 3 Meg.
14	G9	—33009	{L. F. R. F. Trim. Cond.	51		21455 300,000 Ohms
15			{H. F. R. F. Trim. Cond.	52		23403 150,000 Ohms
16	G18	—33009	{L. F. Osc. Trim. Cond.	53		33490 10 Meg.
17			{H. F. Osc. Trim. Cond.	54		21455 300,000 Ohms
18	G20	—33006	{L. F. Osc. Series T. C.	55		31094 4,500 Ohms
19			{H. F. Osc. Series T. C.	56		26578 5 Meg.
20	G6	—33006	{1st I. F. Pri. T. C.	57		21454 1 Meg.
21			{1st I. F. Sec. T. C.	58		22196 20,000 Ohms
22	G21	—32004	{2nd I. F. Trans.	59	W	—34095 Level Control
23			{Trimmer Cond.	60	W	—33993-A } Tone Control
24	G22	—32004	{3rd I. F. Trans.	61		} On-Off Switch
25			{Trimmer Cond.	62	G1	—34189 1st Audio Trans.
26	W	—32379	.02 Mfd. 200 Volt	63	G2	—34189 2nd Audio Trans.
27	W	—32379	.02 Mfd. 200 Volt	64	G31	—27975 34 Socket
28	W	—27216	.05 Mfd. 200 Volt	65	G84	—33070 1C6 Socket
29	G3	—34000	2200 Mmfd.	66	G31	—27975 34 Socket
30	W	—27216	.05 Mfd. 200 Volt	67	G31	—27975 34 Socket
31	W	—28869	2.0 Mfd. 200 Volt	68	G9	—33070 30 Socket
32	W	—27932	.0001 Mfd. 200 Volt	69	G9	—27975 30 Socket
33	W	—27216	.05 Mfd. 200 Volt	70	G14	—27975 31 Socket
34		24814	7000 Ohms	71	G44	—27975 19 Socket
35	W	—29910-A	.25 Mfd. 200 Volt	72	G3	—29237 Cable & Marker Assem.
36	G1	—34004	.00025 Mica Cond.	73	W	—31009-A Speaker Cable
37	W	—31158	Dual .006 Mfd. 400 Volt			

MODEL 515,5515,Fiver
Schematic,Socket
Parts

CROSLEY RADIO CORP.

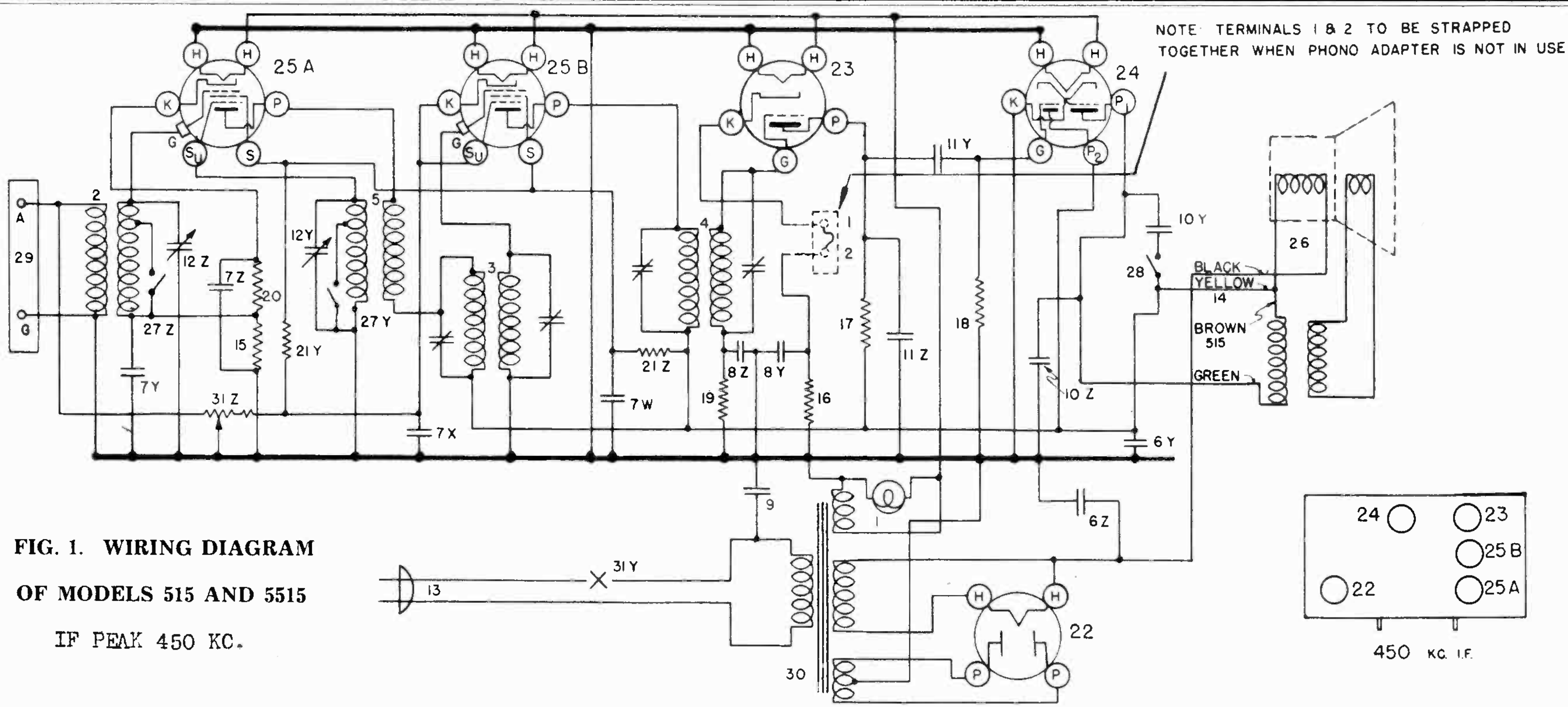


FIG. 1. WIRING DIAGRAM OF MODELS 515 AND 5515

IF PEAK 450 KC.

OCTOBER 1935

PARTS LIST—MODELS 515 AND 5515

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G4—27134	Dial Light Socket Assembly.
2	G42—32000	Coil Ant.
3	G48—32004	1st. I. F. Trans.
4	G49—32004	2nd. I. F. Trans.
5	G47—32002	Osc. Coil.
6Z	W —36719	Condenser, 8 Mfd., 450 Volts.
6Y		Condenser, 6 Mfd., 450 Volt.
7Z	W —28623	Condenser, 0.02 Mfd. 200 Volt.
7Y		Condenser, 0.02 Mfd. 200 Volt.
7X	W —28623	Condenser, 0.02 Mfd. 200 Volt.
7W		Condenser, 0.02 Mfd. 200 Volt.
8Z	W —28622	Condenser, 0.1 Mfd. 200 Volt.
8Y		Condenser, 0.1 Mfd. 200 Volt.
9	W —30805	Condenser, 0.01 Mfd. 400 Volt.
10Z	W —35011	Condenser, 0.006 Mfd. 400 Volt.
10Y		Condenser, 0.03 Mfd. 400 Volt.
11Z	W —25537A	Condenser, 0.001 Mfd. 400 Volt.
11Y		Condenser, 0.03 Mfd. 400 Volt.
12Z	G14—33001	Variable Tuning Condenser Gang.
12Y		
	—36148	Dial Assembly complete.
13	B —33906A	Cord—Power Supply.
14	G3 —35696	Speaker Cable (5515 only).
15	—31094	Resistor, 4,500 Ohms.
16	—21237A	Resistor, 60,000 Ohms.
17	—21455	Resistor, 300,000 Ohms.
18	—23785	Resistor, 500,000 Ohms.
19	—21454	Resistor, 1 Megohm.
20	W—25937	Resistor. 275 Ohms Flex.
21Z	W —35963	Resistor, 8,500 Ohms.
21Y		Resistor, 25 000 Ohms.
22	G6 —28807	Socket, 80.
23	G80—28807	Socket, 76.
24	G90—28807	Socket, 6B5.
25A	G75—28807	Socket, 6D6.
25B	G75—28807	Socket, 6D6.
	W —35772	Tube Shield, Half.
	W —35773	Tube Shield Cap.
	W —35774	Tube Shield Base.
26	—219-BL9	Speaker.
27Z	W —35753A	Band Change Switch.
27Y		
28	W —36184A	Tone Control Switch.
29	G1 —26719	Ant. Gnd. Terminal.
30	G5 —28500	Power Transformer, 60 Cy., 110 V.
	G6 —28500	Power Transformer 25 Cy., 110 V.
	G7 —28500	Power Transformer, 25 Cy., 220 V.
31Z	—37343	Volume Control.
31Y		On-Off Switch.
	B —35917	Escutcheon.
	—37158	Dial Glass.
	—37156	Dial Pointer.
	—37157	Pointer Screw.
	W —31585B	Knob (2) large.
	W —36355	Knob (2) small.

SPECIFICATIONS

The Crosley models 515 and 5515 employ the same chassis. The 515 is a table model with speaker attached and the 5515 is a console model with speaker mounted in the cabinet. It is available or adaptable for operation on A-C lines as follows: 110 V.-60 cycles, 110 V.-25 cycles and 220 V.-25 cycles. It is a two band receiver tuning from approximately 540 to 1570 kilocycles in the broadcast band and from 1570 to 4000 kilocycles in the police and amateur band.

The tubes used are 6D6 Oscillator-Modulator, 6D6 I. F. Amplifier, 76 Detector, 6B5 Output and type 80 Rectifier.

SOCKET VOLTAGES

The tube socket voltages are measured from the socket contacts to the chassis with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with receiver in operating condition and no signal input. Readings may vary plus or minus 10% of values given. Filament readings are taken with a low range A. C. voltmeter.

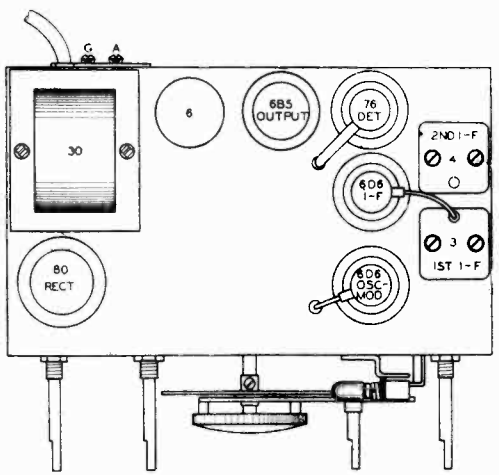


Fig. 2-B. Top View 5515

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H'	P	S	Su	G	P2	K
6D6	Osc-Mod	6.3	210	120	0	28	—	31
6D6	I. F. Amp	6.3	210	120	3	0	—	3
76	Detector	6.3	86	—	—	0	—	8.5
6B5	Output	6.3	200	—	—	0	210	0
80	Rectifier	4.9	280	—	—	—	—	—

Connecting Output Meter.

Connect one terminal of the output meter to P1 and the other terminal to P2 of the 6B5 output tube. Looking at the bottom of the tube with the filament prongs toward you P1 will be the first prong to the left of the filaments and P2 will be next to P1. Be sure the meter is protected from D. C. by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

1. Peaking I. F. Stages at 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. series condenser to the top cap of the 6D6 Osc.-Mod. tube, leaving the tube's grid clip in place. KEEP THE GENERATOR LEAD AS FAR AS POSSIBLE FROM THE OTHER S. G. TUBES.

(b) Connect the ground lead of the signal generator to the chassis frame or ground terminal of the receiver.

(c) Set the signal generator to 450 kilocycles.

(d) Rotate the receiver tuning condenser until the rotor plates are completely out of mesh.

(e) Turn the band selector switch to the right hand position. (Short Wave Band).

(f) Turn the volume control of the receiver on full.

(g) With the signal generator set to the lowest usable output level adjust the I. F. trimmer condensers located on top of the I. F. transformers, Fig. 2A&B for-maximum output.

NOTE: Make the adjustments very carefully, going over them several times to insure that the final setting is at resonant frequency. An insulated screw driver should be used to insure accurate adjustments.

2. Aligning R. F. Circuits.

(a) Turn the band selector switch to the left hand position. (Broadcast Band).

(b) Leave the receiver tuning condenser rotor plates completely out of mesh.

(c) Connect the output lead from the signal generator through a .00025 mfd., series condenser to the antenna terminal of the receiver.

(d) Set the signal generator to approximately 1570 kilocycles.

(e) Adjust the trimmer on the "Osc." section of the tuning condenser gang for maximum output. (Fig. 3).

(f) Set the signal generator to 1400 kilocycles.

(g) Tune in the 1400 kilocycle signal with the station selector for maximum output.

NOTE: Do not disturb the setting of the "Osc." trimmer as this is adjusted at 1570 kilocycles only and any further adjustment at this point would affect both the tuning range of the receiver and the tracking of its circuits.

(h) Adjust the trimmer on the "Ant." section of the tuning condenser gang for maximum output.

NOTE: There are no adjustments on this receiver for the Police Band.

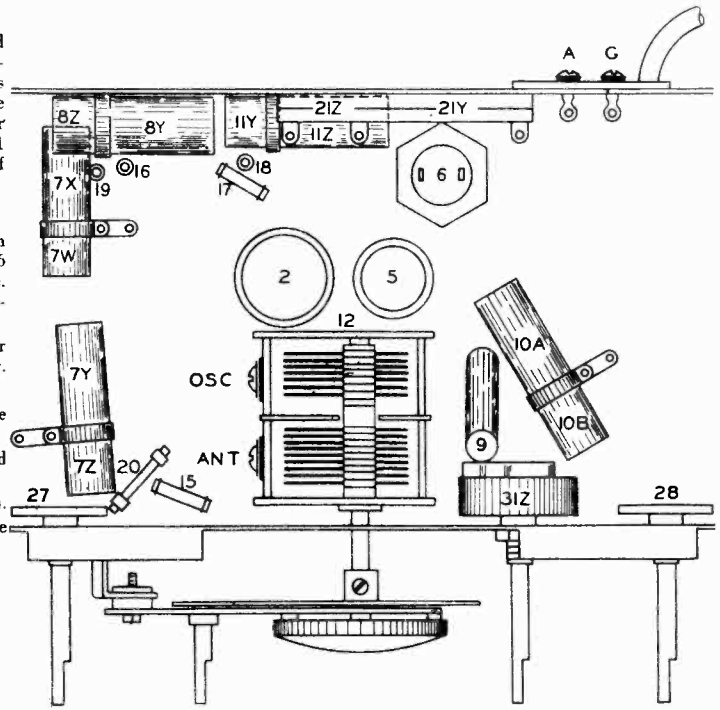


Fig. 3. Bottom View 515 and 5515

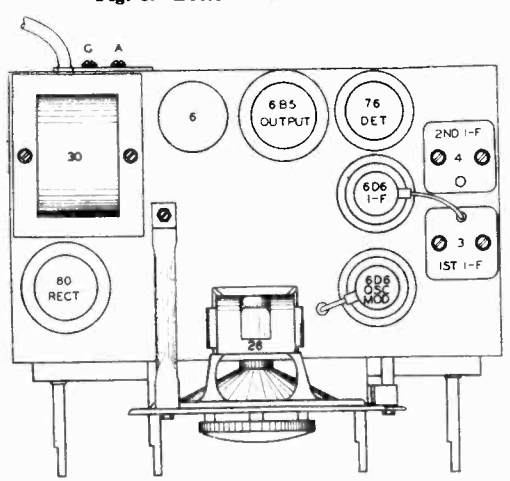


Fig. 2-A. Top View 515

MODEL 525,505
Schematic,Parts

CROSLEY RADIO CORP.

OCTOBER 1935

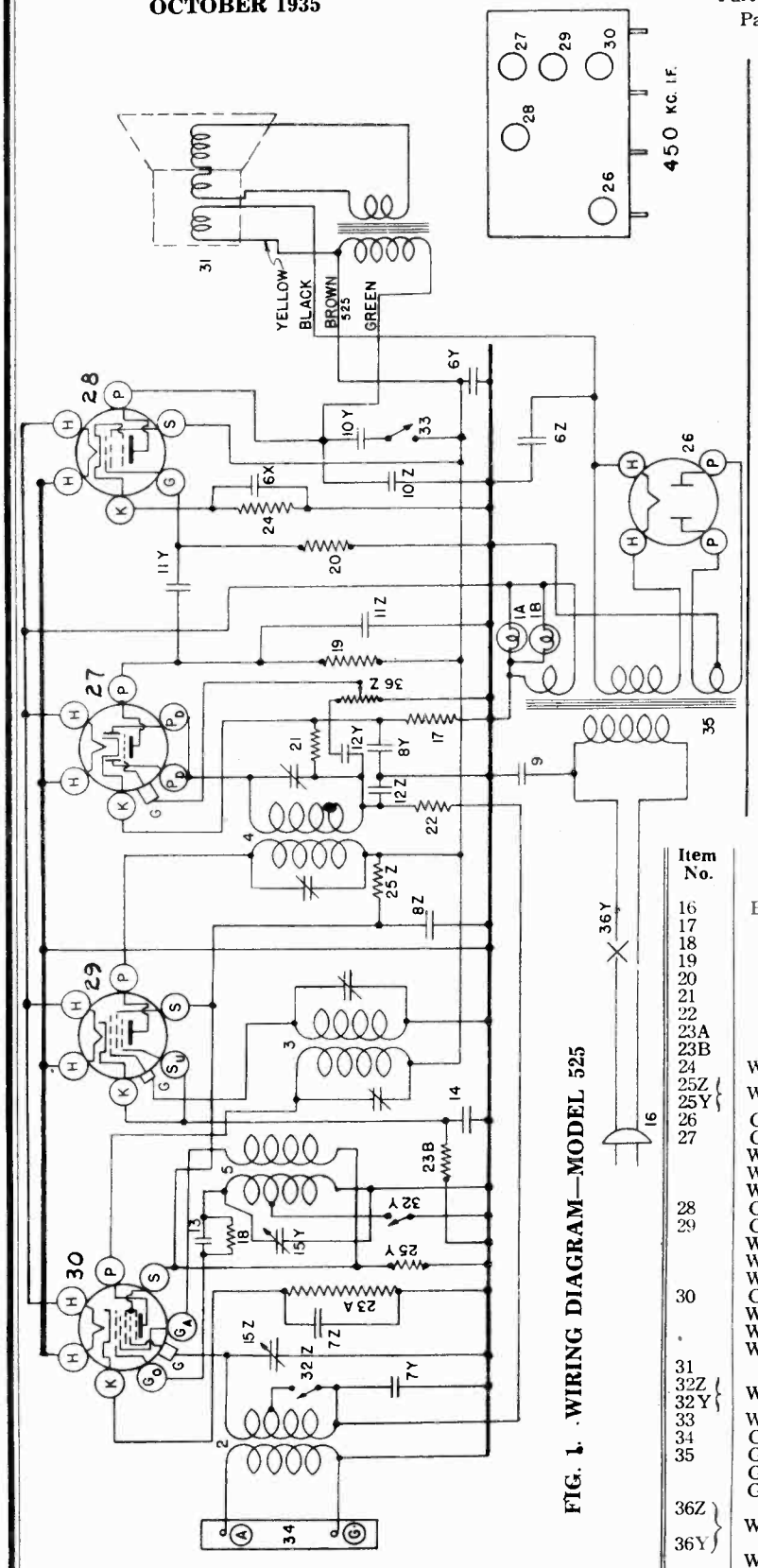


FIG. 1. WIRING DIAGRAM—MODEL 525

PARTS LIST—MODEL 525

Figures in first column refer to parts shown in diagrams.

Part numbers with A. B, etc., following, mean duplicate parts.

Part numbers with Z, Y, X, etc., following, mean parts having multiple sections.

Item No.	Part No.	Description
1A	G4 —27134	Dial Light Bracket Assem
1B	G4 —27134	Dial Light Bracket Assem
2	G42—32000	Coil, Ant. Trans.
	W —30802A	Coil Shield
	W —30026A	Coil Retaining Ring
	W —36178	Coil Insulator
3	G50—32004	Coil, 1st. I. F.
	G3 —31927	Coil Shield
	W —35037A	Coil Insulator
4	G49—32004	Coil, 2nd. I. F.
	G3 —31927	Coil Shield
	W —35037A	Coil Insulator
5	G43—32002	Coil Oscillator
	W —25025B	Coil Shield
	W —21541C	Coil Retaining Ring
	W —26891	Coil Insulator
6Z, 6Y, 6X	W —35750	Condenser, 8 Mfd. 450 V / Condenser, 6 Mfd. 450 V / Condenser, 12 Mfd. 25 V
7Z, 7Y	W —28623	Condenser, .02 Mfd. 200 V / Condenser, .02 Mfd. 200 V
8Z, 8Y	W —28622	Condenser, 0.1 Mfd. 200 V / Condenser, 0.1 Mfd. 200 V
9	W —30805	Condenser, .01 Mfd. 400 V
10Z, 10Y	W —35011	Condenser, .006 Mfd. 400 V / Condenser, .03 Mfd. 400 V
11Z, 11Y	W —25537A	Condenser, .001 Mfd. 400 V / Condenser, .03 Mfd. 400 V
12Z, 12Y	W —30322A	Condenser, .00017 Mfd. / Condenser, .006 Mfd.
13	G1 —34002	Condenser, .00025 Mfd.
14	W —28621	Condenser, .02 Mfd. (360
15Z, 15Y	—35751A	Condenser, 2 Gang Var. R.F. / Condenser, 2 Gang Var. 450
	—36148	Dial Drive Unit, complete
	—36156	Dial Pointer
	—36157	Dial Pointer Screw
	—36158	Dial Lens
	G16—35757	Dial Drive Mounting Bracket Assem.

Item No.	Part No.	Description
16	B —33906A	Cord, Power Supply
17	—21876	Resistor, 10,000 Ohms
18	—21453	Resistor, 40,000 Ohms
19	—21455	Resistor, 300,000 Ohms
20	—23785	Resistor, 500,000 Ohms
21	—21454	Resistor, 1 Megohm
22	—26577	Resistor, 3 Megohm
23A	—25937	Resistor, 275 Ohms, 1½ Watt Flex.
23B	—25937	Resistor, 275 Ohms, 1½ Watt Flex.
24	W —23907	Resistor, 750 Ohms, 1½ Watt Flex.
25Z, 25Y	W —35963	Resistor, 8,500 Ohms, 3 Watt / Resistor, 25,000 Ohms, 3 Watt
26	G6 —28807	Socket 80
27	G41—28807	Socket 75
	W —35774	Tube Shield Base
	W —35772	Tube Shield Half (2 used)
	W —35773	Tube Shield Cap
28	G22—28807	Socket 41
29	G75—28807	Socket 6D6
	W —35774	Tube Shield Base
	W —35772	Tube Shield half (2 used)
	W —35773	Tube Shield Cap
30	G47—28807	Socket 6A7
	W —35774	Tube Shield Base
	W —35772	Tube Shield half (2 used)
	W —35773	Tube Shield Cap
31	—36278	Speaker, 318 BL9
32Z, 32Y	W —35753A	Switch, Ant. / Switch, Osc.
33	W —36184A	Switch, Tone Control
34	G10—26719	Terminal, Ant. Gnd.
35	G5 —28500	Transformer, Power, 60 Cy., 110 Volt
	G6 —28500	Transformer, Power, 25 Cy., 110 Volt
	G7 —28500	Transformer, Power, 25 Cy., 220 Volt
36Z, 36Y	W —36227	Volume Control, 4,800 Ohm, 160 Ohm fixed. / On-Off Switch
	W —31585B	Knobs
	B —35917	Escutcheon

SPECIFICATIONS

The Crosley models 525 and 505 employ the same chassis. The 525 is a table model with speaker attached and the 505 is a console model with the speaker mounted in the cabinet. It is available or adaptable for operation on A-C lines as follows: 110 V.-60 cycles, 110 V.-25 cycles and 220 V.-25 cycles. It is a two band receiver tuning from approximately 540 to 1570 kilocycles in the broadcast band and from 1570 to 4000 kilocycles in the police and amateur band.

The tubes used are 6A7 Oscillator-Modulator, 6D6 I. F. Amplifier, 75 Detector, 41 Output and type 80 Rectifier.

SOCKET VOLTAGES

The tube socket voltages are measured from the socket contacts to the chassis with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with receiver in operating condition and no signal input. Readings may vary plus or minus 10% of values given. Filaments are measured with a low range A-C Voltmeter.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	G	K	S	Su	Ga	Go
6A7	Osc-Mod	6.3	215	0	3	105	0	105	-4
6D6	I. F. Amp.	6.3	215	0	3	105	3	—	—
75	Detector & A. F. Amp.	6.3	80	0	.75	—	—	—	—
41	Output	6.3	205	0	16	215	—	—	—
80	Rectifier	4.9	280	—	—	—	—	—	—

Measured on 117.5 Volt—60 Cycle Line. Power Consumption Approximately 60 Watts.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits can be properly aligned only with the use of a modulated signal generator and an output meter.

Connecting Output Meter.

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 41 output tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first to the left of the filament prongs and the screen prong will be next to the plate prong. Be sure the meter is protected from D. C. by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

1. Peaking I. F. Stages at 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. series condenser to the top cap of the 6A7 Osc-Mod tube, leaving the tube's grid clip in place. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE OTHER S. G. TUBES.

(b) Connect the ground lead of the signal generator to the chassis frame or ground terminal of the receiver.

(c) Set the signal generator to 450 kilocycles.

(d) Rotate the receiver tuning condenser until the rotor plates are completely out of mesh.

(e) Turn the band selector switch to the right hand position. (Short Wave Band).

(f) Turn the volume control of the receiver on full.

(g) With the signal generator set to the lowest usable output level adjust the I. F. trimmer condensers located on top of the I. F. transformers, Fig. 2A&B for maximum output.

NOTE: Make the adjustments very carefully, going over them several times to insure that the final setting is at resonant frequency. An insulated screw driver should be used to insure accurate adjustments.

2. Aligning R. F. Circuits.

(a) Turn the band selector switch to the left hand position. (Broadcast Band).

(b) Leave the receiver tuning condenser rotor plates completely out of mesh.

(c) Connect the output lead from the signal generator through a .00025 mfd., series condenser to the antenna terminal of the receiver.

(d) Set the signal generator to approximately 1570 kilocycles.

(e) Adjust the trimmer on the "Osc." section of the tuning condenser gang for maximum output. (Fig. 3).

(f) Set the signal generator to 1400 kilocycles.

(g) Tune in the 1400 kilocycle signal with the station selector for maximum output.

NOTE: Do not disturb the setting of the "Osc." trimmer as this is adjusted at 1570 kilocycles only and any further adjustment at this point would affect both the tuning range of the receiver and the tracking of its circuits.

(h) Adjust the trimmer on the "Ant." section of the tuning condenser gang for maximum output.

NOTE: There are no adjustments on this receiver for the Police Band.

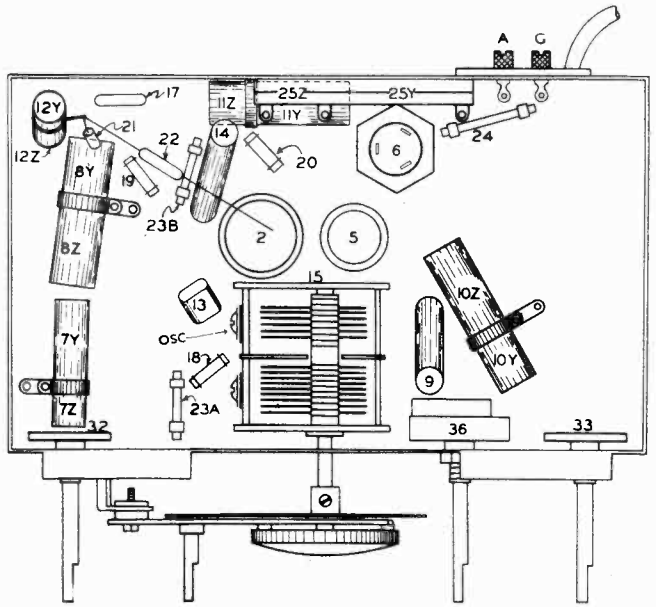


Fig. 3. Bottom View 525 and 505

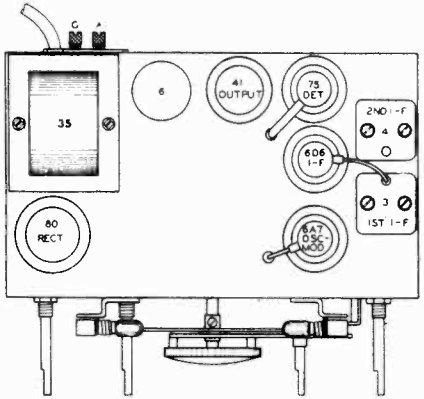


Fig. 2-B. Top View 505

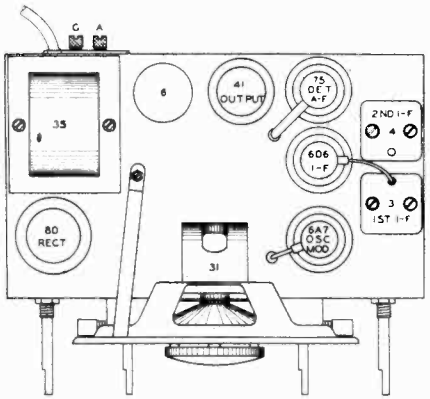


Fig. 2-A. Top View 525

MODEL 534
Schematic
Socket

CROSLEY RADIO CORP.

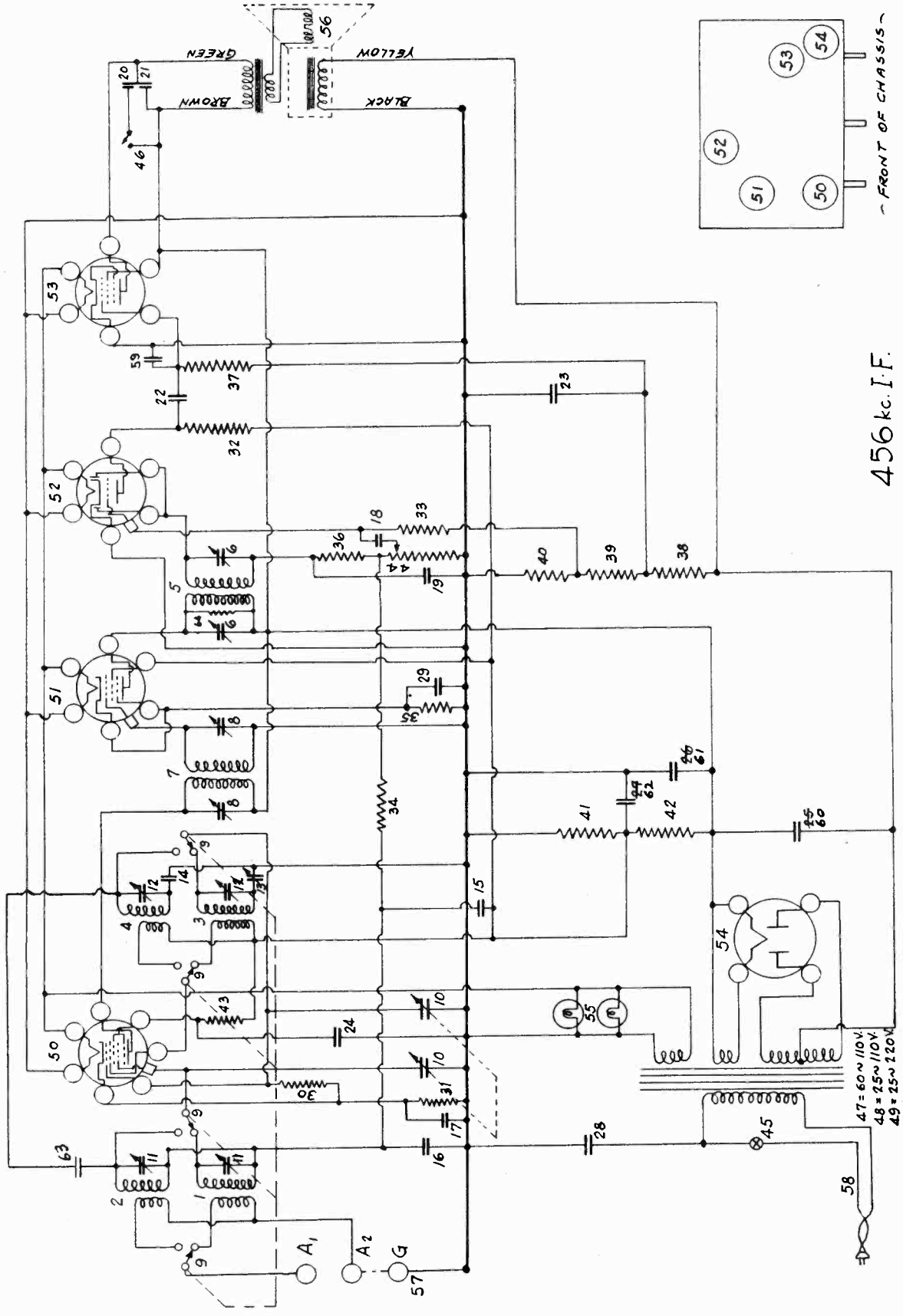


Fig. 1—Wiring Diagram of Model 534

MODEL 534
Chassis, Trimmers
Parts

CROSLEY RADIO CORP.

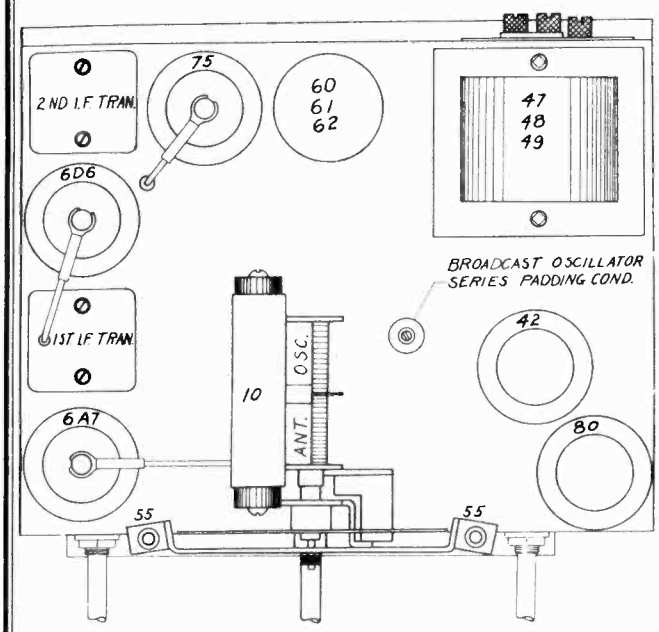


Fig. 2—Top View

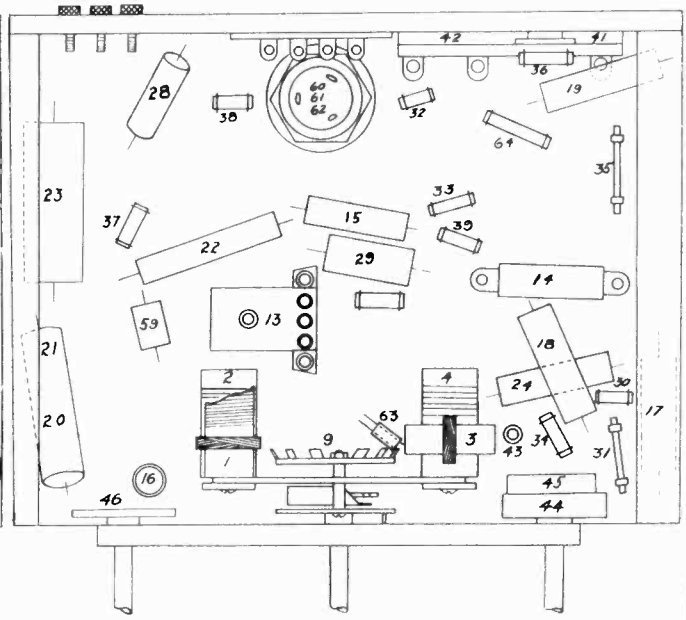


Fig. 4—Bottom View

PARTS LIST—MODEL 534

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G39—32000	Low Freq. Ant. Trans.
3	G40—32000	High Freq. Ant. Trans
3	G31—32002	L. F. Osc. Trans.
4	G32—32002	H. F. Osc. Trans
5	G38—32004	2nd I. F. Trans.
6		I. F. Trimmer Cond.
7	G39—32004	1st I. F. Trans.
8		I. F. Trimmer Cond
9	B —35031	4 Pole S. T. Sw.
10	B —35025	Variable Cond. Gang
	G26—32086	Dial Drive Assembly
	W —32008A	Dial Hand
	W —32293	Dial Hand Nuts (2)
11	W —35033	Ant. Trimmer Cond.
12	W —35033	Osc. Trimmer Cond.
13	G10—33005	Series Cond.
14	G12—34000	4725 Mmf. Cond.
15	W —32378	0.01 Mfd. 400 V. Cond.
16	W —32380	0.05 Mfd. 200 V. Cond.
17	W —28621	0.02 Mfd. 200 V. Cond.
18	W —28619	0.006 Mfd. 200 V. Cond.
19	W —27932	0.0001 Mfd. 200 V. Cond.
20	W —35011	0.03 Mfd. 400 V. Cond.
21		0.006 Mfd. 400 V. Cond.
22	W —27216	0.05 Mfd. 200 V. Cond.
23	W —30321A	1.0 Mfd. 160 V. Cond.
24	W —28621	0.02 Mfd. 200 V. Cond.
25		
26	See 60-61-62	
27		
28	W —30805	0.01 Mfd. 400 V. Cond.
29	W —24049B	0.1 Mfd. 200 V. Cond.
30	—21453	40,000 Ohm Resistor
31	W —25937	275 Ohm Flex. Resistor
32	—21455	300,000 Ohm Resistor
33	—26577	3 Megohm Resistor
34	—26577	3 Megohm Resistor
35	W —25937	275 Ohm Flex. Resistor
36	—21455	300,000 Ohm Resistor
37	—23785	500,000 Ohm Resistor
38	—23785	500,000 Ohm Resistor
39	—34018	200,000 Ohm Resistor

Item No.	Part No.	Description
40	—21876	10,000 Ohm Resistor
41	W —31883	25,000 Ohm Resistor
42		8,500 Ohm Resistor
43	—23868	6,500 Ohm Resistor
44	W —35013	Level Control 1 Megohm
45		Power Switch
46	W —34191	Tone Control Switch
47	G8 —28500	Power Trans. 60 Cy. 110 V.
48	G9 —28500	Power Trans. 25 Cy. 110 V.
49	G10—28500	Power Trans. 25 Cy. 220 V.
50	G47—28807	6A7 Socket
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
51	G75—28807	6D6 Socket
	W —27981A	Tube Shield Base
	B —26009D	Tube Shield
52	G41—28807	-75 Socket
	W —27981A	Tube Shield Base
	W —28632A	Tube Shield
53	G25—28807	-42 Socket
54	G6 —28807	-80 Socket
55	W —4099A	6-8 V. Dial Lamp
	G4 —27134	Light Bracket Assem. (2)
56	—318BL	Speaker
	G5 —31128	Speaker Term. Board
	W —34627	Insulator
	W —34628	Term. Board Cover
57	G16—26719	Ant. Gnd. Terminal
58	B —33905	Power Cable & Plug
59	G1 —34002	0.00025 Mfd. (Mica)
60		8. Mfd. 450 V.)
61	B —30059C	8. Mfd. 450 V.) Condenser
62		8 Mfd. 250 V.)
63	G31—34403	1.0 Mmf.
64	—21454	1 Megohm Resistor
	B —35034	Chassis End (2)
	W —31157B	Knob (1) Station Selector
	W —33991	Knob (1) Band Change
	W —31585B	Knob (2) (Tone Control & Volume Control)

SPECIFICATIONS

The Crosley Model 534 chassis is a five tube superheterodyne receiver designed for A. C. operation. It employs a tuned antenna circuit which covers from 535 kilocycles to 1730 kilocycles on the broadcast band and from 5.3 megacycles to 15.7 megacycles on the short wave band, automatic volume control, two step tone control and class "A" pentode audio amplification.

TUBES AND VOLTAGE LIMITS

The following are the tubes and voltages measured from the tube contact to chassis with a 500,000 ohm 500 Volt voltmeter with the receiver in operating condition but with no signal to the antenna, and with a line voltage of 117.5 volts. Voltage limits are plus or minus 10% of values given.

TUBE VOLTAGES—MODEL 534

Type	Where Used	Ef	Ep	Esg	Esup	Ek	Eg
6A7	Osc. Mod.	6.3	100	70	2.5	2.5	0
6D6	I. F. Amp.	6.3	205	100	3.0	3.0	0
75	Diode and A. F.	6.3	50	—	0	0	x
42	Output	6.3	195	205	—	9	-8
80	Rect.	4.9	—	—	—	—	—

VOLTAGE ACROSS SPEAKER FIELD 53 VOLTS.
x INDICATES HIGH RESISTANCE IN THE CIRCUIT WHICH PREVENTS ACCURATE MEASUREMENT.
ALL MEASUREMENTS MADE WITH A 1000 OHM PER VOLT VOLTMETER FROM CHASSIS.

(The power consumption at 117.5 volts is approximately 95 watts).

CIRCUIT DESCRIPTION

The circuit consists of a tuned antenna stage, an oscillator-modulator stage, one stage of I.F. amplification, diode detector and A.V.C., A.F. amplifier and power supply. The oscillator-modulator stage uses a Type 6A7 tube and the I. F. stage uses a Type 6D6 tube. The A.V.C., second detector and first stage of audio amplification are combined in a type 75 tube. The output stage uses a single Type 42 tube and the power supply uses a Type 80 tube.

PEAKING PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and will not need readjustment unless some coil or condenser has been replaced. Do not change the setting of any trimmer condenser unless it is definitely known that the adjustment is necessary. If realignment is found necessary, the circuits can be properly adjusted only with the use of a modulated test oscillator and an output meter.

CONNECTING OUTPUT METER

Connect one terminal of the output meter to the plate of the Type 42 tube and the other terminal to the screen grid of the Type 42 tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first to the left of the filament prongs and the screen grid prong will be next to the plate prong. Be sure that the meter is protected from D.C. by connecting a condenser (.1 mfd. or larger) in series with one of the leads.

PEAKING I.F. STAGES AT 456 Kc.

NOTE: Be sure speaker is connected before turning on receiver.

I. Connect the ground lead of the test oscillator to the chassis frame. Connect a .1 mfd., or larger, condenser in series with the other lead and connect this lead to the grid cap of the Type 6A7 tube, leaving the tube's grid clip in place. The .1 mfd. condenser is necessary to prevent a short circuit which would remove the bias voltage.

II. Set the test oscillator at 456 kilocycles.

III. Turn the volume control of the receiver on full. Turn the tuning condenser until the plates are completely meshed and turn the band selector switch to the right. Turn the tone control to the left.

IV. (a) Peak both I.F. tuning condensers located on top of the 2nd I.F. transformer (Fig. 2). NOTE: Be sure to use the lowest oscillator output that will give a reasonable scale deflection on the output meter. 20 to 60 volts output is satisfactory.

(b) Peak both I.F. tuning condensers located on top of the 1st I.F. transformer (Fig. 2).

V. Repeat operation IV to insure accurate adjustment of the I.F. tuning condensers.

PEAKING R.F. CIRCUITS

Connecting test oscillator to receiver: It is necessary to connect a dummy antenna in series with the test oscillator and the antenna terminal of the receiver. On the Broadcast Band this consists of a .0002 mfd. *mica* condenser and on the Short Wave Band it consists of a *carbon* resistor of approximately 400 ohms. With the tuning condenser plates completely meshed make certain that the dial pointer is exactly horizontal.

I. To Peak The Broadcast Band: See NOTE in IV (a) under peaking I.F. Stages, also Fig. 3 for location of parallel trimmer condensers and Fig. 2 for location of oscillator series trimmer (or padding) condenser.

(a) Set test oscillator at 1400 kilocycles. Tune the station selector until the dial pointer points to 140 on the dial. Then adjust the oscillator parallel trimmer condenser (Broadcast Band) for maximum output.

(b) With the same dial setting peak the antenna parallel trimmer condenser for the Broadcast Band.

(c) Set the test oscillator at 600 kilocycles.

(d) Tune in the 600 kilocycle signal with the station selector in the region of 60 on the dial, for maximum reading on the output meter.

(e) Close the oscillator series padding condenser (Broadcast Band), Fig. 2, ⅛ turn and re-tune the station selector to the 600 kilocycle signal for maximum output, noting the reading on the output meter.

(f) If the meter reads higher after operation (e) repeat the operation again and again until no further improvement in the reading of the output meter can be obtained. If the meter reads lower after operation (e) open the oscillator series trimmer condenser ⅛ turn and re-tune the station selector to the 600 kilocycle signal, noting the reading on the output meter as above and repeat as many times as necessary to obtain the highest meter reading. Do not reset the parallel trimmer condensers at this frequency.

(g) Repeat operations (a) and (b) for more accurate adjustments.

II. To Peak The Short Wave Band:

(a) Be sure to change the dummy antenna as described above.

(b) Close the oscillator parallel trimmer condenser (Short Wave Band) and then open three turns.

(c) Close the antenna parallel trimmer condenser (Short Wave Band) and then open ½ turn.

(d) Tune the station selector to 15 megacycles (15 on the dial).

(f) Peak the oscillator parallel trimmer condenser on the first signal heard when closing the condenser.

NOTE: To check on the adjustment of the oscillator parallel trimmer condenser:

(1) Increase the test oscillator output not more than ten times.

(2) Try to tune in the 15 megacycle signal with the station selector tuned to approximately 14 on the dial.

(3) If the 15 megacycle signal is heard at approximately 14 on the dial in addition to 15 on the dial the oscillator parallel trimmer condenser has been aligned on the correct frequency.

(g) Reduce the output from the test oscillator to the previous output and re-tune the station selector to 15 megacycles at 15 on the dial.

(h) Peak the antenna parallel trimmer condenser for the Short Wave Band for maximum output, then re-tune the station selector again for maximum output.

(i) Repeat the two operations in (h) as many times as necessary to obtain the highest reading on the output meter.

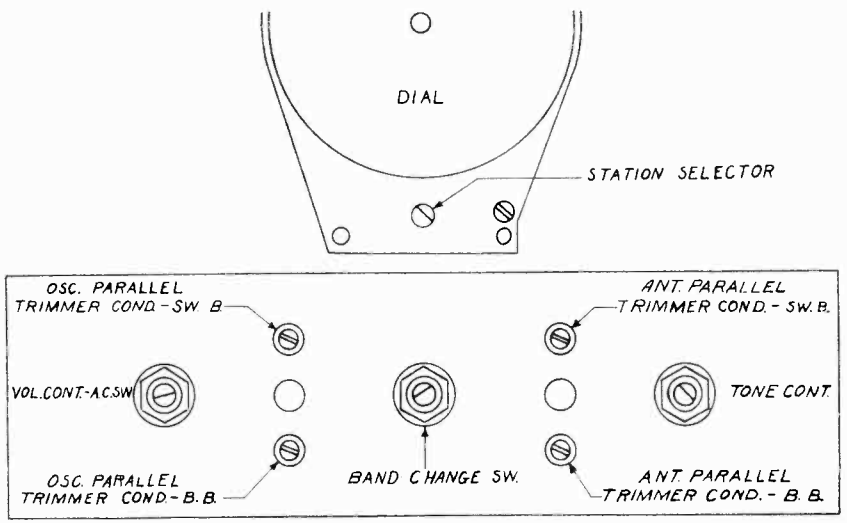
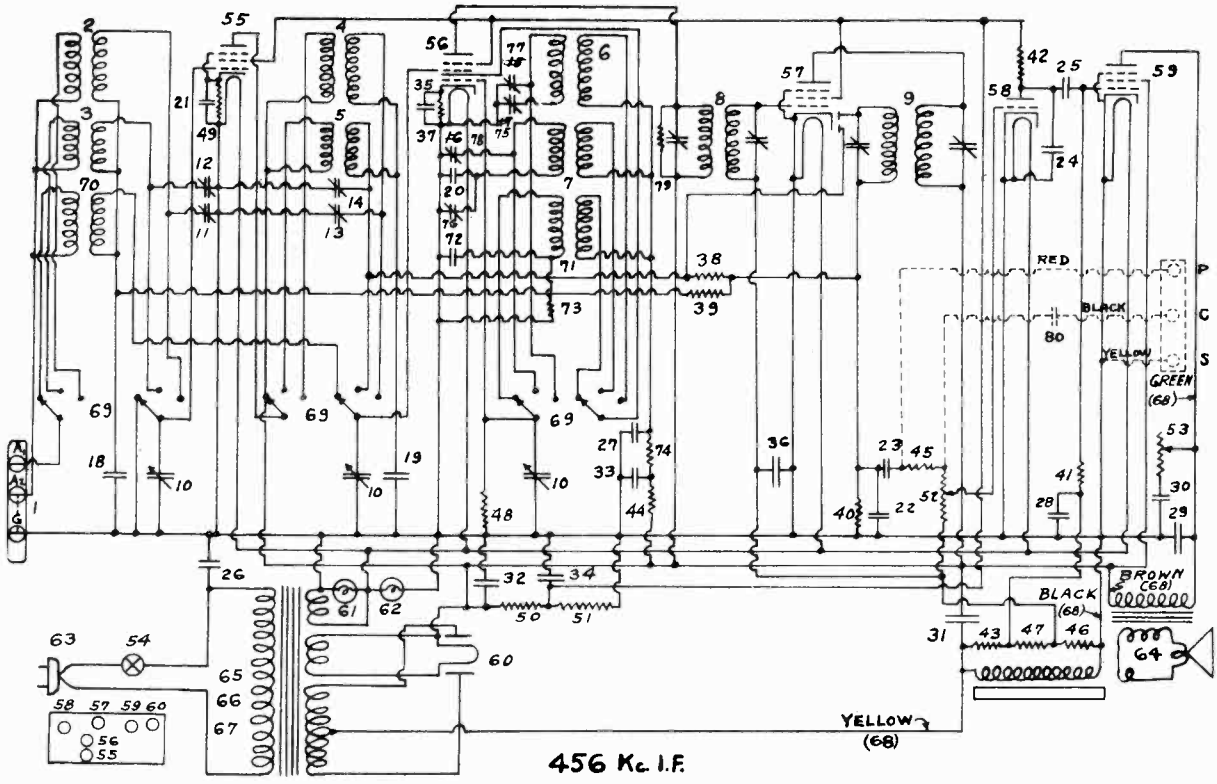


Fig. 3—Front View

MODEL 6H3, 614
Schematic, Socket
Parts

CROSLEY RADIO CORP.



Parts List Model 6H3

Figures in first column correspond to figures in diagram

1	G16	—26719	Ant. Gnd. Term.	43		23785	500,000 Ohms
2	G3	—32000	L. F. Ant. Coil	44		21876	10,000 Ohms
3	G1	—32002	H. F. Ant. Coil	45		23785	500,000 Ohms
4	G2	—32001	L. F. R. F. Coil	46		22831	15,000 Ohms
5	G1	—32001	H. F. R. F. Coil	47		21875	100,000 Ohms
6	G2	—32002	L. F. Osc. Coil	48		21453	40,000 Ohms
7	G1	—32002	H. F. Ocs. Coil	49	W	—21964	165 Ohms
8	G18	—32004	1st I. F. Trans.	50	W	—31883	8,500 Ohms
9	G19	—32004	Diode Trans.	51	W		25,000 Ohms
10	G19	—33002	Variable Cond.	52	W	—28552	Level Control
11	G1	—33008	L. F. Ant. Trimmer	53	W	—25594-B	Tone Control
12			H. F. Ant. Trimmer	54			S. P. S. T. Line Switch
13	G1	—33008	L. F. R. F. Trimmer	55	G75	—27456	6D6 Socket
14			H. F. R. F. Trimmer	56	G47	—27456	6A7 Socket
15				57	G48	—27456	6B7 Socket
16				58	G80	—27456	76 Socket
17				59	G25	—27456	42 Socket
18	W	—32379	0.02 Mfd. 200 Volt	60	G6	—27456	80 Socket
19	W	—32379	0.02 Mfd. 200 Volt	61	W	—4099-A	6 V. Dial Light
20	W	—32304	1400 Mmfd. H. F.	62	W	—4099-A	6 V. Dial Light
21	W	—32379	0.02 Mfd. 200 Volt	63	B	—33905	Cable & Plug
22	W	—30322-A	.00017 Mfd. 200 Volt	64		318-B	Speaker
23			.006 Mfd. 200 Volt	65	G6	—30745	Power Trans. 60 Cy.
24	W	—25537-A	.001 Mfd. 400 Volt	66	G7	—30745	Power Trans. 25 Cy.
25			.03 Mfd. 400 Volt				110 Volt
26	W	—30805	0.01 Mfd. 400 Volt	67	G8	—30745	Power Trans, 25 Cy.
27	W	—32378	0.01 Mfd. 400 Volt				220 Volt
28	W	—30321-A	1.0 Mfd. 160 Volt	68	W	—31007-A	Speaker Cord
29	W	—25517-A	.008 Mfd. 400 Volt	69	B	—34427-A	Band Change Switch
30			0.05 Mfd. 400 Volt	70	G31	—32000	3rd Ant. Coil
31	W	—26194-B	12 Mfd. 475 Volt	71	G24	—32002	3rd Osc. Coil
32			8 Mfd. 450 Volt (Red)	72	G7	—34000	1450 Mmfd.
33	W	—29097-D	8 Mfd. 450 Volt (Green)	73	W	—24990	25,000 Ohms
34			8 Mfd. 250 V. (No Code)	74		22831	15,000 Ohms
35	W	—32379	0.02 Mfd. 200 Volt	75	G2	—33007	L. F. Osc. Series Cord
36	W	—29910-A	0.25 Mfd. 200 Volt	76			H. F. Osc. Series Cord
37	W	—28589	350 Ohms	77	G9	—33009	L. F. Osc. Trimmer
38		26577	3-Megohm	78			H. F. Osc. Trimmer
39		26577	3-Megohm	79		23785	500,000 Ohms
40		21454	1-Megohm	80	W	—23191-A	.01 Mfd. 400 V. (For Only)
41		23785	500,000 Ohms				
42		23403	150,000 Ohms				

MODEL 635, Buccaneer
Schematic, Voltage
Socket, Data

CROSLEY RADIO CORP.

SPECIFICATIONS

The Crosley Model 635 radio is a six-tube superheterodyne receiver and is available or adaptable for operation on A-C lines as follows: 100 V.-60 cycles, 110 V.-25 cycles and 220 V.-25 cycles. It is a three band receiver tuning from 540 to 1700 kilocycles in the broadcast band, 1700 to 5200 kilocycles in the police and amateur band, and 5400 to 15,300 kilocycles in the high frequency band.

The tubes used are: 6A7 Oscillator-Modulator, 6D6 I. F. Amplifier, 76 Detector and AVC, 6D6 A. F. Amplifier, 42 Output and type 80 Rectifier.

SOCKET VOLTAGES

The tube socket voltages are measured from the socket contacts to the chassis with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with the receiver in operating condition and no signal input. Readings may vary plus or minus 10% of values given.

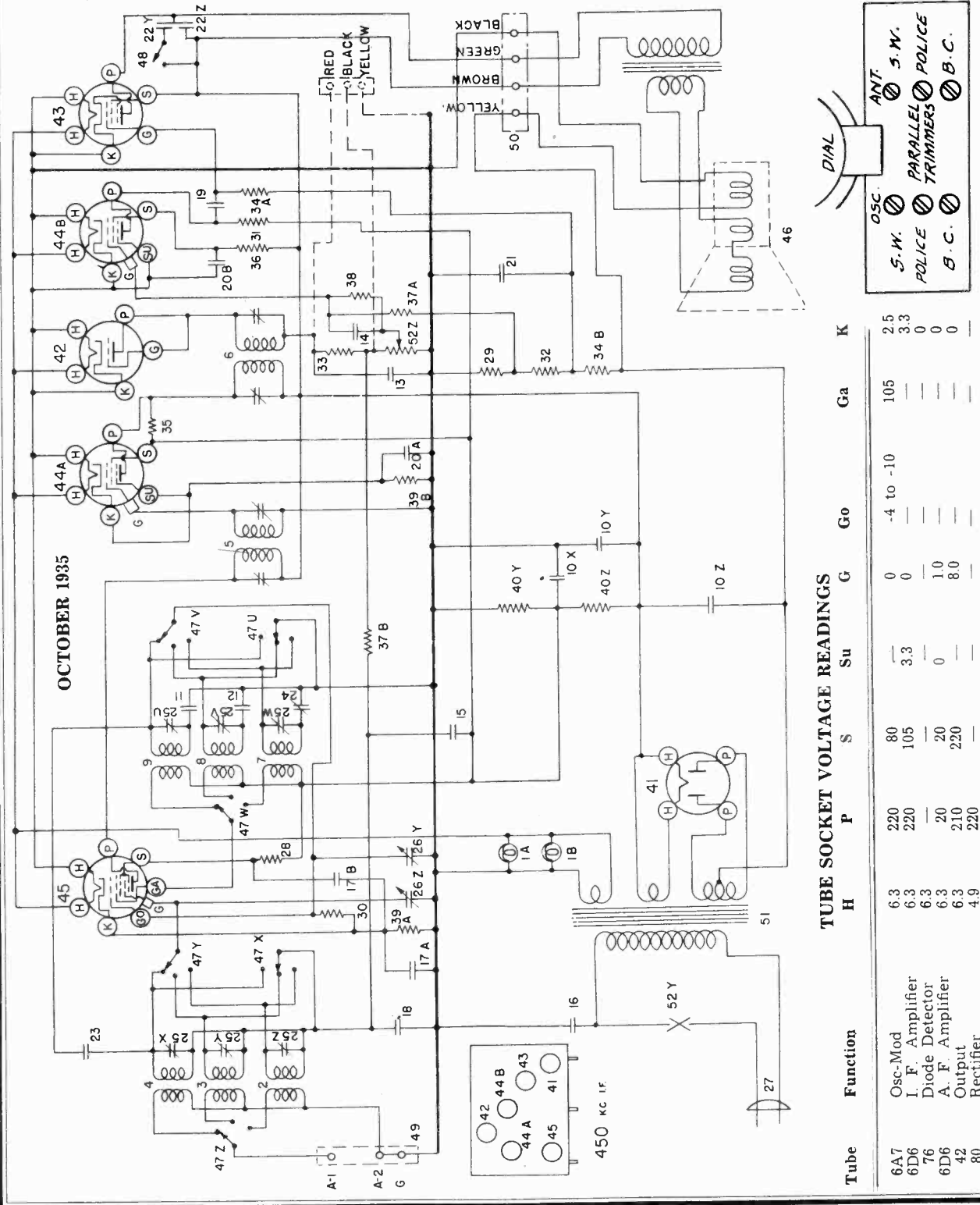


FIG. 4 - FRONT VIEW

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	G	Go	Ga	K
6A7	Osc-Mod	6.3	220	80	—	0	-4 to -10	105	2.5
6D6	I. F. Amplifier	6.3	220	105	3.3	0	—	—	3.3
76	Diode Detector	6.3	—	—	—	—	—	—	0
6D6	A. F. Amplifier	6.3	20	20	0	1.0	—	—	0
42	Output	6.3	210	220	—	8.0	—	—	0
80	Rectifier	4.9	220	—	—	—	—	—	—

Measured on 117.5 Volt—60 Cycle Line. Power Consumption Approximately 60 Watts.

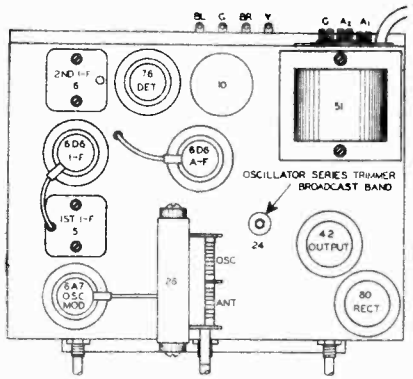


Fig. 2. Top View 635

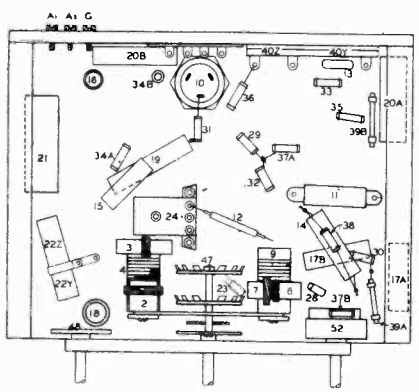


Fig. 3 Bottom View 635

PARTS LIST—MODEL 635

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1A	G4 —27134	Dial Light Bracket Assembly.
1B	G4 —27134	Dial Light Bracket Assembly.
2	G39—32000	Coil, Ant. Trans. 540-1725 Kc.
3	G43—32000	Coil, Ant. Trans. 1.7-5.2 Mc.
4	G40—32000	Coil, Ant. Trans. 5.3-15.5 Mc.
5	G38—32004	Coil 1st. I. F. Trans.
	G4 —31927	Coil Shield Assembly.
6	G38—32004	Coil 2nd. I. F. Trans.
	G4 —31927	Coil Shield Assembly.
7	G34—32002	Coil, Osc. 540-1725 Kc.
8	G35—32002	Coil, Osc. 1.7-5.2 Mc.
9	G32—32002	Coil, Osc. 5.3-15.5 Mc.
10Z, 10Y, 10X	B —30059-C	Condenser, 8 Mfd. 450 Volts. Condenser, 8 Mfd. 450 Volts. Condenser, 8 Mfd. 250 Volts.
11	G12—34000	Condenser, 4725 Mmf.
12	G7 —34000	Condenser, 1450 Mmf.
13	G2 —34002	Condenser, 0.0001 Mfd. 200 Volt.
14	W —28619	Condenser, 0.006 Mfd. 300 Volt.
15	W —32378	Condenser, 0.01 Mfd. 400 Volt.
16	W —30805	Condenser, 0.01 Mfd. 400 Volt.
17A	W —28621	Condenser, 0.02 Mfd. 200 Volt.
17B	W —28621	Condenser, 0.02 Mfd. 200 Volt.
18	W —32380	Condenser, 0.05 Mfd. 200 Volt.
19	W —27216	Condenser, 0.05 Mfd. 200 Volt.
20A	W —24049B	Condenser, 0.1 Mfd. 200 Volt.
20B	W —24049B	Condenser, 0.1 Mfd. 200 Volt.
21	—30321A	Condenser, 1.0 Mfd. 160 Volt.
22Z	W —35011	Condenser, 0.006 Mfd. 400 Volt.
22Y		Condenser, 0.03 Mfd. 400 Volt.
23	G49—34403	Condenser, 1.0 Mmf.
24	G10—33005	Condenser, Var. 540-1725 Kc.
25Z, 25Y, 25X, 25W	W —35951	Trimmer Condenser Assembly.
25V, 25U	W —35951	Trimmer Condenser Assembly.
26Z, 26Y	B —35025	Condenser, Variable Tuning Gang
	G29—32086	Dial Drive Assembly.
27	B —33905	Cord, Power Supply.
28	—35934	Resistor, 6,500 Ohms.
29	—22831	Resistor, 15,000 Ohms.
30	—21454	Resistor, 40,000 Ohms.
31	—21875	Resistor, 100,000 Ohms.
32	—34018	Resistor, 200,000 Ohms.
33	—21455	Resistor, 300,000 Ohms.
34A	—23785	Resistor, 500,000 Ohms.
34B	—23785	Resistor, 500,000 Ohms.
35	—21454	Resistor, 1 Megohm.
36	—34883	Resistor, 2 Megohm.
37A	—26577	Resistor, 3 Megohm.
37B	—26577	Resistor, 3 Megohm.
38	—26578	Resistor, 5 Megohm.
39A W	—25937	Resistor, 275 Ohm, ½ Watt.
39B W	—25937	Resistor, 275 Ohm, ½ Watt.
40Z, 40Y W	—35963	Resistor, 8,500 Ohm, 3 Watt. Resistor, 25,000 Ohm, 3 Watt.
41 G6	—28807	Socket, 80.
42 G80	—28807	Socket, 76.
W	—35774	Shield Base.
W	—35772	Shield Half (2 used).
W	—36280	Shield Cap.
43 G25	—28807	Socket, 42.
44A G75	—28807	Socket, 6D6.
44B G75	—28807	Socket, 6D6.
W	—35774	Shield Base.
W	—35772	Shield Half (2 used).
W	—35773	Shield Cap.
45 G47	—28807	Socket, 6A7.
W	—35774	Shield Base.
W	—35772	Shield Half (2 used).
W	—35773	Shield Cap.
46	—318BL	Speaker.
47 B	—35935	Switch, Band Change.
48 W	—35937	Switch, Tone Control.
49 G16	—26719	Terminal, Ant.-Grd.
50 G5	—31128	Terminal, Speaker.
51 G8	—28500	Transformer, Power, 60 Cy., 110 Volt.
G9	—28500	Transformer, Power, 25 Cy., 110 Volt.
G10	—28500	Transformer, Power, 25 Cy., 220 Volt.
52Z, 52Y	—35938	Volume Control, 1 Megohm. On-Off Switch.
W	—36492	Knobs.
W	—36831A	Knob (Tail).
B	—36560	Escutcheon.
W	—36563	Glass.
C	—35946	Dial only.
W	—37198	Dial Hand.
W	—32293	Dial Hand Nut.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits can be properly aligned only with the use of a modulated signal generator and an output meter.

Connecting Output Meter.

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 42 output tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first to the left of the filaments and the screen prong will be next to the plate prong. Be sure the meter is protected from D. C. by connecting a condenser (.1 mfd. or larger —not electrolytic) in series with one of the leads.

1. Peaking I. F. Stages at 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the grid cap of the 6A7 tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE OTHER S. G. TUBES.

(b) Turn the tuning condenser rotor plates until they are completely meshed.

(c) Turn the band selector switch to the short wave band (extreme left hand position).

(d) Set the signal generator to 450 kilocycles.

(e) Adjust both trimmers located on top of the 2nd I. F. transformer for maximum output.

(f) Adjust both trimmers located on top of the 1st I. F. transformer for maximum output.

(g) Using the lowest signal generator output that will give a reasonable scale deflection on the output meter repeat operations (e) and (f) as many times as necessary to obtain the maximum output.

2. Peaking R. F. Circuits—Broadcast Band (540 to 1700 K. C.)

(a) Connect the output of the signal generator through a .00025 mfd. condenser to the "Ant" terminal of the receiver.

(b) Turn the tuning condenser rotor plates until they are COMPLETELY OUT OF MESH.

(c) Turn the band selector switch to the broadcast band (extreme right hand position).

(d) Set the signal generator at 1720 kilocycles.

(e) Adjust the oscillator parallel trimmer (broadcast band) for maximum output.

(f) Set the signal generator at 1400 kilocycles.

(g) Tune-in the 1400 kilocycles signal with the station selector.

(h) Adjust the antenna parallel trimmer (broadcast band) for maximum output.

(i) Using the lowest signal generator output that will give a reasonable output meter reading, repeat operations (g) and (h) until no further increase in output can be be obtained.

(j) Set the signal generator to 600 kilocycles.

(k) Tune-in the 600 kilocycle signal with the station selector in the region of 60 on the dial, for maximum reading on the output dial.

(l) Adjust the oscillator series trimmer, (Fig. 2) while rocking the condenser gang plates back and forth slightly, until no further increase in output can be obtained.

(m) Repeat operations (g) and (h) for more accurate adjustments.

3. Peaking R. F. Circuits—Police Band (1700 to 5000 K. C.)

(a) Turn the band selector switch to the police band (middle position).

(b) Set the signal generator to 5000 kilocycles. (5.0 megacycles).

(c) Turn the station selector to 5 on the police band.

(d) Adjust the oscillator parallel trimmer (P. Band) for maximum output.

(e) Adjust the antenna parallel trimmer (P. Band) for maximum output.

4. Peaking R. F. Circuits—Short Wave Band (5.4 to 15 Meg.)

(a) Replace the .00025 mfd. condenser which is being used in series with the output lead of the signal generator with a 400 ohm carbon resistor.

(b) Turn the band selector switch to the short wave band (left hand position).

(c) Set the signal generator to 15 megacycles.

(d) Close the Oscillator parallel trimmer (S-W Band) and then open three turns.

(e) Close the Antenna parallel trimmer (S-W Band) and then open ½ turn.

(f) Turn the station selector to 15 on the dial (S-W Band.)

(g) Peak the oscillator parallel trimmer (S-W Band) on the FIRST signal heard when closing the condenser. In making this adjustment care should be taken not to use too much output from the signal generator to avoid setting the oscillator circuit on the wrong frequency.

NOTE: Check on the adjustment of the S-W Band oscillator parallel trimmer as follows:

1. Increase the signal generator output not more than ten times.

2. Try to tune-in the 15 megacycles signal with the station selector at approximately 14 on the dial.

3. If the 15 megacycle signal can be heard at approximately 14 and 15 both on the dial the oscillator parallel trimmer has been aligned on the correct frequency. It should be noted, however, that the signal tuned in at 15 on the dial should be much stronger than the signal heard at 14. If this condition is not found it will be necessary to repeat operation (g).

(h) Reduce the output of the signal generator to the previous output and retune the station selector to 15 megacycles at 15 on the dial.

(i) Adjust the antenna parallel trimmer (S-W Band) for maximum output, then re-tune the station selector for maximum output.

(j) Repeat the two operations in (i) as many times as necessary to obtain the maximum output.

NOTE: On the band selector switch there is a small eyelet soldered to one of the connecting lugs. This eyelet, item No. 23, is used as a small condenser the capacity of which is formed by inserting an insulated wire into the sleeve of the eyelet. If a new band selector switch is installed care should be taken to see that the "capacity wire" is inserted into the sleeve of the eyelet. This insulated wire should be passed through the eyelet and a slight hook made in the end to prevent it from pulling out. (See Fig. 3)

MODEL 714
Schematic, Socket
Parts

CROSLEY RADIO CORP.

Parts List Model 714

Figures in first column correspond to figures in diagram

1	B	—34443-A	Band Change Switch	46		21875	100,000 Ohms
			6 Pole 3 Throw	47	W	—27216	.05 Mfd. 200 Volt
2	G28	—32000	H. F. Ant. Coil	48		23785	500,000 Ohms
3	G3	—32000	L. F. Ant. Coil	49	W	—30321	1.0 Mfd. 160 Volt
4	G1	—33008	Ant. Trimming Cond.	50	W	—31052	.004 Mfd. 400 Volt
5	G16	—26719	Ant.-Gnd. Term.	51			.05 Mfd. 400 Volt
6	W	—32379	.02 Mfd. 200 Volt	52	W	—32063	Tone Control
7	G31	—32000	Pol. Ant. Coil	53			S. P. S. T. Switch
8			8 Mfd. 450 Volt (Red)	54		411C	Speaker
9	W	—29097-D	8 Mfd. 450 Volt (Green)	55		33390	30,000 Ohms
10			8 Mfd. 250 Volt (No Code)	56		23403	150,000 Ohms
11	G18	—32001	H. F.-R. F. Coil	57		21454	1 Meg.
12	G2	—32001	L. F.-R. F. Coil	58	W	—31361	7,000 Ohms
13	G9	—33009	R. F. Trimmer Cond.	59			11,000 Ohms
14	G18	—33002	Variable Condenser	60	W	—26194-B	12 Mfd. 475 Volt
15	G2	—33009	Osc. Trimming Cond.	61	W	—4099-A	6-8 V. Dial Light
16	G2	—32002	L. F. Osc. Coil	62	W	—30805	.01 Mfd. 400 Volt
17	G21	—32002	H. F. Osc. Coil	63	G1	—34432	Power Trans. 60 Cy.
18	W	—32380	.05 Mfd. 200 Volt	64	G39	—25669	Power Trans. 25 Cy.
19	W	—21452	1,100 Ohms				110 V.-220 V.
20		21237-A	60,000 Ohms	65		26578	.5 Meg.
21	G12	—33006	Series Cond. L. F.	66	B	—33906-A	Cord & Plug
22			Series Cond. H. F.	67	G75	—28807	6D6 Socket (R. F. Amp.)
23		21453	40,000 Ohms	68	G47	—28807	6A7 Socket (Osc. Mod.)
24	W	—25435	.003 Mfd. 400 Volt	69	G48	—28807	6B7 Socket (1. F. & Diode)
25		21876	10,000 Ohms	70	G75	—28807	6D6 Socket (2nd I. F.)
26		21876	10,000 Ohms	71	G49	—28807	6F7 Socket (Diode & A. F. Amp.)
27		21455	300,000 Ohms	72	G25	—28807	42 Socket (Output)
28	G6	—33006	I. F. Tuning Cond. 1st	73	G6	—28807	80 Socket (Rect.)
29	G1	—32004	1st I. F. Transformer	74	G24	—32002	Osc. Coil (Pol. Band)
30	W	—27216	.05 Mfd. 200 Volt	75	G6	—34000	Series Cond. 1350 Mmf.
31	W	—31937	.0001 Mfd.	76	W	—31007-A	Speaker Cord
32	G6	—33006	I. F. Tuning Cond. 2nd	77		31094	4,500 Ohms
33	G1	—32004	2nd I. F. Transformer	78			
34	W	—25937	275 Ohms	79	W	—28621	.02 Mfd. 200 Volt
35	G26	—32004	3rd I. F. Transformer	80	W	—21455	300,000 Ohms
36			3rd I. F. Tuning Cond.	81	W	—28621	.02 Mfd. 200 Volt
37	W	—27932	.0001 Mfd. 200 Volt	82		26578	5 Meg.
38		23403	150,000 Ohms	83		21455	300,000 Ohms
39	W	—32062	Level Control 1 Meg.	84		21454	1 Meg.
40	W	—28619	.006 Mfd. 200 Volt	85		21454	1 Meg.
41		26577	3 Meg.	86	G2	—34000	3104 Mmf. Cond.
42	W	—24049	.1 Mfd. 200 Volt	87	G19	—32001	Pol. Band R. F. Coil
43		21454	1 Meg.	88		33390	30,000 Ohms
44	W	—24049	.1 Mfd. 200 Volt				
45		23785	500,000 Ohms				

MODEL 715,Corsair
Alignment,Chassis

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits can be properly aligned only with the use of a modulated signal generator and an output meter.

Connecting Output Meter.

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 42 output tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first to the left of the filament prongs and the screen prong will be next to the plate prong. Be sure the meter is protected from D.C. by connecting a condenser (.1 mfd. or larger, not electrolytic) in series with one of the leads.

1. Tuning I-F Amplifier to 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A7 tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the tuning condenser plates are open. Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(c) Turn the band selector switch all the way to the left.

(d) Set the signal generator to 450 kilocycles.

(e) Close the middle trimmer condenser on the 1st I-F transformer. (Fig. 2)

(f) Adjust the trimmers located on top of the 2nd I-F transformer for maximum output. (Fig. 2)

(g) Adjust the top and bottom trimmers of the 1st I-F transformer, for maximum output.

(h) Repeat operations (f) and (g) for more accurate adjustments.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

(i) Reduce the output of the signal generator and adjust the middle trimmer on the 1st I-F transformer or maximum output. DO NOT READJUST THE OTHER TRIMMERS.

2. Aligning R-F Amplifier.

(a) When aligning the R-F amplifier the output lead from the signal generator is connected to the "Ant" terminal of the receiver. For the BLACK and GREEN bands a .00025 mfd. condenser must be connected in series with the output lead from the signal generator and for the high frequency band a 400 ohm carbon resistor should be used in place of the condenser.

Each band should first be shunt aligned and then series aligned (if provision is made for series alignment). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated for each adjustment.

Adjust the "Osc", "R-F" and "Ant" trimmers (Fig. 2) in the order given for maximum output and then check the adjustments in the same order. NOTE: When aligning the Police and High Frequency Band care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is always approximately 900 kilocycles less than the fundamental. To check on this, increase the output of the signal generator approximately ten times and try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 900 kilocycles below the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct position.

To align the "series" trimmer set the signal generator to the frequency indicated and then tune-in this signal with the station selector for maximum output. Adjust the "series" trimmer while rocking the tuning condenser back and forth slightly, until no further improvement in output can be obtained.

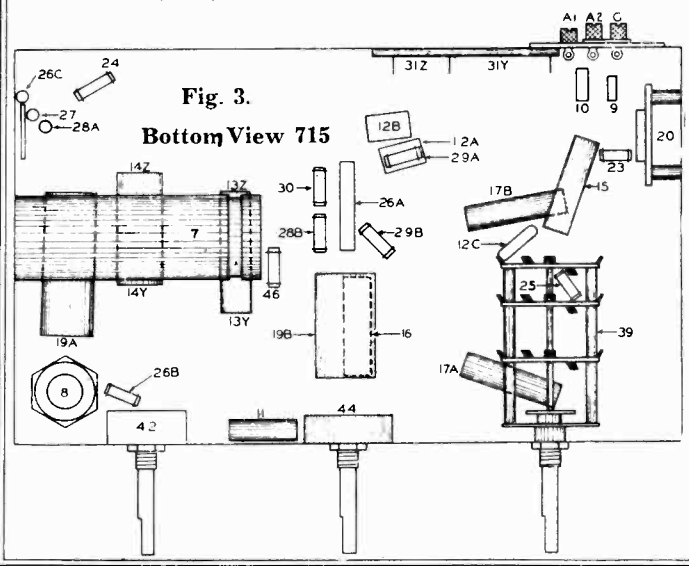


Fig. 3.
Bottom View 715

(b) Signal Input Frequencies.

	Shunt Alignment	Series Alignment
American Broadcast Band (BLACK)	1400 Kc.	600 Kc.
Police and Amateur Band (GREEN)	4000 Kc.	———
Night H-F Band (RED)	10 Megacycles	———

SPECIFICATIONS MODEL 715

The Crosley Model 715 radio is a seven-tube superheterodyne receiver and is available or adaptable for operation on A-C lines as follows: 110 V-60 cycles, 110 V-25 cycles and 220 V-25 cycles. The tubes used are 6D6 R-F Amplifier, 6A7 Oscillator-Modulator, 6B7 I-F Amplifier and AVC, 76 Detector, 76 A-F Amplifier, 42 Output and type 80 Rectifier.

It is a three band receiver and the dial is divided into three sections as follows:

BLACK—540-1625 kilocycles (American Broadcast Band).

GREEN—1625-4700 kilocycles (Police and Amateur Band).

RED—5250-15300 kilocycles (Night High Frequency Band).

The positions on the band selector switch are in the above order, reading from right to left.

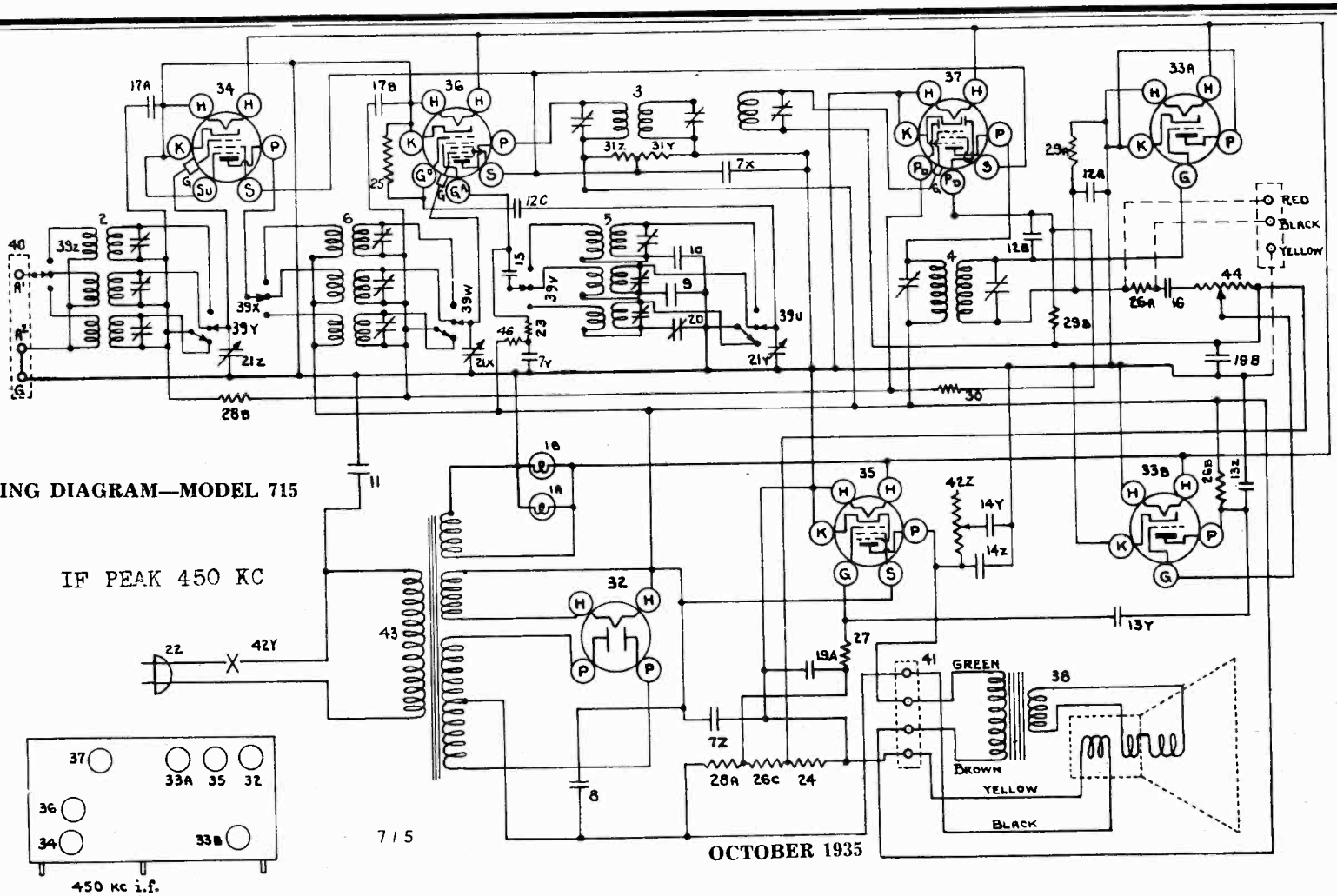


FIG. 1. WIRING DIAGRAM—MODEL 715

SOCKET VOLTAGES

The tube socket voltages are measured from the tube socket contacts to the chassis with a 1000 ohm per volt, 500 volt D.C. voltmeter (except filaments) with the receiver in operating condition and no signal input. Readings may vary plus or minus 10% of values given. Filament readings are taken with a low range A.C. voltmeter.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	G	K	Go	Ga
6D6	R-F Amplifier	6.3	315	110	0	-3	0	—	—
6A7	Osc.-Mod.	6.3	315	110	—	-3	0	-5 to -15	185
6B7	I-F Amp. & AVC	6.3	315	110	0	-3	0	—	—
76	Detector	6.3	—	—	—	—	0	—	—
76	A-F Amplifier	6.3	35	—	—	-3	0	—	—
42	Output	6.3	300	245	0	-16	0	—	—
80	Rectifier	5.0	320	—	—	—	—	—	—

Measured on 117.5 Volt Line—60 Cycles A.C. Power Consumption Approximately 60 Watts

MODEL 715,Corsair
Chassis,Parts

CROSLEY RADIO CORP.

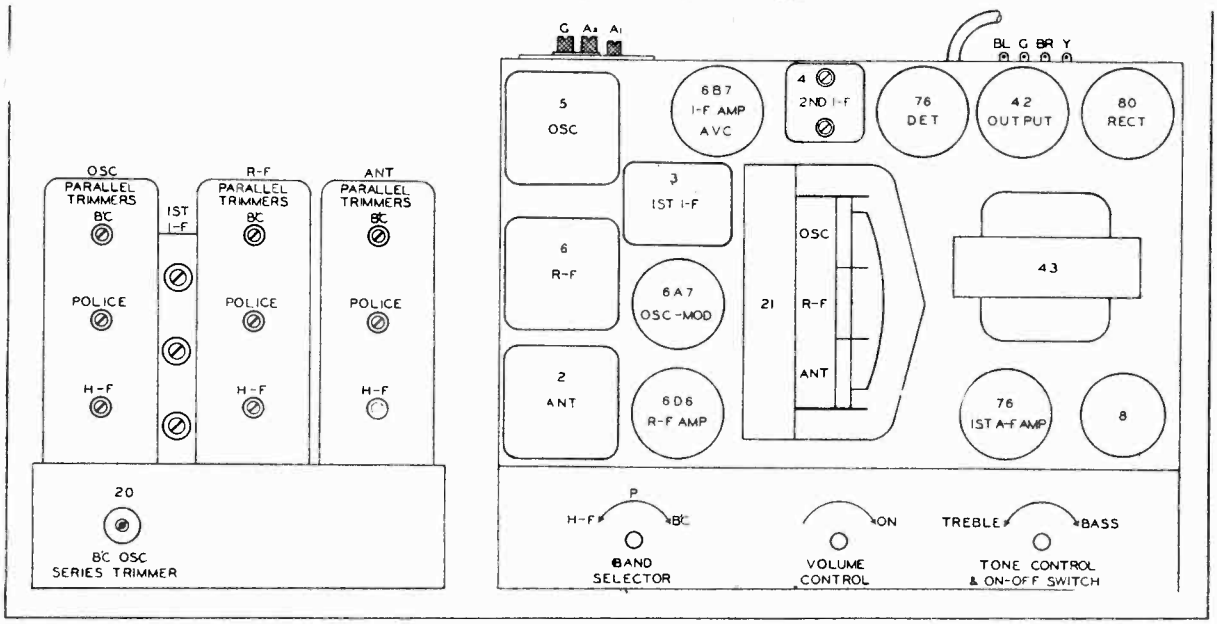


Fig. 2. Side And Top Views 715

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1A	G4 —27134	Dial Light Bracket Assembly.
1B	G4 —27134	Dial Light Bracket Assembly.
2	G50—32000	Ant. Coil Assembly complete.
	G44—32000	Ant. Coil Broadcast Band.
	G45—32000	Ant. Coil Police Band.
	G46—32000	Ant. Coil S. W. Band.
	W —36032	Trimmer Condenser.
	G6 —36031	Support Base Assembly.
	G4 —36031	Coil Shield Assembly.
3	G47—32004	1st. I. F. Trans. Assembly.
4	G46—32004	2nd. I. F. Trans. Assembly.
5	G42—32002	Osc. Coil Assembly complete.
	G36—30202	Osc. Coil B. C. Band.
	G37—32002	Osc. Coil Police Band.
	G38—32002	Osc. Coil S. W. Band.
	W —36032	Trimmer Condenser.
	G7 —36031	Support Base Assembly.
	G5 —36031	Coil Shield Assembly.
6	G29—32001	R. F. Coil Assembly complete.
	G23 32001	R. F. Coil B. C. Band.
	G24—32001	R. F. Coil Police Band.
	G25—32001	R. F. Coil S. W. Band.
	W —36032	Trimmer Condenser.
	G6 —36031	Support Base Assembly.
	G4 —36031	Coil Shield Assembly.
7Z, 7Y, 7X	W —36056	Condenser, 8 Mfd. 450 Volt. / Condenser, 4 Mfd. 350 Volt. / Condenser, 4 Mfd. 250 Volt.
8	W —36055	Condenser, 35 Mfd. 450 Volt.
9	G7 —34000	Condenser, 0.00145 Mfd.
10	G12—34000	Condenser, 0.004725 Mfd.
11	W —30805	Condenser, 0.01 Mfd., 400 Volt.
12A	G2 —34002	Condenser, 100 Mmf.
12B	G2 —34002	Condenser, 100 Mmf.
12C	G2 —34002	Condenser, 100 Mmf.
13Z, 13Y	W —25537A	Condenser, 0.001 Mfd., 400 Volt.. / Condenser, 0.03 Mfd., 400 Volt.
14Z, 14Y	W —31052	Condenser, 0.004 Mfd., 400 Volt. / Condenser, 0.05 Mfd., 400 Volt.
15	W —32378	Condenser, 0.01 Mfd., 400 Volt.
16	W —23191A	Condenser, 0.01 Mfd., 400 Volt.
17A	W —32379	Condenser, 0.02 Mfd., 200 Volt.
17B	W —32379	Condenser, 0.02 Mfd., 200 Volt.
18	See 19B	
19A	W —30321	Condenser, 1.0 Mfd., 160 Volt.
19B	W —30321	Condenser, 1.0 Mfd., 160 Volt.
20	G10—33005	Trimmer Condenser, 5 plate.
21Z, 21Y, 21X	G33—33002	Var. Tuning Condenser, 3 Gang.
	MG21—36045	Dial Drive Assembly.
	W —37198	Dial Pointer only.
	W —32293	Dial Pointer Nut (2 used).
	C —36088	Dial Indicator Plate.
22	B —30375A	Cord and Plug.

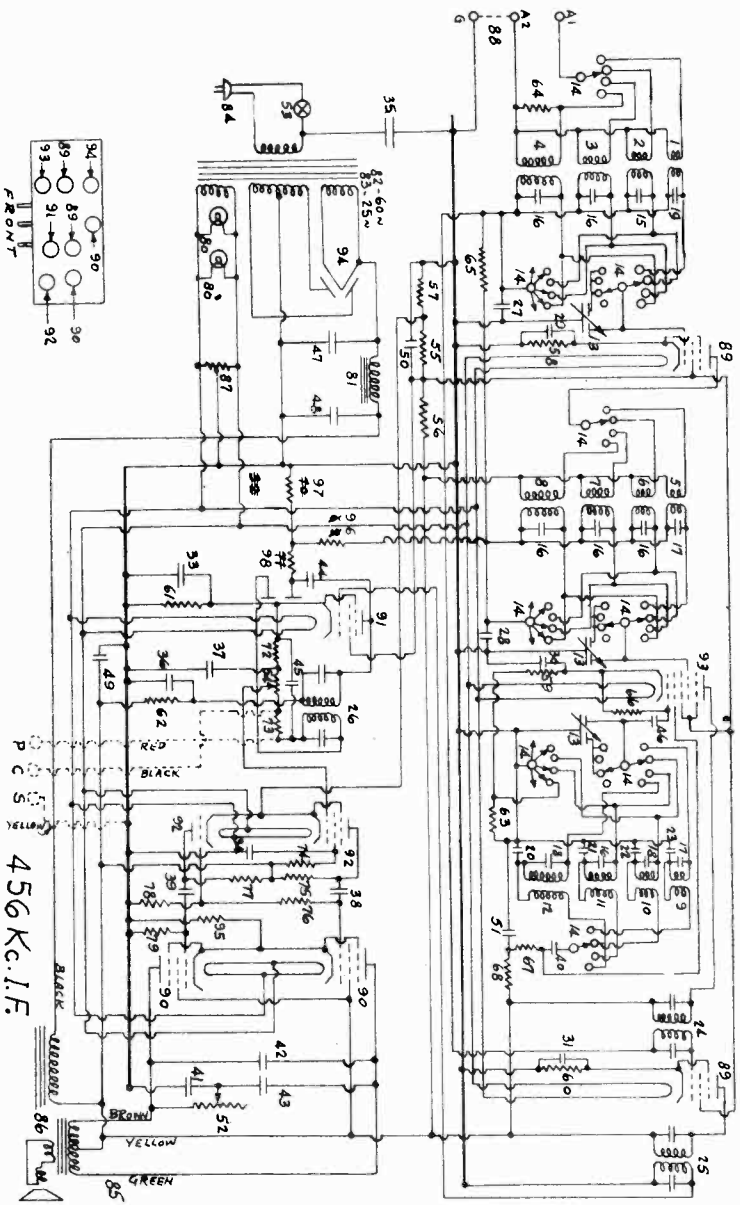
Item No.	Part No.	Description
23	—22831	Resistor, 15,000 Ohms.
24	—22196	Resistor, 20,000 Ohms.
25	W —21875	Resistor, 100,000 Ohms.
26A	—23403	Resistor, 150,000 Ohms.
26B	—23403	Resistor, 150,000 Ohms.
26C	—23403	Resistor, 150,000 Ohms.
27	—21455	Resistor, 300,000 Ohms.
28A	—23785	Resistor, 500,000 Ohms.
28B	—23785	Resistor, 500,000 Ohms.
29A	—21454	Resistor, 1 Megohm.
29B	—21454	Resistor, 1 Megohm.
30	—26577	Resistor, 3 Megohm.
31Z, 31Y	W —35963	Resistor, 8,500 Ohm. / Resistor, 25,000 Ohm.
32	G6 —28807	Socket, 80.
33A	G80—28807	Socket, 76.
33B	G80—28807	Socket, 76.
34	G75—28807	Socket, 6D6.
	W —35774	Tube Shield Base.
	W —35772	Tube Shield Half.
	W —35773	Tube Shield Cap.
35	G25—28807	Socket, 42.
36	G47—28807	Socket, 6A7.
	W —35774	Tube Shield Base.
	W —35772	Tube Shield Half.
	W —35773	Tube Shield Cap.
37	G48—28807	Socket, 6B7.
	W —35774	Tube Shield Base.
	W —35772	Tube Shield Half.
	W —35773	Tube Shield Cap.
38	318-BL-18 / 518-CL-22	Speaker.
39, UtoZ	—36058B	Band Change Switch
40	G27—26719	Ant.-Grd. Terminal.
41	G5 —31128	Speaker Terminal.
	W —34627	Terminal Board Insulator.
	W —34628	Terminal Board Cover.
42Z, 42Y	—36062	Tone Control. / On-Off Switch.
43	G6 —30745	Power Transformer, 60 Cy., 110 V.
	G7 —30745	Power Transformer, 25 Cy., 110 V.
	G8 —30745	Power Transformer, 25 Cy., 220 V
44	—36060	Volume Control.
45	See 12C	
46	—21876	Resistor, 10,000 Ohms.
	W —34678B	Knob, Band Change.
	W —31585B	Knob, Controls.
	B —33528C	Escutcheon.
	W —33984	Escutcheon Gasket.
	W —36312	Band Change Switch Plate.
	W —36309	Band Change Indicator, Celluloid.
	W —36313	Tone Control Plate.
	—35922	Grille Cloth, 5N Cabinet.
	—35863	Grille Cloth, 5D Cabinet.

CROSLEY RADIO CORP.

Parts List Model 814

Figures in first column correspond to figures in diagram

1	G30 —32000	Ant. Coil (10.0-22.0 Mc)	
2	G29 —32000	Ant. Coil (4.0-10.0 Mc)	
3	G4 —32000	Ant. Coil (1.5-4.0 Mc)	
4	G3 —32000	Ant. Coil (Broadcast)	
5	G16 —32001	Inter. Coil (10.0-22.0 Mc)	
6	G15 —32001	Inter. Coil (4.0-10.0 Mc)	
7	G8 —32001	Inter. Coil (1.5-4.0 Mc)	
8	G2 —32001	Inter. Coil (Broadcast)	
9	G23 —32002	Osc. Coil (10.0-22.0 Mc)	
10	G22 —32002	Osc. Coil (4.0-10.0 Mc)	
11	G3 —32002	Osc. Coil (1.5-4.0 Mc)	
12	G17 —32002	Osc. Coil (Broadcast)	
13	G24 —33002	Variable Condenser	
14	B —34083-A	Band Change Switch	
15	G17 —33009	Padding Condenser	
16	G7 —33009	Padding Condenser	
17	G6 —33009	Padding Condenser	
18	G5 —33009	Padding Condenser	
19	G17 —33006	Padding Condenser	
20	G16 —33006	Trimmer Condenser	
21		Trimmer Condenser	
22	G2 —34000	3104 Mmfd.	
23	G1 —34000	1647 Mmfd.	
24	G25 —32004	1st I. F. Transformer	
25	G23 —32004	2nd I. F. Transformer	
26	G24 —32004	3rd I. F. Transformer	
27	W —32379	0.02 Mfd. 200 Volt	
28	W —32379	0.02 Mfd. 200 Volt	
29	W —28621	0.02 Mfd. 200 Volt	
30	W —28621	0.02 Mfd. 200 Volt	
31	W —28621	0.02 Mfd. 200 Volt	
32			
33	W —28621	0.02 Mfd. 200 Volt	
34	W —23142	0.02 Mfd. 400 Volt	
35	W —30805	0.01 Mfd. 400 Volt	
36	W —23191-A	0.01 Mfd. 400 Volt	
37	W —30321	1.0 Mfd. 160 Volt	
38	W —23615	0.05 Mfd. 400 Volt	
39	W —23615	0.05 Mfd. 400 Volt	
40	W —23635	0.006 Mfd. 400 Volt	
41	W —30270	0.001 Mfd. 400 Volt	
42	W —31052	0.004 Mfd. 400 Volt	
43		0.05 Mfd. 400 Volt	
44	W —32741-A	0.0005 Mfd.	
45	W —31937	0.0001 Mfd.	
46	W —30741	0.00025 Mfd.	
47	W —26194-B	12 Mfd. 475 Volt	
48		8 Mfd. 450 Volt	
49	W —29097-D	8 Mfd. 450 Volt	
50		8 Mfd. 250 Volt	
51	W —32258	8 Mfd. 300 Volt	
52	W —32063	Tone Control	
53		Switch	
54	W —33378	Level Control	
55	W —32301	15,000 Ohms	
56		10,000 Ohms	
57	W —30127	450 Ohms Flex.	
58	W —25937	275 Ohms Flex.	
59	W —27503	1,400 Ohms Flex.	
60	W —27503	1,400 Ohms Flex.	
61	W —30127	450 Ohms Flex.	
62	W —22514	750 Ohms Flex.	
63	W —29585	600 Ohms Flex.	
64	31094	4,500 Ohms	
65	21455	300,000 Ohms	
66	21875	100,000 Ohms	
67	24814	7,000 Ohms	
68	24814	7,000 Ohms	
69			
70			
71			
72	21876	10,000 Ohms	
73	23785	500,000 Ohms	
74	23785	500,000 Ohms	
75	21237-A	60,000 Ohms	
76	23785	500,000 Ohms	
77	23403	150,000 Ohms	
78	21237-A	60,000 Ohms	
79	23785	500,000 Ohms	
80	W —4099-A	6.3 V. Dial Lamp	
81	G1 —24628	Filter Choke	
82	G37 —25669	60 Cy. Power Trans.	
83	G38 —25669	25 Cy. Power Trans.	
84	B —33906-A	Cord & Plug	
85	W —31007-A	Speaker Cable	
86	68C	Speaker	
87	W —32337	10 Ohms-10 Ohms	
88	G14 —26719	Ant.-Gnd. Term.	
89	G75 —27975	6D6 Socket	
90	G25 —27975	42 Socket	
91	G48 —27975	6B7 Socket	
92	G49 —27975	6F7 Socket	
93	G2 —33070	6A7 Socket	
94	G6 —27975	80 Socket	
95	W —22873	220 Ohms	
96	26577	3 Megohm	
97	23785	500,000 Ohms	
98	23785	500,000 Ohms	



MODEL 1014, Centurion
Schematic, Socket, Parts

CROSLEY RADIO CORP.

MARCH 1935

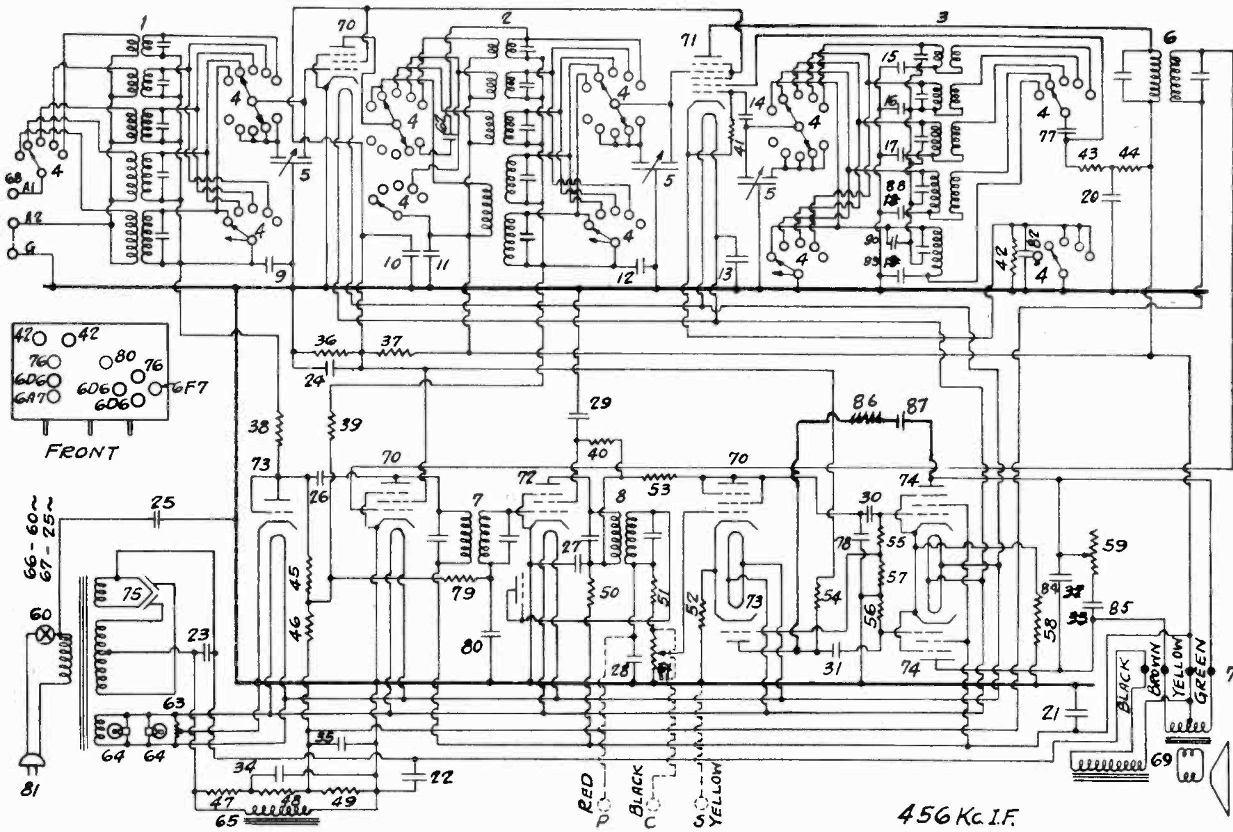


Fig. 1—Wiring Diagram of Model 1014 "Centurion"

PARTS LIST—MODEL 1014 "CENTURION"

Figures in first column refer to parts shown in diagrams.

Item No.	Part No.	Description
1	G32—32000	Ant. Trans. Assembly
	G6 —34593	Ant. Coil Assembly Only
	G4 —34593	Ant. Coil Shield Assembly Only
	W —34683	Aligning Condenser Assembly Only
2	G20—32001	Inter. Trans. Assembly
	G7 —34593	Inter. Coil Assembly Only
	G5 —34593	Inter Coil Shield Assembly Only
	W —34683	Aligning Condenser Assembly Only
3	G25—32002	Osc. Trans. Assembly
	G8 —34593	Osc. Coil Assembly Only
	G5 —34593	Osc. Coil Shield Assembly Only
	W —34683	Aligning Condenser Assembly Only
	G6 —34002	.000025 Mfd. Condenser
4	B —34646	Band Change Switch
5	G28—33002	Variable Condenser Assembly
	G20—32086	Dial Drive Assembly
	W —34657A	Dial Hand
	W —34655B	Band Spread Pointer.
	G4 —27134	Dial Light Bracket Assembly
	W —32128	Light Diffuser
	W —32244	Diffuser Retainer
6	G27—32004	1st I. F. Trans. Assembly
7	G28—32004	2nd I. F. Trans. Assembly
8	G20—32004	3rd I. F. Trans. Assembly
9	W —32379	0.02 Mfd. 200 V. Condenser
10.	W —32378	0.01 Mfd. 400 V. Condenser
11	G8 —34000	1500 MMfd. Condenser
12	W —32380	0.05 Mfd 200 V. Condenser
13	G1 —34002	0.00025 Mfd. Condenser
14	G1 —34002	0.00025 Mfd. Condenser
15	G1 —34000	1647 Mmfd. Condenser
16	G2 —34000	3104 Mmfd. Condenser
17	G10—34000	1050 Mmfd. Condenser
18	See Item 88	
19	See Item 89	
20 }	W —34596	6. Mfd. 300 Volt
21 }		8. Mfd. 475 Volt Condenser
22 }		8. Mfd. 475 Volt
23	W —26194B	12. Mfd. 475 Volt Condenser
24	W —23615	0.05 Mfd. 400 Volt Condenser
25	W —30805	0.01 Mfd. 400 Volt Condenser
26	G1 —34005	0.00025 Mfd. Condenser
27	W —23191A	0.01 Mfd. 400 Volt Condenser
28	G2 —32004	0.0001 Mfd. Condenser
29	W —23191A	0.01 Mfd. 400 Volt Condenser
30	W —23615	0.05 Mfd. 400 Volt Condenser
31	W —23615	0.05 Mfd. 400 Volt Condenser
32	See Item 84	
33	See Item 85	
34	W —29910A	0.25 Mfd. 400 Volt Condenser
35	W —29910A	0.25 Mfd. 400 Volt Condenser
36 }	W —32301	15,000 Ohms
37 }		10,000 Ohms Resistor
38	—26577	3 Megohm Resistor
39	—26577	3 Megohm Resistor
40	—23403	150,000 Ohms Resistor
41	—21875	100,000 Ohms Resistor
42	W —27503	1,400 Ohms Flex. Resistor
43	—24814	7,000 Ohms Resistor
44	—24814	7,000 Ohms Resistor
45	—21455	300,000 Ohms Resistor
46	—21455	300,000 Ohms Resistor
47	—21455	300,000 Ohms Resistor
48	—23403	150,000 Ohms Resistor
49	—21237A	60,000 Ohms Resistor
50	W —30127	450 Ohms Flex. Resistor
51	—21455	300,000 Ohms Resistor
52	—31093	2,700 Ohms Resistor
53	—23403	150,000 Ohms Resistor
54	—23403	150,000 Ohms Resistor
55	—23785	500,000 Ohms Resistor
56	—23785	500,000 Ohms Resistor
57	—21237A	60,000 Ohms Resistor
58	W —22873	220 Ohms Flex. Resistor
59 }	W —25594B	Tone Control
60 }		On-Off Switch
61	See Item 83	
62	G1 —34005	0.00025 Mfd. Condenser
63	W —32337	10-10 Ohms Resistor
64	See Item 5	Dial Light
65	G1 —24628	Filter Choke
66	G40—25669	Power Trans. 60 Cy 110 Volt
67	B —35007	25 Cy. Power Trans.
68	G16—26719	Ant. Gnd. Terminal
69	—68CL	Speaker (Console)
	—48CL	Speaker (Table)
70	G75—28807	Socket 6D6
	B—26009D	Tube Shield
	W —27981A	Tube Shield Base
71	G2 —33007	Socket 6A7
	W —33072	Socket Cushion
	W —28623A	Tube Shield
	G1 —34672	Tube Shield Base
72	G49—28807	Socket 6F7
	W —28623A	Tube Shield
	W —27981A	Tube Shield Base
73	G80—28807	Socket 76
	W —26231B	Tube Shield
	W —27981A	Tube Shield Base
74	G25—28807	Socket 42
75	G6 —28807	Socket 80
76	G5 —31128	Speaker Terminal Board
	W —34628	Terminal Board Cover
	W —34627	Terminal Board Insulator
77	W —34647	0.0006 Mfd. 400 Volt Condenser
78	G1 —34005	0.00025 Mfd. Condenser
79	—26577	3 Megohm Resistor
80	W —28621	0.02 Mfd. 200 Volt Condenser
81	B —33906A	Cord and Plug
82	W —32379	.02 Mfd. 200 Volt Condenser
83	W —28552	Level Control (1 Megohm)
84	W —35139	0.004 Mfd. 400 Volt Condenser
85	W —23615	0.05 Mfd. 400 Volt Condenser
86	—35140	350,000 Ohm Resistor
87	G6 —34005	0.0002 Mfd. 300 Volt Condenser
88 }	G26—33006	Osc. Trimmer Condenser
89 }		Osc. Trimmer Condenser
90	G6 —34002	0.00025 Mfd. Condenser
	W —34678B	Switch Knob
	W —31585B	Volume Control Knob
	W —31585B	Tone Control Knob
	W —33994A	Station Selector Knob
	W —33995A	Vernier Knob
	B —33708B	Escutcheon
	W —34307	Escutcheon Lens
	W —33985	Escutcheon Gasket
	W —34680	Band Change Plate
	W —34681	Volume Control Plate

MODEL 1014, Centurion
Chassis, Trimmers
Voltage, Data

CROSLEY RADIO CORP.

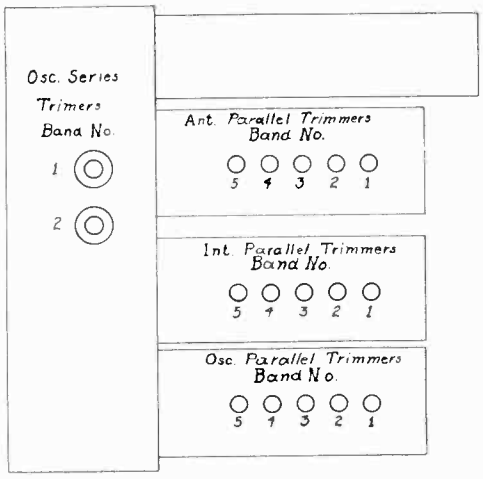


Fig. 3 End View

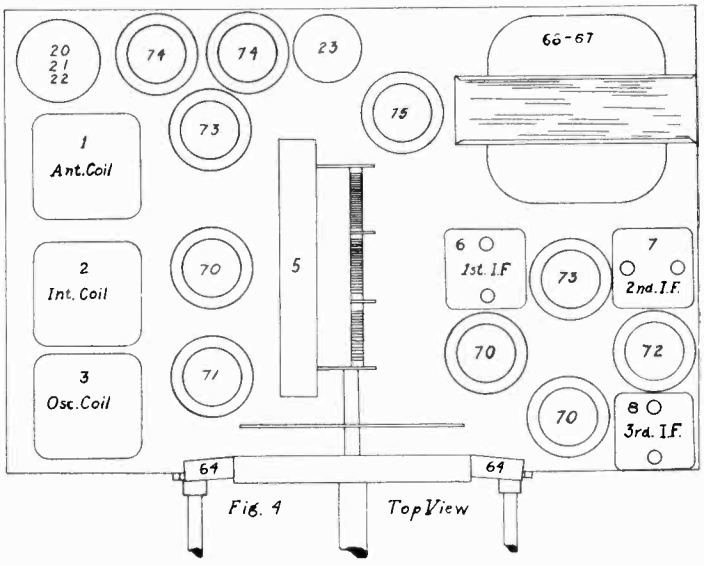


Fig. 4 Top View

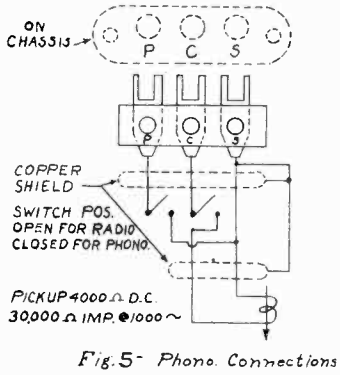


Fig. 5 - Phono. Connections

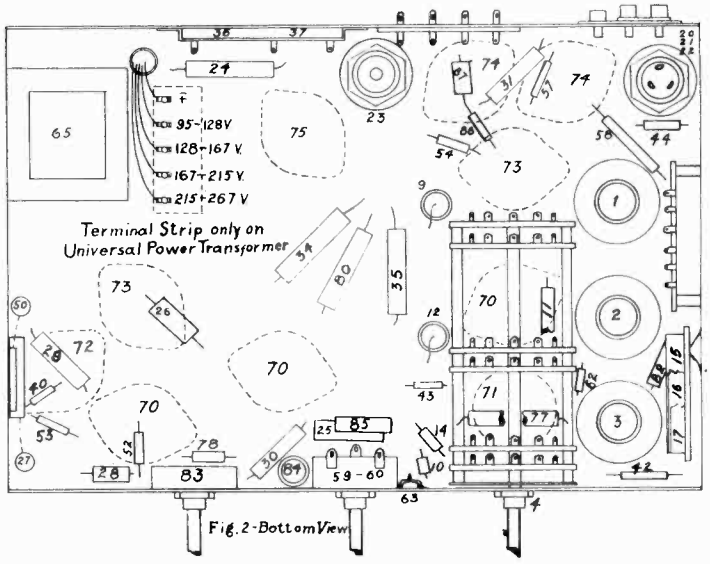


Fig. 2 - Bottom View

TUBES AND VOLTAGE LIMITS

The following are the tubes and voltages measured from the tube contact to chassis with a 500,000 ohm 500-Volt voltmeter with receiver in operating condition but with no signal to the antenna, and with a line voltage of 117.5 volts 60 cycle. Voltage limits are plus or minus 10% of values given.

TUBE VOLTAGES—MODEL 1014 "CENTURION"

Type	Where Used	Ef	Ek		Eg	Esg	Esup.	Ep	Esl	Epl
			Bands 1-2	Bands 3-4-5						
6D6	R. F. Amp.	6.3	0	0	x	100	0	250	—	—
6A7	Osc. Mod.	6.3	11.0	0	x	100	0	250	—	—
6D6	1st I. F.	6.3	0	0	x	100	0	250	—	—
6F7	2nd I. F. & Det.	6.3	0	0	x	75	—	240	0	0
76	A. V. C.	6.3	0	0	x	—	—	x	—	—
6D6	1st A. F. Amp.	6.3	4	4	0	40	40	40	—	—
76	Phase Inv.	6.3	4	4	0	—	—	50	—	—
(2) 42	Output	6.3	16	16	0	250	—	245	—	—
80	Rect.	5.0	—	—	—	—	—	—	—	—

VOLTAGE DROP ACROSS FILTER CHOKE 20 VOLTS
VOLTAGE DROP ACROSS FIELD COIL 65 VOLTS

x IN ABOVE TABLE INDICATES HIGH RESISTANCE IN CIRCUIT WHICH PREVENTS ACCURATE MEASUREMENT.

ALL Measurements Made With A 1000 Ohms Per Volt Voltmeter From Chassis

(The power consumption at 117.5 volts is approximately 95 watts.)

MODEL 1014,Centurion
Alignment,Data

CROSLEY RADIO CORP.

MODEL 1014 "CENTURION"

SPECIFICATIONS

The Crosley Model 1014 is a ten tube superheterodyne all wave receiver designed for A.C. operation. It may be obtained for 110 volts, 60 cycles, or with a universal transformer for other voltages and frequencies. (See Universal Power Transformer). It is designed for five band operation covering the following frequencies:

Band 1. 150-350 Kilocycles.
Band 2. 540-1500 Kilocycles.
Band 3. 1500-4000 Kilocycles.
Band 4. 4000-10000 Kilocycles.
Band 5. 10000-22000 Kilocycles.

Bands 1 and 2 are calibrated on the dial in Myriacycles (10 Kc.). Bands 3, 4 and 5 are calibrated in Megacycles (1000 Kc.). It employs a retroactive automatic volume control together with level control, continuously variable tone control, class "A" audio amplification and band spread dial pointer, 36 to 1 ratio.

CIRCUIT DESCRIPTION

The circuit consists of one stage of R.F. amplification, an oscillator-detector, two stages of I.F. amplification, automatic volume control, second detector, two stages of A.F. amplification and power supply. The R.F. stage employs a Type 6D6 tube. A Type 6A7 tube is used as an oscillator-detector. The first I.F. stage employs a Type 6D6 tube and the second stage uses a Type 6F7 tube which also serves as a second detector. A Type 76 tube is used in the A.V.C. circuit and is actuated by the output of the first I.F. stage. The first A.F. stage uses a Type 6D6 tube, connected as a variable mu triode, which is used in conjunction with a Type 76 tube in a phase inverter circuit to drive a pair of Type 42 tubes in push-pull. A Type 80 Tube is used in the power supply.

UNIVERSAL POWER TRANSFORMER

The Model 1014 chassis for use on other than 110 volts, 60 cycles, is supplied with a universal power transformer designed to operate on 25 cycles and up. When leaving the factory it is wired for the voltage indicated on the name plate. It is possible however by a slight wiring change in power transformer circuit to adapt the set to a different voltage anywhere from 95 to 265 volts. To adapt the set to a different line voltage it is necessary to remove the chassis from the cabinet, remove bottom from chassis and locate the terminal strip on the bottom of the power transformer. Fig. 2. After careful measurement of the maximum and minimum values of line voltage and determining the average value, unsolder the wire of the A.C. line cord and solder it to the terminal which most nearly represents the line voltage at which the set is to be operated.

PHONOGRAPH PICKUP

Chasses equipped with a universal power transformer also have three terminals on the back for connecting a phonograph pickup. These terminals are marked P.C.S. and the pickup is connected through a double pole—single throw switch to these terminals as shown in Fig. 5.

PEAKING PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and will not need readjustment unless some coil or condenser has been replaced. Do not change the setting of any trimmer condenser unless it is definitely known that the adjustment is necessary. If re-alignment is found necessary, the circuits can be properly adjusted only with the use of a modulated test oscillator and output meter.

CONNECTING OUTPUT METER

Connect one terminal of the output meter to the plate of one of the Type 42 tubes and the other terminal to the plate of the other Type 42 tube. Looking at the bottom of the tube with the filament prongs toward you the plate prong will be the first to the left of the filament prongs. Be sure that the meter is protected from D.C. by connecting a condenser. (.1 mfd. or larger—not electrolytic) in series with one of the leads.

PEAKING I. F. STAGES AT 456 Kc.

I. Connect the ground lead of the test oscillator to the chassis frame. Connect a .1 mfd., or larger, condenser in series with the other lead and connect this lead to the grid cap of the 6A7 tube, leaving the tube's grid clip in place. The .1 mfd. condenser is necessary to prevent a short circuit which would remove the bias voltage.

II. Set the test oscillator at 456 kilocycles.

III. Turn the volume control of the receiver on full. Turn the station selector until the tuning condenser plates are completely meshed and set the band switch to band No. 5.

IV. (a) Peak both tuning condensers located on top of the first I.F. transformer shown on Fig. 4. NOTE: Be sure to use the lowest oscillator output that will give a reasonable scale deflection on the output meter. 30 to 90 volts output is satisfactory.

(b) Peak both tuning condensers located on top of the 2nd I. F. transformer shown on Fig. 4.

(c) Peak both tuning condensers located on top of the 3rd. I.F. transformer shown on Fig. 4.

V. Repeat IV to insure accurate adjustment of the I.F. tuning condensers.

PEAKING R. F. CIRCUITS

I. Connecting test oscillator to receiver: It is necessary to connect a dummy antenna in series with the test oscillator and the antenna terminal of the receiver. On bands 1 and 2 this consists of a .0002 mfd. *mica* condenser. On bands 3, 4 and 5 it consists of a *carbon* resistor of approximately 400 ohms. With the tuning condenser plates completely meshed make certain that the dial pointer is exactly horizontal. If not, loosen nut and set pointer horizontal and tighten nut again. The setting of the band spread pointer is not important.

II. To Peak Band No. 1. NOTE: Be sure to use the lowest oscillator output that will give a reasonable scale deflection on the output meter. 30 to 90 volts output is satisfactory.

(a) Set test oscillator at 350 Kc. Tune station selector to 350 Kc. (35 on dial). Then adjust oscillator parallel trimmer condenser, Fig. 3, for maximum output.

(b) With same dial settings peak the interstage and antenna parallel trimmer condenser for Band No. 1.

(c) (1) Set test oscillator at 150 Kc.

(2) Tune station selector in the region of 15—Band No. 1—on dial for maximum reading on the output meter.

(3) Close the oscillator series trimmer condenser for Band No. 1, Fig. 3, ⅛ turn and re-tune station selector to 150 Kc. signal for maximum output, noting reading on output meter.

(4) If meter reads higher after operation (3) repeat the operation again and again until no further improvement in the reading of the output meter can be obtained. If meter reads lower after operation (3) open the oscillator series trimmer condenser ⅛ turn and re-tune station selector to 150 Kc. signal, noting reading on output meter as above and repeat as many times as necessary to obtain the highest meter reading. Do not reset the parallel trimmer condensers at this frequency.

(d) Repeat operations (a) and (b) for more accurate adjustments.

III. To Peak Band No. 2.

(a) Set test oscillator at 1400 Kc. Tune station selector to 1400 Kc. (140 on dial). Then adjust oscillator parallel trimmer condenser for Band No. 2 for maximum output.

(b) With same dial settings peak the interstage and antenna parallel trimmer condensers for Band No. 2.

(c) (1) Set test oscillator at 600 Kc.

(2) Tune station selector in the region of 60—Band No. 2—on dial for maximum reading on the output meter.

(3) Close the oscillator series trimmer condenser for Band No. 2, Fig. 3, ⅛ turn and re-tune station selector to 600 Kc. signal for maximum output, noting reading on output meter.

(4) If meter reads higher after operation (3) repeat the operation again and again until no further improvement in the reading of the output meter can be obtained. If meter reads lower after operation (3) open the oscillator series trimmer condenser ⅛ turn and re-tune station selector to 600 Kc. signal, noting reading on output meter as above and repeat as many times as necessary to obtain the highest meter reading. Do not reset the parallel trimmer condensers at this frequency.

(d) Repeat operations (a) and (b) for more accurate adjustments.

IV. To Peak Band No. 3.

(a) Be sure to change dummy antenna as described in I under Peaking R.F. Circuits.

(b) Set test oscillator at 4 megacycles. Tune the station selector to 4 megacycles (4.0—Band No. 3 on dial). Then adjust oscillator parallel trimmer condenser for Band No. 3 for maximum output.

(c) With the same dial settings peak the interstage and antenna parallel trimmer condensers for Band No. 3.

V. To Peak Band No. 4.

(a) Set test oscillator at 10 megacycles.

(b) Tune station selector to 10 megacycles (10—Band No. 4 on dial).

(c) Open oscillator parallel trimmer condenser for Band No. 4 about 3 turns from closed.

(d) Close the interstage parallel trimmer condenser for Band No. 4 and open ⅛ turn.

(e) Close the antenna parallel trimmer condenser for Band No. 4 and then open ½ turn.

(f) Peak the oscillator parallel trimmer condenser on the first signal heard when closing the condenser. As a check on the adjustment set the station selector to approximately 9 on the dial and try to tune in the 10 megacycle signal from the test oscillator. If a signal is heard the oscillator has been aligned on the correct frequency.

(g) Re-tune to 10 megacycles and peak the antenna parallel trimmer condenser for maximum output.

(h) Open the interstage parallel trimmer condenser another ⅛ turn and re-tune the station selector to the 10 megacycle signal.

(i) Repeat operation (h) as many times as necessary to obtain the highest reading on the output meter on first peak obtained when opening trimmer condenser from closed position.

(j) Repeat operation (g) above.

VI. To Peak Band No. 5.

(a) Set test oscillator at 21 megacycles.

(b) Tune station selector to 21 megacycles (21—Band No. 5 on dial).

(c) Open oscillator parallel trimmer condenser for Band No. 5 about 3 turns from closed.

(d) Close the interstage parallel trimmer condenser for Band No. 5 and open ⅛ turn.

(e) Close the antenna parallel trimmer condenser for Band No. 5 and then open ½ turn.

(f) Peak the oscillator parallel trimmer condenser on the first signal heard when closing the condenser. As a check on the adjustment set the station selector to approximately 20 on the dial and try to tune in the 21 megacycle signal from the test oscillator. If a signal is heard the oscillator has been aligned on the correct frequency.

(g) Re-tune to 21 megacycles and Peak the antenna parallel trimmer condenser for maximum output.

(h) Open the interstage parallel trimmer condenser another ⅛ turn and re-tune the station selector to the 21 megacycle signal.

(i) Repeat operation (h) as many times as necessary to obtain the highest reading on the output meter on first peak obtained when opening trimmer condenser from closed position.

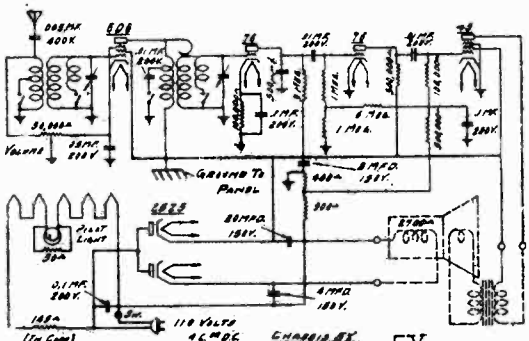
(j) Repeat operation (g) above.

MODEL 5Y
MODEL 48
MODEL Warwick

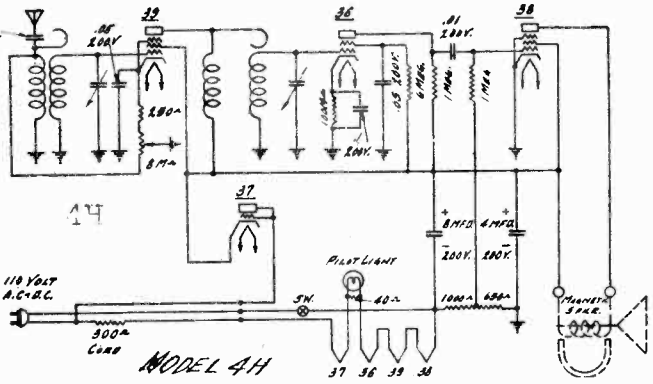
DETROLA RADIO CORP.

MODEL 4C
MODEL 4H

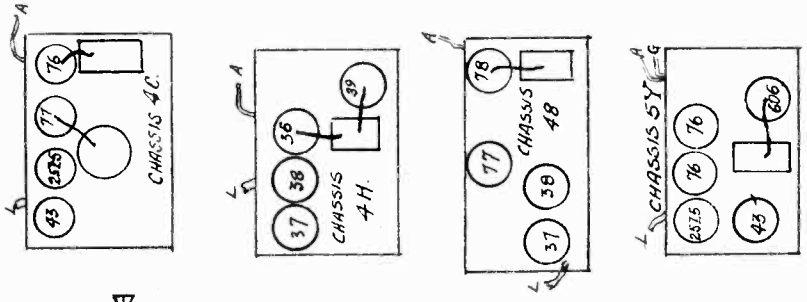
Schematics, Socket

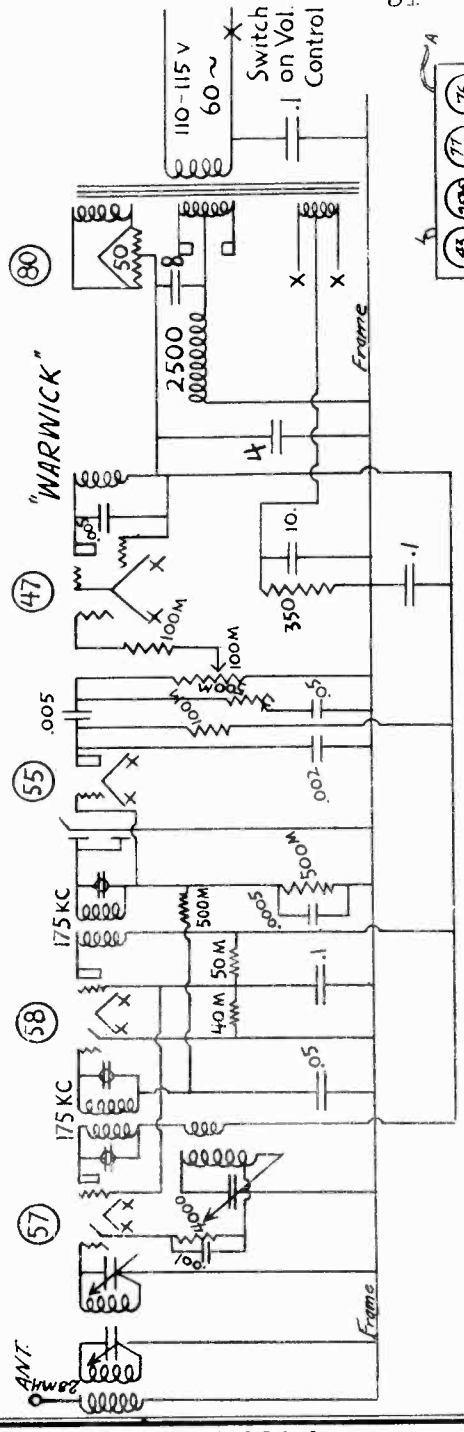


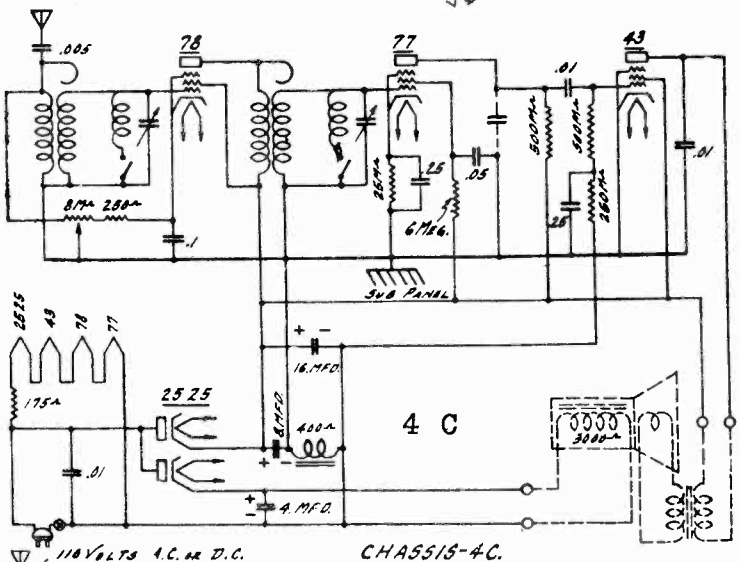
5Y

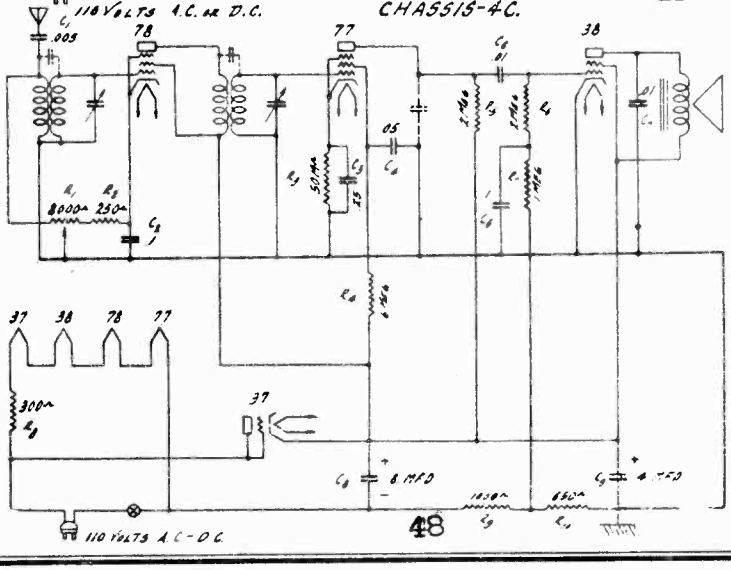


MODEL 4H









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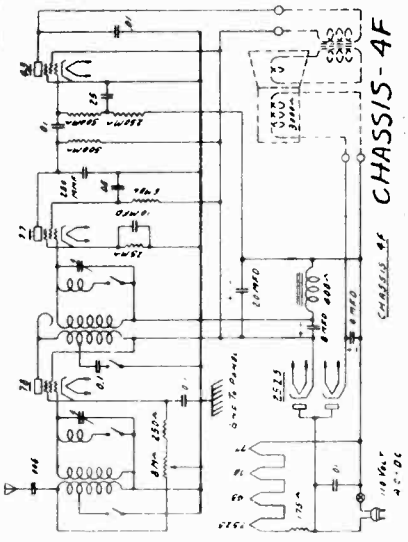
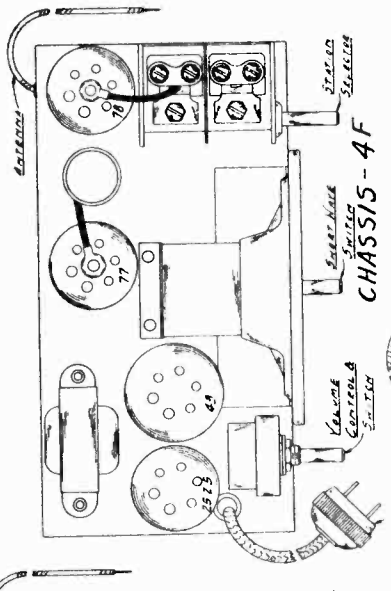
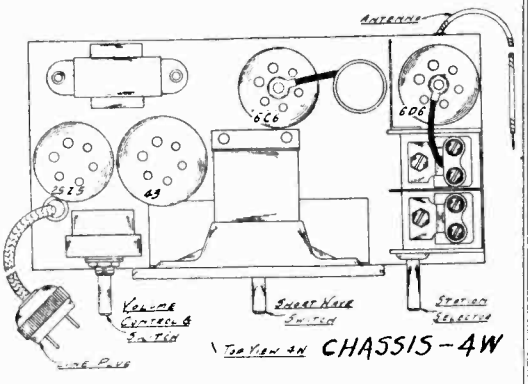
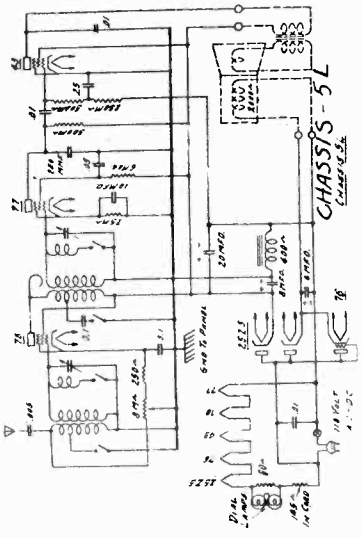
MODEL 4F
MODEL 4J
MODEL 4W
MODEL 4Y
MODEL 5L
Schematic, Socket

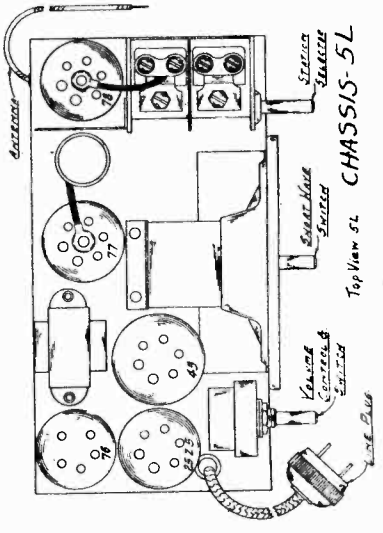
DETROLA RADIO CORP.

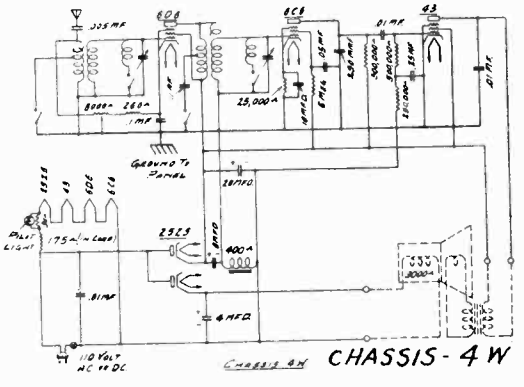


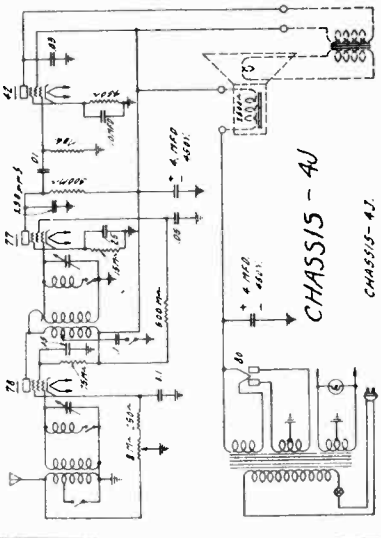


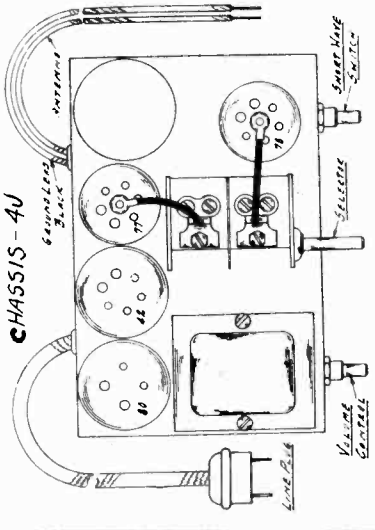


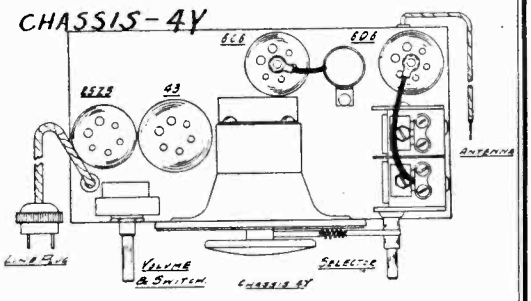


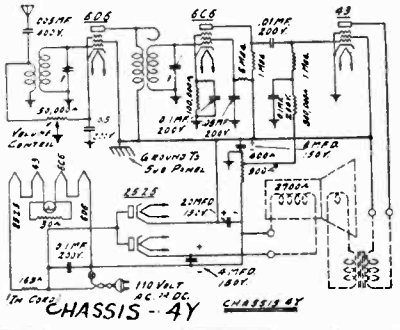






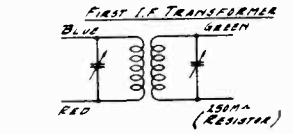


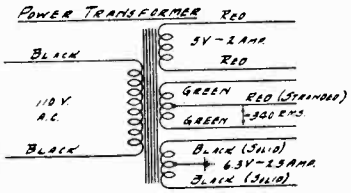


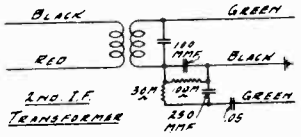


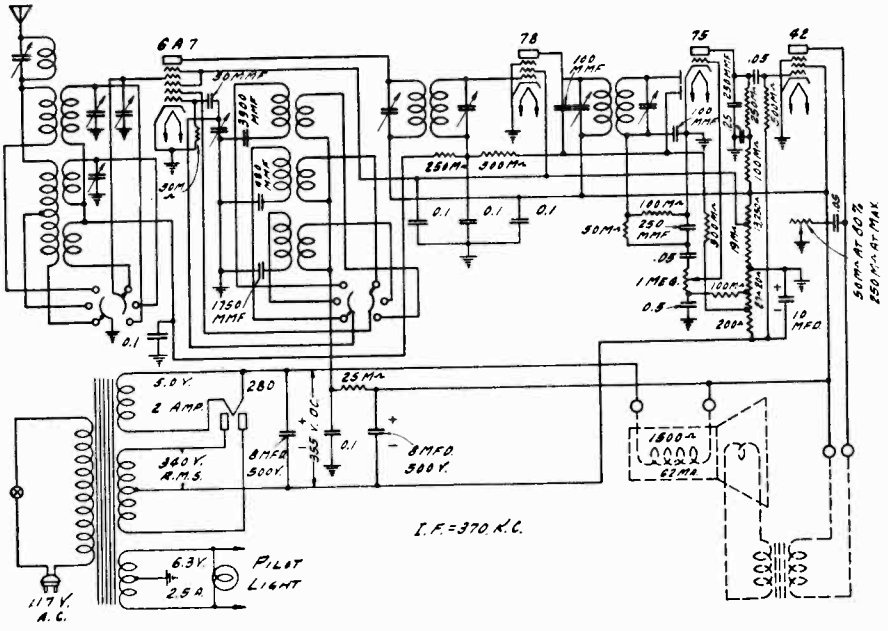
DETROLA RADIO CORP.

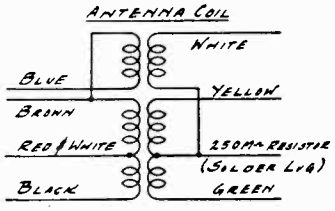
MODEL 5B
Schematic, Voltage
Socket, Data

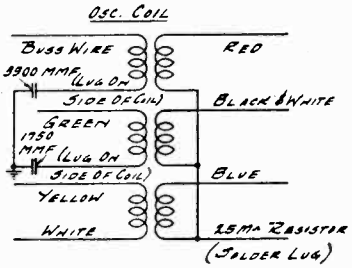




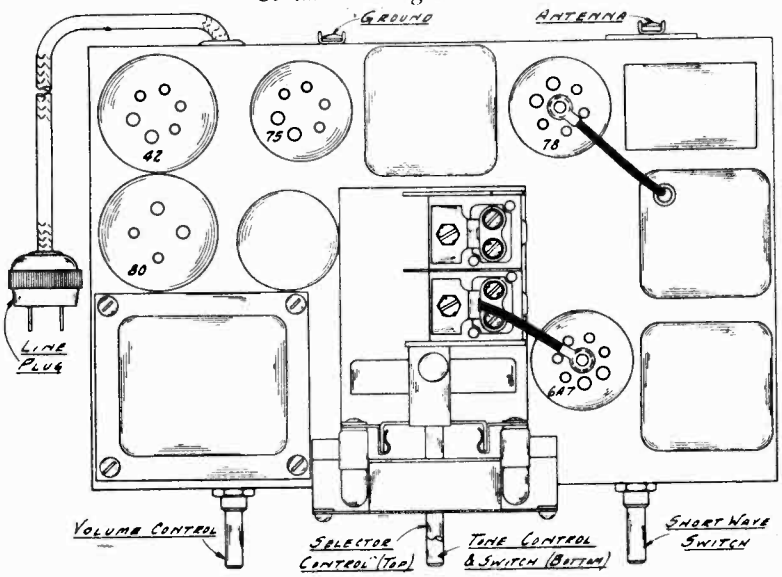








Schematic Diagram



TUBE SOCKET VOLTAGES

Tube No.	Control Grid to Cathode	Screen to Cathode	Plate to Cathode	Plate M. A.	Tube Socket Voltages Heater or Filament Voltage
6A7 1st Det.	* 3	100	250	4	6.3
OSC.	* 4	...	90	4	...
78—I. F.	* 3	100	250	7	6.3
75—2nd Det. A. V. C.	** 1.5	...	75	.8	6.3
42—Audio	***16	250	235	34	6.3
80—Rect.	....	...	...	29 per plate	5.0

All voltage readings taken with 1000 ohm per volt voltmeter using test leads.
*10 volt scale, voltage from ground to terminal on candohm with 500M on resistor.
**10 volt scale, voltage readings from ground to terminal on candohm with single black wire.
***250 volt scale, voltage readings from ground to terminal on candohm connected to filter condenser.

MODEL 5B
Alignment
Parts List

SERVICE NOTES

for

Detrola 5-B All Wave Receiver

The Detrola 5-B is a five-tube, three-band, all-wave, superheterodyne receiver designed for the reception of frequencies from 540 to 16000 KC. The broadcast band covers frequencies from 540 to 1700 KC; the Police band covers frequencies from 1.6 to 5.5 MC and the Foreign band covers frequencies from 5.4 to 16 MC.

The 5-B employs the following tubes, used in their respective circuits: 1 type 6A7 first detector and oscillator; 1 type 78 intermediate amplifier; 1 type 75 delayed AVC, second detector and first audio; 1 type 42 final audio stage; 1 type 80 double wave rectifier.

RF and IF ALIGNMENT

The RF and IF circuits of the 5-B are properly aligned and tested and should need no further adjustment. Should it become necessary, however, to check the adjustment the following equipment will be necessary: 1 calibrated oscillator calibrated for all the frequencies used in this receiver, both IF and RF, and a sensitive output meter.

In order to prevent the AVC from operating and giving a false reading on the output meter the following procedure should be followed: The oscillator should be loosely coupled to the receiver so that only a small deflection will show on the output meter with the volume control of the receiver on the maximum position. This applies to both IF and RF adjustments.

IF ALIGNMENT—To align the intermediate transformer, adjust the test oscillator to 370 KC and couple to the control grid of the first detector and adjust the trimmer condensers on the intermediate transformers for the maximum reading on the output meter.

RF ALIGNMENT—To align the RF circuit: (1) Set pointer on tuning chart to 1400 KC with band switch in broadcast position. (2) Adjust oscillator to 1400 KC and connect to antennae terminal on chassis. (3) Adjust trimmer on tuning condenser for maximum reading. (4) Reset dial pointer and test oscillator to 600 KC and adjust 600 KC padding condenser for maximum reading moving tuning condenser back and forth slowly while making adjustment. (5) Reset dial pointer and oscillator to 1400 KC and readjust trimmer on tuning condenser for maximum reading.

SHORTWAVE ALIGNMENT— (1) Set dial pointer on 3.5 MC and band switch on center position. (2) Adjust oscillator to approximately 3.5 MC or for maximum reading on output meter. (3) Adjust 3.5 MC padding condenser for further increase on the output meter. (4) Set band switch on right hand position. (5) Set dial pointer to 15 MC. (6) Readjust test oscillator to approximately 15 MC or for maximum reading on output meter and adjust 15 MC padding condenser for further increase on output meter.

ADJUSTMENT OF WAVE TRAP

To adjust wave trap to prevent the reception of commercial code signals from stations operating on or about 370 KC, connect test oscillator to antennae terminal on chassis and set to 370 KC and adjust wave trap padding condenser for minimum signal on output meter.

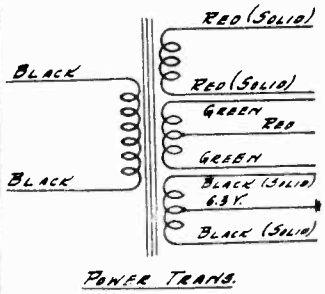
The high and low frequency padding condensers are mounted on the right hand end of the chassis in the following order from front to back: 3.5 MC, 15 MC, 600 KC, and wave trap.

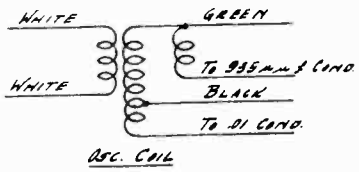
RELACEMENT PARTS MODEL 5-B

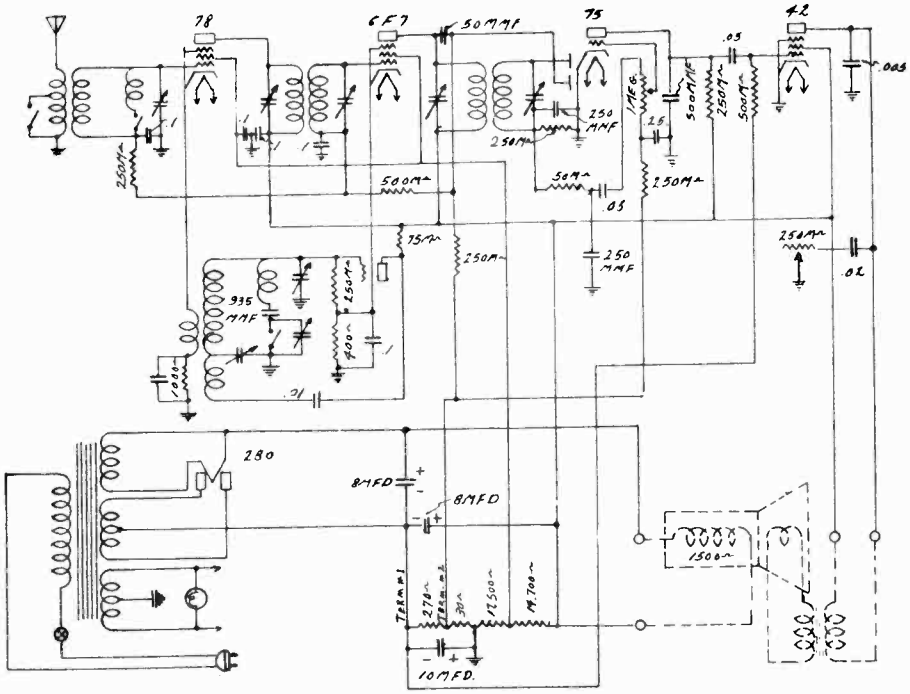
Part No.	DESCRIPTION	List Price	Part No.	DESCRIPTION	List Price
563	.05 mf—400 volt tubular condenser	$0.15	1392	By-pass condenser block	1.30
572	.1 mf—200 volt tubular condenser	.15	1393	2 gang variable condenser	2.49
575	.1 mf—400 volt tubular condenser	.15	1396	Antenna coil can—natural finish	.20
578	Electrolytic condenser, 10 mfd, 30 volts	.65	1397	Oscillator coil can—natural finish	.20
589	50 mmf mica condenser, type "W"	.15	1398	Electrolytic condenser, 8-8 mfd, 450 volts	2.10
590	250 mmf mica condenser, type "W"	.15	1399	Power transformer	3.20
602	250,000 ohm carbon resistor, 1/5 watt	.15	1400	Candohm resistor	.60
603	100,000 ohm carbon resistor, 1/5 watt	.15	1401	All-wave switch	2.20
615	500,000 ohm carbon resistor, 1/5 watt	.15	1402	Single stage padder	.40
631	50,000 ohm carbon resistor, 1/5 watt	.15	1404	7 prong socket No. 6A7	.10
934	Attachment cord—6 feet	.30	1410	Dial chart	.40
936	4 prong socket No. 80	.10	1412	1750 mmf mica condenser, type "W"	.30
937	6 prong socket No. 42	.10	1413	3900 mmf mica condenser, type "W"	.40
939	6 prong socket No. 78	.10	1414	25,000 ohm carbon resistor, 1 watt	.15
1028	6 prong socket No. 75	.10	1415	6" speaker	6.30
1083	Tone control with A. C. switch, 250,000 ohms	1.00	1423	Knobs	.10
1084	Volume control, 1 megohm	.70	1427	Cabinet	5.40
1096	Tube shield (aluminum), natural finish	.15	1441	Oscillator coil	1.00
1097	Tube shield cap (aluminum)	.15	1442	Antenna coil	1.00
1098	Tube shield base (aluminum)	.10	1443	Wave trap	.90
1107	550 mmf mica condenser, type "W"	.20	1444	1st IF transformer	1.60
1199	Pointer	.10	1445	2nd IF transformer	2.40
1274	Escutcheon plate	.40			

DETROLA RADIO CORP.

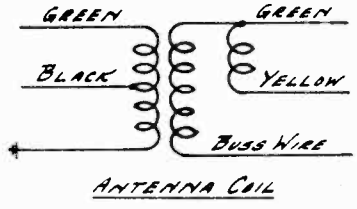
MODEL 5D
Schematic, Voltage
Socket, Data

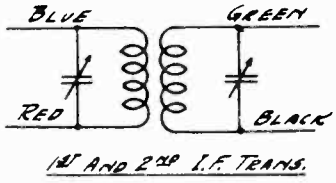


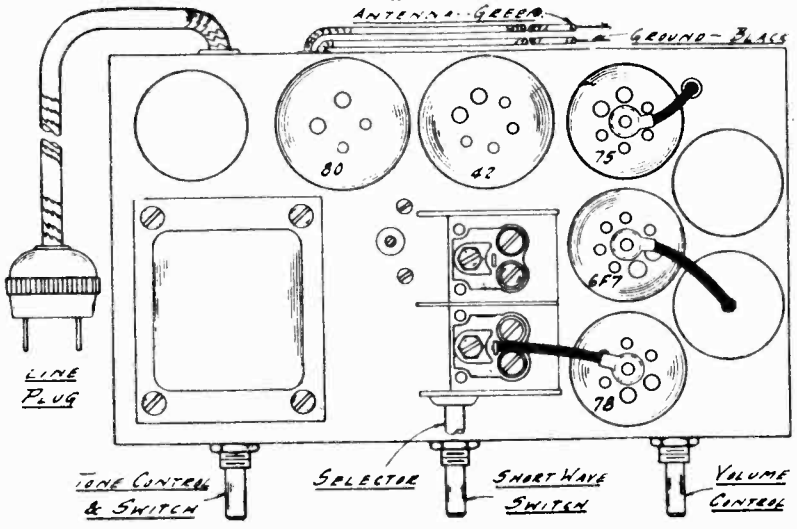




Schematic Diagram







Top View of Chassis

TUBE SOCKET VOLTAGES

Tube No.	Cathode to Heater Voltage	Cathode to Screen Voltage	Cathode to Plate Voltage	Cathode to Control Grid Voltage	Plate M.A.	Heater Voltage
78—1st Det.	4.5	100	230	* 6.5	4.25	6.3
6F7 Pentode I. F.	3	100	235	* 4.5	6.0	6.3
6F7 Triode OSC.			80	4.75	2.0	
75—2nd Det.	...	...	220	* 1.75	.4	6.3
42—2nd Audio	...	235	220	**16.5	28.	6.3
80—Rect.	...	...	...	.....	27 per plate	5.0

*Voltage from cathode to terminal No. 2 on the voltage divider.
**Voltage from cathode to terminal No. 1 on the voltage divider.
All voltage readings taken with high resistance Volt Meter (1000 ohms per volt) using test leads, all tubes in sockets, antenna grounded to chassis, no signal.

MODEL 5D
Alignment
Parts List

SERVICE NOTES

for

Detrola 5-D Dual-Band Receiver

The Detrola 5-D is a five tube superheterodyne, dual-wave receiver covering broadcast frequencies of 550 to 1500 kilocycles and short-wave frequencies of 1.5 to 4.75 megacycles.

It employs the following tubes: Type 78, first detector; type 6F7, intermediate stage and oscillator (the pentode section being used for the intermediate stage, and the triode for the oscillator); type 75, delayed AVC, second detector, and first audio (one diode being used for the AVC and the other for the detector, triode being used for the first audio stage); type 42, final amplifier; type 80, rectifier.

R. F. and I. F. ALIGNMENT

The R. F. and I. F. circuits are properly aligned at the factory with a crystal control oscillator and should require little or no attention. Should it become necessary, however, to check the alignment, an output meter and a calibrated oscillator will be necessary. The automatic volume control in the receiver will defeat the purpose of the output meter unless the following precautions are taken:

I. F. ALIGNMENT—To align the intermediate frequency transformers (1) adjust test oscillator to 455 kilocycles and couple to the control grid of first detector (reduce coupling so that only small deflection is obtained on output meter with volume control in the maximum position). (2) Adjust I. F. trimmers for maximum reading on output meter.

R. F. ALIGNMENT—To align the R. F. circuits (1) set the pointer on the tuning chart to 1400 kilocycles and adjust test oscillator to the 1400 kilocycles. (2) Connect oscillator to antenna connection of chassis, reducing coupling as outlined in I. F. adjustments and adjust trimmer on front of chassis for maximum reading. The above procedure should be repeated at 600 kilocycles adjusting ONLY THE LOW FREQUENCY TRIMMER ON TOP OF CHASSSIS.

The short-wave band may be aligned by setting the test oscillator on 1400 kilocycles and using the 2800 kilocycles harmonic and setting the pointer on the tuning chart to approximately 2.8 megacycles and adjusting trimmers on tuning condenser for maximum reading.

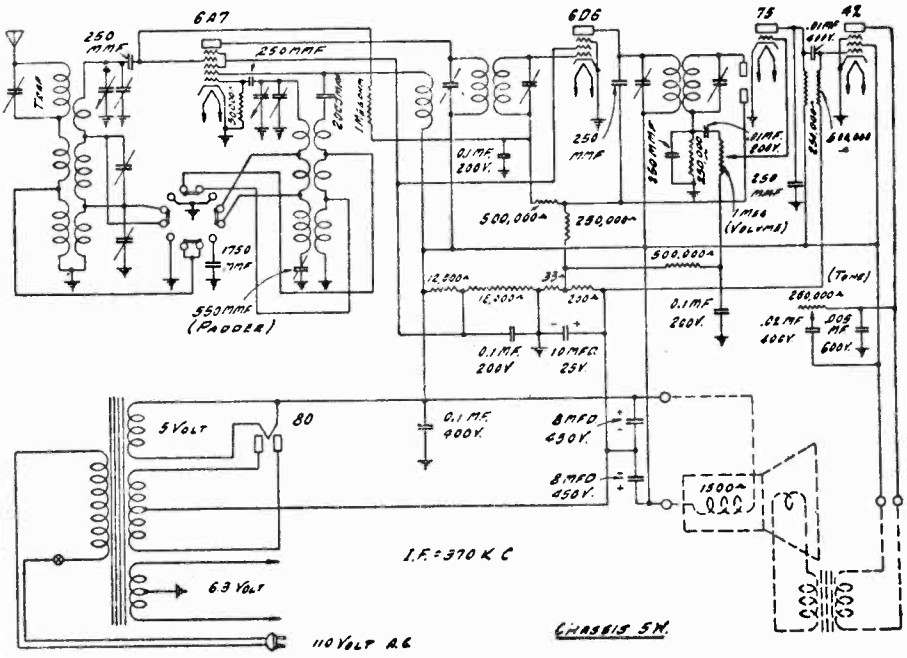
For a more detailed explanation concerning the operation of the delayed automatic volume control used in this receiver and for further service suggestions, refer to the service notes of the Detrola 7-A.

REPLACEMENT PARTS MODEL 5-D

Stock No.	DESCRIPTION	List Price	Stock No.	DESCRIPTION	List Price
532	Knobs	$0.10	937	6 prong socket No. 42	.10
563	.05 mfd 400 volt condenser	.15	939	6 prong socket No. 78	.10
568	.01 mfd 400 volt condenser	.15	993	Oscillator coil shield	.10
572	.1 mfd 200 volt condenser	.15	997	Tube shield base	.15
575	.1 mfd 400 volt condenser	.20	1013	Power transformer	2.90
576	.02 mfd 400 volt condenser	.15	1014	8-8 mfd 450 volt filter condenser	2.05
579	.25 mfd 200 volt condenser	.20	1015	Short wave switch	.80
580	.05 mfd 200 volt condenser	.15	1016	.00002 padder condenser	.30
581	.005 mfd 600 volt condenser	.15	1017	.0005 padder condenser	.40
589	50 mmf mica condenser	.15	1018	1st IF transformer	1.60
590	.00025 mica condenser	.15	1019	2nd IF transformer	1.50
595	10 mfd 35 volt condenser	.65	1022	Cabinet	4.60
602	250,000 ohm resistor, 1/5 watt	.15	1027	4 prong socket No. 6F7	.10
612	75,000 ohm resistor, 1/2 watt	.15	1028	6 prong socket No. 75	.10
615	500,000 ohm resistor	.15	1034	Speaker	6.90
631	50,000 ohm resistor	.15	1038	Pyralin diffuser—blue	.10
791	Tube shield	.10	1042	Escutcheon plate	.30
912	Station selector dial	.25	1052	Candohm resistor, 1000 ohms	.20
919	Volume control	.70	1054	935 mmf mica condenser	.20
921	Tone control with A.C. switch	.90	1079	Candohm resistor, 350 ohms	.20
922	Candohm resistor, 32,500 ohms	.65	1124	Antenna coil	.50
926	Tuning condenser	2.20	1126	Oscillator coil	.50
934	Power cord	.30	1128	Pyralin diffuser—red	.10
936	4 prong socket No. 80	.10	1168	Pilot light socket	.15

DETROLA RADIO CORP.

MODEL 5W
Schematic
Voltage
Parts List



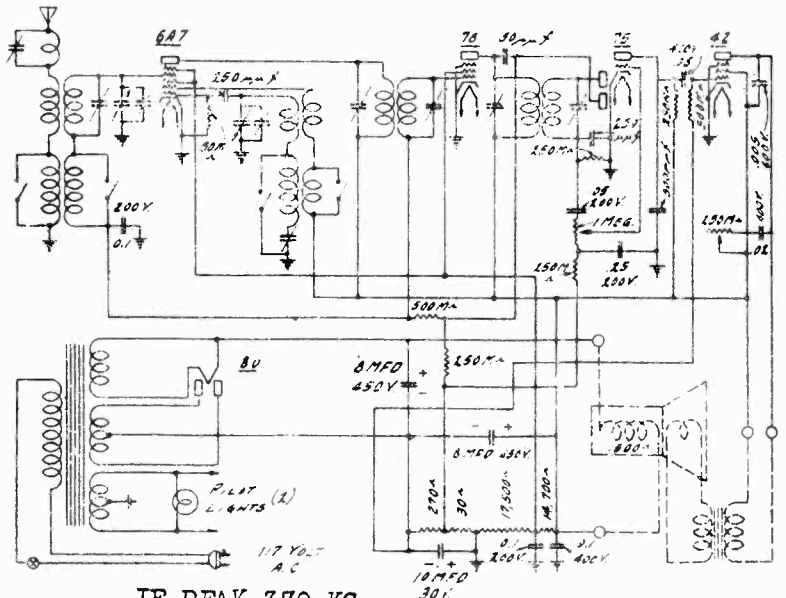
For Alignment, see Index

TUBE SOCKET VOLTAGES

Tube Number	Control Grid to Cathode	Screen to Cathode	Plate to Cathode	M. A. Plate	Tube Socket Voltages Heater or Filament Voltage
6A7 1st Det.	*2	80	210	3.	6.3
6A7 OSC.			200	4.	6.3
6D6—I. F.	2	80	210	7.	6.3
75—2nd Det.	2		100	.5	6.3
42—2nd Audio	**15	210	190	32.	6.3
80—Rect.					
				25 Per Plate	

*Terminal No. 5 on candohm to ground.
**Terminal No. 6 on candohm to ground.

Stock No.	DESCRIPTION
565	.01 mf. 200 volt tubular condenser
568	.01 mf. 400 volt tubular condenser
572	.1 mf. 200 volt tubular condenser
575	.1 mf. 400 volt tubular condenser
581	.005 mfd. 600 volt tubular condenser
576	.02 mf. 400 volt tubular condenser
590	250 mmf. Mica condenser plus-minus 10%
602	250,000 ohm carbon resistors, 1/5 watt
615	500,000 ohm carbon resistors, 1/5 watt
624	1 megohm carbon resistors, 1/5 watt
631	50,000 ohm carbon resistors, 1/5 watt
791	Goat tube shields with ring
936	4-prong tube socket, marked No. 80
937	6-prong tube socket, marked No. 42
1013	Power transformer
1034	6" dynamic speaker
1199	Pointer
1203	Tension spring
1277	Dial cable
1402	Single padder condenser
1404	7-prong tube socket, marked 6A7
1412	1750 mmf. Mica Condenser
1527	Escutcheon ring
1572	Volume control
1573	Tone control and AC switch
1597	Glass crystal
1611	Midget trimmer condenser, bakelite base.
1626B	2-gang variable condenser
1715	Candohm resistor
1716	3-way, 12 point switch
1720	6-prong socket, marked 6D6
1721	7-prong tube socket, marked 75
1724	2000 mmf. Mica condenser
1733	Cabinet
1762	Dial
1646	1st I. F. Transformer
1647	2nd I. F. Transformer
1763	B. C. Antenna coil
1764	Short wave antenna coil
1765	Oscillator coil



IF PEAK 370 KC.

Tube Number		Control Grid to Cathode	Screen to Cathode	Plate to Cathode	M. A. Plate	Tube Socket Voltages Heater or Filament Voltage
6A7	1st Det.	*1.75	92	225	4	6.3
	OSC.	0	0	225	4	6.3
78—I. F.		*1.75	92	225	7	6.3
75—2nd Det.		*1.75	0	**110	.8	6.3
42—2nd Audio		***17	225	212	34	6.3
80—Rect.						

For Alignment, see Index

***Voltage from No. 1 terminal on voltage divider to ground using 250 volt scale.

**Voltage from plate to ground using 250 volt scale.

*Voltage from ground to second terminal on voltage divider using 10 volt scale.

The above voltage readings were taken with 1,000 ohm per volt Volt Meter.

The Detrola 5-X is a 5 tube superheterodyne designed for receivers on frequencies from 540 to 1500 KC and from 5300 to 17,000 KC,

Stock No.	DESCRIPTION
563	.05 mf. 400 volt tubular condenser
572	.1 mf. 200 volt tubular condenser
575	.1 mf. 400 volt tubular condenser
576	.02 mf. 400 volt tubular condenser
578	10 mfd. 30 volt tubular electrolytic condenser
579	.25 mf. 200 volt tubular condenser
580	.05 mf. 200 volt tubular condenser
581	.005 mf. 500 volt tubular condenser
588	500 mmf. mica condenser, type "W"
589	50 mmf. mica condenser, type "W"
590	250 mmf. mica condenser, type "W"
602	250,000 ohm carbon resistor, 1/5 watt
615	500,000 ohm carbon resistor, 1/5 watt
631	50,000 ohm carbon resistor, 1/5 watt
922	Candohm resistor (per dwg.)
934	Attachment cord
1013	Power transformer
1017	Padder condenser, 500 mmf.
1028	6-prong tube socket
1034	6" dynamic speaker
1168	Pilot light socket assembly
1199	Pointer
1404	7-prong tube socket, marked 6A7
1526	Bakelite knob
1527	Escutcheon plate
1571	Dual wave switch
1572	Volume control
1573	Tone control and A.C. switch
1611	Midget trimmer condenser
1624	Elect. condenser 8-8 mfd. 450 volt
1625	Wave trap shield can
1626	2-gang variable condenser
1629	Dial chart
1627	Cabinet
1646	1st I. F. transformer assembly
1647	2nd I. F. transformer assembly
1648	Oscillator coil assembly
1649	Short wave antenna coil
1540	Broadcast antenna coil assembly
1650	Wave trap
1640	8" dynamic speaker

Service Notes

MODELS 5X & 6X

I. F. ALIGNMENT

To align the intermediate transformer the test oscillator should be adjusted to 370 KC and coupled to the control grid of the first detector and adjust the trimmer condensers on the first and second intermediate transformers for maximum reading on the output meter.

R. F. ALIGNMENT

The R.F. circuits: (1) Set pointer on tuning chart to 1400 KC with band switch in the broadcasting position. (2) Adjust test oscillator to 1400 KC and connect to antennae terminal on chassis. (3) Adjust trimmer on tuning condenser for maximum reading. (4) Reset dial pointer on test oscillator to 600 KC. (5) Reset test oscillator to 600 KC. (6) Adjust 600 KC padding condenser for maximum reading moving tuning condenser back and forth slowly while making adjustment. (7) Reset dial pointer and test oscillator to 1400 KC and readjust trimmer on tuning condenser for maximum reading on output meter. (The 600 KC padding condenser is the right hand condenser mounted on the rear of the chassis.)

SHORT WAVE ALIGNMENT

(1) Set dial pointer on 10 MC and band switch on short wave postion. (2) Adjust test oscillator to approximately 10 MC or for maximum reading on output meter. (3) Adjust 10 MC padding condenser mounting on top of chassis near turning condenser for a further increase reading on output meter. (The wave trap trimmer condenser is the left hand condenser on the rear of the chassis.)

WAVE TRAP ADJUSTMENT

(1) To adjust wave trap to prevent reception of commercial code signals from stations operating on or about 370 KC, connect test oscillator to antennae terminal on chassis. (2) Adjust test oscillator to 370 KC. (3) Adjust wave trap condenser mounted on right hand end of the chassis for *minimum* signal on output meter.

POWER SUPPLY:

The 6-X is designed to operate on 110 volts A. C. or D. C. current.

The Model 5-D-X may be supplied for operation on different sources of power supply; namely, 110 volts, 25 cycles; 110 volts, 60 cycles; and 200 volts, 60 cycles.

MODELS 5W & 6W

I. F. ALIGNMENT:

To align the intermediate transformer, the test oscillator should be adjusted to 370 K. C. and coupled to the control grid of the first detector and adjust the trimmer condensers on the first and second intermediate transformers for maximum reading on the output meter.

R. F. ALIGNMENT:

To adjust the R. F. circuits: (1) Set pointer on tuning chart to 1400 K. C. with band switch in the broadcasting position. (2) Adjust test oscillator to 1400 K. C. and connect to antenna lead on chassis. (3) Adjust trimmer on the oscillator section of the tuning condenser for maximum reading. (4) Reset dial pointer on receiver and test oscillator to 600 K. C. (5) Adjust 600 K. C. padding condenser for maximum reading moving tuning condenser back and forth slowly while making adjustment (the 600 K. C. padding condenser is mounted on the base at the left of the tuning condenser). (6) Reset oscillator and tuning pointer on the receiver to 1400 K. C. and readjust trimmer on oscillator section of tuning condenser for maximum reading. (7) Reset dial pointer on receiver and test oscillator to 15 megacycles. (8) Set band change switch in the right hand position. (9) Adjust trimmer on first section of tuning condenser for maximum reading. (10) Reset dial pointer on receiver and test oscillator to 3.6 megacycles. (11) Set band change switch in left hand position. (12) Adjust 3.6 megacycle trimmer condenser for maximum reading (the 3.6 megacycle trimmer is mounted under the chassis and directly in front of the band change switch. (13) Reset dial pointer on receiver and test oscillator to 1400 K. C. (14) Set band change switch in broadcasting position and adjust 1400 K. C. trimmer for maximum reading (the 1400 K. C. trimmer is mounted under the chassis directly over the antenna coil).

WAVE TRAP ADJUSTMENT:

This receiver is designed with a wave trap to prevent interference from commercial code stations operating on or about 370 K. C. To adjust the wave trap, set test oscillator on 370 K. C. and connect to antenna lead on chassis and adjust wave trap trimmer condenser for minimum signal on the output meter (the wave trap is mounted on the rear left end of the chassis).

POWER SUPPLY:

The 5-W is designed for operation on different sources of power supply: namely, 110 volts, 25 cycles; 110 volts, 60 cycles, and 220 volts, 60 cycles.

MODEL 6A
Schematic, Voltage
Alignment

DETROLA RADIO CORP.

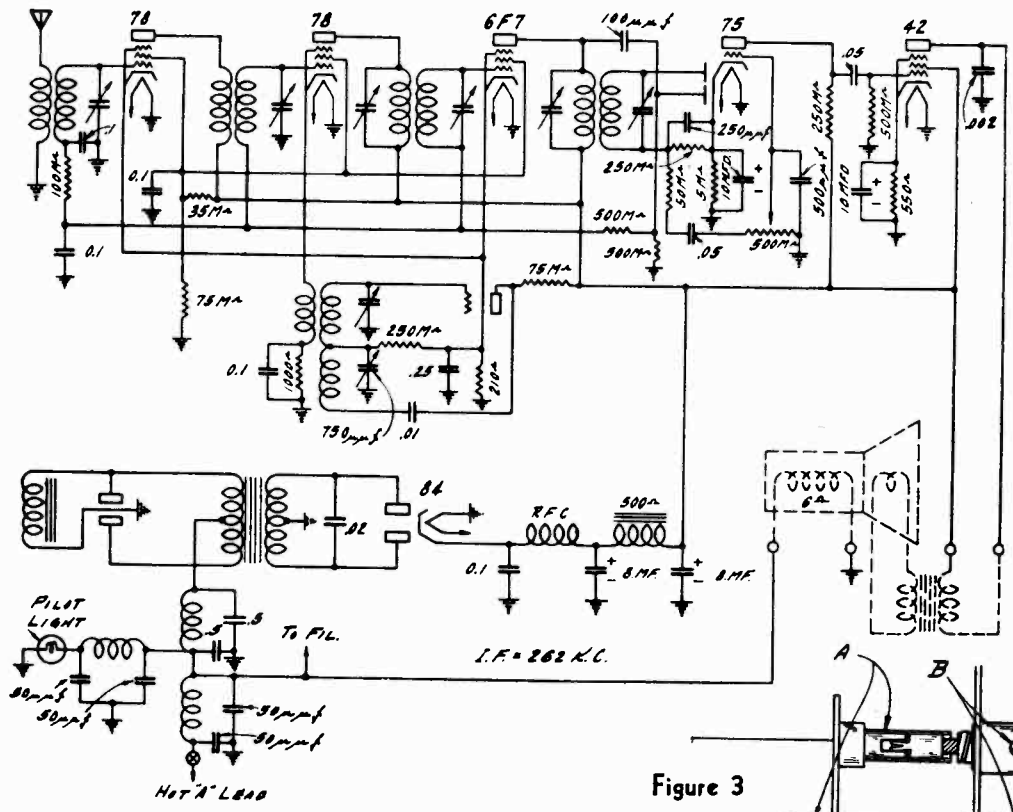


Figure 3

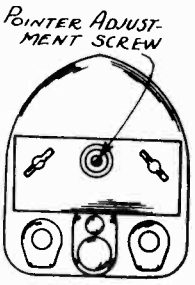
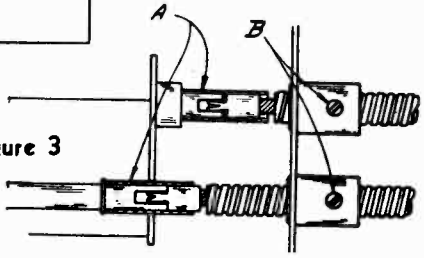


Figure 4



Service Data

Type and Number of Tubes Used:
2 Type 78 1 Type 75
1 Type 6S7 1 Type 42
1 Type 84
Total Battery Current ..... 6.5 Amps.
Undistorted Output ..... 3 Watts
Speaker Field Current ..... 1 Amp.
Rectifier Output Voltage 250
Total Plate Current ..... 50 M.A.

Plate Supply Unit

This receiver uses a vibrator type inverter and tube rectifier to provide a source of direct current voltage as plate and grid supply for all the tubes. This unit is very accurately adjusted at the factory, and service adjustment should not be attempted.

Low Volume

Low volume may be caused by weak or defective tubes (replace with set of tubes known to be in good condition), or antenna grounded or shielded due to wire netting not cut loose from the metal construction of the top.

Low Voltage

Low voltage may be caused by 84 rectifier, shorted filter or bypass condenser, defective power transformer or vibrator unit.

Excessive Hum

Excessive hum may be caused by defective 84 tube, or defective vibrator unit. In cases where the vibrator unit proves to be defective no adjustment should be attempted, the unit should be replaced with a new or replacement unit.

Continuity Test

By referring to the schematic diagrams in figures 5 and 6 a complete continuity test for open and short circuits can be made for all parts of the receiver. A suitable continuity test can be made by using 0 to 50 volt voltmeter and a 45 volt B battery. More accurate readings can be obtained by using a calibrated ohm meter.

R. F. and I. F. Adjustments

The trimmers on the tuning condenser and the intermediate transformers are very accurately adjusted with a crystal control oscillator before the receiver leaves the factory and should need little or no attention; however, to check the adjustments the following procedure should be followed.

I. F. Adjustments

In order to make the I. F. adjustments it is necessary to remove the top and bottom cover of the receiver case and proceed as follows, adjust test oscillator at 262 kilocycles, place the receiver in operation and connect the oscillator output to the grid of the first detector tube and connect the output meter across the voice coil of the loud speaker. Then connect the antenna lead to the ground of the chassis and adjust the tuning condenser so that no signal except the I. F. oscillator is heard at maximum volume. With the volume control at maximum, reduce the external oscillator output coupling until a small deflection is obtained at the output meter. Unless this is done the action of the A. V. C. will make it impossible to obtain a correct adjustment. Adjust trimmers for maximum reading on output meter.

R. F. Adjustments

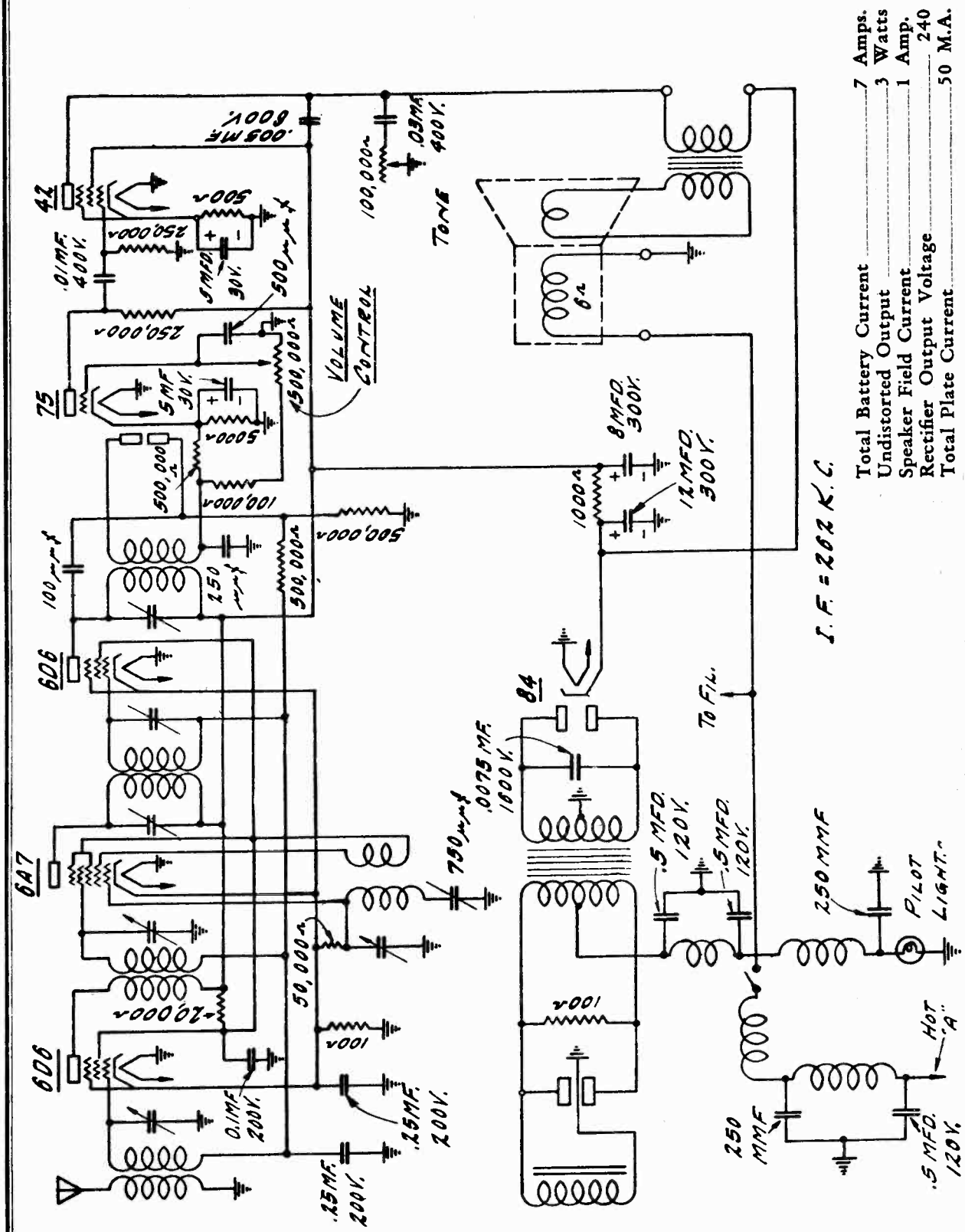
The trimmers on the tuning condenser should be adjusted at 1400 kilocycles, and the padder condenser adjusted at 600 kilocycles respectively. Proceed as follows, adjust the test oscillator at 1400 kilocycles and couple to the antenna off the receiver. Set tuning condenser at minimum capacity and adjust pointer to 1550 kilocycles, reset tuning control to 1400 kilocycles. Place oscillator and receiver in operation and adjust oscillator output so that a weak signal is obtained on the output meter, adjust trimmers for maximum reading. To adjust 600 kilocycle position readjust oscillator and tuning control to 600 kilocycles and adjust the 750 M. M. F. padder condenser (mounted on the chassis near the loud speaker) for maximum reading.

TUBE SOCKET VOLTAGES
6.3 Volt Battery

Tube No.	Cathode to Ground	Cathode to Screen Volts	Cathode to Plate Volts	Plate Current M.A.
78 R. F.	*3.5	100	250	6.0
78 First Detector	*5.	100	250	4.0
6F7 Pentode I. F.	*3.5	100	250	6.0
6F7 Triode OSC.		00	100	2.5
75 Second Detector A. V. C. First Audio	*1.7	00	**150	.3
42 Second Audio	*17.5	250	245	27.0
84 Rectifier				25 M.A. Per Plate

All the above voltage readings were taken by a high resistance volt meter (1000 ohms per volt) using test leads, all tubes in sockets no signal. (**250 volt scale) (*250 volt scale).

MODEL S 6M, 6R
Schematic



Model 6R is the same as Model 6M, but it has no tone control and uses a 5-inch speaker.

Drilling Template

Packed in each receiver package is a drilling template, which contains the exact location of the mounting hole. This template is furnished as an aid in locating mounting hole for the chassis, doing away with the necessity of one man holding the chassis while another locates the hole. However, in using this template we wish to utter a word of caution: Do not overlook any rods, wires or units mounted on the dash, which might not interfere with the location of the template, but which would prohibit the mounting of the set. In this way, unnecessary drilling of holes will be avoided.

Antenna Lead-in Connection

An antenna lead-in shield is furnished in the receiver package. The antenna lead wire should be run through this shield, and the shield extended up to where the lead-in leaves the corner post in order to shield the entire length of the lead-in wire, the other end of the lead-in wire should be soldered to a small ferrule which makes connection with a spring socket on the inside of the chassis. At the other end of the shield there is a small piece of braid which should be securely grounded to the dash of the car. (See Fig. No. 2.)

Caution: Clean surface thoroughly where shield braid is fastened to the dash, in order to insure a good ground.

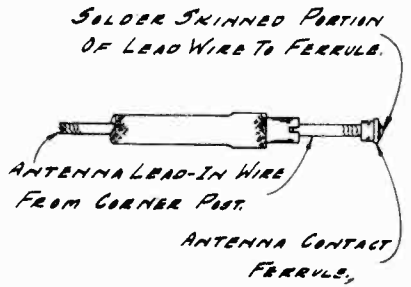


Figure 2

III. The Control Unit

The control unit is a combined Station Selector Dial (marked in kilocycles), tuning cable, volume control and switch cable, all assembled in one unit.

The control unit is designed to be fastened to the "flange" of the instrument panel by means of two thumb screws.

In locating the position for the control unit, it is advisable to leave this operation until the receiver has been located and mounted. Then the best position for the control unit can be determined which will not only allow easy accessibility for the driver, but will also allow for the least possible bend in the "Control Cables" which will ensure as smooth as possible operation of those controls, with a minimum possibility of the cables binding due to an extremely sharp bend.

Connecting Drive Cables and Casing to Control Unit

We would suggest that the "Drive Cables" be connected to the "Control Unit" before it is permanently fastened to the instrument panel. The cable connections to the receiver should be made on the bench, before the set is installed and it should not be necessary to remove these cables in making the installation.

The cable which enters the receiver at the top is the volume control and is connected to the volume control shaft by a slot milled in the end of the shaft and held in place by metal sleeve (A). See Fig. 3. The lower shaft is the tuning control and is connected in the same manner as the volume control.

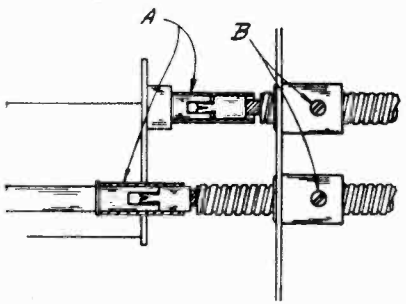


Figure 3

Adjusting the Dial Pointer

To adjust the dial pointer for the correct kilocycle reading, tune the receiver to a station of known frequency and adjust pointer with a screw driver by turning the adjusting screw on the back of the control head. (See Fig. No. 4.)

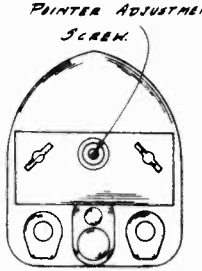


Figure 4

Tube No.		Cathode to Ground	Cathode to Screen Volts	Cathode to Plate Volts	Plate Current M. A.
6D6	R. F.	*1.2	70	230	1.2
6A7	First Detector	*1.2	70	230	1.
	OSC.	***1.8		70	2.2
6D6	I. F.	*1.2	70	230	1.2
75	Second Detector AVC. First Audio	*1.2		**70	.3
42	Second Audio	15	230	235	28
84	Rectifier.				25 M.A. Per Plate

All the above voltage readings taken with a 1,000 ohm per volt voltmeter using test leads all tubes in socket no signal.
*6 volts scale.
**250 volt scale.
***Voltage across 50,000 ohm oscillator grid leak (6 volt scale).

R. F. and I. F. Adjustments

The trimmers on the tuning condenser and the intermediate transformers are very accurately adjusted with a crystal control oscillator before the receiver leaves the factory and should need little or no attention; however, to check the adjustments the following procedure should be followed.

I. F. Adjustments

In order to make the I. F. adjustments it is necessary to remove the top and bottom cover of the receiver case and proceed as follows, adjust test oscillator at 262 kilocycles, place the receiver in operation and connect the oscillator output to the grid of the first detector tube and connect the output meter across the voice coil of the loud speaker. Then connect the antenna lead to the ground of the chassis and adjust the tuning condenser so that no signal except the I. F. oscillator is heard at maximum volume. With the volume control at maximum, reduce the external oscillator output coupling until a small deflection is obtained at the output meter. Unless this is done the action of the A. V. C. will make it impossible to obtain a correct adjustment. Adjust trimmers for maximum reading on output meter.

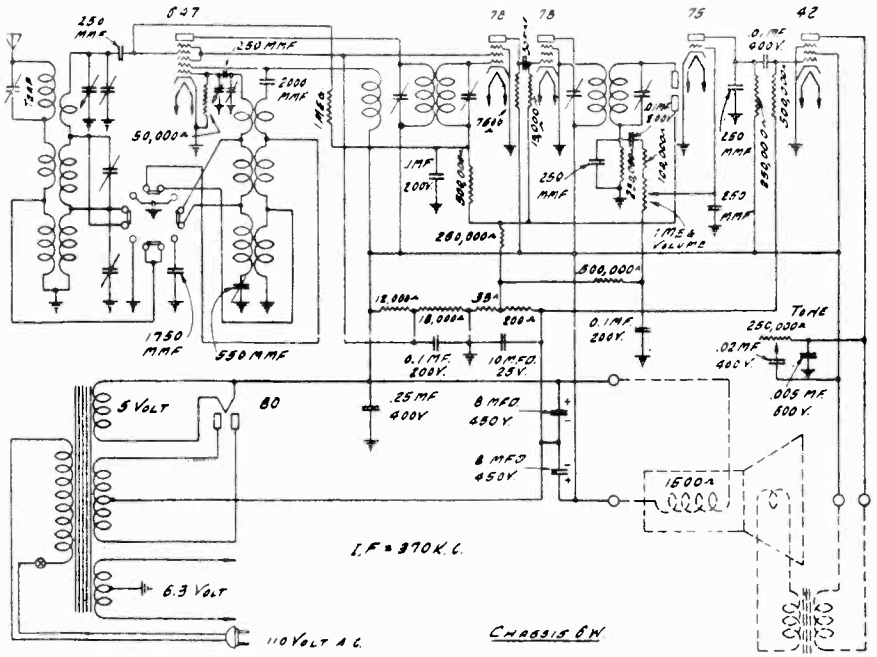
R. F. Adjustments

The trimmers on the tuning condenser should be adjusted at 1400 kilocycles, and the padder condenser adjusted at 600 kilocycles respectively. Proceed as follows, adjust the test oscillator at 1400 kilocycles and couple to the antenna of the receiver. Set tuning condenser at minimum capacity and adjust pointer to 1550 kilocycles, reset tuning control to 1400 kilocycles. Place oscillator and receiver in operation and adjust oscillator output so that a weak signal is obtained on the output meter, adjust trimmers for maximum reading. To adjust 600 kilocycle position readjust oscillator and tuning control to 600 kilocycles and adjust the 750 M. M. F. padder condenser (mounted on the chassis near the loud speaker) for maximum reading.

Stock No.	DESCRIPTION	List Price
557	Carriage bolt and nut	$0.20
564	Distributor suppressor	.50
565	.01 mfd. 200-volt tubular condenser	.15
568	.01 mfd. 400-volt tubular condenser	.20
569	.5 mfd. 200-volt interference condenser	.30
572	.1 mfd. 200-volt tubular condenser	.15
575	.1 mfd. 400-volt tubular condenser	.20
579	.25 mfd. 200-volt tubular condenser	.20
581	.005 mfd. 600-volt tubular condenser	.20
588	500 mmf. Mica condenser, type W	.20
589	50 mmf. Mica condenser, type W	.15
602	250,000 ohm carbon resistor, 1/5 watt	.15
603	100,000 ohm carbon resistor, 1/5 watt	.15
613	20,000 ohm carbon resistor, 1 watt	.15
614	5,000 ohm carbon resistor, 1/5 watt	.15
615	500,000 ohm carbon resistor, 1/5 watt	.15
631	50,000 ohm carbon resistor, 1/5 watt	.15
791	Goat tube shields with ring	.10
937	6-prong tube socket, marked No. 42	.10
1028	6-prong tube socket, marked No. 75	.10
1052A	Candohm resistor, 1,000 ohm	.20
1225	Antenna and detector aluminum shield can	.20
1235	Power transformer	2.80
1238	Vibrator unit	4.20
1241	"A" battery lead assembly	.60
1249	5-prong tube socket, marked No. 84	.10
1272	Low power factor condenser, .5 mfd., 120-volt	.40
1285	100 mmf. mica condenser	.15
1286	250 mmf. mica condenser	.15
1292	Shaft coupling tubing	.10
1296	Shielded antenna loom	.60
1299	Antenna connector socket	.20
1404	7-prong tube socket, marked No. 6A7	.10
1720	6-prong tube socket, marked No. 6D6	.10
1727	Goat tube shield bases	.10
1869	.015 mfd. 300-volt tubular condenser	.20
1870	750 mmf. variable padder condenser	.30
1871	100 ohm carbon resistor, 1/5 watt	.15
1872	500 ohm carbon resistor, 1/2 watt	.15
1875	Oscillator shield can	.20
1880	3-gang variable condenser	3.60
1881	Volume control and switch	1.00
1882	Electrolytic condenser	1.95
1883	6" dynamic Jensen speaker	5.85
1887	.0075 mfd. 1,600-volt buffer condenser	.65
1888	Toggle switch S. P. S. T. (tone control)	.20
1233A	First I. F. transformer	1.60
1904	Second I. F. transformer	1.60
1910	Remote control unit	4.00
1914	Pilot light lead	.60
1915	1 mfd. 120-volt low-power factor condenser	.30
1949	Volume control shaft	1.50
1950	Tuning control shaft	1.50
1951	Antenna coil	.75
1952	Detector coil	.75
1953	Oscillator coil	.80

DETROLA RADIO CORP.

MODEL 6W
Schematic
Voltage
Parts List



TUBE SOCKET VOLTAGE

Tube Number		Control Grid to Cathode	Screen to Cathode	Plate to Cathode	M. A. Plate	Heater Voltage
6A7	1st Det.	*2	85	210	3.	6.3
	OSC.			210	4.	
78—1st I. F.		*2	85	150	7.	6.3
78—2nd I. F.		*2	85	210	4.	6.3
75—2nd Det.		*2		110	.5	6.3
42—2nd Audio		**15	210	190	32.	6.3
80—Rect.					25 Per Plate	5.

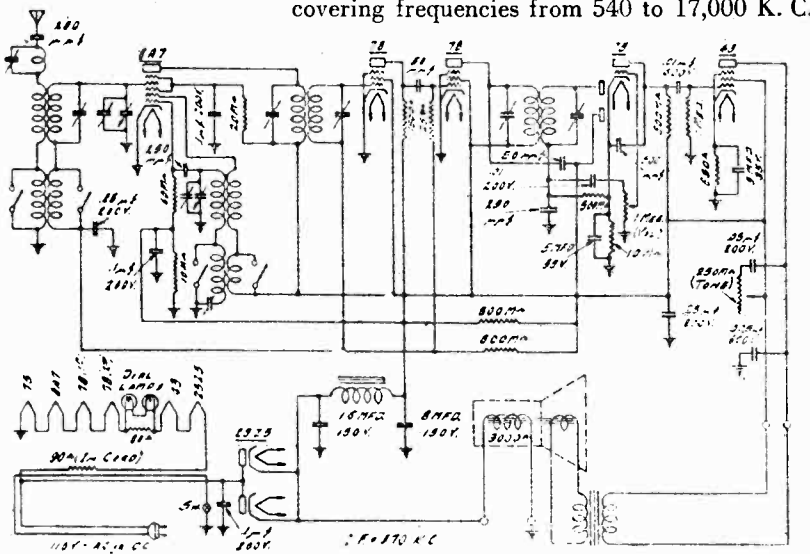
*Terminal No. 5 on candohm to ground.

**Terminal No. 6 on candohm to ground.

For Alignment, see Index

Stock No.	DESCRIPTION
565	.01 mf. 200 volt condenser
568	.01 mf. 400 volt condenser
572	.1 mf. 200 volt condenser
575	.1 mf. 400 volt condenser
578	10 mfd. 30 volt electrolytic condenser
576	.02 mf. 400 volt condenser
581	.005 mf. 600 volt condenser
589	50 mmf. Mica condenser
590	250 mmf. Mica condenser
602	250,000 ohm carbon resistor, 1/5 watt
603	100,000 ohm carbon resistor, 1/5 watt
609	15,000 ohm carbon resistor, 1/5 watt
610	7,500 ohm carbon resistor, 1/5 watt
615	500,000 ohm carbon resistor, 1/5 watt
624	1 megohm carbon resistor, 1/5 watt
631	50,000 ohm carbon resistor, 1/5 watt
936	4-prong tube socket, marked 80
937	6-prong tube socket, marked 42
939	6-prong tube socket, marked 78
1013A	Power transformer
1028	6-prong tube socket, marked 75
1034	6" dynamic speaker
1277	Dial cable
1402	Single padder condenser
1404	7-prong tube socket, marked 6A7
1412	1750 mmf. Mica condenser
1572	Volume control
1573	Tone control and AC switch
1597	Glass crystal
1624A	8-8 mfd. 450 volt electrolytic condenser
1714	Dial chart
1715	Candohm resistor
1716A	3-way, 12 point switch
1727	Goat shield bases
1724	2000 mmf. Mica condenser
1733	Cabinet
1741	Wave band escutcheon plate
1742	Wave band pointer knob
1745	Dual midget trimmer
1768	1st I. F. transformer
1769	2nd I. F. transformer
1770	Wave trap
1765	Oscillator coil
1764	Short wave antenna coil
1763	B. C. antenna coil

The Model 6-X is a 6-tube superheterodyne receiver designed for receptions on standard broadcast, police and amateur and European short wave broadcast, covering frequencies from 540 to 17,000 K. C.



For Alignment, see Index

TUBE SOCKET VOLTAGES

Tube Number	Control Grid to Cathode	Screen to Cathode	Plate to Cathode	M. A. Plate	Tube Socket Voltages Heater or Filament Voltage
6A7 1st Det.	0	50	95	1.5	6.3
6A7 OSC.	2		95	3.	
78—1st I. F.	0	95	50	2.5	6.3
78—2nd I. F.	0	95	95	5.	6.3
75—2nd Det.	1.		30	.25	6.3
43—2nd Audio		95	75	20	25.
25z5—Rect.					25.

Stock No.	DESCRIPTION
532	Bakelite knobs, K. K.
565	.01 mf. 200 volt tubular condenser
568	.01 mf. 200 volt tubular condenser
572	.1 mf. 200 volt tubular condenser
579	.25 mf. 200 volt tubular condenser
580	.05 mf. 200 volt tubular condenser
588	500 mmf. Mica condenser
589	50 mmf. Mica condenser
590	250 mmf. Mica condenser
600	10,000 ohm carbon resistor, 1/5 watt
610	7,500 ohm carbon resistor, 1/5 watt
615	500,000 ohm carbon resistor, 1/5 watt
617	20,000 ohm carbon resistor, 1/5 watt
621	25,000 ohm carbon resistor, 1/5 watt
624	1 megohm carbon resistor, 1/5 watt
636	40,000 ohm carbon resistor, 1/5 watt
1666	Candohm resistor, 60 ohms
1667	Filter choke
1675	Volume control with hex. nut
1676	Tone and A. C. switch with hex. nut
1677	Dual wave switch and hex. nut
1678	Elec. cond., 16-8-5-5 mfd.
1679	A. C. - D. C. cord, 90 ohms
1680	Double stage trimmer
1683	450 ohm carbon resistor, ½ watt
1687	6-prong tube socket, marked 43
1688	6-prong tube socket, marked 25z5
1690	2-gang variable condenser
1693	5" dynamic Rol-a-speaker
1646	1st I. F. transformer assembly
1647	2nd I. F. transformer assembly
1649	Short wave antenna coil
1540	Broadcast antenna coil
1707	Oscillator coil
1711	Wave trap

DETROLA RADIO CORP.

MODEL 7A
Schematic
Voltage

Tube No.	Heater to Cathode Voltage	Control Grid to Cathode Voltage	Screen to Cathode Voltage	Plate to Cathode Voltage	Plate MA	Heater or Fil. Voltage
1—R. F.	0	4.5*	100	250	6.0	6.3
2—1st Det.	0	4.5*	100	250	6.0	6.3
3—I. F.	0	4.5*	100	250	6.0	6.3
4—2nd Det. AVC	0	2.0**	0	125	75	6.3
5—Osc.	0	2.6	0	95	5.5	6.3
6—Audio	0	20.0	250	225	31.0	6.3
7—Rect.	0				32 per plate	5.0

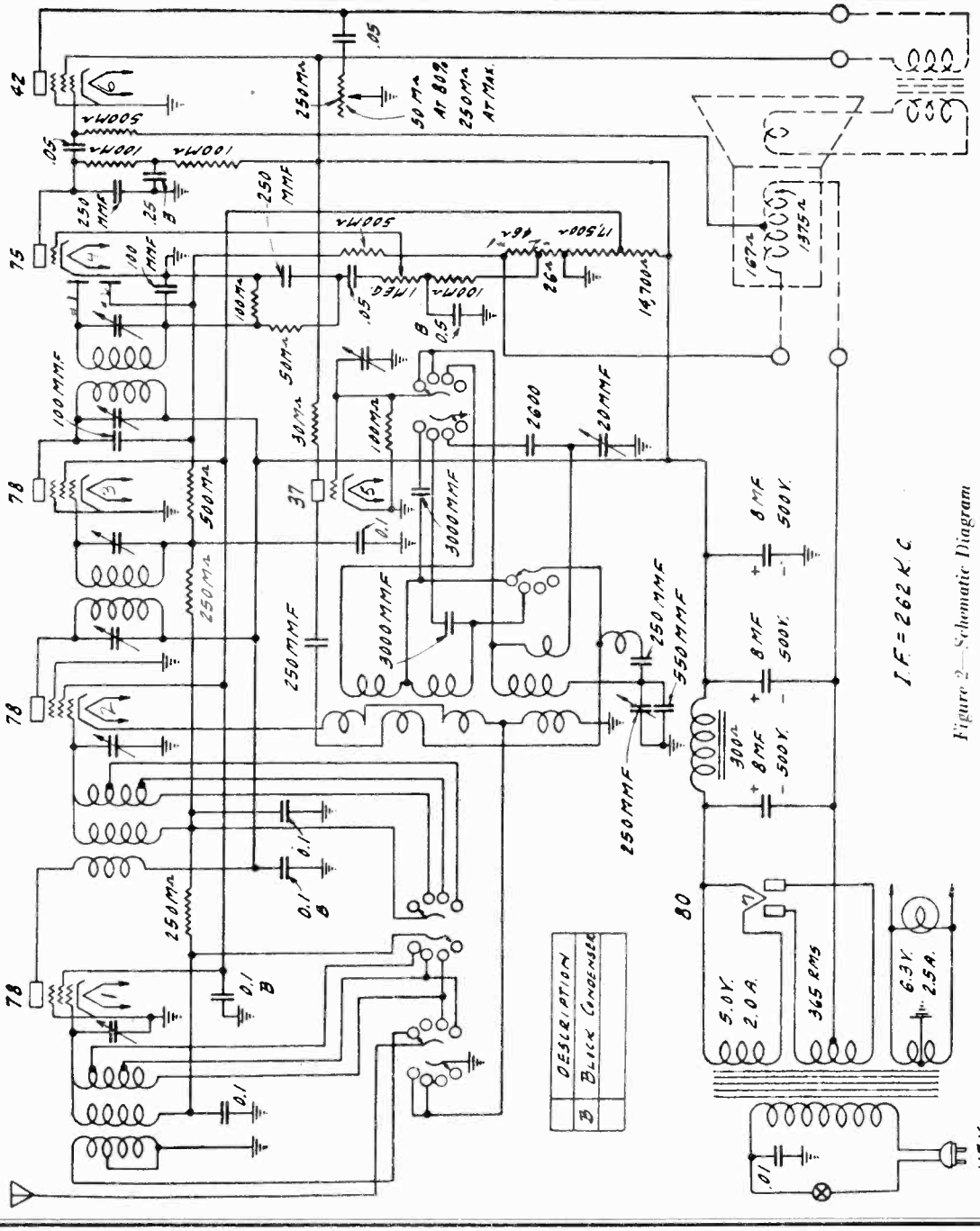


Figure 2—Schematic Diagram

Voltage reading taken with 1000 ohm per volt meter using test prods. All tubes in sockets, Ant. ground to chassis, no signal.
*Voltage from ground to terminal No. 1 ON THE VOLTAGE DIVIDER.
**Voltage from ground to terminal No. 2 ON THE VOLTAGE DIVIDER.

SERVICE NOTES
for

Detrola 7-A All-Wave Receiver

The Detrola- 7A is a seven tube all-wave super-heterodyne receiver, covering broadcast frequencies 550-1520 kilocycles and short-wave frequencies 1.5-4 megacycles, 3.6-10 megacycles, 8-10 megacycles.

Other outstanding features of this receiver are:—78 triple grid super-control tubes in the R. F. first detector and I. F. stages; 37 oscillator; 75 double diode triode, operating as a delayed AVC, second detector and first audio; and the 42 super-power amplifier, delivering 3 watts of undistorted output to the speaker. The location and functioning of each tube is shown in Fig. 1. (Photo on back.)

The 78 tube operating in the R. F. and first detector and I. F. will handle large signal voltages and reduce cross modulation and modulation distortion to a minimum. The 37 tube, operating as an independent oscillator generating the correct oscillator voltage on all bands, greatly adds to the over-all sensitivity of the receiver. Due to the fact that a separate oscillator is used in the receiver, rather than an electron coupled oscillator, the receiver will be found to be extremely free from back ground noises on high frequency bands. This gives the listener the impression that the receiver is not as sensitive as sets using other types of oscillators with the accompanying hiss. The real test for the receiver is to try it on a good antenna in a residential district away from the shielding effect of steel buildings.

The 75 tube operating as a diode detector delayed AVC and first audio has several outstanding advantages. Diode No. 1 operating as a second detector rectifies the signal input voltage of the I. F. amplifier into pulsating DC voltage. This results in a more close approximation of the actual signal broadcast by the transmitting station than may be obtained by other types of detectors which cause considerable distortion in handling high signal voltages. Diode No. 2 operates as a delayed automatic volume control. This type of volume control has an advantage over a quick acting volume control inasmuch as it does not start to operate until the signal voltages have reached approximately 50 microvolts. This makes the receiver very sensitive to weak signals. This is especially desirable on short-wave reception as it allows a good audio output on weak signals, and at the same time reduces fading to a minimum.

AUTOMATIC VOLUME CONTROL

A word about the operation of the automatic volume control at this time may be in order. Diode No. 2 is coupled to the plate of No. 3 tube through a 100 mmf. R. F. bypass condenser impressing the R. F. carrier voltage on the diode at which point a rectifying action takes place and produces a DC voltage drop across the 500,000 ohm resistor in series with the diode and the cathode of the 75 tube, the circuit being completed through 72 ohms of the 32, 372 ohm voltage divider and the ground of the chassis. The voltage drop across the 72 ohms of the voltage divider, which is in series with the negative of the high voltage supply, furnishes a fixed bias of 4.5 volts for the control grids of tubes No. 1, 2 and 3. Refer to Fig. 2, it will be noted that the grid return of tubes No. 1, 2 and 3 return through isolating resistors to the end of the 500,000 ohm resistor that connects the No. 2 diode. When a strong signal is impressed upon the diode, the voltage across the 500,000 ohm resistor increases, thus increasing the control grid bias on the grids of No. 1, 2 and 3 tubes and lowering the sensitivity of the receiver. A weak signal will cause a lower voltage drop across the 500,000 ohm resistor, will decrease the control grid voltage, and will increase the sensitivity of the receiver, thus reducing fading of weak signals and blasting of powerful local stations.

WAVE BAND CHANGE SWITCH

The wave band change switch has four positions. The band on which the switch is set will be indicated by the illuminated chart on the airplane dial.

SERVICE SUGGESTIONS

(1) NOISY RECEPTION. Noisy reception may be checked by disconnecting the antenna from the receiver. If the noise completely stops or dimishes in volume it is an indication that it is being picked up by the antenna, and is not a fault of the receiver. However, if this does not effect the noise it is an indication that it may be in the receiver and is usually caused by defective tubes and can be found by tapping lightly on the tubes or other parts of the receiver which may be defective.

(2) LOW VOLUME. This trouble may be caused by weak or defective tubes (replace with set of tubes known to be in good condition), antenna disconnected from the receiver or highly shielded location.

(3) LOW VOLTAGE. Low voltage may be caused by defective 80 rectifier, shorted filter or bypass condenser, defective power transformer or low line voltage.

(4) DISTORTED REPRODUCTION. Failure of the automatic volume control to operate may be caused by defective 75 tube, shorted or open 500,000 ohm resistor in No. 2 diode circuit, open 250,000 ohm R. F. and I. F. isolating resistor, shorted .1 mfd condensers in grid return of I. F. and R. F. stages. This may be checked by tuning the receiver to a powerful local station and measuring the voltage from No. 2 diode to No. 1 terminal on the voltage divider with high resistance voltmeter. The voltage should be approximately 2 volts and should return to zero when the receiver is tuned off the station. This is not a true voltage reading but will serve to indicate whether or not the automatic volume control is operating.

(5) OSCILLATION. Oscillation may be caused in the R. F. or I. F. stages by open bypass or filter condenser; improper shielding, caused by tube shields not making proper contact with their bases; grid wires out of their proper position. Open bypass condensers may be checked by using a test condenser equipped with test leads and connected to terminals of condenser under test.

(6) HUM. Excessive hum may be caused by defective 80 tube. (Replace with tube known to be in good condition). Open filter condenser (any one of the filter condensers being open would cause an excessive hum), or by defective speaker field coil. The speaker field coil is part of the filter system and shorted turns or grounded coil may cause hum. Shorted or grounded filter reactor may also cause excessive hum.

(7) R. F. and I. F. ALIGNMENT. The trimmer on the tuning condensers and the intermediate stages are very accurately adjusted before the receiver leaves the factory and should need little or no attention. To check adjustments the following procedure should be followed:

The action of the automatic volume control will defeat the purpose of an output meter. To overcome this, it will become necessary to reduce the coupling between the oscillator and the receiver so that only a small reading is obtained on the output meter with the volume control set for maximum volume. This will allow the output meter to work correctly. Adjust the test oscillator to 262 kilocycles and couple to the control grid of No. 2 tube and adjust trimmers on I. F. stage for maximum reading on the output meter.

R. F. ALIGNMENT. Couple oscillator to the antenna (reduce coupling as outlined in I. F. adjustment). Set pointer on tuning chart to 1400 kilocycles with wave band control switch in broadcast position. Adjust test oscillator to 1400 kilocycles. Adjust trimmers on No. 1 and 2 section of tuning condenser for maximum reading. The trimmer of No. 3 section of the tuning condenser should be set for minimum capacity, and the high frequency trimmer on back of chassis (left viewing chassis from back) should be adjusted for maximum read-

DETROLA RADIO CORP.

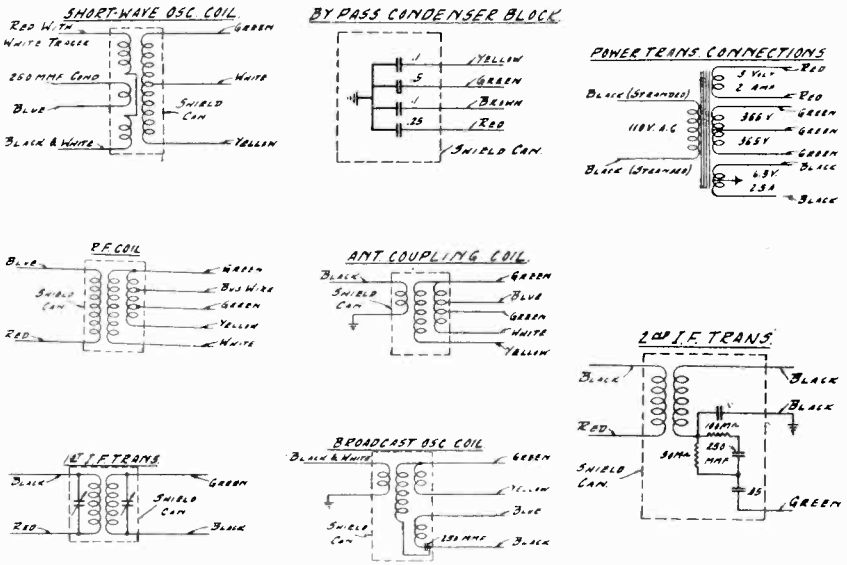


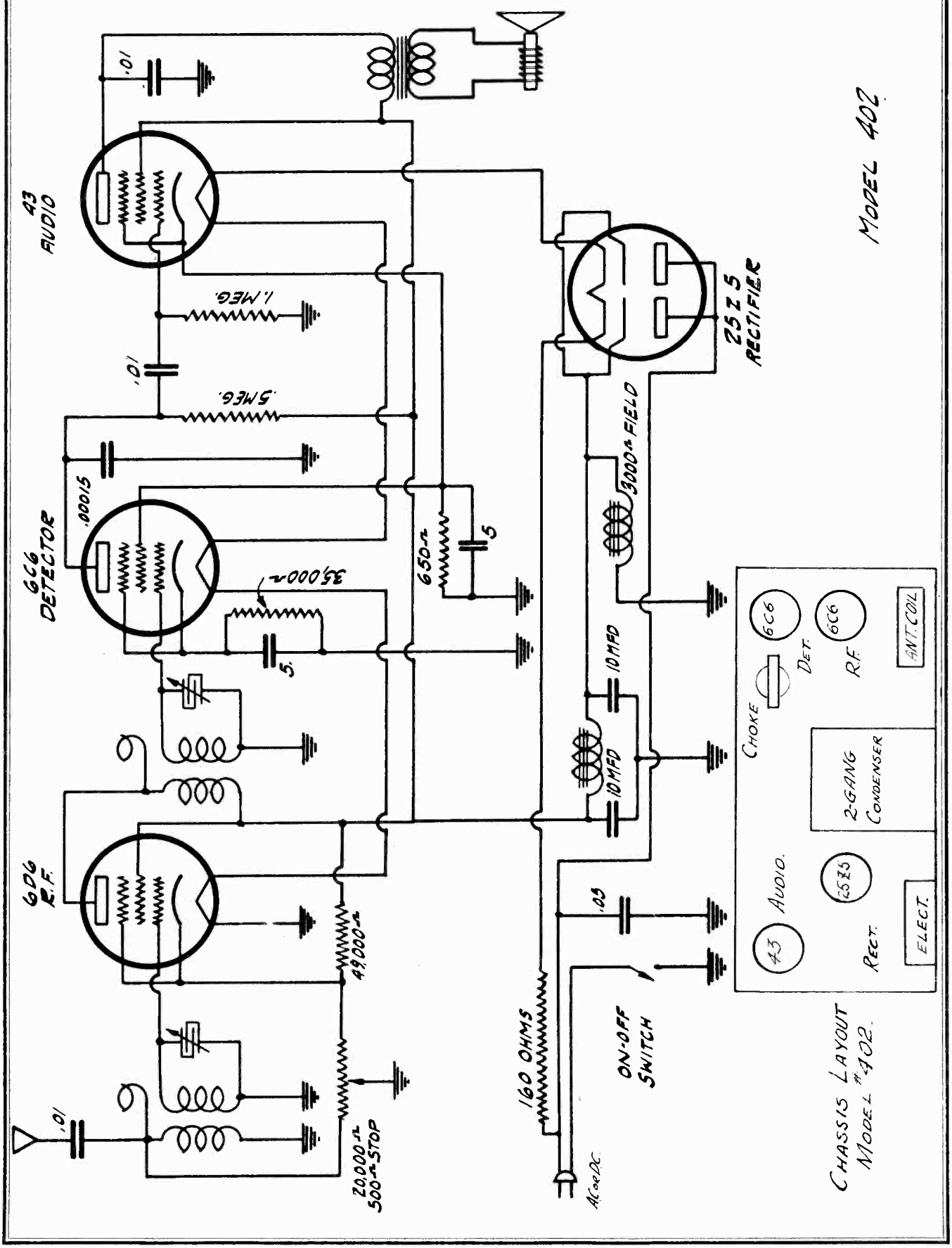
Figure 3

REPLACEMENT PARTS

Stock No.	DESCRIPTION	List Price	Stock No.	DESCRIPTION	List Price
1084	Volume control	$0.70	937	6 prong socket No. 42	.10
1083	Tone control and A.C. switch	1.00	1023	6 prong socket No. 75	.10
1063	Short wave switch	2.95	936	4 prong socket No. 80	.10
1062	Tuning condenser for sets with full vision dial	3.20	1098	Tube shield base	.05
1273	Tuning condenser for sets with airplane dial	3.40	1097	Tube shield cap	.10
1059	Filter choke	1.15	1096	Tube shield	.15
934	A. C. cord	.30	1066	8" speaker	9.35
1092	Pilot light socket	.15	1061	Power transformer	3.40
580	.05—200 volt condenser	.10	1014	8-8, 450V filter condenser	2.10
563	.05—400 volt condenser	.15	1085	8—450 filter condenser	1.25
572	.1—200 volt condenser	.15	1175	1st IF transformer	1.55
1088	100 mmf condenser	.15	1176	2nd IF transformer	1.80
590	250 mmf condenser	.15	1060	Bypass condenser block	1.20
1107	550 mmf condenser	.20	1082	Double padder condenser	.40
1105	2600 mmf condenser	.35	568	.01—400 volt condenser	.15
1106	3000 mmf condenser	.40	1104	Dial—Complete full vision	1.20
631	50,000 ohm resistor—½ watt	.15	1179	Antenna coil	.50
603	100,000 ohm resistor—½ watt	.15	1181	Detector coil	.50
602	250,000 ohm resistor—½ watt	.15	1182	Broadcast oscillator coil	.50
615	500,000 ohm resistor—½ watt	.15	1184	Short wave oscillator coil	.50
1087	30,000 ohm resistor—1 watt	.15	1274	Escutcheon plate—Airplane dial	.40
1101	Cabinet for full vision dial	7.00	1275	Pyralin escutcheon window	.20
531	Knobs	.05	1203	Drive cable spring	.10
1136	Escutcheon plate for full vision dial	.40	1209	Dial chart	.10
1282	Cabinet—airplane dial	7.20	1199	Dial pointer	.05
939	6 prong socket No. 78	.10	1277	Dial drive cable	.05
1086	5 prong socket No. 37	.10			

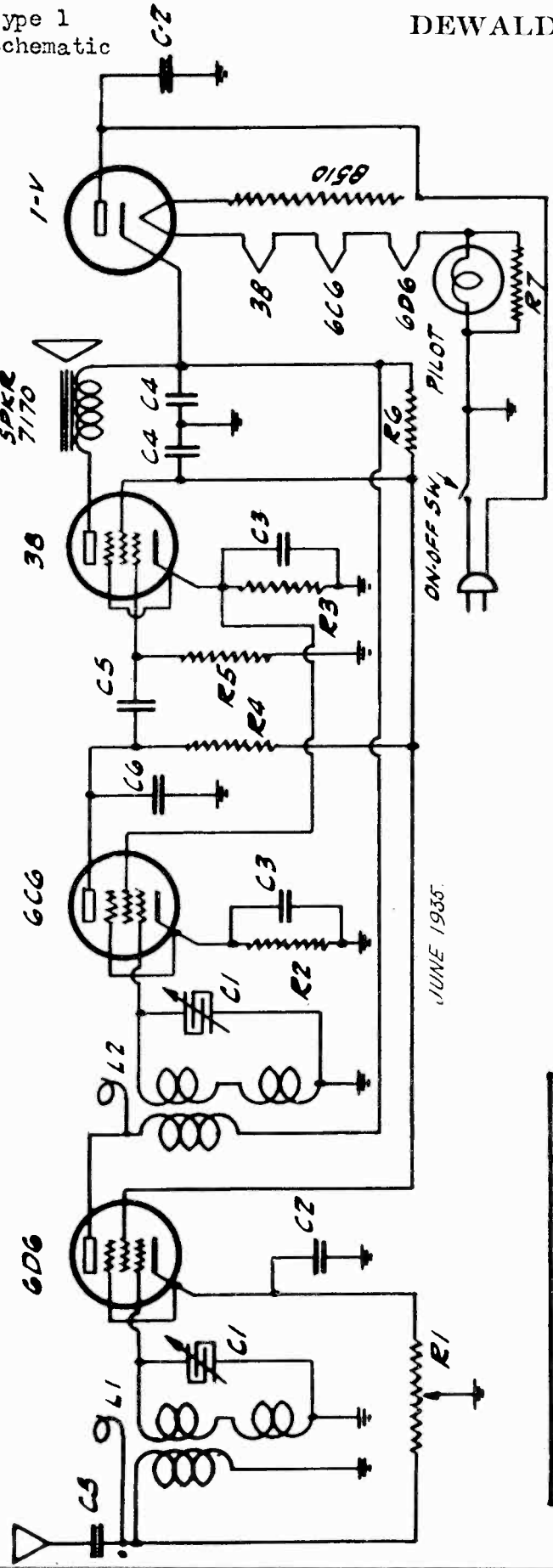
DEWALD RADIO

MODEL 402
Schematic
Socket



MODEL 403-4
Type 1
Schematic

DEWALD RADIO



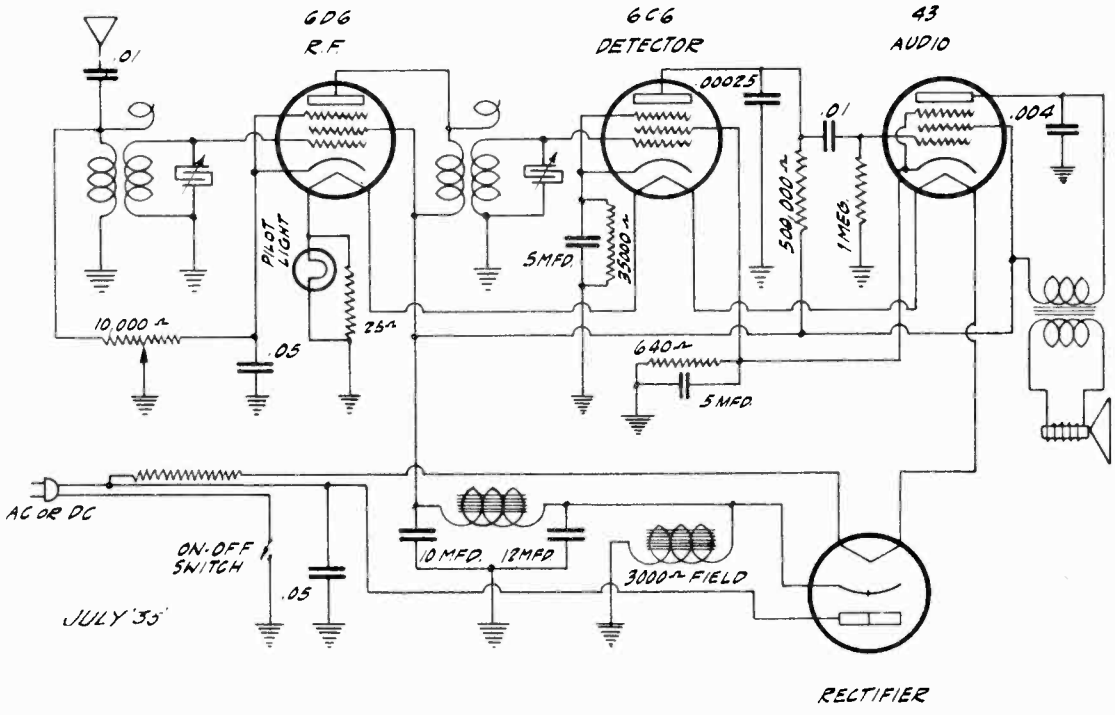
Socket Voltages			
6D6	CATHODE TO GROUND	2.5 VOLTS	A
	PLATE TO CATHODE	120-135 V.	B
	SCREEN TO CATHODE	90-115 V.	B
6C6	CATHODE TO GROUND	.5 VOLTS	A
	PLATE TO CATHODE	20-30 V.	B
38	CATHODE TO GROUND	10-15 V.	B
	PLATE TO CATHODE	115-125 V.	B
	SCREEN TO CATHODE	95-115 V.	B
1-V	CATHODE TO GROUND	120-140 V.	B

ALL READINGS TAKEN WITH VOLUME CONTROL IN MAXIMUM POSITION, USING 1000 OHM-PER-VOLT METER. FILAMENTS AT RATED VOLTAGES. A= 0-10 V. RANGE. B = 0-250 V. RANGE.

L1 - ANTENNA COIL	1331
L2 - R.F. COIL	1332
C1 - VARIABLE COND.	2204
C2 - .05 COND.	2046
C3 - .1 MFD. COND.	2285
C4 - 8 MFD. COND.	2283
C5 - .01 MFD. COND.	2056
C6 - .00025 MFD. COND.	2047
R1 - VOL. CONT. 25M. OHMS	8499
R2 - 35,000 OHM. RES.	3261
R3 - 1,700 OHM. RES.	3335
R4 - 500,000 OHMS RES.	3161
R5 - 1 MEGOHM. RES.	3190
R6 - 10,000 OHM. RES.	3336
R7 - 25 OHM SHUNT	3313
PILOT LIGHT 6-8 VOLTS	8407
LINE CORD	8510
SPEAKER	7170

MODEL 403-4
Schematic
Notes, Parts

DEWALD RADIO



MODEL 403-4

The Model 403 is a 4 Tube Receiver operating on A.C. or D. C., 110-120 Volts, 25-60 Cycles.

OPERATION Turn set on by turning ON-OFF switch. Allow 30 seconds for tubes to heat, turn volume control knob to middle position and then secure desired station by turning the station selector knob. When tuning in a station, set tuning control carefully to maximum station volume, then adjust with volume control knob to desired volume.

When operated on Direct Current if no reception is heard approximately one minute after set is turned on, reverse plug in Outlet. No ground wire is required with this set.

TUBES 1-6D6, 1-6C6, 1-43, and 1-12Z3

ANTENNA Unwind Antenna and place along baseboard or in any convenient location, the Antenna may also be grounded. For Additional signal strength an outside Antenna may be used.

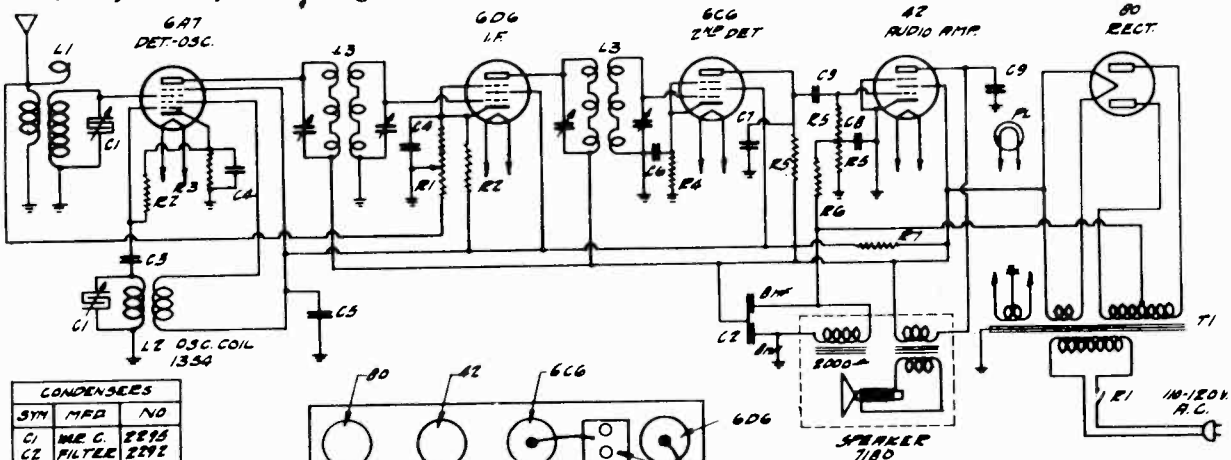
IMPORTANT DO NOT TOUCH GROUND WIRE TO CHASSIS

NUMBERS & LIST PRICES OF REPLACEMENT PARTS

1331	Antenna Coil ----------.55	2047	.00025 Mica Cond ----- .35
1332	Detector Coil ----------.55	7174	Speaker----------4.25
2283	Electrolytic Cond.---- -1.00	8524	Line Cord Resistor---- .80
2284	Variable Condenser------2.15	8499	Vol Control ----------1.00
2056	.01 Cub Cond.---------- .35	5093	Antenna ---------- .20
2046	.05 " " ---------- .35	8512	Knobs ---------- .20
1344	B Choke ---------- .75		

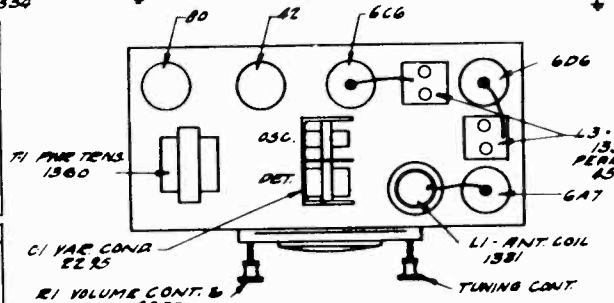
MODEL 505-F
Schematic, Socket, Alignment
MODEL 510
Schematic, Socket, Parts, Alignment

DEWALD RADIO



CONDENSERS		
SYM	MFD	NO
C1	VAR. C.	2295
C2	FILTER	2292
C3	.0001	2123
C4	.05	2046
C5	.1	2188
C6	.25	2033
C7	.000025	2047
C8	.1	2022
C9	.01	2056

RESISTORS		
SYM	OHMS	NO.
R1	VOL.CONT.	8553
R2	50,000	3292
R3	300	3346
R4	35,000	3180
R5	.5 MEG.	3161
R6	2. MEG.	3184
R7	18,000	3347



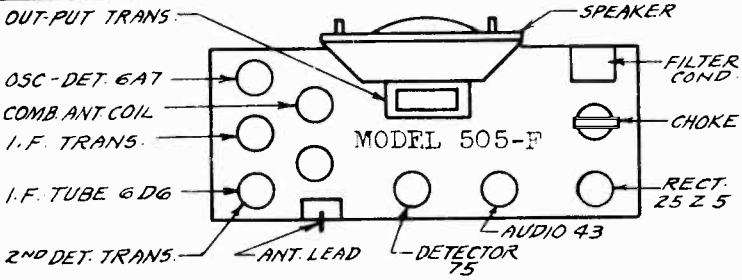
CHASSIS LAYOUT **MODEL 510**

F 47 M 8-35

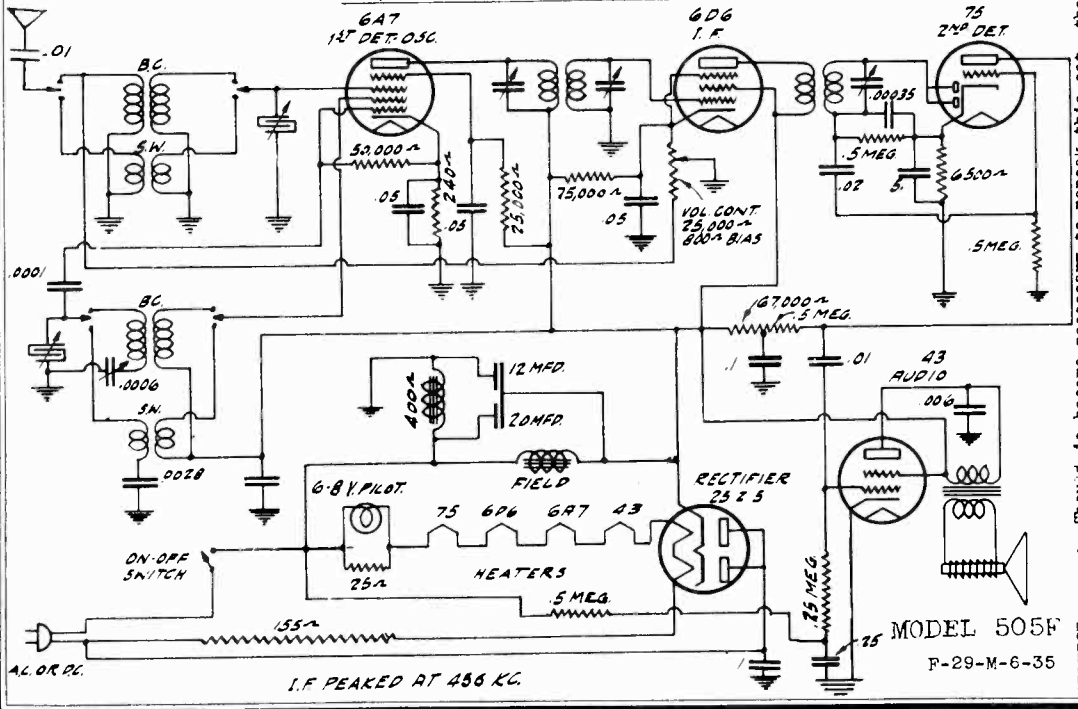
LIST PRICES OF REPLACEMENT PARTS

MODEL 510

1360	Power Transformer	$2.85
1355	I. F. Transformer	1.40
1331	Ant. Coil	.55
1354	Osc. Coil	.55
2295	Variable Condenser	2.10
2292	Combination Electrolytic	1.60
2123	.0001 Mfd. Condenser	.40
2047	.000025 " "	.35
2022	.1 Mfd. 200 v. Cond.	.35
2188	.1 Mfd. 400 V Cond.	.35
2056	.01 " " " "	.35
2046	.05 " 200 V "	.35
2033	.25 " 200 V "	.40
7180	Speaker	4.25
8553	Comb. Vol. Control	1.05
8496	Line Cord	.35
8512	Knobs	.20



PLAN VIEW OF CHASSIS

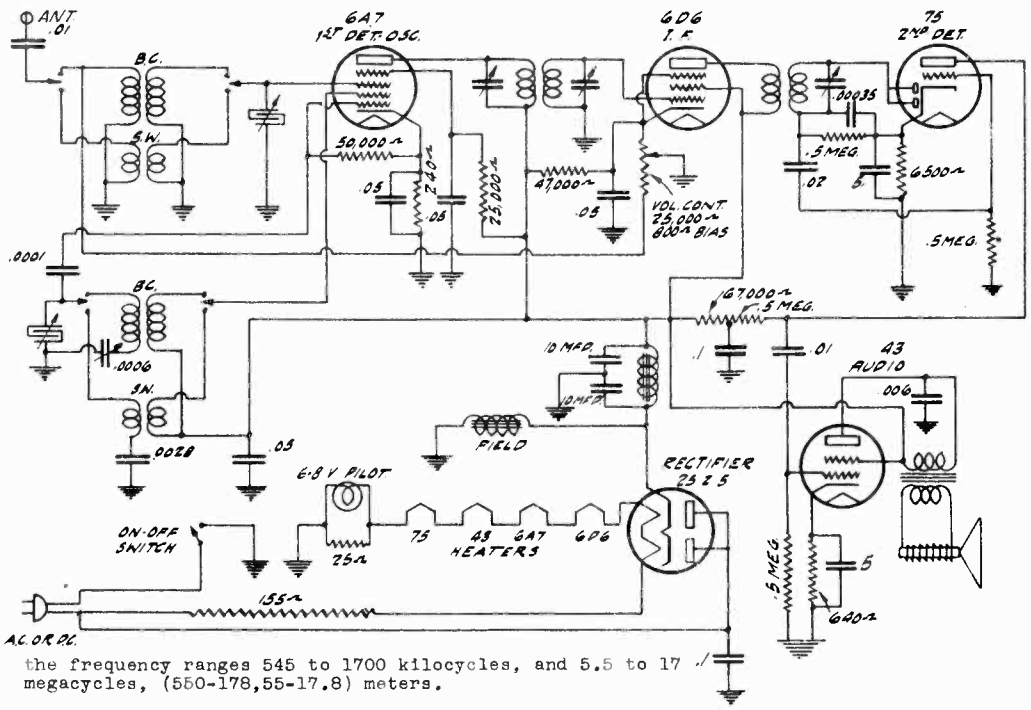


SERVICE NOTES : Should it become necessary to repeak this set, the following procedure should be followed. Set Service Oscillator to 456 K.C. and connect "hot" lead to grid of 6A7 tube. Ground stator of rear (osc.) section of Variable Condenser. Turn volume control for maximum output and repeak intermediate frequency trimmers for maximum gain.

MODEL 510 Remove short from Variable Condenser. Remove Service Oscillator lead from grid of 6A7 and connect same to red lead on rear of set. Adjust service Oscillator and receiver to 1500 K.C. and repeak trimmers on variable condensers for maximum gain. All other frequencies are automatically calibrated when receiver is peaked at 1500 K. C. due to the construction of the cut section of Variable Condenser.

MODEL 505-R
Schematic, Socket
Alignment, Parts

DEWALD RADIO



the frequency ranges 545 to 1700 kilocycles, and 5.5 to 17 megacycles, (550-178,55-17.8) meters.

509-C — I.F. PEAKED AT 456 KC. — Model 505-R

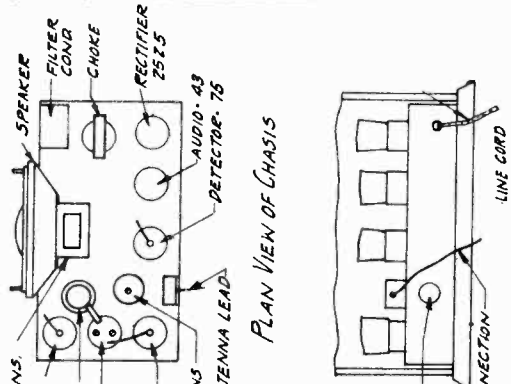
VOLTAGE

This receiver is designed to operate on 110-120 Volts 40-60 cycles, alternating current or 110-120 Volts direct current. When operated on D.C. it is necessary that the line plug be inserted to obtain the correct polarity. If no reception is heard approximately one minute after set has been tuned on, reverse line cord plug in outlet.INT. FREQ. ALIGNMENT. Intermediate frequency peaked at 456 KC. Connect test oscillator to grid of 6A7 and chassis. (Ground stator of front section of variable condenser during this operation.)

R.F. ALIGNMENT

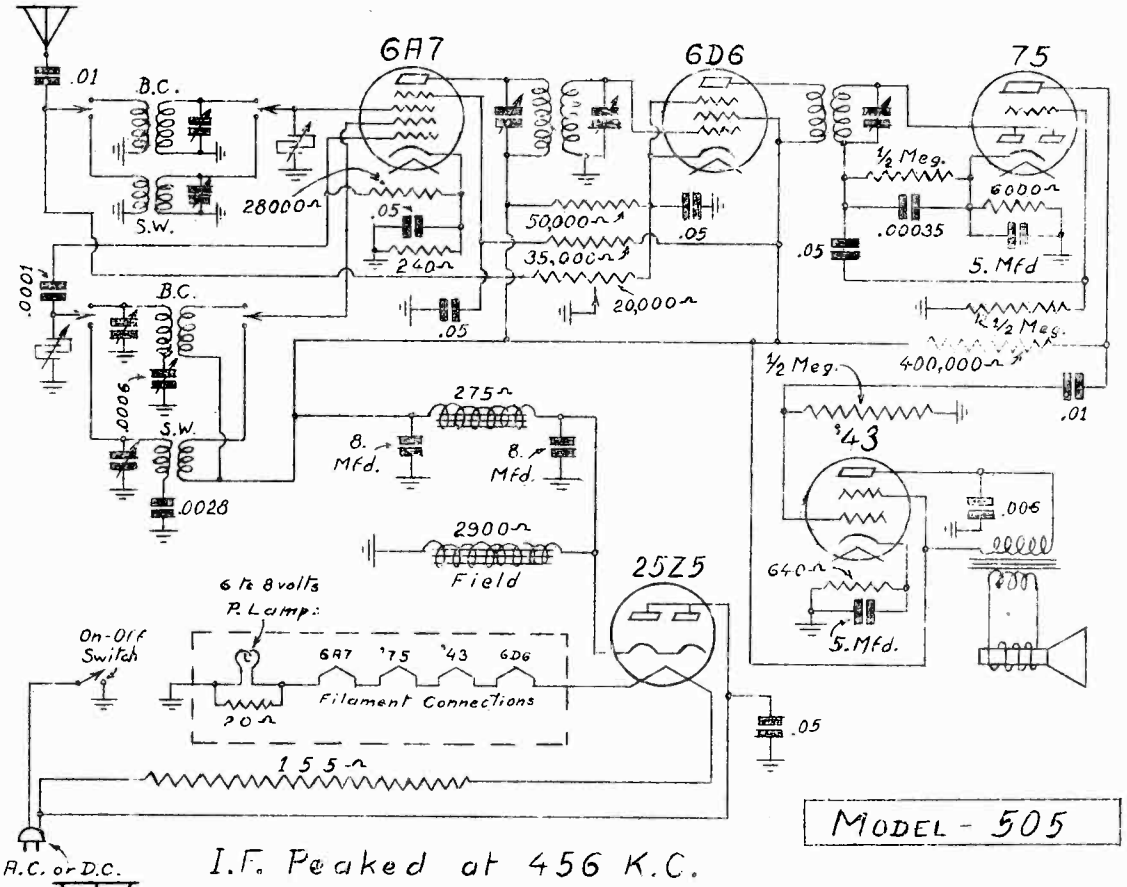
Connect test oscillator to antenna and chassis and set dial to 1500 KC. and peak variable condensers. For low frequency adjustment set dial at 600 KC. and repeak padding condenser on front of chassis, rocking variable condenser at thesame time. Short wave Calibration is automatically taken care of by repeaking at 1500 KC. The short wave coils are matched carefully for this setting. A fixed Calibrated padder automatically peaks the short waves for the low frequency setting.

1304	"B" Choke
1305	Combination Antenna Coil
1306	" Oscillator Coil
1319	Dual I.F. Transformer
1320	Second Detector Coil
2007	.006 Mfd. Cub Condenser
2012	.02 Mfd. Cub Condenser
2046	.05 " "
2056	.01 " "
2123	.0001 Mfd. Mica"
2135	Dual .05 Mfd. Cub Cond
2188	.1 Mfd. Cub Condenser
2229	Padding Condenser
2233	.00035 Mica Condenser
2253	.0028 " "
2264	2 Gang Variable Condenser
2272	Combination Electrolytic
7160-A	Speaker
8473	Combination Line Cord
8474	" Volume Control
8475	Wave Band Switch



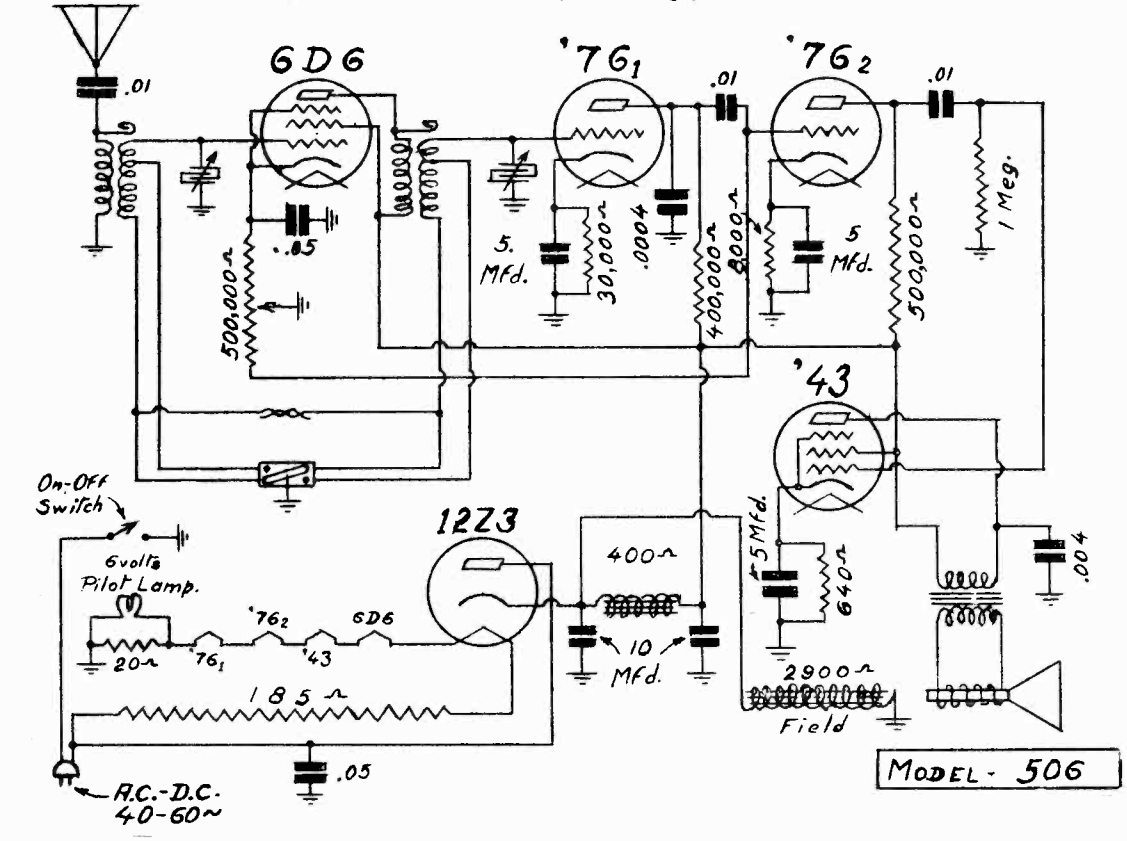
MODEL 505
MODEL 506
Schematics

DEWALD RADIO



MODEL - 505

I.F. Peaked at 456 K.C.



MODEL - 506

MODEL 506-R INSTRUCTION SHEET

The Model 506-R receiver is a universal receiver operating on A.C. or D. C. 110-125 volts 40-60 cycles.

With an additional 220 volt ballast plug, set will operate on A.C. or D.C. 210-240 volts, 40-60 cycles.

OPERATION ON 110 A.C. OR D.C. SUPPLY — Insert line cord plug into receptacle. On direct current if no reception is heard one minute after switch has been turned on, reverse line plug in receptacle.

TUBES — 1-43, 1-6D6, 1-25Z5, and 1-186 R-4,- 1-6C6.

ANTENNA — The antenna may be placed along the baseboard, or may be grounded. For additional power, an outside antenna may be used.
NOTE: The antenna must be unwound or the receiver will not operate satisfactorily. No ground wire is necessary for the operation of the set.

IMPORTANT — DO NOT TOUCH GROUND WIRE TO CHASSIS.

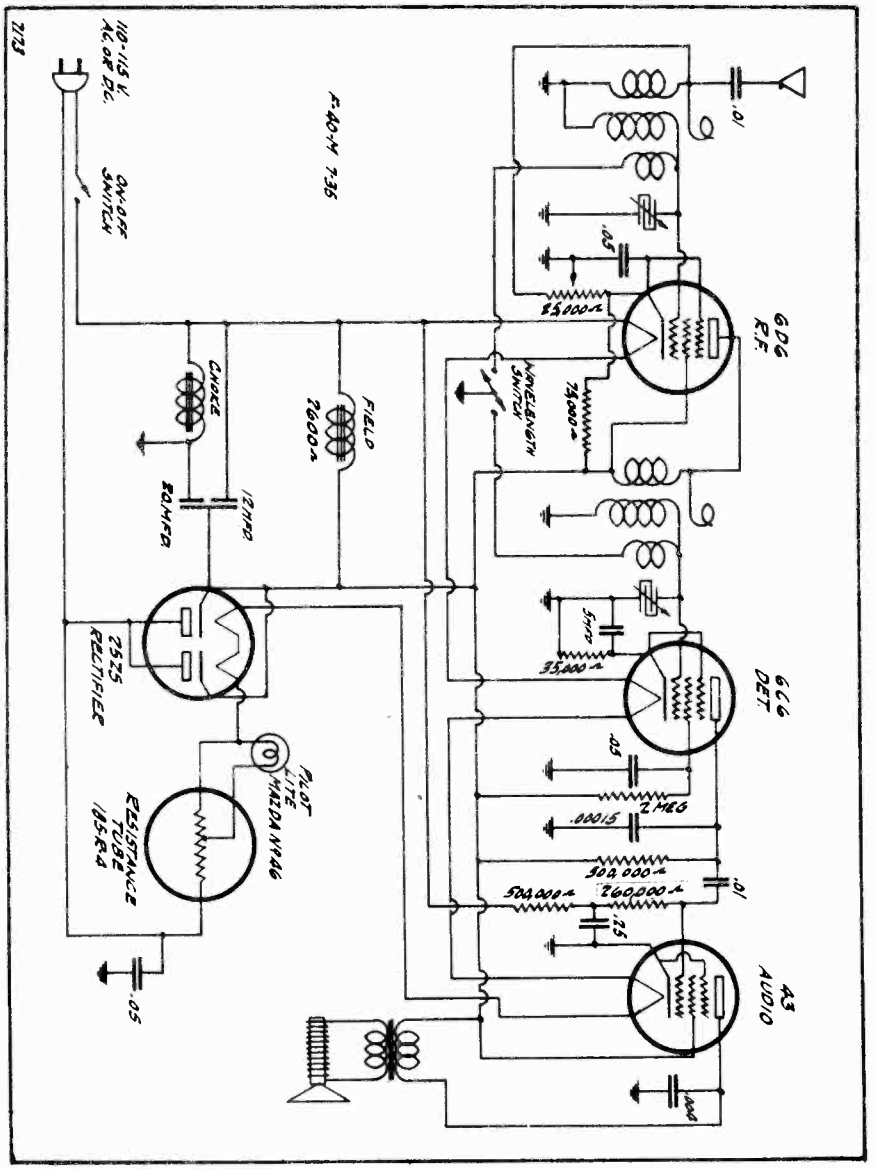
BROADCAST: — Turn wave band switch located in rear of cabinet to broadcast position, locate desired station by turning tuning control.

SHORT-WAVE: — Turn wave band switch to the short wave position and turn tuning control as in Broadcast position. Use Band Two for Dial settings.

WARRANTY — This receiver is guaranteed to be free from defective materials and workmanship for a period of ninety days from date of purchase. We agree to remedy any such defects or to furnish new parts in exchange for any part of any unit of our manufacture which under normal installation or use in service discloses any defects within the stipulated guarantee period. This unit must be delivered by the owner to us or to our representative from whom purchase was made, intact, for our examination. All replacements for defective material will be made providing examination discloses in our judgment that it is thus defective. All transportation charges must be prepaid on merchandise returned to our factory for any cause whatsoever.

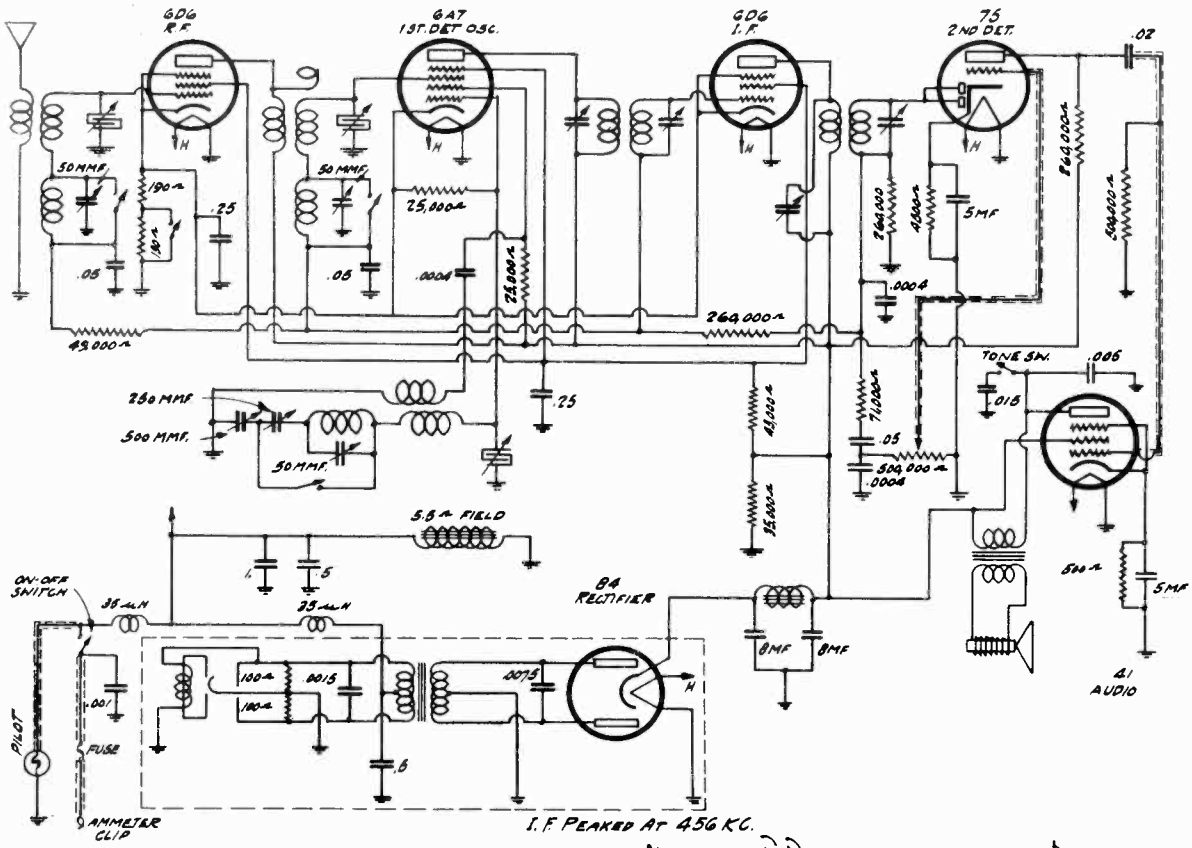
REPLACEMENT PARTS PRICE LIST

PART #		PRICE	PART #		PRICE
1326	Ant. Coil	.65	2033	.25 Mfd. Cond.	.40
1327	Det. Coil	.65	2081	.00025 Mfd. Mica Con.	.40
1328	B Choke	.75	7172	Speaker	4.25
2279	Elect. Cond.	1.50	8496	Line Cord	.80
2280	Variable Cond.	2.15	8487	Volume Control	1.05
2199	.05 Mfd. Cond.	.35	5093	Antenna Cable	.20
2054	.004 " "	.35	8521	Wave Band Switch	.45
2056	.01 " "	.35	8512	Knobs	.20



MODEL 607
Schematic, Socket Trimmers

DEWALD RADIO



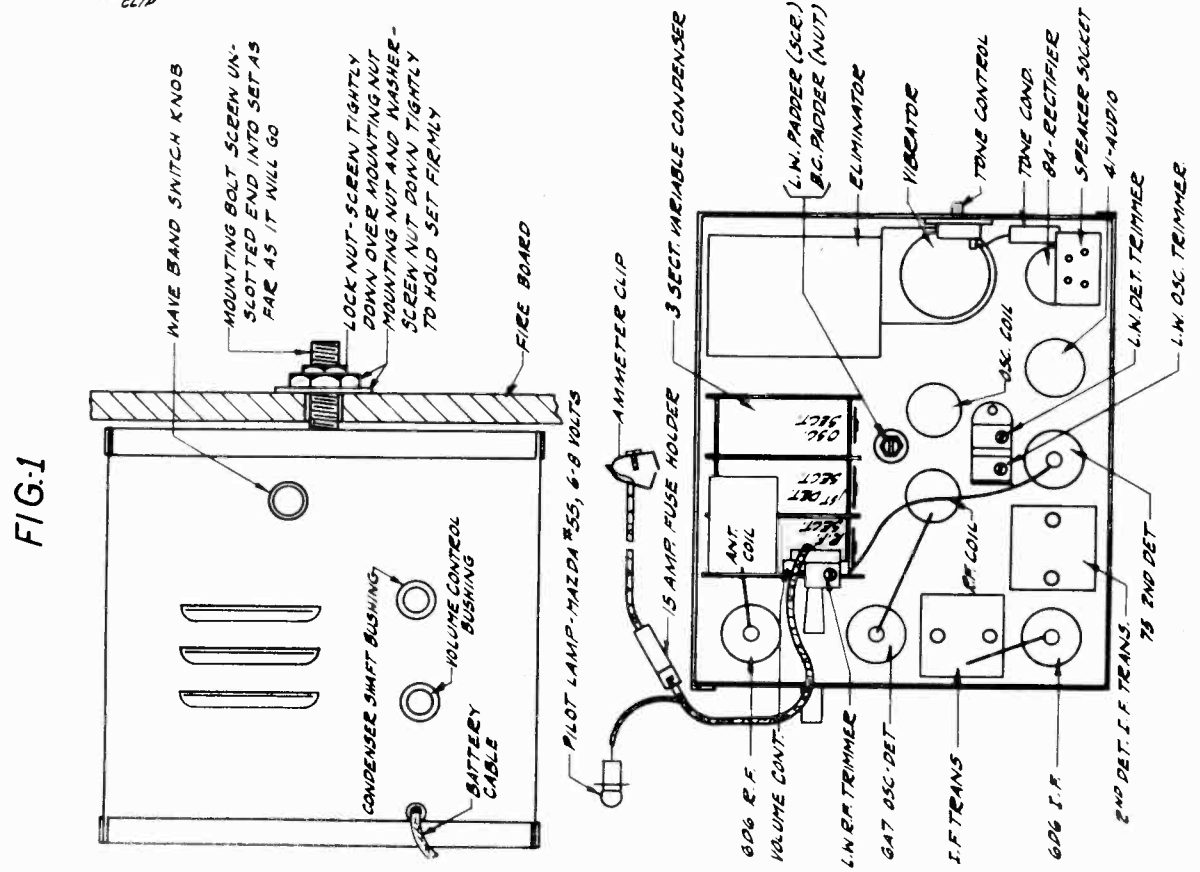
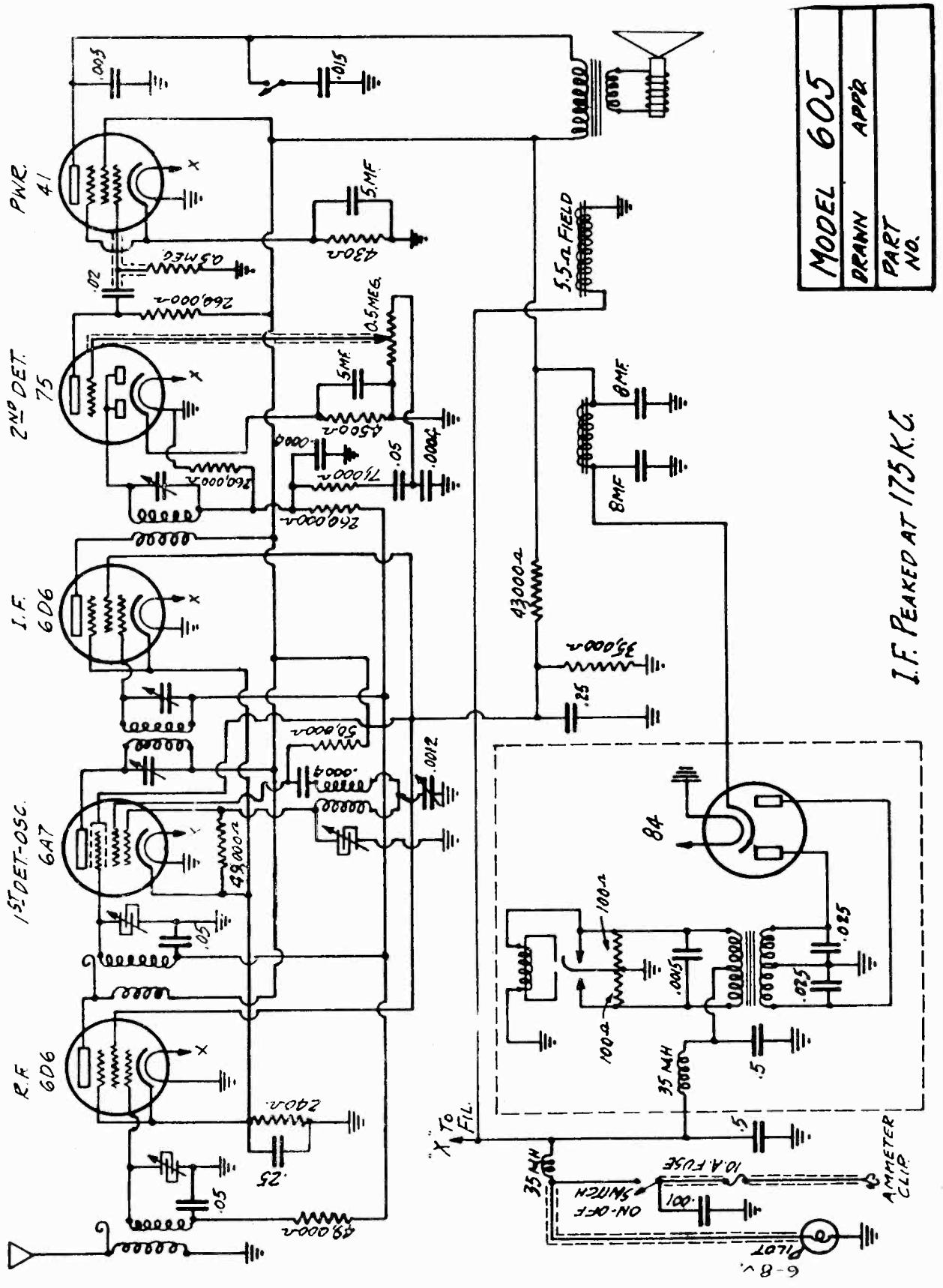
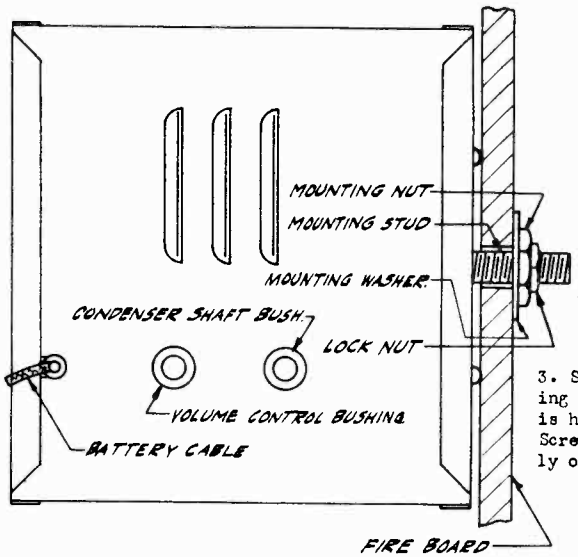


FIG. 1

MODEL 605
Schematic

DEWALD RADIO





MOUNTING DATA

1. Screw unslotted end of mounting bolt tightly (up to the nicks) into large threaded hole in the rear of receiver case.

2. Determine location of set and drill 1-2 inch hole in the fire-board to pass the mounting bolt.

3. Screw on the mounting nut so that the set is held firmly in place. Screw on lock nut firmly over mounting nut.

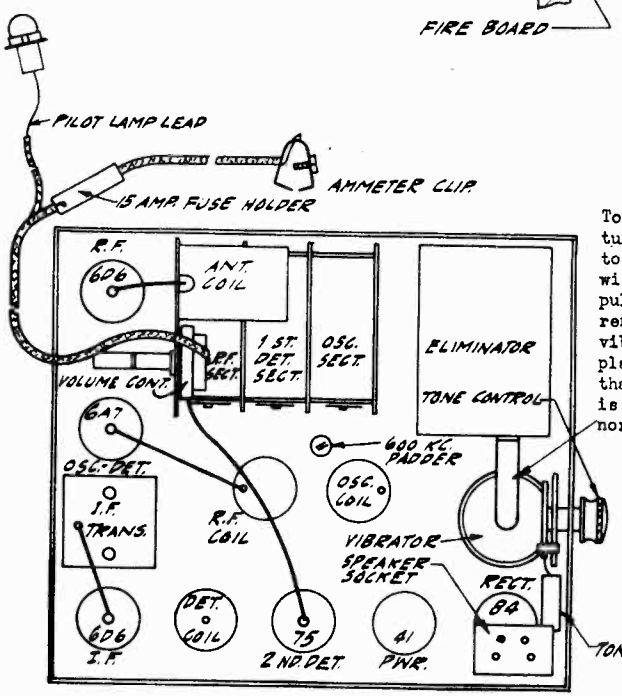


FIG. 1

To replace vibrator, turn tension spring to the left 90°, then with a slight upward pull, vibrator can be removed. After the vibrator has been replaced, make certain that tension spring is returned to its normal position.

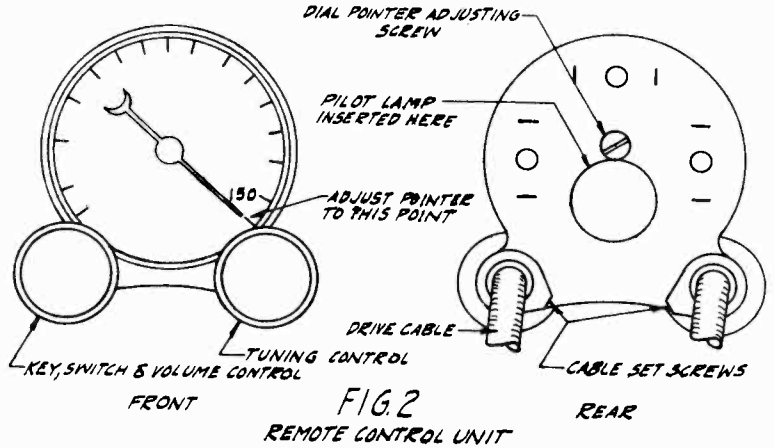


FIG. 2
REMOTE CONTROL UNIT

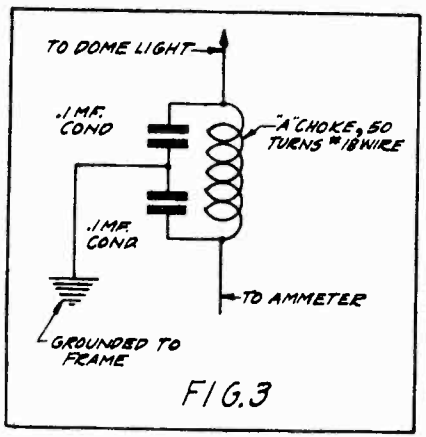


FIG. 3

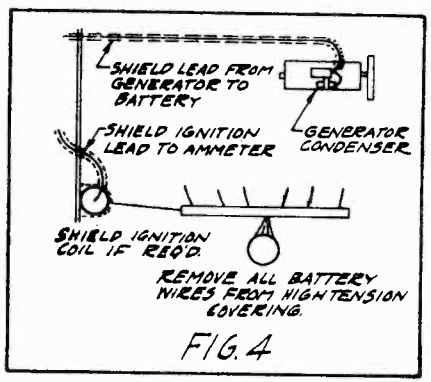


FIG. 4

SERVICE NOTES

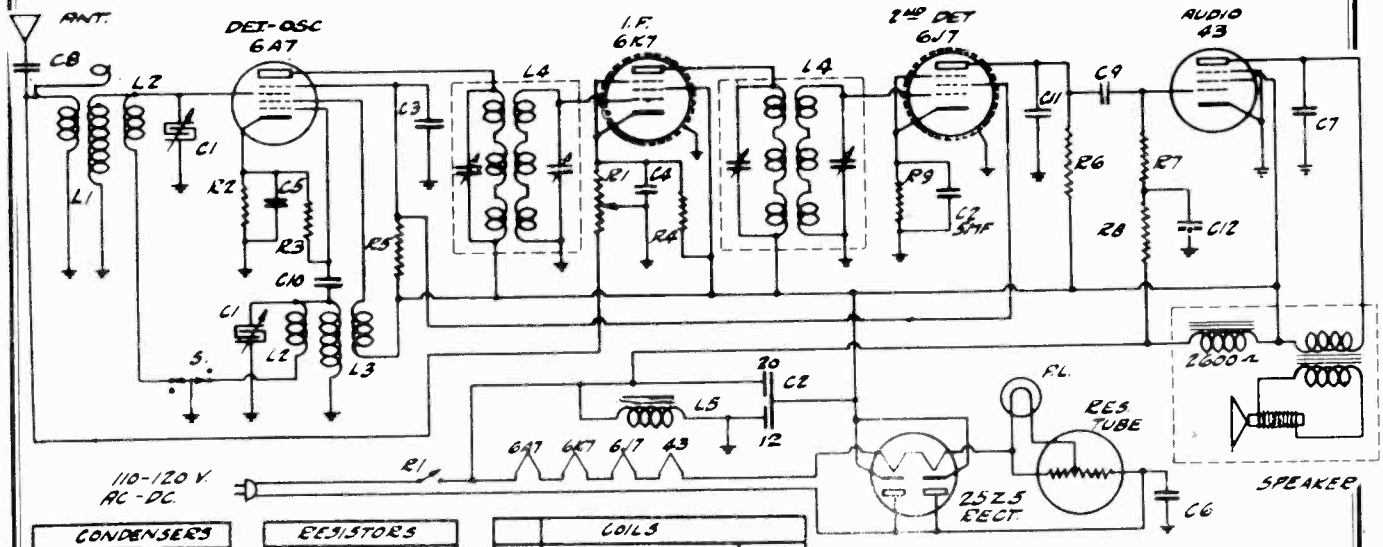
INT. FREQ. ALIGNMENT — Intermediate frequency peaked at 175 K.C. Connect test oscillator to grid of 6A7 and ground. (Ground stator of oscillator condenser during this operation)

R.F. ALIGNMENT — Connect test oscillator to antenna and ground. Set dial to 1500 K.C. and align trimmer condensers on variable condensers for maximum signal. For low frequency adjustment set dial at 600 K.C. and rock padder to match variable condenser setting of R.F. and 1st Detector.

DEWALD RADIO

DEWALD RADIO

MODEL 609
Schematic, Data
Parts List



CONDENSERS		
SYM	MFD	NO
C1	VAR.	2295
C2	20-12-5	2294
C3	.05	2046
C4	.05	2046
C5	.05	2046
C6	.05	2046
C7	.004	2054
C8	.02	2191
C9	.02	2191
C10	.0001	2123
C11	.0001	2123
C12	1	2022

RESISTORS		
SYM	OHMS	NO
R1	VOL CONT.	8474
R2	300	3346
R3	50,000	3292
R4	50,000	3292
R5	35,000	3180
R6	.5 MEG.	3161
R7	.75 MEG.	3145
R8	1. MEG	3190
R9	95,000	3180

COILS		
SYM	NAME	NO
L1	ANT. COIL	1331
L2	SHUNT COIL	1353
L3	OSC. COIL	1354
L4	I.F. TRANSFORMER	1355
L5	CHOKE 400Ω	1328
MISC.		
PL	PILOT LAMP 6.3V	8019
R1	VOL. CONT. & SWITCH	8474
S	WAVE BAND SWITCH	8521
	SPEAKER	7172
	LINE CORD	8496

MODEL 609

The Model 609 receiver is a 6 tube superheterodyne receiver operating on A.C. or D.C. 110-125 volts 40-60 cycles.

With an additional 220 volt ballast plug, set will operate on A.C. or D.C. 210-240 volts, 40-60 cycles.

OPERATION ON 110 A.C. OR D.C. SUPPLY — Insert line cord plug into receptacle. On direct current if no reception is heard one minute after switch has been turned on, reverse line plug in receptacle.

TUBES — 1-6A7, 1-6K7, 1-6J7, 1-43, 1-25Z5 and 1 Resistor Tube.

ANTENNA — The antenna may be placed along the base-board, or may be grounded. For additional power, an outside antenna may be used.

NOTE: The antenna must be unwound or the receiver will not operate satisfactorily. No ground wire is necessary for the operation of the set.

IMPORTANT — DO NOT TOUCH GROUND WIRE TO CHASSIS.

BROADCAST: — Turn wave band switch located in rear of cabinet to "Long" position, locate desired station by turning tuning control.

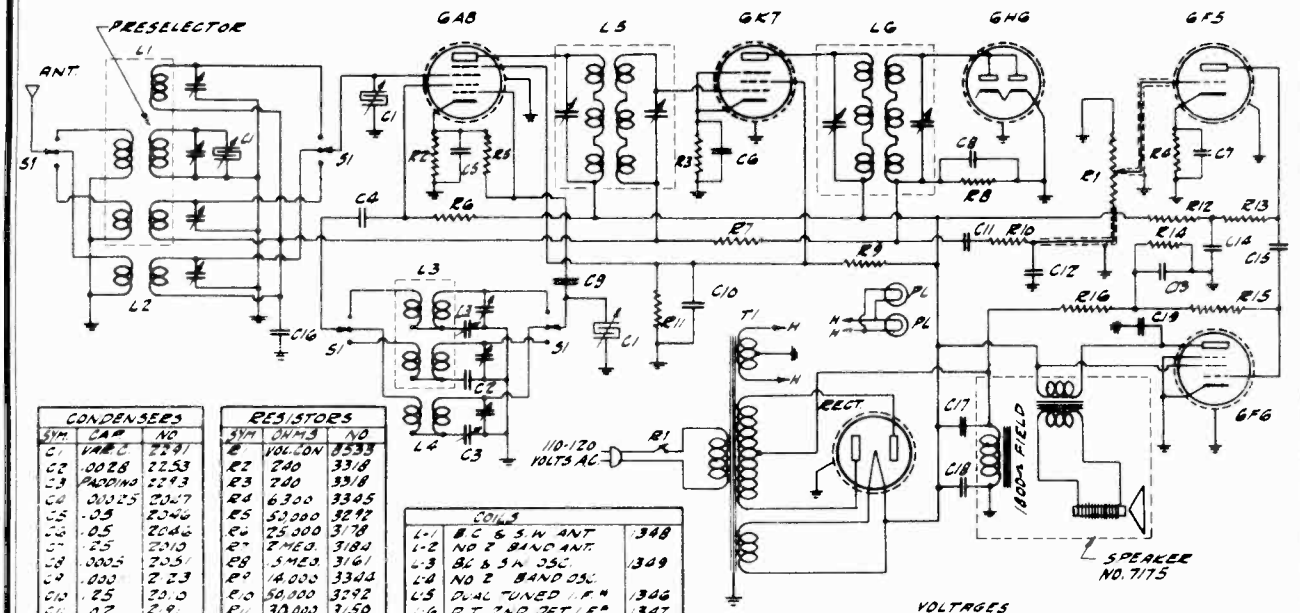
SHORT-WAVE: — Turn wave band switch to the "short" position and turn tuning control as in Broadcast position. Use Band Two for Dial settings.

REPLACEMENT PARTS PRICE LIST

PART #		PRICE	PART #		PRICE
1328	"B" Choke	.75	2022	.1 Mfd. Cub Cond.	.35
1331	Antenna Coil	.55	2295	2 Gang Var. "	2.10
1354	Oscillator Coil	.55	2294	Comb. Elect. "	1.40
1355	Dual I.F. Transformer	1.40	7172	Speaker	4.25
2054	.004 Mfd. cub Cond.	.35	8496	Line Cord	.35
2191	.02 Mfd. Cub Cond.	.35	8474	Switch & Vol. Con.	1.05
2046	.05 " " "	.35	8521	Wave Band Switch	.45
2123	.0001 Mfd. Mica Cond.	.40			

MODELS 610, 610-LW
Schematic, Socket
Alignment, Parts

DEWALD RADIO



CONDENSERS		
SYM.	CAP.	NO.
C1	VAR. C.	2291
C2	.0028	2253
C3	PADDING	2293
C4	.00025	2047
C5	.05	2046
C6	.05	2046
C7	.25	2010
C8	.0005	2051
C9	.000	2 23
C10	.25	2010
C11	.02	2 9
C12	.0001	2 23
C13	.25	2010
C14		288
C15	.01	2 9
C16	.05	2046
C17	8 MFD.	2292
C18	8 MFD.	2292
C19	.004	2050

RESISTORS		
SYM.	OHMS	NO.
R	VOL. CON.	8533
R2	240	3318
R3	700	3318
R4	6300	3305
R5	50,000	3292
R6	25,000	3278
R7	2 MEG.	3184
R8	.5 MEG.	3161
R9	14,000	3304
R10	50,000	3292
R11	30,000	3250
R12	100,000	3192
R13	500,000	3216
R14	100,000	3182
R15	250,000	3165
R16	1 MEG.	3221

COILS		
L-1	B.C. & S.W. ANT.	1348
L-2	NO. 2 BAND ANT.	
L-3	B.C. & S.W. OSC.	1349
L-4	NO. 2 BAND OSC.	
L5	DUAL TUNED I.F.'S	1346
L6	2 D.T. 2ND DET. I.F.'S	1347

MISC.		
PL	PILOT LAMP 6.3V	8019
R	ON-OFF SW. & V.C.	8533
S	WAVE BAND SW.	8534
T1	POWER TRANS.	1345
	SPEAKER	7175

VOLTAGES

6A8	CATHODE - GROUND	2.4 V
	SCREEN - CATHODE	100.0
	PLATE - CATHODE	230.0
	OSC. PLT. - CATHODE	160.0
6K7	CATHODE - GROUND	2.4
	SCREEN - CATHODE	100.0
	PLATE - CATHODE	230.0
6F5	CATHODE - GROUND	1.7
	PLATE - CATHODE	65.0
6F6	PLATE TO GROUND	235.0
	SCREEN - GROUND	280.0
80	FIL. TO GROUND	240.0
	VOLT. AT 1ST FILTER	350.0

I.F. PEAKED AT 456 K.C.

MODEL 610
MODEL 610-LW

7177

SERVICE NOTES

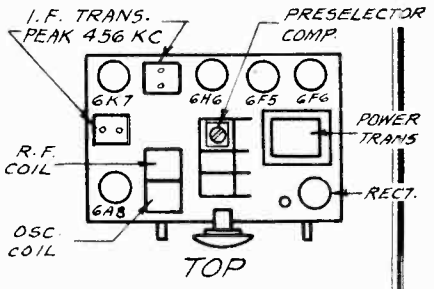
INTERMEDIATE FREQUENCY ALIGNMENT — Intermediate frequency peaked at 456 K.C. Connect test oscillator to grid of 6A8 and Chassis. Ground stator of front section of Variable Condenser during this operation.

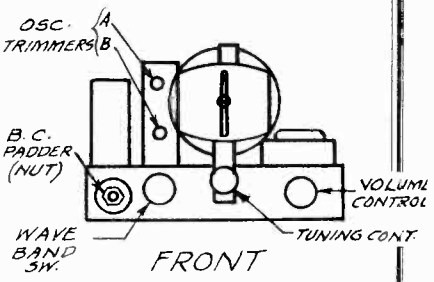
R.F. ALIGNMENT — Connect test oscillator to antenna and ground connections and set dial to 1500 K.C. and peak trimmers "A" for maximum signal. For low frequency adjustment, set dial at 600 K.C. and repeak padding condenser (Nut on front of chassis). Next readjust at 1500 K.C.

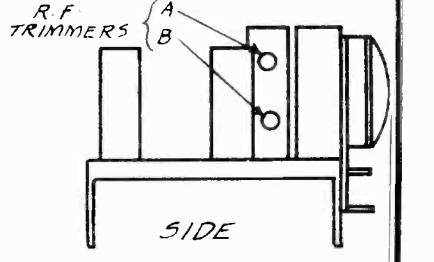
BAND 2 ALIGNMENT — Police band adjustments for 610 only. Set test oscillator at 4000 K.C. Repeak the two trimmers located underneath chassis for maximum gain. Next set Variable Condenser at 1600 K.C. and repeak padder (screw) on front panel of Chassis. Next readjust trimmers underneath the chassis at 4000 Kilocycles.

Long Wave adjustment for 610 LW only. These adjustments same as police except low frequency setting is 170 K.C. and high frequency setting is 350 K.C.

SHORT WAVE ALIGNMENT — Set Variable Condenser to 15 Megacycles and connect test oscillator to Antenna and ground and repeak trimmers "B" for maximum gain. The low frequency setting is automatically taken care of. The Short wave coils are carefully matched for this setting and a fixed caliprated padder peaks the short waves for the low frequency setting.







MODEL 610
NUMBERS AND LIST PRICES OF REPLACEMENT PARTS

1345	Power Transformer	$4.00	2293	Padding Condenser	.85
1348	Comb. Antenna Coil	2.15	2051	Mica Condenser .0005	.35
1350	Comb. Police Coil	1.50	2291	3 Gang Variable Cond.	4.05
1349	" Oscillator Coil	1.40	2292	Comb. Electrolytic Cond.	1.60
1346	Dual I.F. Transformer	1.50	2230	Dual Trimmer Cond.	.35
1347	Second Detector Coil	1.50	2010	.25 Mfd. Cub "	.65
2054	.004 Mfd. Cub Condenser	.35	8512	Knobs	.20
2191	.02 Mfd. Cub Condenser	.35	7175	Speaker	5.75
2046	.02 " " "	.35	8496	Line Cord	.35
2138	.1 " " "	.35	8533	Volume Control	1.05
2123	.0001 Mfd. Mica "	.40	8534	Wave Band Switch	.65
2253	.0028 Mica Condenser	.45			
2047	.00025 " "	.35			

F - 44 - M 8-35

MODELS 611, 611-LW
Schematic, Socket
Trimmers, Alignment

DEWALD RADIO

SERVICE NOTES

INTERMEDIATE FREQUENCY ALIGNMENT — Intermediate frequency peaked at 456 K.C. Connect test oscillator to grid of 6A8 and Chassis. Short Circuit stator of front section of Variable Condenser during this operation.

RANGE: Model 611 covers the following ranges:- Broadcast - 545 to 1600 Kilocycles; Police - 1600 to 4600 Kilocycles and Short Wave - 5.5 to 16.5 Megacycles.

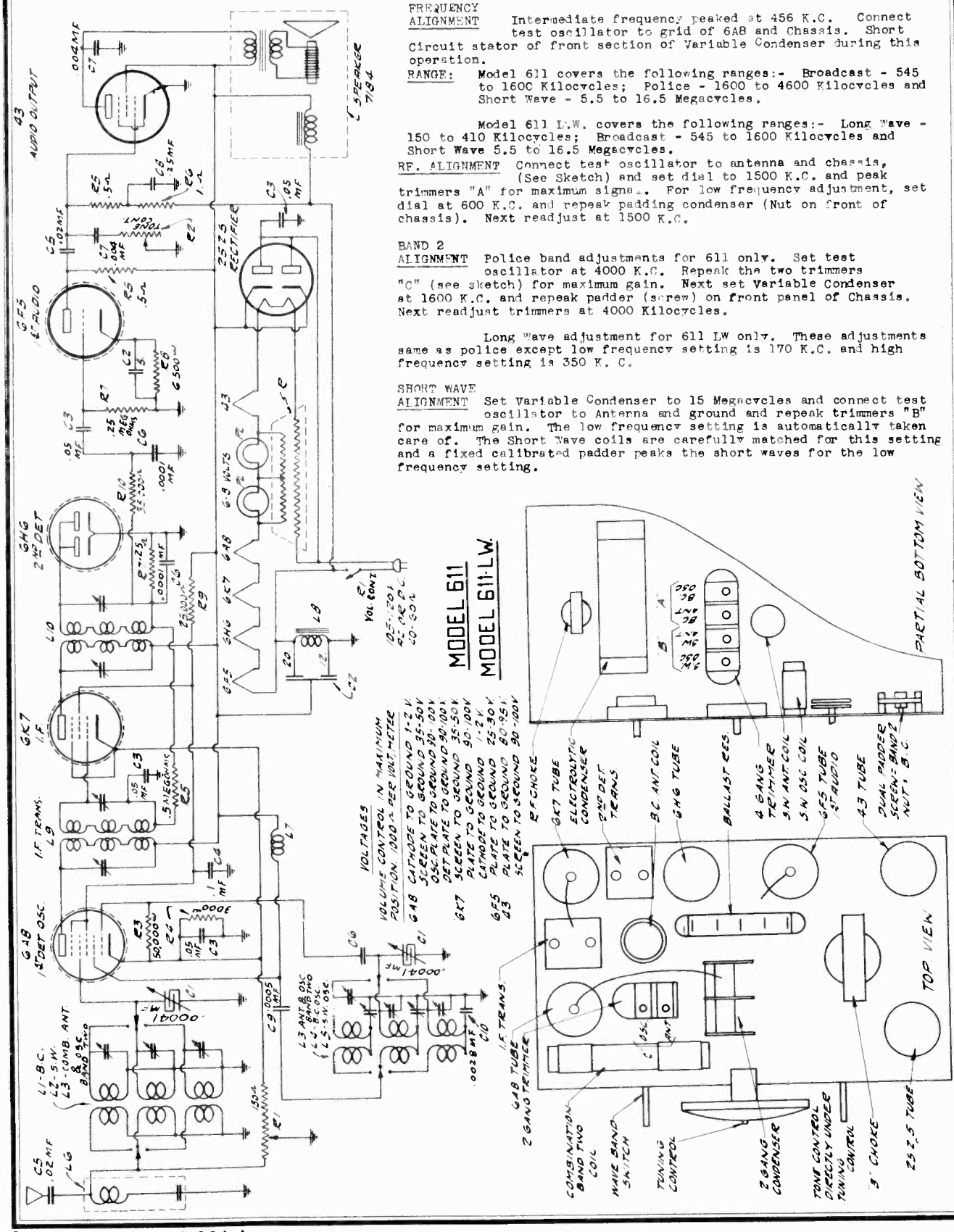
Model 611 L.W. covers the following ranges:- Long Wave - 150 to 410 Kilocycles; Broadcast - 545 to 1600 Kilocycles and Short Wave 5.5 to 16.5 Megacycles.

RF. ALIGNMENT — Connect test oscillator to antenna and chassis, (See Sketch) and set dial to 1500 K.C. and peak trimmers "A" for maximum signal. For low frequency adjustment, set dial at 600 K.C. and repeak padding condenser (Nut on front of chassis). Next readjust at 1500 K.C.

BAND 2 ALIGNMENT — Police band adjustments for 611 only. Set test oscillator at 4000 K.C. Repeak the two trimmers "C" (see sketch) for maximum gain. Next set Variable Condenser at 1600 K.C. and repeak padder (screw) on front panel of Chassis. Next readjust trimmers at 4000 Kilocycles.

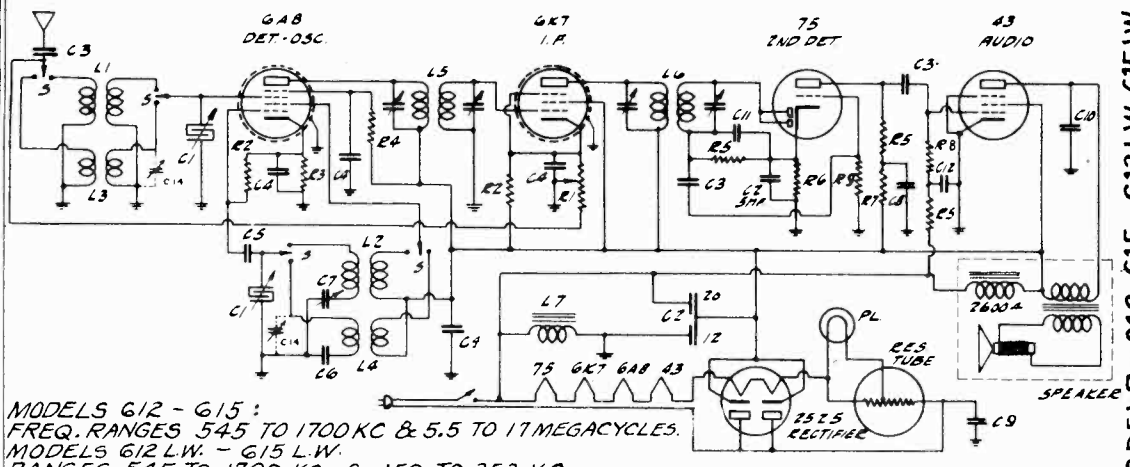
Long Wave adjustment for 611 LW only. These adjustments same as police except low frequency setting is 170 K.C. and high frequency setting is 350 K. C.

SHORT WAVE ALIGNMENT — Set Variable Condenser to 15 Megacycles and connect test oscillator to Antenna and ground and repeak trimmers "B" for maximum gain. The low frequency setting is automatically taken care of. The Short Wave coils are carefully matched for this setting and a fixed calibrated padder peaks the short waves for the low frequency setting.



MODELS 612, 612-LW,
615, 615-LW
Schematic, Socket,
Alignment, Parts

DEWALD RADIO



MODELS 612 - 615:
FREQ. RANGES 545 TO 1700 KC & 5.5 TO 17 MEGACYCLES.
MODELS 612 L.W. - 615 L.W.
RANGES 545 TO 1700 KC & 150 TO 353 KC.

MODELS - 612-615, - 612 LW-615 LW.
ON MODELS - 612 LW. - 615 LW. - TRIMMERS
#2230 ARE USED. PADDER C6. IS
REPLACED BY C13. COIL L3. REPLACED
BY L8. AND COIL L4 BY L9 -

SERVICE NOTES

INT. FREQ. ALIGNMENT. Intermediate frequency peaked at 456 K.C. Connect test oscillator to grid of 6A8 and chassis. (Ground stator of front section of variable condenser during this operation.)

R. F. ALIGNMENT

Connect test oscillator to antenna and chassis and set dial to 1500 K.C and peak variable condensers. For low frequency adjustment set dial at 600 K.C. and repeak padding condenser on front of chassis, rocking variable condenser at the same time. Short Wave Calibration is automatically taken care of by repeaking at 1500 K.C. The short wave coils are matched carefully for this setting. A fixed Calibrated padder automatically peaks the short waves for the low frequency setting.

LONG WAVE ALIGNMENT ON 612 L.W. - 615 L.W.

Turn wave band switch to "Foreign" position, and align the Long Wave trimmers at 375 K.C. Adjust the Long Wave padder (screw section) at 175 K. C.

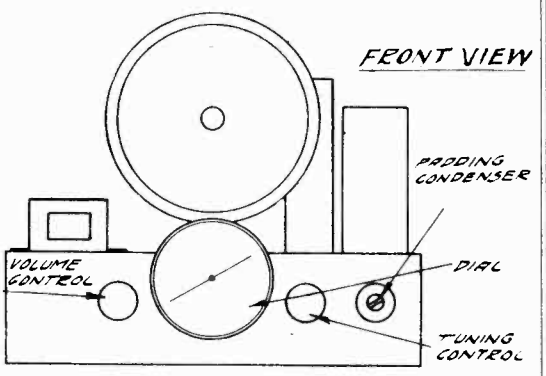
CONDENSERS		
SYM.	MFD.	NO.
C1	VAR C.	2280
C2	20-12.5	2201
C3	.02	2191
C4	.05	2046
C5	.0001	2123
C6	.0028	2253
C7	PADDER	2229
C8	.1-700V	2022
C9	.1-400V	2188
C10	.006	2007
C11	.00035	2233
C12	.25	2053
C13	I.W. PAD.	2277
C14	I.W. TR.	2230

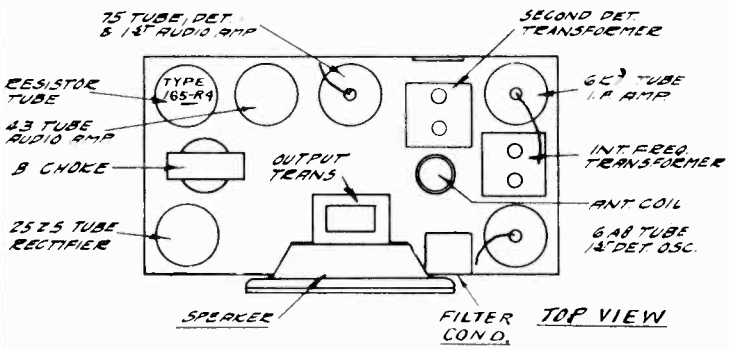
RESISTORS		
SYM	OHMS	NO
R1	VOL. CON	8474
R2	50,000	3269
R3	240	3252
R4	25,000	3228
R5	.5 MEG.	3161
R6	6,500	3319
R7	67,000	3321
R8	260,000	3362
R9	100,000	3182

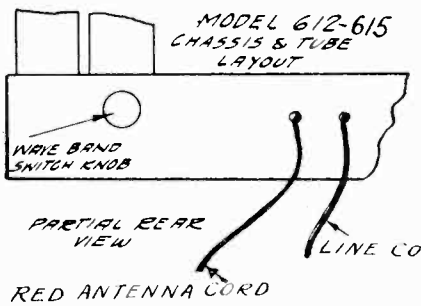
MISC.		
SYM	NAME	NO
L1	S.C. ANT. COIL	1363
L2	B.C. OSC. COIL	1357
L3	S.W. ANT. COIL	1250
L4	S.W. OSC. COIL	1249
L5	DUAL TUNED I.F.	1355
L6	2ND DET. I.F.	1356
L7	B. CHOKE 400Δ	1328
L8	L.W. ANT. COIL	1351
L9	L.W. OSC. COIL	1352
PL	PILOT LITE 6-8 V	8019
R1	VOL. CONT. & SWITH	8474
	SPEAKER	7172
S1	WAVE BAND SW.	8475
	LINE CORD	8496

LIST OF REPLACEMENT PARTS

PART NUMBER		LIST PRICE	PART NUMBER		LIST PRICE
1328	B Choke	.75	2123	.0001 Tubular Cond.	.40
1363	B.C. Ant. Coil	.60	2253	.0028 Mica Condenser	.45
1357	B.C. Oscillator Coil	55	2233	.00035 " "	.35
1250	S.W. Antenna Coil	.55	2033	.25 " "	.40
1249	S.W. Oscillator "	.55	2229	Padding Condenser	.45
1355	I.F. Transformer	1.40	7172	Speaker	4.25
1356	2nd Det. "	1.40	8496	Line Cord	.35
2280	Variable Cond.	2.45	8474	Volume Control	1.05
2301	Comb. Electrolytic	1.40	8475	Wave Band Switch	.65
			8512	Knobs	.20
2007	.006 Tubular Cond.	.35	1351	L.W. Antenna Coil	1.25
2191	.02 " "	.35	1352	L.W. Oscillator "	1.25
2188	.1 " "	.35	2230	L.W. Trimmer Cond.	.40
2046	.05 " "	.35	2277	L.W. Padding Cond.	.90

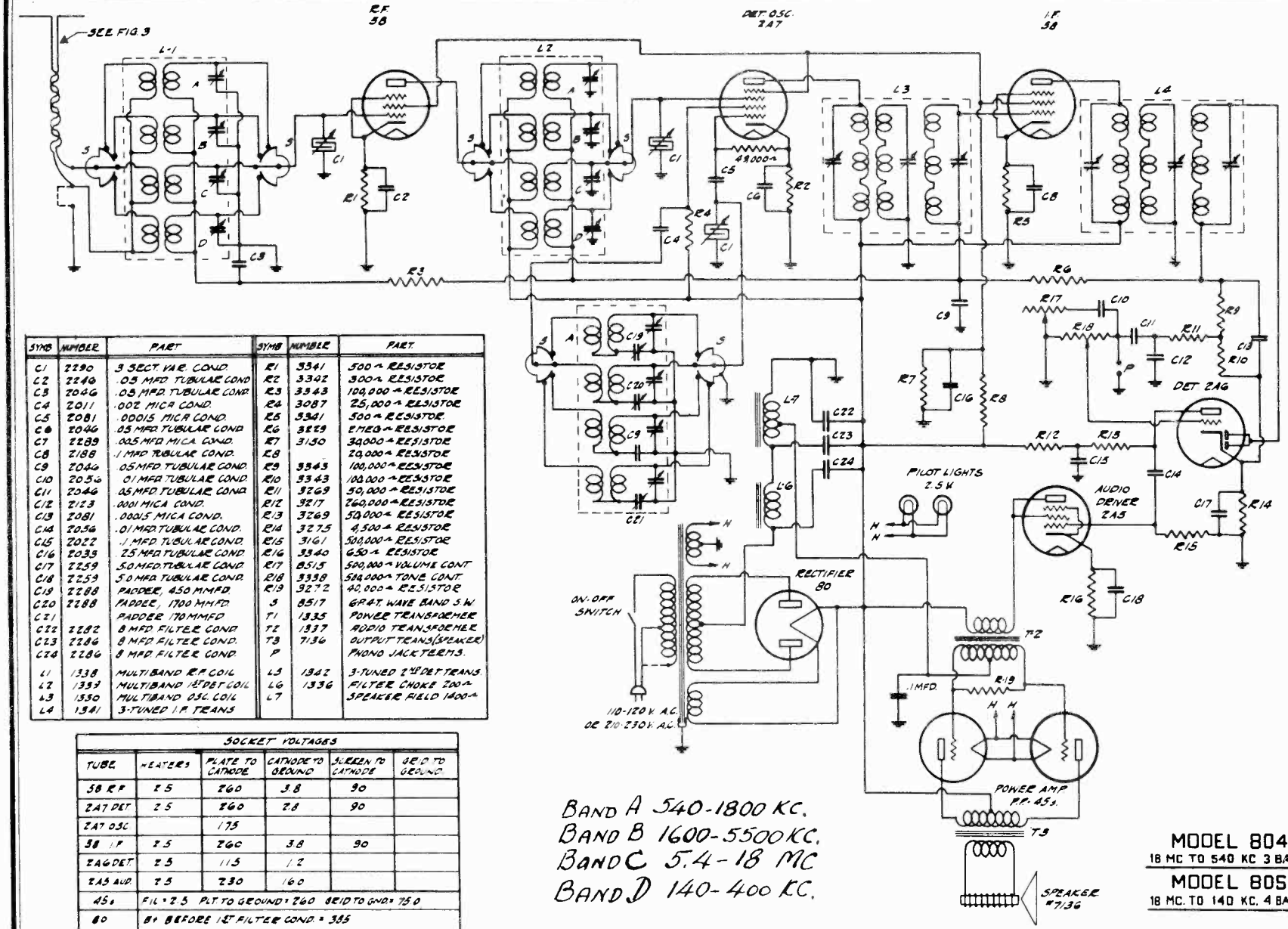






DEWALD RADIO

MODELS 804, 805
Schematic, Voltage



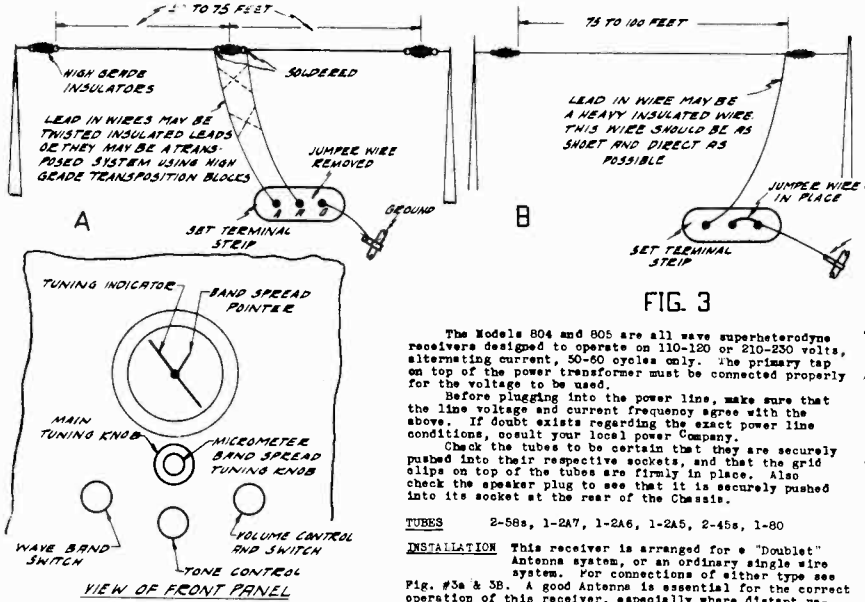
SYMB	NUMBER	PART	SYMB	NUMBER	PART
C1	2290	3 SECT. VAR. COND.	R1	3341	500Ω RESISTOR
C2	2240	.05 MFD. TUBULAR COND.	R2	3342	300Ω RESISTOR
C3	2046	.05 MFD. TUBULAR COND.	R3	3343	100,000Ω RESISTOR
C4	2011	.002 MICA COND.	R4	3087	25,000Ω RESISTOR
C5	2081	.00015 MICA COND.	R5	3341	500Ω RESISTOR
C6	2046	.05 MFD. TUBULAR COND.	R6	3229	2 MEG Ω RESISTOR
C7	2289	.005 MFD. MICA COND.	R7	3150	30,000Ω RESISTOR
C8	2188	.1 MFD. TUBULAR COND.	R8		20,000Ω RESISTOR
C9	2046	.05 MFD. TUBULAR COND.	R9	3343	100,000Ω RESISTOR
C10	2056	.01 MFD. TUBULAR COND.	R10	3343	100,000Ω RESISTOR
C11	2046	.05 MFD. TUBULAR COND.	R11	3269	50,000Ω RESISTOR
C12	2123	.0001 MICA COND.	R12	3217	260,000Ω RESISTOR
C13	2081	.00015 MICA COND.	R13	3269	50,000Ω RESISTOR
C14	2056	.01 MFD. TUBULAR COND.	R14	3275	4,500Ω RESISTOR
C15	2022	.1 MFD. TUBULAR COND.	R15	3161	500,000Ω RESISTOR
C16	2039	.25 MFD. TUBULAR COND.	R16	3340	650Ω RESISTOR
C17	2259	.5 MFD. TUBULAR COND.	R17	8515	500,000Ω VOLUME CONT.
C18	2259	.5 MFD. TUBULAR COND.	R18	3338	500,000Ω TONE CONT.
C19	2288	PADDER, 450 MMFD.	R19	3272	40,000Ω RESISTOR
C20	2288	PADDER, 1700 MMFD.	S	8517	GR'AT WAVE BAND S.W.
C21		PADDER 170 MMFD.	T1	1335	POWER TRANSFORMER
C22	2282	8 MFD. FILTER COND.	T2	1337	RADIO TRANSFORMER
C23	2286	8 MFD. FILTER COND.	T3	7136	OUTPUT TRANS. (SPEAKER)
C24	2286	8 MFD. FILTER COND.	P		PHONO JACK TERMS.
L1	1338	MULTI BAND R.F. COIL	L5	1342	3-TUNED 2nd DET. TRANS.
L2	1333	MULTI BAND 1st DET. COIL	L6	1336	FILTER CHOKE 200Ω
L3	1330	MULTI BAND OSC. COIL	L7		SPEAKER FIELD 1400Ω
L4	1341	3-TUNED I.F. TRANS.			

SOCKET VOLTAGES					
TUBE	HEATERS	PLATE TO CATHODE	CATHODE TO GROUND	SCREEN TO CATHODE	GRID TO GROUND
58 R.F.	2.5	260	3.8	90	
2A7 DET.	2.5	260	2.8	90	
2A7 OSC.		175			
58 I.F.	2.5	260	3.8	90	
2A6 DET.	2.5	115	1.2		
2A5 AUD.	2.5	230	16.0		
45's	F/L = 2.5	P.T. TO GROUND = 260	GRID TO GND. = 75.0		
80	B+ BEFORE 1st FILTER COND. = 335				
	B+ AT 2nd FILTER COND. = 370				
	B+ AT OUT PUT OF FILTER = 260				

BAND A 540-1800 KC.
BAND B 1600-5500 KC.
BAND C 5.4-18 MC
BAND D 140-400 KC.

MODEL 804
18 MC TO 540 KC 3 BANDS

MODEL 805
18 MC. TO 140 KC. 4 BANDS



VIEW OF FRONT PANEL

FIG.4

FIG. 3

SERVICE NOTES

The Models 804 and 805 are all wave superheterodyne receivers designed to operate on 110-120 or 210-230 volts, alternating current, 50-60 cycles only. The primary tap on top of the power transformer must be connected properly for the voltage to be used.

Before plugging into the power line, make sure that the line voltage and current frequency agree with the above. If doubt exists regarding the exact power line conditions, consult your local power Company.

Check the tubes to be certain that they are securely pushed into their respective sockets, and that the grid clips on top of the tubes are firmly in place. Also check the speaker plug to see that it is securely pushed into its socket at the rear of the Chassis.

TUBES 2-58s, 1-2A7, 1-2A6, 1-2A5, 2-45s, 1-80

INSTALLATION This receiver is arranged for a "Doublet" Antenna system, or an ordinary single wire system. For connections of either type see Fig. #3a & 3B. A good Antenna is essential for the correct operation of this receiver, especially where distant reception is expected. The flat top portion of the Antenna should be placed as high as possible above the ground and surrounding objects. No. 14 solid or stranded wire may be used for the flat top portion and well insulated semi-flexible wire for the lead-in section. The Antenna should be equipped with good insulators wherever they are required. Material such as pyrex, glass, Bakelite, and high grade porcelain are well suited for radio installations. The lead-in wire should be kept away from all nearby wires and should be run at right angles to power or trolley lines wherever possible. It should be brought into the house at the nearest point convenient to the receiver in order to avoid picking up noise from home electrical devices. The ground wire should be as short as possible and must be a good connection to water or other grounded pipe.

REALIGNMENT The procedure outlined below should be followed should the receiver require realignment. For location aligning trimmers and padders, see Fig. 2.

I. F. ALIGNMENT To align the Intermediate Frequency stages, first place the Wave Band Switch in Pos. "A" and Short Circuit the Oscillator Section of the Variable Condenser. Set the test Oscillator to 456 K.C. and connect its output through A .00025 MFD fixed Condenser to the grid cap of the 2A7 Tube and chassis ground. Adjust the six I. F. Compensators (Three on each I.F. Transformer) for Max Signal. (Volume Control must be in maximum position during all adjustments. Use the least possibe input to the receiver to prevent broadening of the resonance peaks.)

BAND "A" (BROADCAST) ALIGNMENT After the Intermediate Frequency stages have been completely aligned, connect external test oscillator to the Antenna and Ground binding posts of the set. See Fig. 3-A. Set the band switch to "A" position. Set test Oscillator to 1500 K.C. and adjust the three band A Compensators for maximum gain. Next, set dial at 600 K.C. and adjust Band "A" Paddler for maximum signal, rocking Variable Condenser at the same time. Now repeat repeaking operation at 1500 K. C.

BAND "B" ALIGNMENT Turn Wave Band Switch to "B" Position and set Variable Condenser to 5000 K. C. Adjust test oscillator to this frequency and adjust 3 band "B" Trimmers for maximum gain. Next set dial at 1900 K. C. and adjust band "B" Paddler for maximum signal. Now repeat repeaking operation at 5000 K. C.

BAND "C" (SHORT WAVE) ALIGNMENT Turn Wave Band Switch to "C" position and set Variable Condenser to 16 megacycles. Adjust test oscillator to this frequency and adjust three band "C" Trimmers.

BAND "D" (LONG WAVE) ALIGNMENT Turn wave Band Switch to "D" position and align Trimmers on long wave coils at 575 K.C. Adjust Band "D" Padder at 160 K. C.

BAND SPREAD DIAL This receiver is provided with a dual station selector drive, to permit micrometer tuning which is especially valuable on the short waves where band spreading or its equivalent, high ratio tuning, becomes necessary for easy and rapid registering of foreign programs.

The large knob of the main selector drive is the low ratio control with a normal ratio of 24 to 1 in 360°. The small knob on the same shaft controls the high ratio control with a tuning ratio of 125 to 1 in 360°. Bands "A" and "B" are calibrated in kilocycles and Band "C" in megacycles. The Small Band Spread Indicator may be used to make fine adjustments not obtainable from the larger scale.

PHONOGRAPH PICKUP It is also possible to use this receiver with an electric phono pickup attachment for the reproduction of disc recordings. For this purpose, a Phono Jack is located at the rear of the Chassis. The volume Control will control the strength of signals for phonograph reproduction (any high impedance pickup of high quality may be used with this receiver.)

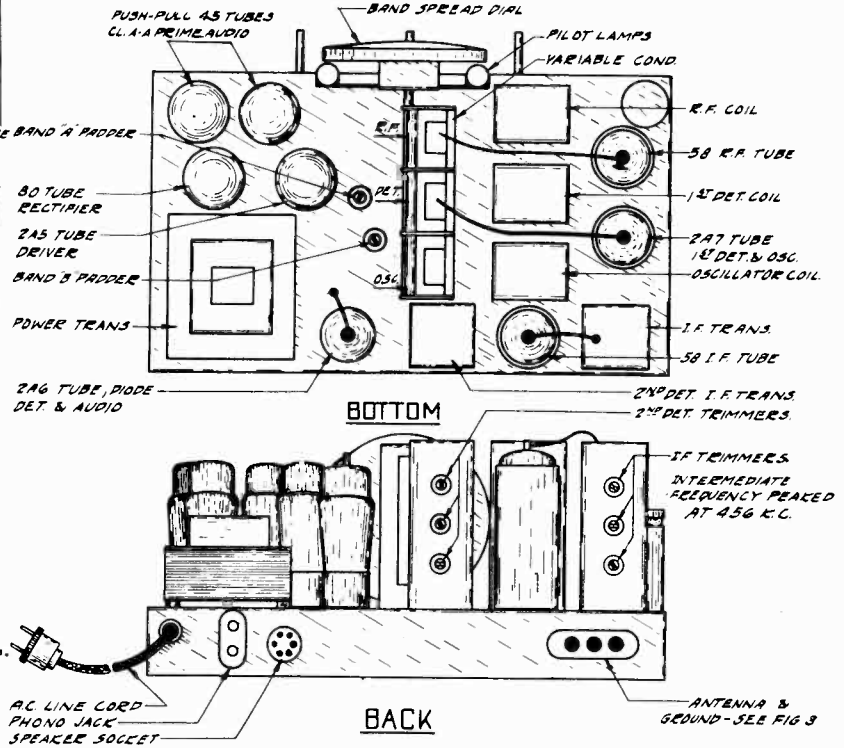


FIG. 2