

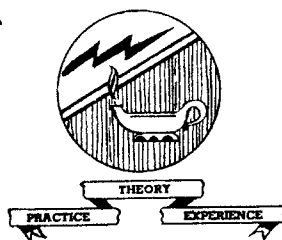
Most - Often - Needed

1939

RADIO
DIAGRAMS
and Servicing Information

Compiled by

M. N. BEITMAN



SUPREME PUBLICATIONS
CHICAGO

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

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To all radio manufacturers represented in this book, due thanks and acknowledgement are given. It is only with the cooperation of these firms that the most-popular diagrams needed by you have been selected and prepared for publication.

M. N. Beitman

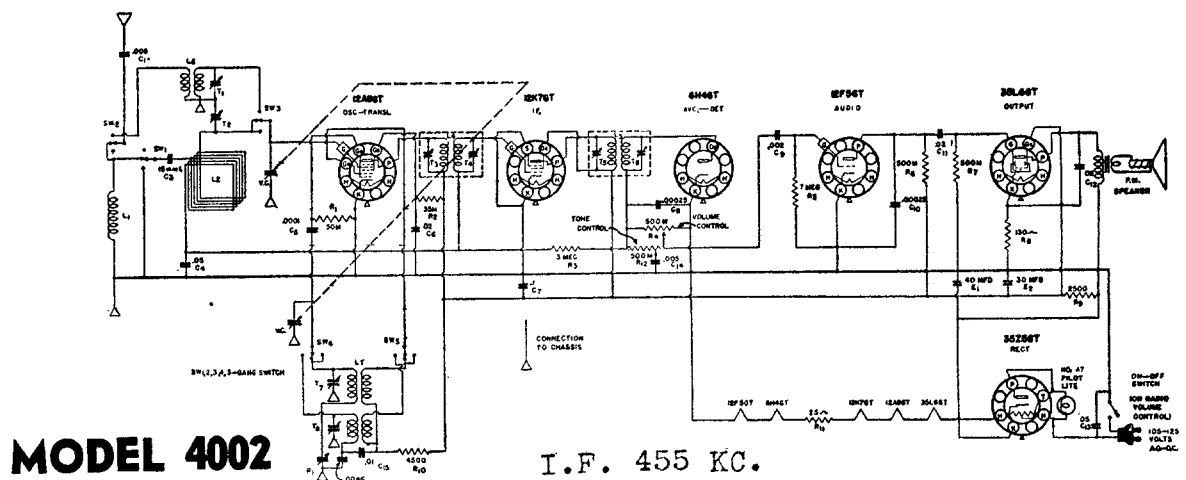
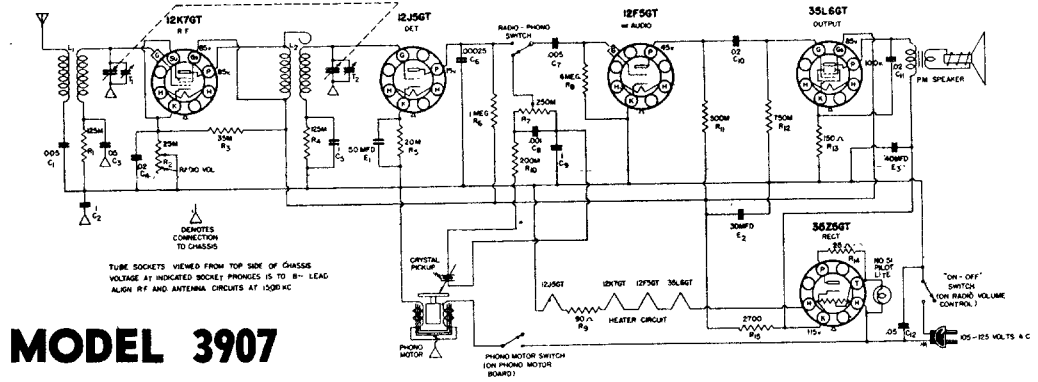
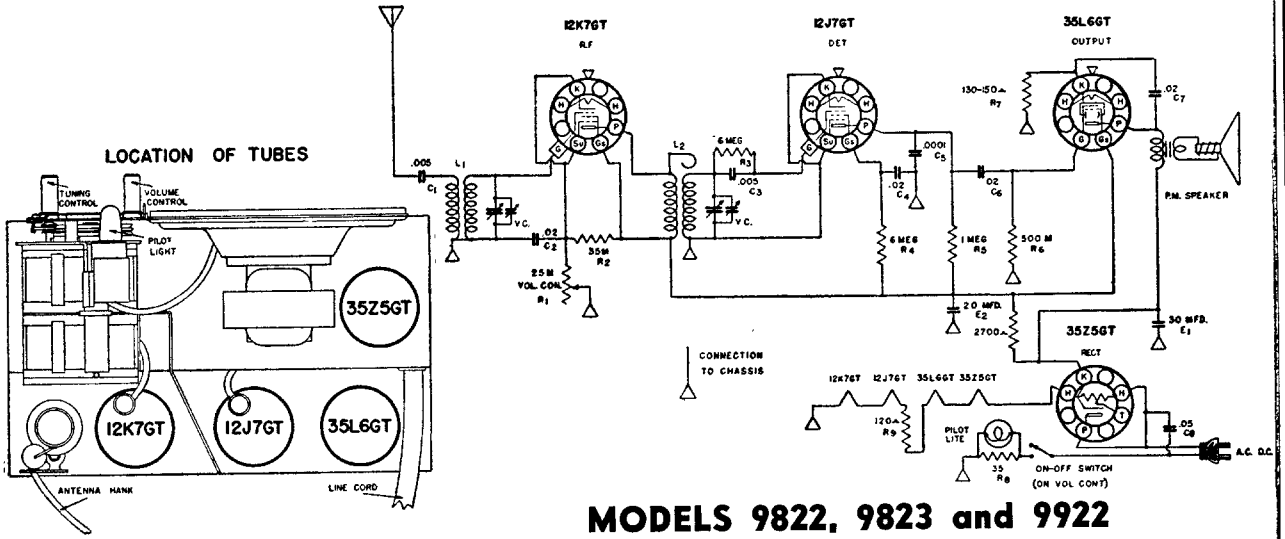
Chicago, Ill.

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AIR-KING PRODUCTS CO., INC.—BROOKLYN, N. Y.

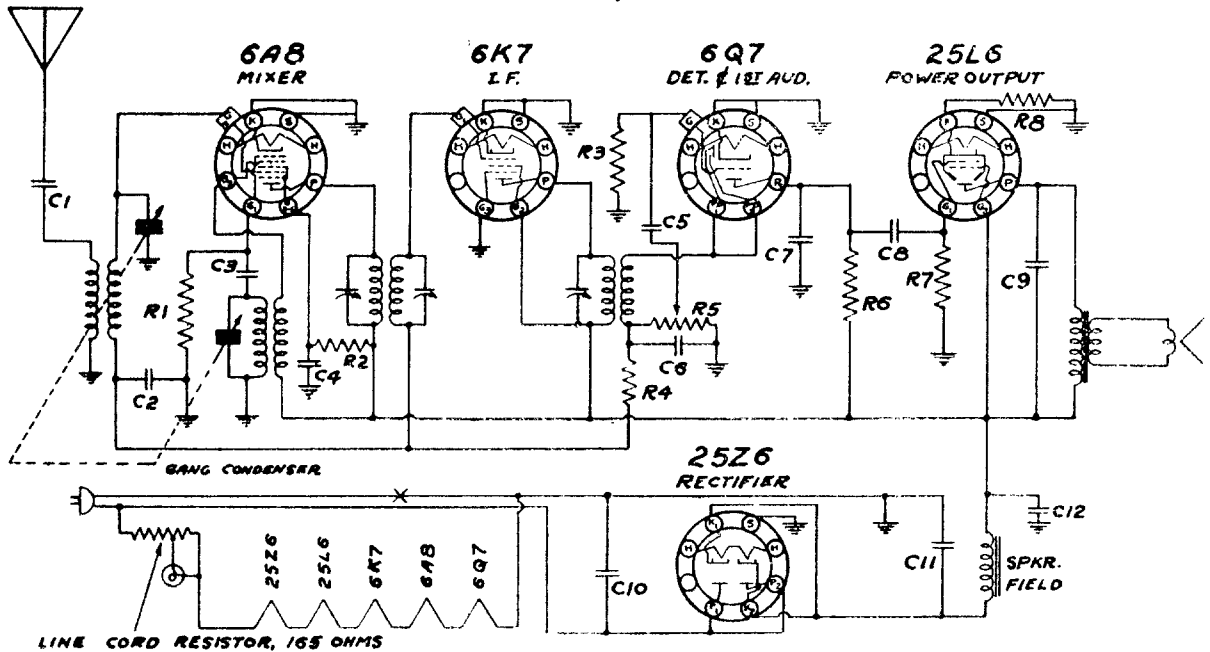


This receiver comprises a six-tube AC-DC two-band superheterodyne incorporating the ingenious "Noise Minimizer" system. An improved filter circuit, automatic volume control, beam power output tube and oversized dynamic speaker are utilized for improved performance. The tuning range of this instrument accommodates two bands of frequencies from 530 to 1700 kilocycles (standard American broadcast) and 5.7 to 18 megacycles (foreign broadcast).

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Allied Radio
CORPORATION



LINE CORD RESISTOR, 165 OHMS

RESISTORS

NO.	OHMS	WATTS	
R1	50,000	1/4	
R2	40,000	1/4	
R3	15 MEG	1/4	
R4	2 MEG	1/4	
R5	500,000	1/4	VOL. CONT.
R6	250,000	1/4	
R7	500,000	1/4	
R8	110	1/4	±10%

CONDENSERS

NO.	MFD.	TYPE	NO.	MFD.	TYPE
C1	.005	600V.	C10	.05	400V.
C2	.02	400V.	C11	25.	Elect. 150V.
C3	.00025	MICA	C12	10.	Elect. 150V.
C4	.01	400V.			
C5	.01	400V.			
C6	.00025	MICA			
C7	.00025	MICA			
C8	.01	400V.			
C9	.005	600V.			

I.F. - 455 KC

ALIGNMENT DATA

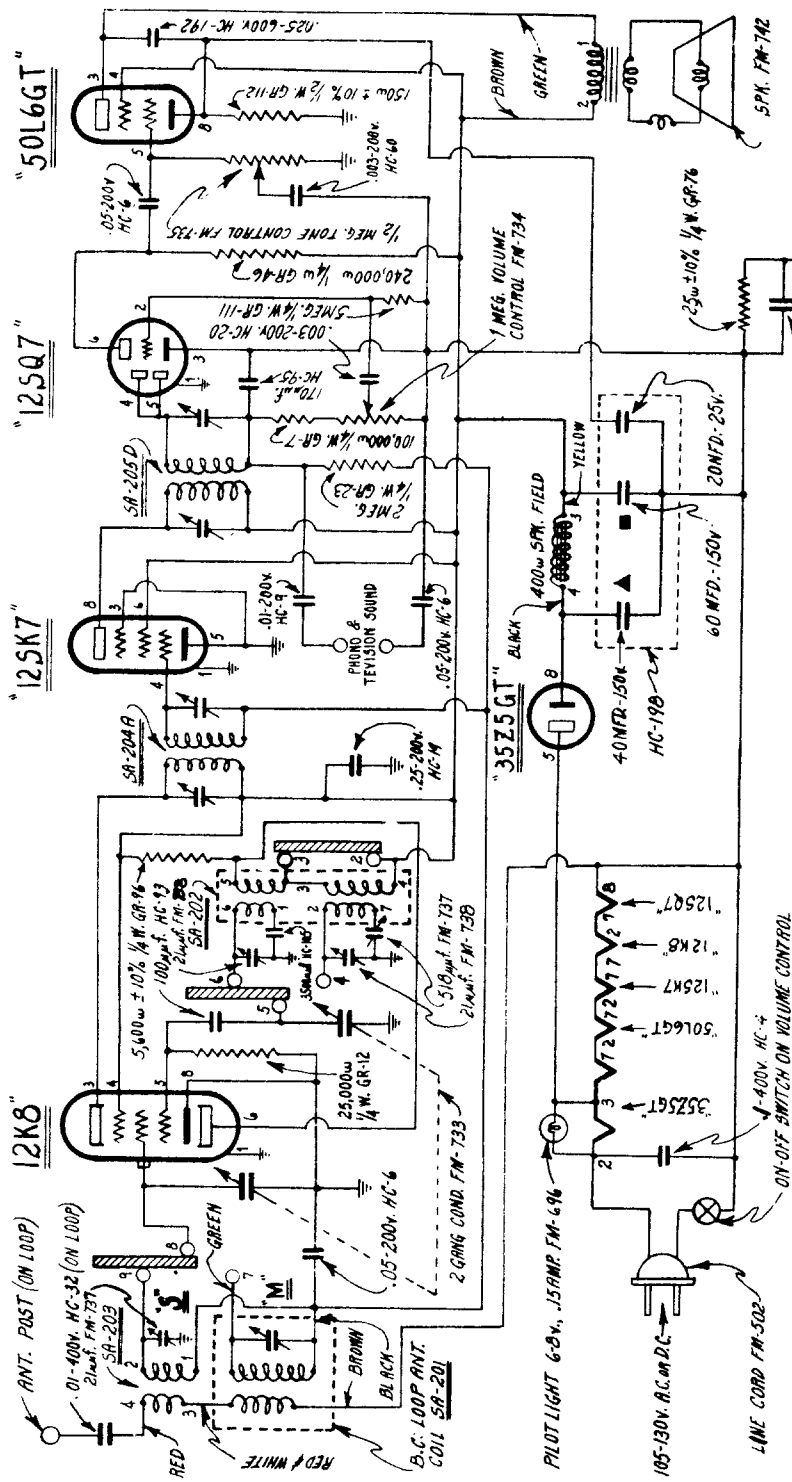
I.F. ALIGNMENT

Adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A8) through a .05 or .1 mfd. condenser. Connect ground or test oscillator to chassis ground through a .1 mfd. condenser. Align all three I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT

Adjust the oscillator to 1730 KC and connect the output to the antenna lead, through a .0001 mfd. mica condenser. Set the gang condenser to minimum capacity and adjust the gang condenser trimmer (oscillator) to receive this signal. After this has been carefully done, the next step is to set the generator to 1400 KC and after tuning in the signal adjust the antenna trimmer to peak. This is all that is necessary for the alignment unless the plates of the gang condenser have been bent out of shape. In case of bent plates, set the test oscillator and the receiver to 600 KC and bend the plates into the position for maximum output.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



NOTE:
 BAND SELECTOR SWITCH SHOWN ON "S" BAND POSITION TO THE EXTREME CLOCKWISE POSITION.
ANDREA RADIO CORP.
 WOODSIDE, N. Y.
MODEL: "2565"
 DR. J. R. DATE 2-2-40

I.F. FREQUENCY = 455 K.C.
 "M" BAND: 600 K.C. or 500 METERS
 "S" BAND: 18 MC. or 16.67 METERS
IMPORTANT: RECEIVER MUST BE ALIGNED WITH LOOP CORRECTLY ASSEMBLED ON CHASSIS

ALIGNING TRIMMERS LOCATION
 1500 K.C. ANT. SHUNT TRIMMER
 I.F. ADJUSTING TRIMMERS
 ANT. POST
 "M" BAND OSC. SHUNT 1800 K.C. TRIMMER
 "S" BAND OSC. SHUNT 18 M.C. TRIMMER
 "M" BAND OSC. 5FR15 600 K.C. TRIMMER

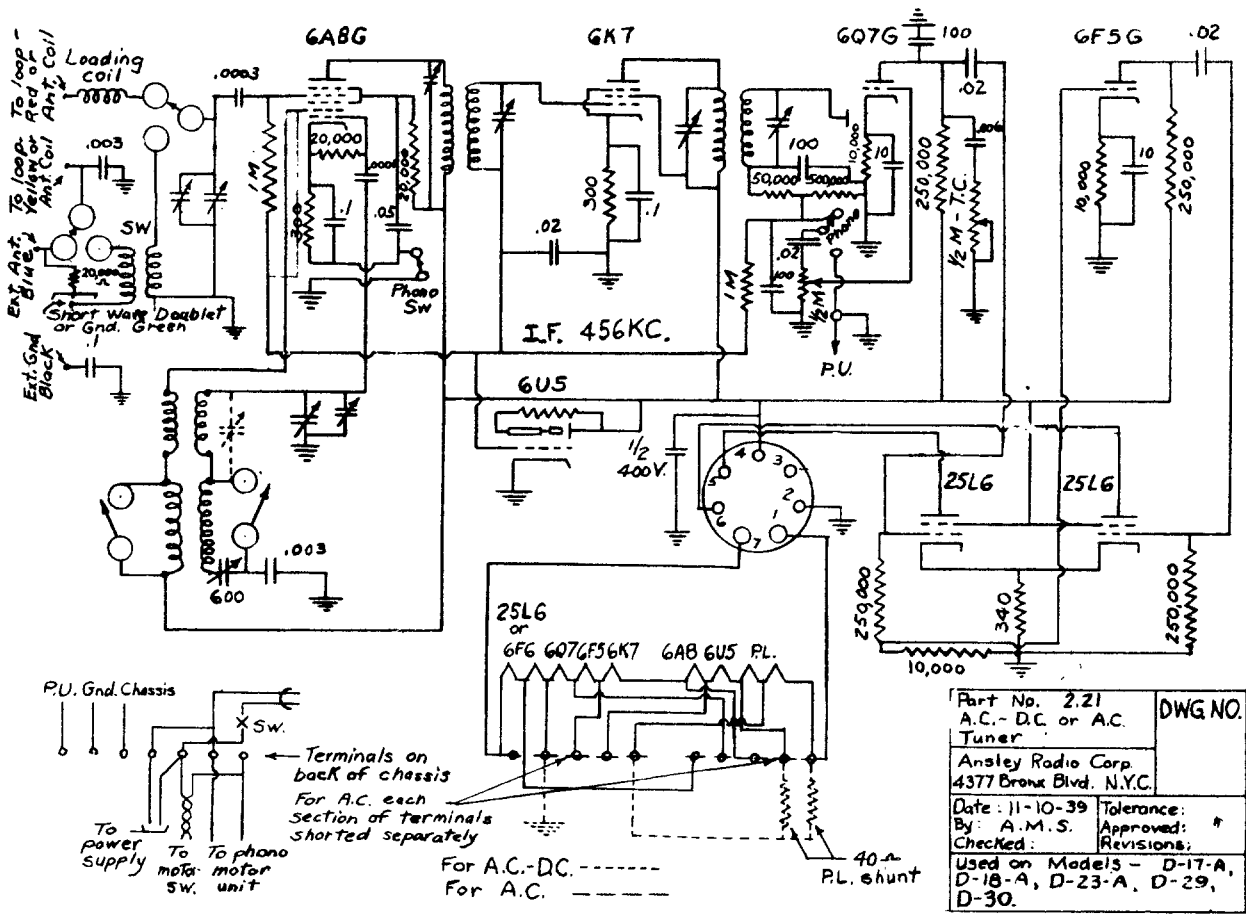
BAND SELECTOR SWITCH FM-736
 "S" BAND ANT. COIL SA-203
 "M" & "S" BAND OSC. COIL SA-202

REAR VIEW
 1 NO LUG
 2
 3
 4
 5
 6
 7
 8
 9

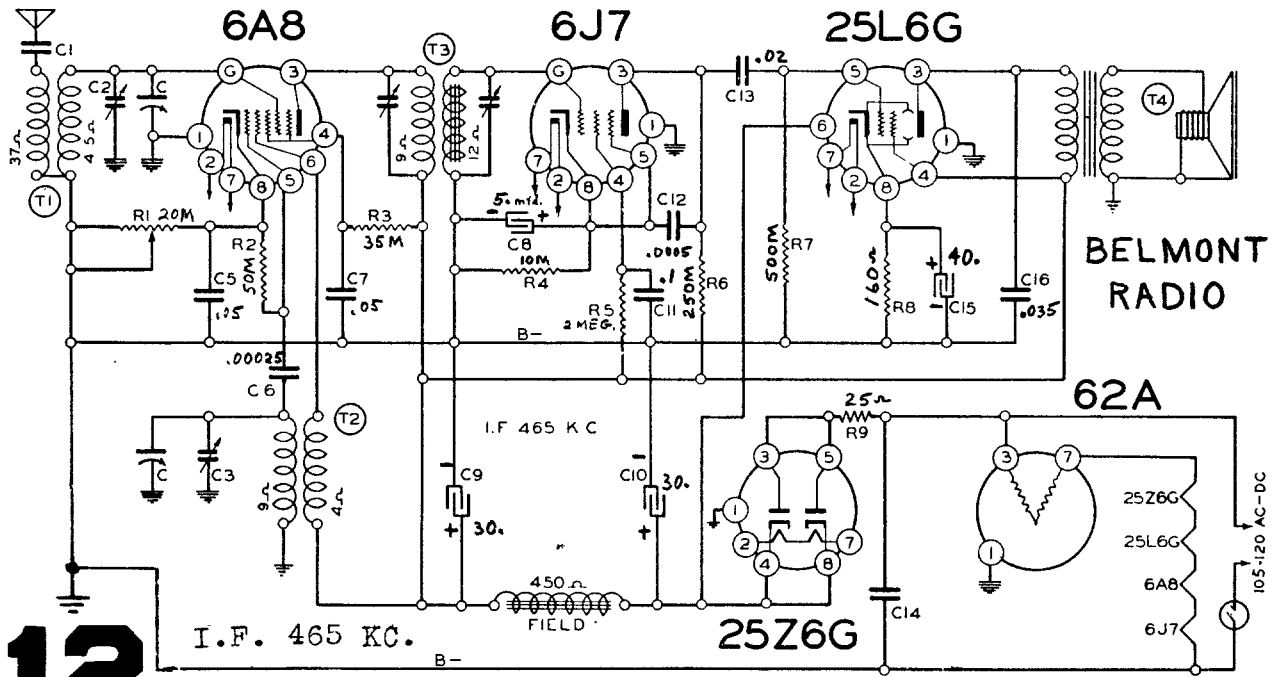
LUG VIEW
 2
 3
 4
 5

LUG VIEW
 1
 2
 3
 4
 5
 6
 7

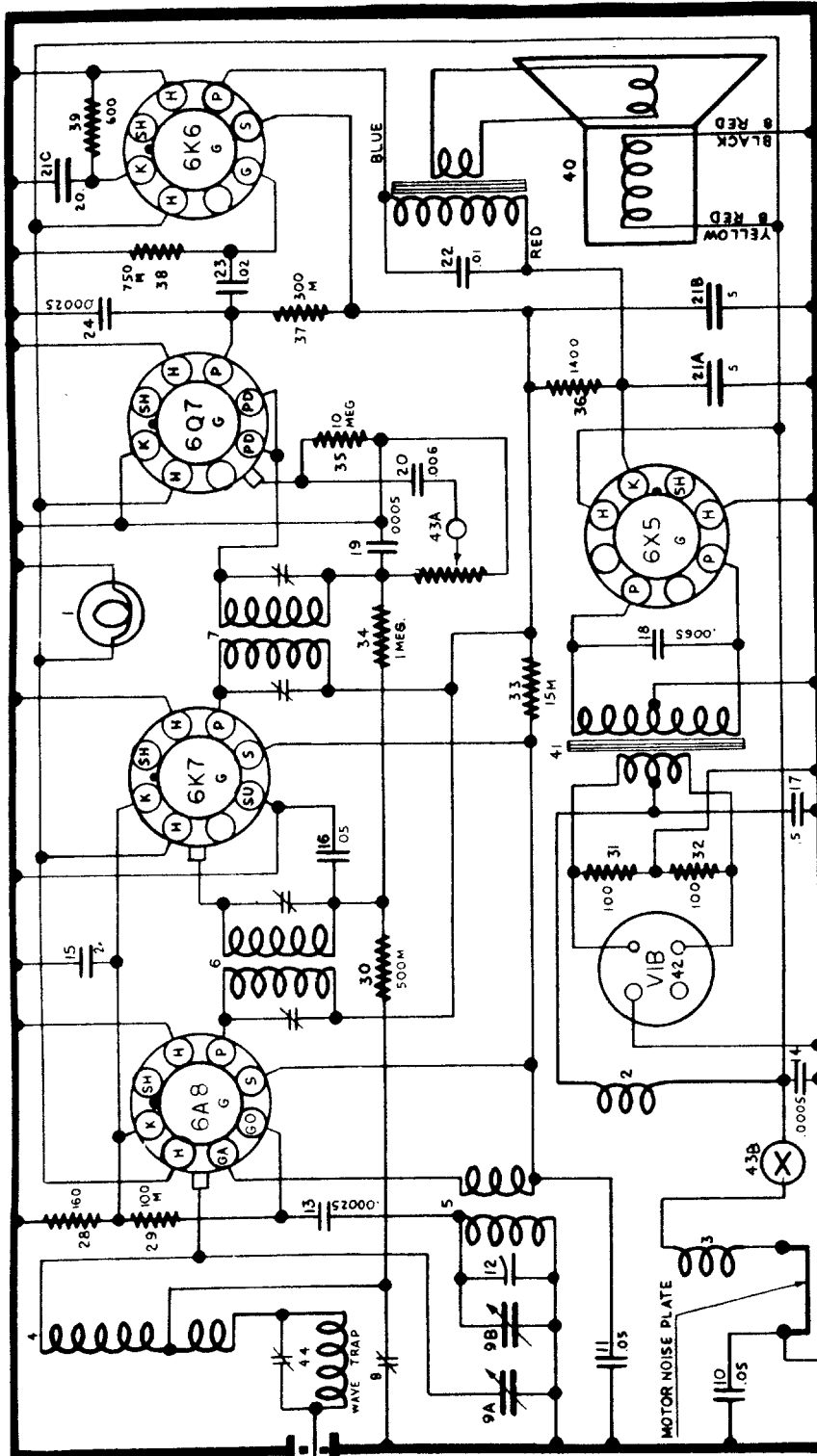
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



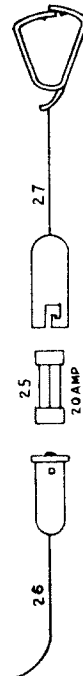
AUTOMATIC TUNER MODEL 520



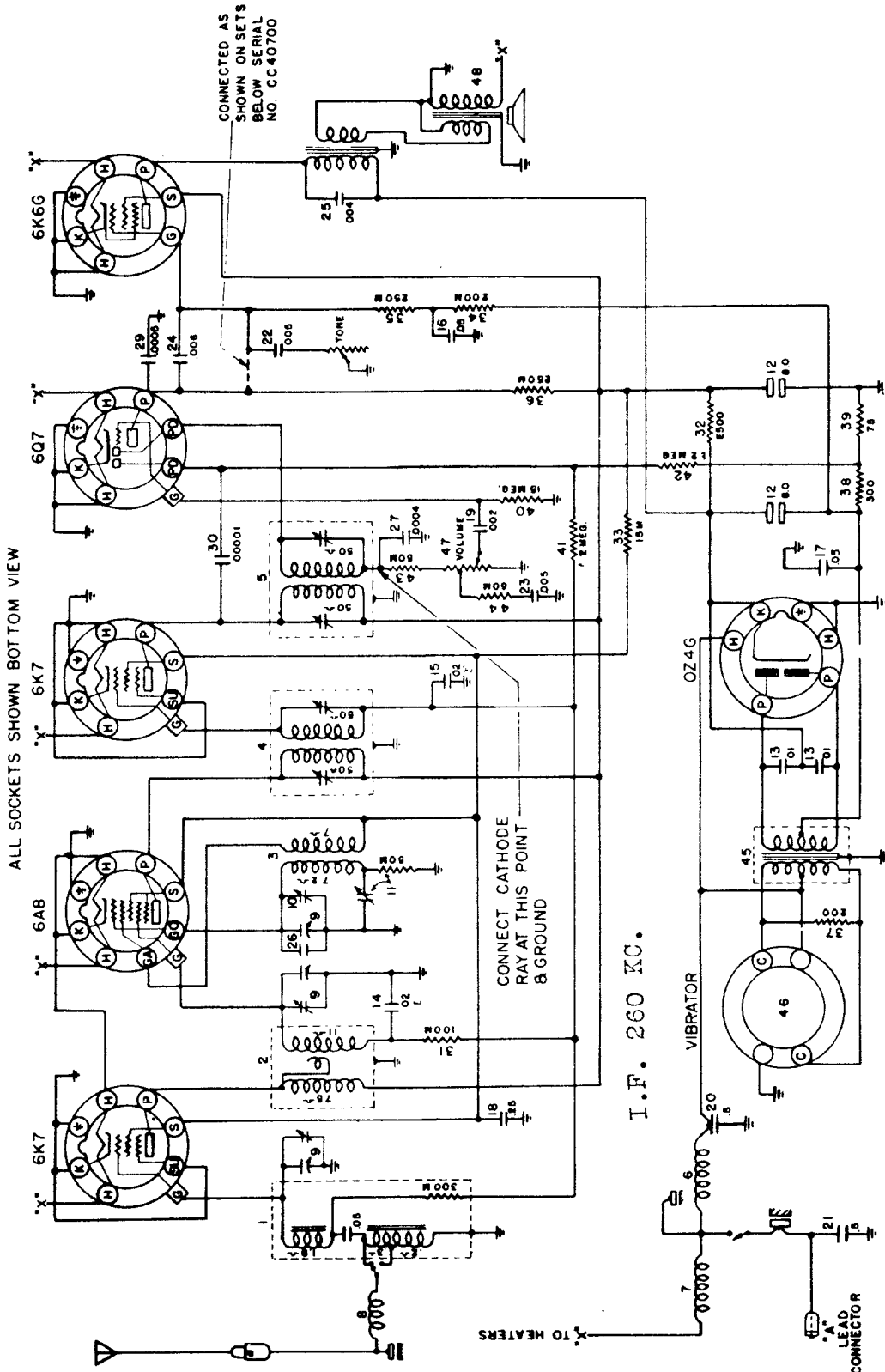
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CHEVROLET
M=1,800-
455 K.C. I.F.

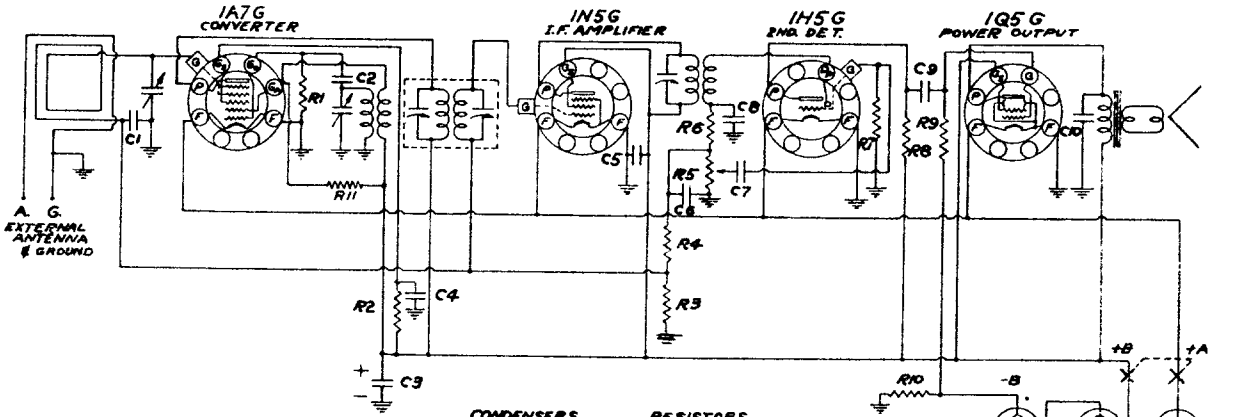


985-425 WIRING DIAGRAM



985-426 WIRING DIAGRAM

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Admiral

CONDENSERS			RESISTORS		
N ^o	MFD.	VOLTS	N ^o	OHMS	WATTS
C1	.05	200	R1	200000	1/2
C2	.00005	MICA	R2	70000	1/2
C3	4.-150V.	ELEC.	R3	2000000	1/2
C4	.05	200	R4	2000000	1/2
C5	.05	200	R5	5000000	1/2 VOL.
C6	.0002	MICA	R6	70000	1/2
C7	.01	400	R7	2000000	1/2
C8	.0002	MICA	R8	5000000	1/2
C9	.01	400	R9	1000000	1/2
C10	.001	800	R10	440	1/2
			R11	15,000	1/2

BATTERY PLUS SHOWING WITH SPRINGS AWAY FROM OBSERVER

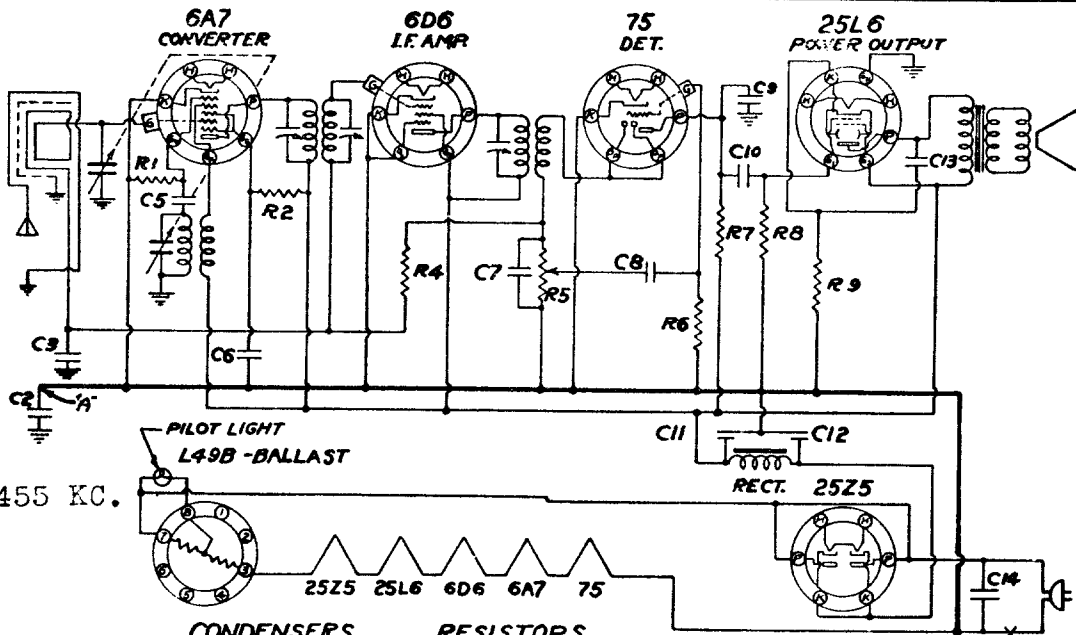
BATTERY JACKS OR SOCKETS

I.F. ALIGNMENT

Remove the receiver chassis from the cabinet and connect a 100,000 ohm resistor to the green and yellow leads in place of the loop antenna to which they were originally connected. Adjust the signal generator to 455 KC and connect the output to the grid of the first detector tube (1A7) through a .05 or .1 mfd. condenser. The ground on the signal generator should be connected to the chassis ground. Align all I.F. trimmers to peak or maximum reading on the output meter.

Admiral Radio

Model 4D



I.F. 455 KC.

CONDENSERS		
N ^o	MFD.	VOLTS
C2	.25	200
C3	.02	400
C5	.00005	MICA
C6	.05	400
C7	.00025	MICA
C8	.01	400
C9	.00025	MICA
C10	.01	400
C11	20.	150
C12	20.	150
C13	.005	600
C14	.05	400

RESISTORS		
N ^o	OHMS	WATTS
R1	50000	1/2
R2	30000	1/2
R4	2000000	1/2
R5	500,000	VOL CONT
R6	5000000	1/2
R7	250000	1/2
R8	500000	1/2
R9	150	1/2 ±10%

↓ IND. CHASSIS GND.

NOTE: C2 USED ON MODEL 5LL ONLY. ON MODEL 5L POINT 'A' IS CONNECTED TO CHASSIS

Admiral Radio

SCHEMATIC DIAGRAM

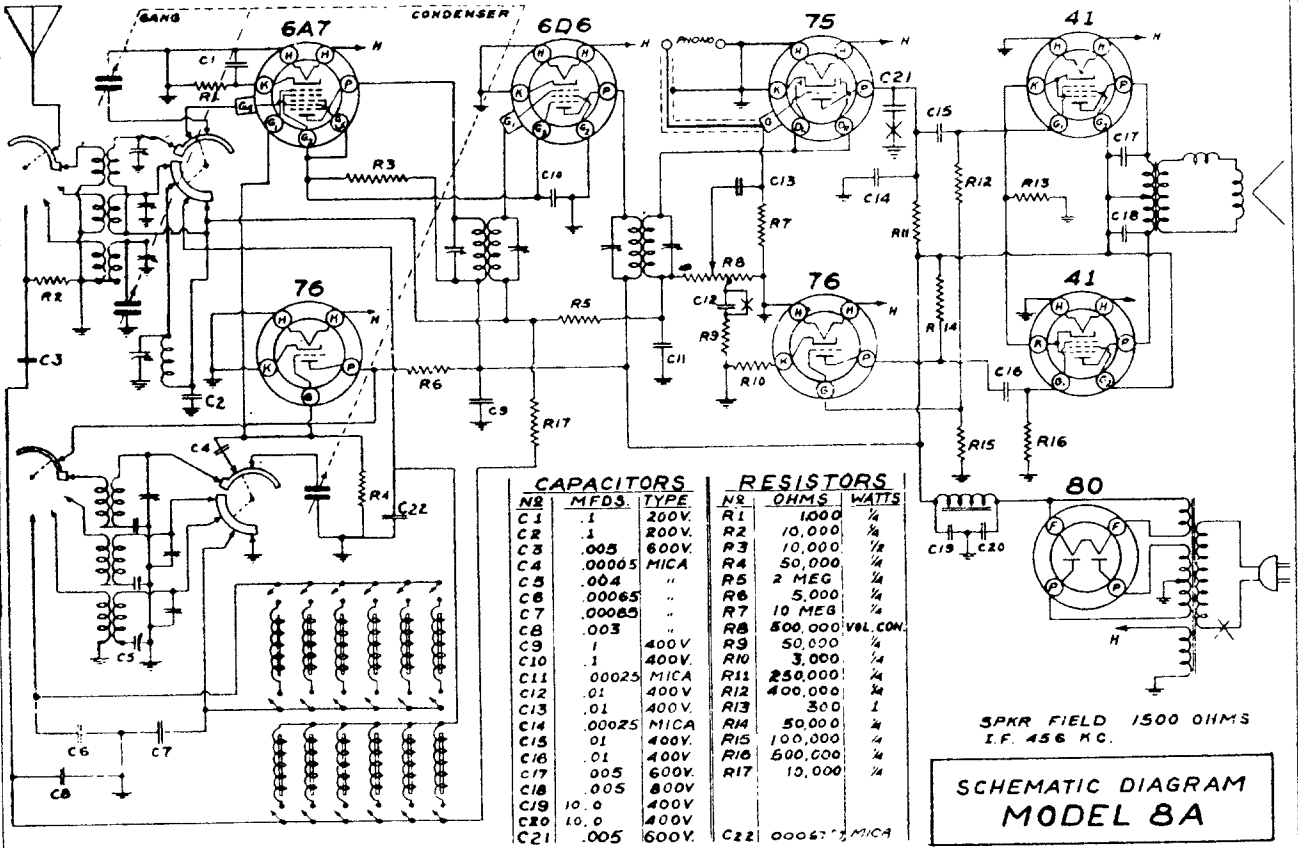
MODEL 5LL

MODEL 5L

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CAPACITORS			RESISTORS		
NR	MFDS.	TYPE	NR	OHMS	WATTS
C1	.1	200V.	R1	1,000	1/4
C2	.1	200V.	R2	10,000	1/4
C3	.005	600V.	R3	10,000	1/2
C4	.00005	MICA	R4	50,000	1/4
C5	.004	"	R5	2 MEG	1/4
C6	.00065	"	R6	5,000	1/4
C7	.00065	"	R7	10 MEG	1/4
C8	.003	"	R8	500,000	VOL. CON.
C9	.1	400V.	R9	50,000	1/4
C10	.1	400V.	R10	3,000	1/4
C11	.00025	MICA	R11	250,000	1/4
C12	.01	400V.	R12	400,000	1/4
C13	.01	400V.	R13	300	1
C14	.00025	MICA	R14	50,000	1/4
C15	.01	400V.	R15	100,000	1/4
C16	.01	400V.	R16	500,000	1/4
C17	.005	600V.	R17	10,000	1/4
C18	.005	600V.			
C19	10.0	400V.			
C20	10.0	400V.			
C21	.005	600V.			
			C22	.00065	MICA

SPKR FIELD 1500 OHMS
I.F. 456 KC.
**SCHEMATIC DIAGRAM
MODEL 8A**

GENERAL DATA

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 1730, 1800, 4000, 5600, 6000, 16,000 and 18,100 KC and an output meter to be connected across the primary or secondary of the output transformers. If possible, all alignments 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.

CORRECT ALIGNMENT PROCEDURE

The intermediate frequency (I.F.) stage should be aligned properly as the first step. After the I.F. transformers have been properly adjusted and peaked, the Broadcast Band should always be the next procedure, after which, either or both of the Short Wave Bands may be aligned.

I.F. ALIGNMENT

With the wave switch in the Broadcast Band and the gang condenser set at minimum, adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A7) through a .05 or .1 mfd. condenser. The ground on the test oscillator can be connected to the chassis ground if the test oscillator is not grounded to one side of the power line. In case one side is connected to ground, connect a large condenser from ground on the test oscillator to ground of the chassis. Align all four I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT

Connect the output of the signal generator to the antenna lead (blue) through a .0002 mfd. mica condenser. Set the gang condenser to minimum and the oscillator to 1730 KC and adjust the "oscillator trimmer" to receive this signal. Make no other adjustments at this frequency. Then set the generator to 1400 KC and tune in this signal by rotating the gang to 1400 on the dial. Adjust the "preselector" and "antenna" trimmer to maximum signal. Set the signal generator to 600 KC and tune in the signal on the receiver. **Note:** approximately the same

sensitivity should be noted at this point as was at 1400 KC. The signal strength may sometimes be improved by padding the circuits. This is done by slowly increasing or decreasing 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 may seem a little complicated but is the easiest way to adjust the oscillator to the preselector of the R.F. section. Return to 1400 KC and again go over the adjustments of this frequency to be certain that they were not put slightly out of alignment when adjustment was made at 600 KC.

POLICE BAND ALIGNMENT

The police band is adjusted by first replacing the .0002 dummy with a 400 ohm resistor and setting the generator to 5600 KC. With the gang set at minimum, adjust the "police oscillator trimmer" to receive this signal, then set the signal generator to 4000 KC and adjust "police antenna trimmer" to give maximum output. Next, set the oscillator to 1800 KC and "pad" the circuit of this frequency as described in the instructions for padding the broadcast circuits.

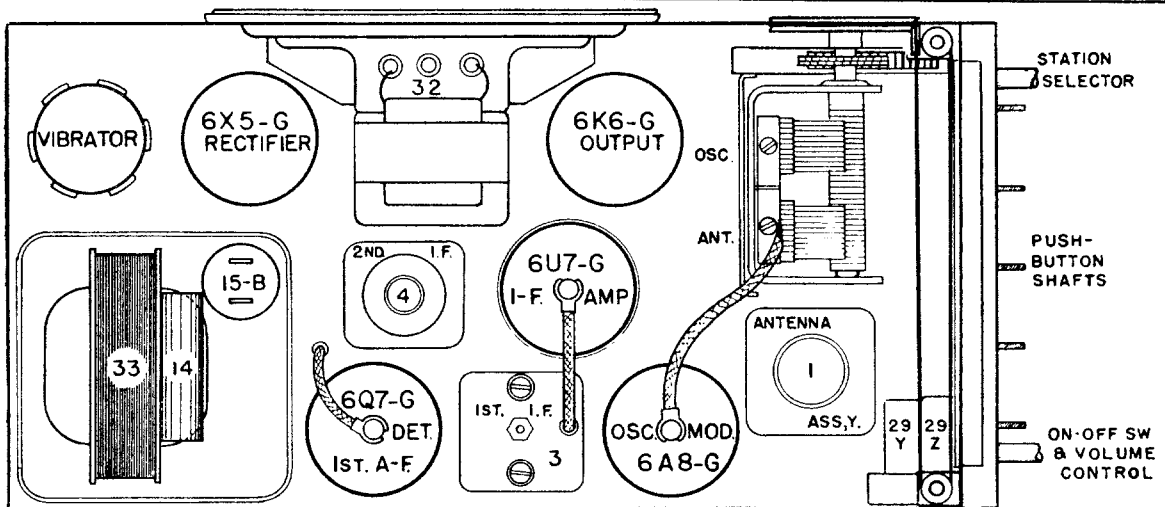
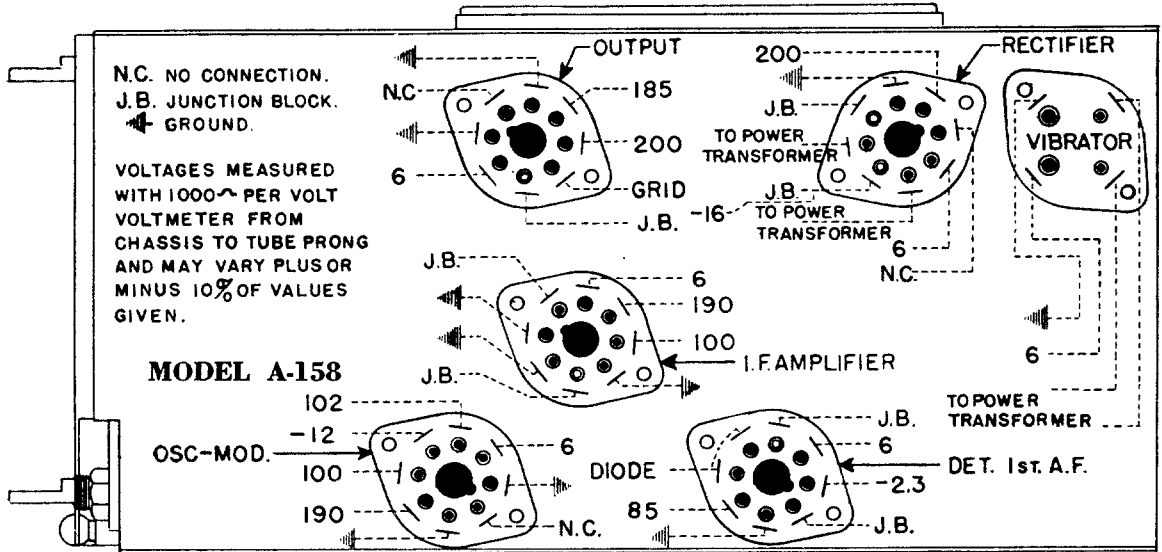
SHORT WAVE BAND ALIGNMENT

The short wave band is adjusted by setting the generator to 18,100 KC and with the gang at minimum, adjust the "short wave oscillator trimmer" to receive the signal. Set the generator at 16,000 KC, tune in the signal and adjust the "short wave antenna" trimmer to give maximum output. As there is no variable low frequency padding condenser on this band, the sensitivity of the receiver should be checked at 6000 KC to determine whether the circuits are in line at this frequency. Should the receiver lack sensitivity at 6000 KC, the antenna and the oscillator coils, as well as the .004 mica padding condenser, should be tested for defects as sometimes these components become subject to mechanical or electrical injuries, despite their rugged construction and liberal ratings.

Continental Radio & Television Corp., Chicago, Ill.

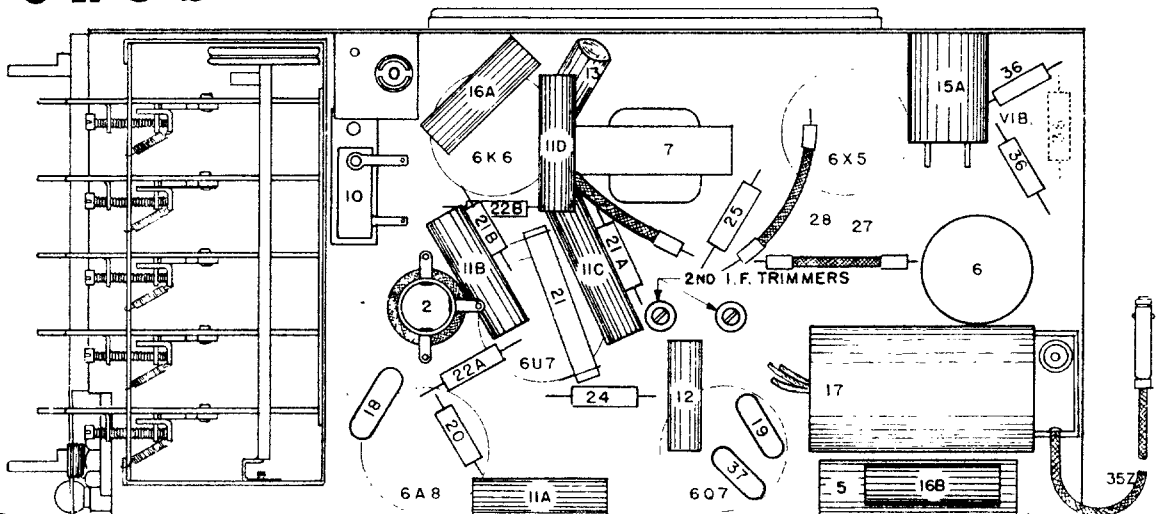
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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



CROSLEY

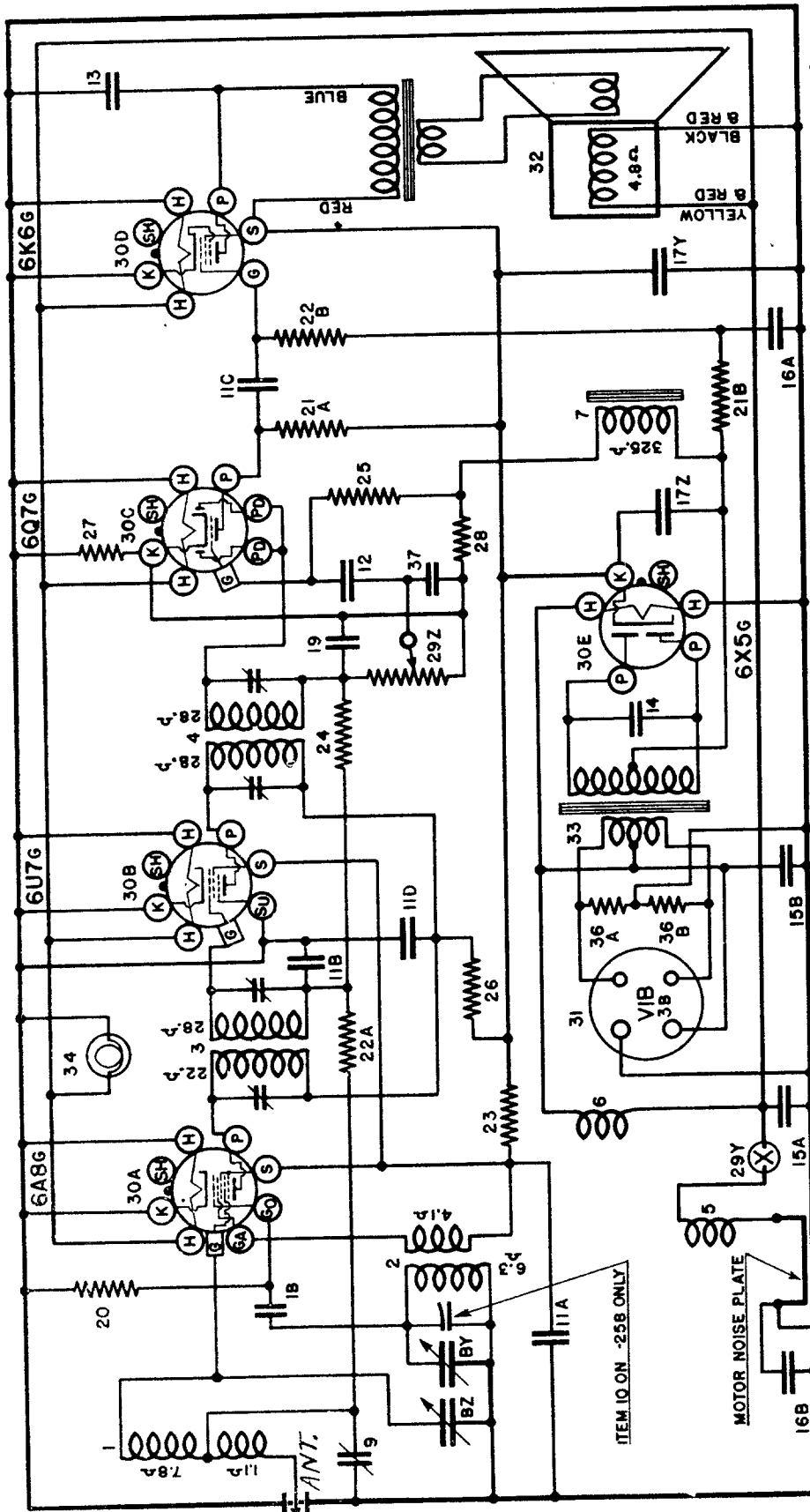
Top View A-258



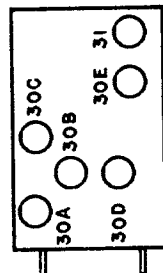
Bottom View A-258

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



The model A-158 and the model A-258 are the same electrically with the exception of a few minor parts. Mechanically they differ in that the A-258 has Push Button Tuning and the A-158 is manually tuned. When referring to the A-258 Parts List for replacement parts for the A-158 disregard all parts listed between items 7 and 11 and all parts listed under the heading Miscellaneous Mechanical Parts.



MODEL -158
MODEL -258
455 KC. I.F.

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MODEL A-158 AND A-258 (Roamio)

WIRING DIAGRAM—MODEL A-258

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

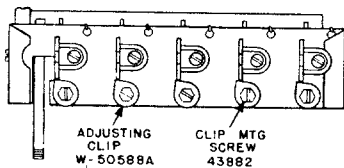
PARTS LIST—MODEL A-258

Figures in first column refer to parts in Diagrams.

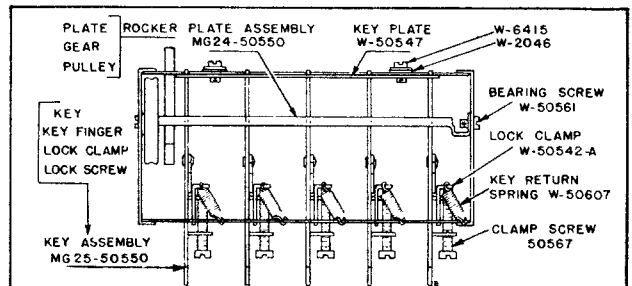
Item No.	Part No.	Description	Item No.	Part No.	Description	
1	G167—32000	Ant. Coil	30	G178—36400	8 Prong Socket	
2	G167—32002	Osc. Coil	W	—50176	Tube Shield Half (2 Req.)	
3	G185—32004	1st I-F Assy., 455 Kc.	W	—31210	Tube Shield Ring	
4	G186—32004	2nd I-F Assy., 455 Kc.	31	G105—28807	Vib. Socket	
5	G19—32977	Motor Noise Check	W	—50123A	Vib. Gnd. Clip	
6	G27—28067	"A" Filter Choke	32	278-BL-7"U"	Speaker, Mfg. Spec. 5B-122	
7	G16—29535	"B" Filter Choke	W	—45889	Output Trans.	
8	G50—33001	2 Section Gang Cond.	33	B	Power Trans.	
9	—50054B	Ant. Compensating Cond.	W	—50130	Power Trans. Can	
	C	Glass Dial Face	G1	—50631	Dial Light Bulb—6-8 V.	
	W	—50545	L. H. Dial Mtg. Clip	35Z	G29—32750	"A" Lead—Set to Fuse
	W	—50560	R. H. Dial Mtg. Clip	35Y	G27—32750	"A" Lead—Fuse to Ammeter
	W	—50517B	Dial Mask (Maroon)	36A	—38915	Resistor, 100 Ohm 1/2 W. W. W.
	W	—50518	Pointer	36B	—38915	Resistor, 100 Ohm 1/2 W. W. W.
	B	—78	Screw—Dial Clip Mtg.	37	G2—34002	Condenser, .0001 Mf. Molded
	MG23—50550	Dial Mtg. Bracket Assy. (Riveted to Chassis)	38	G10—38000	Vibrator, Interchangeable	
	MG28—50550	Manual Drive Shaft Brkt. Assy.	W	—32757	Fuse (12 Amp.)	
	G8	—43564	Pulley and Hub Assy.	W	—32776	Fuse Insulator
	W	—23877	Set Screw—Hub			
	W	—41582	Drive Cord—40 Inches	MG27—50550		Miscellaneous Mechanical Parts
	W	—50590	Spring—Cord Tension—Large Pulley	MG25—50550		Push Button Unit Assy.
	W	—43561	Spring—Cord Tension—Small Pulley	W	—50542A	Key Assy.
	W	—50524B	Manual Drive Shaft	W	—50567	Key Clip (Lock Clamp)
10	G3	—50369	Temp. Compensating Cond.	W	—50607	3/8" —6x32 Screw (Clamp)
11A	W	—32380	Condenser, .05 Mf. 200 V.	W	—50588A	Spring—(Key Return)
11B	W	—32380	Condenser, .05 Mf. 200 V.	W	—43882	Adjusting Clip (Heart Shaped)
11C	W	—32380	Condenser, .05 Mf. 200 V.	W	—50547	1/4" No. 8 P. K. Screw (Clip Mtg.)
11D	W	—32380	Condenser, .05 Mf. 200 V.	W	—50547	Key Plate (Rear Guide)
12	W	—37226	Condenser, .02 Mf. 160 V.	MG24—50550		Rocker Plate Assy.
13	W	—23191A	Condenser, .01 Mf. 400 V.	W	—50561	1/8" —6x40—Fil. H. Screw (Rock Plate Bearing)
14	W	—50203	Condenser, .0065 Mf. 1,000 V.	W	—45533B	Push Button
15A	W	—50161	Condenser, 5 Mf. 120 V.	W	—50551A	Celluloid Cover
15B	W	—50161	Condenser, 5 Mf. 120 V.	W	—50549	Call Letter Sheet
16A	W	—50105	Condenser, .1 Mf. 160 V.	D	—50503B	Case (Rear Half) FS49
16B	W	—50105	Condenser, .1 Mf. 160 V.	C	—50554A	Case (Front Half) FS49
17Z	W	—50528	Condenser, 4. Mf. 350 V.	W	—50589	Felt (Dial Window)
17Y	W	—50528	Condenser, 4. Mf. 350 V.	W	—50505	Knob (2 Req.)
	W	—50224	Cond. Clamp			
18	G1	—34002	Condenser, .00025 Mf. Molded	W	—38038D	Mounting Parts
19	G3	—34002	Condenser, .0005 Mf. Molded	W	—29754C	Distributor Suppressor
20	—35600	Resistor, 100,000 Ohm 1/4 W.	Resistor, 100,000 Ohm 1/4 W.	W	—25846	Generator Condenser
21A	—35601	Resistor, 300,000 Ohm 1/4 W.	Resistor, 300,000 Ohm 1/4 W.	W	—6213	3/4" No. 10 P. K. Screw (Set Mtg.)
21B	—35601	Resistor, 300,000 Ohm 1/4 W.	Resistor, 300,000 Ohm 1/4 W.	W	—35065	1 1/2" —20 Hex. Nut (Brkt. Mtg.)
22A	—36322	Resistor, 500,000 Ohm 1/4 W.	Resistor, 500,000 Ohm 1/4 W.	W	—38205	1 1/2" —20 Screw (Brkt. Mtg.)
22B	—36322	Resistor, 500,000 Ohm 1/4 W.	Resistor, 500,000 Ohm 1/4 W.	W	—32783	1/4" Lock Washer (Brkt. Mtg.)
23	—23616	Resistor, 15,000 Ohm 1W.	Resistor, 15,000 Ohm 1W.	W	—50167	Ant. Cable (Accessory)
24	—35602	Resistor, 1. Megohm 1/4 W.	Resistor, 1. Megohm 1/4 W.	W	—50395	Mtg. Bracket (Set)
25	—35927	Resistor, 2. Megohm 1/4 W.	Resistor, 2. Megohm 1/4 W.	W	—50395	Ammeter Cond. (Accessory)
26	—50641	Resistor, 750 Ohm 1/2 W.	Resistor, 750 Ohm 1/2 W.	W	—38935	Case Ground Clip
27	—50643	Resistor, 60 Ohm 1/2 W.	Resistor, 60 Ohm 1/2 W.			
28	—50642	Resistor, 40 Ohm 1/2 W.	Resistor, 40 Ohm 1/2 W.			
29Z	—50526	Volume Control, 1. Meg.	Volume Control, 1. Meg.			
29Y	—50526	On-Off Switch	On-Off Switch			

The Crosley Corporation
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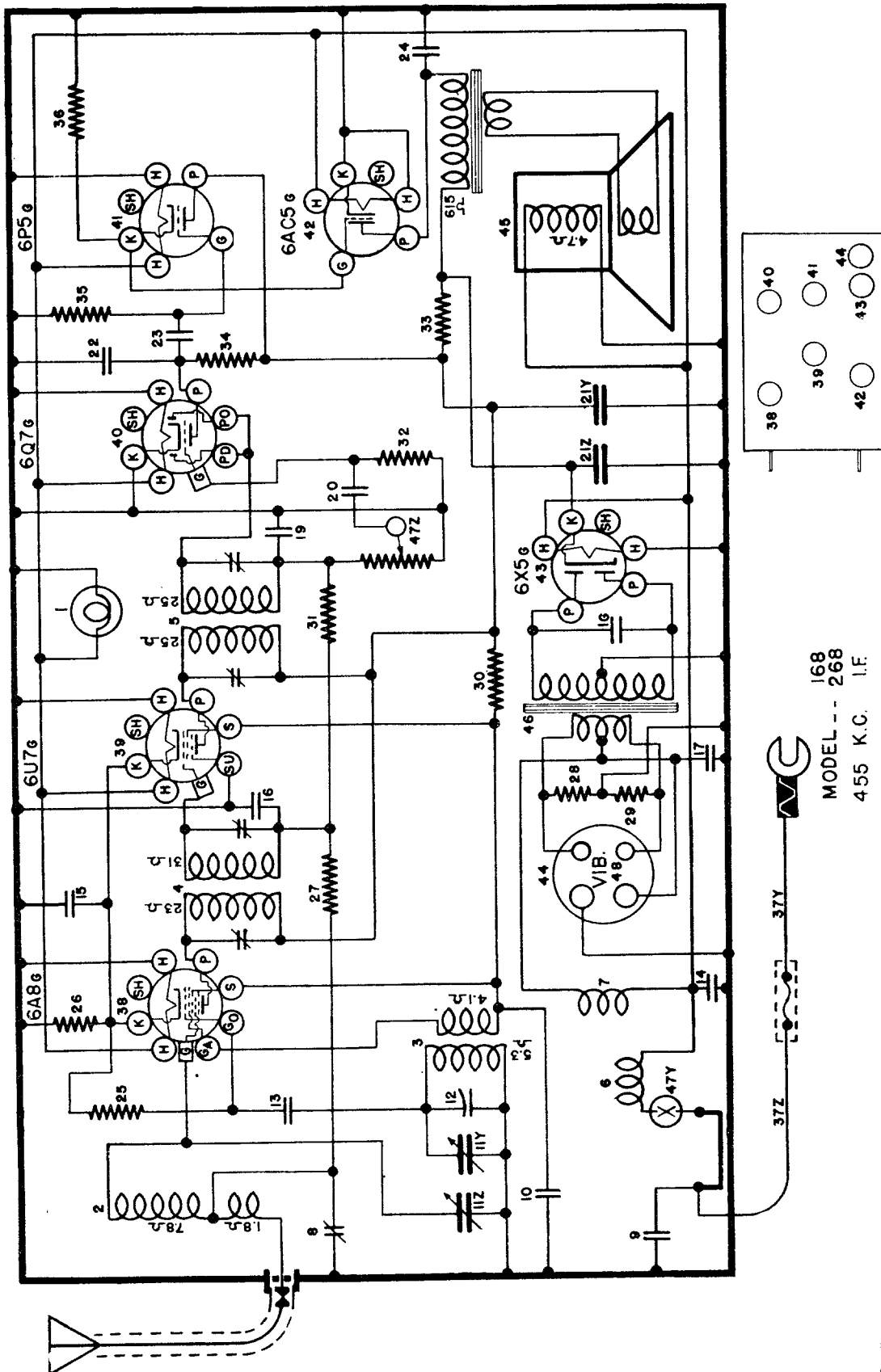
MG27-50550 PUSH BUTTON ASSEMBLY



Push Button Assembly



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



WIRING DIAGRAM—MODELS A-168 and A-268

168
MODEL -- 268
455 K.C. I.F.

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Cincinnati, Ohio

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

PARTS LIST—MODELS A-168 and A-268

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	W —43567	Dial Light Bulb, 6-8 V.	44	G105—28807	Socket Vibrator
2	G175—32000	Antenna Coil	W —50174	Tube Shield Base	
3	G176—32002	Oscillator Coil	W —50176	Tube Shield Half	
4	G191—32004	1st I-F. Trans., 455 Kc.	W —31210	Tube Shield Ring	
5	G196—32004	2nd I-F. Trans., 455 Kc.	45	278BL7"U"	Speaker—Mfg. Spec. No. 5-B-122
6	G19 —32977	Motor Noise Choke	—45889	Output Transformer	
7	G29 —28067	"A" Filter Choke	278BL7"B"	Speaker—Mfg. Spec. No. 55-W-1	
8	—38998B	Ant. Comp. Cond.	—45721	Output Transformer	
	—50049	Nut—Comp. Cond. Mtg.	46	B —50644A	Power Transformer
9	W —35936	Condenser, .05 Mf. 200 V.	W —50680	Shield—P. T.	
10	W —32380	Condenser, .05 Mf. 200 V.	47Z	—50526	Volume Control (1 Meg.)
11	G50 —33001	2 Section Gang Condenser	47Y	—50526	On-Off Switch
	C —50688	Dial (Glass) A-168 only	48	G10 —38000	Vibrator Interchangeable
	W —50517B	Dial Mask (Maroon) A-168 only	G13 —38000	Vibrator	
	W —50518A	Pointer—A-168 only			
	W —50758	Dial (Glass) A-268 only			
	W —50757	Dial Mask (Blue) A-268 only			
	W —50759	Pointer—A-268 only			
	W —50560	R. H. (Dial Mtg.) Clip			
	W —50545	L. H. (Dial Mtg.) Clip			
	B —78	Screws—Clip Mtg.			
	W —2045	Washers—Clip Mtg.			
	W —50524D	Drive Shaft—Manual			
	W —50325A	Washer—Shaft Retaining			
	MG28—50675	Shaft Brkt. Assm. (Rear Bearing)			
	G8 —43564	Pulley and Hub. Assm.			
	W —50590	Spring (Tension—22" Cord)			
	G6 —41582	Drive Cord—22-Inch			
	W —43561	Spring (Tension—18" Cord)			
	G5 —41582	Drive Cord—18-Inch			
	MG23—50675	Dial Brkt. Assm. Riveted to Chassis			
12	G3 —50369	Temp. Comp. Cond. (Bi-metal)			
14	G1 —34002	Condenser, .00025 Mf. Molded			
15	G3 —34002	Condenser, .0005 Mf. Molded			
16	W —50105	Condenser, .1 Mf. 160 V.			
17	W —32380	Condenser, .05 Mf. 200 V.			
18	W —50682A	Condenser, .5 Mf. 120 V.			
19	W —50203	Condenser, .0065 Mf. 1,000 V.			
20	G3 —34002	Condenser, .0005 Mf. Molded			
21Z	W —45810B	Condenser, .006 Mf. 160 V.			
21Y	W —50674	Condenser, 10. Mf. 350 V.			
22	G1 —34002	Condenser, .00025 Mf. Molded			
23	W —37226	Condenser, .02 Mf. 160 V.			
24	W —35758	Condenser, .008 Mf. 400 V.			
25	—35600	Resistor, 100,000 Ohms ¼W. Ins.			
26	—50699	Resistor, 200 Ohms ½W. W. W.			
27	—36322	Resistor, 500,000 Ohms ¼W. Ins.			
28	—38915	Resistor, 100 Ohms ½ W. W. W.			
29	—38915	Resistor, 100 Ohms ½ W. W. W.			
30	—23616	Resistor, 15,000 Ohms 1 W. Carbon			
31	—35602	Resistor, 1 Meg. ¼W. Ins.			
32	—50671	Resistor, 15 Meg. ¼W. Ins.			
33	—45388	Resistor, 1,400 Ohms 1½W. W. W.			
34	—35601	Resistor, 300,000 Ohms ¼W. Ins.			
35	—38623	Resistor, 750,000 Ohms ¼W. Ins.			
36	—40643	Resistor, 25,000 Ohms ¼W. Ins.			
37Z	G29 —32750	"A" Lead, Set to Fuse			
37Y	G27 —32750	"A" Lead, Fuse to Ammeter			

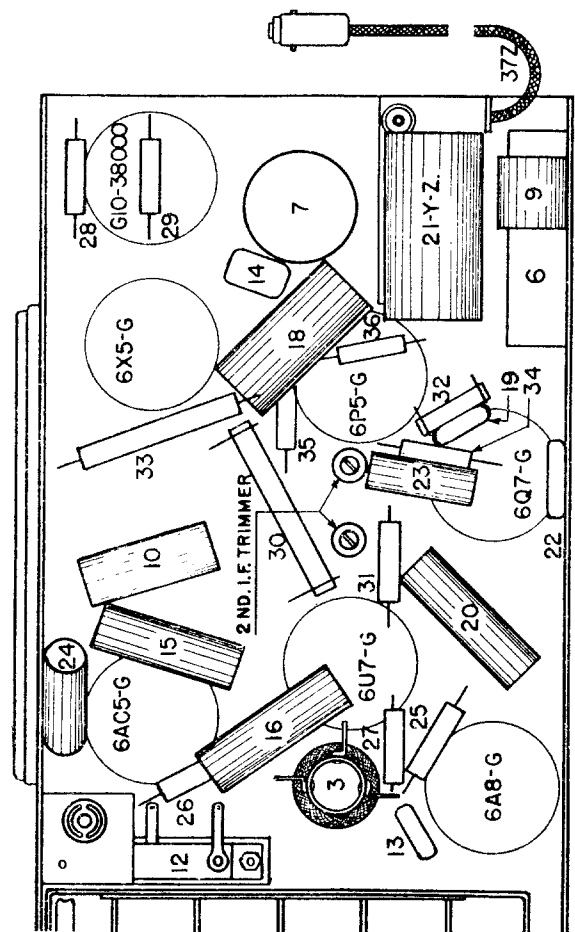


Fig. 3. Bottom View A-168 and A-268

TUBE SOCKET VOLTAGE READINGS

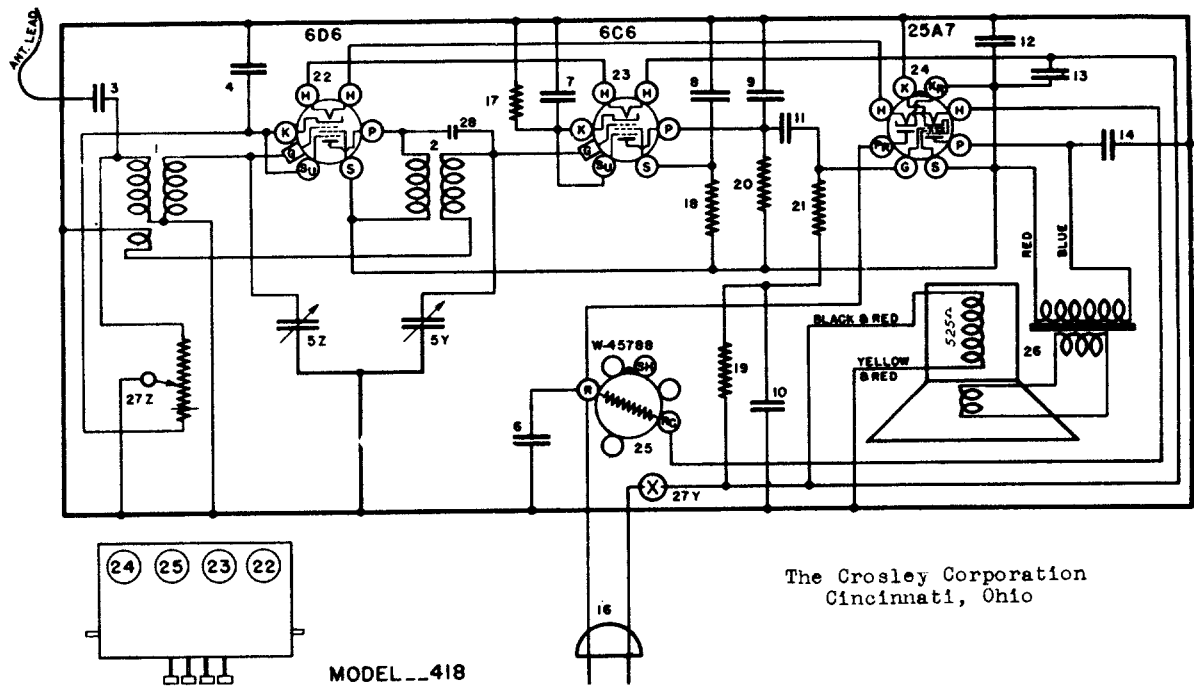
Tube	Function	H	P	S	Su	K	Ga	Go	G
6A8-G	Oscillator-Modulator	6.0	220	100	—	3.5	100	—	—
6U7-G	I-F. Amplifier	6.0	220	100	—	3.5	—	—	—
6Q7-G	Det., A. V. C. 1st A-F. Amplifier	6.0	60	—	—	—	—	—	—
6P5-G	2nd A-F. Amplifier	6.0	200	—	—	11	—	—	—
6AC5-G	Output	6.0	225	—	—	—	—	—	11
6X5-G	Rectifier	6.0	—	—	—	240	—	—	—

Power Output (max.) 6 Watts—approx.

Battery Drain 6.5 Amperes—approx.

It will be noted that certain terminals on the sockets are used as junction blocks.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

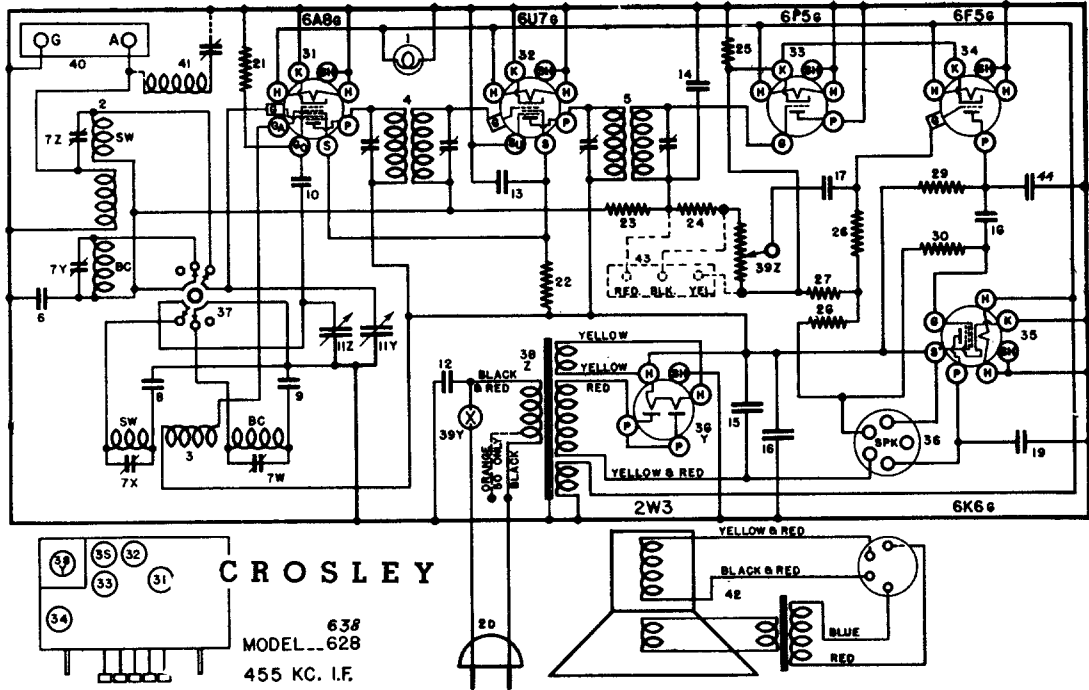


WIRING DIAGRAM—MODEL 418

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	G173—32000	Antenna Coil		—46045	Output Transformer
2	G102—32001	Oscillator Coil		W —45900A	Speaker Mtg. Brkt.
3	W —45780B	Condenser, .02 Mf. 160 Volt	27Z	—45786	Volume Control (40,000)
4	W —45780B	Condenser, .02 Mf. 160 Volt	27Y		Line Switch
5Z				W —45789A	V. C. Mtg. Brkt.
5Y	G53 —33001	2 Section Gang Condenser	28	G3 —50640	Condenser, 7-10 Mmf.
6	W —45782B	Condenser, .05 Mf. 400 Volt		G6 —45683	Push Button Unit
7	W —45781B	Condenser, .25 Mf. 160 Volt		G27 —45683	Rocker Plate Assy.
8	W —45780B	Condenser, .02 Mf. 160 Volt		G26 —45683	Key Assy.
9	G2 —34002	Condenser, .0001 Mf. Molded		W —50542C	Key Clip (Lock Clamp)
10	W —45781B	Condenser, .25 Mf. 160 Volt		—45717	Adjusting Screw
11	W —45780B	Condenser, .02 Mf. 160 Volt		W —50607B	Spring (Key Return)
12	W —45783	Condenser, 16 Mf. 150 Volt		W —50561	Bearing Screw (Rocker)
13	W —45783	Condenser, 16 Mf. 150 Volt		W —50547	Key Plate (Rear Guide)
14	W —45780B	Condenser, .02 Mf. 160 Volt		W —45788	Ballast Tube
15	—None			W —46259	Cabinet Assy. 8BB (Brown)
16	B —45784	Power Cord & Plug		—45828B	Back Cabinet 8BB (Brown)
	W —45902	Clamp—Power Cord		W —45930C	Rubber Foot (Bottom)
17	—24990	Resistor, 25,000 Ohm 1/3 W.		W —45931	Rubber Foot (Screw Type)
18	—37583	Resistor, 2.5 Megohm 1/3 W.			(Back)
19	—34018	Resistor, 200,000 Ohm 1/3 W.		W —45852	Baffle Board
20	—23785	Resistor, 500,000 Ohm 1/3 W.		W —45853	Grille Cloth
21	—21455	Resistor, 300,000 Ohm 1/3 W.		—45553B	Push Button (Brown)
22	G21 —28807	Socket, 6 Prong		—45822	Dial Knob (Brown)
23	G21 —28807	Socket, 6 Prong		—45825A	Vol. Cont. Knob (Brown)
24	G178—36400	Socket, 8 Prong (Octal)		—50549	Station Call Letter List
25	G178—36400	Socket, 8 Prong (Octal)		W —50551A	Celluloid Protector (Cover)
	W —34175	Tube Shield Half (Slotted)			
	W —34174	Tube Shield Half			
	W —31210	Ring—Tube Shield			
26	282-BL-4	Speaker Mfg. Spec.			

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



WIRING DIAGRAM—MODEL 628—638—5628

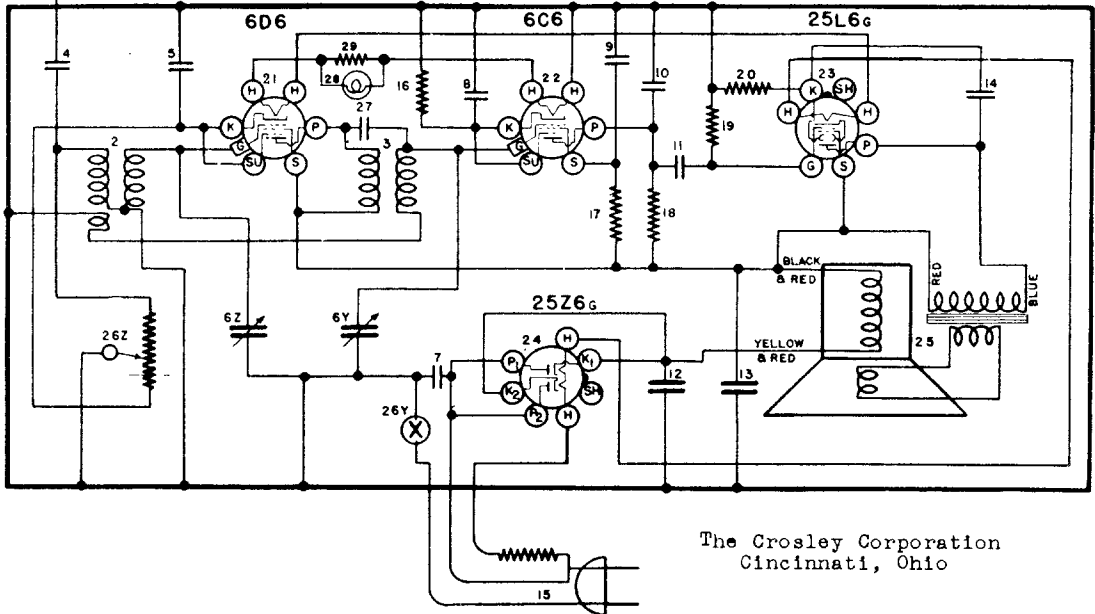
Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	W—37922	Dial Light 6-8 Volt	39Z	—45940	Power Trans., 50 Cycle, 220 V.
2	G12—43598	Dial Light Socket		—45864	{ Vol. Cont., 1 Meg. (628-5628)
3	G174—32000	Antenna Coil, B-C and S-W.	39Y	—46314	{ Line Switch
4	G175—32002	Oscillator Coil, B-C and S-W.	39Z	—46314	{ Vol. Cont., 1 Meg. (638)
5	G187—32004	1st I-F Assy., 455 Kc.	39Y	—46314	{ Line Switch
6	G188—32004	2nd I-F Assy., 455 Kc.	40	G1—28719	A.-G. Terminal Assy.
7	W—38541	Condenser, .02 Mf., 160 V.	41	G193—32004	456 Kc. Wave Trap
8	W—41247A	4 Section Trimmer Mfg.	42	279-BP-12"U"	Speaker
9	G13—34005	Condenser, .0014 Mf., Molded	43	—46121	Output Transformer
10	G18—34002	Condenser, .0004 Mf., Molded	44	G41—28719	Phono. Terminal Assy.
11	G5—34002	Condenser, .00005 Mf., Molded	43	G7—34002	Condenser, .0004 Mf., Molded
	G55—33001	2 Section Gang Condenser	44	G3—45683	Push Button Unit (628-5628)
	C—45747	Glass Dial Face (628-638)	G11—45683	G11—45683	Push Button Unit (638)
	W—46872	Glass Dial Face (5628)	G32—45683	G32—45683	Riveted Key & Toggle (628-5628)
	W—46397	Dial Hand (Pointer)	G26—45683	G26—45683	Riveted Key & Toggle (638)
	B—45743B	Dial Support Bracket	W—50542C	W—50542C	Key Lock Clamp
	W—45984	L. H. Dial Mtg. Clip	—46717	—46717	1 7/16 6x32 Lock Clamp Screw
	W—46037A	R. H. Dial Mtg. Clip	W—50607B	W—50607B	Spring Key Return
	W—45766C	Dial Hand Guide	G22—45683	G22—45683	Rockers & Gear Segment Assy.
	W—45885	Felt Strip	W—50561	W—50561	1/8 6x40 Screw (Rocker Plate Bearing)
	W—46056	Manual Drive Shaft (628-5628)	W—50588B	W—50588B	Adjusting Clip
	W—43542B	Manual Drive Shaft (638)	—45242	—45242	Rubber Foot (628-5628)
	G12—43564	Mounting Bracket Drive Shaft			
	G2—41682	Pulley & Hub Assy.			
	W—50607B	Drive Cord			
	W—46290	Cord Tension Spring			
	W—30805	Drive Cord Clamp			
12	W—28621	Condenser, .01 Mf., 400 V.	W—8AA	W—8AA	Cabinet (Brown)
13	W—28621	Condenser, .02 Mf., 200 V.	—43552	—43552	Clamp, Speaker Plug
14	G1—34002	Condenser, .00025 Mf., Molded	—45957	—45957	Knob, Band Switch
15	W—44012	Condenser 16 Mf., 250 V., Elec.	—45771	—45771	Knob, V. C. & Tuning
16	W—45968	Condenser 16 Mf., 250 V., Elec.	—50841	—50841	Station Call List
17	W—28619	Condenser, .006 Mf., 200 V.	W—50553B	W—50553B	Push Button
18	W—28621	Condenser, .02 Mf., 200 V.	W—80551A	W—80551A	Celluloid Call Letter Cover
19	W—34847	Condenser, .006 Mf., 400 V.			
20	B—45769	Power Cord and Plug			
21	—36761	Resistor, 40,000 Ohm, 1/4 W.	—8G	—8G	Cabinet (Wood Has Inlays)
22	—33390	Resistor, 30,000 Ohm, 1/3 W.	—8K	—8K	Cabinet (Wood)
23	—26577	Resistor, 3 Megohm, 1/3 W.	—46399C	—46399C	Escutcheon
24	—21875	Resistor, 100,000 Ohm, 1/3 W.	D—30	D—30	Screws, Escutcheon Mtg.
25	WAS—A	1/2 W. Resistor from 6P5 Cathode to Gnd. (Deleted)	—46407	—46407	Knob, Band Switch
26	WAS—A	1/2 W. Resistor from 6P5 Cathode to Junction of Items 28 and 28 (Deleted)	—45408	—45408	Knob, V. C. & Tuning
27	WAS—A	1/2 W. Resistor from 6P5 Cathode to Junction of Items 28 and 28 (Deleted)	—50841	—50841	Station Call List
28	W—21965	Resistor, 375 Ohm, 1 W (was 275 Ohm)	W—50551A	W—50551A	Celluloid Cover
29	—21455	Resistor, 300,000 Ohm, 1/3 W.	—46417	—46417	Push Button
30	—23785	Resistor, 500,000 Ohm, 1/3 W.			
31	G178—36400	Socket, 8 Prong			
32	G178—36400	Socket, 8 Prong			
33	G178—36400	Socket, 8 Prong	W—50551A	W—50551A	Call Letter Cover
34	G178—36400	Socket, 8 Prong	—50617	—50617	Push Button
35	G178—36400	Socket, 8 Prong			
36	W—40911	Tube Shield	—45910	—45910	Instructions (628)
37	G103—28807	Socket, Speaker Plug	—46326	—46326	Instructions (638)
	—45901	Band Switch	—46897	—46897	Instructions (5628)

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



WIRING DIAGRAM—MODEL 428



The Crosley Corporation
Cincinnati, Ohio

Figures in first column refer to parts in Diagrams.

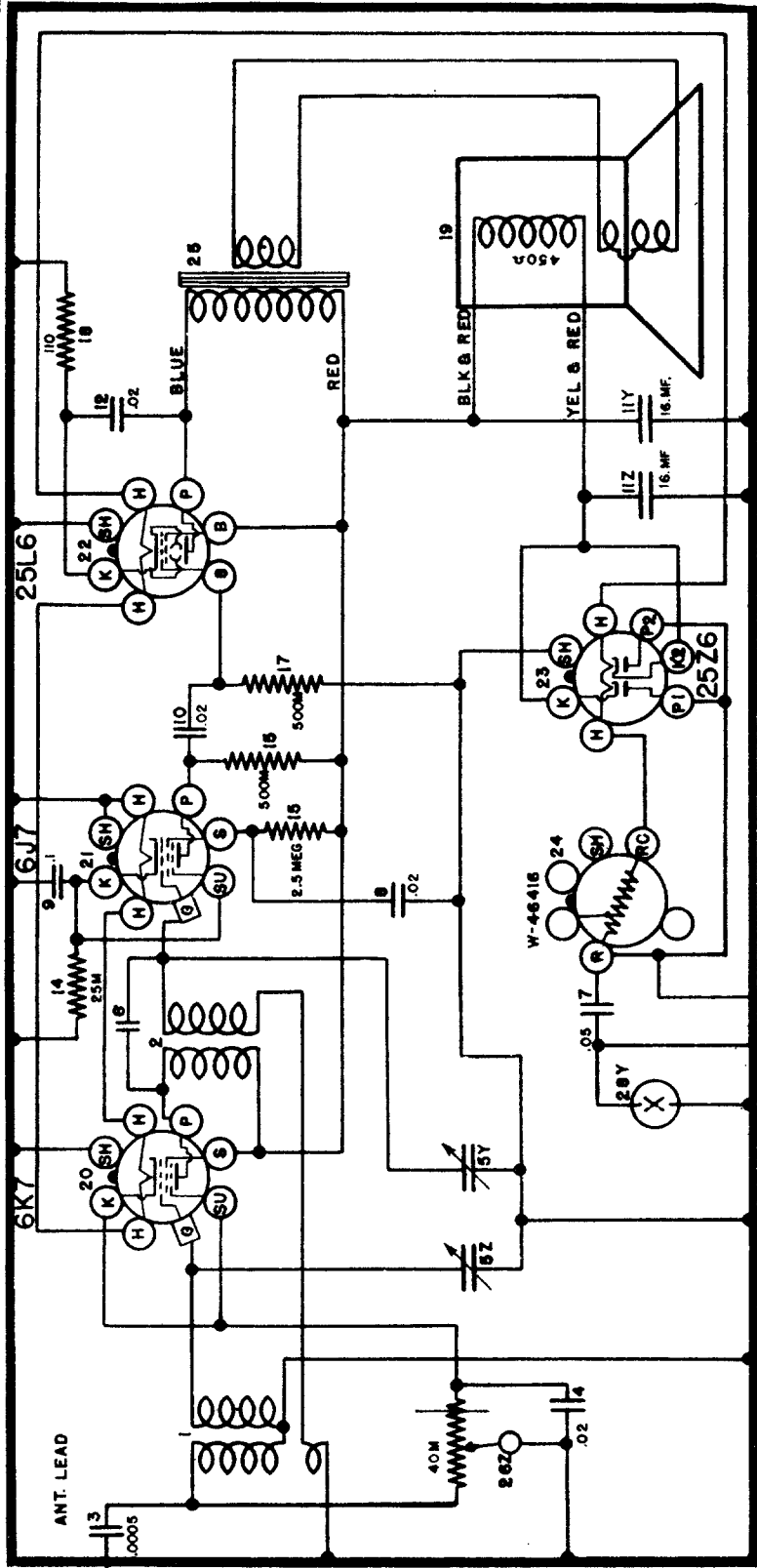
Item No.	Part No.	Description	Item No.	Part No.	Description
1	W —45577	Antenna Roll	27	G3 —50640	Condenser Assembly
2	G180—32000	Antenna Coil	W —44337		Dial Light, 6-8 Volt
3	G104—32001	R. F. Coil	W —40570		Dial Light Shield
4	W —45780B	Condenser, .02 Mf. 160 V.	G6 —27134		Dial Light Socket
5		Condenser, .02 Mf. 160 V.	W —44396		Resistor, 40 Ohms 3½W. Flex.
6Z	G53 —33001	2 Section Gang Condenser			
6Y					
7	W —45782B	Condenser, .05 Mf. 400 V.			
8	W —45781B	Condenser, .25 Mf. 160 V.			
9	W —45780B	Condenser, .02 Mf. 160 V.			
10	G2 —34002	Condenser, .0001 Molded			
11	W —45780B	Condenser, .02 Mf. 160 V.			
12	W —45783	Condenser, 16 Mf. 150 V. Elect.			
13	W —45783	Condenser, 16 Mf. 150 V. Elect.			
14	W —45817A	Condenser, .05 Mf. 160 V.			
15	B —46114	Power Cord (165 Ohm 15W Lead)			
	W —45902	Cord Clamp			
16	—24990	Resistor, 25,000 Ohms ½W.			
17	—37583	Resistor, 2.5 Meg Ohms ½W.			
18	—23785	Resistor, 500,000 Ohms ½W.			
19	—23785	Resistor, 500,000 Ohms ½W.			
20	W —45965	Resistor, 110 Ohms ½W. Flex.			
21	G21 —28807	6 Prong Socket			
22	G21 —28807	6 Prong Socket			
23	G178—36400	8 Prong Socket			
24	G178—36400	8 Prong Socket			
	W —34175	Tube Shield Half (Slotted)			
	W —34174	Tube Shield Half (Plain)			
	W —31210	Tube Shield Ring			
25	281-BL-5-U	Speaker Spec. 5-B-130			
	W —45900A	Speaker Mtg. Bracket			
26Z	—45786	Volume Control, 40,000 Ohms			
26Y			On-Off Switch		

TUBE SOCKET VOLTAGE READINGS

Tube	H	P	S	K	Su
6D6	6.3*	97	98	2.5-25	as
6C6	6.3*	20	10	7	
25L6	25*	85	98	6	
25Z6	25*	117*		126	

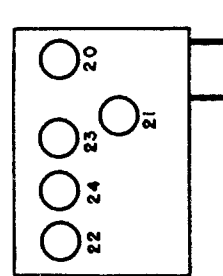
Readings taken with a 1000 ohm per volt meter. Volume full on. Readings between terminals indicated and chassis. Values marked with a * are A.C.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Item No.	Part No.	Description
1	G182-32000	Antenna Coil
2	G102-32001	R-F. Coil
3	G3-34002	Condenser, .0005 Mf. Molded
4	W-45708B	Condenser, .02 Mf. 160 V.
5	G60-33001	2 Section Gang Condenser
6	G3-50640	Twisted Lead—Cap. Coupling
7	W-45782B	Condenser, .05 Mf. 120 V.
8	W-45780B	Condenser, .02 Mf. 160 V.
9	W-50105	Condenser, 1 Mf. 160 V.
10	W-45708B	Condenser, .02 Mf. 160 V.
11Z	W-46398	Condenser, 16 Mf. 125 V.
11Y	W-45780B	Condenser, 16 Mf. 125 V.
12	W-24990	Condenser, .02 Mf. 160 V.
13	W-45784	Power Cord and Plug
14	W-45780B	Resistor, 25,000 Ohm $\frac{3}{8}$ W.
15	W-37583	Resistor, 2.5 Megohm $\frac{3}{8}$ W.
16	W-23785	Resistor, 500,000 Ohm $\frac{3}{8}$ W.
17	W-23785	Resistor, 500,000 Ohm $\frac{3}{8}$ W.
18	W-45965	Resistor, 110 Ohm $\frac{1}{2}$ W.

19	284-BL-4"B"	Speaker—Spec.
	—46691	Field Coil—450 Ohm
	284-BL-4"H"	Speaker—Spec.
	—46901	Field Coil—450 Ohm
20 to 24	G178-36400	Socket—8 Prong Octal
	W-46477	Tube Shield
25	G25-29535	Output Transformer
26Z	—46411	Volume Control—
26Y		Line Switch—



WIRING DIAGRAM—

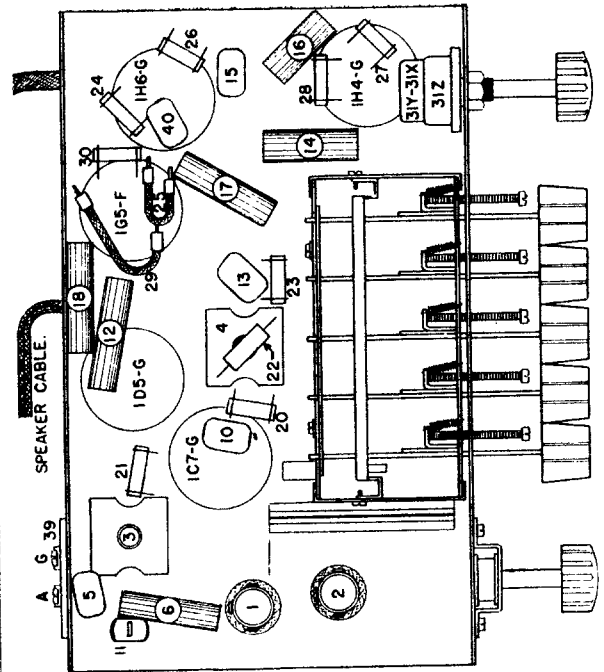
MODEL 568

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

PARTS LIST—MODELS 548 & 5548

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	G176—32000	Antenna Coil		W —40911	Tube Shield
2	G177—32002	Oscillator Coil	38	274PL18"H"	Speaker, Spec. S-4504 AMD5
3	G194—32004	1st I. F. Transformer		—46800	Speaker Cone Assembly
4	G195—32004	2nd I. F. Transformer		—46802	Output Transformer
5	G5 —34002	Condenser, .00005 Mf. Molded		—46803	Cardboard Ring
6	W —28621	Condenser, .02 Mf. 200 V. Paper	39	G1 —26719	Terminal (A-G)
7	G5 —50640	Condenser (Capacity Coupling) Ant.	40	G2 —34002	Condenser, .0001 Mf. Molded
8	G3 —50640	Condenser (Capacity Coupling) Osc.			
9Z	G52 —33001	2 Sect. Condenser (Antenna Oscillator)			
9Y					
	W —23877	Set Screw (For Pulley-Hub Assembly)			
	G12 —43564	Pulley and Hub Assembly			
	MG14—45894	Riveted Dial Support Bracket, R. H.			
	MG16—46000	Riveted Dial Support Bracket, L. H.			
	C —46042	Dial Glass			
	W —45984	Dial Glass Clip, L. H.			
	W —45985	Dial Glass Clip, R. H.			
	W —46397	Dial Pointer (White)			
	W —46037	Dial Hand Guide			
	W —45742B	Dial Glass Cushion			
	B —45743B	Dial Support			
	—46056	Drive Shaft (5548)			
	—45865	Drive Shaft (548)			
	W —43542B	Drive Shaft Bracket			
	G2 —41582	Drive Cord (44 Inches)			
	W —46290	Cord Clamp			
	W —46087	Drive Cord Spring			
10	G2 —34002	Condenser, .0001 Mf. Molded			
11	W —45968	Condenser, 15 Mf. 250 V. Elect.			
12	W —28621	Condenser, .02 Mf. 200 V. Paper			
13	G11 —34002	Condenser, .000175 Mf. Molded			
14	W —41461	Condenser, .0014 Mf. 200 V. Paper			
15	G1 —34002	Condenser, .00025 Mf. Molded			
16	W —41461	Condenser, .0014 Mf. 200 V. Paper			
17	W —28621	Condenser, .02 Mf. 200 V. Paper			
18	W —28904	Condenser, .004 Mf. 200 V. Paper			
19	C —46014	Battery Cable, Model 548			
19	C —46072A	Battery Cable, Model 5548			
20	—21237A	Resistor, 60,000 Ohms $\frac{1}{3}$ W. Carbon			
21	—33390	Resistor, 30,000 Ohms $\frac{1}{3}$ W. Carbon			
22	—26577	Resistor, 3 Megohms $\frac{1}{3}$ W. Carbon			
23	—21875	Resistor, 100,000 Ohms $\frac{1}{3}$ W. Carbon			
24	—37584	Resistor, 11 Megohms $\frac{1}{3}$ W. Carbon			
25	W —22514	Resistor, 750 Ohms $\frac{1}{2}$ W. Flex.			
26	—21875	Resistor, 100,000 Ohms $\frac{1}{3}$ W. Carbon			
27	—37584	Resistor, 11 Megohms $\frac{1}{3}$ W. Carbon			
28	—21875	Resistor, 100,000 Ohms $\frac{1}{3}$ W. Carbon			
29	W —30960	Resistor, 2,600 Ohms $1\frac{1}{2}$ W. Flex.			
30	—23785	Resistor, 500,000 Ohms $\frac{1}{3}$ W. Carbon			
31Z	—45996A	Volume Control			
31Y			Switch "A" Supply Model 548		
31X	—46057A	Volume Control			
31Z			Switch "A" Supply Model 5548		
31Y	—41995A	Switch "B" Supply			
31X			Resistance Strip, 1.83 Ohms Tap at 1.1 Ohms		
32					



Bottom View Model 548

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	G	Ga	Go
1C7-G	Oscillator-Modulator	2.0	120	40	0	120	-3
1D5-G	I-F Amplifier	2.0	120	40	0	—	—
1H6-G	Detector & 1st A-F Amp.	2.0	50	—	0	—	—
1H4-G	2nd A-F Amplifier	2.0	50	—	0	—	—
1G5-G	Output	2.0	123	129	-6	—	—

Power Output approximately .750 Watt.

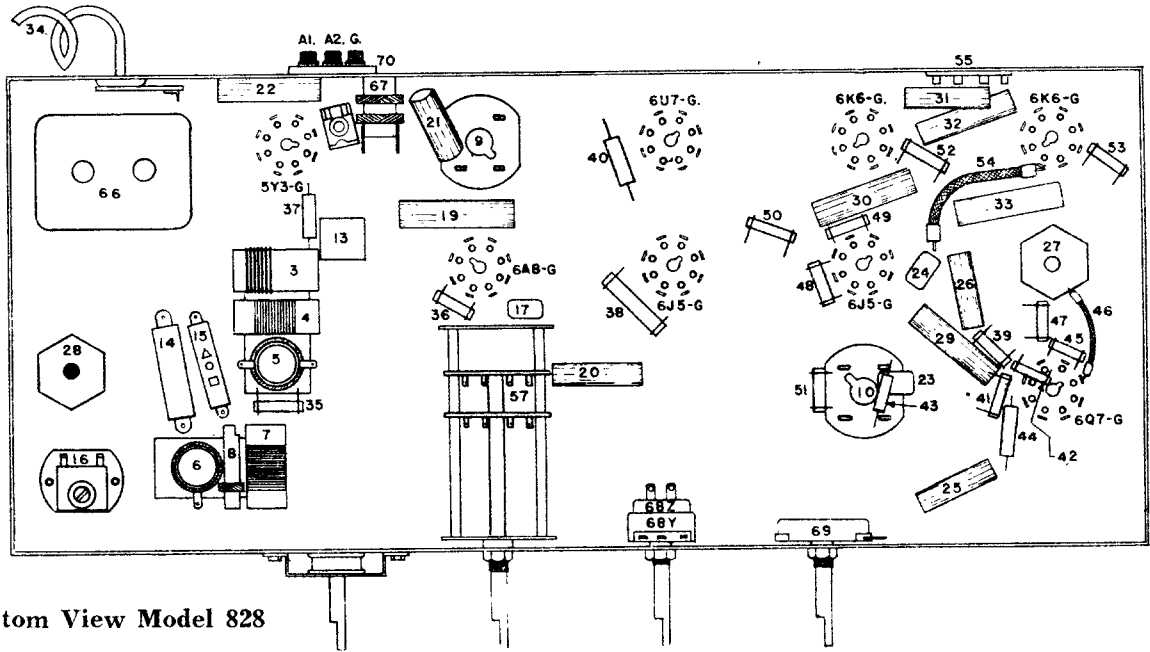
"A" Battery Drain approximately .42 Ampere at 2 Volts.

"B" Battery Drain approximately 18 Milliamperes at 135 Volts.

30

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Bottom View Model 828

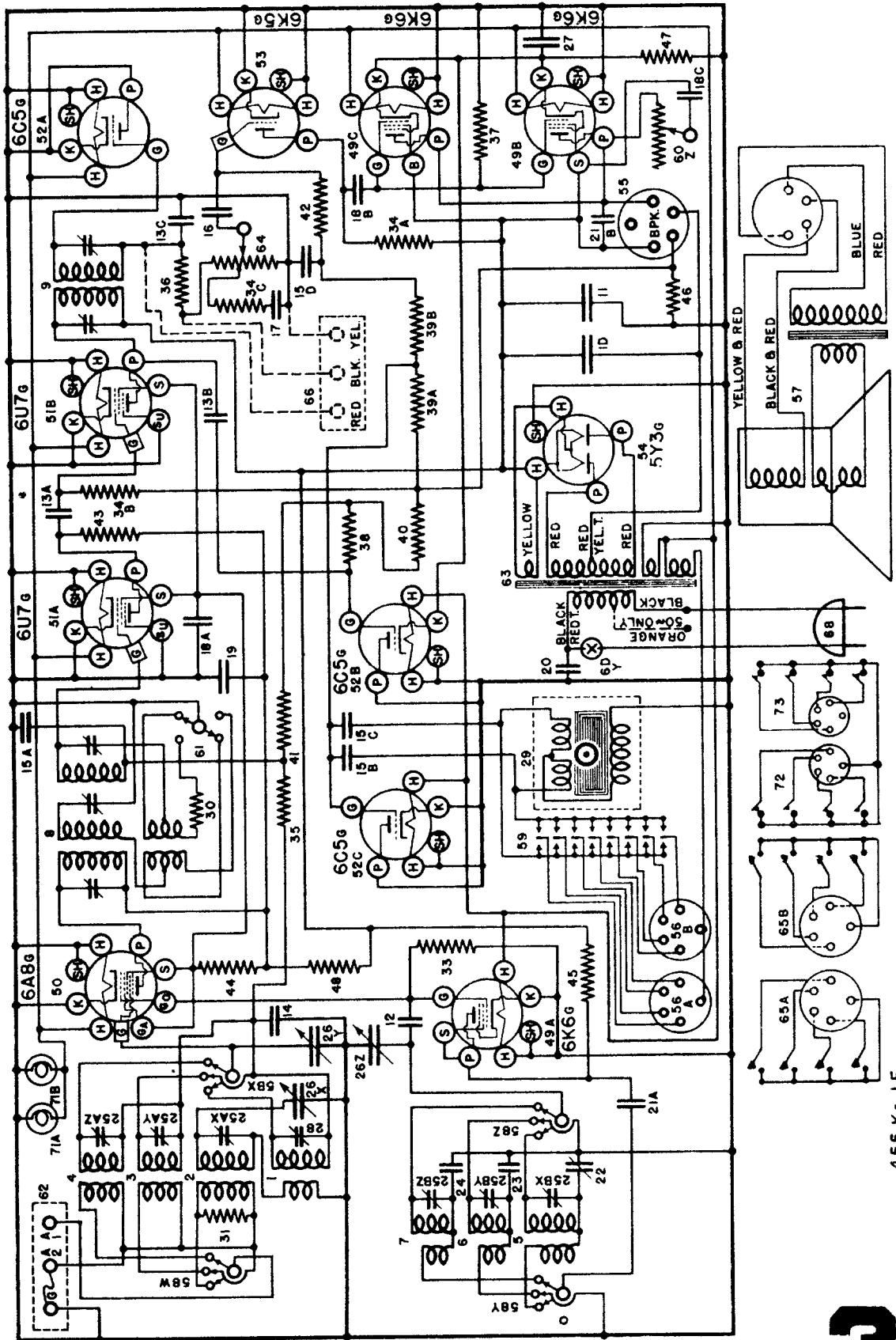
PARTS LIST — MODEL 828

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	W —37922	Dial Light—6-8 Volt	48	—23785	Resistor, 500,000 Ohm 1/2 W.
2	W —37922	Dial Light—6-8 Volt	49	—27121	Resistor, 5,000 Ohm 1/2 W.
	G16 —45398	Socket and Brkt. Assy., Dial Light	50	—21875	Resistor, 100,000 Ohm 1/2 W.
3	G170—32000	Antenna Coil—H-F.	51	—21875	Resistor, 100,000 Ohm 1/2 W.
4	G168—32000	Antenna Coil—Pol.	52	—23785	Resistor, 500,000 Ohm 1/2 W.
5	G169—32000	Antenna Coil—B-C.	53	—23785	Resistor, 500,000 Ohm 1/2 W.
6	G170—32002	Oscillator Coil—H-F.	54	W —22873	Resistor, 220 Ohm 2 1/2 W.
7	G168—32002	Oscillator Coil—Pol.	55	G103—28807	Socket—(5 Prong Spkr.)
8	G169—32002	Oscillator Coil—B-C.	56	W —43552	Spkr. Plug Clamp
9	G175—32004	1st I-F. Assy., 455 Kc.		583-CP-18"K"	Speaker, Spec. No. V. C. and Cone Assy.
10	G176—32004	2nd I-F. Assy., 455 Kc.			Field Coil—(525 Ohm)
11	W —45713	3 Section Trimmer (Osc. Shunt)			Output Transformer
12	W —35951A	3 Section Trimmer (Ant. Shunt)			Cardboard Ring
13	W —35936	Condenser, .05 Mf. 200 V.		583-CP-18"H"	Speaker, Spec. No. S-4893N3
14	G20 —34000	Condenser, .004910 Mf. Mica		—46786	V. C. and Cone Assy.
15	G23 —34000	Condenser, .001560 Mf. Mica		—46787	Field Coil (525 Ohm)
16	—40769	B-C. Osc. Series Trimmer		—46788	Output Transformer
17	G13 —34002	Condenser, .000035 Mf. Molded		—46789	Cardboard Ring
18	G59 —33001	2 Section Gang Condenser		583-CP-18"Z"	Speaker, Spec. No. E10K326
19	W —23615	Condenser, .05 Mf. 400 V.		—46758	V. C. and Cone Assy.
20	W —35139	Condenser, .004 Mf. 400 V.		—46759	Field Coil (525 Ohm)
21	W —28621	Condenser, .02 Mf. 200 V.		—46760	Output Transformer
22	W —30805	Condenser, .01 Mf. 400 V.		—46761	Cardboard Ring
23	G2 —34002	Condenser, .0001 Mf. Molded		—46276	Band Selector Switch
24	G2 —34002	Condenser, .0001 Mf. Molded		G178—36400	8 Prong Socket
25	W —41461	Condenser, .0014 Mf. 200 V.		—46318	Power Transformer, 60 Cy.—110 V.
26	W —28621	Condenser, .02 Mf. 200 V.		—46307	Power Transformer, 50 Cy.—110 V.
27	W —36057B	Condenser, .40 Mf. 300 V.		—46308	Power Transformer, 50 Cy.—220 V.
28	W —44054	Condenser, .30 Mf. 350 V.		—46309	Power Transformer, 25 Cy.—110 V.
29	W —23615	Condenser, .05 Mf. 400 V.		—46310	Power Transformer, 25 Cy.—220 V.
30	W —23615	Condenser, .05 Mf. 400 V.		—46311	Power Transformer, 40-100 Cy.—95-267 V.
31	W —35139	Condenser, .004 Mf. 400 V.		MG41—46287	Wave Trap—455 Kc.
32	W —23615	Condenser, .05 Mf. 400 V.	67	G188—32000	Coil—Only—Wave Trap
33	W —23615	Condenser, .05 Mf. 400 V.		—44024B	Tone Control
34	B —33906A	Power Cord and Plug	68Y		Line Switch
35	—22196	Resistor, 20,000 Ohm 1/2 W.	68Z		Volume Control
36	—21237A	Resistor, 60,000 Ohm 1/2 W.	70	G27 —26719	Ant. and Gnd. Terminal Assy.
37	—35600	Resistor, 100,000 Ohm 1/2 W.	G41 —26719	Phono Terminal Assy.	
38	—4921C	Resistor, 10,000 Ohm 1 W.	G10 —45683	Push Button Unit Assy.	
39	—21454	Resistor, 1 Megohm 1/2 W.	G29 —45683	Key and Toggle Assy.	
40	—36952	Resistor, 30,000 Ohm 1 W.		—45717	Screw—Key Adjusting
41	—34020	Resistor, 250,000 Ohm 1/2 W.	W —50607C	Spring—Key Return	
42	—37590	Resistor, 750,000 Ohm 1/2 W.	W —50542C	Clamp—Toggle Lock	
43	—36320	Resistor, 120,000 Ohm 1/2 W.	W —50588B	Adjusting Clip—(Heart Shaped)	
44	—36688	Resistor, 3 Megohm 1/2 W.	W —45646B	Adjusting Clip—(Hooked)	
45	—23765	Resistor, 500,000 Ohm 1/2 W.	W —46278	Guide Plate—Key	
46	W —37631	Resistor, 22 Ohm 1/2 W.	G18 —45683	Rocker Plate and Gear Sector Assy.	
47	—21875	Resistor, 100,000 Ohm 1/2 W.	W —50561	Screw—Rocker Plate Bearing	
			W —45976	Bronze Spring—Bearing Thrust	
			W —50273	Rubber Band—Used on Keys	
			8R	Cabinet	
			—46360A	Knob—4 Req.	
			8T	Cabinet (Lowboy Style)	
			—46360A	Knob—Tuning—Volume	
			—46784A	Knob—Tone Control—Band Sw.	
			C —46228C	Escutcheon	
			—46417	Push Button	
			—50841	Station Call List	
			W —50551A	Celluloid Call Letter Cover	
			—46329	Instruction Booklet	

The Crosley Corporation
Cincinnati, Ohio

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



455 Kc. I.F.

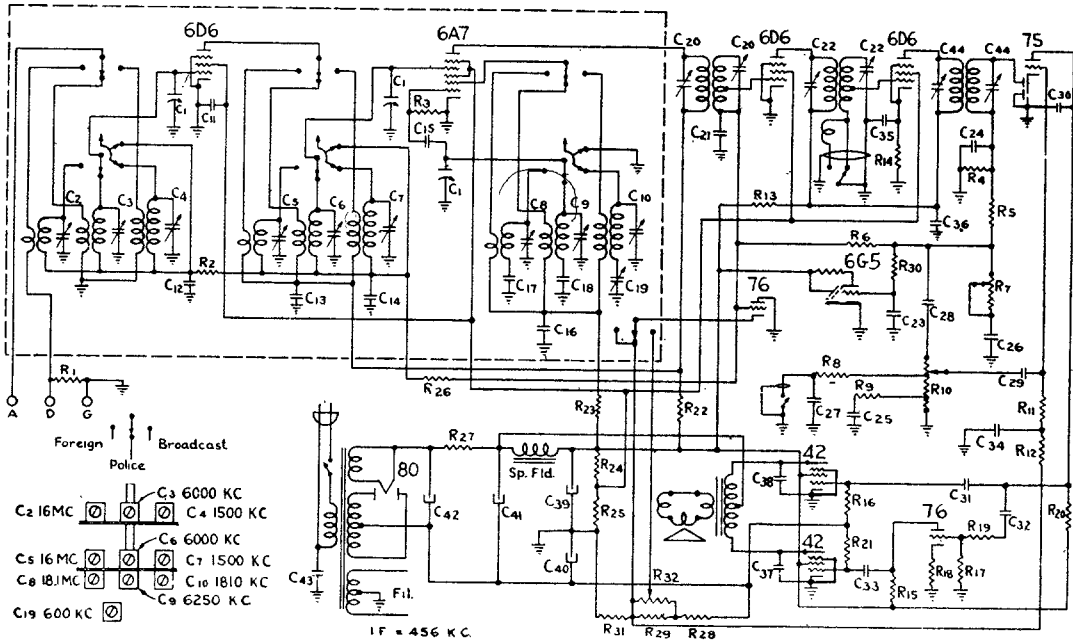
WIRING DIAGRAM—MODEL 1118 AND 1128

CROSLEY

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

DETROLA RADIO AND TELEVISION CORPORATION

DETROIT, MICHIGAN



MODEL 165

Symbol	Part No.	Description
C1	3814	9-400 mmf Variable
C2,3,4	3822	2-35 triple trimmer
C5,6,7	3822	2-35 triple trimmer
C8,9,10	3822	2-35 triple trimmer
C11,21,34	572	.1-200 V.
C12,14,23	580	.05-200 V.
C13	575	.1-400 V.
C15,24	2780	50 mmf mica
C16,35	568	.01-400 V.
C17	2694	.005 5% tolerance
C18	2741	1330 mmf 5% tolerance
C19	2560	350 mmf variable padder
C20,22,44		IF Trimmer
C25	4072	.03-200 V.
C26	2695	.003-600 V.
C27	824	.002-600 V.
C28,29	576	.02-400 V.
C30	1286	250 mmf mica
C31,33	2600	.02-600 V.
C32,36	563	.05-400 V.
C37,38	3138	.001-800 V.
C39	3113	16 MF regulating
C40	3136	20 MF 25 V.
C41	3112	16 MF 450 V.

C42	3111	16 MF 500 V.
C43	3135	.003-800 V.
R1,5,15,26	603	100 M 1/3 W.
R2,3	631	50 M 1/3 W.
R4,16,21	615	500 M 1/3 W.
R6	2693	2 meg 1/3 W.
R7	3799	2 meg tone control
R8	2568	300 M 1/3 W.
R9,23	617	20 M 1/3 W.
R10	3800	3 meg volume control
R11,12	624	1 meg 1/3 W.
R13,14,22	2421	1 M 1/3 W.
R17	2880	100 M 1/3 W. 10 %
R18	614	5 M 1/3 W.
R19	2731	500 M 1/3 W. 10 %
R20	598	200 M 1/3 W.
R24	3805	7 M 3.5 W.
R25	3805	8 M 1.5 W.
R27	3809	100 ohms 2 W. 10 %
R28	3806	120 ohms 1.5 W. 10 %
R29	4111	85 ohms 1.0 W. 10 %
R30	2106	3 meg 1/3 W.
R31	3870	15 ohms .5 W. 10 %
R32	3801	2 M variable

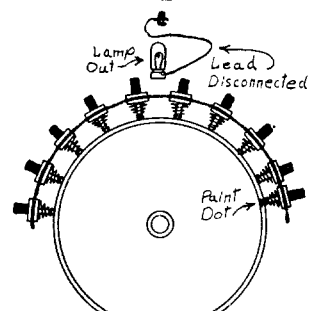
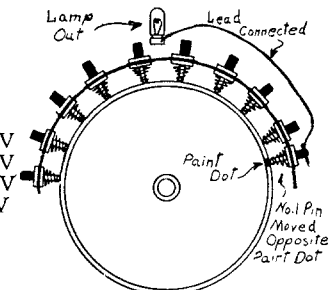
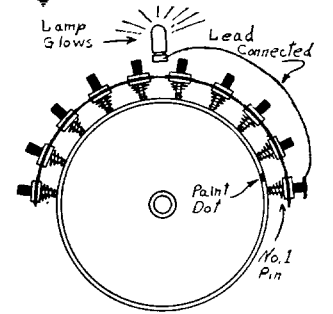
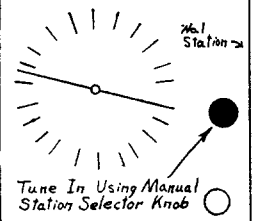
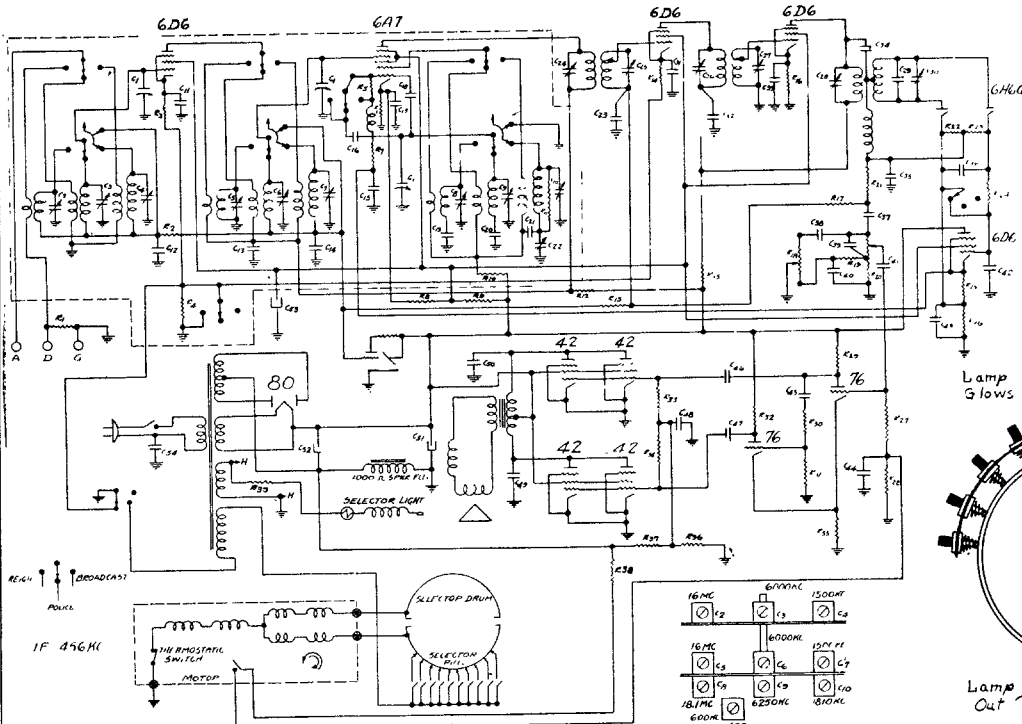
Using .400 ohm resistor in series with generator, set band selector in center position, set generator to 5400 kc and adjust oscillator trimmer for top frequency. Set generator to 5000 kc, tune receiver to signal and adjust antenna trimmer.

Turn band selector to extreme clockwise position. Using 400 ohm resistor in series with generator, set oscillator top frequency for 15,750 kc—screw trimmer down tight, then unscrew to *second* peak. Set generator to 15,000 kc, tune receiver to signal and adjust antenna trimmer—Screw trimmer down tight, then unscrew to *first* peak, rocking the tuning condenser back and forth through the signal while the adjustment is being made. Above procedure for alinement at 15,000 kc must be followed exactly to insure proper tracking. A dead spot at about 12,000 kc will result if antenna and oscillator circuits are not set in proper relation to each other.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

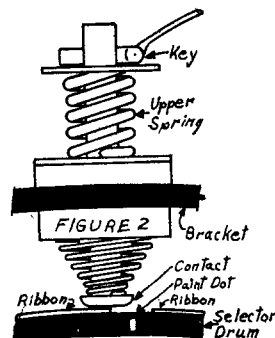
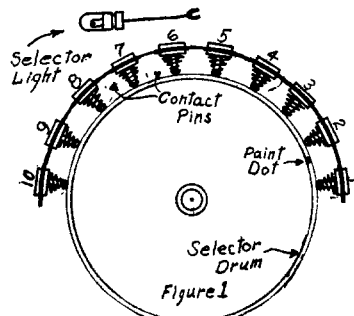
DETROLA RADIO AND TELEVISION CORPORATION

192 Series

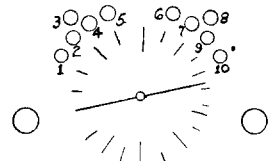


Symbol	Part No.	Description
R1,13,29,32	2880	100 M 1/3W 10%
R2,7,21	631	50 M 1/3W
R3,12,14,15,16	2421	1000 ohm 1/3W
R4	2421	1000 ohm 1/3W
R5	2783	2500 ohm 1/3W 10%
R6	3937	500 ohm 1/2 W Wire-wound ±10%
R8	3805	7000 ohm 3 1/2 W Wirewound
R9	3805	8000 ohm 1 1/2 W Wirewound
R10	600	10M 1/3W
R11	3581	3M 1/3W ±10%
R17,22,23,24,28,27,30	2599	1 meg 1/3W 10%
R18	2737	2 meg tone control
R20	3800	3 meg volume control
R25	2572	400 ohm 1/3W 10%
R26	2691	500 ohm 1/3W 10%
R33,34,19	2730	200 M 1/3W 10%
R36		150 M 1/3W 10%
R38,37	2731	500 M 1/3W 10%
R39		20 ohm 1 W
C1		400 mmf variable
C2,3,4	3822	2-35 mmf triple trimmer
C5,6,7	3822	2-35 mmf triple trimmer
C8,9,10	3822	2-35 mmf triple trimmer
C11,12,14,17,31,33	580	.05—200 V
C13,32	575	.1—400 V
C15,23,42,43,44	572	.1—200 V
C16	2925	25 mmf mica
C18	4676	8 mmf
C19	2694	.005—600 5%
C20	2741	1330 mmf 5%
C21		.01—400 V
C22	2560	350 mmf variable padder
C34,35	1285	100 mmf mica
C36,48	2792	.2—200 V
C37,41	576	.02—400 V
C38,40	824	.002—600 V
C39	2780	50 mmf mica

C45,46,47	2600	.02—600 V
C49,50	2601	.01—600 V
C51	4062	30 MF 275 V
C52	4649	24 MF 450 V
C53	3079	8 MF 150 V
C54	3135	.003—800 V

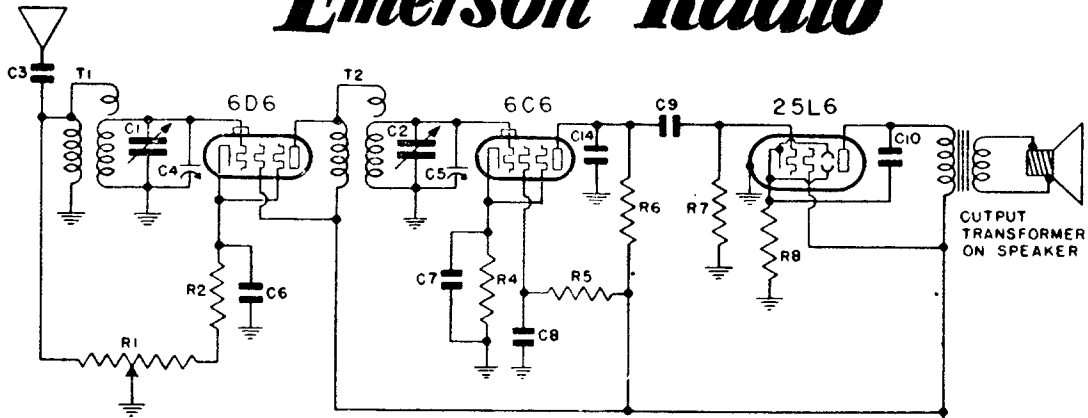


Master Selector Set Up For Station No. 1. Repeat Similar Operations For Station No. 2 Using No. 2 Pin, Etc

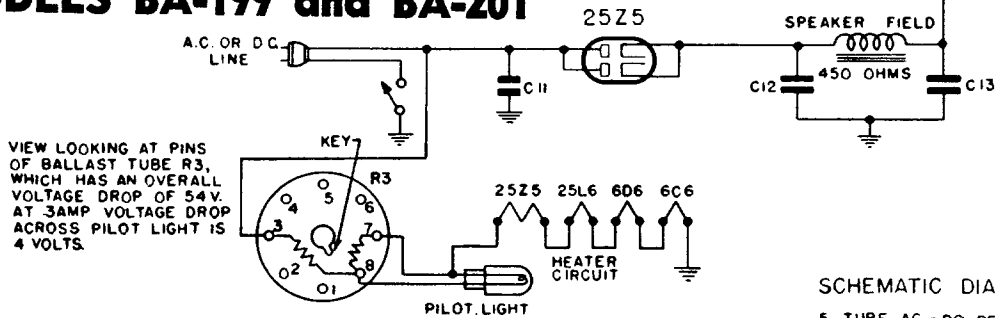


All Stations Set Up Place Call Letters On Buttons As Numbered

Emerson Radio



MODELS BA-199 and BA-201



SCHEMATIC DIAGRAM
5 TUBE AC-DC RECEIVER

*Item number locates the article on the schematic diagram.

†These condensers cannot be supplied separately.

‡Note: In replacing the dual 16 mf electrolytic condenser, the green lead should be connected to the rectifier.

PRODUCTION CHANGES

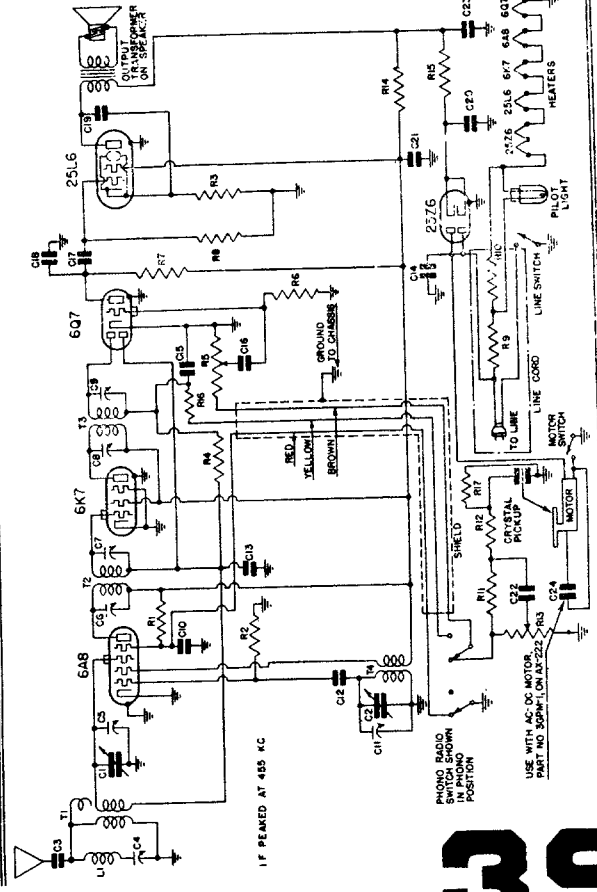
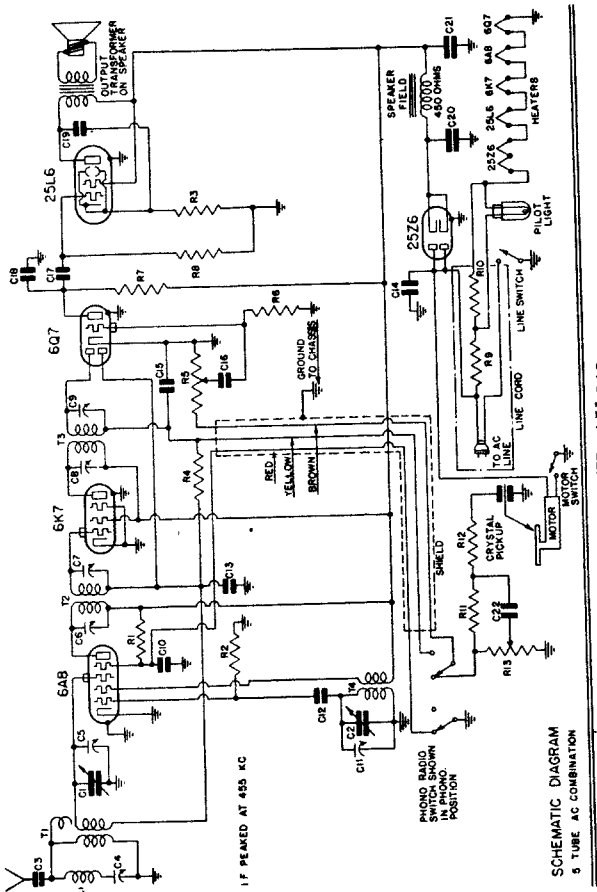
1. Receivers bearing serial numbers below 1496300, C14 was a 0.0001 mf condenser instead of 0.0002.
2. Receivers bearing serial numbers below 1585100, C10 was a 0.03 mf condenser instead of 0.05.

*Item	Part No.	DESCRIPTION
T1	5AT-422	Broadcast antenna coil
T2	5AT-423	Broadcast detector coil
R1	2VR-219D	Volume control—75,000 ohms, with line switch
R2	3CR-294	240 ohm, ½ watt wire-wound resistor
R3	L55-BG	Plug-in ballast tube (Interchangeable with L55-B)
R4	OR-73U	25,000 ohm, ¼ watt carbon resistor
R5	HR-42U	2 megohm, ¼ watt carbon resistor
R6, R7	KR-56U	500,000 ohm, ¼ watt carbon resistor
R8	3QR-297	110 ohm, ½ watt wire-wound resistor
C1, C2	5AC-376	Two-gang variable condenser
C3	NNC-199	.001 mf, 600 volt tubular condenser
†C4, C5		Trimmers, part of variable condenser.
C6, C8	AC-6	.1 mf, 200 volt tubular condenser
C7	5AC-388	.25 mf, 100 volt tubular condenser
C9	LC-65	.02 mf, 400 volt tubular condenser
C10	LC-64	.05 mf, 400 volt tubular condenser. (See production change No. 2)
C11	EEC-132	.1 mf, 400 volt tubular condenser
‡C12, C13	4DC-345A	Dual 16 mf, 100 volt dry electrolytic condenser. (See note below.)
C14	5AC-384	.0002 mf, 600 volt tubular condenser. (See production change No. 1)
	3TS-312	5" dynamic speaker
	XL-9	Pilot light, 6.3 volt, .25 amp., Mazda No. 46
	5AZ-745	Condenser pulley
	5AZ-746	Pointer pulley
	5AZ-747	Dial pointer
	4YZ-772	Drive cord
	3RZ-519	Drive cord spring
	5AZ-792	Dial face
	5AZ-779A	Dial crystal for Model BA-199
	5AZ-794	Dial crystal for Model BA-201

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Emerson Radio and Phonograph Corp.

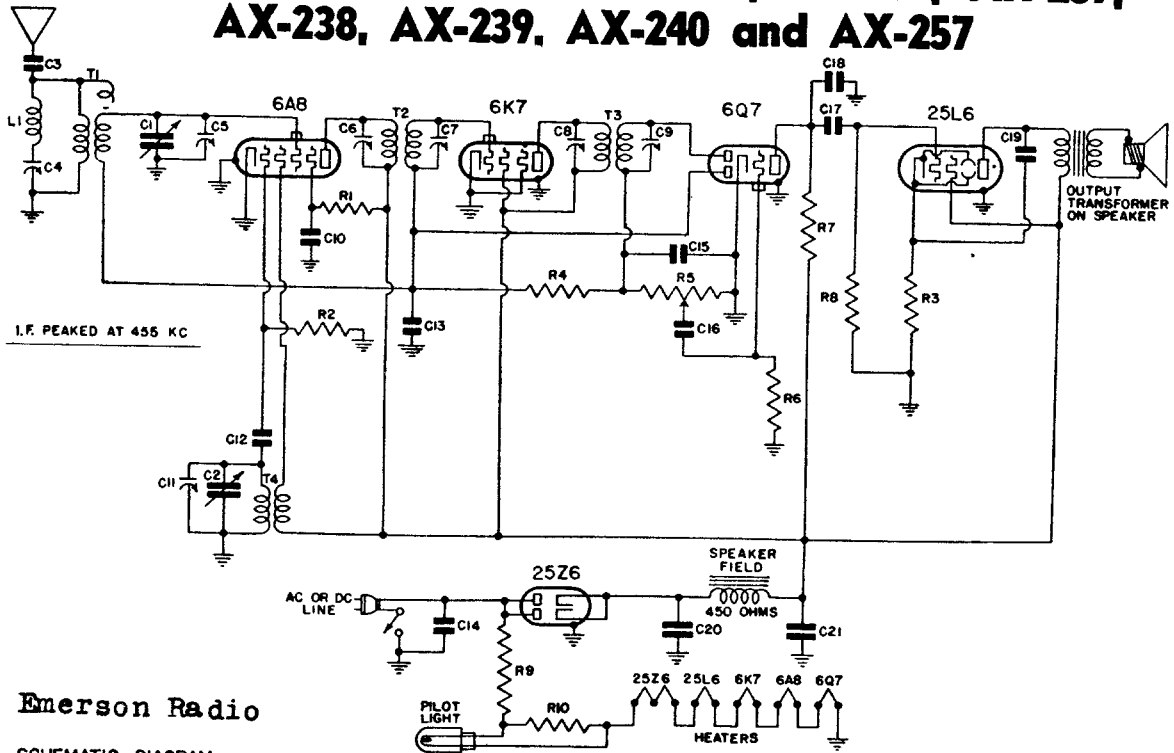
- L1, T1 Antenna coil with adjustable 455 kc wave-trap
 - T2 Double-tuned 455 kc first i-f transformer
 - T8 Double-tuned 455 kc second i-f transformer
 - T4 Oscillator coil
 - R1 30,000 ohm 1/2 watt carbon resistor
 - R2 50,000 ohm 1/4 watt carbon resistor
 - R3 140 ohm 1/2 watt wire-wound resistor
 - R4 1 megohm 1/4 watt carbon resistor
 - R5 Volume control .25 megohm with line switch
 - R6 15 megohm 1/4 watt carbon resistor
 - R7 250,000 ohm 1/4 watt carbon resistor
 - R8 500,000 ohm 1/4 watt carbon resistor
 - R9 Resistance line cord with pilot light ballast section.
 - R13 Tone control .5 megohm with motor line switch
 - R14 2,500 ohm 1 watt carbon resistor
 - R15 175 ohm 1 watt metallized resistor.
 - R16 100,000 ohm 1/4 watt carbon resistor.
 - R18 Tone control .5 megohm
 - C1, C2 Two-gang variable condenser (for 219 and 221)
 - C1, C2 Two-gang variable condenser (for 222 and 232)
 - C3 0.00055 mf mica condenser
 - C4 Trimmer, part of wave-trap assembly.
 - C5 Trimmers, part of variable condenser.
 - C6, C7, C8, C9 Trimmers, part of i-f transformers.
 - C10 0.05 mf, 200 volt tubular condenser
 - C12 0.00066 mf mica condenser
 - C18 0.1 mf, 200 volt tubular condenser
 - C14 0.1 mf, 400 volt tubular condenser
 - C15 0.0022 mf mica condenser
 - C16 0.002 mf, 600 volt tubular condenser
 - C17 0.025 mf, 400 volt tubular condenser
 - C19 0.025 mf, 400 volt tubular condenser
 - C20, C21 Dual 20 mf, 150 volt dry electrolytic condenser
 - C22 0.0005 mf mica condenser
 - C23 20 mf, 185 volt dry electrolytic condenser
 - C24 0.01 mf, 400 volt molded condenser
 - C25 0.006 mf, 600 volt tubular condenser
 - C26 0.0003 mf mica condenser
 - Phono-radio switch
 - Pilot light, 6.3 volt, .25 amp., Mazda No. 44
 - Drive cord
 - Drive cord spring
 - Drive shaft
 - Dial face fasteners
 - Needle cup (for 219 and 221)
 - Needle cup (for 222)
 - Dial pointer (for 221, 222 and 232)
 - Dial crystal (for 221, 222 and 232)
 - Dial face (for 221, 222 and 232)
 - 6 1/2" permanent magnet dynamic speaker
- ADDITIONAL PARTS USED ON AX-219
500,000 ohm 1/4 watt carbon resistor
ADDITIONAL PARTS USED ON AX-221 and AX-222
1 megohm 1/4 watt carbon resistor
110 volt, a.c. motor (for 221-AC)
AC-DC motor (for 221AC-DC and 222)



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Emerson Radio and Phonograph Corp.

Models AX-211, AX-212, AX-217, AX-235, AX-237, AX-238, AX-239, AX-240 and AX-257



Emerson Radio

SCHEMATIC DIAGRAM

5 TUBE AC-DC RECEIVER

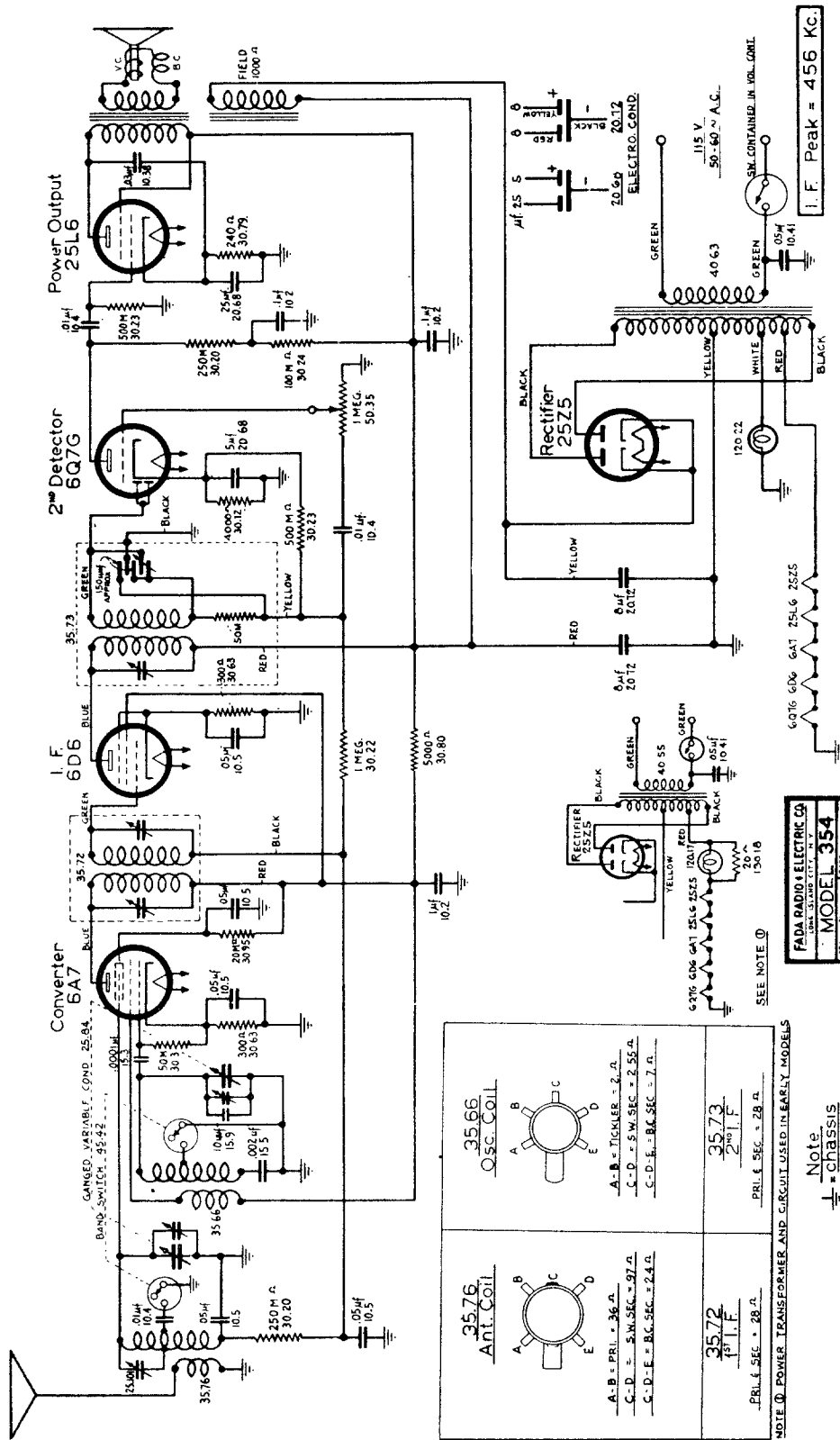
SCHEMATIC DIAGRAM FOR MODELS AX-211, 212, 217, 235, 237, 238, 239 and 257

*Item	Part No.	DESCRIPTION
L1, T1	4XT-432	Antenna coil with adjustable 455 kc wave-trap
T4	4XT-458	Oscillator coil (see production change no. 2)
T2	4XT-434	Double-tuned 455 kc first i-f transformer
T3	4XT-435	Double-tuned 455 kc second i-f transformer
R1	2CR-193	30,000 ohm 1/2 watt carbon resistor
R2	KR-53	50,000 ohm 1/4 watt carbon resistor
R3	3FR-293	140 ohm 1/2 watt wire-wound resistor
R4	KR-57	1 megohm 1/4 watt carbon resistor
R5	4XR-335	Volume control .25 megohm with line switch
R6	4XR-327	15 megohm 1/4 watt carbon resistor
R7	KR-55	250,000 ohm 1/4 watt carbon resistor
R8	KR-56	500,000 ohm 1/4 watt carbon resistor
R9, R10	4XW-112	Resistance line cord with pilot light ballast section R9—150 ohms; R10—40 ohms
R14	4XR-334	2,500 ohm 1 watt carbon resistor
R15	4ZR-325	175 ohm 1 watt metallized resistor
C1, C2	4XC-391A	Two-gang variable condenser
C3	4XC-401	0.00055 mf mica condenser
†C4		Trimmer, part of wave-trap assembly.
†C5, C11		Trimmers, part of variable condenser.
†C6, C7, C8, C9		Trimmers, part of i-f transformers.
C10	BC-12	0.05 mf, 200 volt tubular condenser
C12	4XC-393A	0.00006 mf mica condenser
C13	AC-6	0.1 mf, 200 volt tubular condenser
C14	LC-64	0.05 mf, 400 volt tubular condenser
C15, C18	4XC-394A	0.00022 mf mica condenser
C16	3HC-274	0.002 mf, 600 volt tubular condenser
C17	LC-65	0.02 mf, 400 volt tubular condenser
C19	3FC-336	0.025 mf, 400 volt tubular condenser
C20, C21	4HC-348B	Dual 20 mf, 150 volt dry electrolytic condenser
C23	4XC-404	20 mf, 125 volt dry electrolytic condenser
	4XS-324	4" dynamic speaker (for 211, 212, 217, 235, 237, 238, 239 and 257)
	4PS-303A	6" permanent magnet dynamic speaker (for 240 cabinet)
	4BL-94	Pilot light, 6.3 volt, .25 amp., Mazda No. 44

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



30-20 Thomson Ave.
Long Island City
New York

FADA Radio

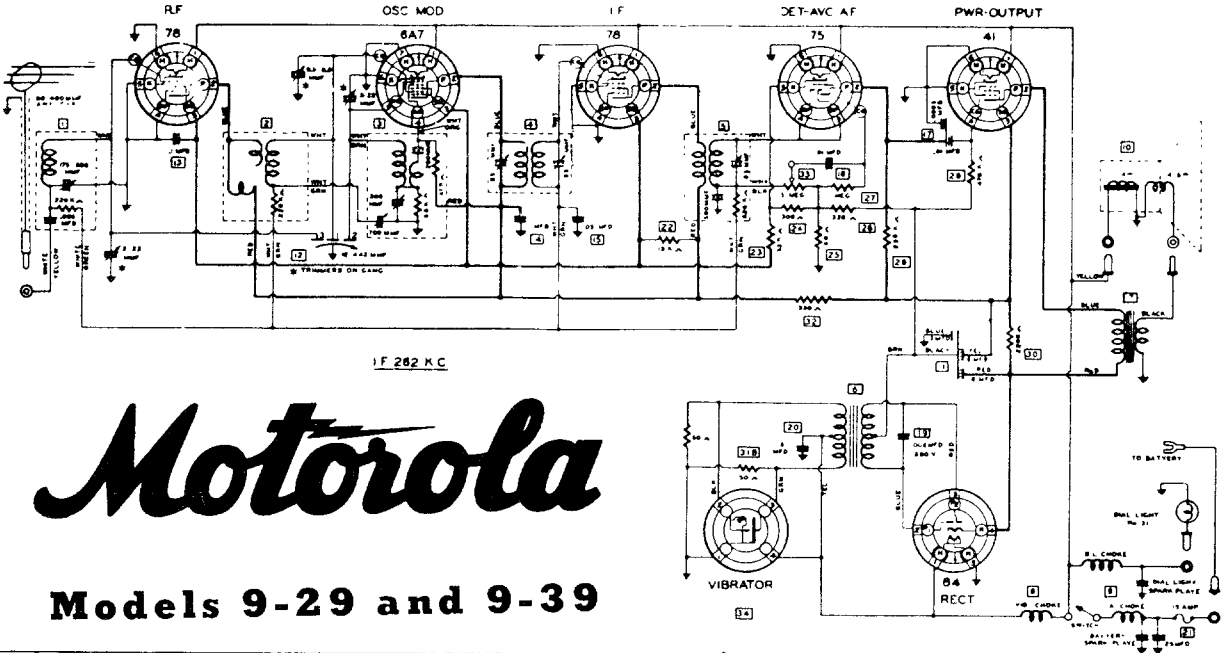
FADA RADIO & ELECTRIC CO. NEW YORK, N. Y.
MODEL 354
DESIGNED BY PHF
MANUFACTURED BY PHF
REVISED 8-31-37

<p>35.76 Ant. Coil</p> <p>A-B = P.R.L. = 36 Ω. C-D = S.W. SEC. = 97 Ω. C-D-E = B.C. SEC. = 2.4 Ω.</p> <p>P.R.L. SEC. = 28 Ω.</p>	<p>35.66 Osc. Coil</p> <p>A-B = TUNER = 2 Ω. C-D = S.W. SEC. = 2.56 Ω. C-D-E = B.C. SEC. = 7 Ω.</p> <p>P.R.L. SEC. = 28 Ω.</p>
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NOTE: (O) POWER TRANSFORMER AND CIRCUIT USED IN EARLY MODELS

Note.
⊥ = chassis
Band sw. shown in B.C. pos.
M = thousand

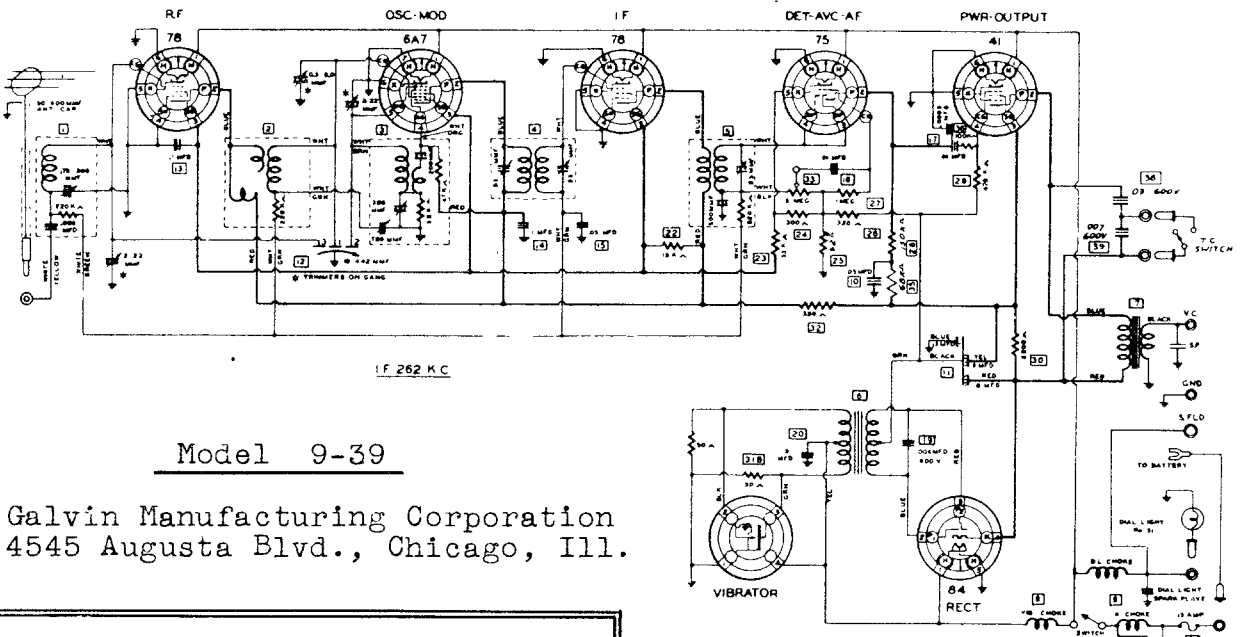
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Motorola

Models 9-29 and 9-39

Average Microvolt Input *	Generator Set at	Generator Feeder Connected to	Dummy Antenna Capacity	Leak Resistance	Output Meter Reading **
.25 Volts	400 Cycles	75 Grid	.1 MF	.5 Meg	2.2 Volts
25,000	262 K.C.	78 Grid (I.F.)	.1 MF	.5 Meg	2.2 Volts
700	262 K.C.	6A7 Grid	.1 MF	.5 Meg	2.2 Volts
800	600 K.C.	6A7 Grid	.1 MF	.5 Meg	2.2 Volts
45	600 K.C.	78 Grid (R.F.)	.1 MF	.5 Meg	2.2 Volts
3	600 K.C.	Ant. Lead	40 MMF	None	2.2 Volts



Model 9-39

Galvin Manufacturing Corporation
4545 Augusta Blvd., Chicago, Ill.

* For one watt output.

** Meter connected across voice coil.

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MOST POPULAR SERVICE DIAGRAMS

Motorola

7C5
7B5
PWR-AMP

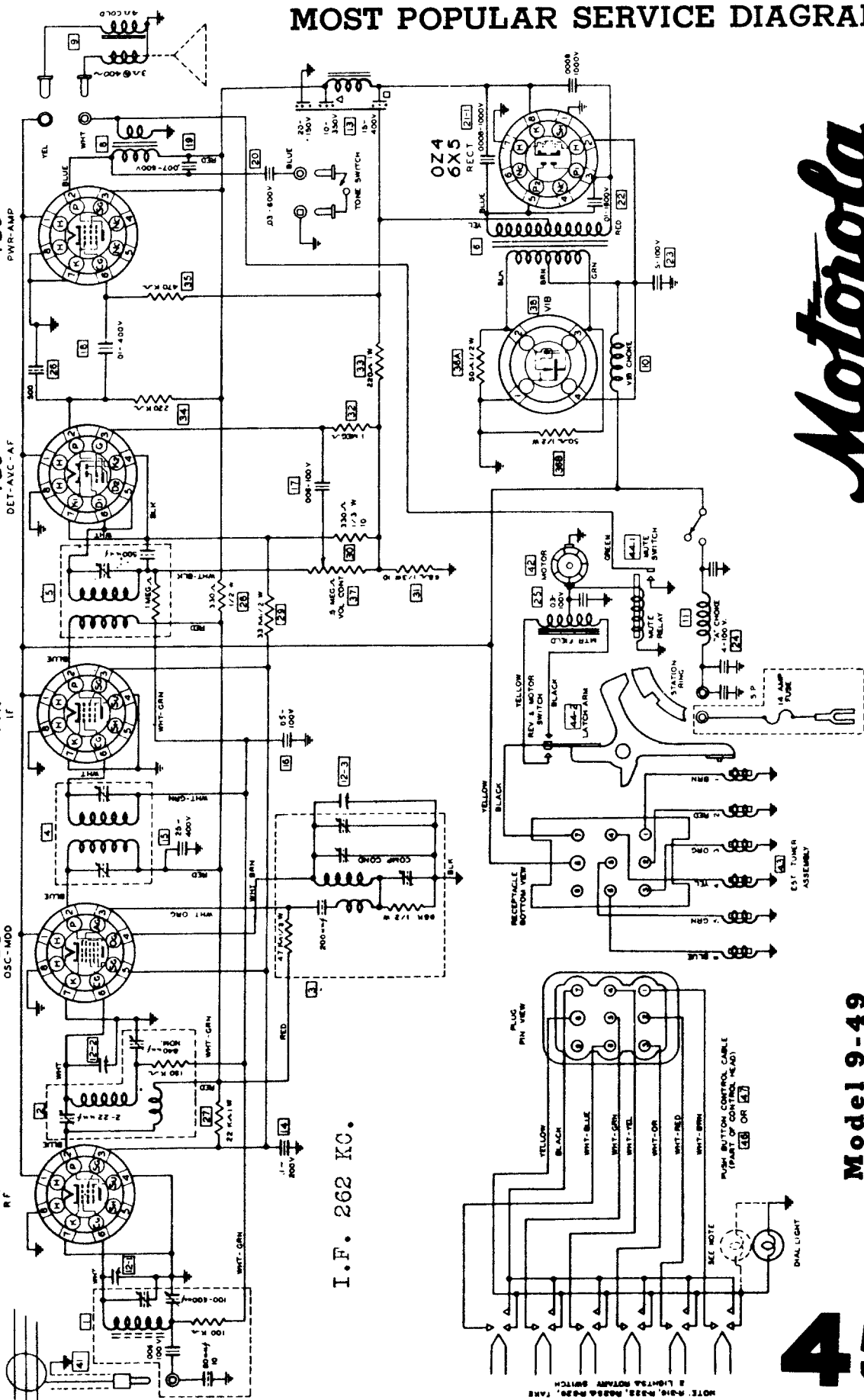
7C6
7B6
DET-AVC-AF

7B7
7A7
IF

7A8
7B8
OSC-MOD

7B7
7A7
A.F.

I.F. 262 KC.



Model 9-49

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NOTE: 45B, 453, 453A, 453B, 453C, 453D, 453E, 453F, 453G, 453H, 453I, 453J, 453K, 453L, 453M, 453N, 453O, 453P, 453Q, 453R, 453S, 453T, 453U, 453V, 453W, 453X, 453Y, 453Z, 453AA, 453AB, 453AC, 453AD, 453AE, 453AF, 453AG, 453AH, 453AI, 453AJ, 453AK, 453AL, 453AM, 453AN, 453AO, 453AP, 453AQ, 453AR, 453AS, 453AT, 453AU, 453AV, 453AW, 453AX, 453AY, 453AZ, 453BA, 453BB, 453BC, 453BD, 453BE, 453BF, 453BG, 453BH, 453BI, 453BJ, 453BK, 453BL, 453BM, 453BN, 453BO, 453BP, 453BQ, 453BR, 453BS, 453BT, 453BU, 453BV, 453BW, 453BX, 453BY, 453BZ, 453CA, 453CB, 453CC, 453CD, 453CE, 453CF, 453CG, 453CH, 453CI, 453CJ, 453CK, 453CL, 453CM, 453CN, 453CO, 453CP, 453CQ, 453CR, 453CS, 453CT, 453CU, 453CV, 453CW, 453CX, 453CY, 453CZ, 453DA, 453DB, 453DC, 453DD, 453DE, 453DF, 453DG, 453DH, 453DI, 453DJ, 453DK, 453DL, 453DM, 453DN, 453DO, 453DP, 453DQ, 453DR, 453DS, 453DT, 453DU, 453DV, 453DW, 453DX, 453DY, 453DZ, 453EA, 453EB, 453EC, 453ED, 453EE, 453EF, 453EG, 453EH, 453EI, 453EJ, 453EK, 453EL, 453EM, 453EN, 453EO, 453EP, 453EQ, 453ER, 453ES, 453ET, 453EU, 453EV, 453EW, 453EX, 453EY, 453EZ, 453FA, 453FB, 453FC, 453FD, 453FE, 453FF, 453FG, 453FH, 453FI, 453FJ, 453FK, 453FL, 453FM, 453FN, 453FO, 453FP, 453FQ, 453FR, 453FS, 453FT, 453FU, 453FV, 453FW, 453FX, 453FY, 453FZ, 453GA, 453GB, 453GC, 453GD, 453GE, 453GF, 453GG, 453GH, 453GI, 453GJ, 453GK, 453GL, 453GM, 453GN, 453GO, 453GP, 453GQ, 453GR, 453GS, 453GT, 453GU, 453GV, 453GW, 453GX, 453GY, 453GZ, 453HA, 453HB, 453HC, 453HD, 453HE, 453HF, 453HG, 453HH, 453HI, 453HJ, 453HK, 453HL, 453HM, 453HN, 453HO, 453HP, 453HQ, 453HR, 453HS, 453HT, 453HU, 453HV, 453HW, 453HX, 453HY, 453HZ, 453IA, 453IB, 453IC, 453ID, 453IE, 453IF, 453IG, 453IH, 453II, 453IJ, 453IK, 453IL, 453IM, 453IN, 453IO, 453IP, 453IQ, 453IR, 453IS, 453IT, 453IU, 453IV, 453IW, 453IX, 453IY, 453IZ, 453JA, 453JB, 453JC, 453JD, 453JE, 453JF, 453JG, 453JH, 453JI, 453JJ, 453JK, 453JL, 453JM, 453JN, 453JO, 453JP, 453JQ, 453JR, 453JS, 453JT, 453JU, 453JV, 453JW, 453JX, 453JY, 453JZ, 453KA, 453KB, 453KC, 453KD, 453KE, 453KF, 453KG, 453KH, 453KI, 453KJ, 453KK, 453KL, 453KM, 453KN, 453KO, 453KP, 453KQ, 453KR, 453KS, 453KT, 453KU, 453KV, 453KW, 453KX, 453KY, 453KZ, 453LA, 453LB, 453LC, 453LD, 453LE, 453LF, 453LG, 453LH, 453LI, 453LJ, 453LK, 453LL, 453LM, 453LN, 453LO, 453LP, 453LQ, 453LR, 453LS, 453LT, 453LU, 453LV, 453LW, 453LX, 453LY, 453LZ, 453MA, 453MB, 453MC, 453MD, 453ME, 453MF, 453MG, 453MH, 453MI, 453MJ, 453MK, 453ML, 453MM, 453MN, 453MO, 453MP, 453MQ, 453MR, 453MS, 453MT, 453MU, 453MV, 453MW, 453MX, 453MY, 453MZ, 453NA, 453NB, 453NC, 453ND, 453NE, 453NF, 453NG, 453NH, 453NI, 453NJ, 453NK, 453NL, 453NM, 453NN, 453NO, 453NP, 453NQ, 453NR, 453NS, 453NT, 453NU, 453NV, 453NW, 453NX, 453NY, 453NZ, 453OA, 453OB, 453OC, 453OD, 453OE, 453OF, 453OG, 453OH, 453OI, 453OJ, 453OK, 453OL, 453OM, 453ON, 453OO, 453OP, 453OQ, 453OR, 453OS, 453OT, 453OU, 453OV, 453OW, 453OX, 453OY, 453OZ, 453PA, 453PB, 453PC, 453PD, 453PE, 453PF, 453PG, 453PH, 453PI, 453PJ, 453PK, 453PL, 453PM, 453PN, 453PO, 453PP, 453PQ, 453PR, 453PS, 453PT, 453PU, 453PV, 453PW, 453PX, 453PY, 453PZ, 453QA, 453QB, 453QC, 453QD, 453QE, 453QF, 453QG, 453QH, 453QI, 453QJ, 453QK, 453QL, 453QM, 453QN, 453QO, 453QP, 453QQ, 453QR, 453QS, 453QT, 453QU, 453QV, 453QW, 453QX, 453QY, 453QZ, 453RA, 453RB, 453RC, 453RD, 453RE, 453RF, 453RG, 453RH, 453RI, 453RJ, 453RK, 453RL, 453RM, 453RN, 453RO, 453RP, 453RQ, 453RR, 453RS, 453RT, 453RU, 453RV, 453RW, 453RX, 453RY, 453RZ, 453SA, 453SB, 453SC, 453SD, 453SE, 453SF, 453SG, 453SH, 453SI, 453SJ, 453SK, 453SL, 453SM, 453SN, 453SO, 453SP, 453SQ, 453SR, 453SS, 453ST, 453SU, 453SV, 453SW, 453SX, 453SY, 453SZ, 453TA, 453TB, 453TC, 453TD, 453TE, 453TF, 453TG, 453TH, 453TI, 453TJ, 453TK, 453TL, 453TM, 453TN, 453TO, 453TP, 453TQ, 453TR, 453TS, 453TT, 453TU, 453TV, 453TW, 453TX, 453TY, 453TZ, 453UA, 453UB, 453UC, 453UD, 453UE, 453UF, 453UG, 453UH, 453UI, 453UJ, 453UK, 453UL, 453UM, 453UN, 453UO, 453UP, 453UQ, 453UR, 453US, 453UT, 453UU, 453UV, 453UW, 453UX, 453UY, 453UZ, 453VA, 453VB, 453VC, 453VD, 453VE, 453VF, 453VG, 453VH, 453VI, 453VJ, 453VK, 453VL, 453VM, 453VN, 453VO, 453VP, 453VQ, 453VR, 453VS, 453VT, 453VU, 453VV, 453VW, 453VX, 453VY, 453VZ, 453WA, 453WB, 453WC, 453WD, 453WE, 453WF, 453WG, 453WH, 453WI, 453WJ, 453WK, 453WL, 453WM, 453WN, 453WO, 453WP, 453WQ, 453WR, 453WS, 453WT, 453WU, 453WV, 453WW, 453WX, 453WY, 453WZ, 453XA, 453XB, 453XC, 453XD, 453XE, 453XF, 453XG, 453XH, 453XI, 453XJ, 453XK, 453XL, 453XM, 453XN, 453XO, 453XP, 453XQ, 453XR, 453XS, 453XT, 453XU, 453XV, 453XW, 453XX, 453XY, 453XZ, 453YA, 453YB, 453YC, 453YD, 453YE, 453YF, 453YG, 453YH, 453YI, 453YJ, 453YK, 453YL, 453YM, 453YN, 453YO, 453YP, 453YQ, 453YR, 453YS, 453YT, 453YU, 453YV, 453YW, 453YX, 453YY, 453YZ, 453ZA, 453ZB, 453ZC, 453ZD, 453ZE, 453ZF, 453ZG, 453ZH, 453ZI, 453ZJ, 453ZK, 453ZL, 453ZM, 453ZN, 453ZO, 453ZP, 453ZQ, 453ZR, 453ZS, 453ZT, 453ZU, 453ZV, 453ZW, 453ZX, 453ZY, 453ZZ

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

ALIGNMENT PROCEDURE

Place the radio on the service bench with the front cover removed, but with the speaker and battery connected to it.

Turn the volume control to maximum position and leave it there throughout the alignment, reducing the signal generator output if necessary.

NOTE: Do not adjust the trimmer in the R.F. coil can that is covered with Scotch Tape. The original adjustment, made in the factory, should not be tampered with. (Fig. 1 below, shows all trimmer locations.)

I.F. ALIGNMENT

1. Connect the signal generator to the control grid (Terminal No. 6) of the Osc.-Mod. tube (7B8). Turn the condenser gang completely out of mesh. Connect an output meter across speaker voice coil.

2. Set the signal generator at 262 K.C. and carefully adjust the single trimmer in the Diode coil can to the point showing the highest reading on the output meter.

3. Adjust the two trimmers in the I.F. coil can to the point showing the highest output reading.

4. Repeat the I.F. and Diode adjustment several times for maximum accuracy.

SETTING THE RANGE

1. Connect the signal generator to the con-

trol grid (Terminal No. 6) of the R.F. tube (7A7) using the same .1 MF condenser.

2. Set the signal generator at 1550 K.C. and with the condenser gang completely out of mesh, adjust the 1550 K.C. trimmer in the oscillator coil can to the point showing the highest output reading.

3. Set the signal generator at 535 K.C. Turn the condenser gang completely in mesh and adjust the 600 K.C. trimmer in the Oscillator coil can for the highest output reading.

NOTE: The adjustments above set the range so the receiver will track with the calibrations in the control head.

R.F. AND ANTENNA ALIGNMENT

1. Connect the signal generator to the antenna lead through a 40 MMF condenser and to chassis ground. Set the signal generator at 600 K.C. and turn the condenser gang until the signal is heard. Adjust the 600 K.C. trimmer on the antenna coil can for the maximum output reading.

2. Set the signal generator at 1400 K.C. Turn the condenser gang until the signal is heard. Adjust the 1400 K.C. trimmer in the antenna coil can for maximum output reading.

3. Adjust the 1400 K.C. trimmer in the R.F. coil can for maximum output reading.

4. Recheck steps 1, 2, and 3, for accuracy.

SENSITIVITY AND STAGE GAIN MEASUREMENTS

These stage gain measurements will, if properly used, enable you to localize trouble quickly. They are intended for use with a signal generator that is accurately calibrated in microvolts.

Starting with the I.F., and working back step by step to Osc.-Mod., R.F. and finally to the antenna terminal, the circuit in which the trouble exists will quickly be determined by evidence of low gain, when signal generator attenuation readings are compared to the normal values as shown in the table.

All stage-gain measurements must be made with the volume control set for full volume. The shielded lead from the signal generator is connected to the grid terminal of the tube through a .1 MF condenser, with a 500M ohm resistor connected as a leak resistance between the grid of the tube and the grid lead which has been removed.

When measuring over-all sensitivity at the antenna terminal, use a 40 MMF condenser in place of the .1 MF. It must be remembered that the figures in the table are average and allowance must be made for variations between two sets of the same general type, due to difference of tube characteristics, etc.

Average Microvolt Input *	Generator Set at	Generator Feeder Connected to	Dummy Antenna Capacity	Leak Resistance	Output Meter Reading **
25,000	262 K.C.	Grid(I.F.)	.1 MF	.5 Meg.	1.74 Volts
700	262 K.C.	Grid(Mod.)	.1 MF	.5 Meg	1.74 Volts
800	600 K.C.	Grid(Mod.)	.1 MF	.5 Meg	1.74 Volts
45	600 K.C.	Grid(R.F.)	.1 MF	.5 Meg	1.74 Volts
2	600 K.C.	Ant. Lead	40 MMF	None	1.74 Volts

* For one watt output.

** Meter connected across voice coil.

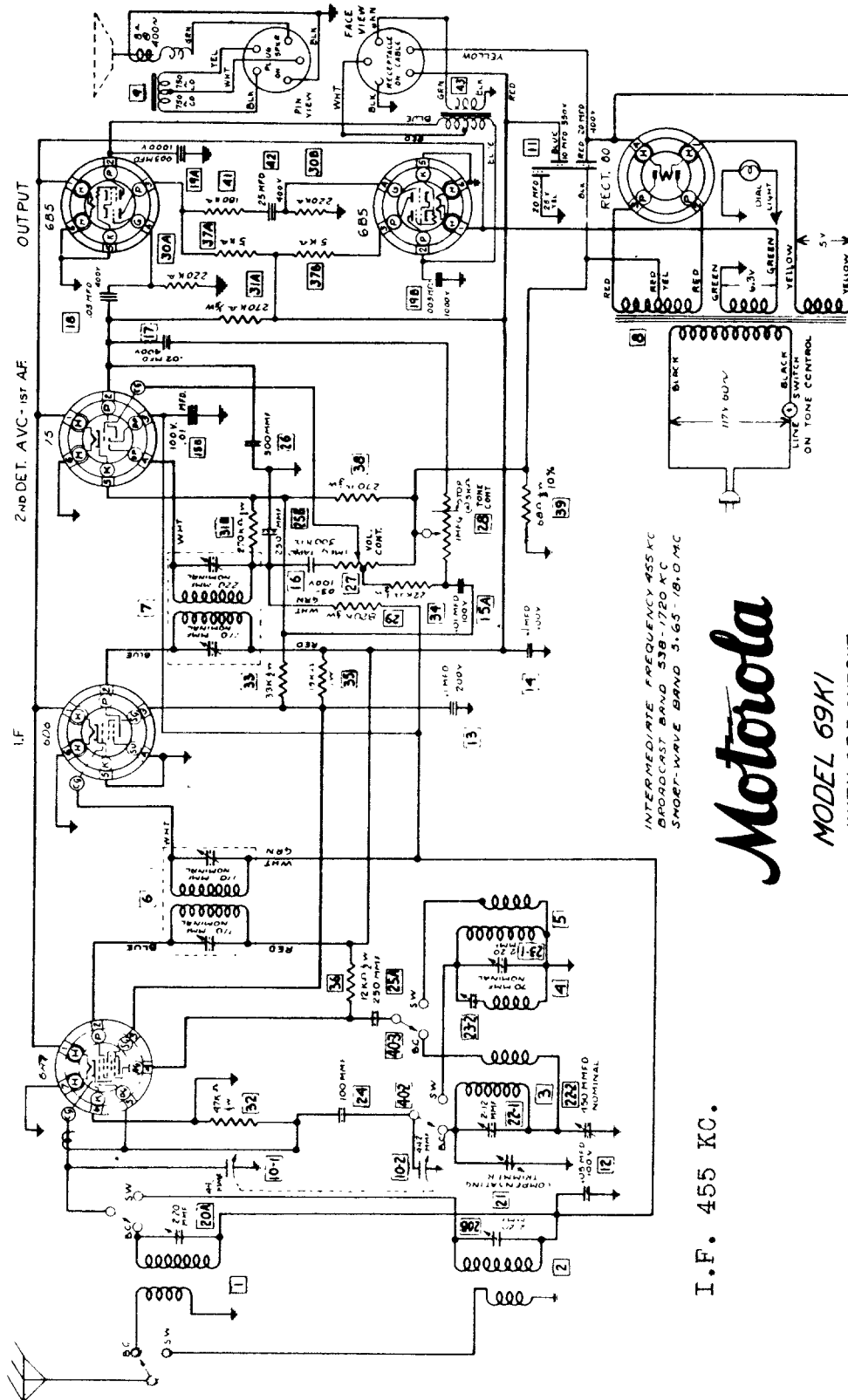
V.C. impedance - 3 ohms at 400 cycles.

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Model 9-49

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



INTERMEDIATE FREQUENCY 455 KC
 BROADCAST BAND 530-1720 KC
 SHORT-WAVE BAND 5.65-18.0 MC

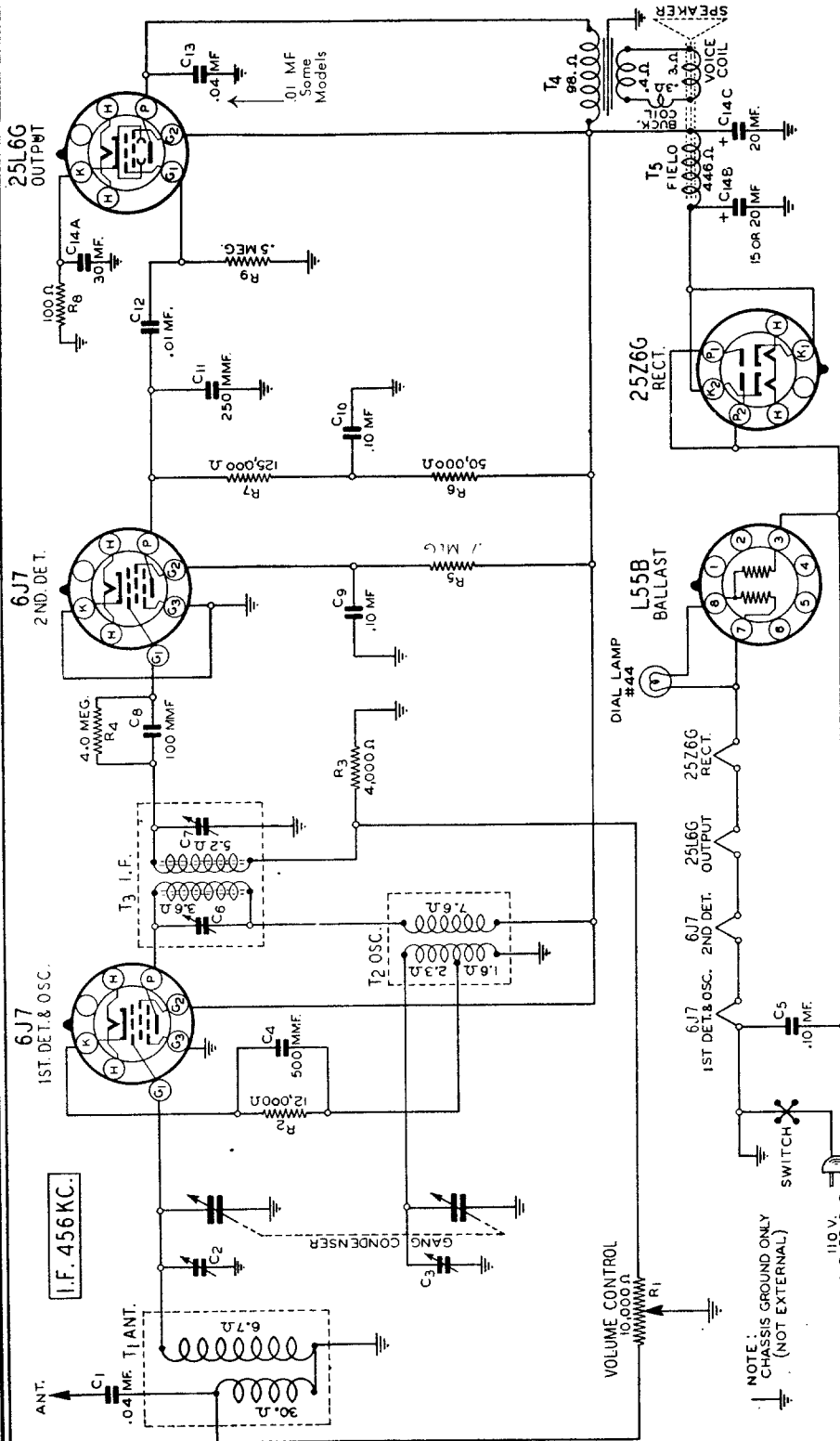
I.F. 455 KC.

Motorola

MODEL 69K1
 WITH 6B5 OUTPUT

Gamble-Skogmo, Inc.

SERIES A 11



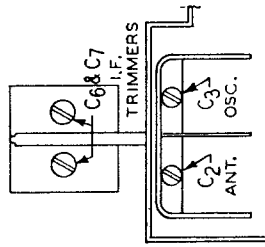
ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments. Allow Chassis and Signal Generator to "Heat Up" for Several Minutes.

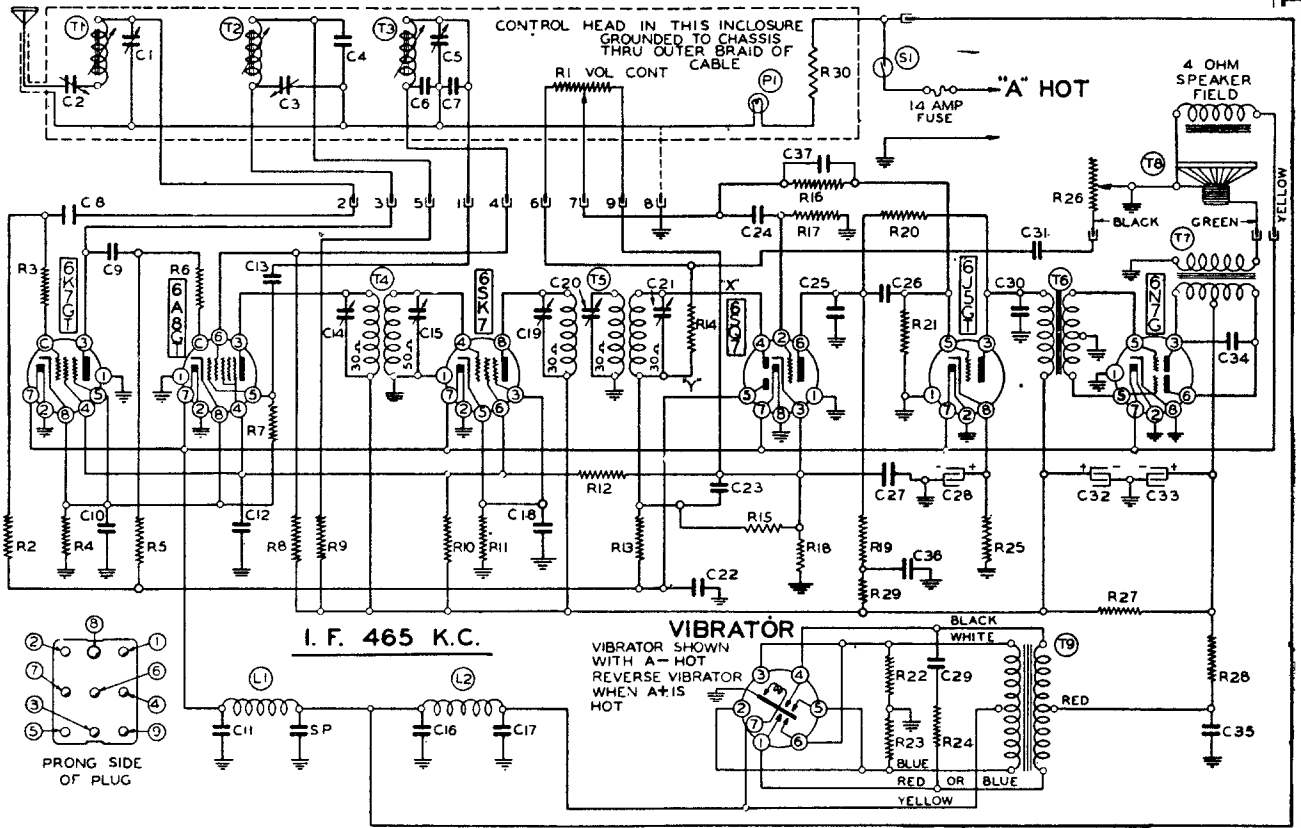
SIGNAL GENERATOR FREQUENCY SETTING	DUMMY ANTENNA CONNECTION AT RADIO	DUMMY ANTENNA SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Illustration)
456 KC	Grid of 1st Det.	.1 mf.	Turn rotor to full open	I.F. (C6) & (C7)
1730 KC	Antenna Lead	200 mmf.	Turn rotor to full open	Oscillator (C3)
1500 KC	Antenna Lead	200 mmf.	Turn rotor to max. output	Antenna (C2)

The following equipment is required for aligning:
 Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
 Output Indicating Meter; Non-Metallic Screwdriver.
 Dummy Antennas — .1 mf. and 200 mmf.

NOTE—To obtain dial scale calibration, tune in an 800 KC signal. The pointer should be at the 800 KC mark on the dial. If it is not, loosen the pointer screw, set the pointer at the 800 KC mark and retighten the pointer screw.



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MODEL 678

R1	101161	1.2 megohm volume
R2	13019	1 megohm— $\frac{1}{2}$ w.
R3	130275	500 ohm— $\frac{1}{2}$ w.
R4	13079	400 ohm— $\frac{1}{2}$ w.
R5	13019	1 megohm— $\frac{1}{2}$ w.
R6	130275	500 ohm— $\frac{1}{2}$ w.
R7	13012	50M ohm— $\frac{1}{2}$ w.
R8	13012	50M ohm— $\frac{1}{2}$ w.
R9	13021	20M ohm— $\frac{1}{2}$ w.
R10	130196	30M ohm—1 watt
R11	130235	1500 ohm— $\frac{1}{2}$ w.
R12	1307	40M ohm— $\frac{1}{2}$ w.
R13	13019	1 megohm— $\frac{1}{2}$ w.
R14	13020	100M ohm— $\frac{1}{2}$ w.
R15	130118	600M ohm— $\frac{1}{2}$ w.
R16	130257	5 megohm— $\frac{1}{2}$ w.
R17	13019	1 megohm— $\frac{1}{2}$ w.
R18	130101	600 ohm— $\frac{1}{2}$ w.
R19	13011	250M ohm— $\frac{1}{2}$ w.
R20	13038	2 megohm— $\frac{1}{2}$ w.
R21	1303	500M ohm— $\frac{1}{2}$ w.
R22	130269	100 ohm— $\frac{1}{2}$ w.
R23	130269	100 ohm— $\frac{1}{2}$ w.
R24	13071	4M ohm— $\frac{1}{2}$ w.
R25	13092	1M ohm— $\frac{1}{2}$ w.
R26	101162	1 megohm tone control
R27	130199	1500 ohm Resistor—1 w
R28	130231	75 ohm— $\frac{1}{2}$ w.
R29	13020	100M ohm— $\frac{1}{2}$ w.
R30	130299	10 ohm— $\frac{1}{2}$ w.

CONDENSERS

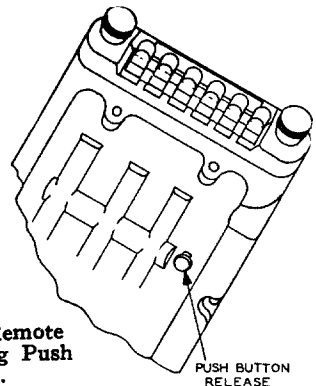
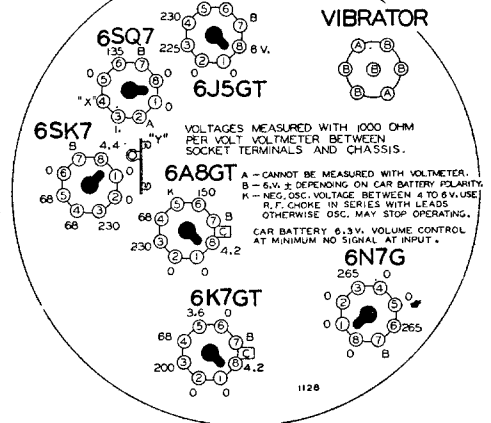
C1	12483	Antenna Shunt Trimmer
C2	12481	Antenna Series Trimmer
C3	12480	R. F. Shunt Trimmer
C4	100102	.15 x 400 v.
C5	12480	Oscillator Shunt Trimmer
C6	129137	.0005 Mica
C7	129136	.00017 Mica
C8	12997	.00005 Ceramicon—5%
C9	1292	.0005 Mica
C10	11625	.05 x 200 v.

C11	1296	.002 Mica
C12	11625	.25 x 400 v.
C13	12912	.00025 Mica
C14		Plate Trimmer on Input I.F.
C15		Grid Trimmer on Input I.F.
C16	10031	.5 x 120 v.
C17	10031	.5 x 120 v.
C18	1009	.05 x 200 v.
C19		Plate Trimmer on Output I.F.
C20		Tertiary Trimmer on Output I.F.
C21		Grid Trimmer on Output I.F.
C22	11625	.05 x 200 v.
C23	1295	.0001 Mica
C24	10011	.01 x 400 v.
C25	1295	.0001 Mica
C26	10011	.01 x 400 v.
C27	10026	.02 x 400 v.
C28	11988	20 mfd.—25 w. v. lytic
C29	100101	.0085 x 1600
C30	129114	.0003 Mica
C31	10047	.002 x 600 v.
C32	11988	15 mfd.—450 w. v. lytic
C33	11988	15 mfd.—450 w. v. lytic
C34	100103	.004 x 800 v.
C35	1001	.1 x 400 volt
C36	10013	.05 x 400 v.
C37	12967	.00004 Mica

PARTS

T1	111118	P. B. Antenna Coil Assembly
T2	10949	P. B. R. F. Coil Assembly
T3	110109	P. B. Oscillator Coil
T4	108120B	Input I.F. Coil—465 kc.
T5	108115B	Output I.F. Coil—465 kc.
T6	10584	Audio Driver Transformer
T7	10583	Output Transformer
T8	114155	8" Dynamic Speaker
T9	104158	Power Transformer
L1	10566	"A" Choke
L2	10519	"A" Choke
P1	10797	6-8 v. Pilot Light T51
S1		Off-on Switch on volume control

BOTTOM VIEW OF CHASSIS



Bottom View of Remote Tuner Unit Showing Push Button Release Pin.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

ALIGNMENT

General Electric

MODELS GD-41 AND GD-41-U

Electrical Power Output

Undistorted.....1.0 watt
Maximum.....2.0 watts

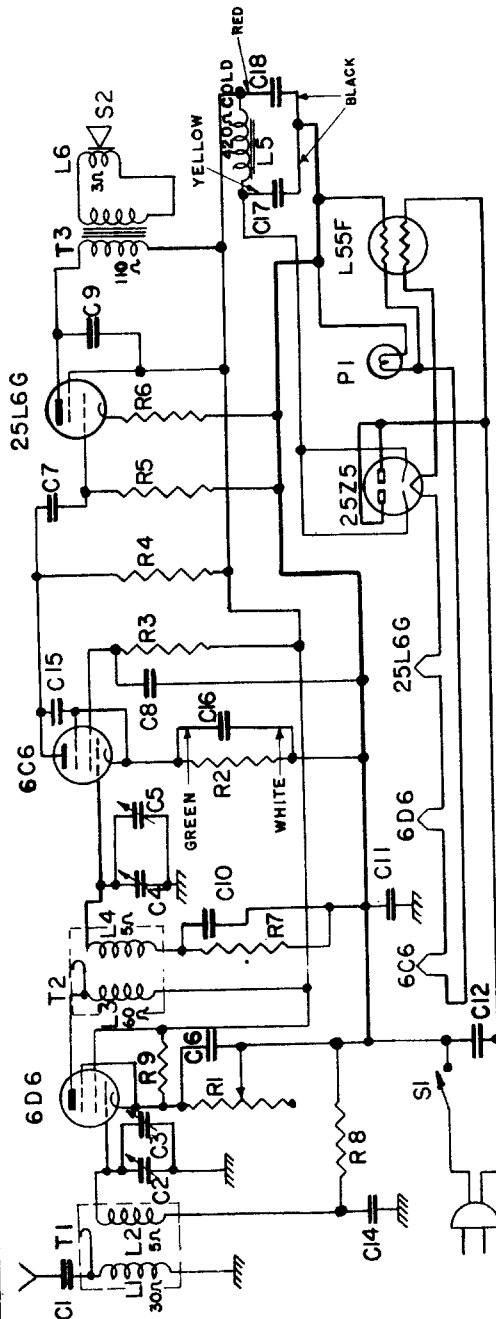
Loud-speaker—Electrodynamic

Outside Cone Diameter.....5 inches
Voice Coil Impedance.....3.5 ohms at 400 cycles
Field Coil Resistance.....420 ohms (cold)

Connect the high side of the signal generator through a 250 mmf. condenser to the antenna lead. The low side of the signal generator output should be connected to the receiver chassis through a .05 mfd. condenser. Connect a suitable output meter across the voice coil leads; then proceed as follows:

1. With gang condenser plates completely closed, the dial pointer should coincide with the horizontal dial line.
2. Tune receiver to the 1500 kc. point on the dial; then align trimmers (C-3 and C-5) on the gang condenser at 1500 kc. for a maximum output meter reading.

Precaution—One side of the power supply is connected to the chassis—Do not connect chassis to any external ground.



Symbol	Description	Symbol	Description	Symbol	Description
C-1	Capacitor—.01 Mfd. (GD-41)	C-11	Capacitor—Paper .1 Mfd.	R-5	Resistor—1 Megohm
C-2	Capacitor—Paper .001 Mfd. (GD-41-U)	C-12	Capacitor—Paper .05 Mfd.	R-6	Resistor—150 Ohms
C-3	Capacitor—Variable	C-13	Capacitor—Paper .01 Mfd.	R-7	Resistor—1/2 Megohm
C-4	Capacitor—Trimmer on gang	C-14	Capacitor—Mica 100 Mmf.	R-8	Resistor—1/2 Megohm
C-5	Capacitor—Variable	C-15	Capacitor—Elect. 5 Mfd. 25 V.	T-1	Antenna Transformer
C-6	Capacitor—Trimmer on gang	C-16	Capacitor—Elect. 16 Mfd. 150 V.	T-2	R.F. Transformer
C-7	Capacitor—Paper .05 Mfd.	C-17	Resistor—25,000 Ohms Volume Control	T-3	Output Transformer (on speaker)
C-8	Capacitor—Paper .01 Mfd.	R-1	Resistor—35,000 Ohms	R-9	Resistor—50,000 Ohms
C-9	Capacitor—Paper .01 Mfd.	R-2	Resistor—3 Megohms	S-1	Power Switch (Comb. with R-1)
C-10	Capacitor—Paper .01 Mfd.	R-3	Resistor—1 Megohm	S-2	Loud-speaker—5-inch

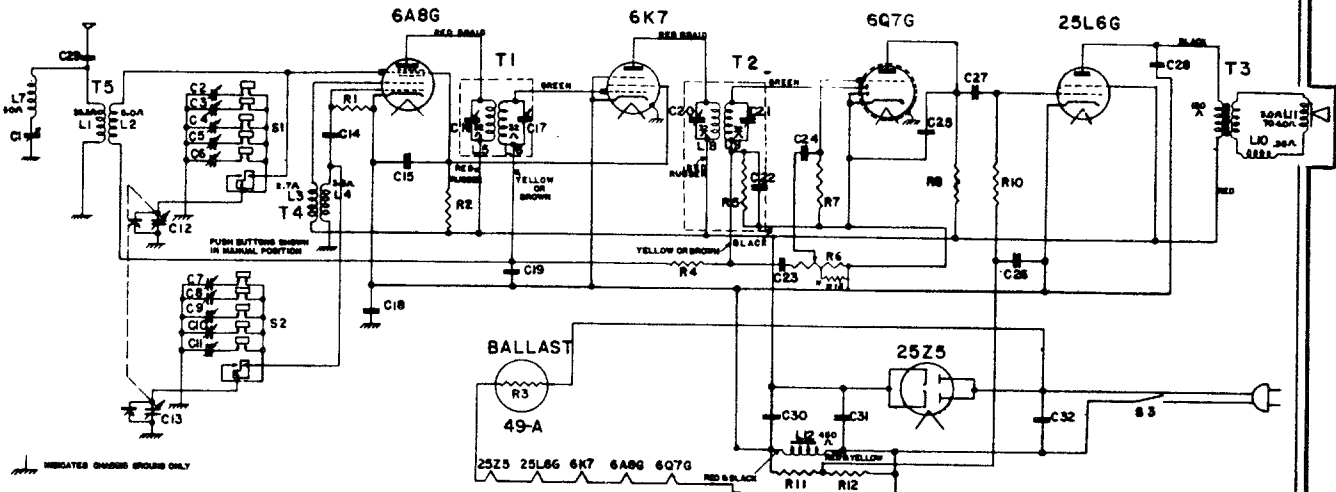
Note—The schematic shown is for the Model GD-41-U. Model GD-41-A omits items C-10, C-11, C-14, R-7, R-8, R-9; also X-X bus is grounded to chassis, coils L-2 and L-4 return to chassis, C-15 to chassis ground instead of to 6C6 cathode, low end of volume control is connected between C-1 and L-1.

Tube No.	Plate to -B Volts D.C.		Screen to -B Volts D.C.		Cathode to -B Volts D.C.		Cathode Current M.A. D-C		Heater Volts	
	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC
6D6	113	90	113	90	9.0	7.4	0.7	0.6	6.35	6.06
6C6	20*	16.4*	45	37	3.1	2.5	0.1	0.08	6.35	6.06
25L6G	108	88	113	90	7.6	6.2	40.5	33.1	25.0	23.5
25Z5	.....	.....	133	108	133	108	43.0	35.0	26.0	24.0

Line voltage 115 AC or DC—No signal input—1000 ohms per volt meter.
Dial pointer at 540 kc. Volume control at minimum.
* Measured on 250 volt scale.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

General Electric Model GD-60



* Used on early production receivers only. For replacement purposes, use specified volume control and omit R-13

Symbol	Description	Symbol	Description	Symbol	Description
C-1	Wave Trap Trimmer, 45-145 Mmf.	C-20	Trimmer Capacitor, 50-135 Mmf.	R-7	Carbon Resistor, 15 Megohms
C-2	Selector Trimmer, 100-510 Mmf.	C-21	Trimmer Capacitor, 50-135 Mmf.	R-8	Carbon Resistor, 220,000 Ohms
C-3	Selector Trimmer, 75-410 Mmf.	C-22	Mica Capacitor, 470 Mmf.	R-10	Carbon Resistor, 470,000 Ohms
C-4	Selector Trimmer, 50-300 Mmf.	C-23	Paper Capacitor, .002 Mfd.	R-11	Carbon Resistor, 270,000 Ohms
C-5	Selector Trimmer, 50-300 Mmf.	C-24	Paper Capacitor, .002 Mfd.	R-12	Carbon Resistor, 68,000 Ohms
C-6	Selector Trimmer, 20-200 Mmf.	C-25	Mica Capacitor, 330 Mmf.	R-13	Carbon Resistor, 68,000 Ohms
C-7	Selector Trimmer, 50-300 Mmf.	C-26	Paper Capacitor, .15 Mfd.	S-1	Antenna Switch
C-8	Selector Trimmer, 50-300 Mmf.	C-27	Paper Capacitor, .005 Mfd.	S-2	Oscillator Switch
C-9	Selector Trimmer, 20-200 Mmf.	C-28	Paper Capacitor, .03 Mfd.	S-3	Power Switch combined with R-6
C-10	Selector Trimmer, 20-200 Mmf.	C-29	Paper Capacitor, .001 Mfd.	T-1	1st I.F. Transformer
C-11	Selector Trimmer, 10-100 Mmf.	C-30	Dry Electrolytic Cap., 12 Mfd.	T-2	2nd I.F. Transformer
C-12	Tuning Condenser Ant.	C-31	Dry Electrolytic Cap., 20 Mfd.	T-3	Output Transformer
C-13	Tuning Condenser Osc.	C-32	Paper Capacitor, .02 Mfd.	T-4	Oscillator Transformer
C-14	Mica Capacitor, 47 Mmf.	R-1	Carbon Resistor, 47,000 Ohms	T-5	Antenna Transformer
C-15	Paper Capacitor, .25 Mfd.	R-2	Carbon Resistor, 10,000 Ohms	L-10	Hum Buck Coil
C-16	Trimmer Capacitor, 50-135 Mmf.	R-3	Ballast Tube 49-A, 170 Ohms	L-11	Voice Coil
C-17	Trimmer Capacitor, 50-135 Mmf.	R-4	Carbon Resistor, 2.2 Megohms	L-12	Field Coil—450 Ohms (cold)
C-18	Paper Capacitor, .25 Mfd.	R-5	Carbon Resistor, 470,000 Ohms		
C-19	Paper Capacitor, 0.5 Mfd.	R-6	Volume Control, 2 Megohms		

NOTE—In some receivers a 150,000 to 390,000 ohm resistor is connected across C-18.

GENERAL INFORMATION

Model GD-60 is a compact, six-tube AC-DC superheterodyne receiver, employing six General Electric Pre-tested Tubes as described above, in a superheterodyne circuit. It incorporates a simplified trimmer tuned "Touch-Tuning" system, allowing a set up of five stations for automatic tuning. Other features of design include I.F. wave trap, automatic volume control and an improved dustproof speaker.

I.F. Alignment

Connect an output meter across the voice coil. Set the volume control for maximum.

Set test oscillator to 455 and apply signal to the control grid of the 6A8G tube through a .05 mfd. capacitor. Do not remove the grid lead from the 6A8G and keep the test oscillator output as low as possible to give a readable output. Adjust all four I.F. trimmers for maximum output.

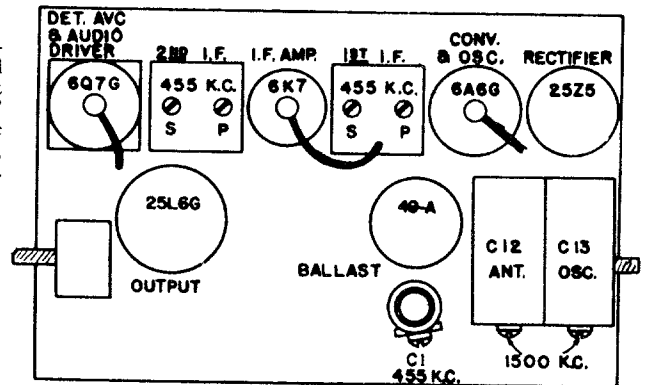
Wave Trap Alignment

Leave the test oscillator set to 455 K.C. and connect one output lead to the receiver chassis and the other through a 250 mmf. capacitor in series with 200 ohms to the receiver antenna lead. Adjust (C-1) for minimum output.

R.F. Alignment

Use the same dummy antenna (250 mmf. and 200 ohms) with 1500 K.C. input, adjust the oscillator trimmer (C-13) and antenna trimmer (C-12) for a maximum output.

Precaution—One side of the power supply is connected to the chassis through a .25 mfd. capacitor. If signal generator is AC operated, connect a .05 mfd. capacitor in the ground side before connecting it to the receiver chassis.



Tuning Frequency Range..... 540-1750 K.C.

Intermediate Frequency..... 455 K.C.

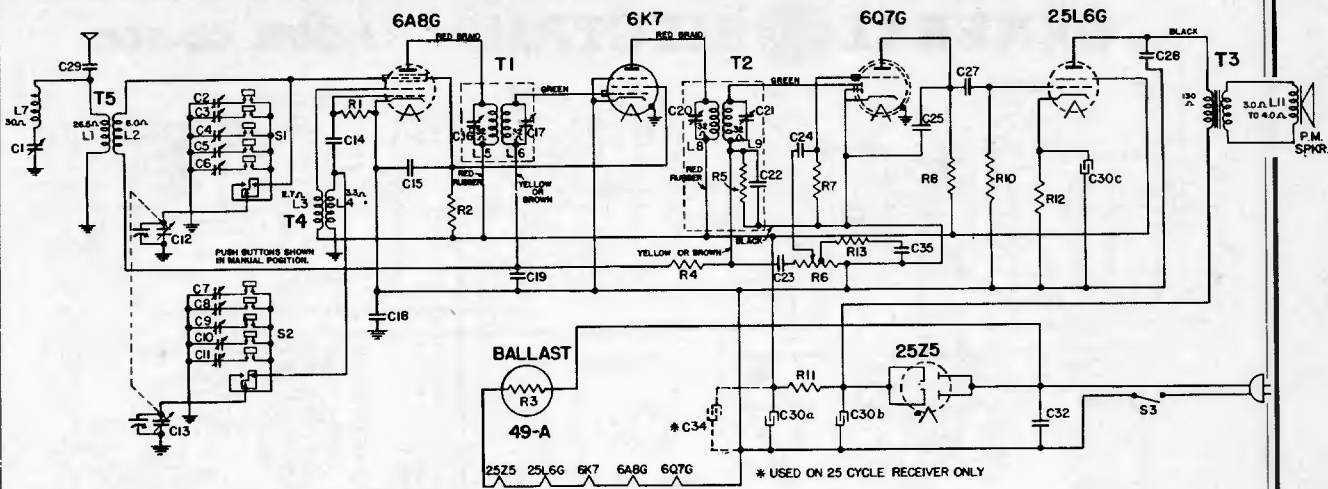
Electrical Power Output (120—line volts)

	AC	DC
Undistorted.....	1.2	1.0
Maximum.....	2.0	1.7

Loudspeaker—Electrodynamical

Outside Cone Diameter..... 5-inch
Voice Coil Impedance..... 3.5 ohms at 400 cycles
Field Coil Resistance..... 450 ohms (cold)

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Set test oscillator to 455 and apply signal to the control grid of the 6A8G tube through a .05 mfd. capacitor. Do not remove the grid lead from the 6A8G. Keep the test oscillator output as low as possible to give a readable output. Adjust all four I.F. trimmers for maximum output.

Wave Trap Alignment

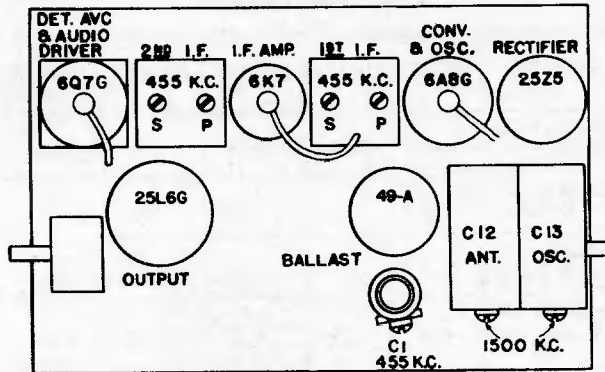
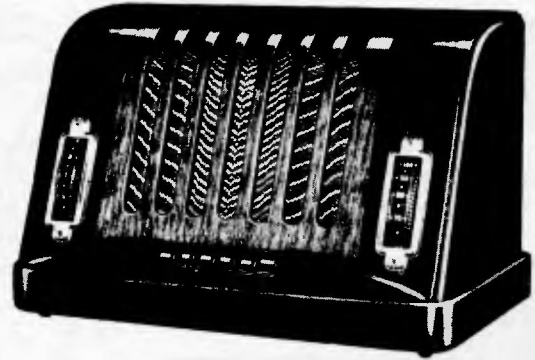
Leave the test oscillator set to 455 K.C. and connect one output lead to the receiver chassis and the other through a 250 mmf. capacitor in series with 200 ohms to the receiver antenna lead. Adjust (C-1) for minimum output.

R.F. Alignment

Use the same dummy antenna (250 mmf. and 200 ohms) with 1500 K.C. input, adjust the oscillator trimmer (C-13) and antenna trimmer (C-12) for a maximum output.

Precaution—One side of the power supply is connected to the chassis through a .25 mfd. capacitor. If signal generator is AC operated, connect a .05 mfd. capacitor in the ground side before connecting it to the receiver chassis.

General Electric MODEL GD-63



VOLTAGE CHART

Tube No.	6A8G	6K7	6Q7G	25L6G	25Z5
Plate to -B volts	112	112	55*	130	..
Screen to -B volts	75	75	..	115	..
Cathode to -B volts	0	0	0	7.5	136
Cathode Current MA	6.6	1.4	0.5	40	50
Filament Volts	6.0	6.0	6.1	24.5	24.0

Line Voltage—120 AC. No signal input
* Measured on 250-volt scale.
On DC, voltages are about 15 per cent lower.

Symbol	Description
C1	Wave trap trimmer
C2-C6	Antenna trimmer strip
C7-C11	Oscillator trimmer strip
C12, C13	Tuning condenser
C14	47 mmf., mica capacitor
C15	.25 mfd., paper capacitor
C18	.25 mfd., paper capacitor
C19	.05 mfd., paper capacitor
C22	470 mmf., mica capacitor
C23, 24	.002 mfd., paper capacitor
C25	330 mmf., mica capacitor
C27	.005 mfd., paper capacitor
C28	.01 mfd., paper capacitor
C29	.001 mfd., paper capacitor
C30a	20 mfd., dry electrolytic
C30b	40 mfd., dry electrolytic
C30c	20 mfd., dry electrolytic
C32	.02 mfd., molded capacitor
C34	15 mfd., dry electrolytic
C35	.005 mfd., paper capacitor
R1	47,000 ohm, carbon resistor
R2	10,000 ohm, carbon resistor
R3	Ballast resistance, 49A
R4	2.2 megohm, carbon resistor
R5	470,000 ohm, carbon resistor
R6	2.2 megohm, volume control
R7	15.0 megohm, carbon resistor
R8	220,000 ohm, carbon resistor
R10	1.0 megohm, carbon resistor
R11	2200 ohm, carbon resistor
R12	180 ohm, carbon resistor
R13	68,000 ohm, carbon resistor
T1	1st I.F. transformer
T2	2nd I.F. transformer
T3	Output transformer*
T4	Osc. transformer
T5	Antenna transformer

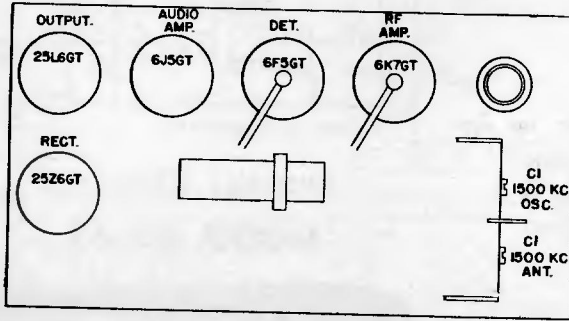
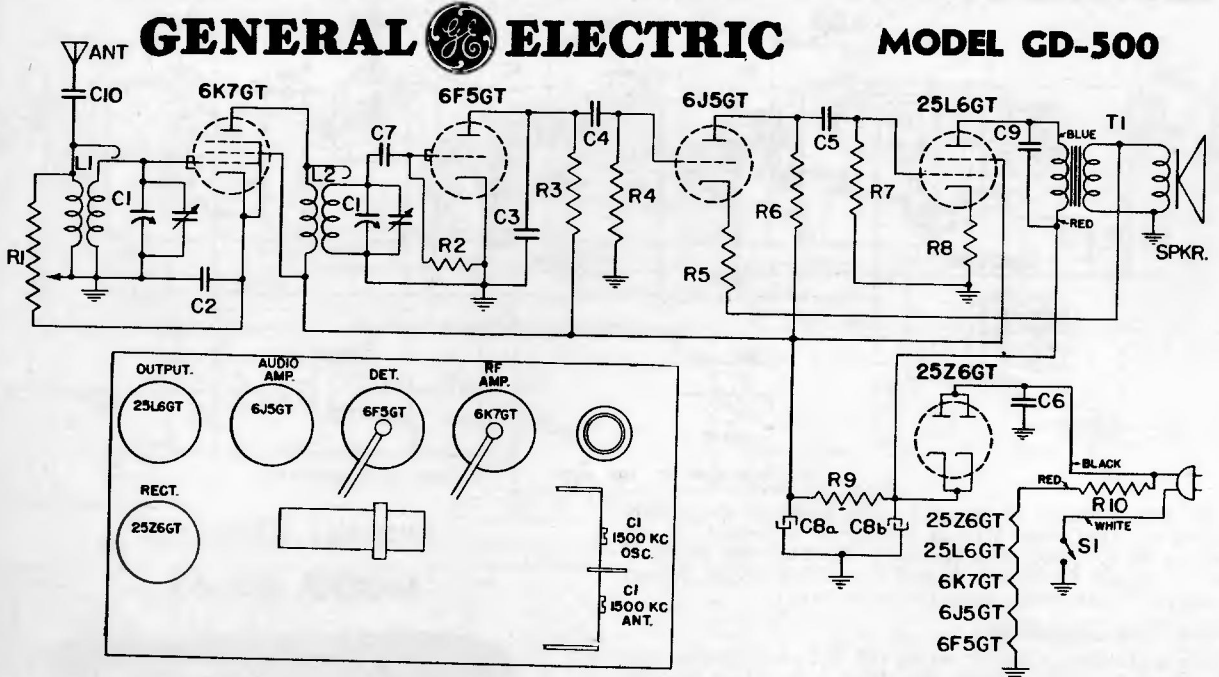
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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

GENERAL ELECTRIC

MODEL GD-500



Symbol	Description	Symbol	Description	Symbol	Description
C-1	Tuning Condenser	C-9	.02 mfd., Paper Capacitor	R-7	470,000 ohm, Carbon Resistor
C-2	.05 mfd., Paper Capacitor	C-10	.002 mfd., Paper Capacitor	R-8	150 ohm, Carbon Resistor
C-3	.001 mfd., Paper Capacitor	R-1	30,000 ohm, Volume Control	R-9	4,700 ohm, Carbon Resistor
C-4, -5	.005 mfd., Paper Capacitor	R-2	15 megohm, Carbon Resistor	R-10	162 ohm, Power Cord Resistor
C-6, -7	.01 mfd., Paper Capacitor	R-3, -4	470,000 ohm, Carbon Resistor	L-1	Antenna Coil
C-8a	15 mfd., Dry Electrolytic	R-5	3,300 ohm, Carbon Resistor	L-2	RF Coil
C-8b	30 mfd., Dry Electrolytic	R-6	100,000 ohm, Carbon Resistor	T-1	Output Transformer

VOLTAGE CHART

Tube No.	6K7GT	6J5GT	6F5GT	25L6GT	25Z6GT
Plate to -B Volts	88	30 *	35 *	132	120. AC
Screen to -B Volts	88	...	....	88	....
Cathode to -B Volts	0	1.3	0	5.5	140
Filament Volts	6.4	6.3	6.2	25.0	25.0

Voltage measured when volume control is set to maximum.
Line Voltage—120 AC. No signal input.

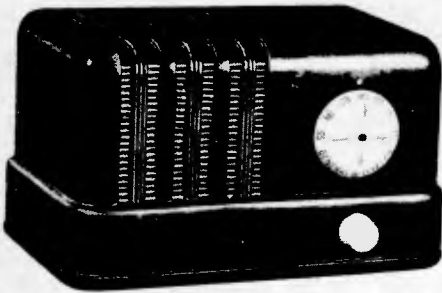
* Measured on 500-volt scale.
On DC. voltages should read approximately 10% lower.

ALIGNMENT

Connect the high side of the signal generator through a 250 mmf. condenser to the antenna lead. The low side of the signal generator output should be connected to the receiver chassis through a .05 mfd. condenser. Connect a suitable output meter across the voice coil leads; then proceed as follows:

1. With gang condenser plates completely closed, the tuning mark should be over the last mark on the dial.
2. Tune receiver to the 1500 KC point on the dial; then align trimmers on the gang condenser at 1500 KC for a maximum output meter reading.

Precaution—One side of the power supply is connected to the chassis. Do not connect chassis to any external ground.



Electrical Power Output

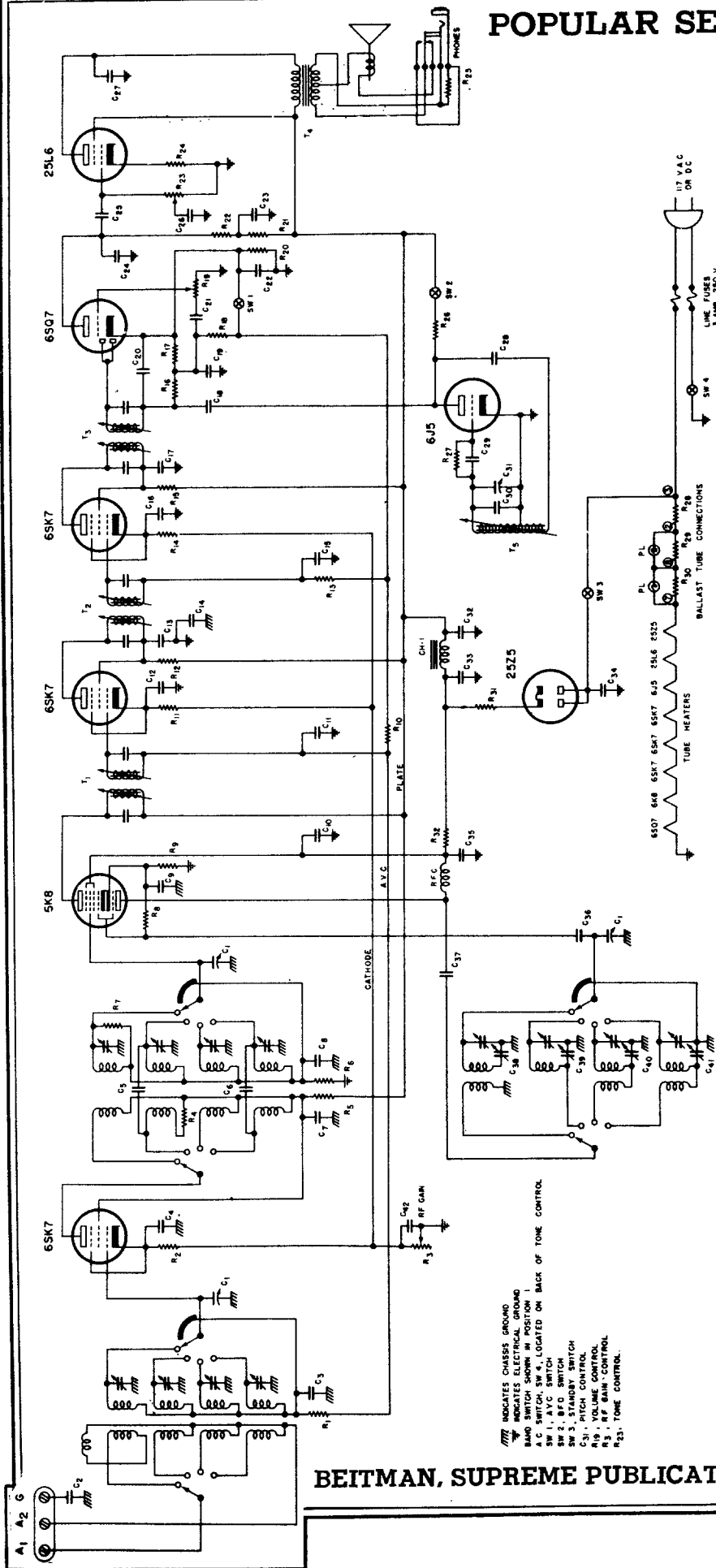
Undistorted.....1.4 watts
Maximum.....2.0 watts

Loudspeaker—Permanent Magnet

Outside Cone Diameter.....4½ inches
Voice Coil Impedance (400 cycles).....3.5 ohms

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the hallicrafters co.

SETTING OF CONTROLS PRIOR TO ALIGNMENT -
IF AND RF.

MODEL S-22-R

- Equipment needed for aligning:
- 1 - An all wave signal generator which will provide an accurately calibrated signal at the test frequencies indicated.
 - 2 - Output indicating meter connected to a headphone plug, and inserted in the headphone jack.
 - 3 - Non-metallic screw driver.
 - 4 - Dummy antenna of .002 mfd. condenser and 400 ohm resistor.

INDICATES CHASSIS GROUND
 INDICATES ELECTRICAL POSITION FOR
 SWING SWITCH SHOWN LOCATED ON BACK OF TONE CONTROL
 SW 1. AVC SWITCH
 SW 2. BFO SWITCH
 SW 3. STANDBY SWITCH
 C31. PITCH CONTROL
 R19. VOLUME CONTROL
 R3. RF GAIN CONTROL
 *23. TONE CONTROL.

- 1 - Tone control at maximum high frequency position.
- 2 - AVC switch OFF.
- 3 - BFO switch OFF.
- 4 - RF Gain at maximum.
- 5 - AF gain at maximum.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

NO.	VALUE	VOLTAGE OR PURPOSE	NO.	VALUE	VOLTAGE OR PURPOSE	NO.	VALUE IN OHMS	
C ₁	Tuning Condenser		C ₂₆	.01 mfd	400 V.	R ₇	100,000	
C ₂	.01 mfd	400 V.	C ₂₇	.005 mfd	600 V.	R ₈	50,000	
C ₃	.05 mfd	400 V.	C ₂₈	.01 mfd	400 V.	R ₉	400	
C ₄	.05 mfd	400 V.	C ₂₉	250 mmfd		R ₁₀	100,000	
C ₅	5 mmf		C ₃₀	200 mmfd		R ₁₁	500	
C ₆	5 mmf		C ₃₁	5 mmf	BFO Pitch Con.	R ₁₂	1,000	
C ₇	.25 mfd	400 V.	C ₃₂	40 mfd	150 V.	R ₁₃	100,000	
C ₈	.05 mfd	400 V.	C ₃₃	40 mfd	150 V.	R ₁₄	400	
C ₉	.05 mfd	400 V.	C ₃₄	.05 mfd	400 V.	R ₁₅	1,000	
C ₁₀	.1 mfd	400 V.	C ₃₅	30 mfd	150 V.	R ₁₆	100,000	
C ₁₁	.02 mfd	400 V.	C ₃₆	100 mmfd		R ₁₇	250,000	
C ₁₂	.02 mfd	400 V.	C ₃₇	2000 mmfd		R ₁₈	1 Meg.	
C ₁₃	.01 mfd	400 V.	C ₃₈	32 mmfd	Band 1 Pad	R ₁₉	500,000	
C ₁₄	.25 mfd	400 V.	C ₃₉	110 mmfd	Band 2 Pad	R ₂₀	7,500	
C ₁₅	.02 mfd	400 V.	C ₄₀	480 mfd	Band 3 Pad	R ₂₁	100,000	
C ₁₆	.02 mfd	400 V.	C ₄₁	1300 mfd	Band 4 Pad	R ₂₂	250,000	
C ₁₇	.01 mfd	400 V.	C ₄₂	.1 mfd	200 V.	R ₂₃	500,000	
C ₁₈	10 mmf		NO. VALUE IN OHMS				R ₂₄	140
C ₁₉	100 mmf		R ₁	100,000		R ₂₅	100	
C ₂₀	100 mmf		R ₂	300		R ₂₆	5,000	
C ₂₁	.02 mfd	400 V.	R ₃	25,000		R ₂₇	250,000	
C ₂₂	10 mf	25 V.	R ₄	400		R ₂₈	Plug-in Ballast	
C ₂₃	.05 mfd	400 V.	R ₅	1,000		R ₂₉	Plug-in Ballast	
C ₂₄	250 mfd		R ₆	100,000		R ₃₀	Plug-in Ballast	
C ₂₅	.05 mfd	400 V.				R ₃₁	25	
						R ₃₂	4,000	

SKYRIDER MARNE - MODEL S-22 R

Connect hot Lead of Signal Generator to A₁ through dummy Antenna shown in Table. Leave Jumper connected between A₂ and G. Ground of Generator to Chassis.

BAND	REC. DIAL SETTING	SIG. GEN. FREQ.	DUMMY ANTENNA	HIGH FREQUENCY END		LOW FREQUENCY END
				ADJUST OSC WITH	ADJUST TRIMMERS WITH	ADJUST OSCILLATOR WITH
1	125 Kc	125 Kc	.002 mfd	-----	-----	P ₁
	350 Kc	350 Kc	.002 mfd	C _C	C _A -C _B	-----
2	450 Kc	450 Kc	.002 mfd	-----	-----	P ₂
	1400 Kc	1400 Kc	.002 mfd	C _F	C _E -C _D	-----
3	2 Mc	2 Mc	400 Ohm	-----	-----	P ₃
	4.5 Mc	4.5 Mc	400 Ohm	C _J	C _G -C _H	-----
4	7 Mc	7 Mc	400 Ohm	-----	-----	P ₄
	15 Mc	400 Ohm	400 Ohm	C _M	C _L -C _K	-----

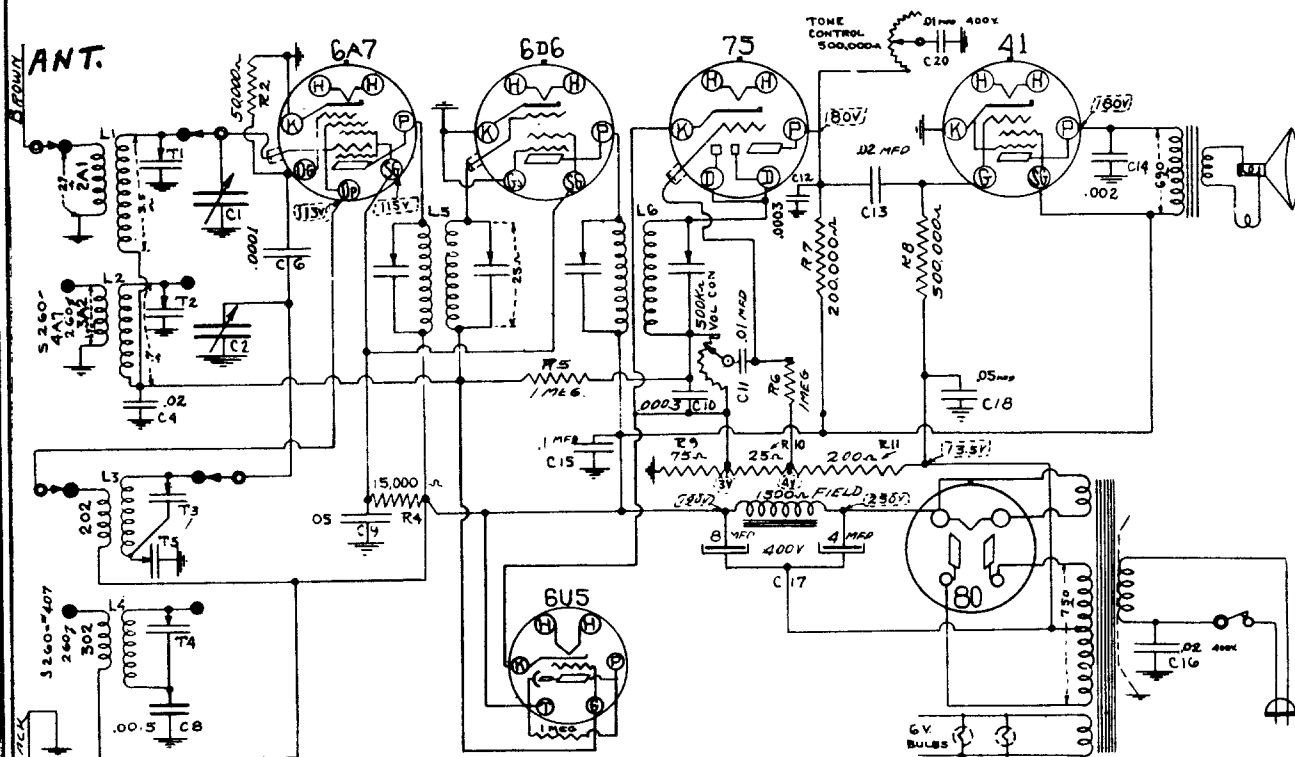
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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Howard Radio Company, 1731 Belmont Avenue, Chicago, Illinois

Models: 225, S-225, 250, S-250, 260, S-260, 275, 275-C, 280.



TWO BANDS -
 (1) - 540 TO 1700 KC BROADCAST.
 (2) - 2 TO 6.5 MC. POLICE BAND MODEL 260
 SW - 6 TO 17 MC. S. WAVE BAND MODEL 2250

VOLTAGES AS SHOWN [...] TAKEN FROM GROUND, LINE VOLTAGE 117V AC

The models 225 and 250 are electrically the same chassis; the only difference being the cabinets in which they are mounted. These models have two band circuits covering the Broadcast Band 550 to 1700 KC and the so-called Police Band from 2 to 6.5 megacycles, having separate Antenna and Oscillator coils for each band.

The models S225 and S250 cover the Broadcast Band 550 to 1700 KC and the short wave band 5.5 to 18 MC.

The models 260 and S260 have the same circuit as the 225, S225 respectively with the addition of the tuning eye tube to indicate resonance.

The models 275, 275C and 280 are the same electrically, covering 3 bands, 550 to 1700 KC, 1.7 to 5.5 MC, and 5.5 to 18 MC.

The I. F.'s are aligned by the usual system of feeding the intermediate frequency of 465 KC into the grid of the 6A7 tube.

The two trimmers in each of the I. F. cans should be very carefully peaked to resonance as they are very critical and will greatly affect the performance of the set. These are trimmers number T8, T9, T10, T11.

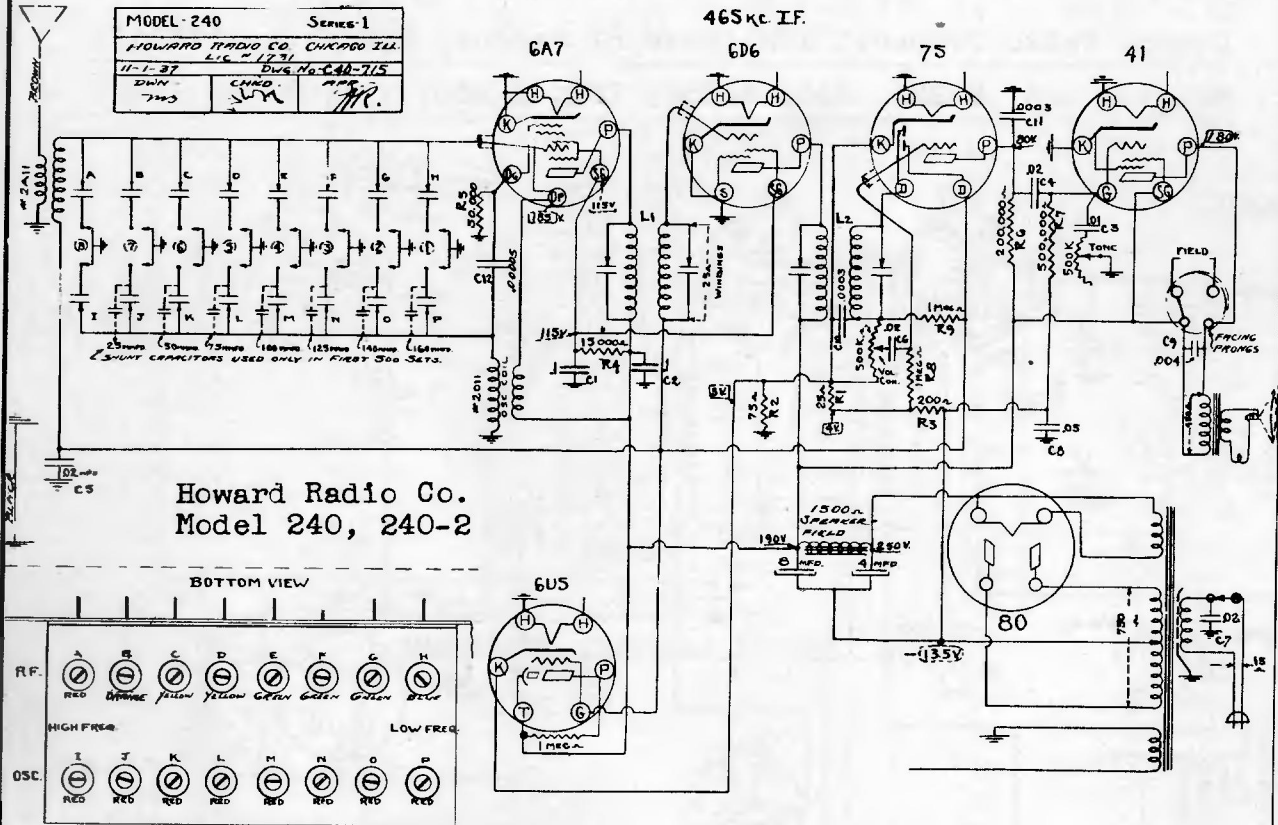
The Sensitivity of the I. F. stages will be 25 to 50 microvolts or better for a 50 milliwatt output.

Always use as low an output as possible from the test oscillator in making the various adjustments.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

MODEL-240		Series-1	
HOWARD RADIO CO. CHICAGO ILL.			
L.S. # 1271			
11-1-37		Dwg. No. C-40-715	
DWN	CHND	AM	
7403	37		

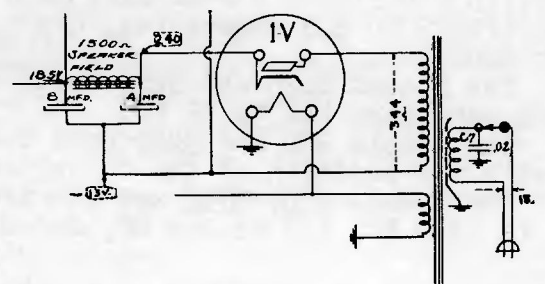
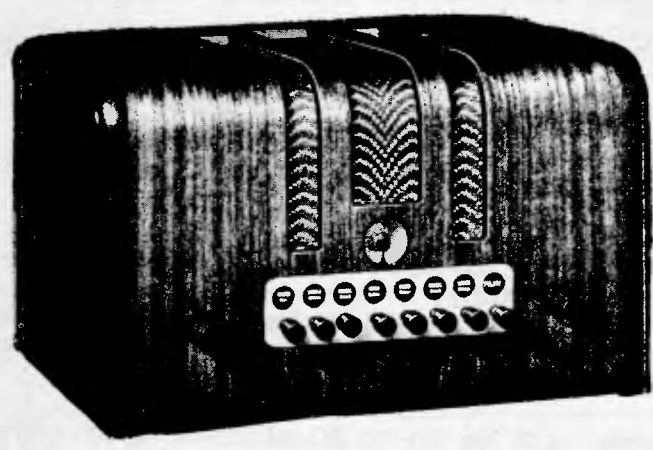
465 KC. I.F.



Howard Radio Co.
Model 240, 240-2

THE MODEL 240 series 1 and 2 is strictly a push-button tuner having no gang condenser. The eight push-button station selectors complete the ground circuit of the oscillator and R. F. tuned condensers previously set to whatever frequency desired. The eight circuits cover the complete range of the broadcast band from 540 to 1750 KC. The instructions for the set-up are shown.

The model 240-1 used the 80 tube for a rectifier and the model 240-2 uses the 1V tube.



These sets can be easily aligned. The I.F. is set in the regular way. Then one station is tuned-in at a time and adjusted for maximum response. No other adjustments are needed.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Howard Radio Co.

Models: 400, 400-A, 425, 425-A.

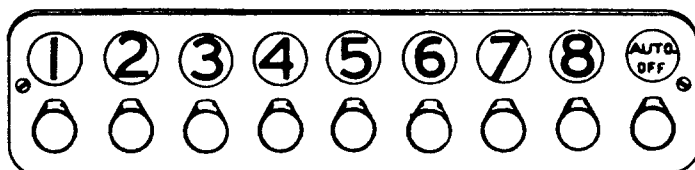
Model 400 is a 12 tube, 3 band receiver with all coils shielded. See Fig. 4, for coil location and information on trimmers and padding condensers for each band. The 6F5 is a bass boost stage. The 6J5G is a phase inverter with push-pull 6V6G's in the output. The schematic of the model 425 illustrated is the same for the RF and IF stages. A single type 80 rectifier is used.

Model 425 is a 14 tube set having 6L6G's in the output.

Models 400-A and 425-A have the same electrical circuits as the 400 and 425. These models employ the Howard motor automatic tuning feature by use of the reversible motor controlled by the commutator disc near the back of the set.

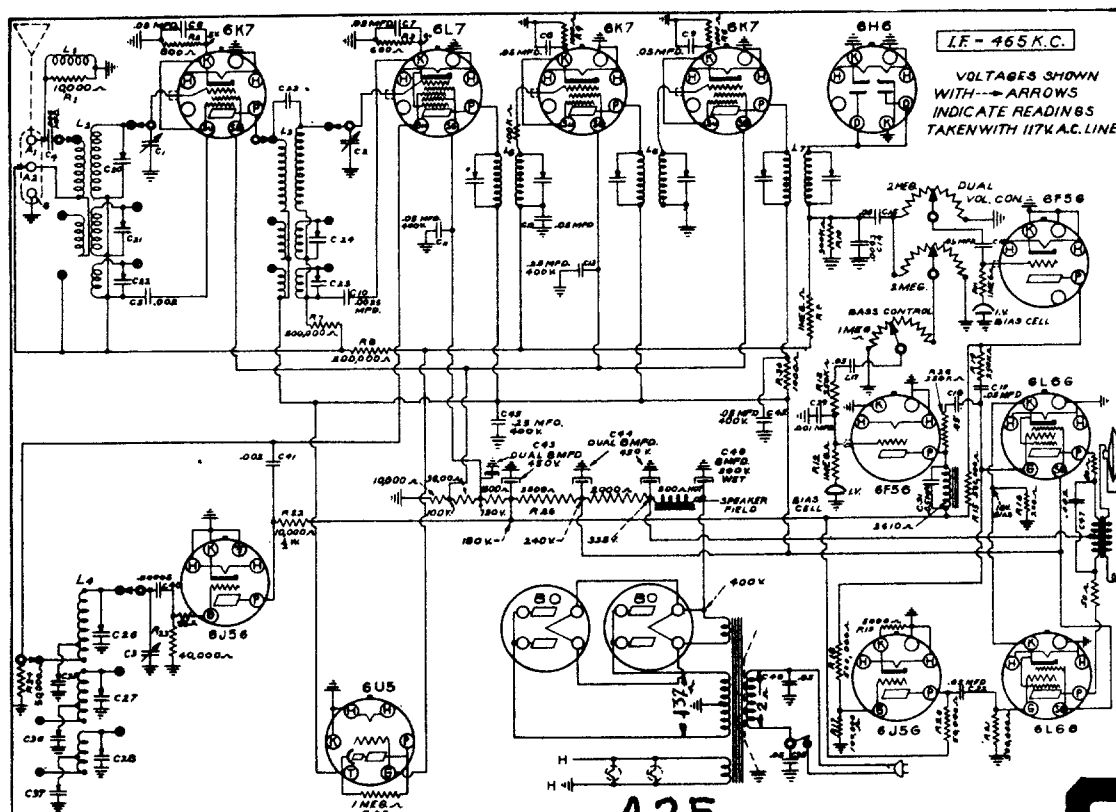
ADJUSTMENT OF HOWARD MOTOR AUTOMATIC

FIRST - Select and depress the push-button by number that will include the desired station according to frequency chart listing below:-



540 TO 580 KC	570 TO 620 KC	600 TO 670 KC	650 TO 720 KC	700 TO 820 KC	800 TO 990 KC	880 TO 1720 KC	1100 TO 1720 KC
------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	-------------------------	--------------------------

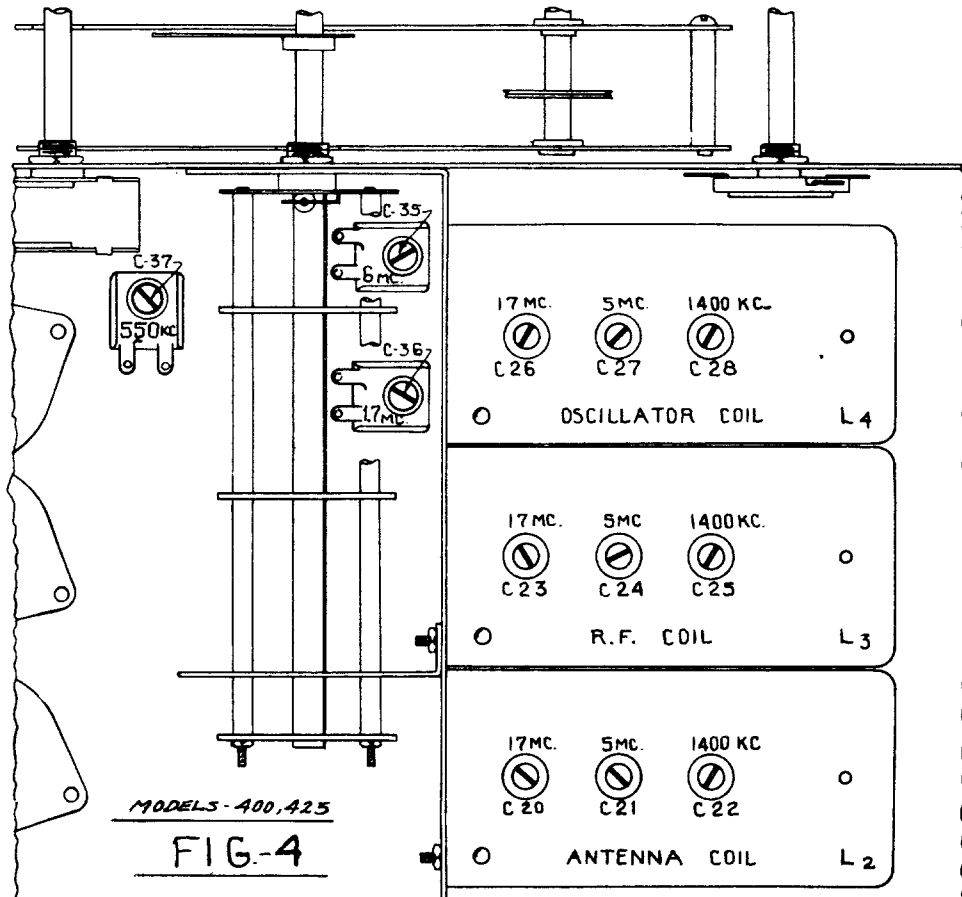
See next page-



425

61

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



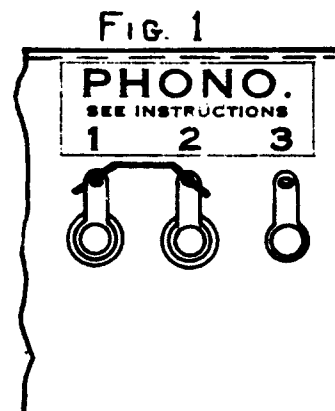
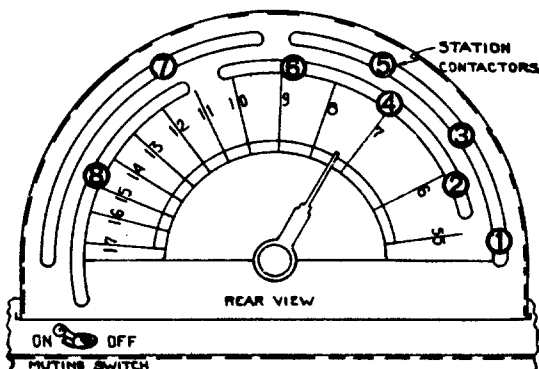
SECOND - Reach to back of chassis and turn muting switch to OFF position.

LOCATE THE SAME NUMBERED STATIONS CONTACTOR ON BACK OF TUNING CONDENSER THAT CORRESPONDS TO THE BUTTON DEPRESSED IN FIRST PARAGRAPH, AND SLIDE UNTIL THE DESIRED STATION IS TUNED IN.

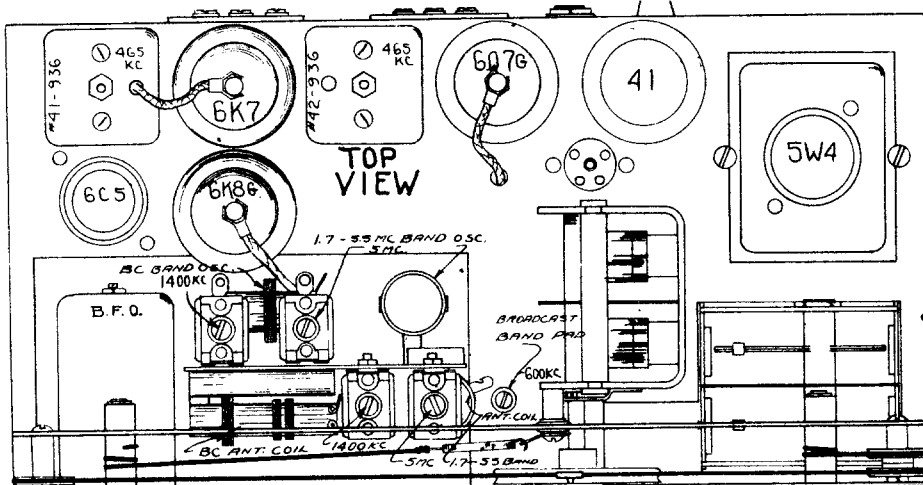
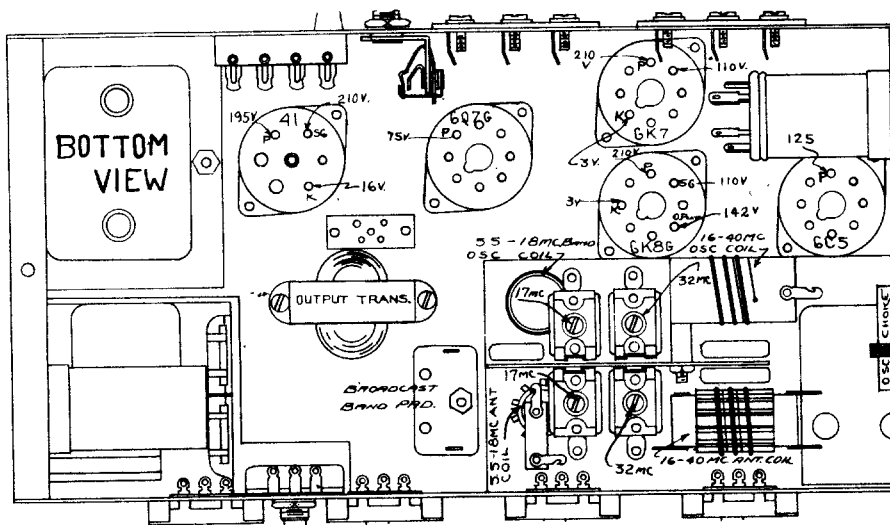
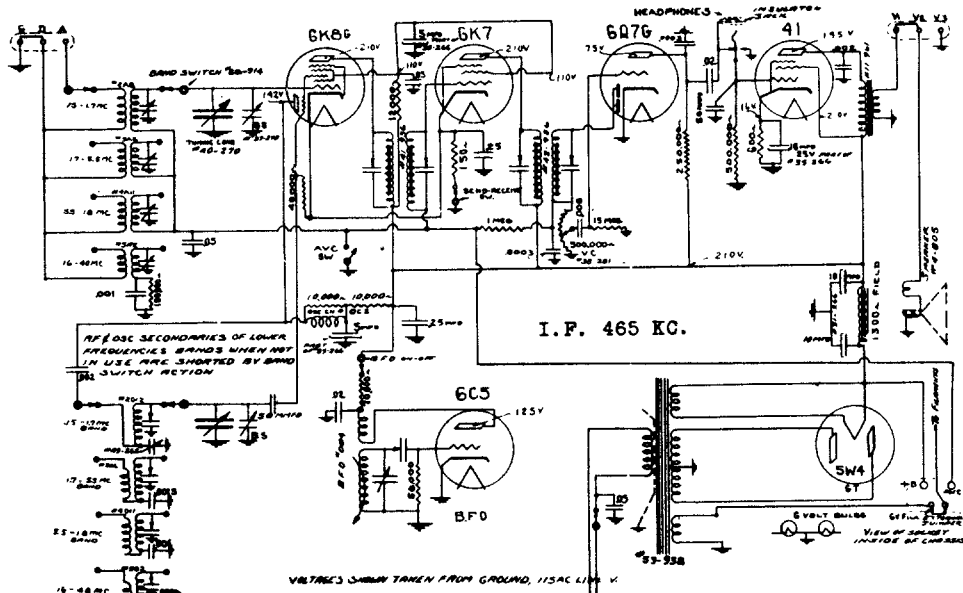
With the muting switch in the OFF position the stations will be heard while moving the slide contactor. For silent tuning after all adjustments are made, turn switch to ON position.

THIRD - Remove station call letter tab from tab sheet and insert in place with finger tip in front of escutcheon plate over the number that was selected. Repeat above procedure for each of remaining buttons.

NOTE - When tuning the set by hand or if a remote cable is used the selector button **AUTO-OFF** must be depressed.



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



HOWARD

430

NOTE 1: When aligning the I.F. channel, a condenser of .05 MFD may be used in series with the generator lead.

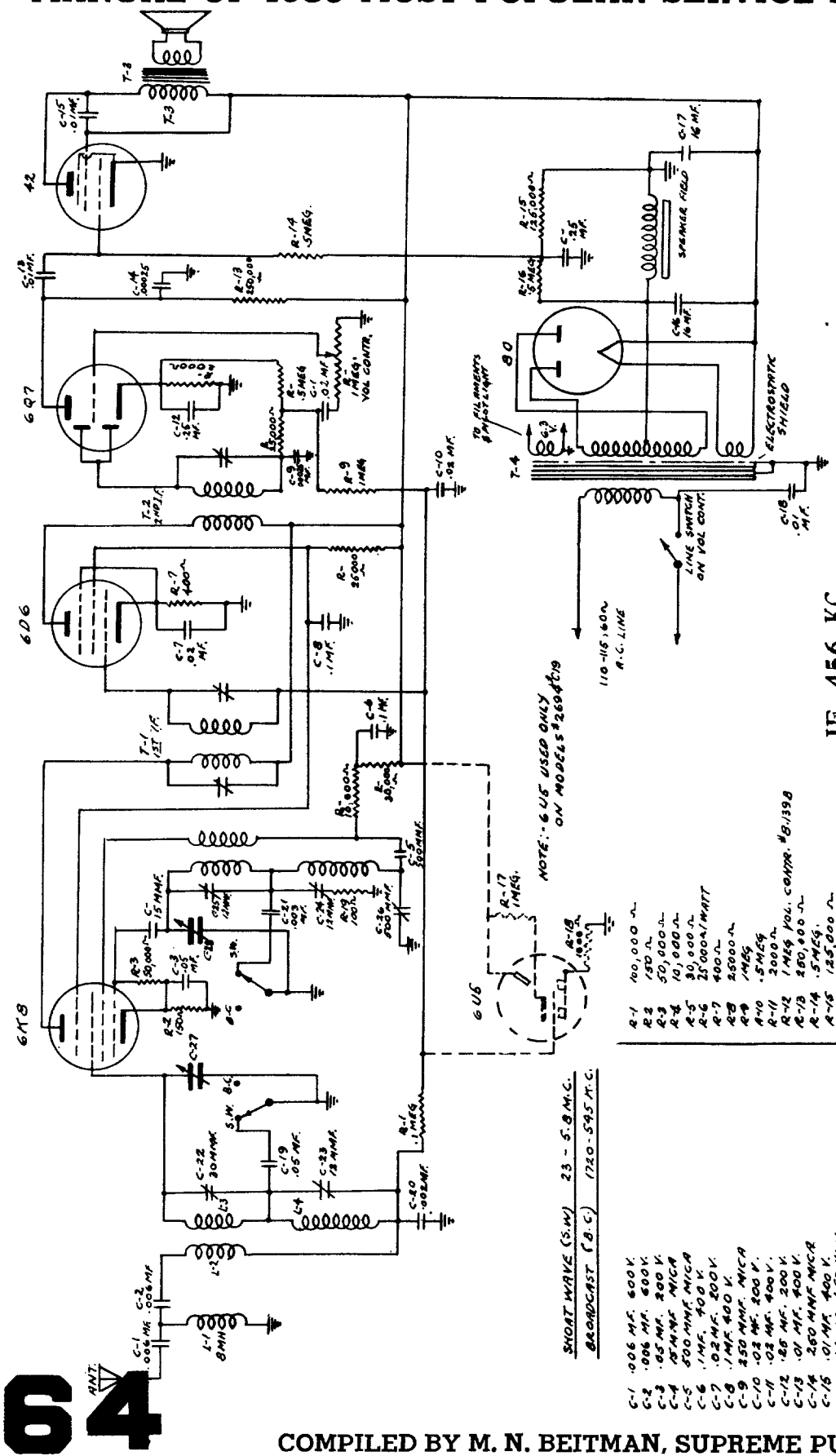
NOTE 2: When aligning the broadcast band, a 250 MMFD condenser may be used in series with the signal generator.

NOTE 3: When aligning the short wave bands, a 400 ohm resistor may be used in series with the signal generator.

NOTE 4: After the chassis has been removed from the cabinet, be sure when it is again assembled that the speaker plug is in place in the socket on top of the chassis and that the speaker cable wires do not lay back near the RF circuit, thus causing howling.

NOTE 5: Check for an image signal about .9 mc. lower in frequency. For example:- If a peak has been made at 6 mc. an image should be heard at about 5.1 mc. Otherwise the original setting was not correct.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



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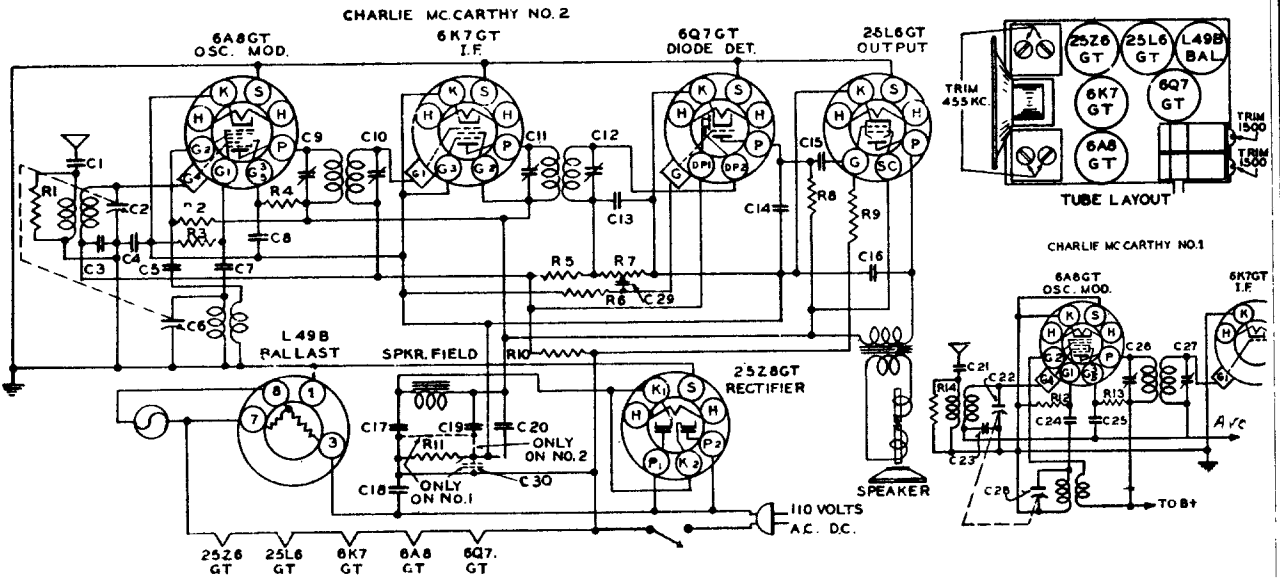
NOTE: - 6U5 USED ONLY ON MODELS 269 & 79

- SHORT WAVE (S.W.) 23 - 5.8 MC.
 BROADCAST (B.C.) 120 - 545 MC.
- C-1 .006 MF. 500 V.
 - C-2 .006 MF. 500 V.
 - C-3 .05 MF. 200 V.
 - C-4 .05 MF. MICA
 - C-5 500 MMF. MICA
 - C-6 .1 MF. 400 V.
 - C-7 .02 MF. 200 V.
 - C-8 .1 MF. 400 V.
 - C-9 250 MMF. MICA
 - C-10 .02 MF. 200 V.
 - C-11 .02 MF. 400 V.
 - C-12 .88 MF. 200 V.
 - C-13 .01 MF. 400 V.
 - C-14 250 MMF. MICA
 - C-15 .01 MF. 400 V.
 - C-16 .16 MF. 450 MV. V.
 - C-17 .16 MF. 450 MV. V.
 - C-18 .01 MF. 400 V.
 - C-19 .05 MF. 200 V.
 - C-20 .002 MF. 15% MICA
 - C-21 .003 MF. 15% MICA
 - C-22 30 MMF. TAINMER
 - C-23 DUAL 12 MMF. TAINMER COND.
 - C-24 18 MMF. TAINMER COND.
 - C-25 500 MMF. PARAGA COND.
 - C-26 500 MMF. PARAGA COND.
 - C-27 2 GANG 450 MMF. VAR. COND. # R.136
 - C-28
 - R-1 100,000 Ω
 - R-2 150 Ω
 - R-3 50,000 Ω
 - R-4 10,000 Ω
 - R-5 30,000 Ω
 - R-6 25,000 Ω / WATT
 - R-7 400 Ω
 - R-8 25,000 Ω
 - R-9 1MΩ
 - R-10 2000 Ω
 - R-11 1MΩ
 - R-12 1MΩ VOL. CONTR. # B/139 B
 - R-13 250,000 Ω
 - R-14 5MΩ
 - R-15 125,000 Ω
 - R-16 5MΩ
 - R-17 1MΩ
 - R-18 1000 Ω (OPTIONAL)
 - R-19 100 Ω
 - R-20
 - R-21
 - R-22
 - R-23
 - R-24
 - R-25
 - R-26
 - R-27
 - R-28
 - L-1 8 MH. CHOME
 - L-2
 - L-3 2 BAND ANT. COIL # 1.217
 - L-4
 - L-5
 - L-6 2 BAND OSC. COIL # 1.219
 - L-7
 - L-8 SPEAKER FIELD
 - T-1 8T 1/2 IN. INPUT # 1.225-A
 - T-2 5T 1/2 IN. OUTPUT # 1.230
 - T-3 OUTPUT TRANS. # 1.232
 - T-4 4000 TURNS # 1.232

IF 456 KC.

Lafayette Radio Corp.
 Radio Wire Television, Inc.
 Models C-16, C-19, 259, 269

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



CHARLIE McARTHUR No. 2—PARTS LIST

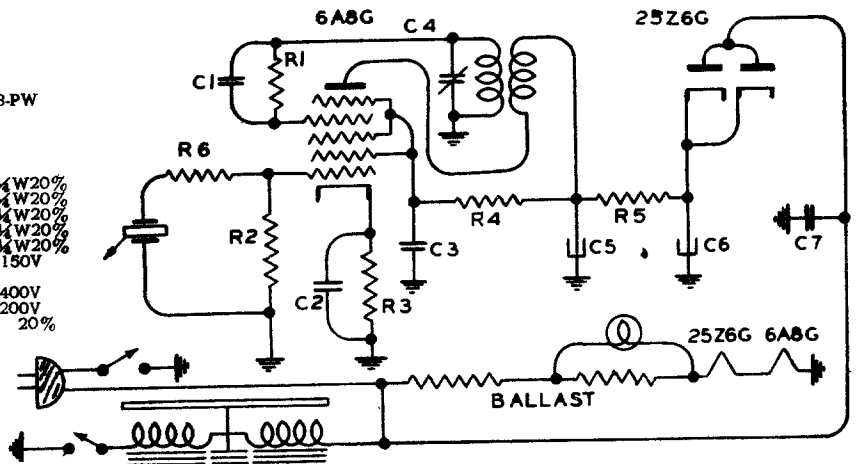
Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C15, C29	C-15754	Tubular cond. .01 mfd. 400 V	C17	CE-39	Electr. cond. 40 mfd. 200 V
C3	C-15752	Tubular cond. .05 mfd. 200 V	C19	CE-40	Electr. cond. 16 mfd. 150 V
C1	C18	Tubular cond. .01 mfd. 400 V Paper mold case	C9, C10	Y-CT-18	Trimmer cond. 1st I. F.
C8, C20	C19	Tubular cond. .05 mfd. 400 V Paper mold case	C11, C12	Y-CT-18	Trimmer cond. 2nd I. F.
C4	C20	Tubular cond. .25 mfd. 200 V Paper mold case	C2, C6	Y-CV-18	2 gang variable cond.
C5	C21	Tubular cond. .005 mfd. 400 V Paper mold case	R11	R-67	Wire wound res. 100 ohms 1 W 10%
C16	C22	Tubular cond. .02 mfd. 600 V Paper mold case	R3	R-54	Carbon resistor 50K $\frac{1}{4}$ W 20%
C18	C24	Tubular cond. .1 mfd. 300 V Paper mold case	R4	R-53	Carbon resistor 15K $\frac{1}{4}$ W 20%
C7	CM-15929	Mica cond. 50 mmf. 20%	R8	R-51	Carbon resistor 500K $\frac{1}{4}$ W 20%
C13	CM-15928	Mica cond. 250 mmf. 20%	R9	R-52	Carbon resistor 400K $\frac{1}{4}$ W 20%
C14	CM-15918	Mica cond. 100 mmf. 20%	R5	R-55	Carbon resistor 2 meg. $\frac{1}{4}$ W 20%
			R10	R-50	Carbon resistor 5 meg. $\frac{1}{4}$ W 20%
			R6	R-49	Carbon resistor 15 meg. $\frac{1}{4}$ W 20%
			R1	R-65	Carbon resistor 10K $\frac{1}{4}$ W 20%
			R2	R-68	Carbon res. 7500 ohms $\frac{1}{4}$ W 20%
			R7	Y-VC-15	Volume control .5 meg.

C21	.01 mfd.
C23	.05 mfd.
C24	50 mmfd.
C25	.05 mfd.
R12	50K $\frac{1}{4}$ W.
R13	15K $\frac{1}{4}$ W.

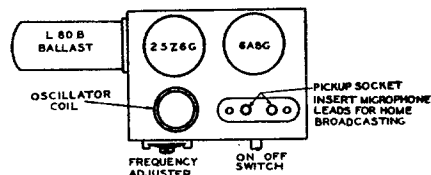
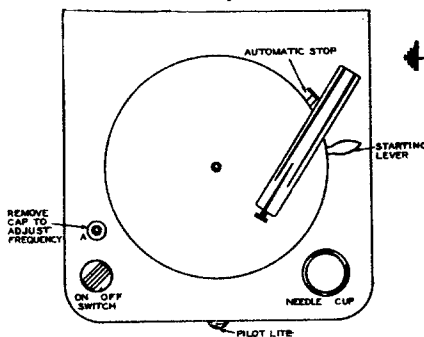
Majestic Radio & Television Corp. Wireless Record Player 3-PW

REPLACEMENT PARTS LIST FOR MODEL 3-PW

Schematic Location	Part No.	Description
R4, R5	R-2	Carbon resistor 5K $\frac{1}{4}$ W 20%
R1	R-65	Carbon resistor 10K $\frac{1}{4}$ W 20%
R3	R-15542	Carbon resistor 1K $\frac{1}{4}$ W 20%
R6	R-15512	Carbon resistor 250K $\frac{1}{4}$ W 20%
R2	R-15515	Carbon resistor 100K $\frac{1}{4}$ W 20%
C5, C6	CE-47	Elect. cond. 8.16 mfd. 150V
C4	Y-CT-6	Adj. pecker cond.
C2, C3	C-15757	Paper cond. .1 mfd. 400V
C1	C-15761	Paper cond. .1 mfd. 200V
	CM-15929	Mica cond. 50 mmf. 20%

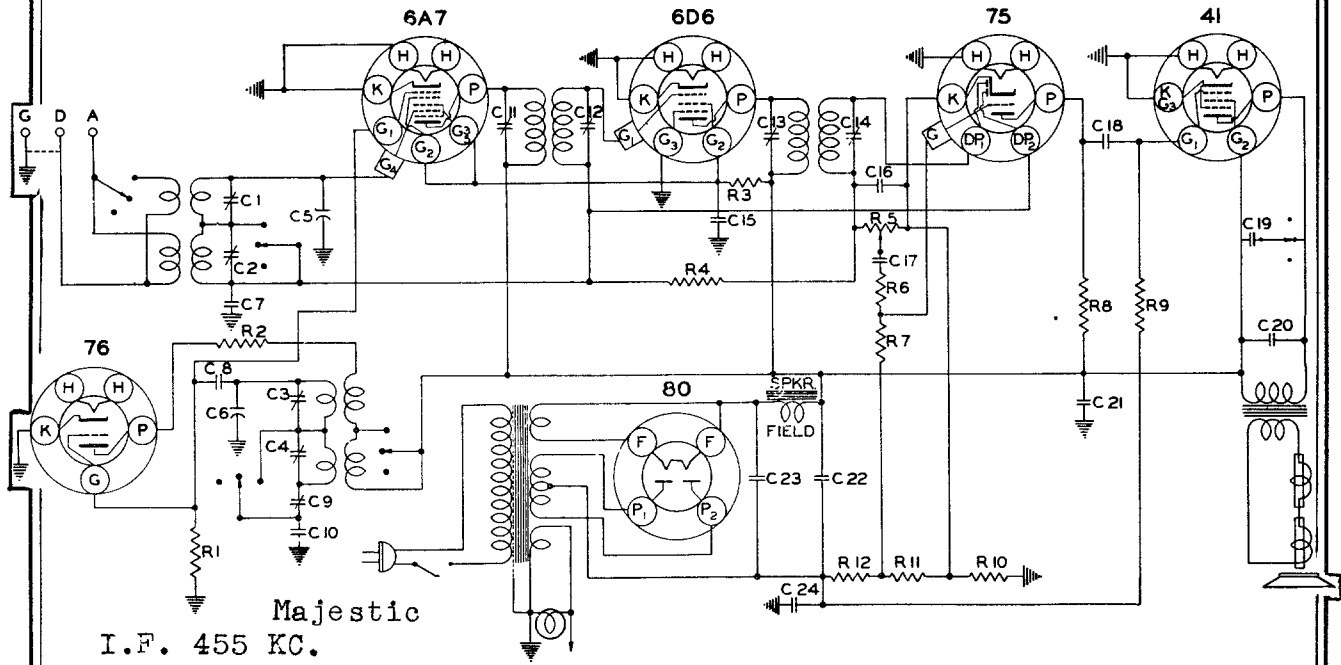


TUBE LOCATION CHART



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

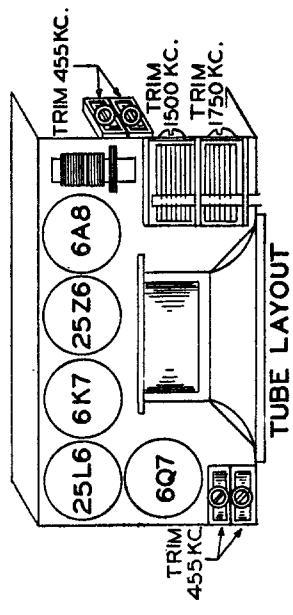
SCHEMATIC DIAGRAM MODEL 62A



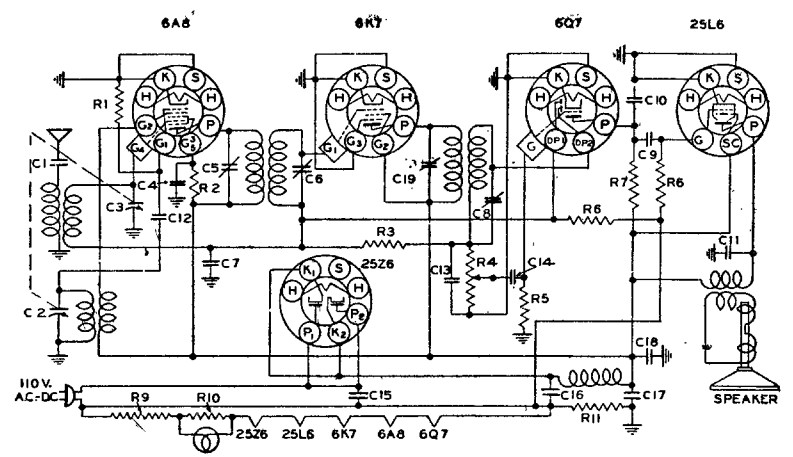
Schematic Location	Description
R1	50K 1/4 W 20%
R2	100K 1/4 W 20%
R3	7.5K 2W 1/4 W 20%
R4	2 Meg. 1/4 W 20%
R5	Volume control 1 meg.
R6, R8	250K 1/4 W 20%
R7	1 Meg.
R9	500K 1/4 W 20%

Schematic Location	Part No.	Description
R10	61 Ohms	E-C-6 Candohm
R11	33 Ohms	
R12	150 Ohms	
C11, C12	Y-CP-2	Trimmer cond.
C13, C14	Y-CV19	Variable gang condenser
C15, C21	C-15752	Tubular cond. .05 mfd. 200 V
C16	CM-15929	Mica cond. 50 mmf. 20%
C17, C18, C19	C-16472	Padder cond.
C20	CM-17	Mica cond. 4330

Schematic Location	Description
C11, C12	Trimmer cond.
C13, C14	Tubular cond. .05 mfd. 400V
C15, C21	Mica cond. 250 mmf. 20%
C16	Tubular cond. .01 mfd. 400 V
C17, C18, C19	Tubular cond. .006 m.f. 400V
C20	8,300 V
C22	12,300 V
C23	20,25 V
C24	



Majestic Radio Model 52



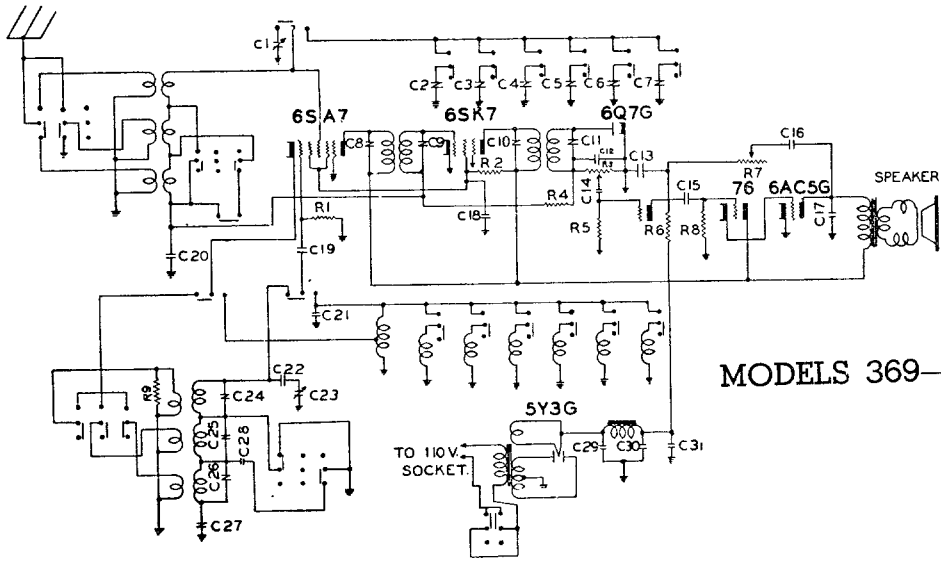
REPLACEMENT PARTS LIST

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C2, C3	Y-CV 14	Variable Gang Condenser	R1	R-54	Carbon resistor 50K 1/4 W 20%
C7, C18	C-15761	Tubular cond. .1 mfd. 200 V	R2	R-53	Carbon resistor 15K 1/4 W 20%
Q4	C-15752	Tubular cond. .05 mfd. 200 V	R3	R-55	Carbon resistor 2meg 1/4 W 20%
Q9, C1	C-15754	Tubular cond. .01 mfd. 400 V	R5	R-49	Carbon resistor 15meg 1/4 W 20%
C15	C-15757	Tubular cond. .1 mfd. 400 V	R6	R-50	Carbon resistor 5meg 1/4 W 20%
C11	C-15772	Tubular cond. .02 mfd. 400 V	R7	R-51	Carbon resistor 500K 1/4 W 20%
C14	C-15754	Tubular cond. .01 mfd. 400 V	R8	R-52	Carbon resistor 300K 1/4 W 20%
C16	CE-32	Tub. dry elec. cond. 40 mfd.	R11	R-56	Carbon res. 100 ohm 1/4 W 10%
C17	CE-35	Tub. dry elec. cond. 16 mfd.	R10	R-57	Wire wound flex. res. 40 ohms
C5, C6	Y-CT-16	Trimmer cond. 1st I. F.	R9	LC-8	141 ohms in line cord
C8, C19	Y-CT-17	Trimmer cond. 2nd I. F.	R4	Y-VC-15	.5 meg Volume control
C10, C13	CM-15928	Mica cond. 250 mmf. 20%			
C12	CM-15919	Mica cond. 50 mmf. 20%			

66

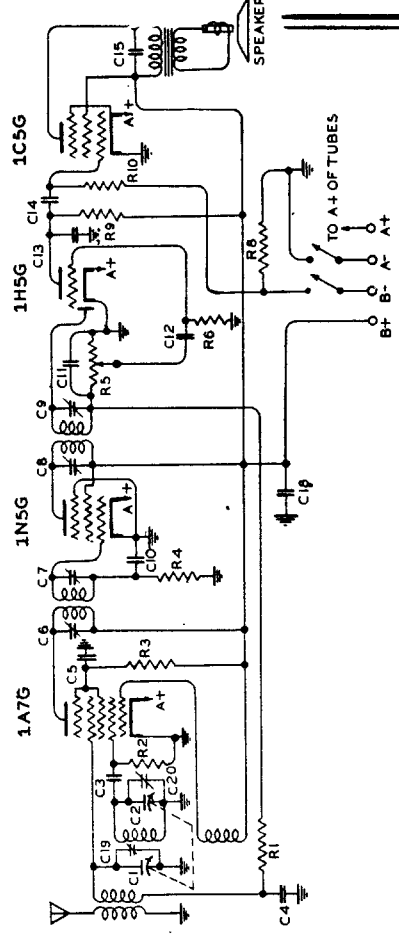
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Majestic Radio & Television Corporation



MODELS 369—3C69

Schematic Location	Description	Schematic Location	Part No.	Description	Schematic Location	Description
R3	Volume and tone control	C27	Y-CT-4	Padding Condenser	C12, C13, C19	Mica cond. 100 mmf. 30%
R1	Carbon res. 20K ohm 1/4 W 20%	C29, C30	OE-52	Electrolytic	C16	Mica cond. 250 mmf. 30%
R2	Carbon res. 10K ohm 1/4 W 20%	C20	C-15757	Tubular cond. .05 mfd. 200V	C22	Mica cond. 4330 mmf. 5%
R4, R8	Carbon res. 1 meg. 1/4 W 20%	C15	C-15754	Tubular cond. .01 mfd. 400 V	C28	Mica cond. 2770 mmf. 5%
R5, R8	Carbon res. 15 meg. 1/4 W 20%	C17	C-15759	Tubular cond. .006 mfd. 600V	C21	Mica cond. 100 mmf. 5%
R6	Carbon res. 250K ohm 1/4 W 20%	C31	C-15757	Tubular cond. .1 mfd. 400V	C2, C3, C4, C5, C6, C7	} Push-Button Switch
R9	Carbon res. 400 ohm 1/4 W 20%	C14	C-15774	Tubular cond. .002 mfd. 400V		
		C18	C-15756	Tubular cond. .05 mfd. 400V		

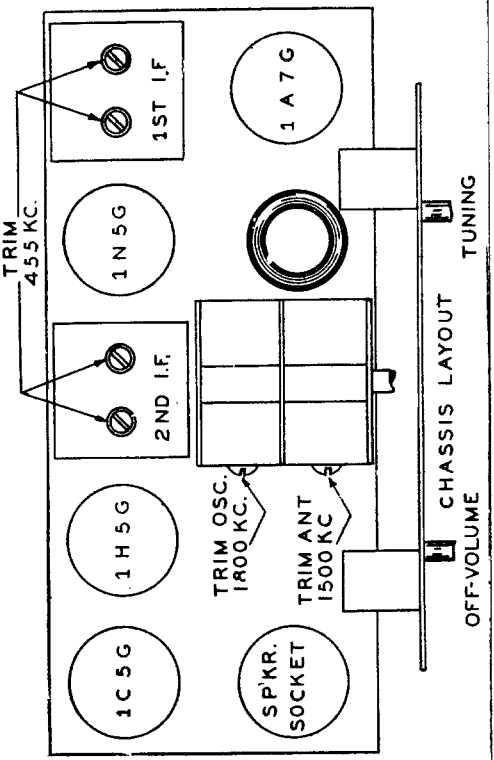


REPLACEMENT PARTS LIST

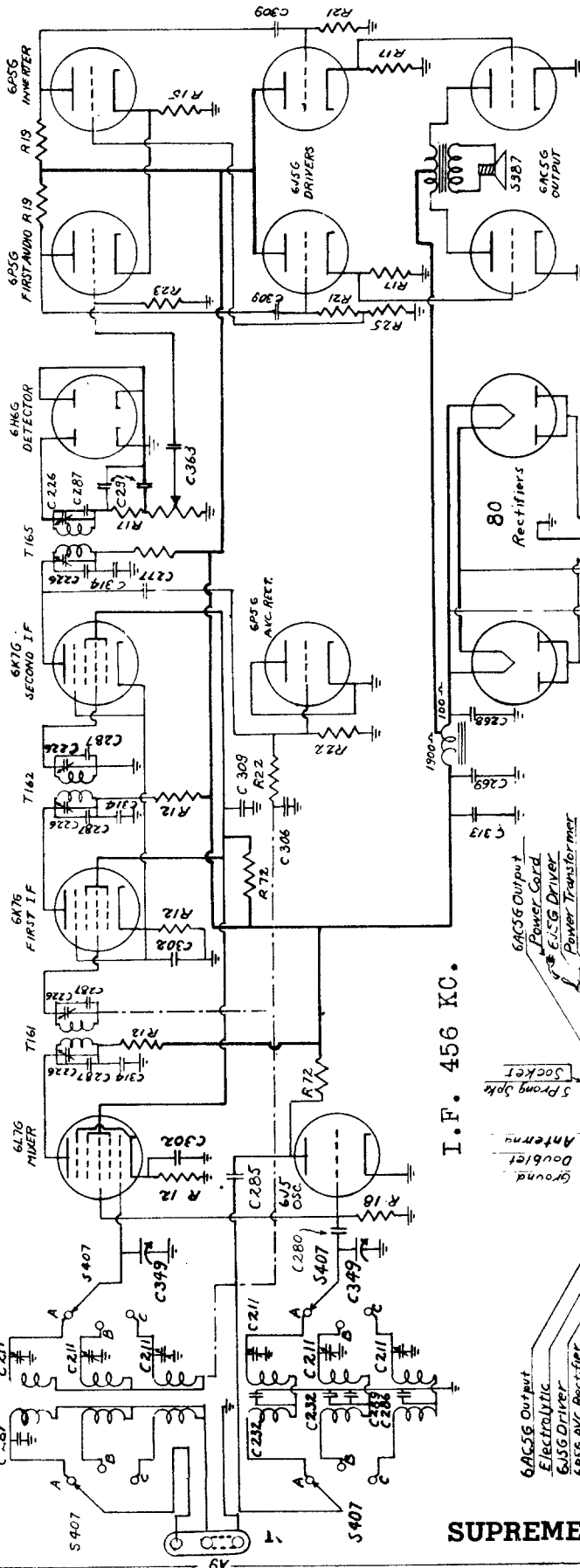
Schematic Location	Part No.	Description	Part No.	Description
C4, C5	C-15752	.05 mfd. 200V	R9	500K 1/4 W 20%
C10, C12, C14	C-15763	.01 mfd. 200V	R10	1 meg. 1/4 W 20%
C15	C-25	.006 mfd. 400V	R8	200 ohms 1/4 W 20%
C3, C11, C13	CM-15918	100 mmf. Type "O" Mica	R-15523	3 meg. 1/4 W 20%
C1, C2	Y-CV-26	Variable Condenser	R-44	70K 1/4 W 10%
C6, C7, C8, C9	Y-CT-2	I. F. Trimmer condenser	R-15500	2 meg. 1/4 W 20%
C17	Y-CT-2	I. F. Trimmer condenser	Y-VC-26	Volume Control
C18	Y-VC-26	Volume Control		

MAJESTIC RADIO Model 419-B

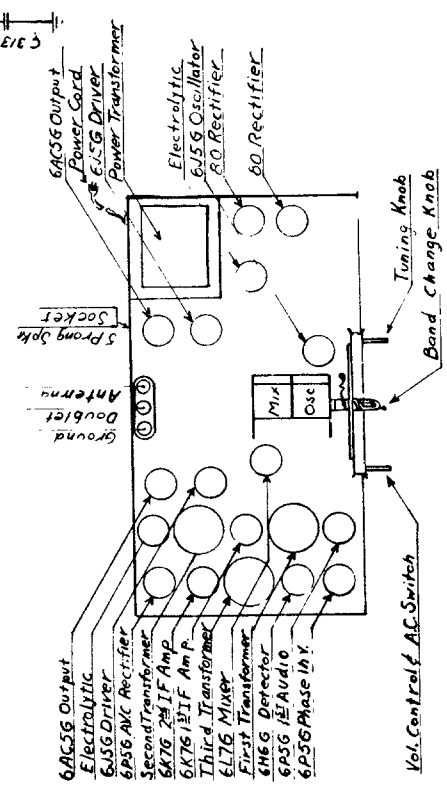
TUBE LOCATION CHART



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



I. F. 456 KC.



R12	5000 Ohm 1/2 Watt
R19	100M
R21	500M
R22	1 Meg Ohm
R23	3
R25	40M Ohm 1/2 W
R72	15M 1 W
S319	SpringBelt Ten.
S333	Pointer
S407	Coil Switch
T162	1 1/2 I F Trans.
T165	2 1/2 I F Trans.
T166	3 I F Trans.
C285	4000MMFD
C280	100

A9	Antenna Strip
C26	Cable Plug (M)
C211	3.6 Gang Trimmer
C226	I F Pad
C232	Osc Pad
C268	24 MFD 350 V
C269	40 MFD 350 V
C291	250 Mica Dual
C271	25 M MFD Mica
C284	3000
C287	200
C289	1200
C302	0.05 MFD 200 V
C309	0.02 MFD 400 V
C313	25
C314	25
C314	.05
C399	2 Gang Variable
C363	Control Volume MS
C401	Fish Line Cord
K24	Knob 1 inch
P46	Pilot Light 6.8V
R11	200 Ohm 1/2 Watt
R12	500
R15	5000
R17	25000

OPERATING VOLTAGES

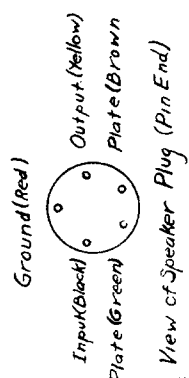
No Signal, Volume Control Turned Off

Line Voltage 117 Volts 60 Cycles
Meter Used 2000 Ohms per Volt

TUBE	PLATE	SCREEN SUP	CATH. HEATER
6L7 Mixer	245	85	2.4 6.0
6V5 Osc.	140	0	6.0
6K7 2nd IF	245	85	2.4 4.4 6.0
6K7 1st IF	245	85	4.4 4.4 6.0
6P5 AVC Rect	0	0	6.0
6H6 2nd DET	0	0	6.0
6P5 Drivers	150	245	9.2 6.0
6P5 Inverter	150	245	1.0 6.0
6AC5 Drivers	335	0	6.0
80 Rectifiers	340 (AC)	350	4.8

In long wave sets,
the coverage of B
Band is from 125 to
350 KC.

Model 14-Z-9
Midwest Radio Corp.
909 Broadway
Cincinnati, Ohio



View of Speaker Plug (Pin End)

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

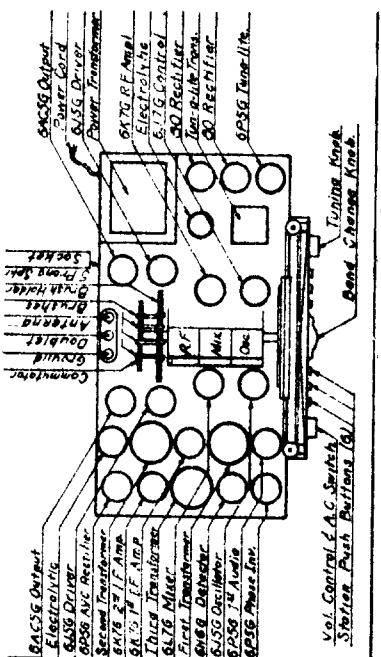
The Midwest Radio Corp.

Model 17-139

OPERATING VOLTAGES

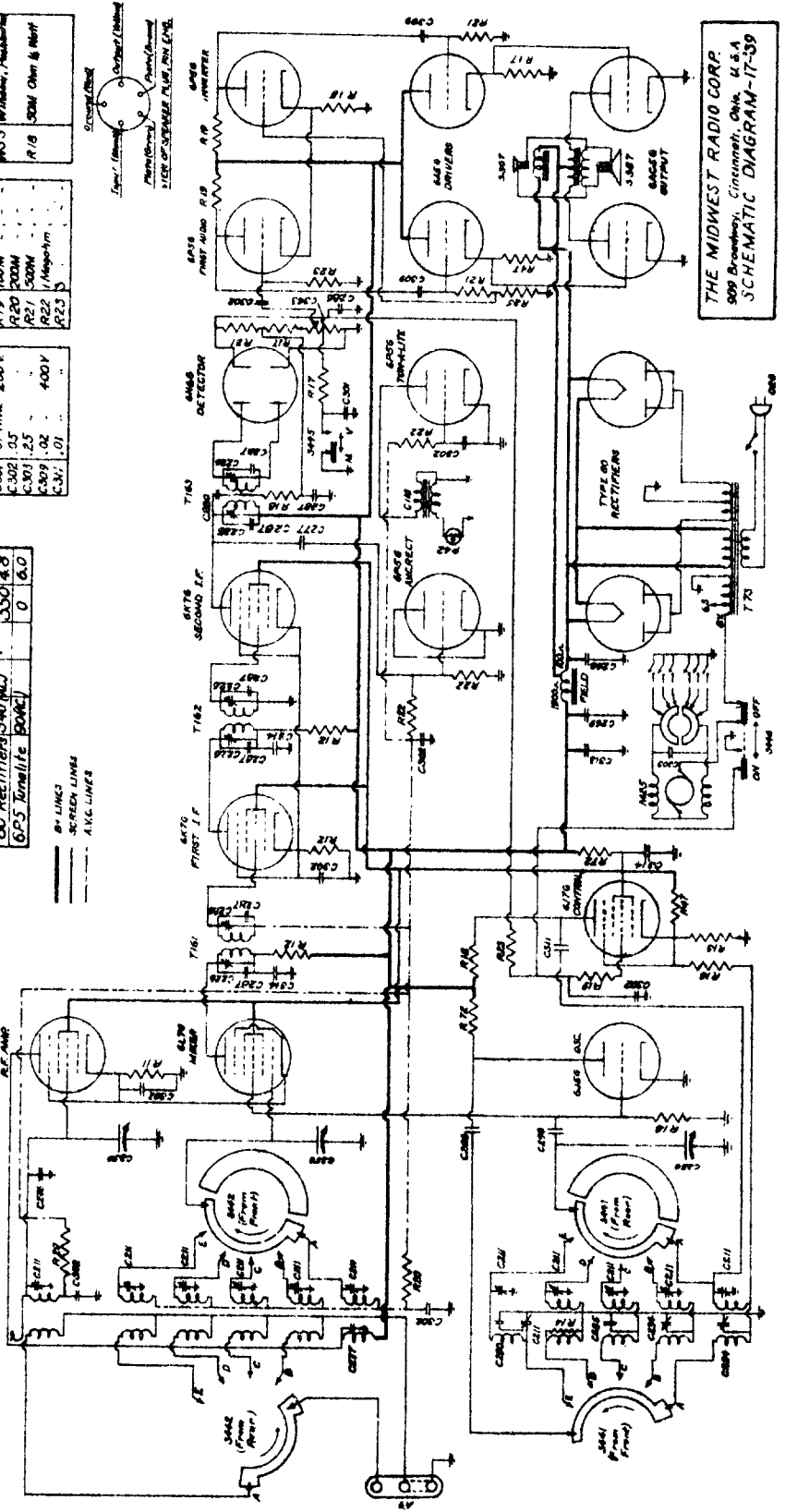
No Signal, Volume Control Turned Off, Meter Switch In Off Position.
Line Voltage 117volts, 60 Cycles.
Meter Used - 20000 Ohms per Volt.

Tubes	Plate	Screen	Sup.	50v	60v
6A7 R.F.	245	65	2.4	2.4	6.0
6L7 Mixer	245	65	2.4	6.0	6.0
6L7 Control	200	65	4.4	4.4	6.0
6K7 1 st I.F.	245	65	4.4	4.4	6.0
6K7 2 nd I.F.	245	65	4.4	4.4	6.0
6A3 AVC Rect.	0				6.0
6V6 3 rd Det.	0				6.0
6PS 1 st A.F.	150		9.2	6.0	6.0
6J5 Drivers	245		10	6.0	6.0
6A5 Outputs	335		3.50	4.8	6.0
6D Rectifiers	340 (AC)				6.0
6PS Tunable					6.0



Vol. Control E.C. Switch
 Wireless Push Buttons (8)
 Tuning Knob
 Band Change Knob

70

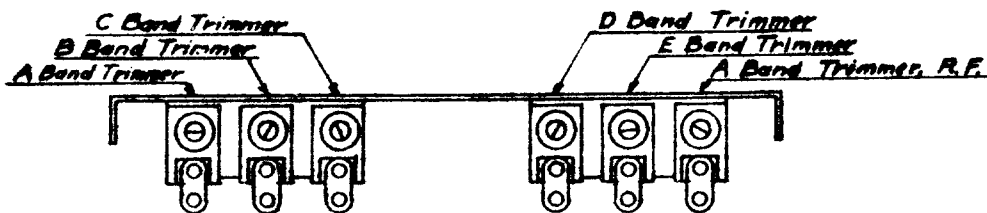


THE MIDWEST RADIO CORP.
 909 Broadway, Cincinnati, Ohio, U.S.A.
 SCHEMATIC DIAGRAM-17-139

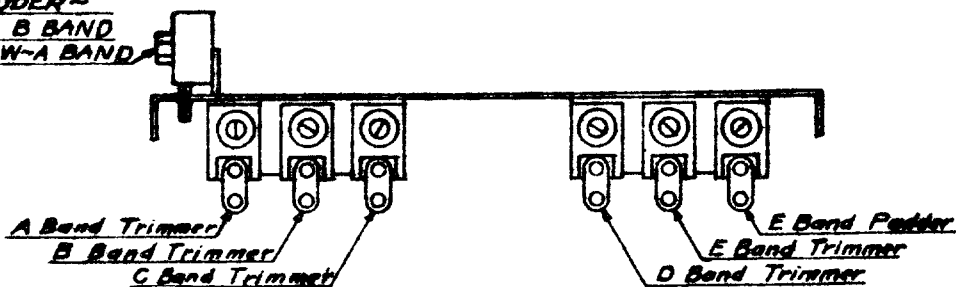
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

The Midwest Radio Corp. Models 12 & 17 1939 Trimmers and Padders

MIXER PLATE



C234 DUAL PADDER~
TOP SCREW ~ B BAND
BOTTOM SCREW ~ A BAND



	PAD	TRIM
	at	at
A-Band	550	1500 KC.
B-Band	1.5	4.2 MC.
C-Band	4.2	12 MC.
D-Band	12	30 MC.
E-Band	125	350 KC.

OSCILLATOR PLATE

Instructions for Aligning
5 Band 1939 Midwest Sets.

FRONT of
SET

Remove the oscillator tube. Peak I.F.'s at 456 KC. for maximum gain, while AFC is off. Receive a signal from generator, turn on AFC. If tuning is disturbed, realign secondary side of AFC transformer. Re-adjust trimmer across the primary of the AFC transformer until maximum AFC voltage is developed. May be measured with voltmeter from cathode of 6J7 AFC control tube to ground.

Band "A" 550 to 1500 KC. Padded at 550 KC. and trimmed at 1400 KC. R.F. and mixer trimmers should be adjusted at 1400 KC.

Band "B" 1.5 to 4.2 MC. This band should be padded at 1.7 MC., and trimmed at 4.0 MC.

Band "C" 4.2 to 12.0 MC. This band has a fixed padder and should be trimmed 11.0 MC.

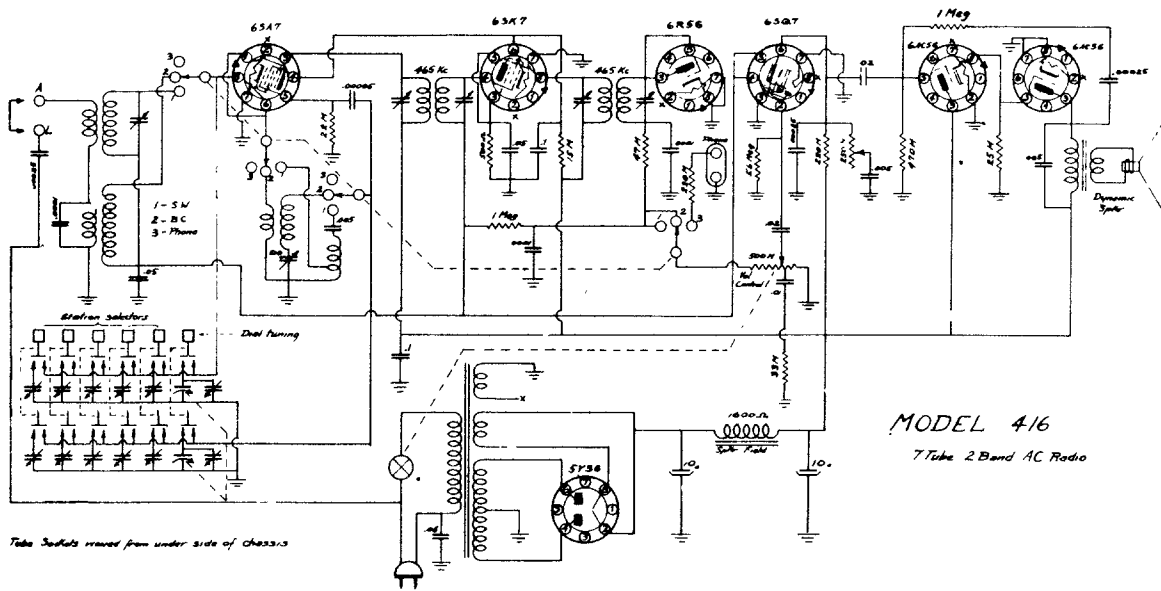
Band "D" covers from 12 MC to 30 MC. This band has a fixed padder and should be trimmed at 29 MC. Adjust R.F. and mixer trimmers for maximum gain at 29 MC.

Band "E" covers from 125 to 350 KC. (long wave). This band should be padded at 135 KC. and trimmed at 340 KC.

A dummy antenna, consisting of a 200 ohm resistor and 10 mmfd. condenser in parallel, should be connected in series with output of signal generator.

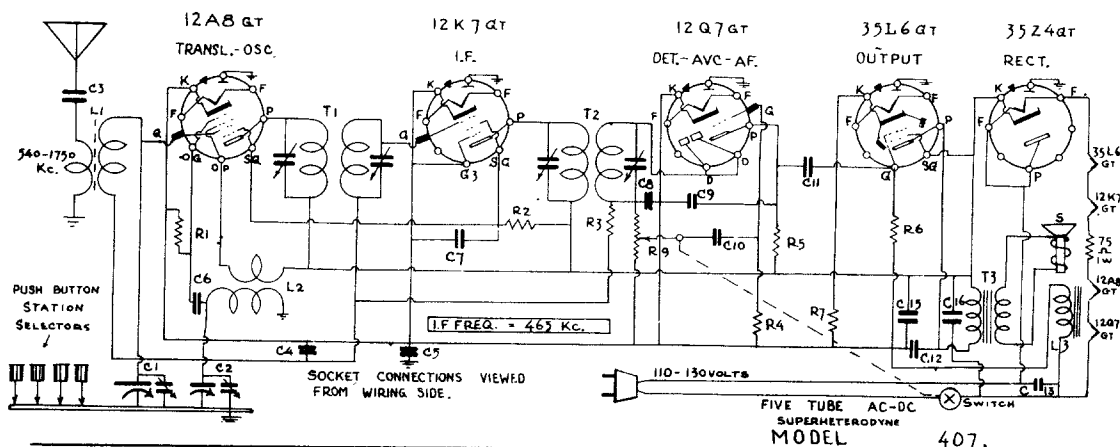
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Mission Bell Radio Mfg Co., 831 Venice Blvd., Los Angeles, Calif.



Tube Sockets wired from under side of chassis

MODEL 416
7 Tube 2 Band AC Radio



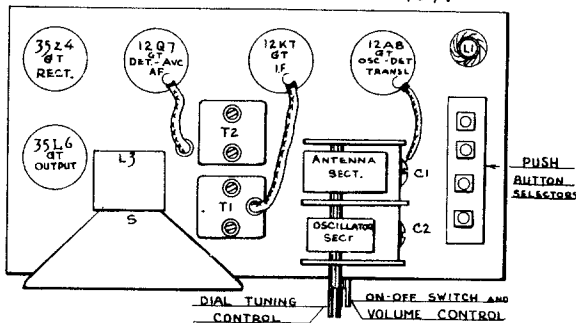
SOCKET CONNECTIONS VIEWED FROM WIRING SIDE.

FIVE TUBE AC-DC SUPERHETERODYNE
MODEL 407.

IDENTIFICATION NO. 133.407

PARTS LIST

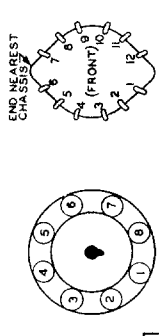
SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION	QUANTITY	PRICE EACH	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION	QUANTITY	PRICE EACH
T2	113394071	Coil-Input I.F.	1.00	C3	Cond.-205 MFD 500V			.15	
T2	113394072	Coil-Output I.F.	1.00	C5	" 25 200V			.20	
L1	113284073	Coil-Antenna	.75	C6	" .0001 " Misc			.15	
L2	113284074	Coil-Drive Oscillator	.60	CR.C9	" .0001 "			.25	
R9	113284079	Control-Volume	.85	R1	Resistor 47K Ohms 1/2W			.10	
T3	1135840724	50M Ohm with Switch		R2	" 2.2 Meg 1/2W			.10	
	1135840724	Speaker 5" Dynamic	3.50	R3	" 2.2 Meg 1/2W			.10	
L3	11331407521	50M Ohm with Switch		R4	" 2.2 Meg 1/2W			.10	
	11315407542	Field Coil	1.50	R5	" 220K Ohms 1/2W			.10	
	11335407543	Cane & Valve Coil	2.50	R7	" 250 "			.10	
	11354407523	Grid-Dep	.25	1131840785	Socket-4 Prong			.10	
	11354407523	Grid-Dep	.25	1137840726	Push Button Selector Assembly			1.85	
C1,C2	1131840752	Cond-Variable	2.00	1134540773	Dial Drive Assembly			.65	
C15	1132040755	Cond- Electrolytic 20 MFD. 150 Volt	1.50	1135940715	Dial-Indicator Knob			.30	
C16	1132040756	Cond- Electrolytic 40 MFD. 150 Volt	.45	1134440774	Eucucobion (Push Button)			.25	
C17		Cond- .05 MFD 500V	.15	1137940713	Indicator Tabs for Push			.15	
C18		" .02 " 200V	.15	1133940717	Knob-Volume Control			.10	
C19		" .01 " 500V	.15						



DIAL TUNING CONTROL ON-OFF SWITCH AND VOLUME CONTROL

ARROWS INDICATE CONNECTIONS PRESENT IN BAND SWITCH WHEN IN POSITION SHOWN.

POSITION	2	3
STANDARD WAVE	B	C
SHORT WAVE	D	
FRONT 1	11	11
FRONT 2	11	11
FRONT 3	11	11
FRONT 4	11	11
FRONT 5	11	11
FRONT 6	11	11
FRONT 7	11	11
FRONT 8	11	11
FRONT 9	11	11
FRONT 10	11	11
FRONT 11	11	11
FRONT 12	11	11
FRONT 13	11	11
FRONT 14	11	11
FRONT 15	11	11
FRONT 16	11	11
FRONT 17	11	11
FRONT 18	11	11
FRONT 19	11	11
FRONT 20	11	11
FRONT 21	11	11
FRONT 22	11	11
FRONT 23	11	11
FRONT 24	11	11
FRONT 25	11	11
FRONT 26	11	11
FRONT 27	11	11
FRONT 28	11	11
FRONT 29	11	11
FRONT 30	11	11
FRONT 31	11	11
FRONT 32	11	11
FRONT 33	11	11
FRONT 34	11	11
FRONT 35	11	11
FRONT 36	11	11
FRONT 37	11	11
FRONT 38	11	11
FRONT 39	11	11
FRONT 40	11	11
FRONT 41	11	11
FRONT 42	11	11
FRONT 43	11	11
FRONT 44	11	11
FRONT 45	11	11
FRONT 46	11	11
FRONT 47	11	11
FRONT 48	11	11
FRONT 49	11	11
FRONT 50	11	11
FRONT 51	11	11
FRONT 52	11	11
FRONT 53	11	11
FRONT 54	11	11
FRONT 55	11	11
FRONT 56	11	11
FRONT 57	11	11
FRONT 58	11	11
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FRONT 69	11	11
FRONT 70	11	11
FRONT 71	11	11
FRONT 72	11	11
FRONT 73	11	11
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FRONT 75	11	11
FRONT 76	11	11
FRONT 77	11	11
FRONT 78	11	11
FRONT 79	11	11
FRONT 80	11	11
FRONT 81	11	11
FRONT 82	11	11
FRONT 83	11	11
FRONT 84	11	11
FRONT 85	11	11
FRONT 86	11	11
FRONT 87	11	11
FRONT 88	11	11
FRONT 89	11	11
FRONT 90	11	11
FRONT 91	11	11
FRONT 92	11	11
FRONT 93	11	11
FRONT 94	11	11
FRONT 95	11	11
FRONT 96	11	11
FRONT 97	11	11
FRONT 98	11	11
FRONT 99	11	11
FRONT 100	11	11

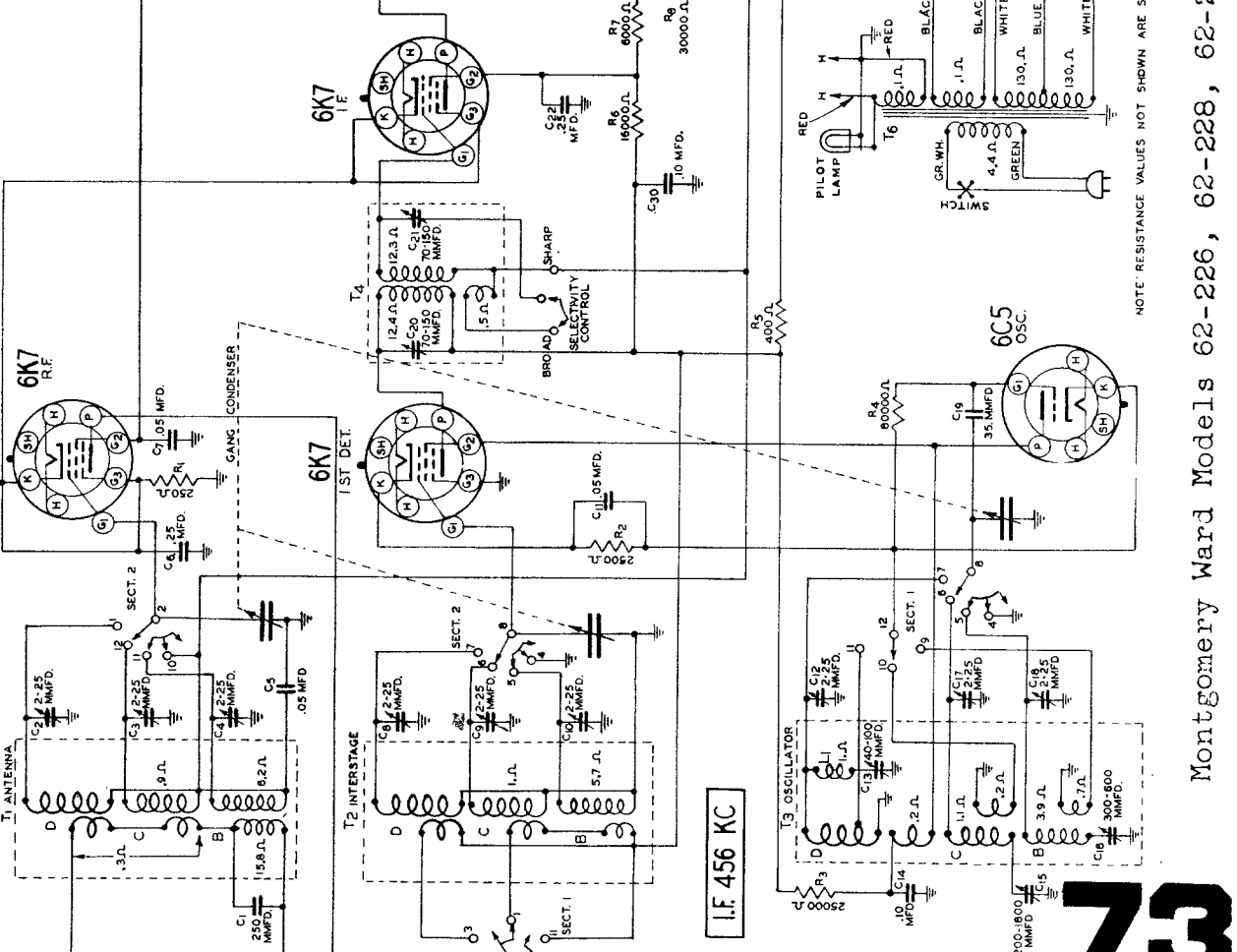


METAL TUBE TERMINAL NUMBERING BOTTOM OF SOCKET

SWITCH CONTACT LOCATION NUMBERING

TUBE ELEMENT LEGEND

SH - SHELL
H - HEATER
K - CATHODE
P - PLATE
G1 - CONTROL GRID
G2 - SCREEN GRID
G3 - SUPPRESSOR GRID
DP - DIODE PLATE
T - TARGET
HK - HEATER AND CATHODE

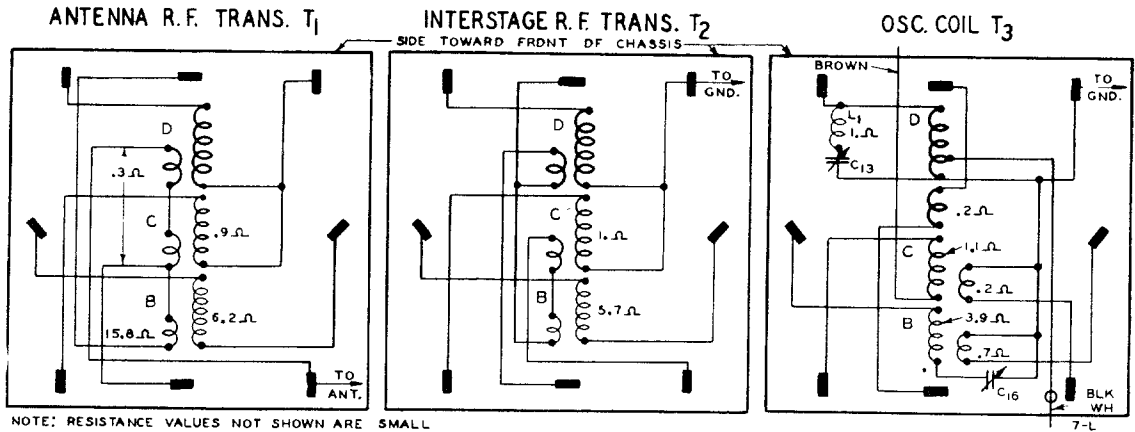


NOTE: RESISTANCE VALUES NOT SHOWN ARE SMALL.

Montgomery Ward Models 62-226, 62-228, 62-259, 62-308, 62-318, 62-408, 62-418

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



R. F. and Oscillator Coil Base Terminal Arrangement and D. C. Resistance of Windings

Line Voltage: 115
Volume Control: Maximum

Antenna Shorted to Ground
Position of Band Switch: Standard Wave

TUBE	FUNCTION	VOLTAGE BETWEEN SOCKET PRONGS AND GROUND (Unless otherwise indicated)							
		Prong No. 1	Prong No. 2	Prong No. 3	Prong No. 4	Prong No. 5	Prong No. 6	Prong No. 7	Prong No. 8
6K7	RF	0	6.1 ⁽¹⁾	260	100	4.0	....	6.1 ⁽¹⁾	4.0
6K7	1st Det.	0	6.1 ⁽¹⁾	260	118	0	....	6.1 ⁽¹⁾	9.0
6C5	Osc.	0	6.1 ⁽¹⁾	120	...	0	....	6.1 ⁽¹⁾	0
6K7	I F.	0	6.1 ⁽¹⁾	260	138	4.0	....	6.1 ⁽¹⁾	4.0
6Q7	1st A.F.—2nd Det.	0	6.1 ⁽¹⁾	105	0	0	....	6.1 ⁽¹⁾	1.4
6F6	Power Amp.	0	6.1 ⁽¹⁾	238	260	18	....	6.1 ⁽¹⁾	0
5Z4MG	Rect.	0	4.9 ⁽²⁾	...	680 ⁽³⁾	...	680 ⁽³⁾	...	4.9 ⁽²⁾
6E5	Tuning Indicator	Plate to Ground 30 ⁽⁴⁾		Target to Ground 270		Cathode to Ground 0		Across Heater 6.1 A.C.	

(1) A.C. voltage as read across heater terminals 2 and 7.
(2) A.C. voltage as read across heater terminals 2 and 8.

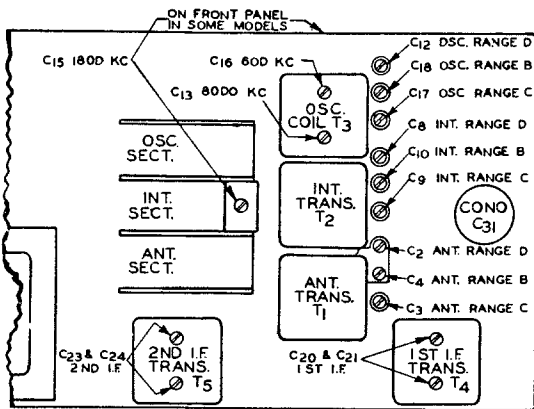
(3) A.C. voltage as read across terminals 4 and 6.
(4) As read with 500,000 ohm meter.

The voltage readings are taken with a voltmeter having a resistance of 1000 ohms per volt.

The standard metal tube socket terminal numbering system (bottom of socket) is shown in Fig. 5

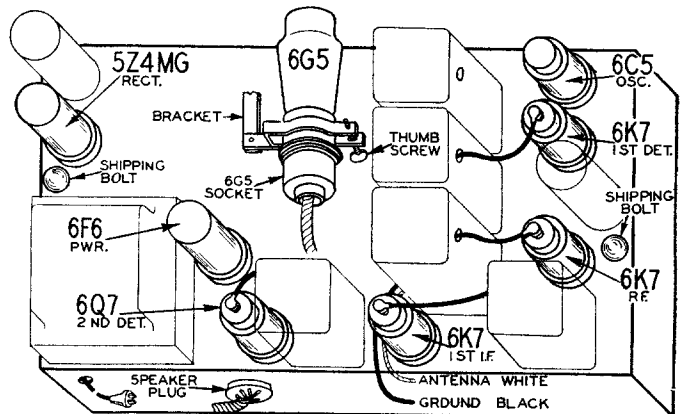
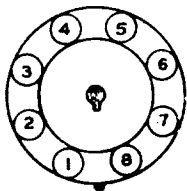
MONTGOMERY WARD

62-226, 62-228, 62-259, 62-308,
62-318, 62-408, 62-418



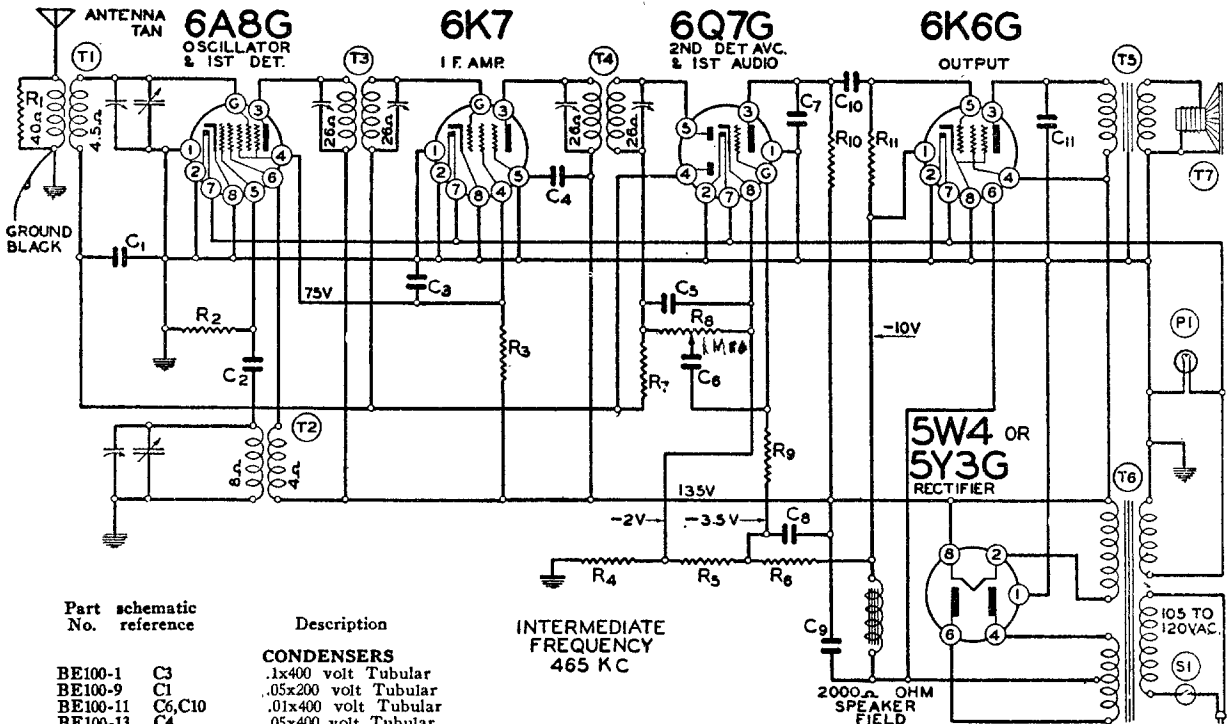
Location of Trimmers

Fig. 5—Metal tube terminal numbering (bottom of socket)



WARDS AIRLINE RADIO

MODELS 62-350, 62-351 and 62-352



Part schematic No. reference

Description

INTERMEDIATE FREQUENCY 465 KC

CONDENSERS

- BE100-1 C3 .1x400 volt Tubular
- BE100-9 C1 .05x200 volt Tubular
- BE100-11 C6,C10 .01x400 volt Tubular
- BE100-13 C4 .05x400 volt Tubular
- BE100-19 C11 .006x600 volt Tubular
- BE119-47C C8,C9 Dual 5 Mfd x 250 v. Filter Condenser

RESISTORS

- BE106-35 R4,R5,R6 65 Ohm, 45 Ohm, 220 Ohm Metal Clad Strip
- BE130-9 R10 200M Ohm-1/3 watt-20% Carbon
- BE130-12 R2 50M Ohm-1/3 watt-20% Carbon
- BE130-21 R1 20M Ohm-1/3 watt-20% Carbon
- BE130-118 R11 600M Ohm-1/3 watt-20% Carbon
- BE130-149 R3 15M Ohm-1/3 watt-20% Carbon
- BE130-170 R7,R9 3 Megohm-1/3 watt-20% Carbon

COILS

- BE108-82E T3 Input I.F. Coil Assembly Complete with can
- BE108-83E T4 Output I.F. Coil Assembly Complete with can
- BE110-73 T2 Oscillator Coil Assembly Complete
- BE111-92 T1 Antenna Coil Assembly Complete

TRANSFORMERS

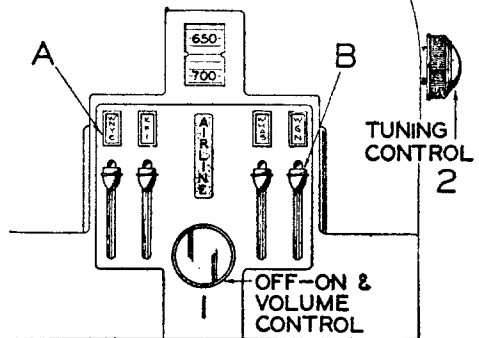
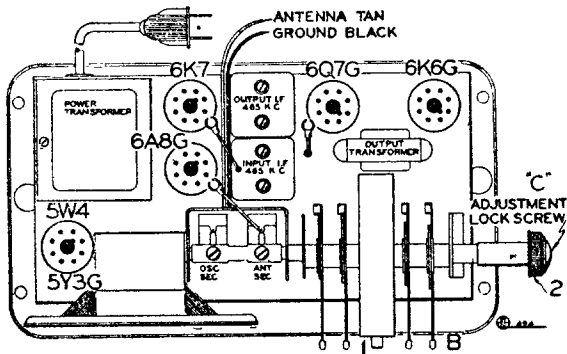
- BE104-100E T6 Power Transformer 50/60 Cycle 105-120 volt
- BE104-108E Power Transformer 25 cycle 105-120 volt
- BE104-104E Universal Transformer 25 cycle primary
- BE104-99E Universal Transformer 40 cycle primary

SPEAKER

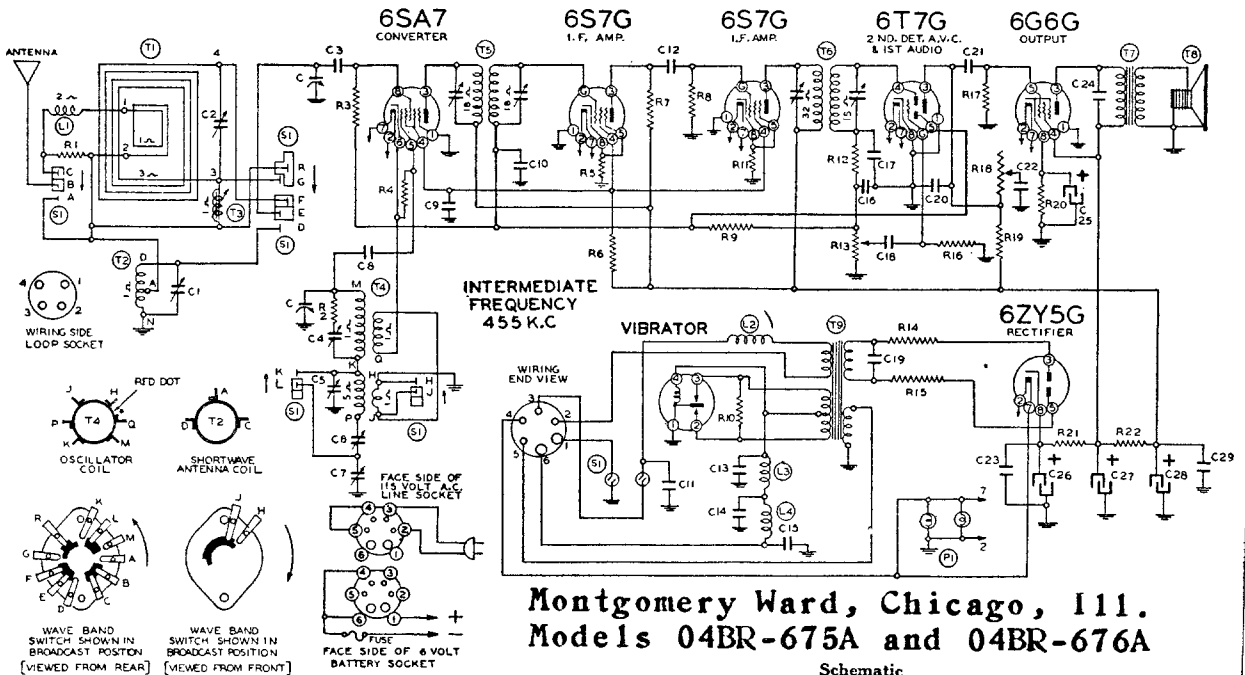
- BE114-108A & B T7 Five inch Dynamic (2000 ohm field)
- BE105-55B T5 Output Transformer for Speaker

MISCELLANEOUS

- BE101-106 R8,S1 Volume Control and Switch (1 megohm)
- BE102-67 C Two Gang Variable Condenser



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Montgomery Ward, Chicago, Ill.
Models 04BR-675A and 04BR-676A

Schematic
Diagram Part
Ref. No. No.

Description

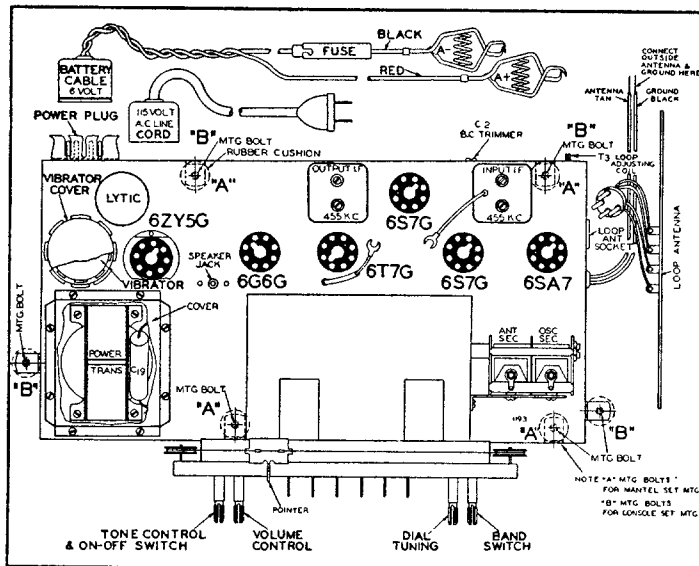
RESISTORS

R1	BE130193	3M ohm- $\frac{1}{2}$ w.
R2	BE130276	10 ohm- $\frac{1}{2}$ w.
R3	BE13019	1 megohm- $\frac{1}{2}$ w.
R4	BE130236	30M ohm- $\frac{1}{2}$ w.
R5	BE13070	500 ohm- $\frac{1}{2}$ w.
R6	BE13067	9M ohm- $\frac{1}{2}$ w.
R7	BE130157	12M ohm- $\frac{1}{2}$ w.
R8	BE13019	1 megohm- $\frac{1}{2}$ w.
R9	BE130170	3 megohm- $\frac{1}{2}$ w.
R10	BE13084	200 ohm- $\frac{1}{2}$ w.
R11	BE130192	2M ohm- $\frac{1}{2}$ w.
R12	BE13020	100M ohm- $\frac{1}{2}$ w.
R13	BE101227	Volume Control
R14	BE130233	60 ohm- $\frac{1}{2}$ w.
R15	BE130233	60 ohm- $\frac{1}{2}$ w.
R16	BE130223	10 megohm- $\frac{1}{2}$ w.
R17	BE1303	500M ohm- $\frac{1}{2}$ w.
R18	BE101228	2 megohm Tone Control
R19	BE130266	200M ohm- $\frac{1}{2}$ w.
R20	BE13079	400 ohm- $\frac{1}{2}$ w.
R21	BE130222	350 ohm- $\frac{1}{2}$ w.
R22	BE130235	1500 ohm- $\frac{1}{2}$ w.

CONDENSERS

C	BE102133	2 Gang Variable Condenser
C1	BE124116	S.W. Antenna Trimmer
C2	BE124141	B.C. Antenna Trimmer
C3	BE12921	.0002 mica
C4	BE124142	S.W. Oscillator Trimmer
C5	BE124142	B.C. Oscillator Trimmer
C6	BE124140	B.C. Pad Trimmer
C7	BE124140	S.W. Pad Trimmer
C8	BE12938	.00005 mica
C9	BE10048	.25 x 200 v.
C10	BE1009	.05 x 200 v.
C11	BE10013	.05 x 400 v.
C12	BE1292	.0005 mica
C13	BE10031	.5 x 120 v.
C14	BE10031	.5 x 120 v.
C15	BE10031	.5 x 120 v.
C16	BE129161	.0001 mica
C17	BE129161	.0001 mica
C18	BE10025	.002 x 600 v.
C19	BE10073	.008 x 1200 v.
C20	BE1292	.0005 mica
C21	BE10026	.02 x 400 v.
C22	BE100106	.004 x 600 v.
C23	BE10020	.1 x 200 v.
C24	BE100106	.004 x 600 v.
C25	BE119111	20 Mid. Lytic x 20 w.v.
C26	BE119111	40 Mid. Lytic x 200 w.v.
C27	BE119111	20 Mid. Lytic x 200 w.v.
C28	BE119111	20 Mid. Lytic x 200 w.v.
C29	BE10020	.1 x 200 v.

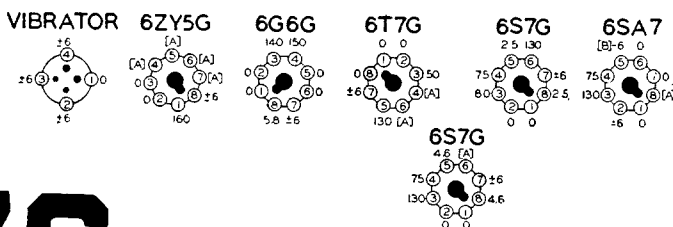
C4 and C5 in one unit.
C16 and C17 in one unit.
C6 and C7 in one unit.
C25, C26, C27 and C28 in one unit



BOTTOM VIEW OF CHASSIS

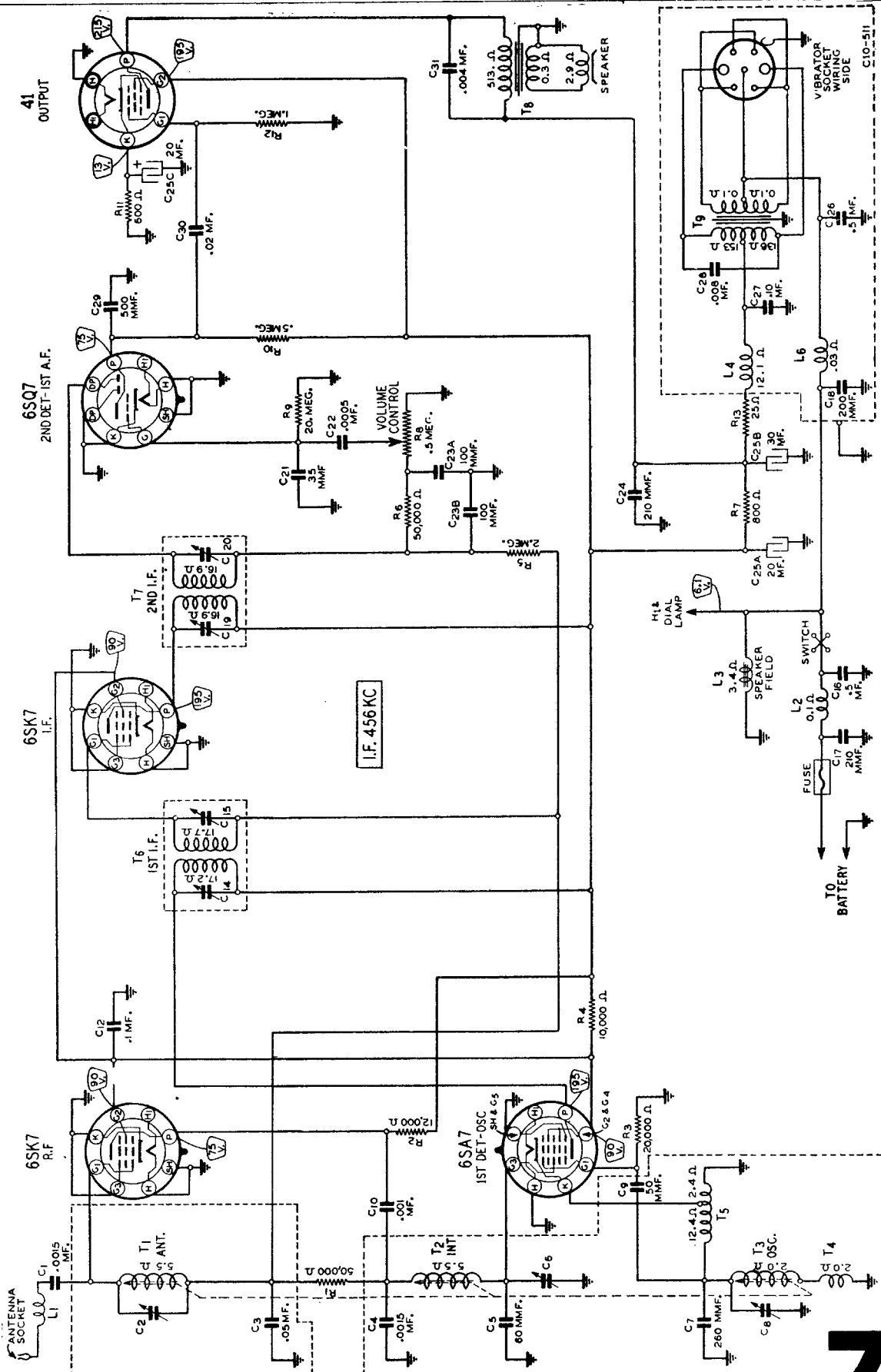
VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND CHASSIS SET TUNED OFF SIGNAL SET OPERATING ON 6.3 VOLT STORAGE BATTERY

[A] CANNOT BE MEASURED WITH VOLTMETER.
[B] OSCILLATOR VOLTAGE MEASURED WITH R.F. CHOKE IN SERIES WITH VOLTMETER LEAD



REAR OF CHASSIS

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



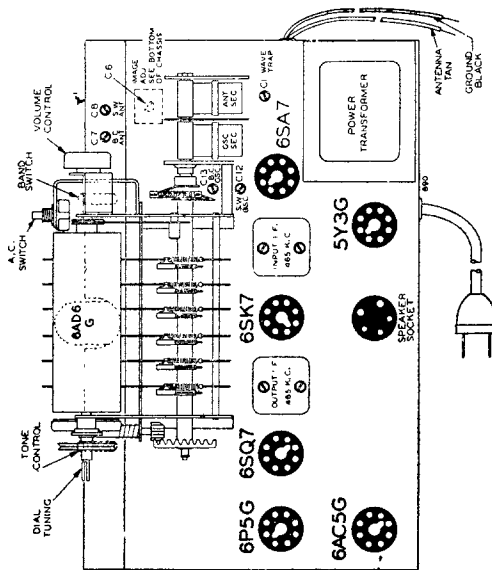
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

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Montgomery Ward Model 62-554

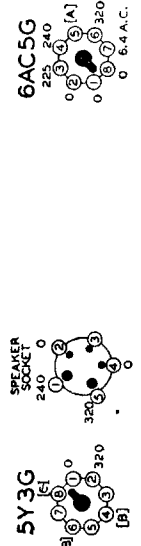
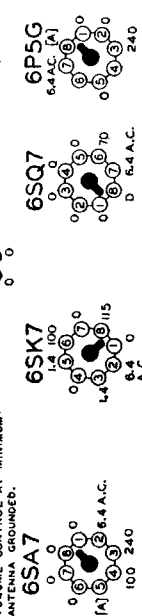
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Montgomery Ward Models
93BR713A and 62-713-A.



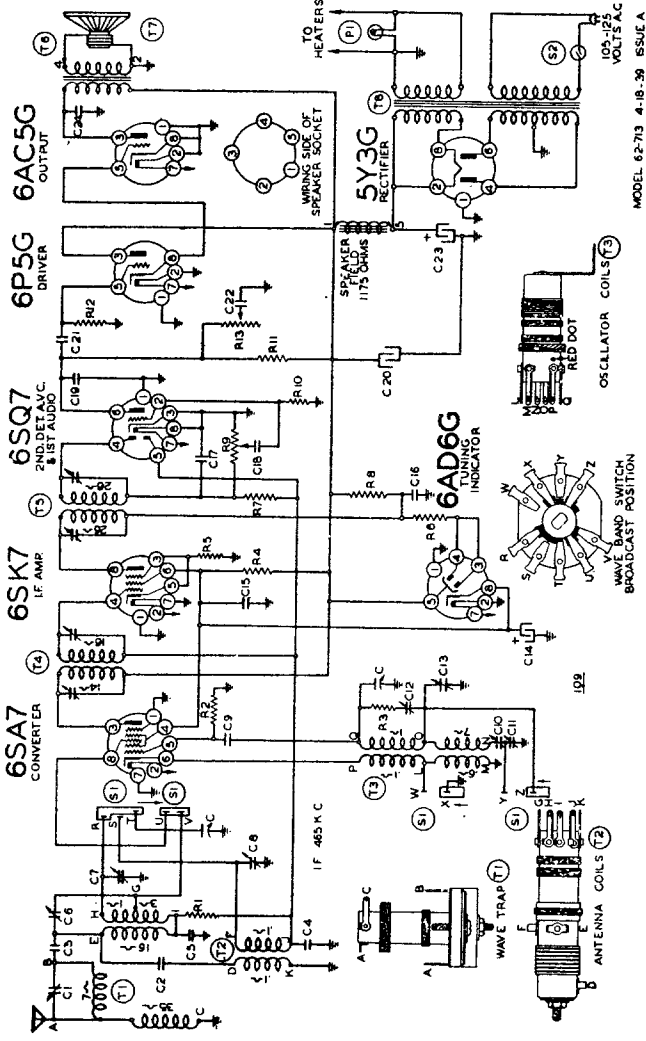
BOTTOM VIEW OF CHASSIS

VOLTAGES MEASURED WITH 1000 OHM PER VOLT METER BETWEEN SOCKET TERMINALS AND CHASSIS. 117 VOLT LINE.
VOLUME CONTROL AT MINIMUM. ANTENNA GROUNDING.



REAR OF CHASSIS

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MODEL 62-713 4-18-39 ISSUE A

Schematic Ref. No. Part No. Description

Schematic Ref. No.	Part No.	Description
R1	BE13011	250M ohm—20%—1/2 w.
R2	BE13021	20 ohm—10%—1/2 w.
R3	BE130197	20 ohm—10%—1/2 w.
R4	BE130144	15M ohm—20%—1 watt
R5	BE130168	100 ohm—10%—1/2 w.
R6	BE130110	1 megohm—10%—1/10 w.
R7	BE1304	3 megohm—20%—1/2 w.
R8	BE13055	12M ohm—20%—2 watt
R9	BE101166	1 megohm—volume control
R10	BE130225	15 megohm—30—30%—1/2 w.
R11	BE1303	500M ohm—20%—1/2 w.
R12	BE13019	1 megohm—20%—1/2 w.
R13	BE101167	1 megohm—tone control

RESISTORS

Schematic Ref. No.	Part No.	Description
C10	BE12487	B. C. Series Pad
C11	BE12487	B. C. Series Pad
C12	BE12476	S. W. Oscillator Trimmer
C13	BE12476	S. W. Oscillator Trimmer
C14	BE11984	1. mid. x 300 v. lytic
C15	BE11001	1. x 400 v. 50—10%
C16	BE11001	1. x 400 v. 50—10%
C17	BE11295	.001 mica—20%
C18	BE10071	.001 x 600 v.—25%
C19	BE11292	1.003 mica—20%
C20	BE11984	1.003 mica—20%
C21	BE11006	.02 x 400 v.—25%
C22	BE10071	1004 x 600 v.—25%
C23	BE11984	1004 x 600 v.—25%
C24	BE10019	.006 x 600 v.—25%
C27	BE10019	.006 x 600 v.—25%
C28	BE10019	.006 x 600 v.—25%
C29	BE10019	.006 x 600 v.—25%
C30	BE10019	.006 x 600 v.—25%
C31	BE10019	.006 x 600 v.—25%
C32	BE10019	.006 x 600 v.—25%
C33	BE10019	.006 x 600 v.—25%
C34	BE10019	.006 x 600 v.—25%
C35	BE10019	.006 x 600 v.—25%
C36	BE10019	.006 x 600 v.—25%
C37	BE10019	.006 x 600 v.—25%
C38	BE10019	.006 x 600 v.—25%
C39	BE10019	.006 x 600 v.—25%

CONDENSERS

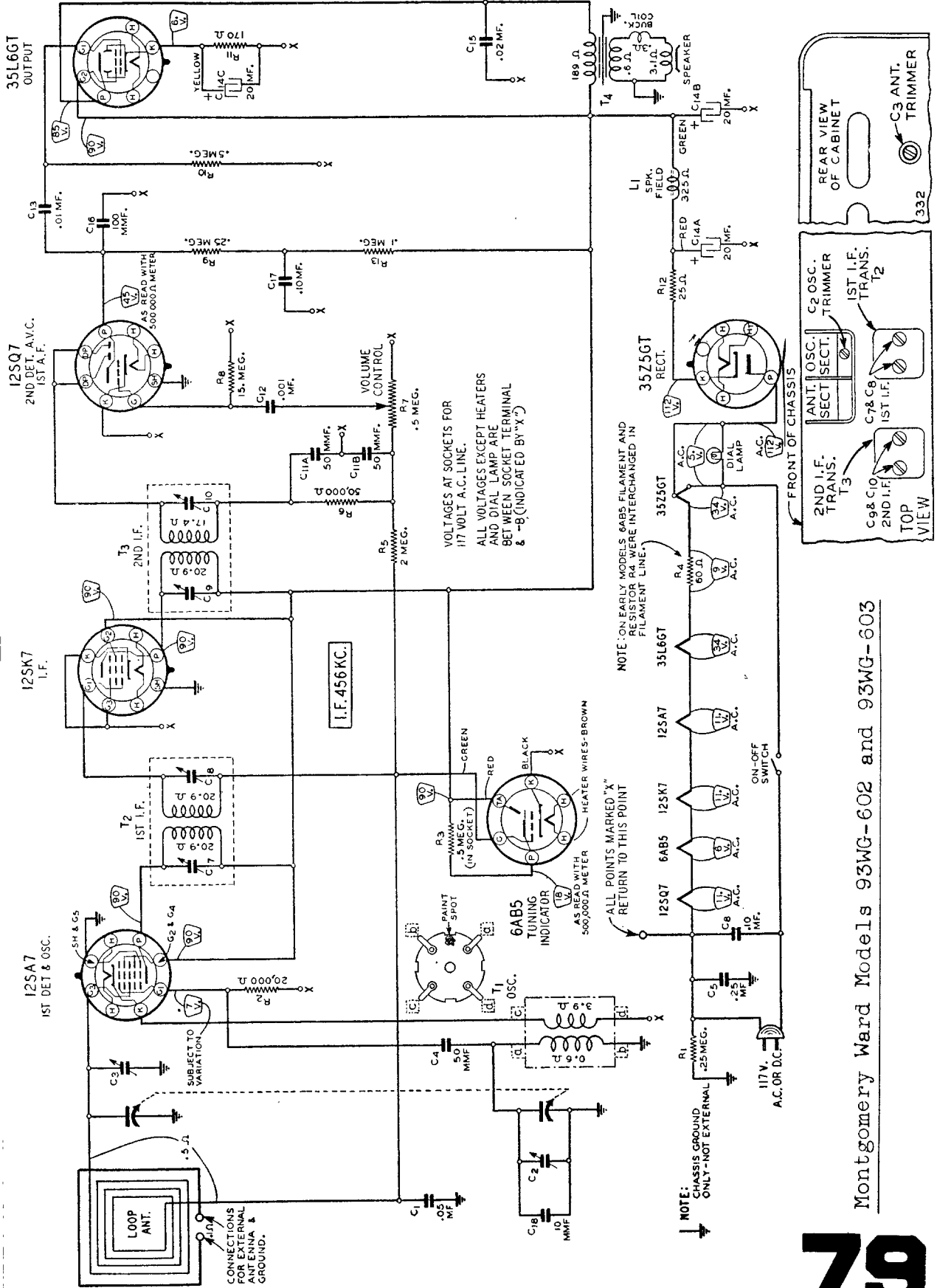
Schematic Ref. No.	Part No.	Description
C	BE102106B	2 gang variable condenser
C1	BE12467	Wave Trap Trimmer
C2	BE129140	.00016 mica—5%
C3	BE10011	.01 x 400 volt—25%
C4	BE10069	.05 x 200 volt—25%
C5	BE129131	.002775 mica—3%
C6	BE12468	Image Trimmer
C7	BE12475	B. C. Antenna Trimmer
C8	BE12475	B. C. Antenna Trimmer
C9	BE12960	.00015 Mica—20%

PARTS

T1	BE108146	Wave Trap
T2	BE11122	Oscillator Coil Complete
T3	BE10115	Oscillator Coil Complete
T4	BE108111H	Input I. F. Coil—465 kc.
T5	BE108132B	Output I. F. Coil—465 kc.
T6	BE10590	6" Dynamic Speaker
T7	BE114161	6" Dynamic Speaker (1175 Ohm Field)
T8	BE104139D	Power Transformer
P1	BE10794	6-8 volt pilot light T44
S1	BE12576	Band Switch
S2	BE12577	AC Switch

C10	BE12487	B. C. Series Pad
C11	BE12487	B. C. Series Pad
C12	BE12476	S. W. Oscillator Trimmer
C13	BE12476	S. W. Oscillator Trimmer
C14	BE11984	1. mid. x 300 v. lytic
C15	BE11001	1. x 400 v. 50—10%
C16	BE11001	1. x 400 v. 50—10%
C17	BE11295	.001 mica—20%
C18	BE10071	.001 x 600 v.—25%
C19	BE11292	1.003 mica—20%
C20	BE11984	1.003 mica—20%
C21	BE11006	.02 x 400 v.—25%
C22	BE10071	1004 x 600 v.—25%
C23	BE11984	1004 x 600 v.—25%
C24	BE10019	.006 x 600 v.—25%
C27	BE10019	.006 x 600 v.—25%
C28	BE10019	.006 x 600 v.—25%
C29	BE10019	.006 x 600 v.—25%
C30	BE10019	.006 x 600 v.—25%
C31	BE10019	.006 x 600 v.—25%
C32	BE10019	.006 x 600 v.—25%
C33	BE10019	.006 x 600 v.—25%
C34	BE10019	.006 x 600 v.—25%
C35	BE10019	.006 x 600 v.—25%
C36	BE10019	.006 x 600 v.—25%
C37	BE10019	.006 x 600 v.—25%
C38	BE10019	.006 x 600 v.—25%
C39	BE10019	.006 x 600 v.—25%

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Montgomery Ward Models 93WG-602 and 93WG-603

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Montgomery Ward Model 93WG-800

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.

Allow Chassis and Signal Generator to "Heat Up" for several minutes.

The following equipment is required for aligning:

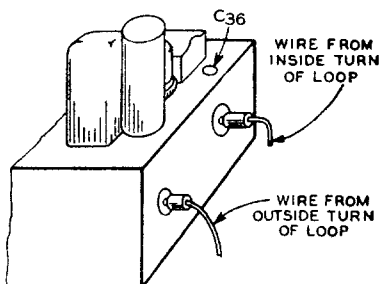
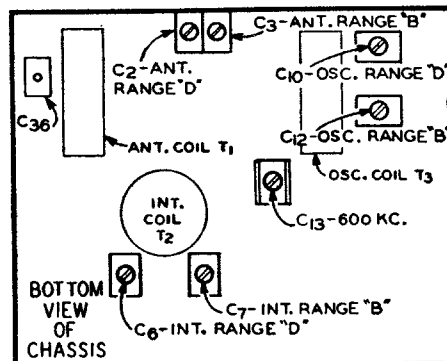
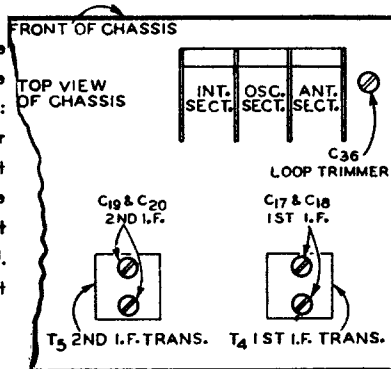
An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.

Output Indicating Meter—Non-Metallic Screwdriver.

Dummy Antennas—.1 mf., 200 mmf., and 400 ohms.

SIGNAL GENERATOR		DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
FREQUENCY SETTING	CONNECTION AT RADIO				
I. F.					
456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C17) & (C18) 2nd I.F. (C19) & (C20)
RANGE B					
1730 KC	Antenna Lead	200 mmf.	B Range Ext. Ant.	Turn Rotor to Full Open	Oscillator Range B (C12)
1500 KC	Antenna Lead	200 mmf.	B Range Ext. Ant.	Turn Rotor to Max. Output	Ant. Range B (C3) Int. Range B (C7)
600 KC	Antenna Lead	200 mmf.	B Range Ext. Ant.	Turn Rotor to Max. Output	600 KC (C13) Rock Rotor—See Note A
RANGE D					
18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C10)
18,300 KC	Antenna Lead	400 Ohm	D Range	Keep Rotor at Full Open Position	Ant. Range D (C2) Int. Range D (C6) Rock Rotor—See Note A
LOOP RANGE B					
1500 KC See Note B	None See Note C		Loop	Turn Rotor to Max. Output	See Note C Loop Trimmer (C36)

CAUTION—When aligning the short wave band, be sure NOT to adjust at the image frequency. This can be checked as follows: Let us say the signal generator is set for 15,000 KC. The signal will then be heard at 15,000 on the dial of the radio. The image signal, which is much weaker, will be heard at 15,000 less 912 KC, or 14,088 KC on the dial. It may be necessary to increase the input signal to hear the image.



LOOP CONNECTIONS

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each range is completed, repeat the procedure as a final check.

NOTE A—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

NOTE B—Reinstall set in cabinet. Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. Place signal generator so that this loop is between 3 and 10 feet from loop in cabinet.

NOTE C (CONSOLE MODELS)—Turn knob of loop until output is maximum.

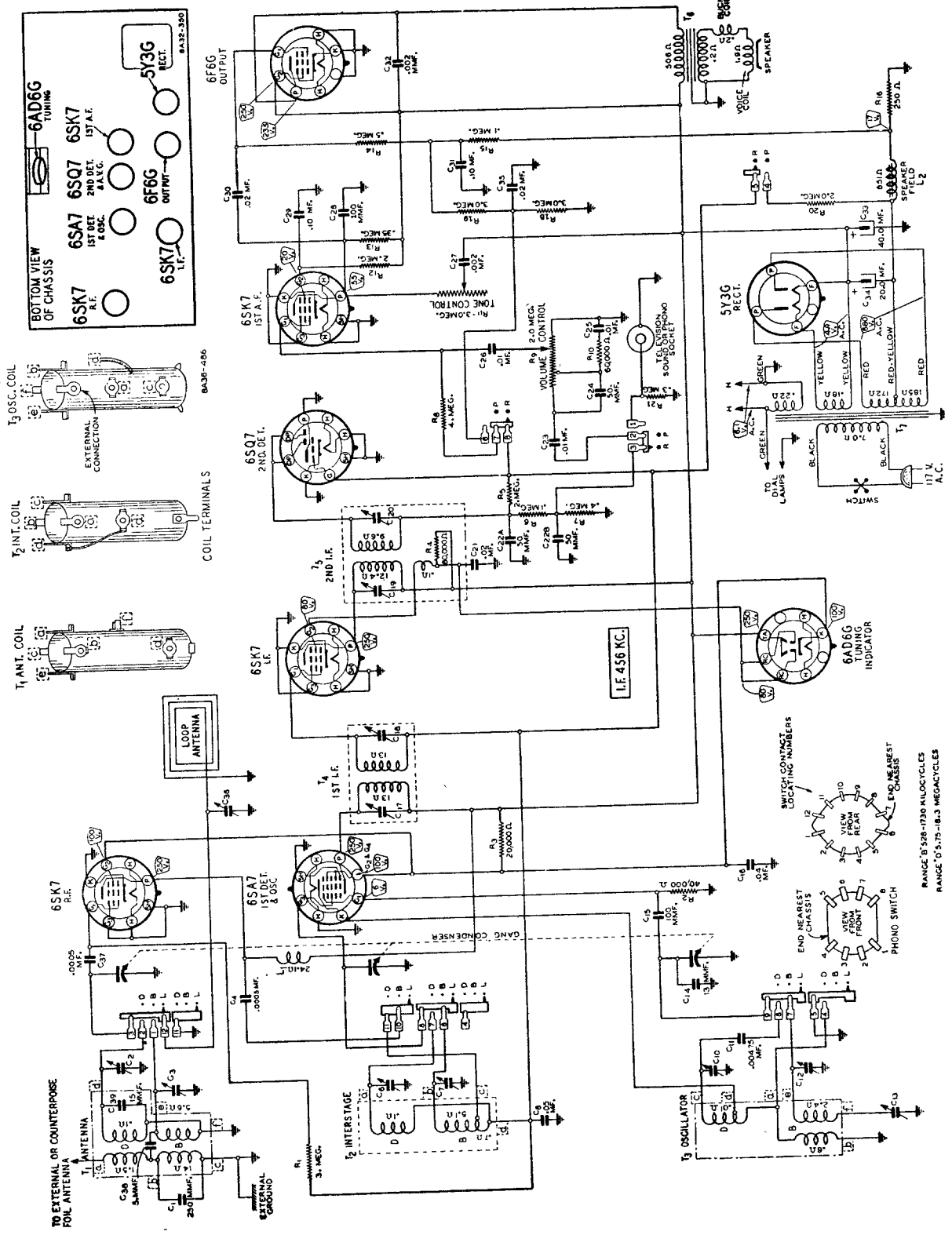
CALIBRATION—Chassis should be in cabinet. If it is necessary to recalibrate the radio, loosen the set screw on the dial hub near the volume control drum. Tune in a signal of known frequency. Hold the tuning control drum stationary and at the same time turn the dial drum the necessary amount in the required direction. If the radio detunes as the dial drum is turned, loosen the set screw a slight additional amount and recalibrate. Retighten the set screw.

80

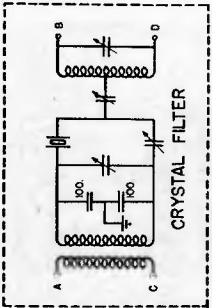
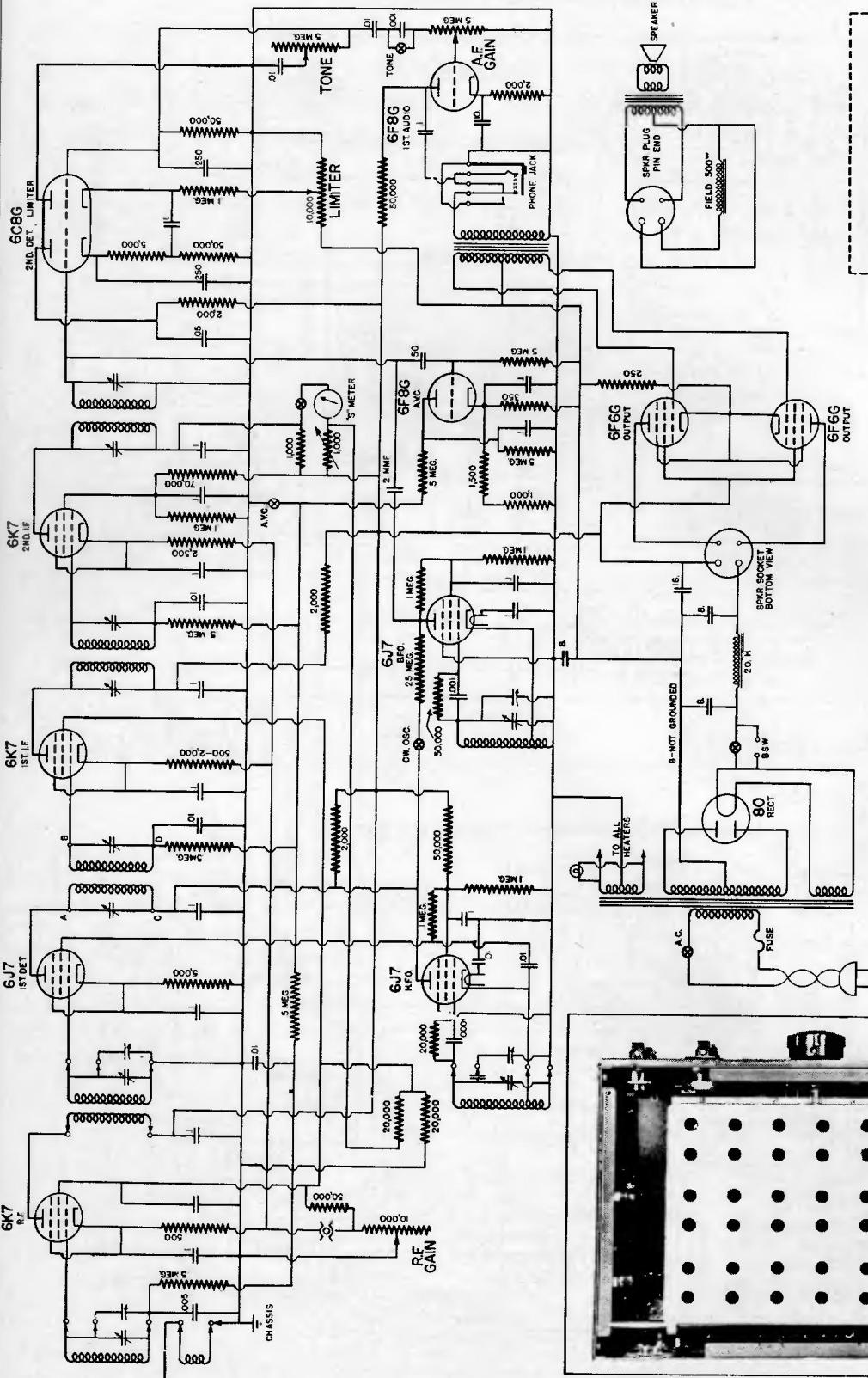
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

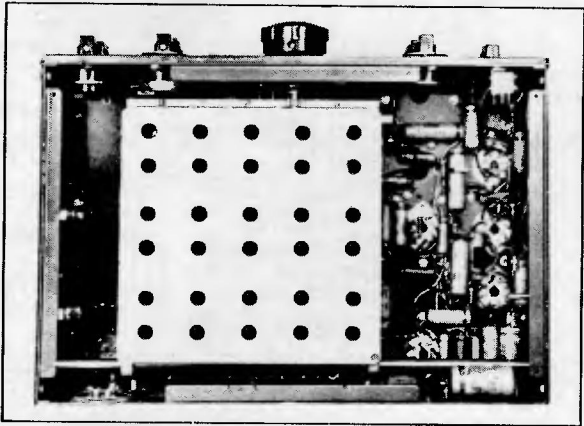
Montgomery Ward Model 93WG-800



COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



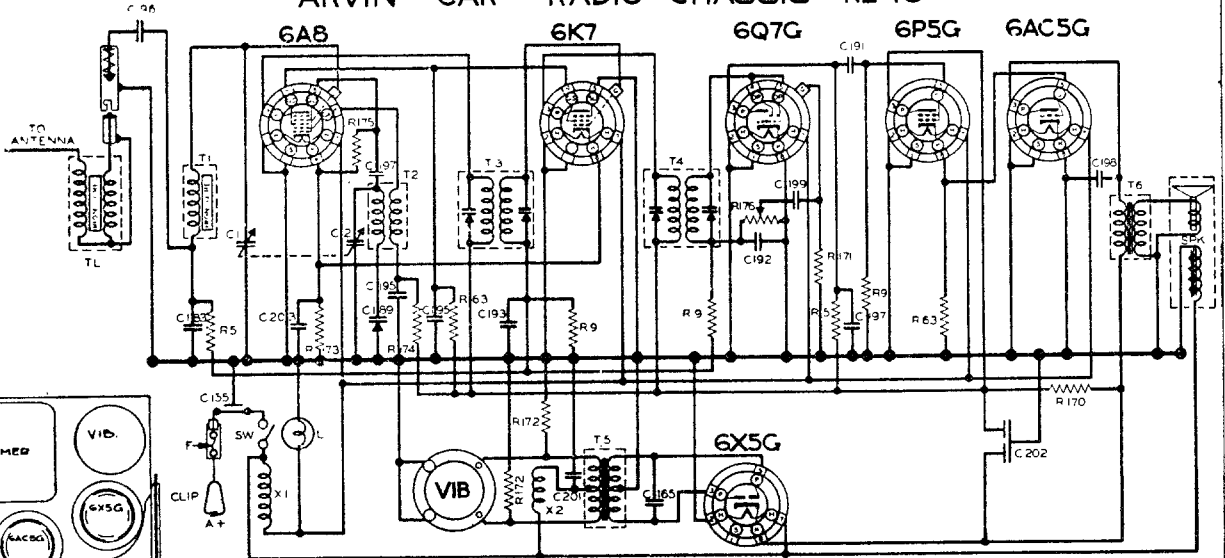
NATIONAL COMPANY, INC.
THE NC-100A RECEIVER



BOTTOM VIEW
The coil assembly is shown midway between the 1.3-2.8 mc. and 2.7-6.4 mc. ranges.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

ARVIN CAR RADIO CHASSIS RE45

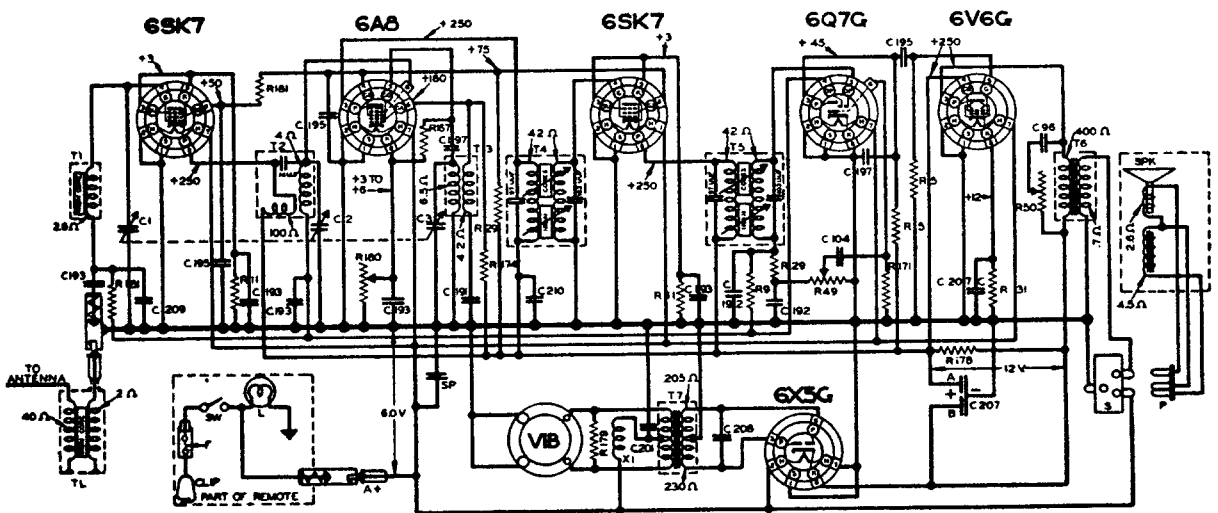


RESISTORS			CONDENSERS			CHOKES & TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHMS	PART NO.	C	CAPACITY	PART NO.	T-X	TYPE	PART NO.	SYMBOL	DESCRIPTION	PART NO.
1	500Ω	17-2070	1	200μF	28-14211	1	ANTENNA COIL	00-14210	F	TUBE - 20 AMP	17-2272
2	100Ω	17-2080	2	VARIABLE	17-14211	2	OSCILLATION COIL	00-14210	L	DIAL LIGHT BULB - M3204 NO. 9	17-13004
3	25K	17-14051	3	500μF	200	3	FIRST I.F. COIL	00-14221	SPR	SPEAKER ASSEMBLY	17-14213
4	80Ω	17-14281	4	100μF	17-14230	4	SECOND I.F. COIL	00-14222	SW	POWER SWITCH	17-14222
5	100Ω	17-14281	5	100μF	17-14230	5	POWER TRANS.	00-14223	TL	TRANSFORMER LINE	00-14223
6	100Ω	17-14281	6	100μF	17-14230	6	OUTPUT TRANS.	00-14224	VIB	VIBRATOR	17-14224
7	100Ω	17-14281	7	100μF	17-14230	7	CHOKES				
8	100Ω	17-14281	8	100μF	17-14230	8	SUPPRESSION CHOKES	28-14228			
9	100Ω	17-14281	9	100μF	17-14230	9	ALTERNATOR CHOKES	28-14229			
10	100Ω	17-14281	10	100μF	17-14230						
11	100Ω	17-14281	11	100μF	17-14230						
12	100Ω	17-14281	12	100μF	17-14230						
13	100Ω	17-14281	13	100μF	17-14230						
14	100Ω	17-14281	14	100μF	17-14230						
15	100Ω	17-14281	15	100μF	17-14230						
16	100Ω	17-14281	16	100μF	17-14230						
17	100Ω	17-14281	17	100μF	17-14230						
18	100Ω	17-14281	18	100μF	17-14230						
19	100Ω	17-14281	19	100μF	17-14230						
20	100Ω	17-14281	20	100μF	17-14230						
21	100Ω	17-14281	21	100μF	17-14230						
22	100Ω	17-14281	22	100μF	17-14230						
23	100Ω	17-14281	23	100μF	17-14230						

IF PEAK 455 K.C.
FREQUENCY RANGE 1575 TO 3400 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA

Arvin Models 8-A and RE-45

Arvin Models 44-C and RE-46 ARVIN CAR RADIO CHASSIS RE46



NOTE - ALL VOLTAGES GIVEN FOR 14" INPUT OF 8 VOLTS. ALLOW 10% ON ALL VOLTAGES & RESISTANCES OF WINDING.

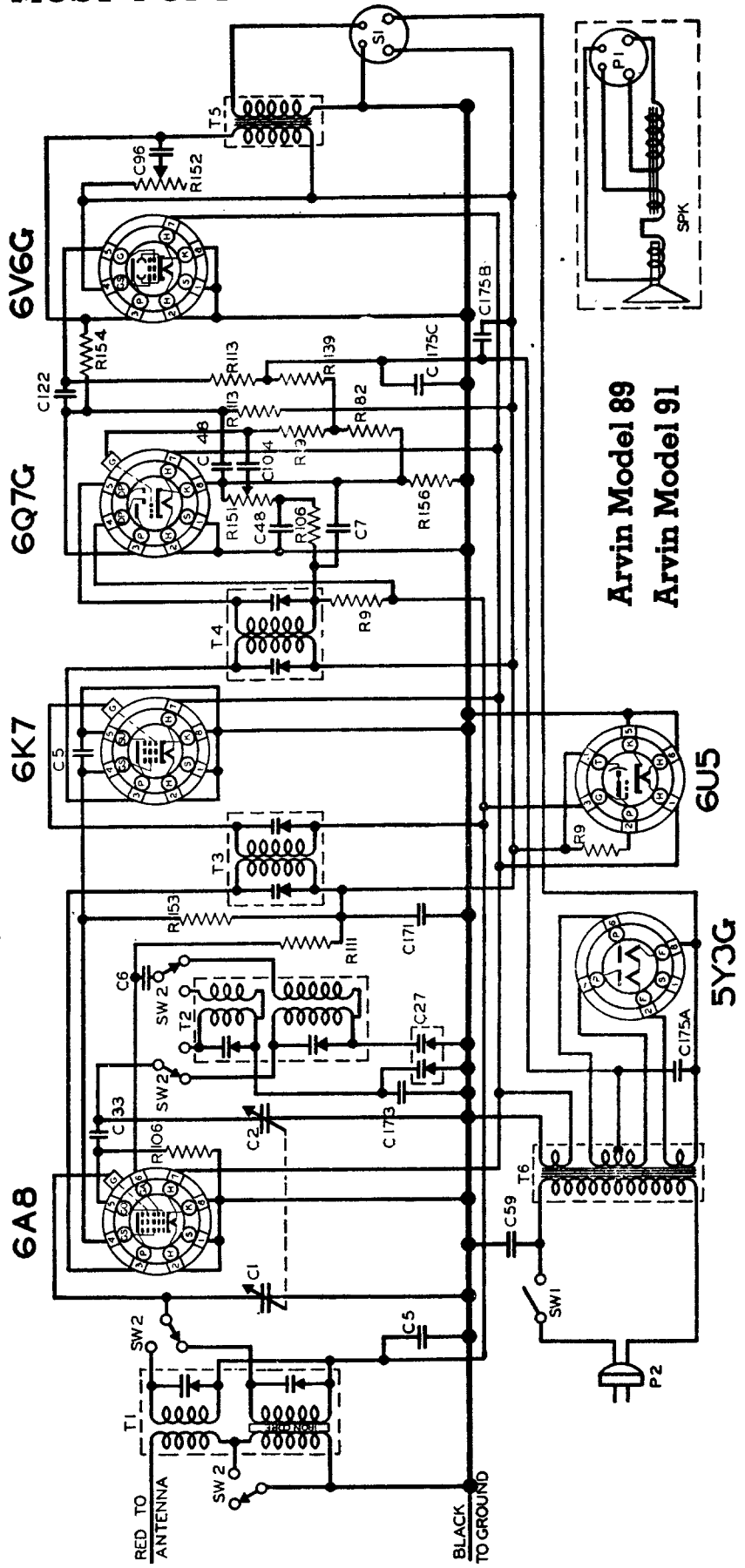
RESISTORS			CONDENSERS			CHOKES & TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHMS	PART NO.	C	CAPACITY	PART NO.	T-X	TYPE	PART NO.	SYMBOL	DESCRIPTION	PART NO.
1	500Ω	17-2070	1	200μF	28-14211	1	ANTENNA COIL	00-14210	F	TUBE - 20 AMP	17-2272
2	100Ω	17-2080	2	VARIABLE	17-14211	2	OSCILLATION COIL	00-14210	L	DIAL LIGHT BULB - M3204 NO. 9	17-13004
3	25K	17-14051	3	500μF	200	3	FIRST I.F. COIL	00-14221	SPR	SPEAKER ASSEMBLY	17-14213
4	80Ω	17-14281	4	100μF	17-14230	4	SECOND I.F. COIL	00-14222	SW	POWER SWITCH	17-14222
5	100Ω	17-14281	5	100μF	17-14230	5	POWER TRANS.	00-14223	TL	TRANSFORMER LINE	00-14223
6	100Ω	17-14281	6	100μF	17-14230	6	OUTPUT TRANS.	00-14224	VIB	VIBRATOR	17-14224
7	100Ω	17-14281	7	100μF	17-14230	7	CHOKES				
8	100Ω	17-14281	8	100μF	17-14230	8	SUPPRESSION CHOKES	28-14228			
9	100Ω	17-14281	9	100μF	17-14230	9	ALTERNATOR CHOKES	28-14229			
10	100Ω	17-14281	10	100μF	17-14230						
11	100Ω	17-14281	11	100μF	17-14230						
12	100Ω	17-14281	12	100μF	17-14230						
13	100Ω	17-14281	13	100μF	17-14230						
14	100Ω	17-14281	14	100μF	17-14230						
15	100Ω	17-14281	15	100μF	17-14230						
16	100Ω	17-14281	16	100μF	17-14230						
17	100Ω	17-14281	17	100μF	17-14230						
18	100Ω	17-14281	18	100μF	17-14230						
19	100Ω	17-14281	19	100μF	17-14230						
20	100Ω	17-14281	20	100μF	17-14230						
21	100Ω	17-14281	21	100μF	17-14230						
22	100Ω	17-14281	22	100μF	17-14230						
23	100Ω	17-14281	23	100μF	17-14230						

INTERMEDIATE FREQUENCY 170 K.C.
FREQUENCY RANGE 1570 TO 3400 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA

RESISTORS			CONDENSERS			TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHMS	PART NO.	C	CAPACITY	VOLT	PART NO.	T	TYPE	SYMBOL	DESCRIPTION	PART NO.
1	100K	17-14117	1	TWO-GANG	450	17-16005	1	ANTENNA COIL	L	DIAL LIGHT BULB	17-13904
2	30K	17-14171	2	VARIABLE	450	17-14249	2	OSCILLATOR COIL	P1	SPEAKER BULB	17-1578E
3	30K	17-14176	3	.05	200	17-14015	3	FIRST I.F. COIL	P2	A.C. LINE CORD & PLUG ASSEMBLY	17-13249
4	20K	17-14178	4	.002	800	17-2083	4	SECOND I.F. COIL	SPK	SPEAKER SOCKET	17-8009
5	20K	17-14178	5	.001	800	17-2084	5	OUTPUT TRANS.	SW1	A.C. LINE SWITCH	17-8007
6	20K	17-14178	6	DOUBLE PND.	800	17-3077	6	POWER TRANS.	SW2	BAND SWITCH	
7	100	17-14219	7	.00025	600	17-4207					
8	100	17-18008	8	.01	400	17-4815					
9	100	17-18009	9	.05	800	17-4821					
10	100	17-14243	10	.01	200	17-4208					
11	100	17-14244	11	.01	400	17-2189					
12	100	17-14246	12	.01	800	17-4047					
13	100	17-14246	13	.00005	800	17-4047					

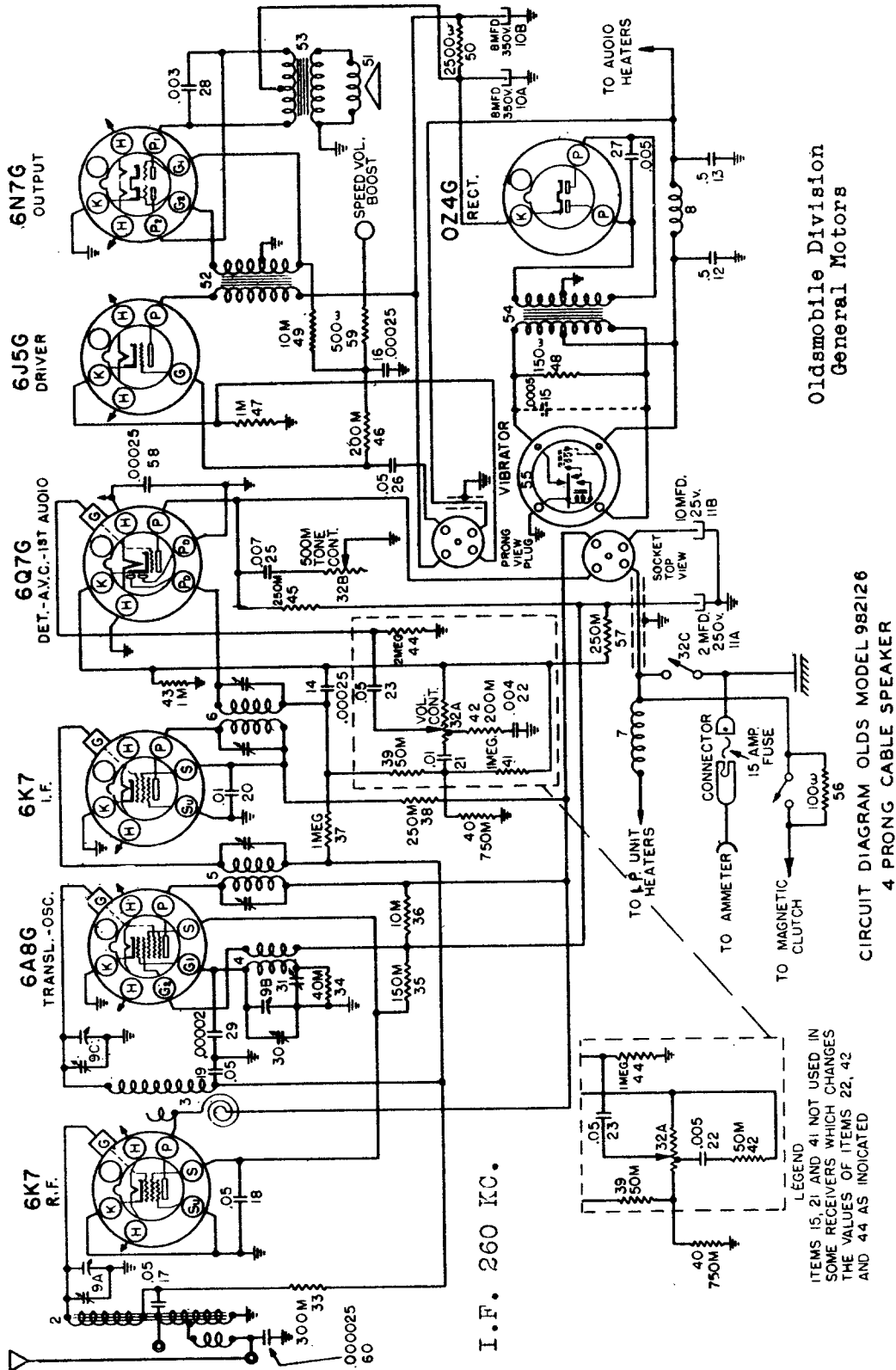
I.F. PEAK 455 K.C.
 BROADCAST BALANCE AT 1500K.C.
 SHORTWAVE BALANCE AT 7M.C.
 NOBLITT-SPARKS INDUSTRIES, INC.
 COLUMBUS, INDIANA

ARVIN RADIO CHASSIS RE 27



Arvin Model 89
 Arvin Model 91

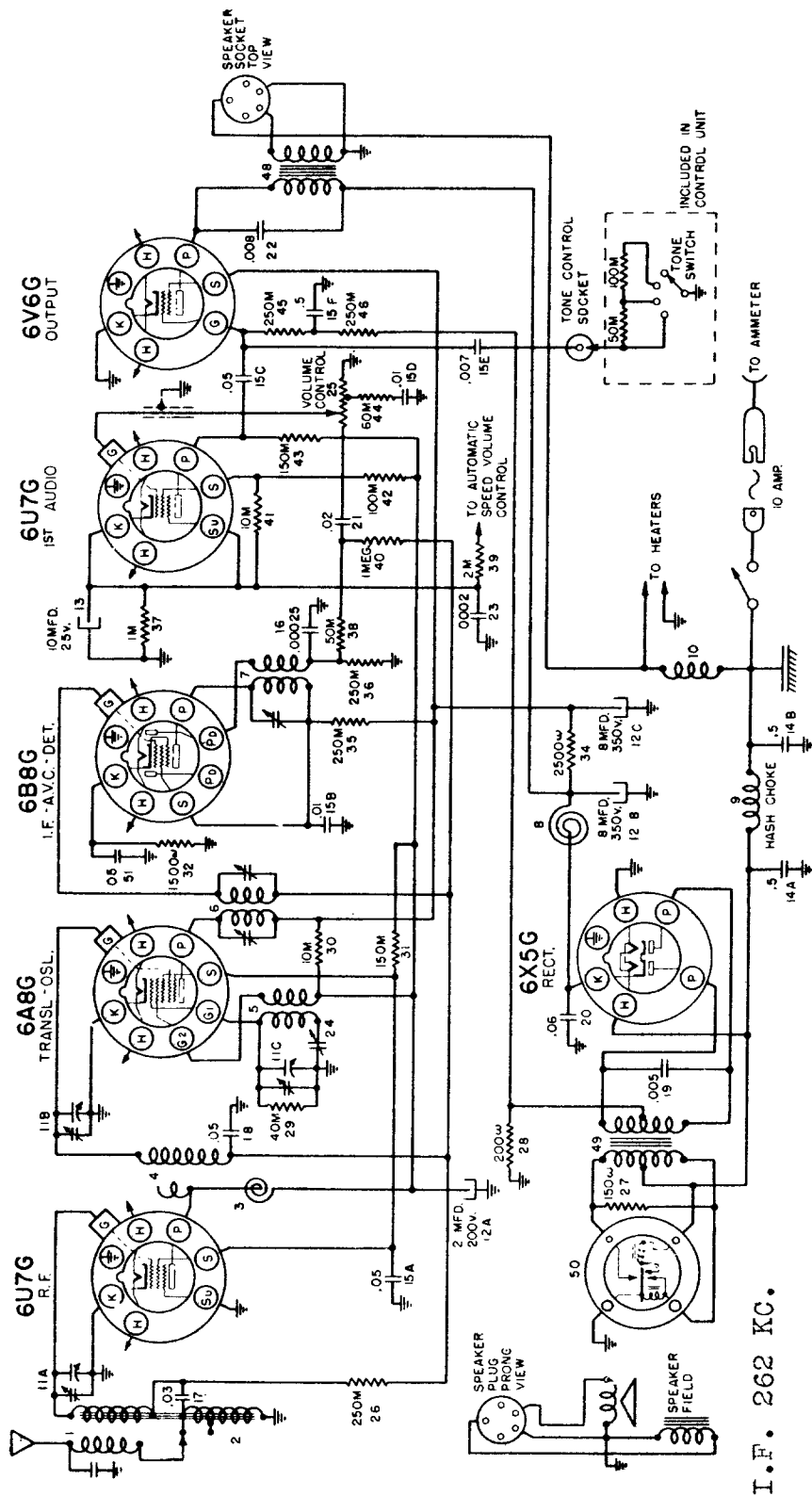
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Oldsmobile Division
General Motors

CIRCUIT DIAGRAM OLDS MODEL 982126
4 PRONG CABLE SPEAKER

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

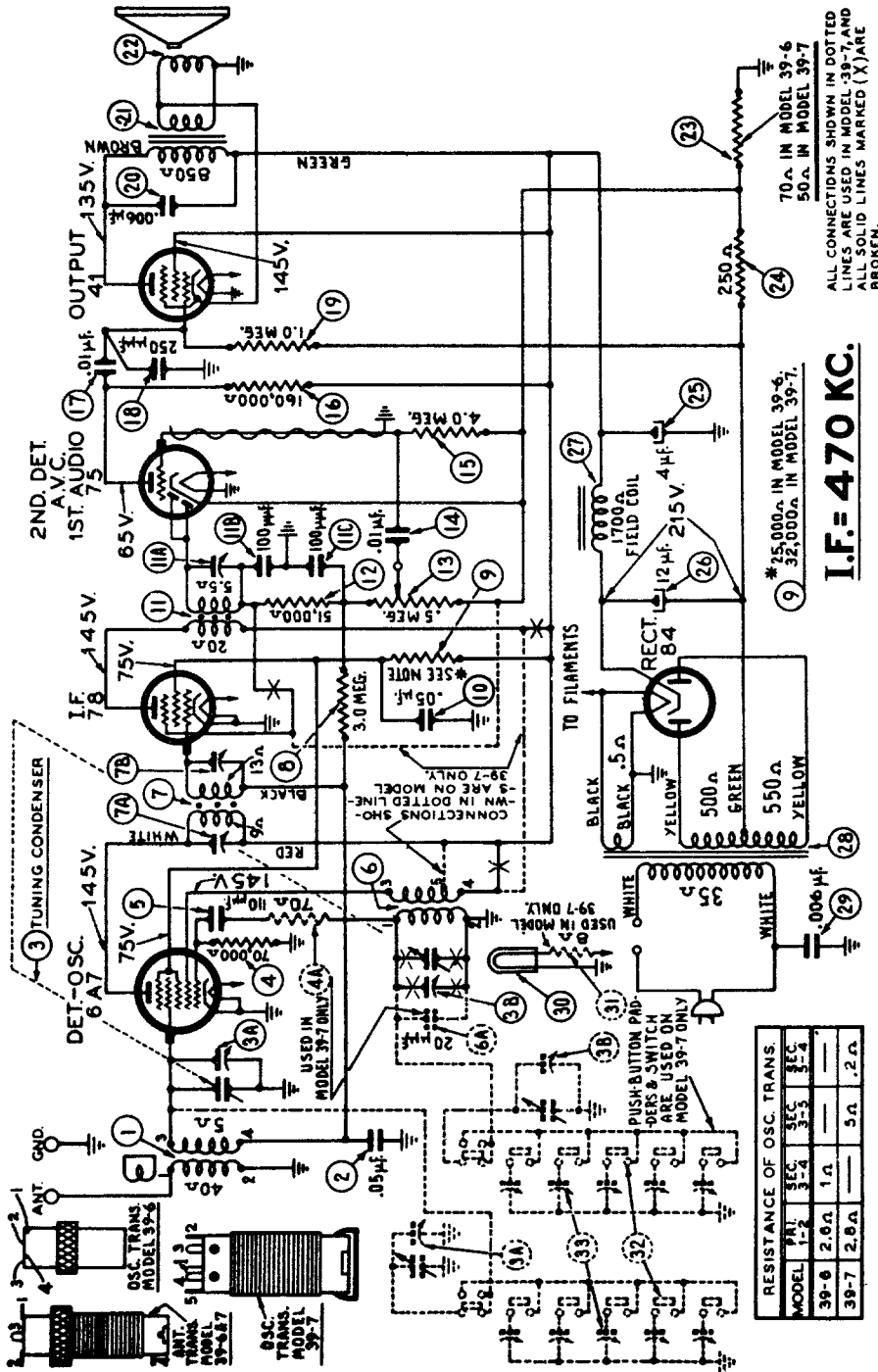


Oldsmobile Division, General Motors, Model 982153

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Philco Radio & Television Corporation

Models 39-6, 39-7.



ALL CONNECTIONS SHOWN IN DOTTED LINES ARE USED IN MODEL 39-7, AND ALL SOLID LINES MARKED (X) ARE BROKEN.

*25,000Ω IN MODEL 39-6.
*52,000Ω IN MODEL 39-7.

NOTE A—The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

NOTE B—DIAL CALIBRATION: With the tuning condenser in "maximum capacity" position (plates fully meshed), set the dial pointer between the two horizontal lines at the low frequency end of the scale (550 K.C.).

Operation in Order	SIGNAL GENERATOR		RECEIVER		
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Control Setting	Adjust Compensators in Order
1	6A7	.1 mf.	580 K.C.	Vol. Cont. Max.	11A, 7B, 7A
2	Ant. Lead	100 mf.	1550 K.C.	Vol. Cont. Max.	3B, 3A

Setting Push-Buttons on Models: -- 39-25 39-30 39-31 39-35 39-40 39-45

Circuits	Frequency Range
1 and 2	540 to 1030 kilocycles
3 and 4	670 to 1160 kilocycles
5 and 6	900 to 1470 kilocycles
7 and 8	1170 to 1600 kilocycles

(C) Turn the receiver Tuning Range Selector to position two ("Manual Tuning") and tune the receiver to the station to be set on the first button.

(D) Plug the output leads of the Station Setter into the "High" and "Gnd" jacks, and turn the output controls to maximum. Turn the modulation control to "Modulation Off." Connect the output lead of the Station Setter to the "ANT" and "GND" terminals of the receiver and tune to the frequency of the station being received. As the indicator is slowly tuned through the frequency of the station there will be two points at which a high pitched swish will be heard, one above and one below the frequency of the station. When the indicator is on the frequency of the station, minimum high pitched swish will be heard.

(E) Set the modulation control of the Station Setter for "Modulation On." The modulated signal of the Station Setter will then be heard through the receiver.

(F) Turn the receiver Tuning Range Selector to position one (Automatic Tuning) and push in the first button. Using the Part No. 45-2610 Insulated Screw Driver, turn the number 1 "OSC" screw until the modulated signal of the Station Setter is tuned in to maximum volume. Then adjust the number 1 "ANT" screw for maximum signal.

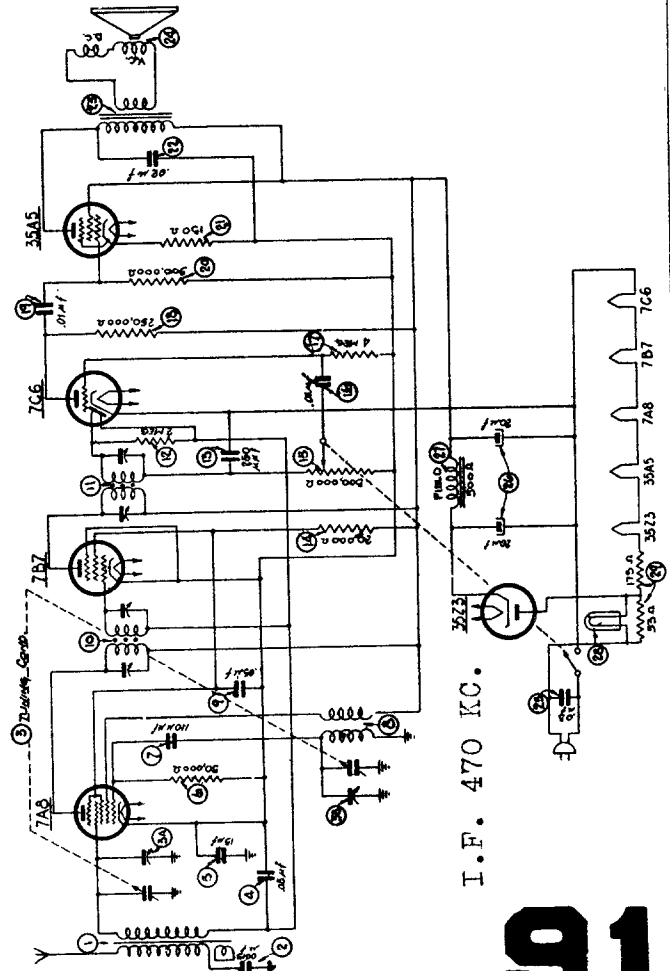
(G) Remove the output lead of the Philco Station Setter from the "ANT" terminal of the receiver and turn its indicator off the frequency of the station. The program of the desired station will then be heard on the receiver.

(H) With the volume of the receiver low, slowly turn the number 1 "OSC" back and forth until maximum output is received. Repeat the same procedure for the number 1 "ANT" screw.

After setting up the first station, the same procedure given under (C) to (H) is used for the other stations.

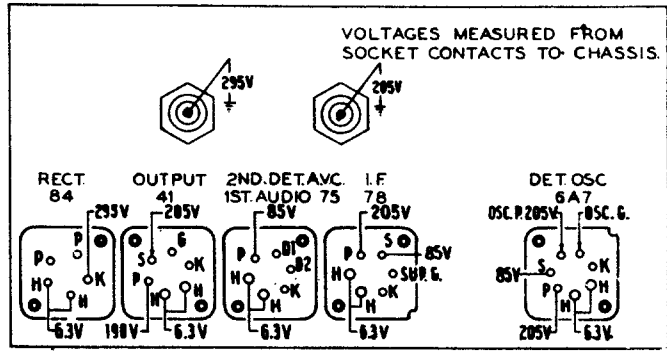
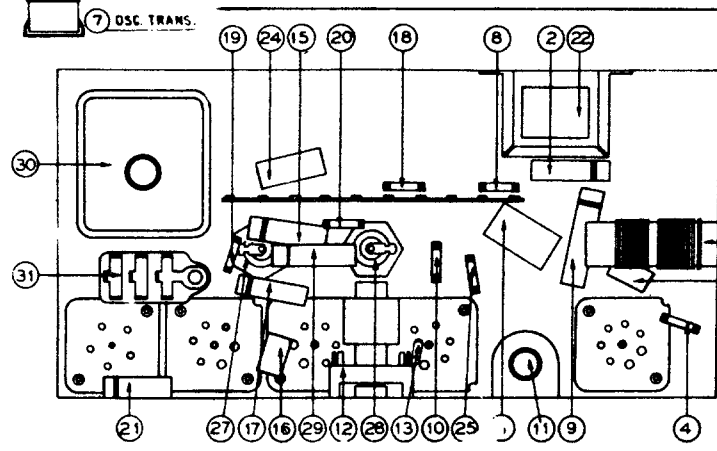
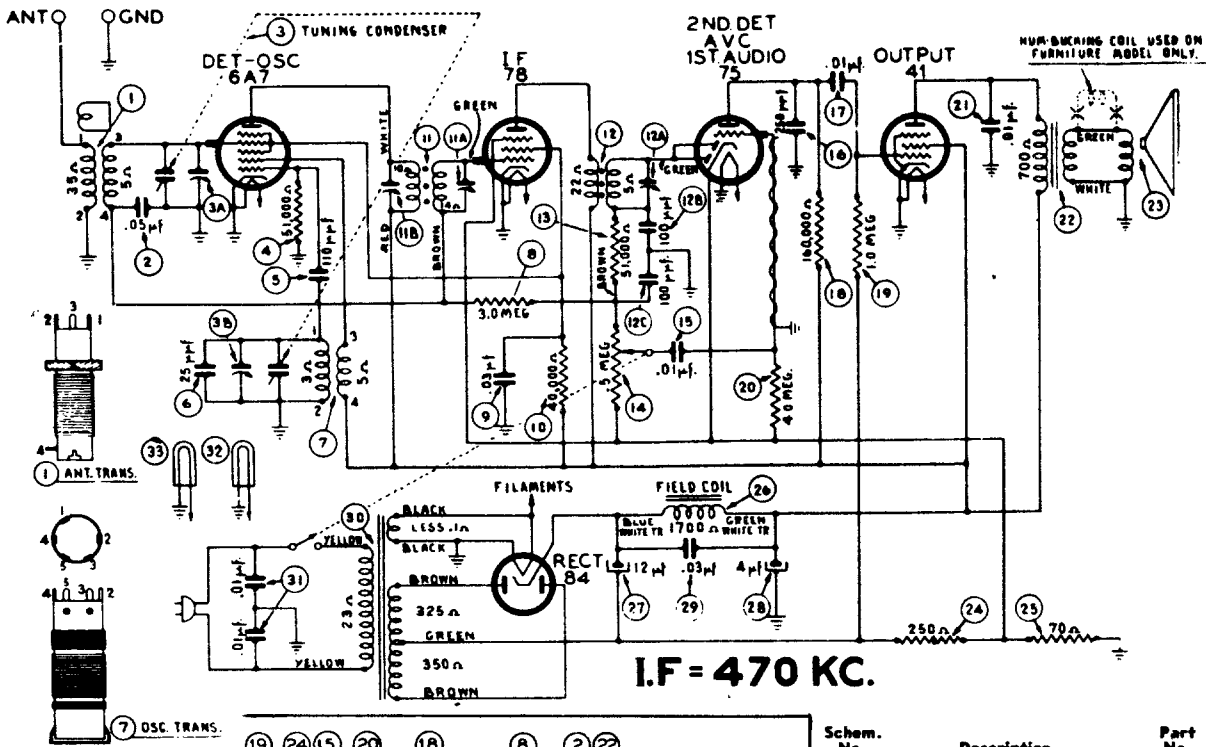
PHILCO MODEL TH-4

- 1 Antenna Transformer.....
- 2 Tubular Condenser (.0015 mf., 200V.)
- 3 Tuning Condenser.....
- 4 Tubular Condenser (.05 mf., 400V.)
- 5 Tubular Condenser (.15 mf., 400V.)
- 6 Resistor (50,000 ohms, 1/3 watt).
- 7 Mica Condenser (110 mmf.)
- 8 Oscillator Transformer.....
- 9 Tubular Condenser (.05 mf., 400V.)
- 10 1st I.F. Transformer.....
- 11 2nd I.F. Transformer.....
- 12 Resistor (2 meg., 1/3 watt).....
- 13 Mica Condenser (250 mmf.).....
- 14 Resistor (20,000 ohms, 1/3 watt).....
- 15 Volume Control (500,000 ohms).....
- 16 Tubular Condenser (.01 mf., 200V.)
- 17 Resistor (4 meg., 1/3 watt).....
- 18 Resistor (250,000 ohms, 1/3 watt).....
- 19 Tubular Condenser (.01 mf., 400V)
- 20 Resistor (500,000 ohms, 1/3 watt)
- 21 Resistor (130 ohms, 1/2 watt).....
- 22 Tubular Condenser (.02 mf., 400V)
- 23 Output Transformer.....
- 24 For Speaker 36-1469-1.....
- 25 For Speaker 36-1469-9.....
- 26 Speaker.....
- 27 Tubular Condenser (.03 mf., 400V)
- 28 Electrolytic Condenser (20-20mf.)
- 29 Field Coil -- Part of Speaker
- 30 Pilot Lamp.....
- 31 Line Resistor.....



PHILCO

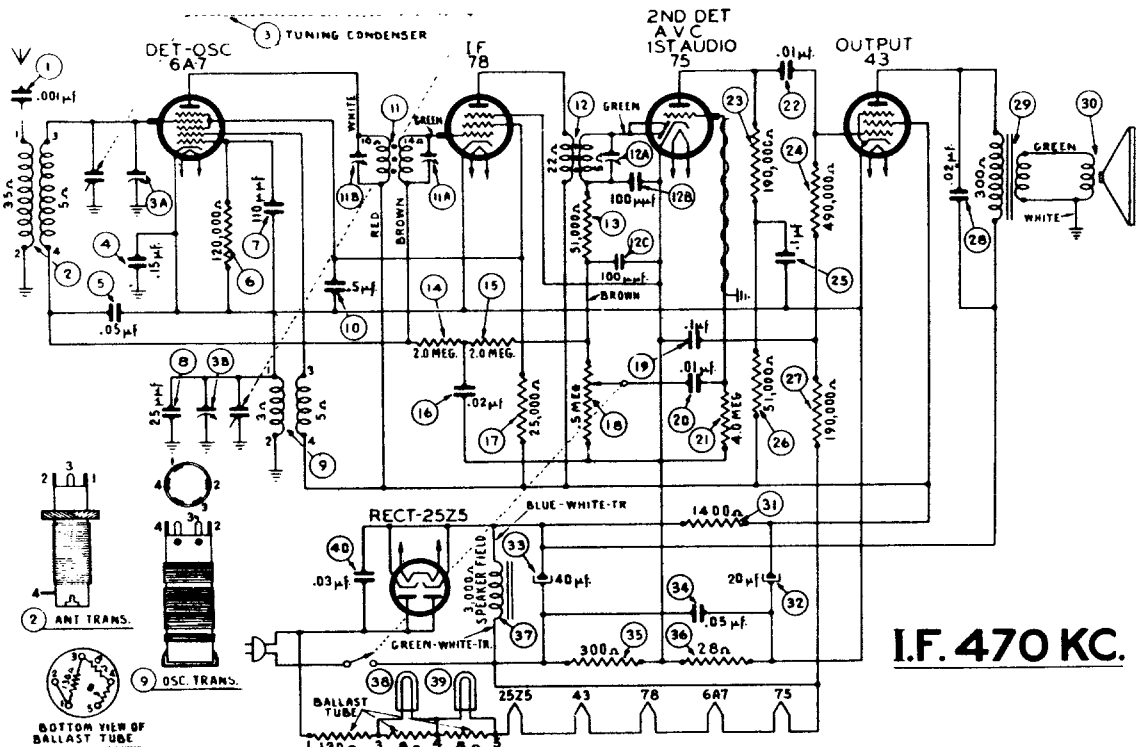
Model 39-17, Codes 121-122



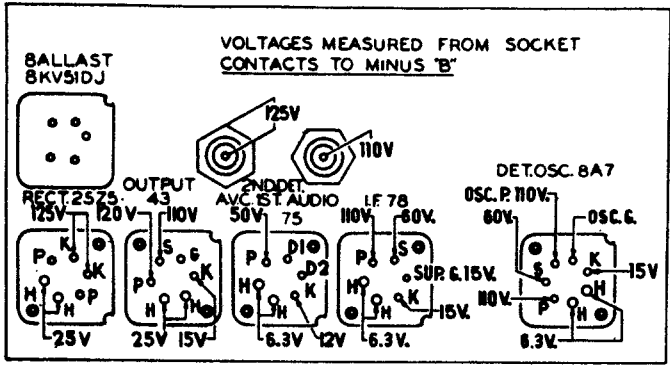
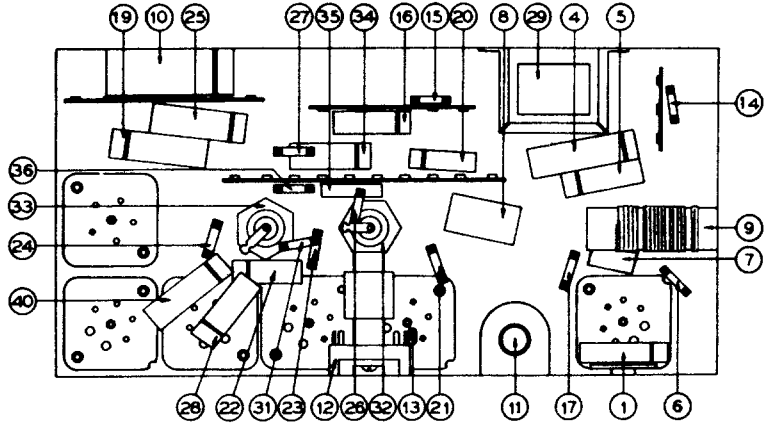
Schem. No.	Description	Part No.
1	Antenna Transformer	32-3039
2	Condenser (.05 mf. tubular)	30-4519
3	Tuning Condenser Assembly	31-2265
4	Resistor (51,000 ohms, 1/2 watt)	33-351339
5	Condenser (110 mmf. mica)	30-1031
6	Condenser (25 mmf. silver plated mica)	30-1112
7	Oscillator Transformer	32-3040
8	Resistor (3.0 megohm)	33-530339
9	Condenser (.03 mf. tubular)	30-4449
10	Resistor (40,000 ohms, 1/2 watt)	33-340339
11	1st I. F. Transformer Assembly	32-3075
12	2nd I. F. Transformer Assembly	32-2944
13	Resistor (51,000 ohms, 1/2 watt)	33-351339
14	Volume Control and On-Off Switch	33-5276
15	Condenser (.01 mf. tubular)	30-4479
16	Condenser (mica), 250 mmf.	30-1032
17	Condenser (.01 mf. tubular)	30-4572
18	Resistor (16,000 ohms, 1/2 watt)	33-316339
19	Resistor (1.0 megohm, 1/2 watt)	33-510339
20	Resistor (4.0 megohm, 1/2 watt)	33-540339
21	Condenser (.01 mf. tubular)	30-4572
22	Output Transformer	32-7980
23	Cone and Voice Coil Assembly for Speaker	
	(Part No. 36-1426-1)	36-4083
	(Part No. 36-1426-3)	36-4085
	Cone and Voice Coil Assembly for Speaker	
	(Part No. 36-1440)	36-4086
24	Resistor (250 ohms, wire wound)	33-125431
25	Resistor (70 ohms, 1/2 watt)	33-070339
26	†Field Coil for Speaker (Pt. No. 36-1426)	
	†Field Coil for Speaker (Pt. No. 36-1440)	
27	Condenser (12 mf. electrolytic)	30-2319
28	Condenser (4 mf. electrolytic)	30-2236
29	Condenser (.03 mf. tubular)	30-4449
30	Power Transformer (115 volts, 50-60 cycles)	32-7974
31	Condenser (.01 mf., .01 mf., bakelite)	3903DG

PHILCO

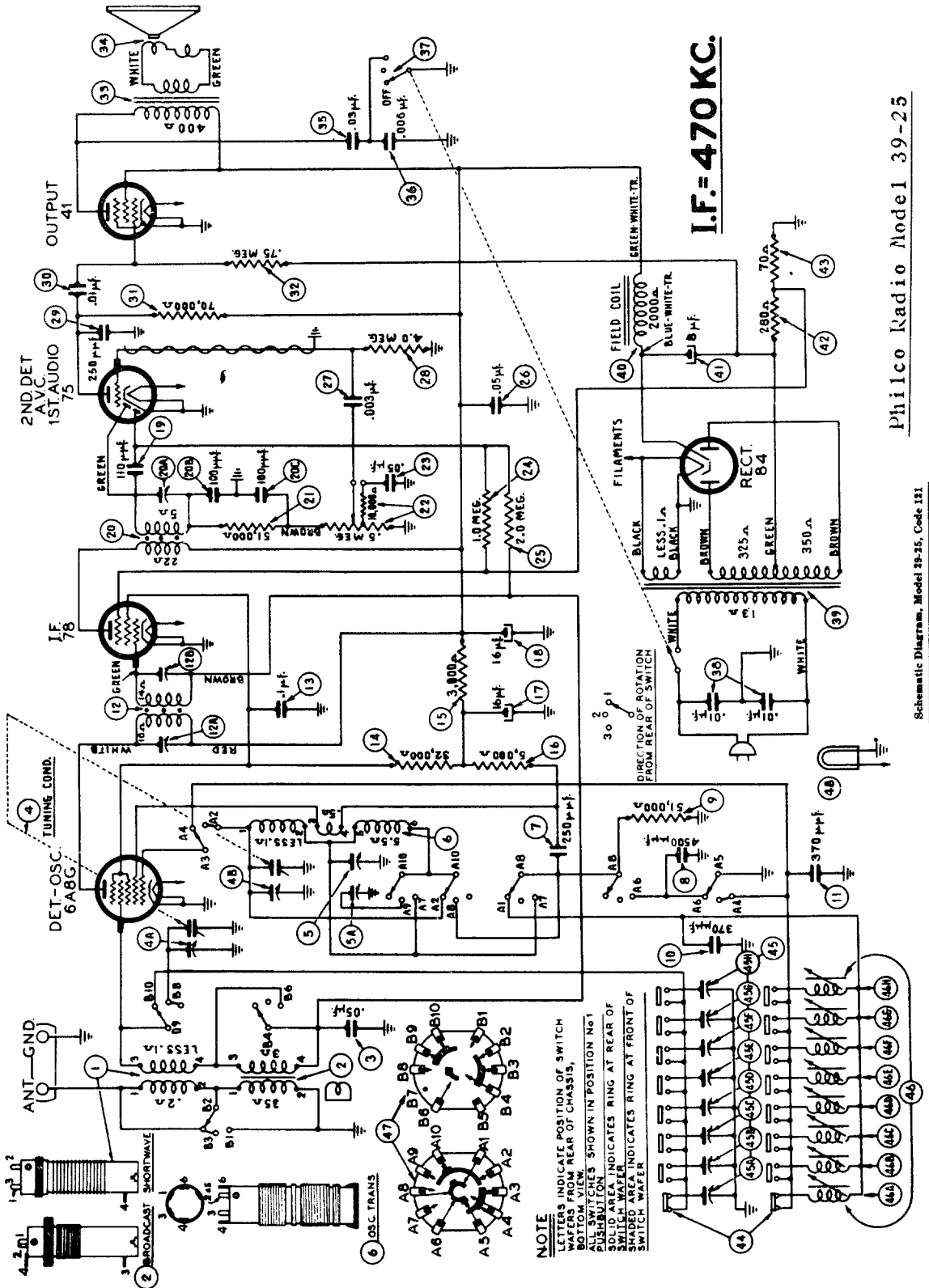
Model 39-18, Codes 121 & 122



Schem. No.	Description	Part No.
1	Condenser (.001 mfd. tubular)	30-4453
2	Antenna Transformer	32-3039
3	Tuning Condenser Assembly	31-2265
4	Condenser (.15 mfd. tubular)	30-4505
5	Condenser (.05 mfd. tubular)	30-4519
6	Resistor (120,000 ohms, 1/2 watt)	33-412339
7	Condenser (.110 mfd. mica)	30-1031
8	Condenser (25 mfd., silver plated mica)	30-1112
9	Oscillator Transformer	32-3040
10	Condenser (.5 mf., tubular)	30-4551
11	1st I. F. Transformer Assembly	32-3075
12	2nd I. F. Transformer Assembly	32-2944
13	Resistor (51,000 ohms, 1/2 watt)	33-351339
14	Resistor (2.0 megohms, 1/2 watt)	33-520339
15	Resistor (2.0 megohms, 1/2 watt)	33-520339
16	Condenser (.02 mf., tubular)	30-4516
17	Resistor (25,000 ohms, 1/2 watt)	33-325339
18	Volume Control and On-Off Switch	33-5276
19	Condenser (.1 mf., tubular)	30-4499
20	Condenser (.01 mf., tubular)	30-4572
21	Resistor (4.0 megohms, 1/2 watt)	33-540339
22	Condenser (.01 mf., tubular)	30-4572
23	Resistor (190,000 ohms, 1/2 watt)	33-419339
24	Resistor (490,000 ohms, 1/2 watt)	33-449339
25	Condenser (.1 mf., tubular)	30-4499
26	Resistor (51,000 ohms, 1/2 watt)	33-351339
27	Resistor (190,000 ohms, 1/2 watt)	33-419339
28	Condenser (.02 mf., tubular)	30-4215
29	Resistor (1400 ohms, 1/2 watt)	33-214339
32	Condenser (20 mf., electrolytic)	30-2245
33	Condenser (40 mf., electrolytic)	30-2332
34	Condenser (.05 mf., tubular)	30-4444
35	Resistor (300 ohms, wire wound)	33-130431
36	Resistor (28 ohms, 1/2 watt)	33-028339



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Philco Radio Model 39-25

Schematic Diagram, Model 39-25, Code 131

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Models 39-30, 31 and 39-35, Code 121

PHILCO

TYPE OF CIRCUIT:

Models 39-30 and 39-35 code 121 are similar with the exception of the type of Cabinets, Speakers and Power Transformers. These differences are shown on the Replacement Parts list and circuit diagram.

Models 39-31XF and 39-31XK are identical to Model 39-35, Code 121 with the exception of cabinets.

The Model 39-35, code 121 specifications, diagram and replacement parts listed below and on the following pages apply to Models 39-31XF and XK.

A.C. operated; superheterodyne circuit with two tuning ranges, covering standard broadcast (540 K.C. to 1720 K.C.) and short-wave (4.9 M.C. to 18.0 M.C.) frequencies; Automatic Volume Control; and pentode output.

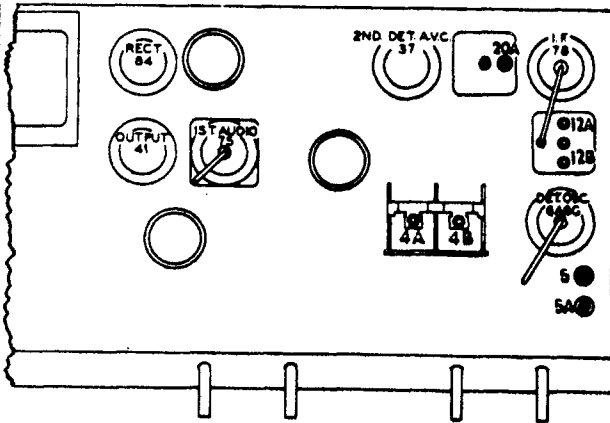
POWER SUPPLY:

Voltage, 115 volts. Frequency, 50-60 cycles.
Power consumption 45 watts.

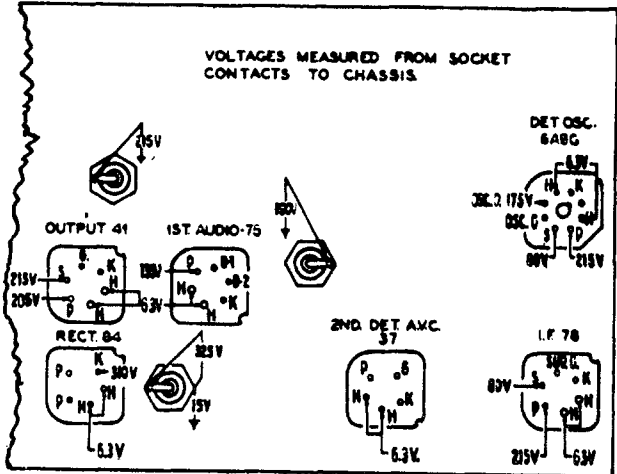
INTERMEDIATE FREQUENCY: 470 K.C.

TUNING RANGES:

540 K.C. to 1720 K.C.; 4.9 M.C. to 18.0 M.C.



VOLTAGES MEASURED FROM SOCKET CONTACTS TO CHASSIS



Alignment of Compensators

EQUIPMENT REQUIRED:

- (1) Signal Generator: philco Model 077 Signal Generator which has a fundamental frequency range from 115 to 30,000 K.C. is the correct instrument for this purpose.
- (2) Output meter, Philco Model 027 Circuit Tester, incorporates a sensitive output meter and is recommended.
- (3) Philco Fiber Handle Screw Driver, Part No. 27-7059, and Fiber Wrench, Part No. 3164.

OUTPUT METER:

Two indicating devices for aligning of the receiver can be used; either an audio output meter or a vacuum tube voltmeter. The method of connecting the audio output meter is given in the next paragraph. The procedure for connecting the vacuum tube voltmeter as an aligning indicator will be found on Page 4. Where greater accuracy of the various tuned circuits is desired, the vacuum tube voltmeter is recommended as an aligning device.

The Philco 027 Output Meter is connected to the plate and cathode terminals of the type 41 tube. After connecting the Output Meter, adjust compensators in the order as given below.

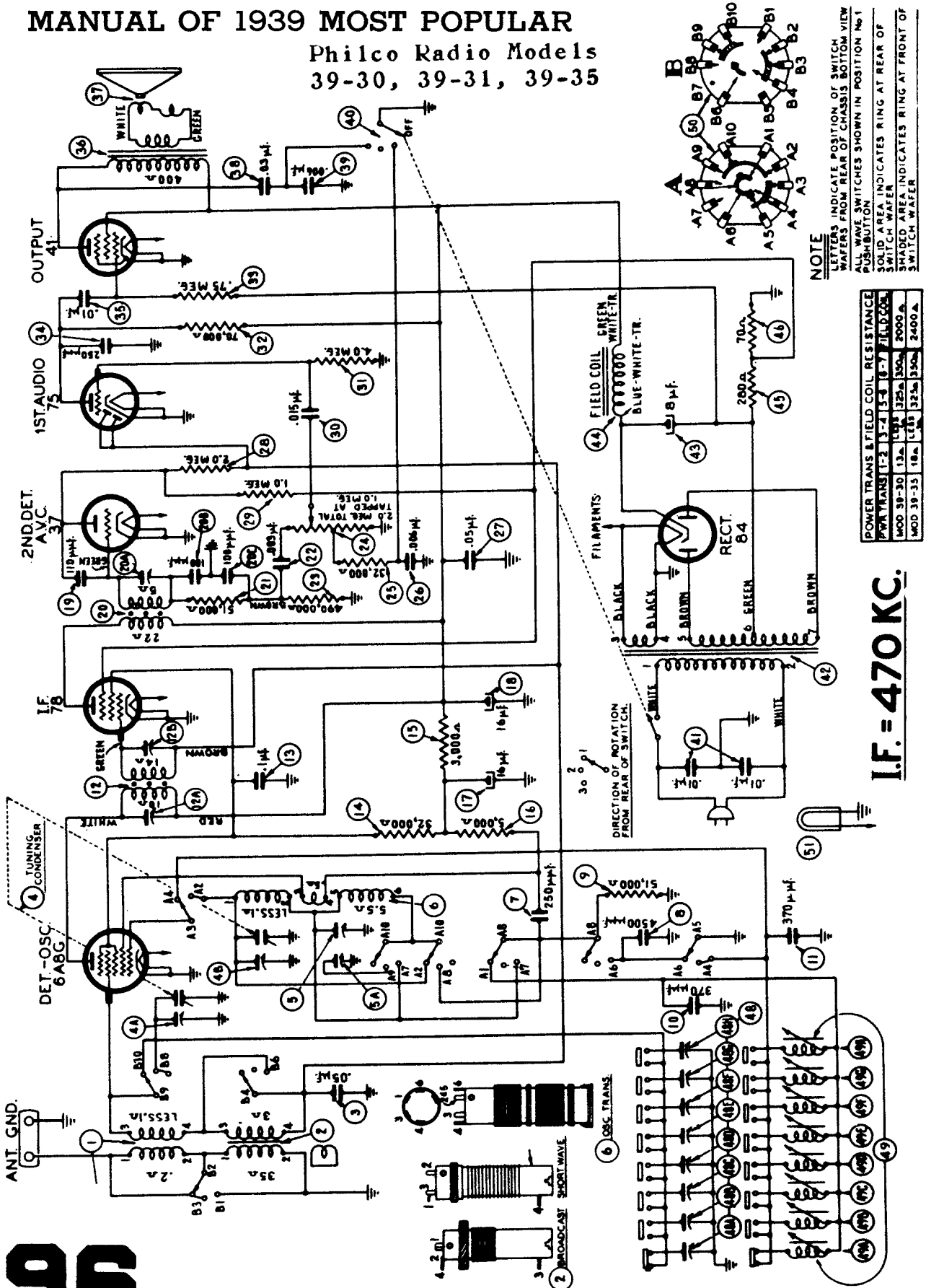
Operations	Signal Generator			Receiver		
	Output Connections To Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Settings	Adjust Compensators In Order
1	6ABG Grid	.1 mf.	470 K.C.	580 K.C.	Vol. Cont. Max.	(20A) (12B) (12A)
2	Ant. Ter.	100 muf.	18.0 M.C.	18.0 M.C.	Vol. Cont. Max.	(4B)
3	Ant. Ter.	100 muf.	1550 K.C.	1550 K.C.	Vol. Cont. Max.	(5) (4A)
4	Ant. Ter.	100 muf.	580 K.C.	580 K.C.	Vol. Cont. Max.	(5A)
5	Ant. Ter.	100 muf.	1550 K.C.	1550 K.C.	Vol. Cont. Max.	(5)

A--The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

B--DIAL CALIBRATION: In order to adjust the re-

ceiver correctly the dial pointer must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser closed, set the dial pointer on the extreme left index line at the low frequency end of the scale.

MANUAL OF 1939 MOST POPULAR Philco Radio Models 39-30, 39-31, 39-35

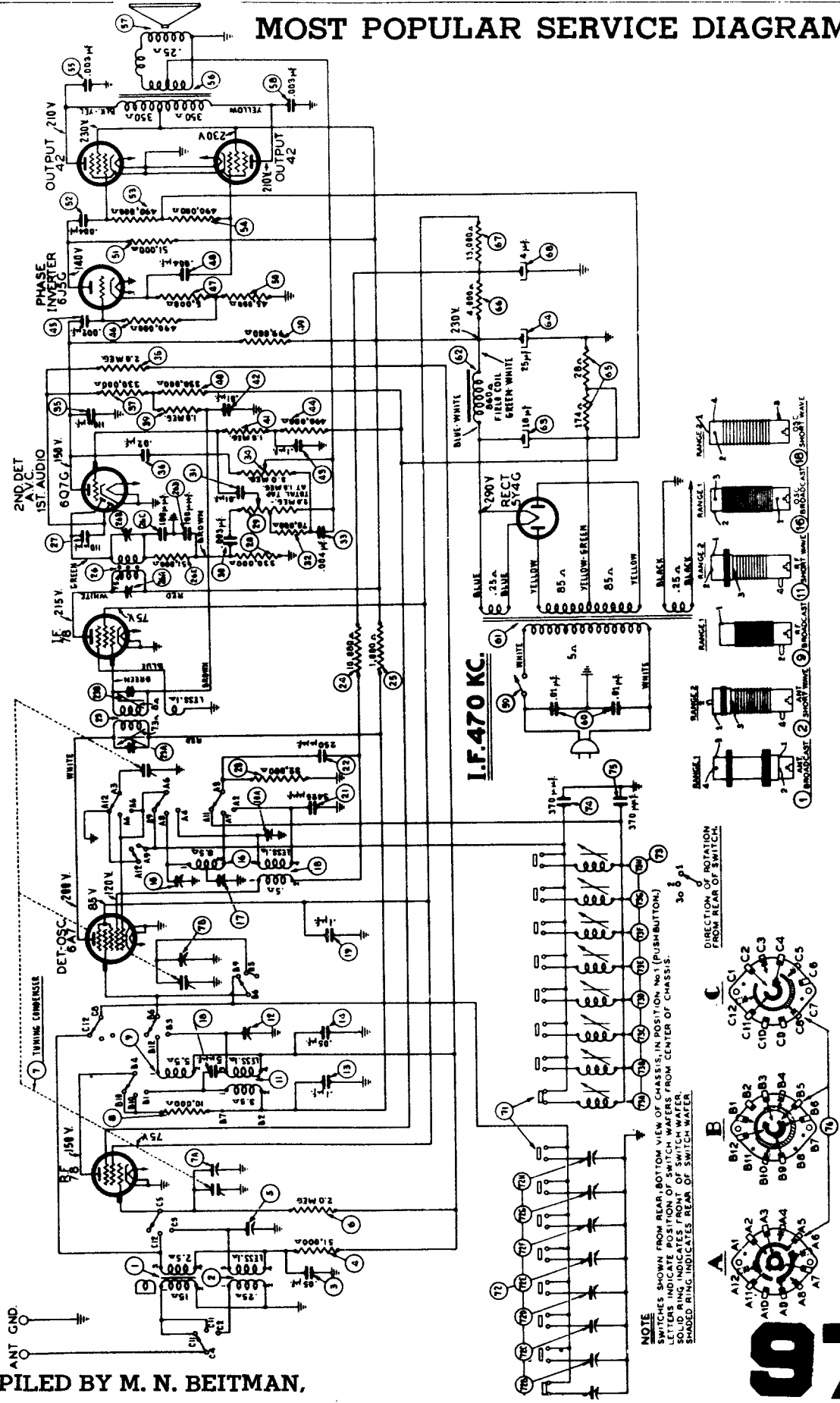


NOTE
LETTERS INDICATE POSITION OF SWITCH WAFERS FROM REAR OF CHASSIS BOTTOM VIEW
ALL WAVE SWITCHES SHOWN IN POSITION No. 1
PUSH-BUTTON
SOLID AREA INDICATES RING AT REAR OF SWITCH WAFER
SHADED AREA INDICATES RING AT FRONT OF SWITCH WAFER

POWER TRANS.	FIELD COIL
MOD 39-30	2500 Ω
MOD 39-31	3500 Ω
MOD 39-35	2400 Ω

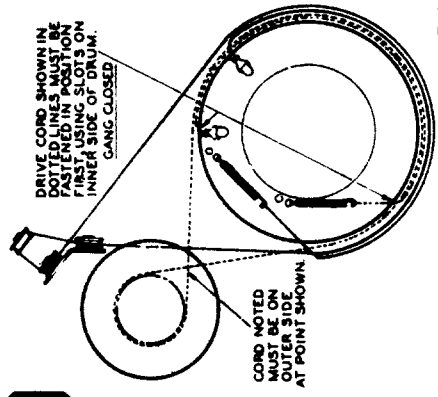
I.F. = 470 KC.

Model 39-40, Code 121



COMPILED BY M. N. BEITMAN,

Philco Radio & Television Corp.



METHOD OF INSTALLING DRIVE CORDS ON TUNING CONDENSER DRUM

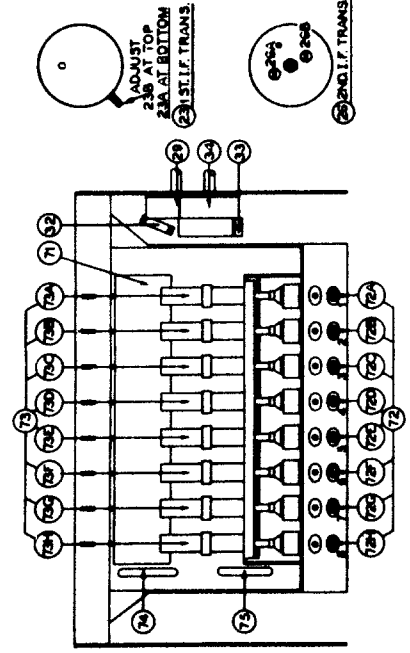
Opera- tions	SIGNAL GENERATOR			RECEIVER		
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Setting	Adjust Compensators to Max. Reading
1	6A7	.1 mf	470 KC.	580 KC.	Vof. Max. Range Switch Broadcast	26B, 26A, 23B, 23A
2	Ant. Ter.	150 mmf	1550 KC.	1550 KC.	"	15, 7B, 7A
3	Ant. Ter.	150 mmf	580 KC.	580 KC.	"	17
4	Ant. Ter.	150 mmf	1550 KC.	1550 KC.	"	15
5	Ant. Ter.	400 ohms	18.0 MC.	18.0 MC.	Range Switch S. W.	15A, 12, 5

NOTE A—The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

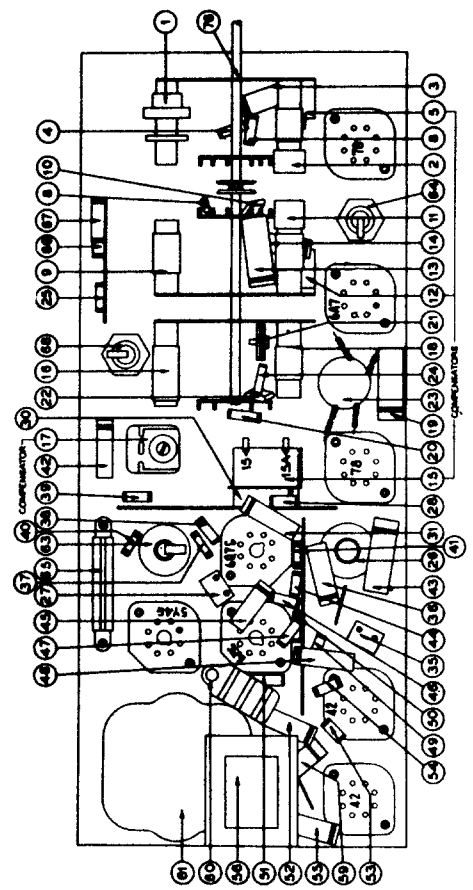
NOTE B—Dial Calibration. In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To adjust

the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable is shown on page 3.

NOTE C—Compensators (7A) and (7B) are located on top of the tuning condenser. Compensator (7A) is the first one from the tuning drum side.



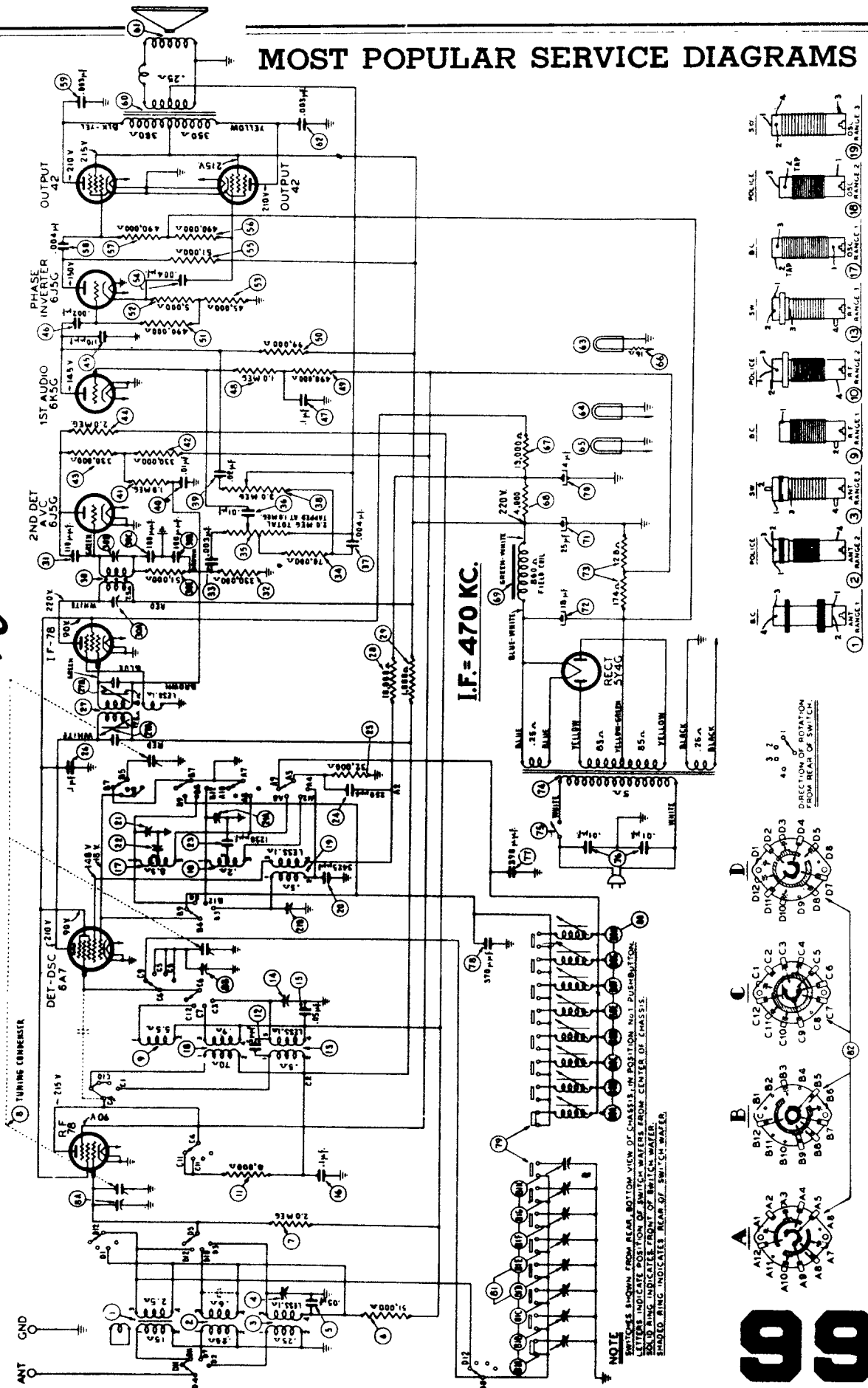
ELECTRIC AUTOMATIC PUSH BUTTON UNIT



PART LOCATIONS UNDERSIDE OF CHASSIS MODEL 39-40

MOST POPULAR SERVICE DIAGRAMS

Model 39-45, Code 121



PHILCO

Model 39-45, Code 121

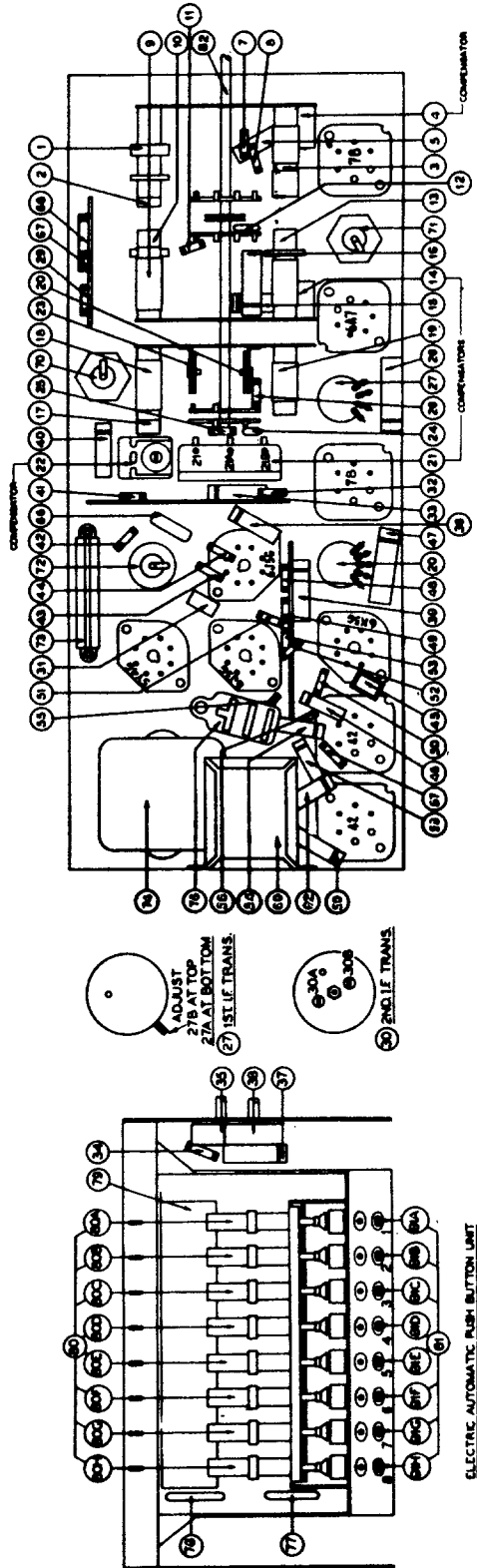
Operation	SIGNAL GENERATOR			RECEIVER			Special Instructions
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Setting	Adjust Compensators to Max. Reading	
1	6A7	.1 mf	470 KC.	470 KC.	Vol. Max. Range Switch Broadcast	30B, 30A, 27B, 27A	See Note B and C
2	Antenna	150 mmf	1550 KC.	1550 KC.	"	21, 8B, 8A	Roll Tuning Condenser
3	Antenna	150 mmf	580 KC.	580 KC.	"	22	
4	Antenna	150 mmf	1550 KC.	1550 KC.	"	21	
5	Antenna	400 ohms	5.0 MC.	5.0 MC.	Range Switch Police	21A	
6	Antenna	400 ohms	18.0 MC.	18.0 MC.	Range Switch S. W.	21B, 14, 4	

NOTE A—The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

NOTE B—Dial Calibration: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum

capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable is shown on page 3.

NOTE C—Compensators (8A) and (8B) are located on top of the tuning condenser. Compensator (8A) is the first one from the tuning drum side.



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

PHILCO Models 39-55, 39-116

ADJUSTING MYSTERY CONTROL FREQUENCY AMPLIFIER

The Mystery Control receivers are shipped with five (5) different control frequencies which range from 350 to 400 K.C. These are identified by code numbers appearing on the serial number ticket and on the rear of the chassis. These code numbers and frequencies are as follows:

Code 5—355 K.C.
Code 6—367 K.C.
Code 7—375 K.C.
Code 8—383 K.C.
Code 9—395 K.C.

The purpose of the different control frequencies is to prevent interaction between two Mystery Control receivers which are on the same floor or are exceptionally close together. When several Mystery Control receivers are to be located close together, it will be necessary to use different control frequencies to avoid interaction between the receivers. In order to prevent interaction between receivers, there should be a difference of 20 K.C. between their control frequencies.

If three receivers are to be operated at the same time and are closely situated, it will be advisable to adjust the control frequency of the first set to 355 K.C., the second set to 375 K.C. and the third to 395 K.C.

When realigning or changing the control frequency of the Mystery Control circuit, a Philco Model 077 Signal Generator with a coil of wire (about 4 or 5 turns—12" in diameter) attached to the output terminals is required. The leads between the coil of wire and Signal Generator should be long enough so that the coil of wire can be placed near the large secondary inductor in the bottom of the receiver cabinet.

With this apparatus, the Control Frequency is adjusted as follows:

1. With the temporary coil of wire in the center of (or near) the secondary inductor, the control frequency to which the Mystery Control Amplifier is tuned can be determined by tuning the Signal Generator between 350 and 400 K.C. When the Signal Generator is tuned to the control frequency, the Thyatron (2A4G) tube will glow (blue haze). If this frequency is to be used, leave the Signal Generator indicator at this point or turn the indicator to any other frequency desired between 350 and 400 K.C.
2. When the control frequency is selected, turn the sensitivity control (117) in Model 116 and (89) Model 55,

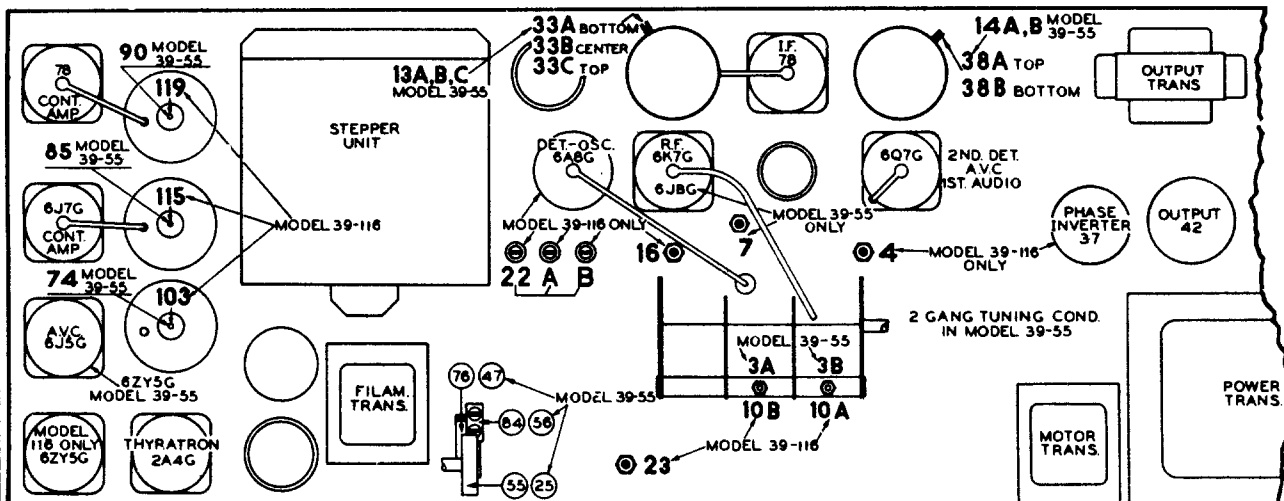
located on the left rear of the chassis—towards the position marked "extreme." Using the 2A4G Thyatron tube as a resonance indicator, adjust padders (103), (115), (119) in Model 116 and (74), (85), (90) in Model 55 for maximum signal. This will be indicated by the brilliance of the glow in the 2A4G Thyatron tube. As the padders are adjusted, gradually turn the sensitivity control to the "near" position or reduce the output from the Signal Generator. When the padders are correctly adjusted to maximum, the Thyatron will glow with the sensitivity control (117) at the "near" position and with a very weak signal from the Signal Generator.

3. Next, adjust the padding condenser (121) in Model 116 and (92) in Model 55 on the secondary inductor located in the bottom of the receiver. The padding condenser is located in one corner of the secondary inductor and is encased in a cardboard container. This padding condenser should be carefully adjusted for maximum glow in the 2A4G tube. Use the weakest signal possible from the Signal Generator that will cause the 2A4G to glow. Also, have the sensitivity control as close as possible to the "near" position. Extreme care should be used in adjusting the padder to the exact point of resonance, as the secondary inductor is a very sharply tuned circuit. After adjusting the circuit, remove the Signal Generator and loop from the receiver.

4. The Mystery Control unit is now adjusted as follows:

- A. Dial any one of the stations indicated on the remote unit by pulling the selector to the "Stop" position. Then, as the dial is released at the "Stop," press the "Stop" down and hold it in this position.
- B. Holding the "Stop" in this position, bring the Mystery Control unit close to the receiver. Using the padding wrench, tune the padding screw (126) located on the bottom of the unit until the 2A4G Thyatron in the receiver glows at full brilliance.

Now, turn the sensitivity control on the receiver towards the "near" position until a point is reached where the 2A4G tube almost stops glowing. Then, readjust the padder (126) of the unit again for maximum brilliance in the 2A4G tube. The Mystery Control unit should now be adjusted to the same frequency as the control frequency in the receiver.



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Locations of Compensators—Model 39-55 and 39-116

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

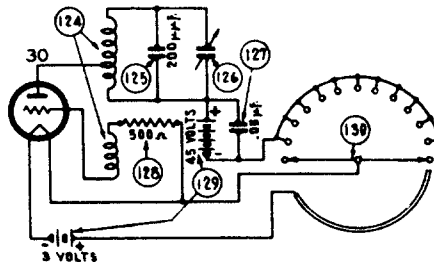
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RADIO RECEIVER CIRCUIT ADJUSTMENTS Model 39-116

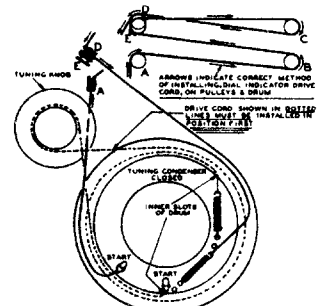
Opera- tion	SIGNAL GENERATOR				RECEIVER			Special Instructions
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Dial Setting	Control Setting	Adjust Compensators	
1	78 Grid	.1 mfd.	470 K.C.	470 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	38A, 38B	Turn Out 33B Full
2	6A8 Grid	.1 mfd.	470 K.C.	470 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	33C, 33A, 33B, 38B	Note B
3	Antenna and Ground	150 mmfd.	1550 K.C.	1550 K.C.	1550 K.C.	Vol. Max. Range Switch Brdst.	22, 10B, 10A	
4	Antenna and Ground	150 mmfd.	580 K.C.	580 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	23	Rollgang
5	Antenna and Ground	150 mmfd.	1550 K.C.	1550 K.C.	1550 K.C.	Vol. Max. Range Switch Brdst.	22	
6	Antenna and Ground	400 ohms	5.0 M.C.	5.0 M.C.	5.0 M.C.	Vol. Max. Range Switch Police	22A	
7	Antenna and Ground	400 ohms	18.0 M.C.	18.0 M.C.	18.0 M.C.	Vol. Max. Range Switch Short Wave	22B, 16, 4	Note C

RADIO RECEIVER CIRCUIT ADJUSTMENTS Model 39-55

Opera- tion	SIGNAL GENERATOR				RECEIVER			Special Instructions
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Dial Setting	Control Setting	Adjust Compensators	
1	78 Grid	.1 mfd.	470 K.C.	470 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	14A, 14B	Turn Out 13B Full
2	6J8G Grid	.1 mfd.	470 K.C.	470 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	13C, 13A, 13B, 14B	Note B
3	Antenna and Ground	150 mmfd.	1550 K.C.	1550 K.C.	1550 K.C.	Vol. Max. Range Switch Brdst.	3B, 3A	
4	Antenna and Ground	150 mmfd.	580 K.C.	580 K.C.	580 K.C.	Vol. Max. Range Switch Brdst.	7	Rollgang
5	Antenna and Ground	150 mmfd.	1550 K.C.	1550 K.C.	1550 K.C.	Vol. Max. Range Switch Brdst.	3B, 3A	Note C

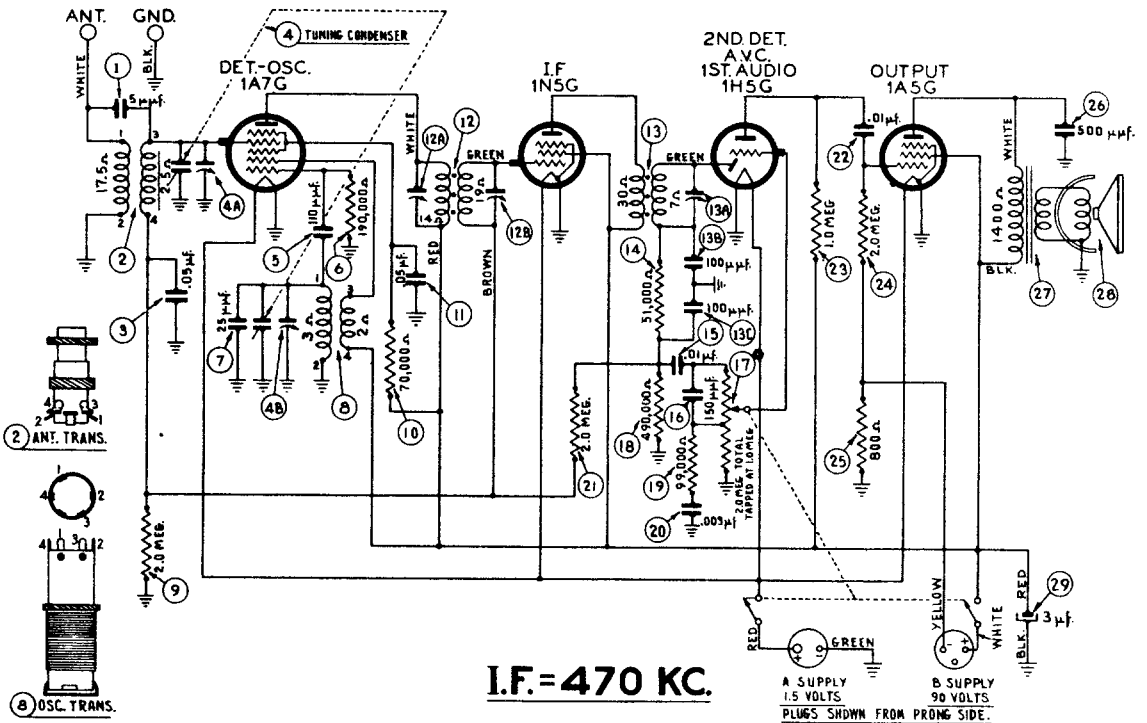
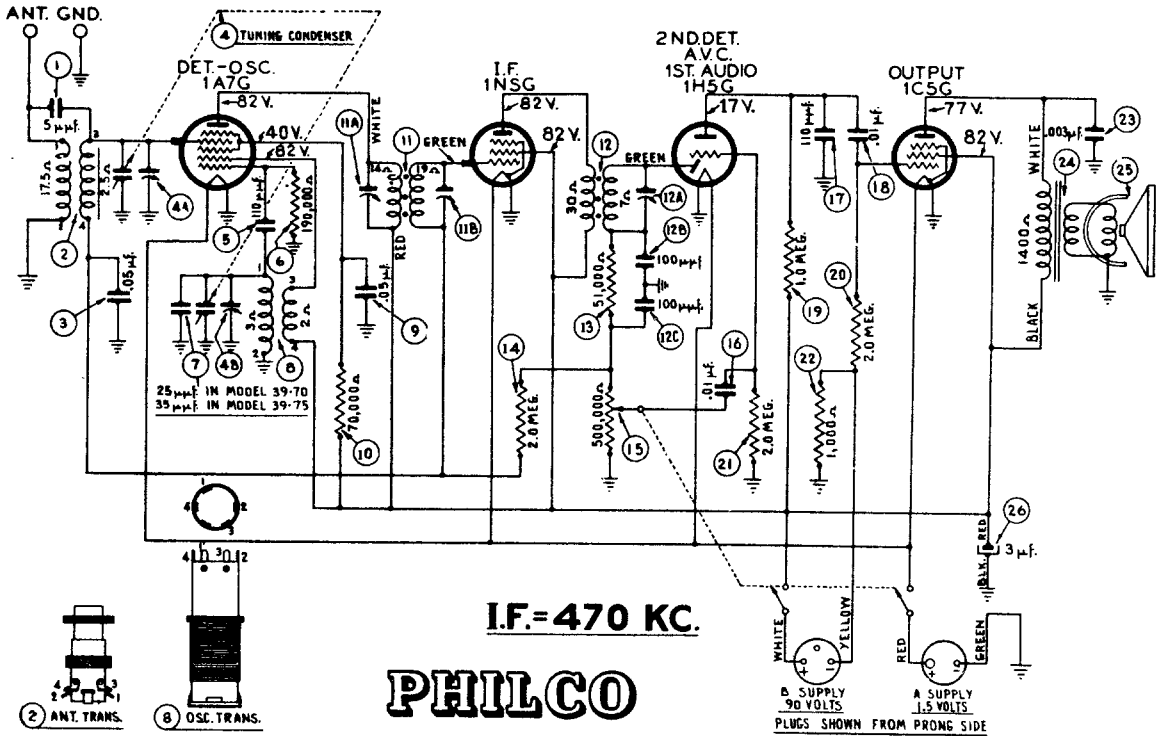


Mystery Control Unit Diagram



ARRANGEMENT OF DRIVE CORDS
ON TUNING CONDENSER DRUM & PULLEYS

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

PROCEDURE FOR MODELS 39-70 AND 39-75

Operations in Order	SIGNAL GENERATOR			RECEIVER		
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Setting	Adjust Compensators
1	1A7G Grid	.1 mfd.	470 K. C.	580 K. C.	Vol. Max.	12A, 11B, 11A
2	Ant. (White)	225 mfd.	1550 K. C.	1550 K. C.	Vol. Max.	4B, 4A

PROCEDURE FOR MODEL 39-80

Operations in Order	SIGNAL GENERATOR			RECEIVER		
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Setting	Adjust Compensators
1	1A7G Grid	.1 mfd.	470 K. C.	580 K. C.	Vol. Max.	13A, 12B, 12A
2	Ant. (White)	225 mfd.	1550 K. C.	1550 K. C.	Vol. Max.	4B, 4A

A—The "Dummy Antenna" consists of a condenser or resistor connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

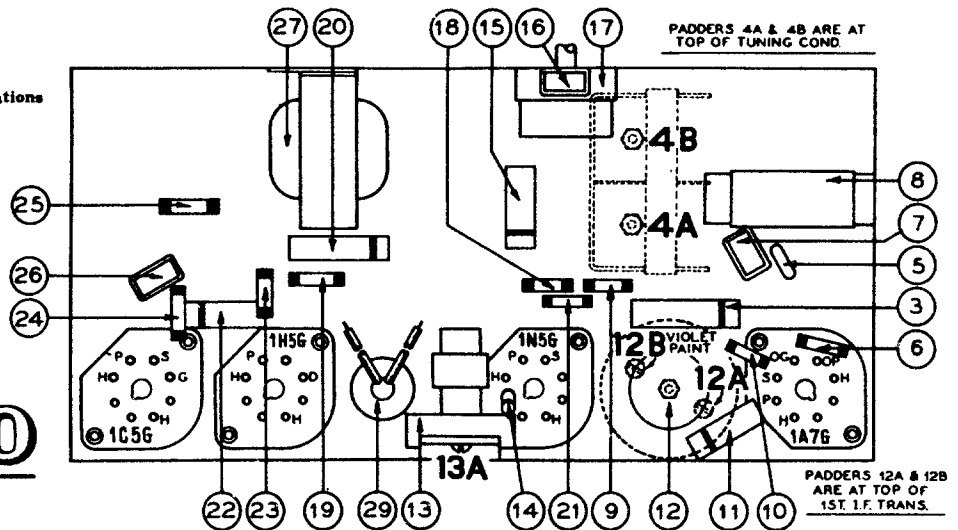
B—**DIAL CALIBRATION:** In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser.

Model 39-70 and 39-80—To adjust the dial proceed as follows: Turn the tuning condenser to maximum capacity (plates fully meshed). With the tuning condenser in this position, set the pointer horizontally across the dial.

Model 39-75—With the tuning condenser in the maximum capacity position (plates fully meshed), loosen the coupling screws connecting the push-button unit to the condenser. The pointer is then set on the extreme left edge of the index line (low frequency end of the scale) with the tuning condenser fully closed. The gang is then opened until the pointer is at the right edge of the index line. The push-button shaft is then turned counter-clockwise to its "stop." With the tuning condenser and push-button shaft in these positions tighten the coupling set screws.

C—The locations of the compensators in Models 39-70, 39-75 and 39-80 are shown in Figs. (1), (2) and (3) respectively.

Fig. 3. Compensator and Part Locations
Model 39-80, Code 121
Underside of Chassis



PHILCO

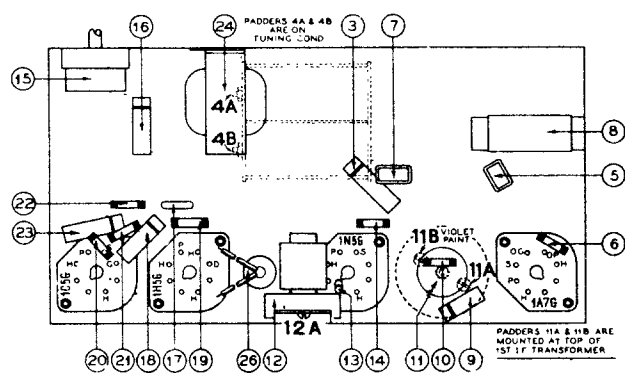


Fig. 1. Compensator and Part Locations
Model 39-70, Code 121

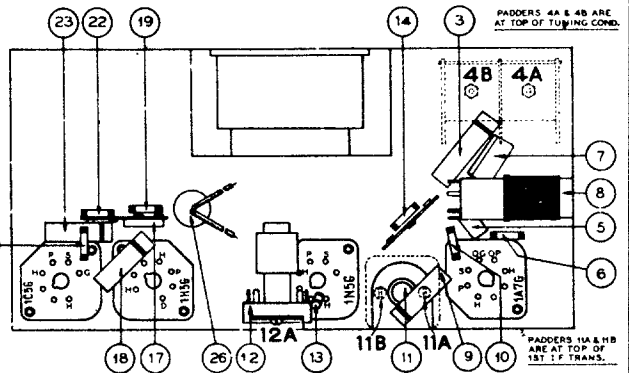
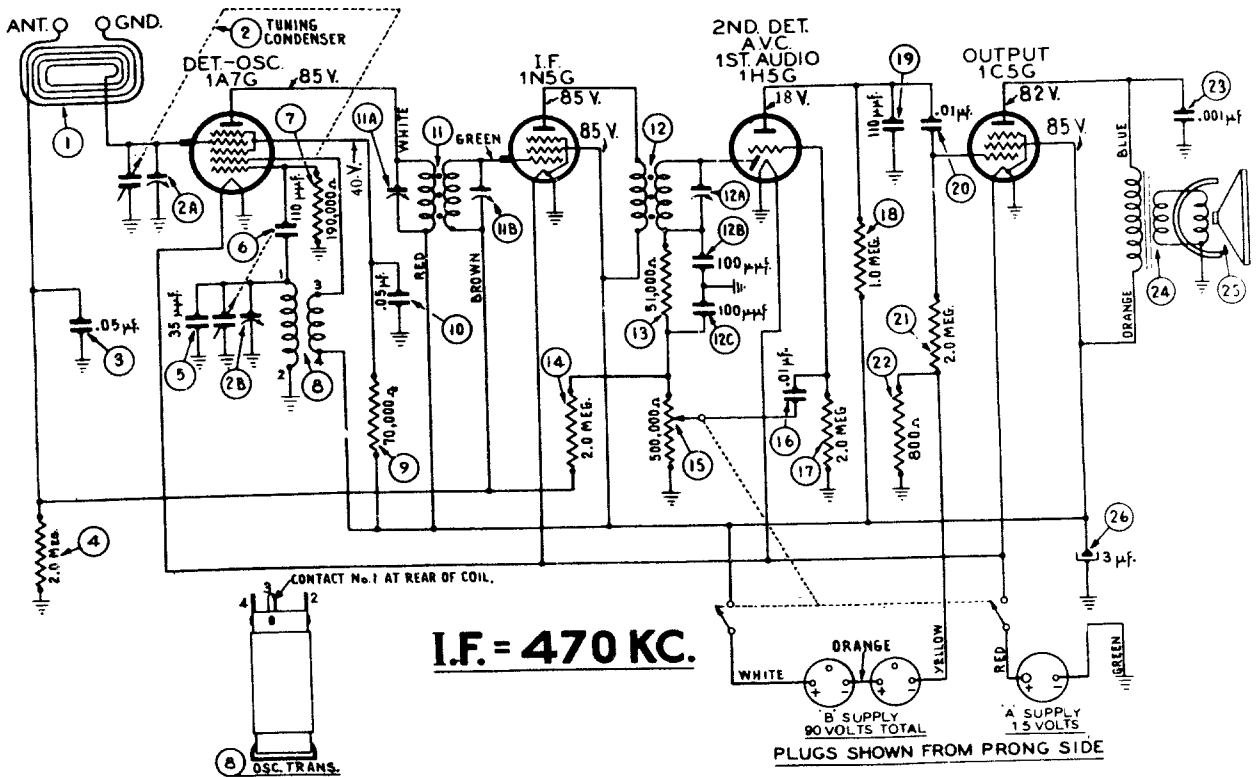


Fig. 2. Compensator and Part Locations
Model 39-75, Code 121-122
Underside of Chassis

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PHILCO Model 39-71, Codes 121, 122



Operations in Order	SIGNAL GENERATOR			RECEIVER		
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order
1	1A7G Grid	.1 mfd.	470 K. C.	580 K. C.	Vol. Cont. Max.	12A, 11B, 11A
2	Ant. & Grd. Terminals	400 ohms	1550 K. C.	1550 K. C.	Vol. Cont. Max.	2B, 2A

A — The "Dummy Antenna" consists of a condenser or resistor connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

B — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: Turn the tuning condenser to maximum capacity (plates fully meshed). With tuning condenser in this position set the pointer to the small "black dot" at the low frequency end of the dial scale.

C — To adjust the I. F. compensators, remove the back from the cabinet, which is held in place by four screws. The chassis is then taken out by removing the four screws and two corks underneath the cabinet, and the Tuning and Volume knobs. The I. F. compensators are located on top of the I. F. transformers.

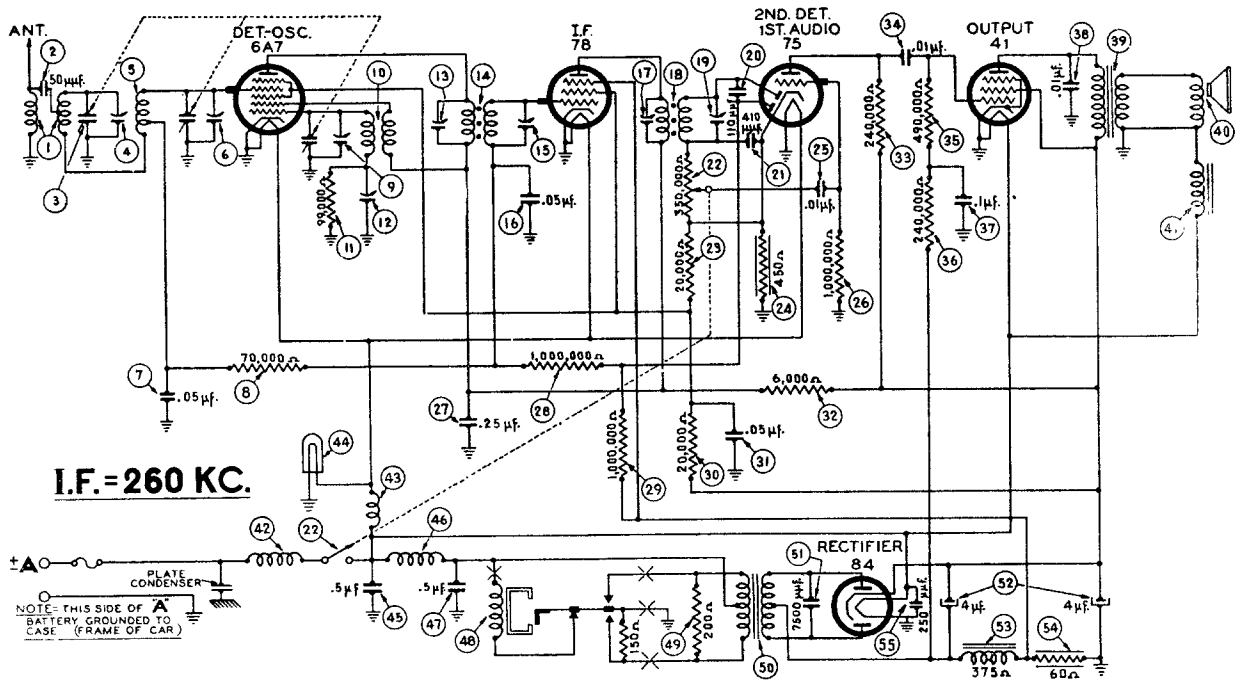
When adjusting the Antenna (2A) and Oscillator (2B) compensators, the chassis must be assembled in the cabinet with the batteries and loop in place. The Signal Generator output lead with the "Dummy Antenna" is then connected to the terminals marked "Ant" and "Grd" underneath the cabinet. The antenna and oscillator compensators are then adjusted through the holes in the bottom of the cabinet.

Replacement Parts

Code No.	Description	Part No.	Code No.	Description	Part No.	Code No.	Description	Part No.
1	Loop Assy.	40-6421	14	Resistor (2 megohms)	33-520339	26	Electrolytic Cond. (3 mf.)	30-2359
2	Tuning Cond.	31-2322	15	Volume Control & Switch	33-5301		Bezel Window	27-5434
3	Tubular Cond. (.05 mf.)	30-4519	16	Tubular Cond. (.01 mf.)	30-4572		Dial	31-2321
4	Resistor (2 megohm)	33-520339	17	Resistor (2 megohm)	33-520339		Dial Pointer	28-5185
5	Mica Cond. (35 mmf.)—mounted on top of tuning condenser	30-1095	18	Resistor (1 megohm)	33-510339		Dial Drive Cord Assy.	31-2323
6	Mica Cond. (110 mmf.)	30-1031	19	Mica Cond. (110 mmf.)	30-1031		Dial Tuning Shaft & Brkt. Assy.	31-2324
7	Resistor (190,000 ohms)	33-41939	20	Tubular Cond. (.01 mf.)	30-4572		Escutcheon (knobs)	56-1252
8	Oscillator Trans.	32-3118	21	Resistor (2 megohm)	33-520339		Escutcheon (screws)	W-2129
9	Resistor (70,000 ohms)	33-370339	22	Resistor (800 ohms)	33-180339		Knob (Tuning, Volume)	27-4331
10	Tubular Cond. (.05 mf.)	30-4444	23	Tubular Cond. (.001 mf.)	30-4201		Loop Antenna	40-6421
11	1st I. F. Trans. Assy.	32-3103	24	Output Trans. for Speaker No. 36-1451-3	32-8036		Pulley (Tuning Condenser)	28-6662
12	2nd I. F. Trans. Assy.	32-3081	25	Voice Coil Assy. for Speaker No. 36-1451-3	36-4090			
13	Resistor (51,000 ohms)	33-351339						

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PHILCO AUTO RADIO Model 920

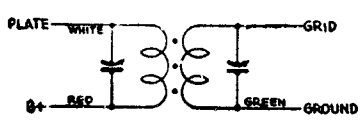


	SIGNAL GENERATOR		DUMMY CAPACITY	SPECIAL INSTRUCTIONS	ADJUST PADDER
	FREQUENCY	CONNECTION			
1	260 K. C.	To grid of 6A7 Tube	.1 Mfd. Condenser in Series with Generator Lead	No Antenna Connection	17 19 13 15 17
2	1550 K. C.	To Antenna Receptacle on Radio	50 Mmfd. See Note 1	Turn Tuning Condenser Plates Out of Mesh as Far as They Will Go.	9 6 6
3	580 K. C.	To Antenna Receptacle on Radio	50 Mmfd. See Note 1	Set Tuning Condenser at 580 K. C.	Note 2 12
4	1550 K. C.	To Antenna Receptacle on Radio	50 Mmfd. See Note 1	Turn Tuning Condenser Plates Out of Mesh as Far as They Will Go.	9
5	1400 K. C.	To Antenna Receptacle on Radio	50 Mmfd. See Note 1	Set Tuning Condenser at 1400 K. C.	6 6 Note 3

Make all adjustments for maximum reading on the output meter.

- 1 — Connect the antenna lead, Part No. 41-3191, to the antenna receptacle in the radio. Connect a 50 Mmfd. Condenser in series between the signal generator and the antenna lead.
- 2 — Rock the tuning condenser while adjusting the low frequency padder. Tune the condenser to the signal and adjust the padder for maximum output. Rotate the tuning condenser back and forth slightly for maximum output. Then re-adjust the padder for maximum output. Repeat this procedure until no further improvement is noticed.
- 3 — When the antenna stage adjustment is made with the Radio installed in the car, the Radio antenna lead must be connected to the car antenna in the usual manner. Connect the signal generator output lead to a wire placed near the car antenna but not connected to it.

I. F. TRANSFORMERS



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

PHILCO Model "L" RECORD CHANGER

OPERATING INSTRUCTIONS

The Model "L" Record Changer plays seven 12" or eight 10" Records automatically. The last record remains on the turntable and repeats as long as the Record Changer is in operation.

Records may be repeated as often as desired by raising the record removing arm at A Fig. 1 to the upright position.

To reject a record and play the next record below it, pull the latch lever at L Fig. 1 forward.

To adjust the record removing arm to handle 10" records set the record removing arm change lever at D Fig. 1 opposite the number 10 stamped on the base plate. For 12" records set the lever opposite the number 12.

To adjust the pickup to play 10" records, push the pickup stop at K Fig. 1 back. (Away from the pickup needle). For 12" records pull the stop forward (toward the needle) as far as it will go.

Some units are equipped with two speed motors, and others with 78 RPM motors. When the two speed motor is used change from one speed to the other by simply moving lever at F Fig. 1 to position desired.

To start motor, throw switch at N Fig. 1 on the "on" position.

clamps the lever to the motor shaft. This shaft is provided with a screw-driver slot in the end. Next, using a screw driver, turn this shaft in a clockwise direction until you feel it strike the stop. The motor is now in the 33-1/3 RPM position. Now set the lever against the lug provided in the base plate and opposite the legend 33-1/3 and tighten the clamp screw. This places the lever in the correct position on the motor shaft. The final step is the adjustment of the eccentric bushing at G Fig. 1 which limits the throw of the lever. First loosen the screw which holds the eccentric bushing. Next, throw the speed changer lever to its farthest 78 RPM position, (using care that the lever does not slip on the motor shaft). Then turn the eccentric bushing around until it touches the side of the lever, and tighten it in place with the screw provided.

TRIP MECHANISM

The trip mechanism is the trigger that sets the Record Changer in motion. This is done by allowing the latch bar at O Fig. 1 to drop in front of, and be actuated by the cam at P Fig. 1. This cam is driven by the motor and is in motion as long as the motor is running. If this mechanism does not operate smoothly, the precautions outlined in succeeding paragraphs should be observed.

First of all, make sure that the square pin in the latch lever at U Fig. 1 latches properly in the notch in the lift lever at I Fig. 1. When latched, the notch should be engaged approximately one-half of its depth. The depth of engagement is adjusted by means of the eccentric washer and locking screw at J Fig. 1. Now run the Record Changer through its cycle. If the square pin fails to engage the notch in the lift lever, first check the tension of the latch spring at H Fig. 1 to insure that the notch can engage the pin. Next check the tension of the reset spring at E Fig. 1. This reset spring should not be under tension when the latch bar drops back off of the cam to cause the square pin to over travel the notch in the lift lever.

IMPORTANT—Before attempting to change the tension of any spring, be sure that the parts involved work freely without any tendency to bind, as of course any binding condition would preclude proper operation.

The Record Changer is adjusted at the factory to trip on a spiral trip groove record when the phonograph needle is 1 1/4" from the edge of the hole in the center of the record.

MOTOR LUBRICATION

The motor installed in the Record Changer is governor controlled, with all gearing enclosed, and leaves the factory lubricated for proper operation. For maximum satisfaction, lubricate the motor at regular intervals with SAE No. 10 oil. Please do not use any other grade of oil.

The governor disc engages with a ring of hard felt. This felt is impregnated with a lubricating solution sufficient for proper operation for approximately a year under normal conditions.

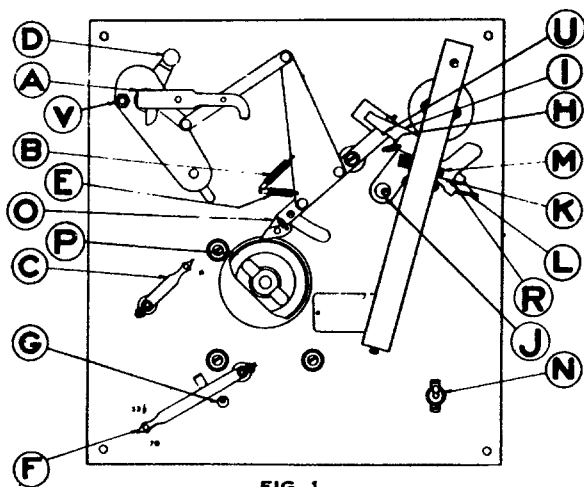


FIG. 1.

MOTOR SPEED

The motor speed is adjusted by means of a lever at C Fig. 1 which is mounted under the turntable. The direction of swing to fast or slow is indicated by the legends F and S on the base plate.

33-1/3 RPM — 78 RPM SHIFT (Two-speed motors only)

Move the speed change lever at F Fig. 1 as far as it will go in the direction of swing indicated by the legends 33-1/3 and 78 on the base plate.

If adjustment of the speed change lever is required for any reason, proceed as follows: First loosen the screw which

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When eccentric or oscillating trip groove records are used, tripping is effected by means of the hardened steel pin in the end of tone arm lift crank at S Fig. 2 engaging the serrated block on the trip lever at T Fig. 2. There must be a minimum of $1/32$ "

play between the end of the pin and the block, when, with a short needle, ($5/8$ " Minimum Length) the pickup is resting on one record on the turntable. If the pressure of the pin on the block is not sufficient to insure operation, then check the pressure spring which is located up under the pickup.

The oval head pivot screw at R Fig. 1 serves as a pivot for the lift lever at I Fig. 1. This screw should allow the lift lever to be raised by the latch bar to its maximum height without binding but also without any additional play.

If the Record Changer fails to trip, see if the phonograph needle is jumping out of a worn record trip groove. Next make certain that all parts of the mechanism work freely and smoothly. If it is found that the latch bar at O Fig. 1 is not dropping in far enough to engage the cam at P Fig. 1, then check the tension of the trip spring at B Fig. 1.

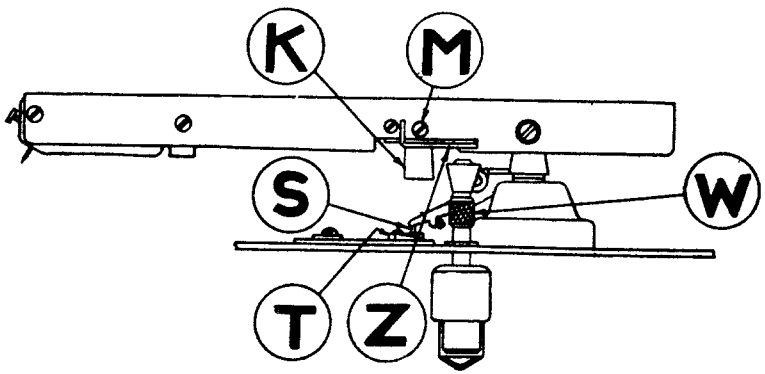


FIG. NO. 2

In case the Record Removing Mechanism fails to operate smoothly, proceed as follows: First make certain that all parts work freely with no binding in pivots or bearings, and that the record removing arm assembly rests on the stop screw at Q Fig. 3. Next stop the motor in such a position that the latch bar at O Fig. 1 can swing by and clear the cam at P Fig. 1. Place just one record on the turntable and measure from the top of this record down to the base plate. This distance should be one inch. Now by pulling the reject lever at L Fig. 1 first, it will be found possible to swing the record removing finger at Y Fig. 3 over to where it just touches the edge of the record. If the adjustment is correct, the record removing finger should just barely rise over the edge of the first record. If adjustment is required it can be made by means of the stop screw at Q Fig. 3. In the event the record removing arm raises the record from the turntable and drops it back in place without removing it, check the lift adjustment at V Fig. 1. This adjustment consists of an eccentric stud which is provided with a lock nut, and is made by loosening the lock nut and turning the eccentric stud. The lift adjustment should be set so that the hole in the center of the record just clears turntable spindle when the Record Changer is in operation.

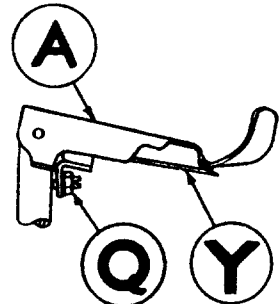


FIG. NO. 3

The pickup lowering mechanism has two functions. First, it lowers the phonograph needle gently to the surface of the record. Second, it feeds the needle toward the center of the record so that it will enter the playing groove.

If the pickup descends too fast or too slow, adjust the speed of descent by turning the knurled thumb nut on the dashpot sleeve at W Fig. 2.

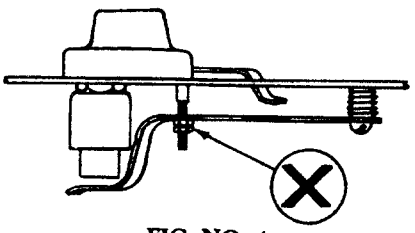
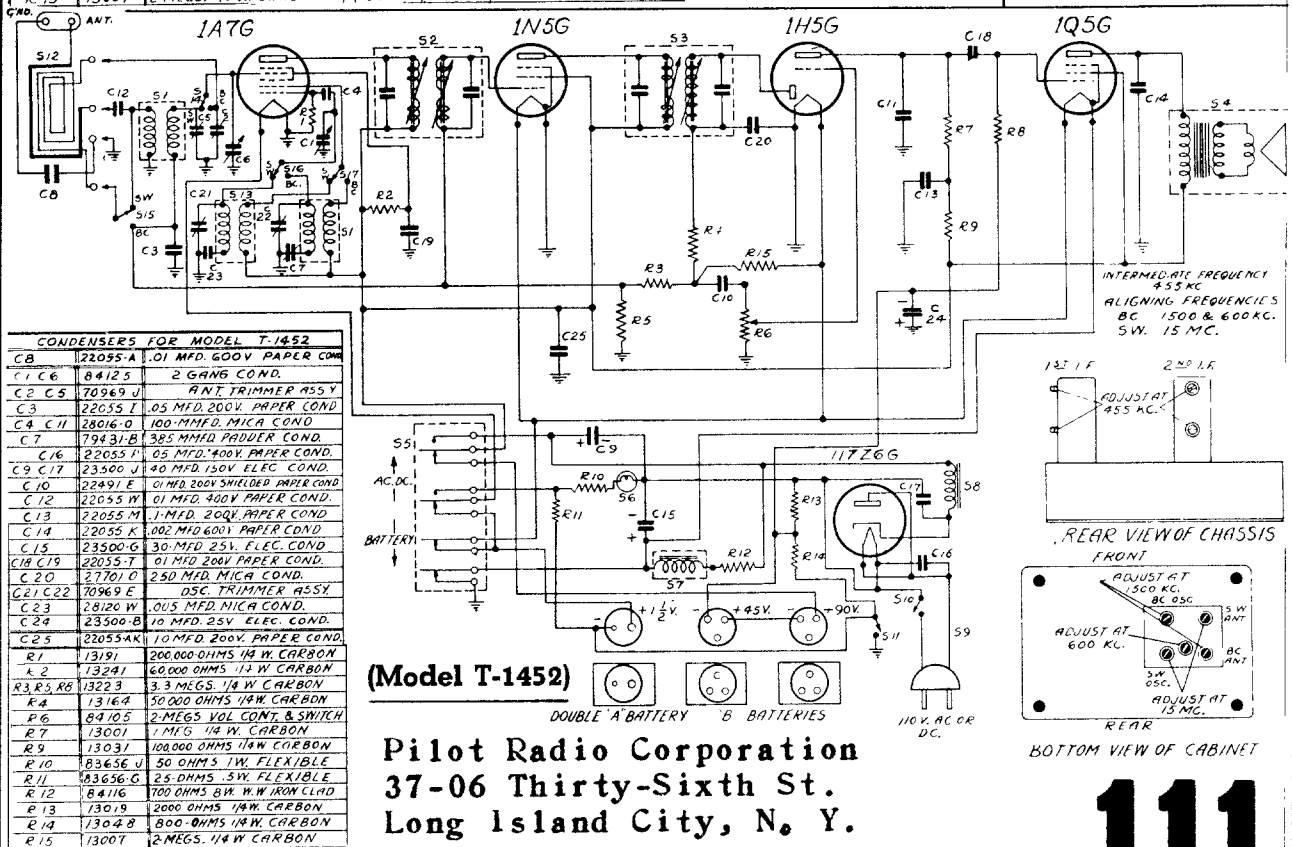
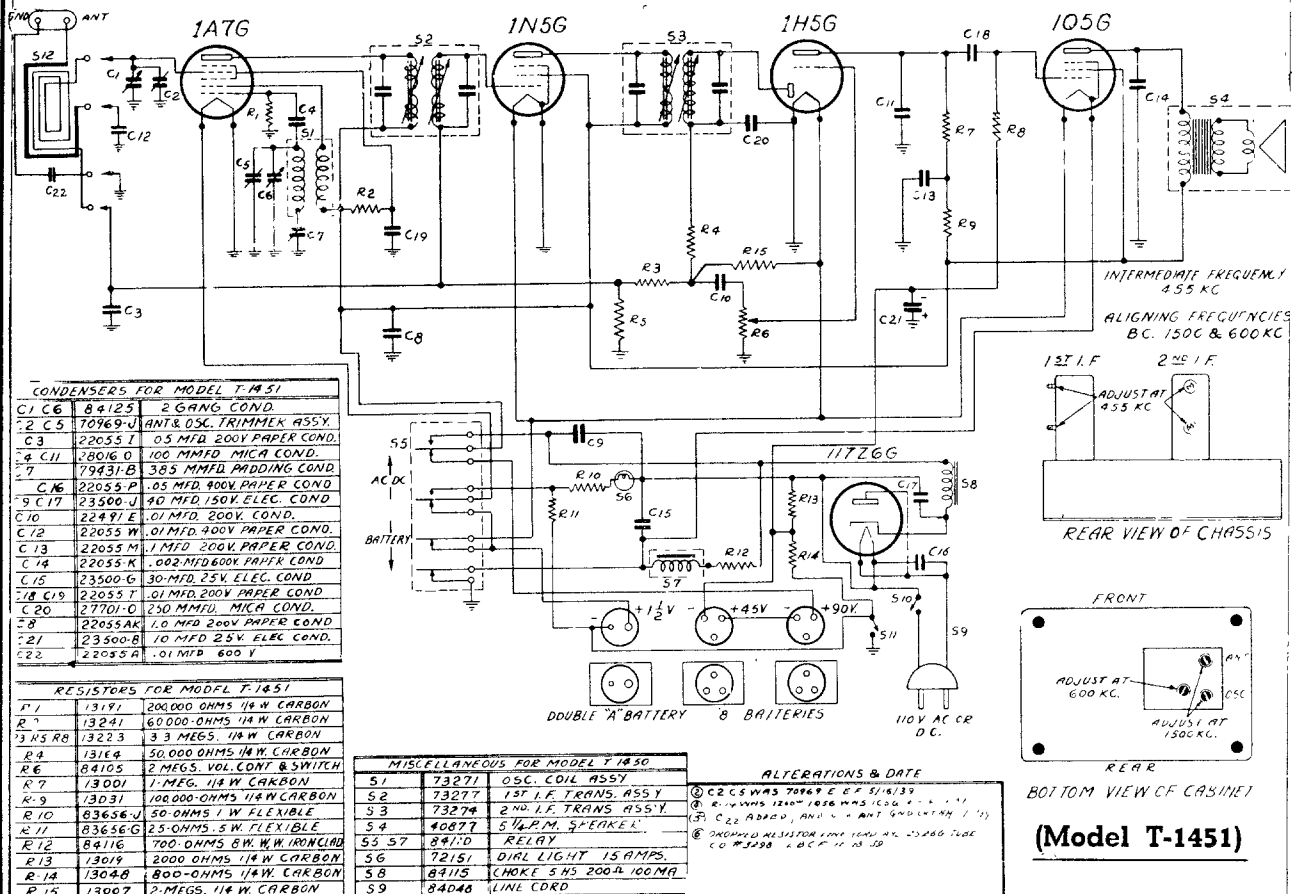


FIG. NO. 4

The unit is adjusted at the factory so that the needle will be set down approximately $3/32$ " in from the edge of the record. An adjusting screw is provided on the side of the pickup at M Fig. 2. If the needle is being lowered onto the playing surface of the record, and the adjusting screw at M Fig. 2 fails to correct the condition proceed as follows: First stop the record changer, with the pickup in the maximum raised position and check the clearance between the underside of the pickup shelf at Z Fig. 2 and the tip of the dashpot. This clearance should be very small as otherwise the pickup will tend to bounce as it is lowered. There must be sufficient clearance however to prevent the pickup shelf from rubbing on the tip of the dash pot, or the pickup will not swing out far enough to allow the adjustable stop at K Fig. 2 to come to rest against the dashpot. Check this clearance in both 10" and 12" record positions. If adjustment is required, the height of the dashpot may be regulated by loosening the nuts on the bottom of the lift lever stud at X Fig. 4 and changing their position on the stud. To raise the dashpot turn the nuts clockwise, to lower the dashpot turn the nuts counter-clockwise.

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Pilot Radio Corporation
37-06 Thirty-Sixth St.
Long Island City, N. Y.

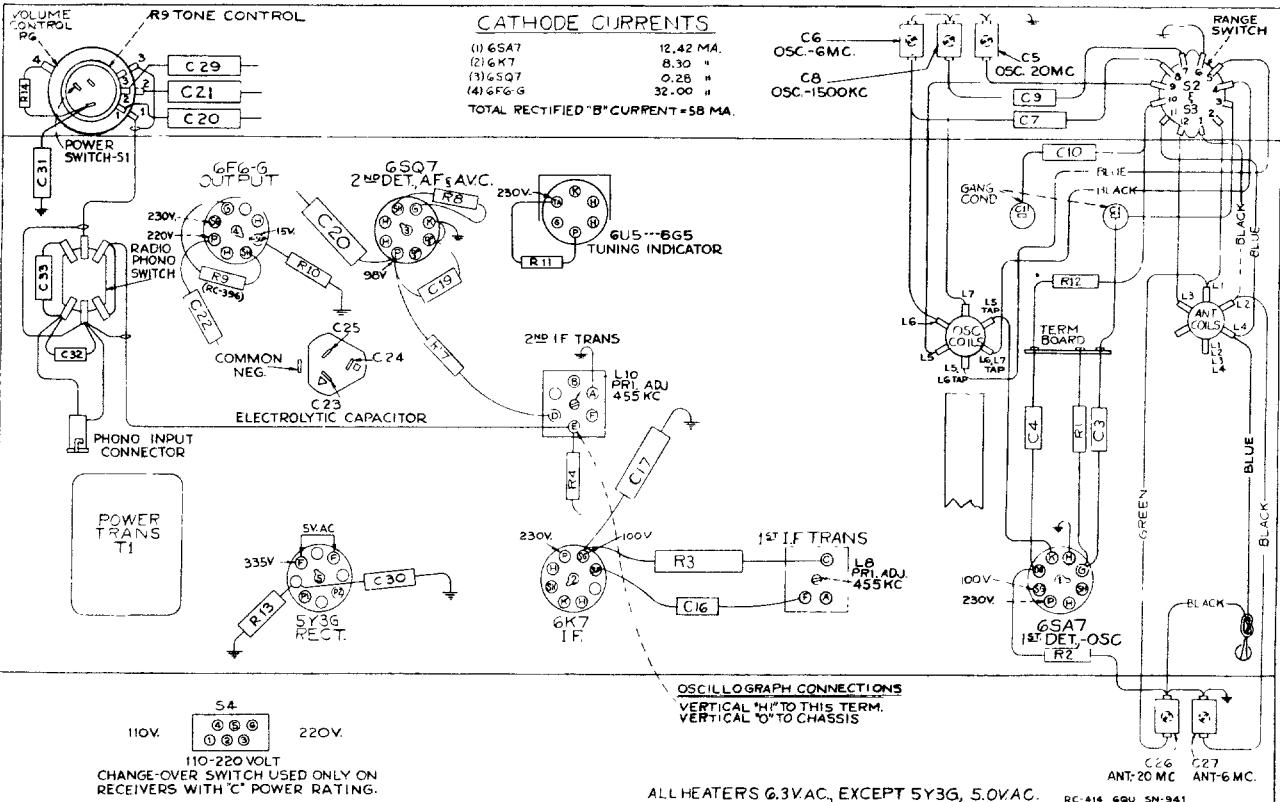
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RCA Victor

MODEL 6QU

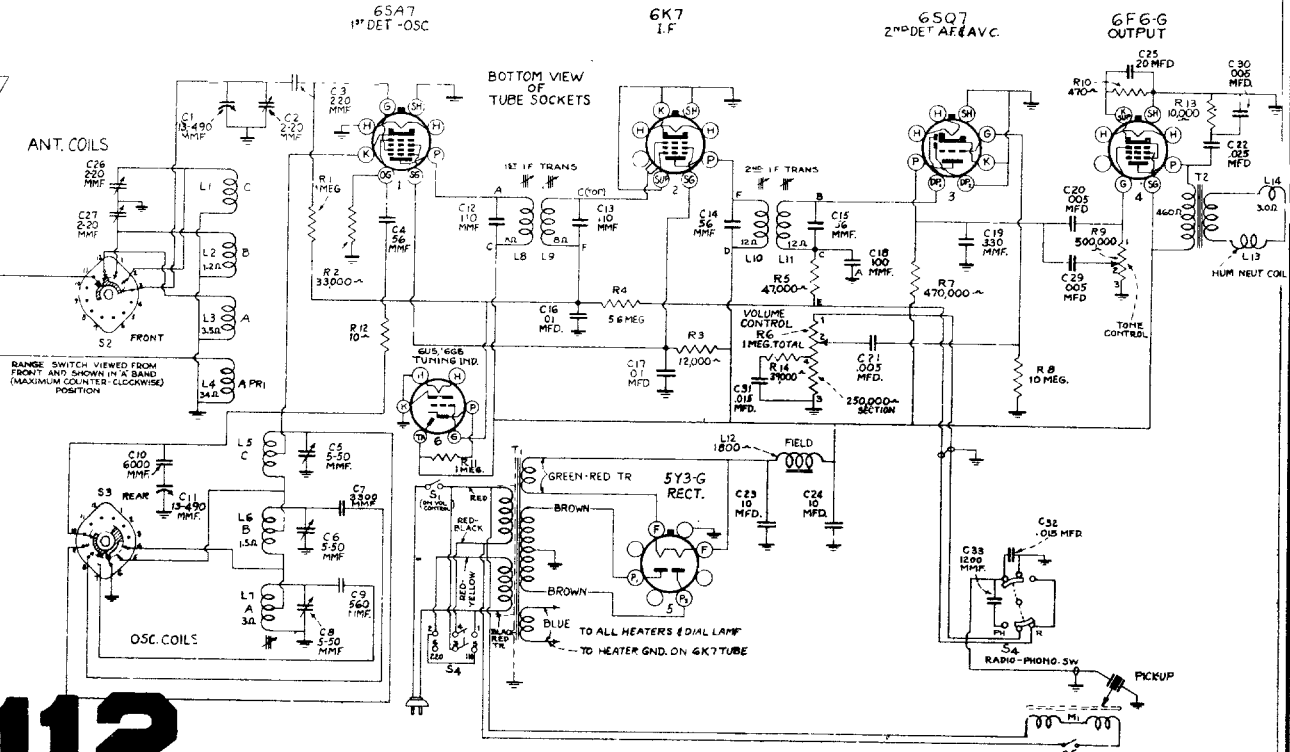
CATHODE CURRENTS

(1) 6SA7	12.42 MA.
(2) 6K7	8.30 "
(3) 6SQ7	0.28 "
(4) 6F6-G	32.00 "
TOTAL RECTIFIED "B" CURRENT = 58 MA.	



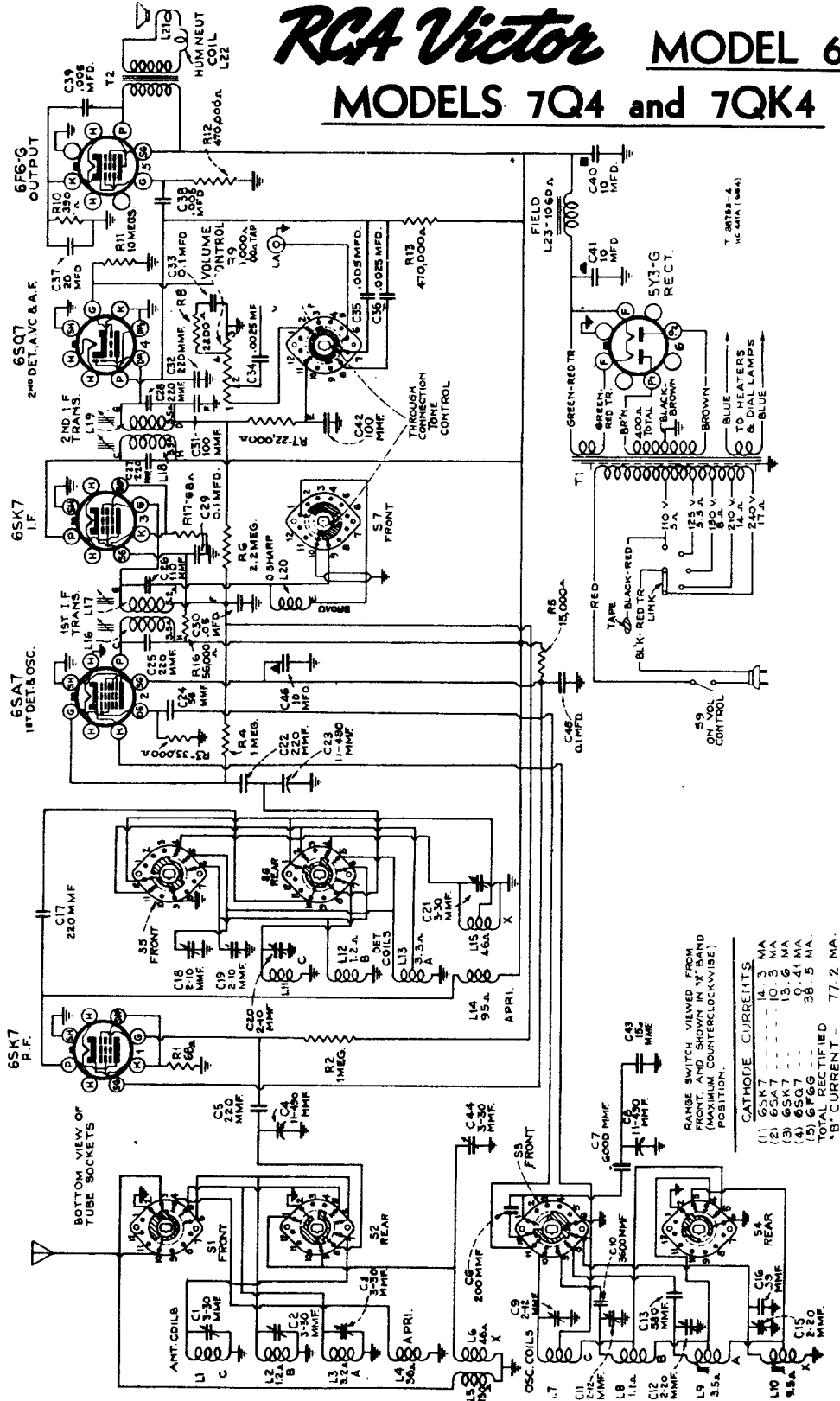
Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



RCA Victor MODEL 6Q4

MODELS 7Q4 and 7QK4



Models 7Q4 and 7QK4 are similar to Model 6Q4 except for the addition of a tuning indicator (RCA-6U5/6G5). The 7Q4 chassis uses an RCA-6F6 output tube, whereas the 7Q4 uses an RCA-6F6-G output tube.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RCA Victor

Models 9TX-21, -22, and -23

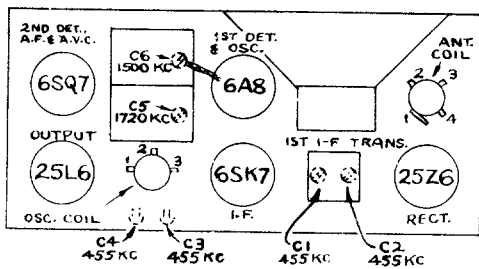
Chassis No. RC-403 RC-403 RC-403A

Five-Tube, Single-Band, AC-DC Superheterodyne Receivers

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible. The antenna should be rolled up and kept at least one foot from chassis during alignment.



Trimmer Locations

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6A8 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal.	C6 (antenna)

INTERMEDIATE FREQUENCY..... 455 kc

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted..... 1.5 watts
Maximum..... 2.0 watts

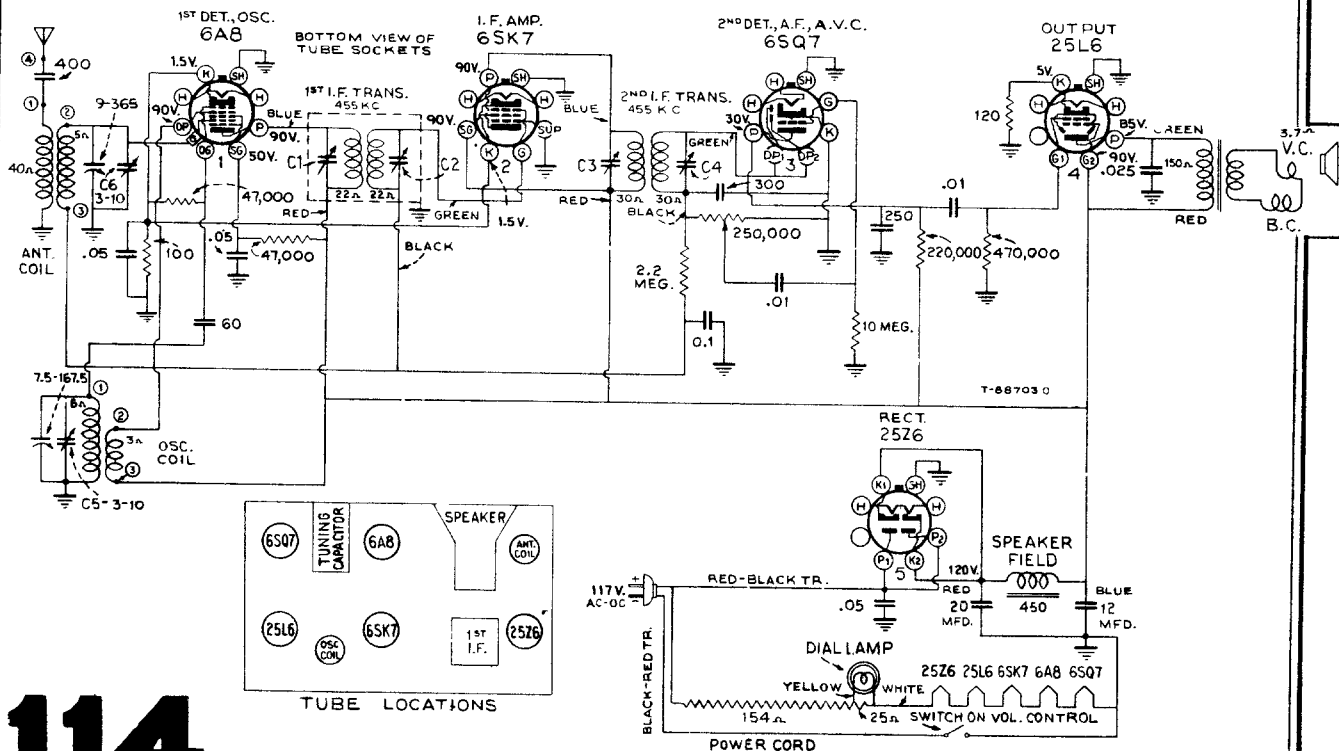
LOUDSPEAKER (39105-1)

Type..... 4-inch Electrodynamic

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

Resistor in Power Cord.—The power cord contains a resistor which becomes warm during operation.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

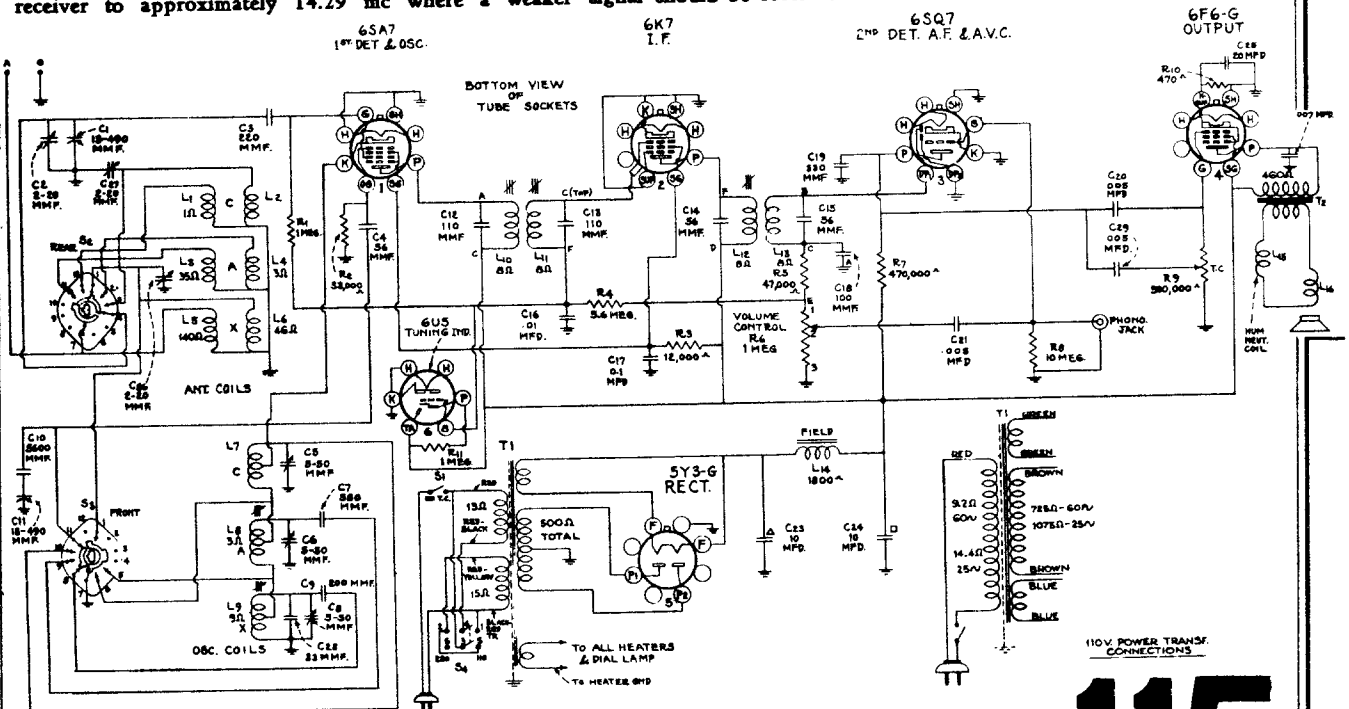
RCA Victor

MODEL 6Q8

Chassis No. RC-414B

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Trans.)
2	6SA7 det. grid in series with .01 mfd.	455 kc		L10 and L11 (1st I-F Trans.)
3	Ant. terminal in series with 200 mmf.	1,500 kc	1,500 kc (152.4°) "A" Band	C8 (osc.) C2 (ant.)
4	Ant. terminal in series with 200 mmf.	600 kc	600 kc (33°) "A" Band	L8 (osc.) Rock Gang
5	Repeat steps 3 and 4			
6	Ant. terminal in series with 200 mmf.	360 kc	360 kc (151.5°) "X" Band	C8 (osc.) C26 (ant.)
7	Ant. terminal in series with 200 mmf.	175 kc	175 kc (53.3°) "X" Band	L9 (osc.) Rock Gang
8	Repeat steps 6 and 7			
9	Ant. terminal in series with 300 ohms	15.2 mc	15.2 mc (147.3°) "C" Band	C5 (osc.)* C27 (ant.)
10	Ant. terminal in series with 200 mmf.	360 kc	360 kc (151.5°) "X" Band	C8 (osc.)
11	Ant. terminal in series with 200 mmf.	1,500 kc	1,500 kc (152.4°) "A" Band	C8 (osc.)

*Use minimum capacity peak if two can be obtained. Check to determine that C5 is adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.



RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN "X" BAND (MAX. COUNTER CLOCKWISE) POSITION.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

115



RCA Victor

MODELS 9TX-31, 9TX-32, 9TX-33

Chassis No. RC-405, RC-405A, RC-405B

Five-Tube, Single-Band, AC-DC Superheterodyne Receivers

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)

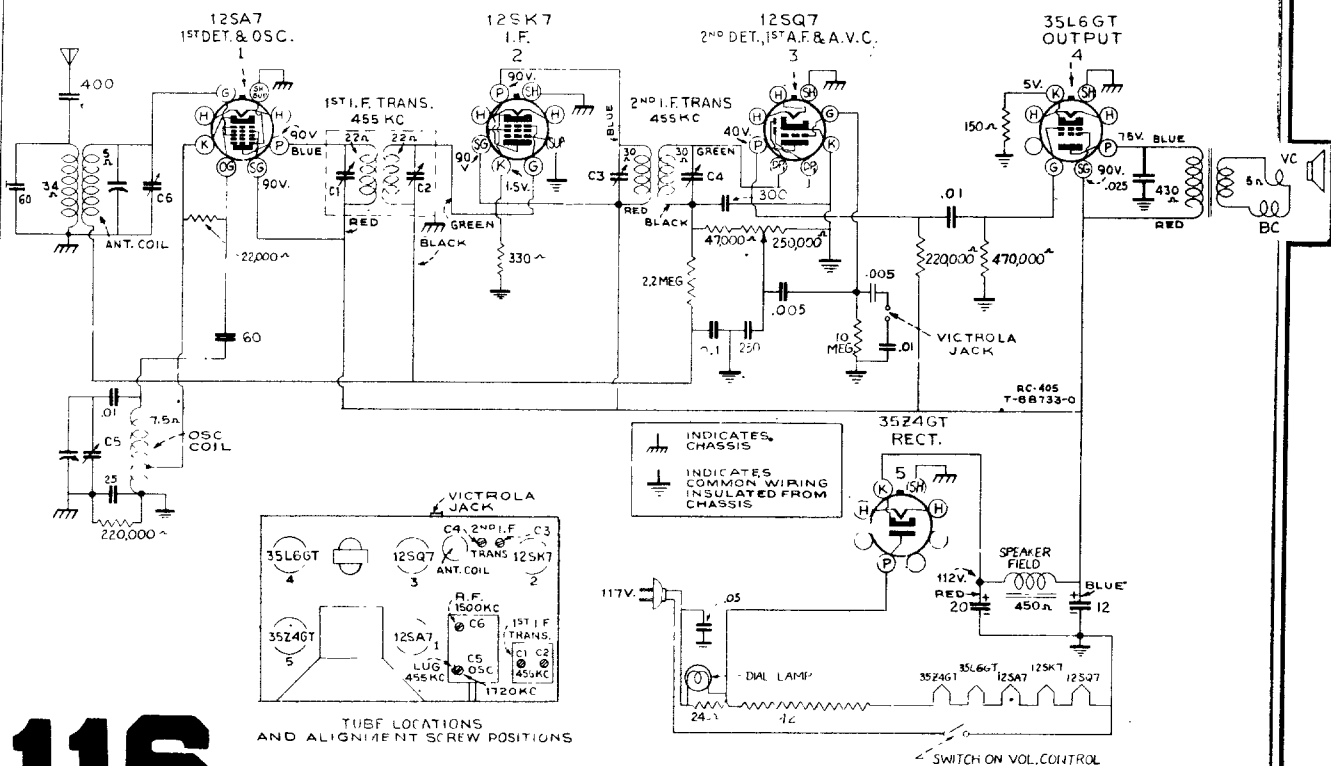
Precautionary Lead Dress

1. Dress 1st I-F plate and grid leads against chassis and away from each other. Dress plate lead from 12SK7 close to chassis.
2. Dress electrolytic capacitor against rear apron.

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

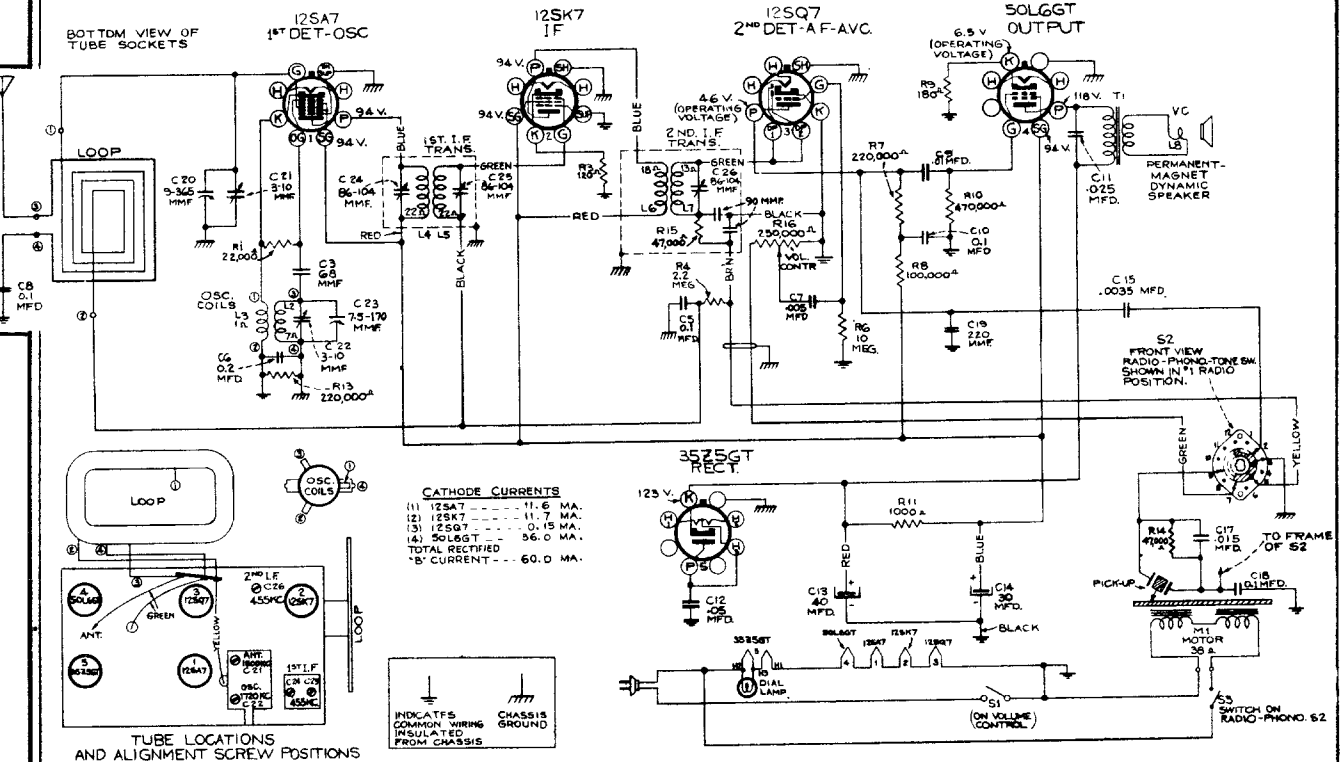
Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Victrola Attachment.—A jack is provided on the rear of chassis for connecting a Victrola Attachment into the audio-amplifying circuit. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.





RCA VICTROLA MODEL U-9 (Chassis No. RC-482B) Five-Tube, Single-Band, A-C, Superheterodyne



Miscellaneous Service Data

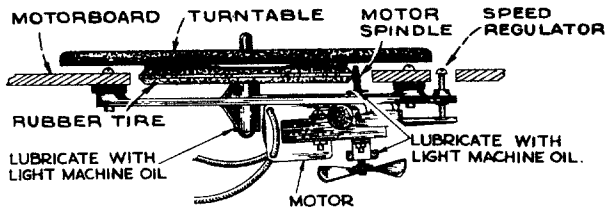
PHONOGRAPH MECHANISM.—

The phonograph motor is self-starting and operates the turntable through friction drive between the motor spindle and the rubber tire on the underside of the turntable.

The rubber driving tire on the turntable should never be removed since it is ground in to be concentric with the spindle. If replacement is required, the entire turntable should be replaced.

The speed regulator raises and lowers the motor. This changes the driving ratio between the motor and the turntable due to the motor spindle being conical in shape. It is important to adjust this regulator for a turntable speed of 78 r.p.m. WHILE PLAYING A 10-INCH RECORD WITH THE NEEDLE APPROXIMATELY ONE INCH FROM THE OUTER EDGE OF THE RECORD.

Lubrication.—The motor should be lubricated as follows: Place a few drops of S.A.E. 20 (or equivalent) on the turntable spindle and saturate the oil retaining felt pads on the motor shaft with S.A.E. 10 oil. This oiling process should be repeated once or twice a year. **CAUTION.**—THE MOTOR DRIVE SPINDLE AND RUBBER DRIVING TIRE ON THE TURNTABLE MUST BE KEPT CLEAN AND ENTIRELY FREE FROM OIL AND GREASE AT ALL TIMES.



Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a 0.01 mfd capacitor, and keep the output as low as possible.

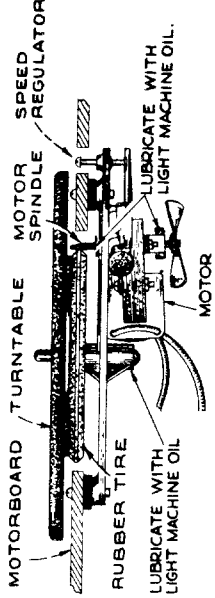
Pre-Setting Dial.—With gang condenser in full mesh, the pointer should coincide with the left hand mark stamped in the dial back-plate.

Antenna.—This set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the green antenna lead, stapled to the base of the cabinet. The antenna should not be longer than 100 feet including the lead-in. If it is longer, connect a 100 mmfd. capacitor in series with the lead-in.

Steps	Connect the high side of test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. output—
1	Tuning Cond. stator (det.) in series with 0.01 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C24, C25, C26 (1st and 2nd I-F transformers)
2	Antenna lead (green) in series with 100 mmfd.	1,720 kc	Full Clockwise (out of mesh)	C22 (osc.)
3		1,500 kc	Resonance on 1,500 kc signal	C21 (ant.)

RCA Victor

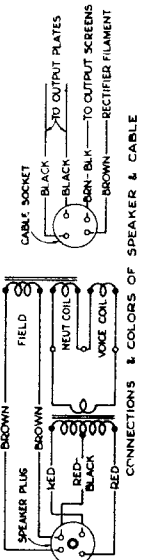
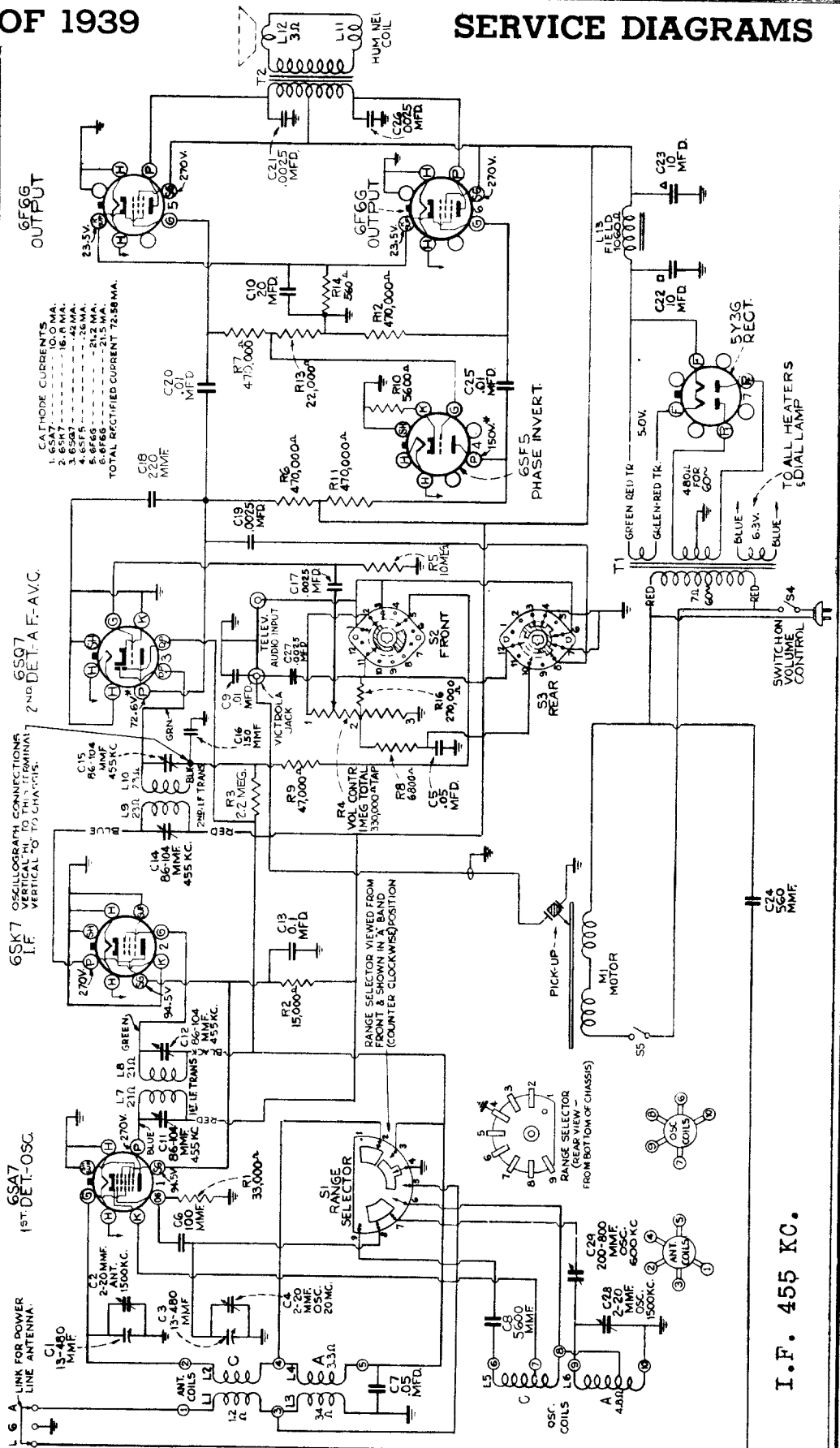
MODEL U-12



CAI-TUBE CURRENTS

1. 6SA7	10.0 MA.
2. 6SK7	16.0 MA.
3. 6SQ7	42.0 MA.
4. 6SF5	26.0 MA.
5. 6BE6	21.5 MA.
6. 6BE5	21.5 MA.

TOTAL RECTIFIED CURRENT 72.58 MA.



OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHA-POS.

1ST. DET.-OSC.
6SA7

I.F.
6SK7

2ND DET.-A F.-AVC.
6SQ7

6F6G
OUTPUT

6F5G
OUTPUT

PHASE INVERT
6S5G

5Y2G
RECT.

TO ALL HEATERS
5DIAL LAMP

PICK-UP
M1
MOTOR

SWITCH ON
VOLUME
CONTROL

C7A
560
MMF.

I.F. 455 KC.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Automatic Record Changer

GENERAL INFORMATION

Before servicing the automatic record changer, inspect the assembly to see that all levers, parts, gears, springs, etc. are in good order and are correctly assembled.

A bind or jam in the mechanism can usually be relieved by rotating the turntable in the reverse direction.

The changer can be conveniently rotated through its change cycle by pushing the index lever to "Reject" and revolving the turntable by hand. Six turntable revolutions are required for one change cycle.

ADJUSTMENTS

A. Main Lever.—This lever is basically important in that it interlinks the various individual mechanisms which control needle landing, tripping, record separation, etc. One adjustment is provided for the main lever. Rotate the turntable until the changer is out-of-cycle; and adjust rubber bumper bracket (A) so that the roller clears the nose of the cam plate by $1/16$ inch.

B. Friction Clutch.—The motion of the tone arm toward the center of the record is transmitted to the trip pawl "22" by the trip lever "7" through a friction clutch "5." If the motion of the pickup is abruptly accelerated or becomes irregular due to swinging in the eccentric groove, the trip finger "7" moves the trip pawl "22" into engagement with the pawl on the main gear, and the change cycle is started. Proper adjustment of the friction clutch "5" occurs when movement of the tone arm causes positive movement of the trip pawl "22" without tendency of the clutch to slip. The friction should be just enough to prevent slippage, and is adjustable by means of screw "B." If adjustment is too tight, the needle will repeat grooves; if too loose, tripping will not occur at the end of the record.

C. Pickup Lift Cable Screw.—During the record change cycle, lever "16" is actuated by the main lever "15" so as to raise the tone arm clear of the record by means of the pickup lift cable. To adjust pickup for proper elevation, stop the changer "in-cycle" at the point where pickup is raised to the maximum height above turntable plate, and has not moved outward; at this point adjust locknuts "C" to obtain 1 inch spacing between needle point and turntable top surface.

D. & E. Needle Landing on Record.—The relation of coupling between the tone arm vertical shaft and lever "20" determines the landing position of the needle on a 10 inch record. Position of eccentric stud "E" governs the landing of the needle on a 12 inch record; this, however, is dependent on the proper 10 inch adjustment.

To adjust for needle landing, place 10 inch record on turntable; push index lever to reject position and return to the 10 inch position; see that pickup locating lever "17" is tilted fully toward turntable; rotate mechanism through cycle until needle is just ready to land on the record; then see that pin "V" on lever "14" is in contact with "Step T" on lever "17." The correct point of landing is $4-11/16$ inches from the nearest side of the turntable spindle; loosen the two screws "D" and adjust horizontal position of tone arm to proper dimension, being careful not to disturb levers "14" and "17." Leave approximately $1/32$ inch end play between hub of lever "20" and pickup base bearing, and tighten the blunt nose screw "D"; run mechanism through several cycles as a check, then tighten cone pointed screw "D".

After adjusting for needle landing on a 10 inch record, place 12 inch record on turntable; push index lever to reject and return to 12 inch position; rotate mechanism through cycle until needle is just ready to land on the record; the correct point of landing is $5-11/16$ inches from nearest side of spindle. If the landing is incorrect, turn stud "E" until the eccentric end adjusts lever "14" to give correct needle landing. The eccentric end of the stud must always be toward the rear of the motor board, otherwise incorrect landing may occur with 10 inch records.

F. & G. Record Separating Knife.—The upper plate (knife) "25" on each of the record posts serves to separate the lower record from the stack and to support the remaining records during the change cycle. It is essential that the spacing between the knife and the rotating record shelf "27" be accurately maintained. The spacing for the 10 inch record is nominally $.058$ inch, and for the 12 inch record is $.075$ inch.

To adjust, rotate the knife to the point of minimum

vertical separation from the record shelf and turn screw and locknut "F" to give $.055-.061$ inch separation. Screw "G" must not be depressed during this adjustment. After setting screw "F" adjust screw "G" so that when its tip is depressed flush with top of record shelf, the vertical spacing between the knife, in its lowest rotational position, and the shelf, is $.072-.078$ inch.

H. Record Support Shelf.—The record shelf revolves during the change cycle to allow the lower record to drop onto the turntable. Both posts are rotated simultaneously by a gear and rack coupled to the main lever "15," and it is necessary that adjustments be such that the record is released from both shelves at the same instant. To adjust, place a 12 inch record on the turntable, rotate mechanism into cycle to the point where tone arm is at maximum distance outward from turntable; lift record upward until it is in contact with both separating knives, then loosen screws "H" and shift record shelves so that the curved inner edges of the shelves are uniformly spaced at least $1/16$ inch from record edge. Tighten the blunt nose screw "H," run mechanism through cycle several times to check action, then tighten cone pointed screw "H".

If record shelves or knives are bent, or not perfectly horizontal, improper operation and jamming of mechanism will occur.

J. Tone Arm Rest Support (not shown).—When the changer is out-of-cycle, the front lower edge of the pickup head should be $5/16$ inch above surface of motor board. This may be adjusted by bending the tone arm support bracket, which is associated with the tone arm mounting base, in the required direction.

K. Trip Pawl Stop Pin.—The position of the trip pawl stop pin "K" in relation to the main lever "15" governs the point at which the roller enters the cam. By bending the pin support either toward or away from trip pawl bearing stud, the roller can be made to enter the cam later or earlier, respectively. This adjustment should be made so that the roller definitely clears the cam outer guide as well as the nose of the cam plate.

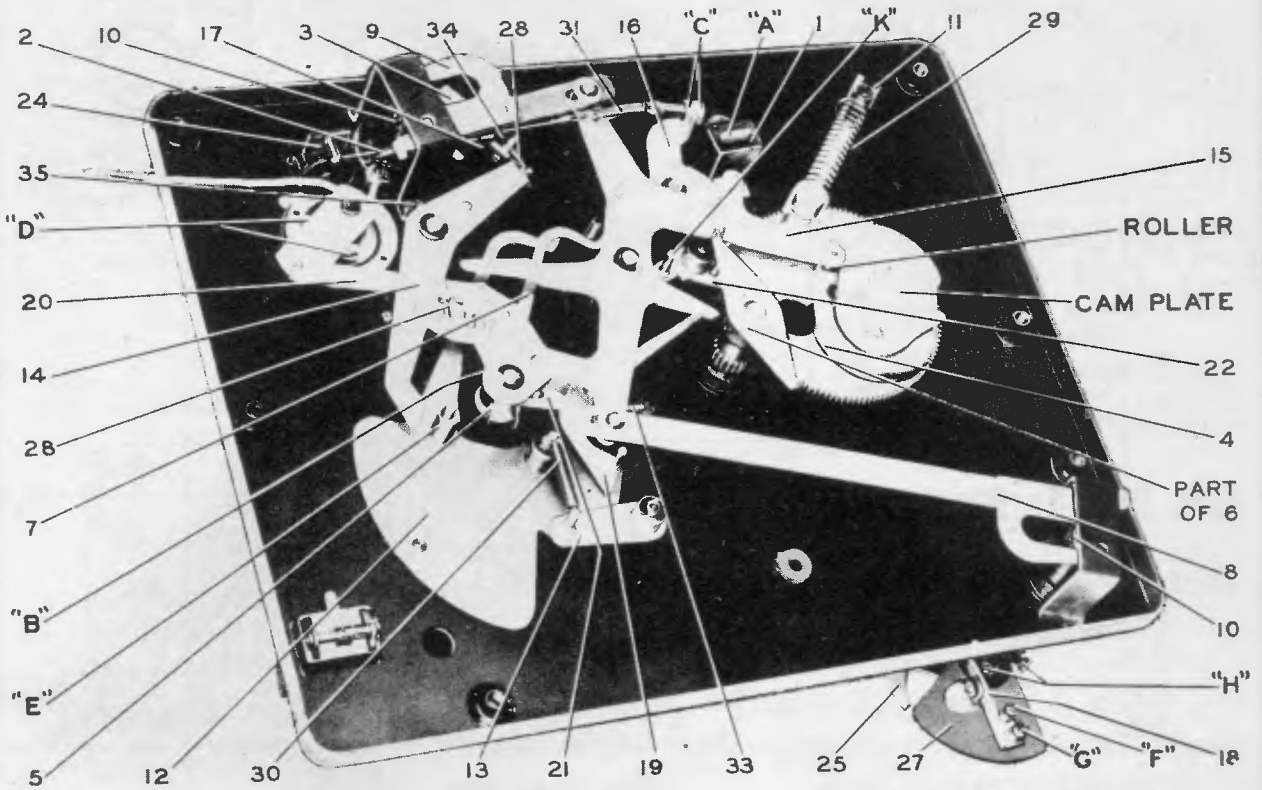
Lubrication.—Petrolatum or petroleum jelly should be applied to cam, main gear, spindle pinion gear, and gears of record posts.

MISCELLANEOUS SERVICE HINTS

Incorrect adjustment of a particular mechanism of the changer is generally exhibited in a specific mode of improper operation. The following relations between effects on operation and the usual mis-adjustments will enable ready adjustment in most cases.

1. For any irregularity of operation, the adjustment of the main lever "15" should be checked first as in "A".
2. Needle does not land properly on both 10 and 12 inch records—Make complete adjustments "D" and "E".
3. Needle does not land properly on 12 inch record but correct on 10 inch—Effect adjustment "E".
4. Failure to trip at end of record—Increase clutch "5" friction by means of screw "B". Also, see that levers "7" and "12" are free to move without touching each other.
5. Pickup strikes lower record of stack or drags across top record on turntable—Adjust lift cable per adjustment "C".
6. Needle does not track after landing—Friction clutch "5" adjustment "B" may be too tight; bind in tone arm vertical bearing; levers "7" and "12" fouled; or pickup output cable twisted.
7. Cycle commences before record is complete—Record is defective, or adjustment "B" of friction clutch "5" is too tight.
8. Wow in record reproduction—Record is defective; flexible coupling between motor and changer mechanism not correctly assembled; or instrument is not being operated at normal room temperature (65° F).
9. Record knives strike edge of records—Records warped; record edges are rough; or knife adjustments "F" and "G" are incorrect.
10. Record not released properly—Adjust record shelf assemblies in respect to shaft by means of adjustment "H".
11. Needle lands in 10 inch position on 12 inch record or misses record when playing both types mixed—Increase tension of pickup locating lever spring "34".

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS VICTROLA MODELS U-25 and U-26



Bottom View of Automatic Record Changer

NOTE: Numbers refer to parts—letters refer to adjustments.

SPEED ADJUSTMENT (SCREW) TO DECREASE SPEED TURN CLOCKWISE

TURN SPEED ADJUSTER SO THE FELT WILL PROTRUDE $\frac{1}{16}$ " WHEN ALL THE WAY IN, ADJUST GOVERNOR SO AS TO LEAVE $\frac{1}{16}$ " BETWEEN FELT AND DISC, THEN SECURE BY MEANS OF GOVERNOR SCREW.

ADJUST SO THAT SHAFT IS FREE TO ROTATE WITHOUT END PLAY

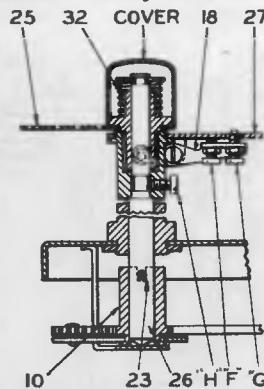
REMOVE TO TAKE OFF GOVERNOR

SPEED ADJUSTMENT LOCK NUT

OIL
KEEP FILLED WITH LIGHT OIL TO INSURE SMOOTH OPERATION

DO NOT CHANGE THIS ADJUSTMENT

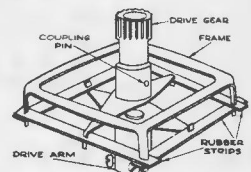
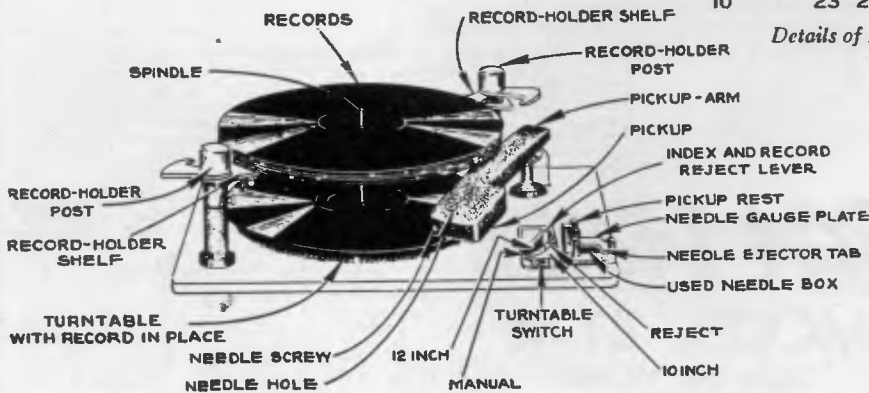
RCA MFG. CO. INC.
M-31474-S



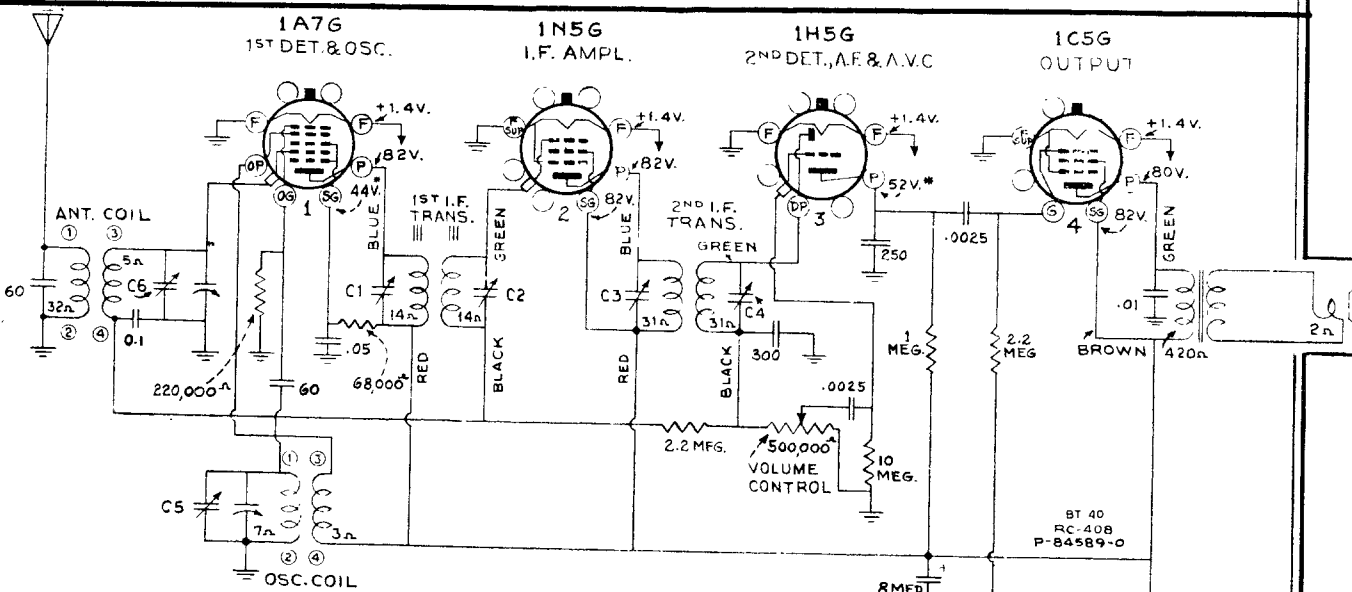
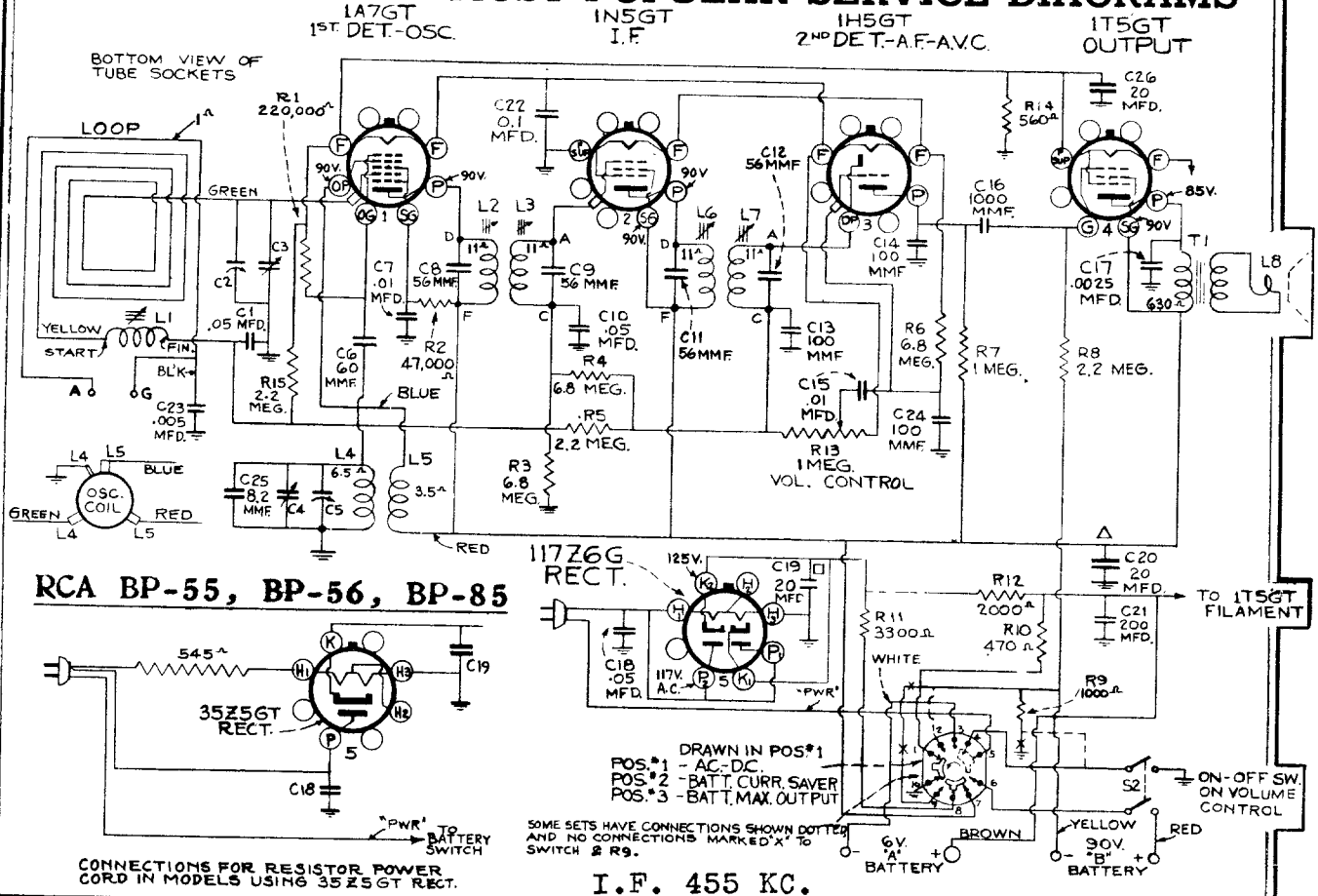
PIN "V" ON END OF 14

STEP "T"

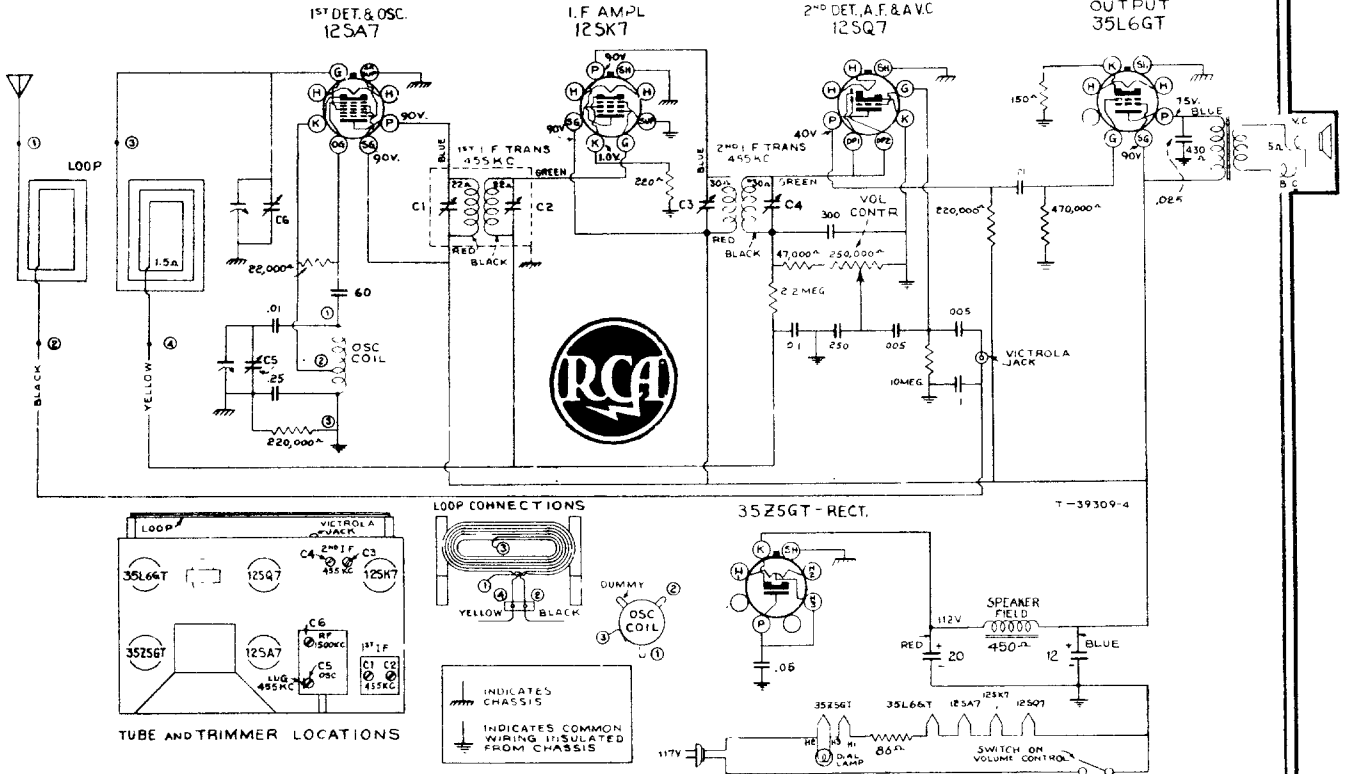
Details of Record Shelf Posts, and Locating Lever Assemblies



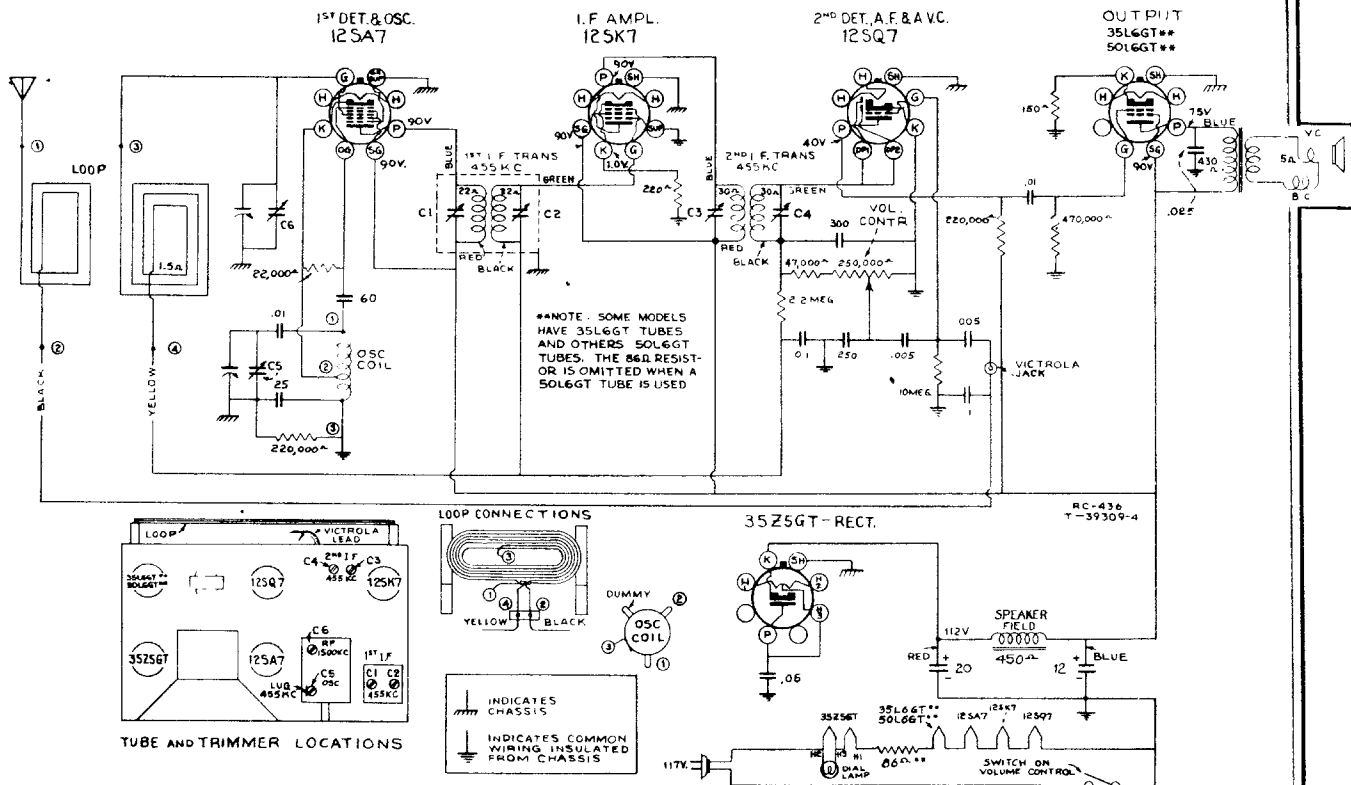
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Models 40X-30 and 40X-31 (Chassis No. RC405C & D)

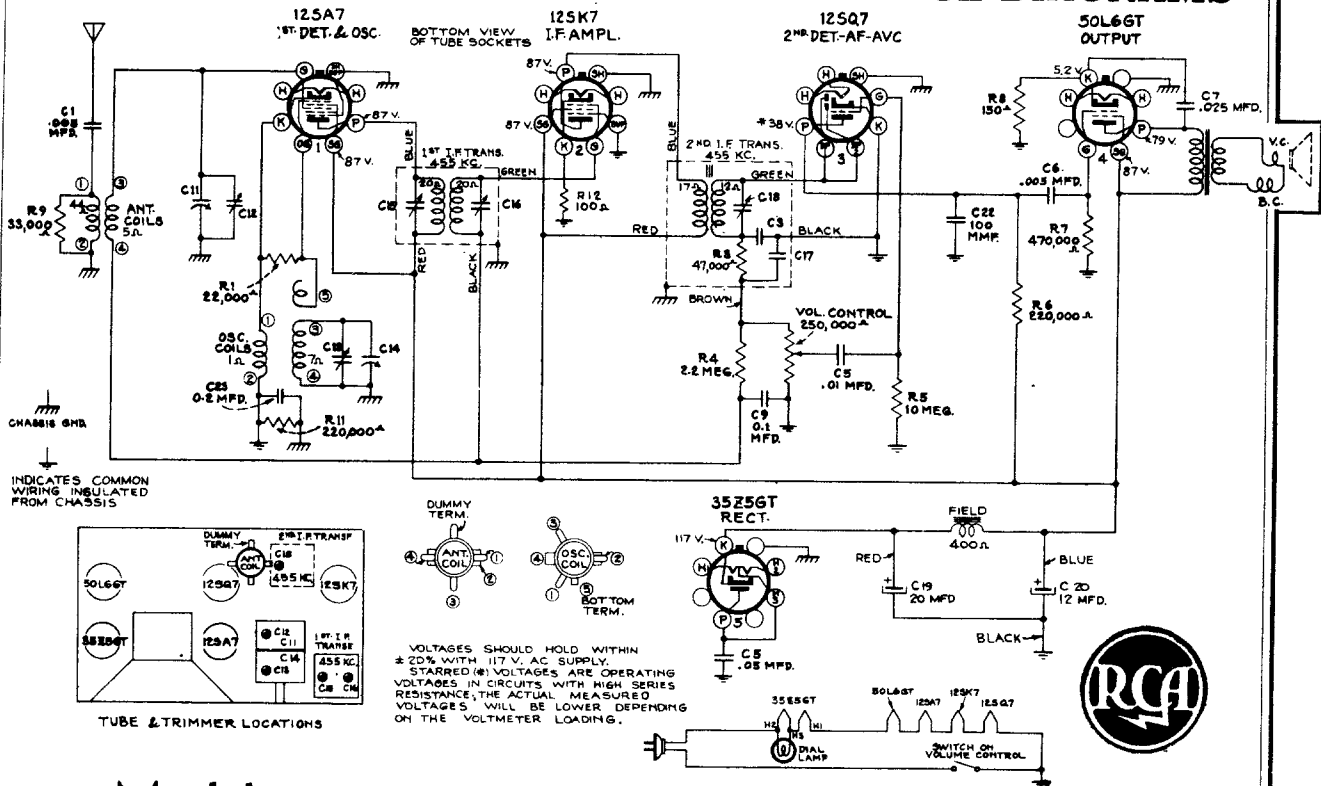


Model 40X-50 Series (Chassis No. RC-436)

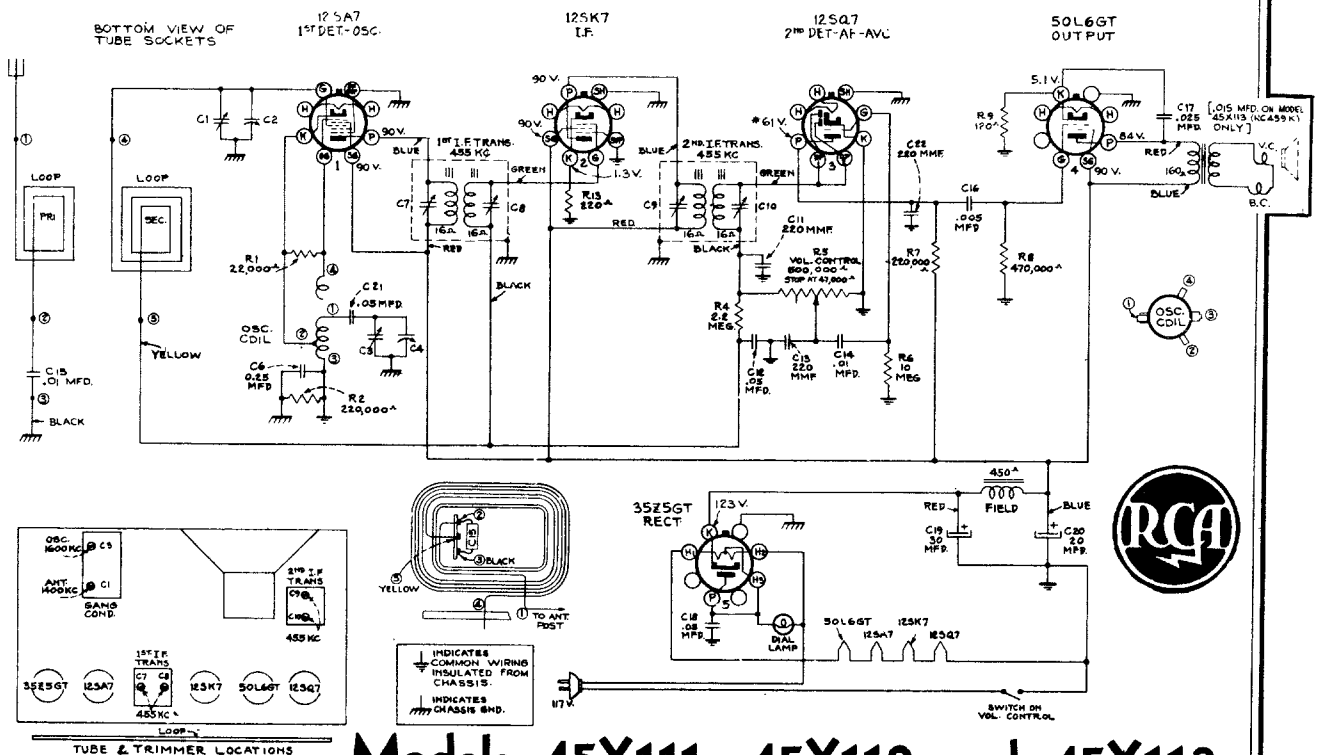
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

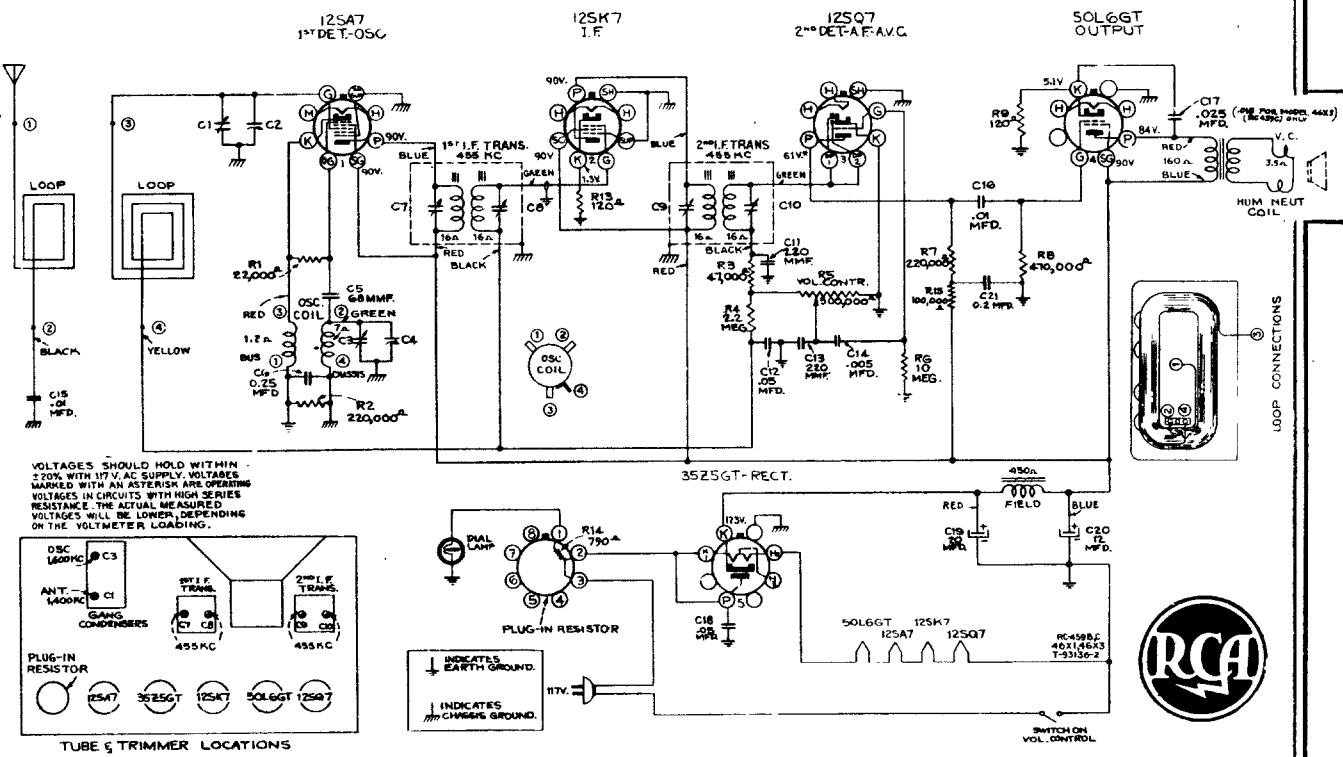


Models 45X5 and 45X6 (Chassis No. RC-457-D)



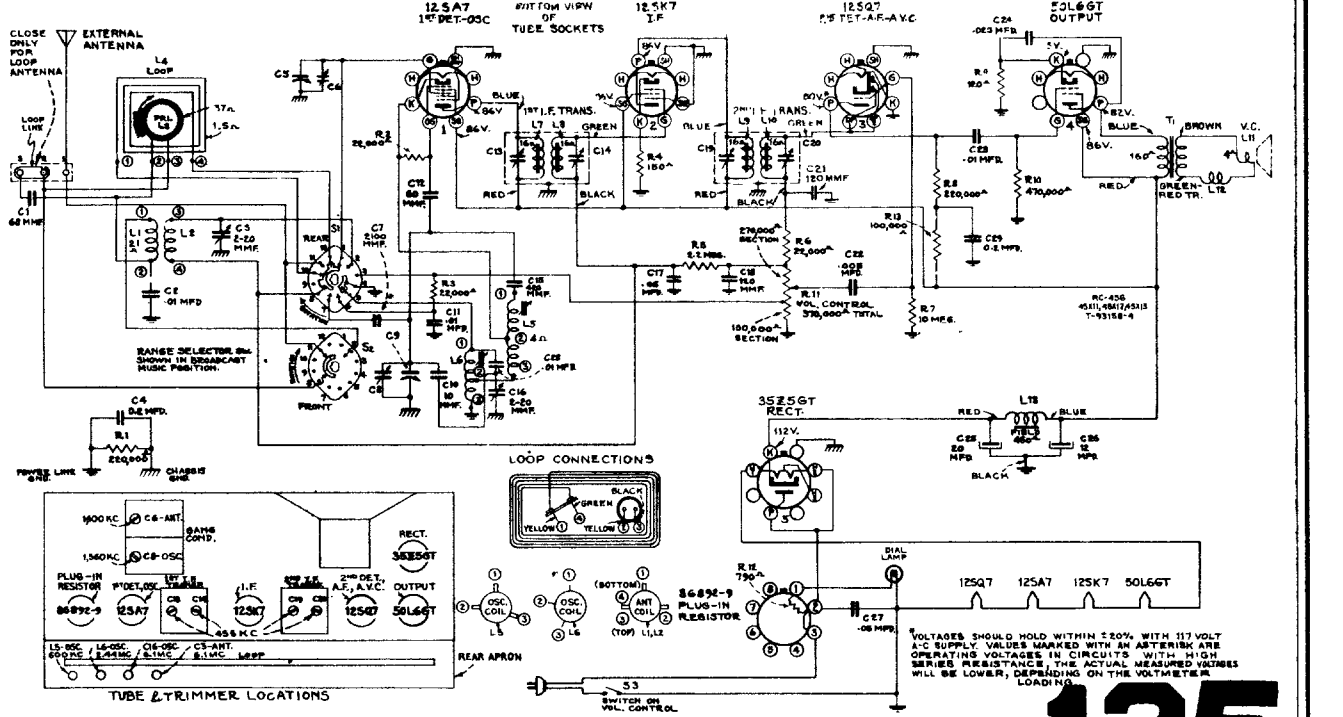
Models 45X111, 45X112 and 45X113 Chassis Nos. 459J and 459K COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



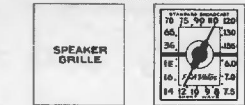
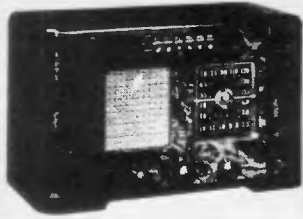
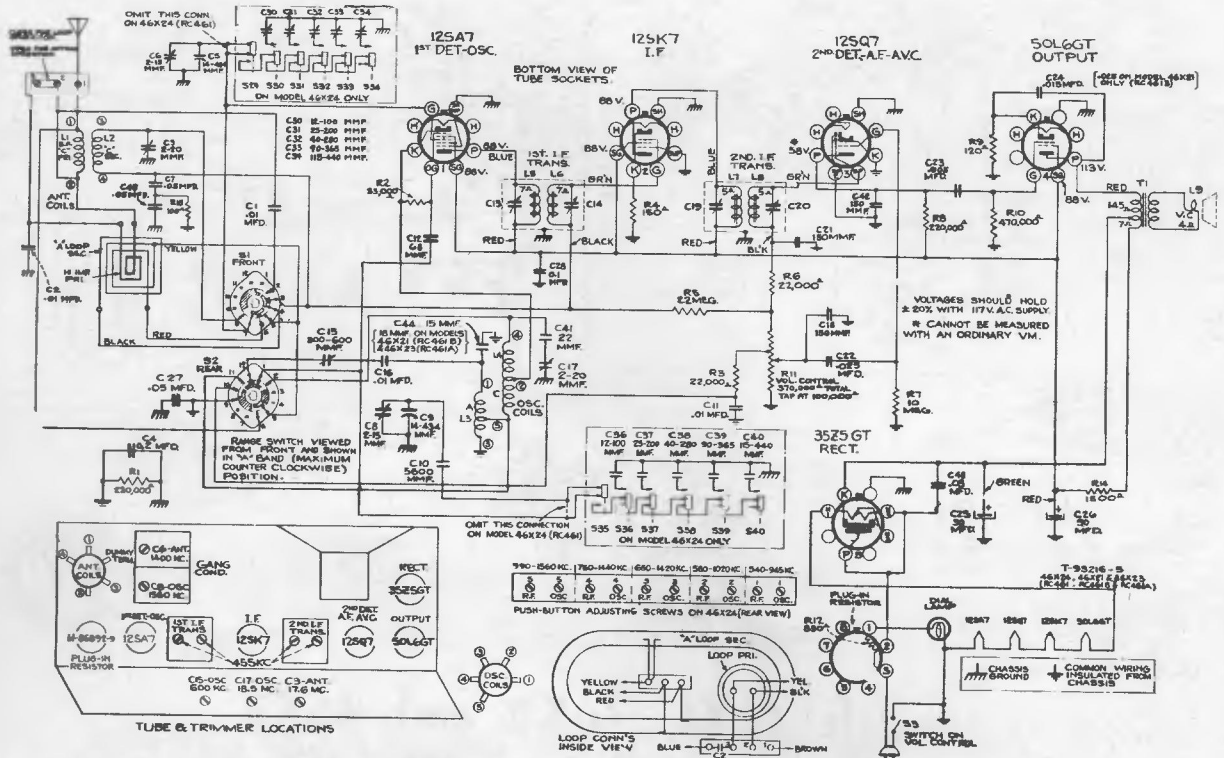
Models 46X1, 46X2 and 46X3 Chassis Nos. 459B and 459C

Models 46X11, 46X12, and 46X13 Chassis Nos. RC456 and RC456A



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RCA Victor Models 46X21, 46X23, and 46X24



Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Pointer.—With gang condenser in full mesh, the pointer should be adjusted to a horizontal position.

Antenna.—The set is equipped with a built-in loop antenna. If the loop antenna is used, the antenna terminal board link should be closed. This link should be open when an external antenna is used. Connect the external antenna to terminal 1.

Adjustments for Electric Tuning:

The push buttons and corresponding frequency ranges are given in the schematic diagram. Allow the set to warm up for about 15 minutes and proceed as follows:

- List five desired stations in order of the push button ranges.
- Push in the dial tuning (right hand) button and manually tune in the first station on the list.
- Press button No. 1. Turn R-F screw half way in; next turn the oscillator screw entirely in and then gradually back out until the station is heard.
- Adjust the R-F trimmer for maximum output.
(Clockwise adjustment of oscillator and R-F trimmers tunes the circuits to lower frequencies.)
- By turning the set to a position in which reception is weak a final more accurate adjustment may be made.
- Adjust for each of the remaining stations in a similar manner and place corresponding station tabs in recesses above buttons. A "Dial Tuning" tab should be above button No. 6.

Precautionary Lead Dress:

- Dress all leads away from oscillator and antenna coils.
- Dress cathode resistor (R4) and B+ lead across 12SK7 socket between plate and grid terminals.
- (46X24 only) Dress leads to push button switch straight up and parallel so that they do not touch each other.
- Dress black lead from 1st I-F transformer over green lead.
- Keep plate-cathode bypass (C43) of rectifier tube away from volume control.

Step	Connect high side of test oscillator to—	Tune test oscillator to—	Turn radio dial to—	Adjust following for max. output—
1	Grid 12SK7 in series with 0.01 mfd.	455 kc	"A" Band Quiet Point at 1,550 kc end of dial	C19 and C20 (2nd I-F Trans.)
2	Grid 12SA7 in series with 0.01 mfd.	600 kc	"A" Band 600 kc	C13 and C14 (1st I-F Trans.)
3		1,560 kc	"A" Band Full Clockwise	C8 (osc.)
4	Antenna in series with 200 mmfd.	1,400 kc	Resonance on "A" Band	C6 (ant.)
5		18.5 kc	"C" Band Full Clockwise	C17 (osc.)*
6		17.8 kc	"C" Band Resonance on 17.8 kc Signal	C3 (ant.)
7				
8				
9				

* Use minimum capacity peak if two can be obtained.

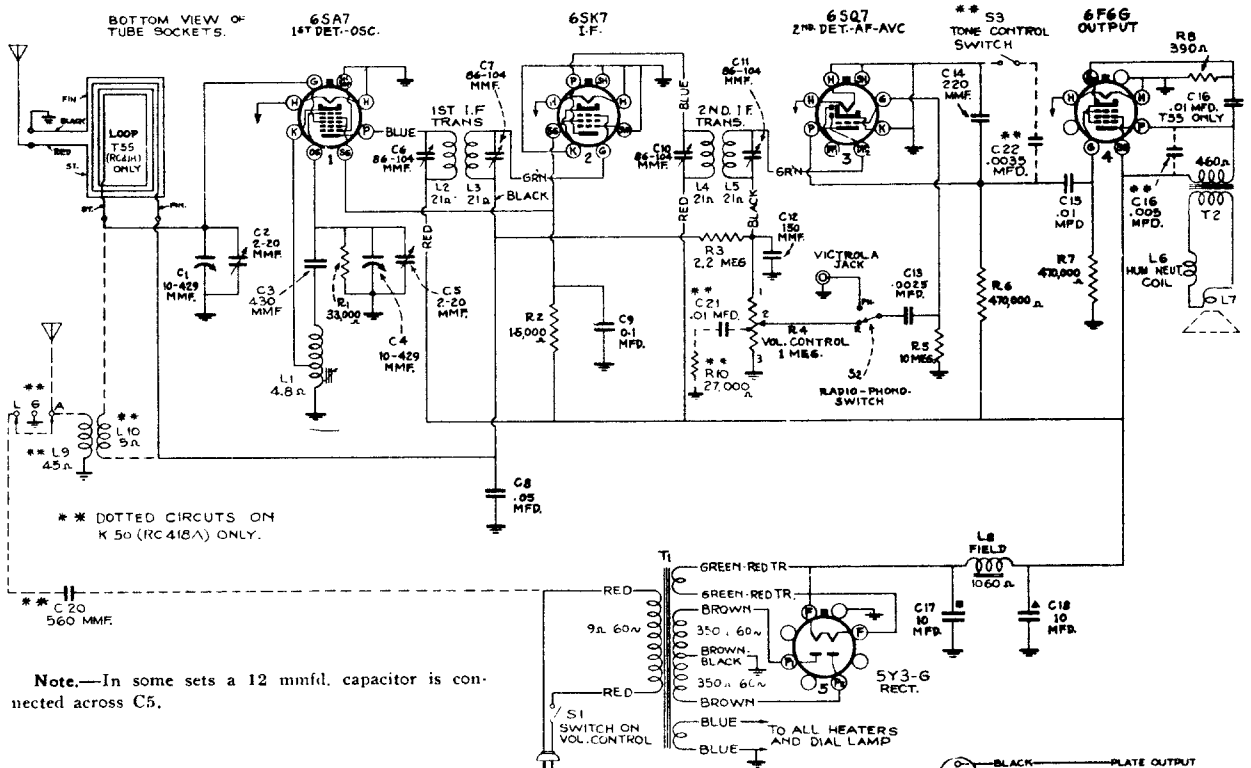
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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RCA Victor

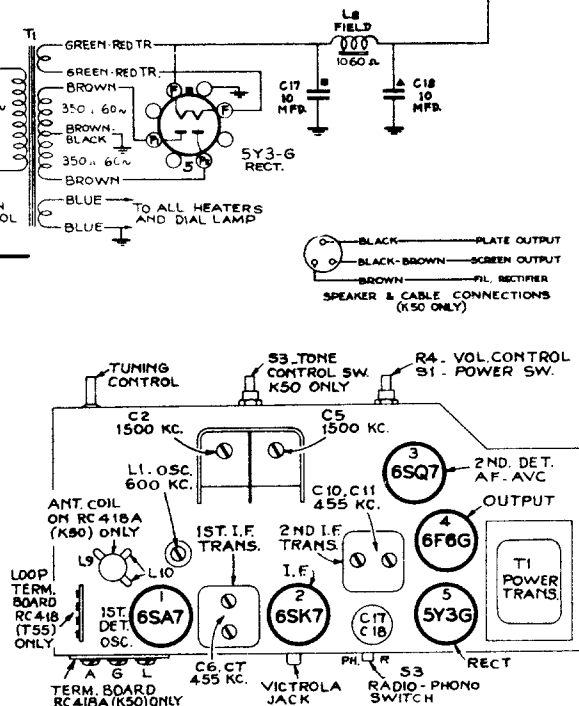
MODELS K-50 and T-55

Chassis Nos. RC-418A and RC-418



Adjustments for Push-Button Tuning

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the radio-phono switch to "radio" position and accurately tune in the station for which the first button is to be set.
3. Press in push-button rod No. 1 (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons
6. Insert the station marker tabs in the recesses above the push-buttons.

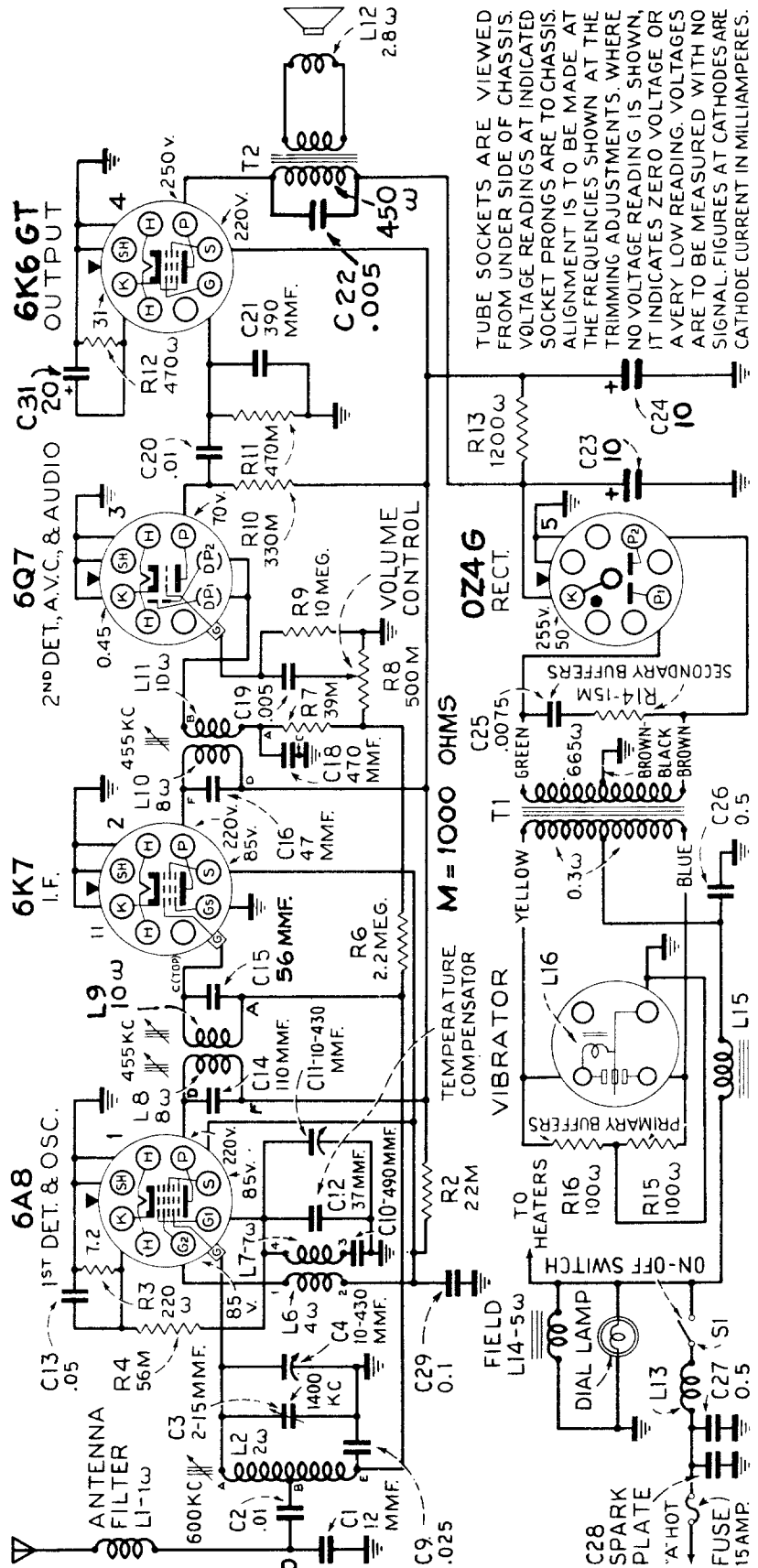


Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	Quiet Point between 1,720-1,500 kc	C10 and C11 (2nd I-F trans.)
2	Antenna terminal			C6 and C7 (1st I-F trans.)
3	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc calibration mark	C5 (osc.) C2 (ant.)
4		600 kc	600 kc calibration mark	L1 (osc.) (Rock in)
5	Repeat step 3			

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Adjustment Symbol	Circuit Adjusted
No Signal 550-750 kc	455 kc	.001 mfd.	6K7 Grid	L-10	2nd I.F. Trans.
No Signal 550-750 kc	455 kc	.001 mfd.	6A8 Grid	L-8, L-9	1st I.F. Trans.
1,400 kc	1,400 kc	.0001 mfd. †	Ant. Lead	C-3	Ant.
600 kc	600 kc	.0001 mfd. †	Ant. Lead	L-2	Ant.
1,400 kc	1,400 kc	.0001 mfd. †	Ant. Lead	C-3*	Ant.

NOTE: No oscillator alignment adjustments are required in this receiver.

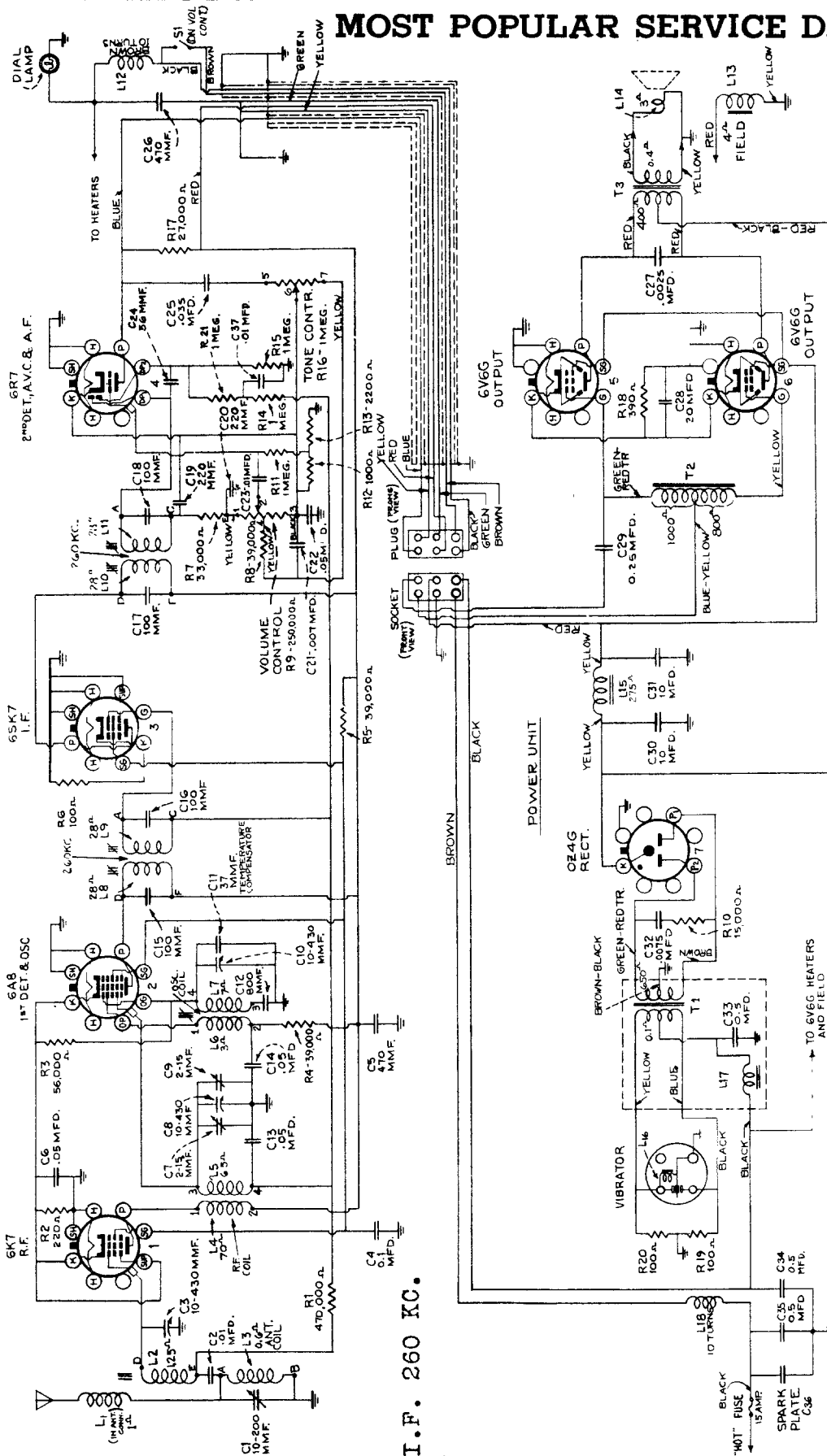


TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS. ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIMMING ADJUSTMENTS. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING. VOLTAGES ARE TO BE MEASURED WITH NO SIGNAL. FIGURES AT CATHODES ARE CATHODE CURRENT IN MILLIAMPERES.

MODEL M50
Chassis No. RC 357J

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MOST POPULAR SERVICE DIAGRAMS



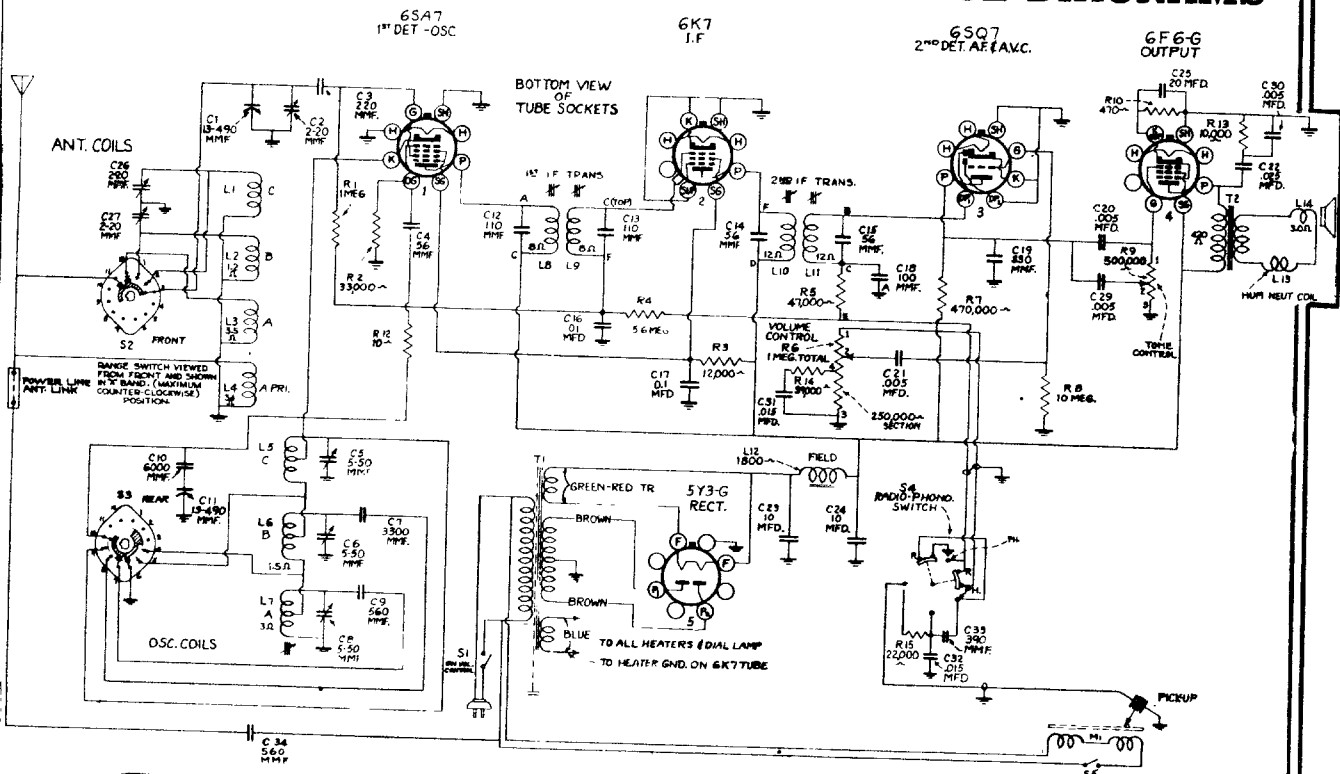
I. F. 260 KC.

MODEL M-70
Chassis No. RC-394

RCA Victor

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



RCA Victor MODEL U-50 CHASSIS No. RC-414C

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" Band quiet point between 550-750 kc	L10 and L11 (2nd I.F. trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd. **	455 kc	600 kc (33°) "A" Band	L8 and L9 (1st I.F. trans.)
3	Antenna lead in series with 200 mmfd.	600 kc	1,500 kc (152.4°) "A" Band	L7†
4		1,500 kc		C2 (ant.) C8 (osc.)
5	Repeat steps 3 and 4			
6	Antenna lead in series with 400 ohms	20 mc	20 mc (155.4°) "C" Band	C5 (osc.) * C26 (ant.)
7		6 mc	8 mc (149°) "B" Band	C8 (osc.) * C27 (ant.)
8	Antenna lead in series with 200 mmfd.	1,500 kc	1,500 kc (152.4°) "A" Band	C8 (osc.)

* Use minimum capacity peak if two peaks can be obtained.

† Rock gang condenser slightly while adjusting L7.

** Make test-oscillator connection to lug on tuning condenser stator (oscillator section) in series with .01 mfd. condenser.

Note.—Oscillator tracks 455 kc above signal on all bands.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

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

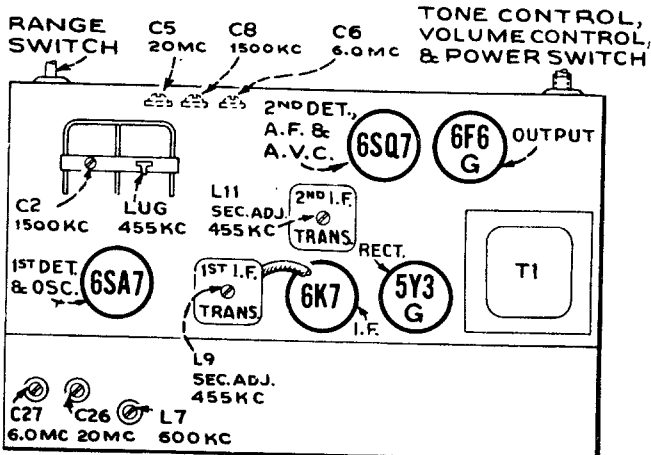
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale On Indicator-Drive-Cord Drum.—In most cases it will not be necessary to remove the chassis from the dial scale for alignment, allowing the dial scale to be used for calibration. However, if alignment is made with the receiver chassis removed, the calibration scale attached to the rear of the drum which is mounted on the front shaft of the gang condenser must be used. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

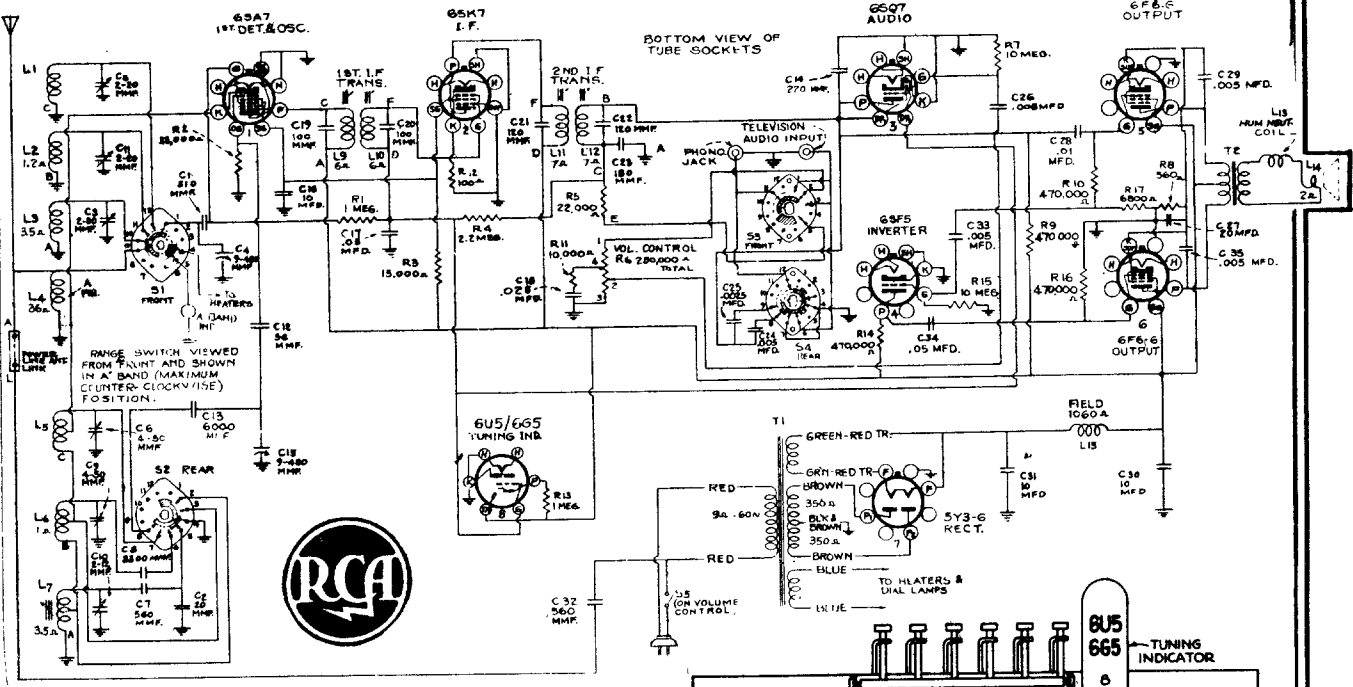
As the first step in r-f alignment, check the position of the drum. The 135° mark on the drum scale must be vertical, and directly under the center of the gang-condenser shaft when the plates are fully meshed. The drum is held in place by one set-screw, which must be securely tightened when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS MODEL T-80 Eight-Tube, Three-Band, AC, Superheterodyne

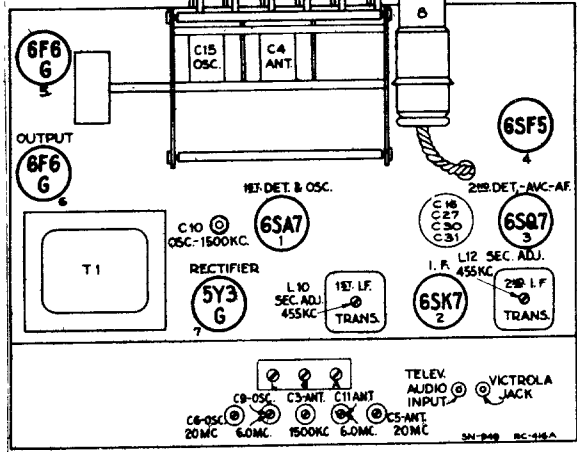


Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L11 and L12 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L9 and L10 (1st I-F Trans.)
3	Ant. terminal in series with 300 ohms	20 mc	20 mc (40°) "C" Band	C8 (osc.)* C6 (ant.)
4		6 mc	6 mc (52.5°) "B" Band	C9 (osc.)** C11 (ant.)
5	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc (41.75°) "A" Band	C10 (osc.) C3 (ant.)
6		600 kc	600 kc (200.25°) "A" Band	L7 (osc.) Rock Gang
7	Repeat step 5.			

* Use minimum capacity peak if two can be obtained. Check to determine that C8 has been adjusted to correct peak by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

** Use minimum capacity peak if two can be obtained. Check to determine that C9 has been adjusted to correct peak by tuning receiver to approximately 5.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on all bands.



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

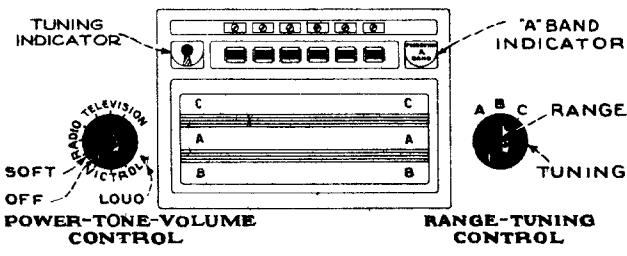
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

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

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

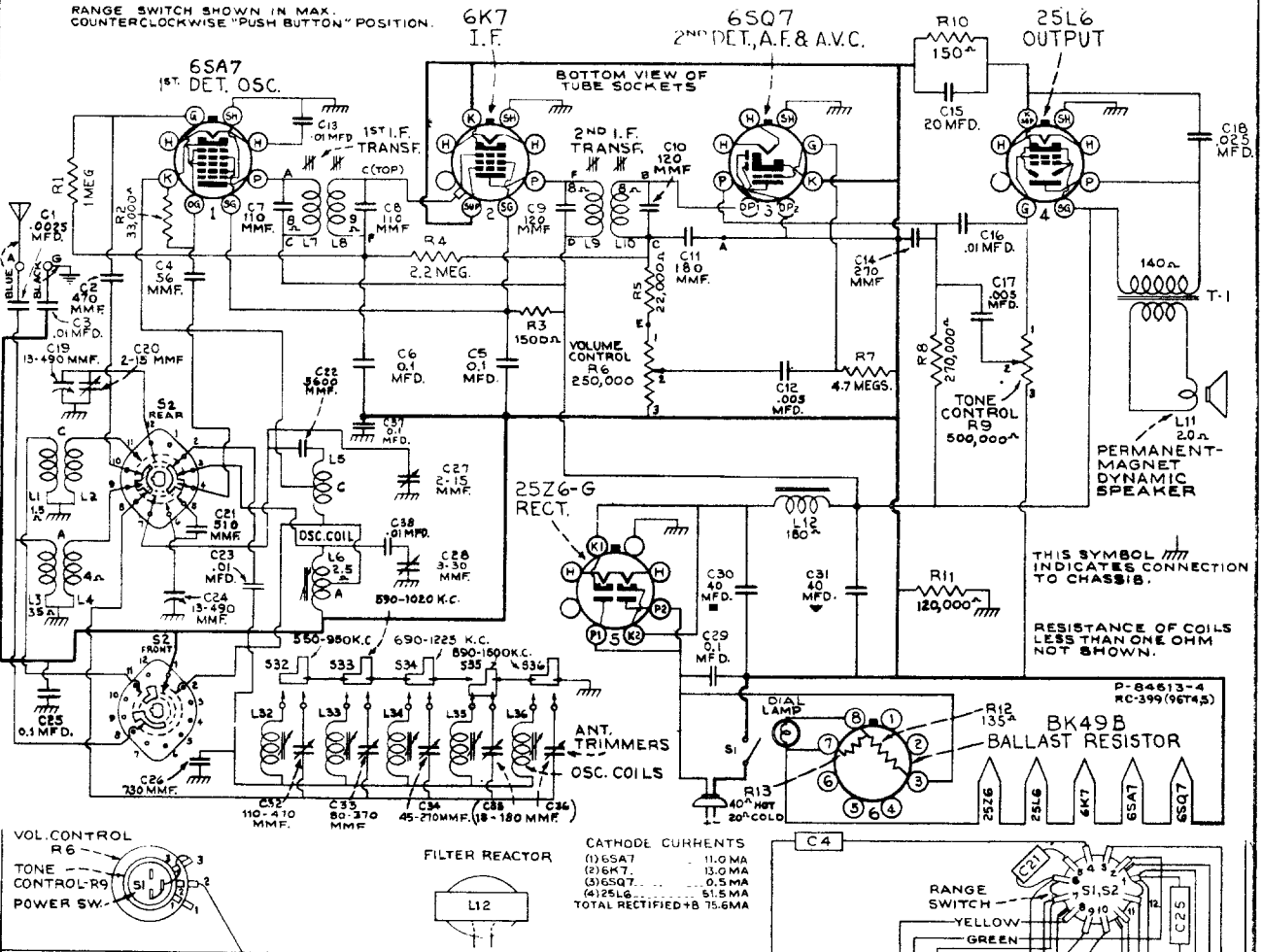
As the first step in r-f alignment, check the position of the drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

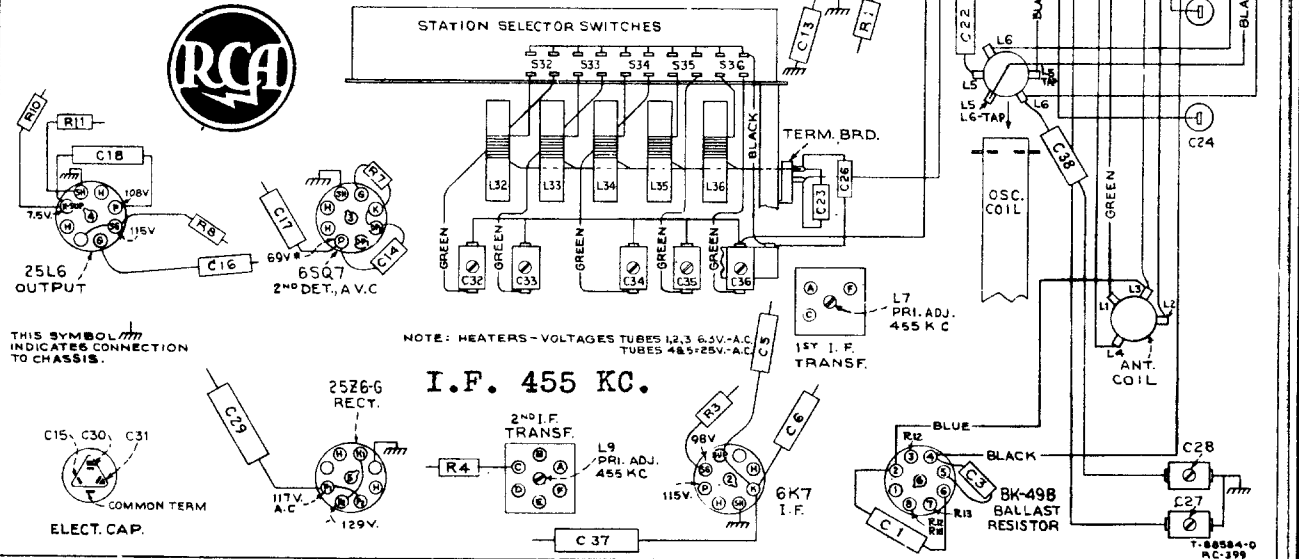


MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RANGE SWITCH SHOWN IN MAX. COUNTERCLOCKWISE "PUSH BUTTON" POSITION.



Measurements made to low-side of volume control unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117 volt a-c supply.



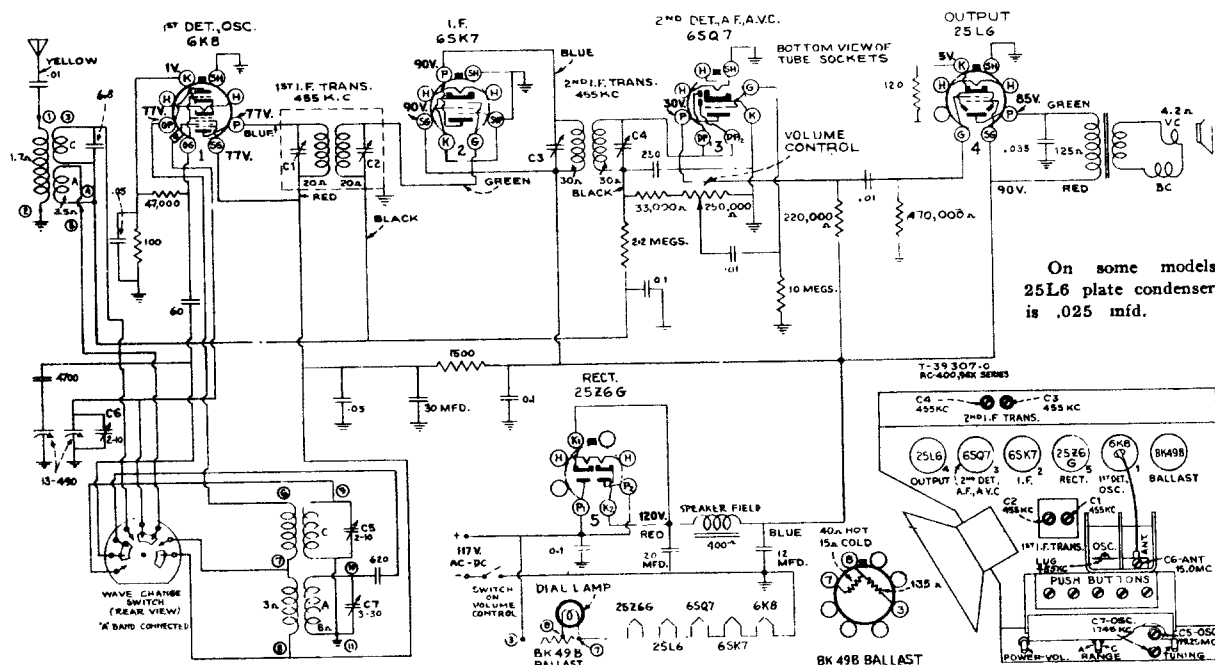
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RCA Victor

MODELS 96X-1, -2, -3, -4 and -11, -12, -13, -14

Chassis No. RC-400 and RC-400A

Six-Tube, Two-Band, A-C—D-C, Superheterodyne Receivers



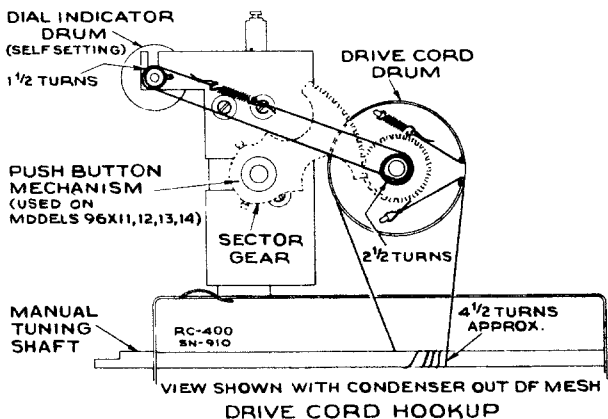
Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Dial Setting.—To set dial indicator drum, turn tuning condensers fully clockwise and then counter-clockwise.

Push-button Adjustments.—Remove bakelite button and loosen screw two turns with a screwdriver or coin. Tune in the desired station by means of the right-hand control knob. Press push lever down as far as it will go and tighten screw. Release lever and put on push-button.



Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.†	455 kc	Quiet point between 550-750 kc	C1, C2, C3, C4 (1st and 2nd I-F transformer)
2	Antenna lead (yellow) in series with 400 ohms	19.25 mc	Full clockwise (out of mesh) "C" band	C5* (osc.)
3	Same as step 2	15.0 mc	15.0 mc Test oscillator signal	C6** (ant.) See Note No. 1
4	Antenna lead in series with 200 mmf condenser	1,745 kc	Full clockwise (out of mesh) "A" band	C7 (osc.)

* Use minimum capacity peak if two peaks can be obtained.

** Rock gang slightly and check to determine that C5 has been adjusted to the correct peak by tuning to approximately 14.09 mc, where a weaker signal should be received.

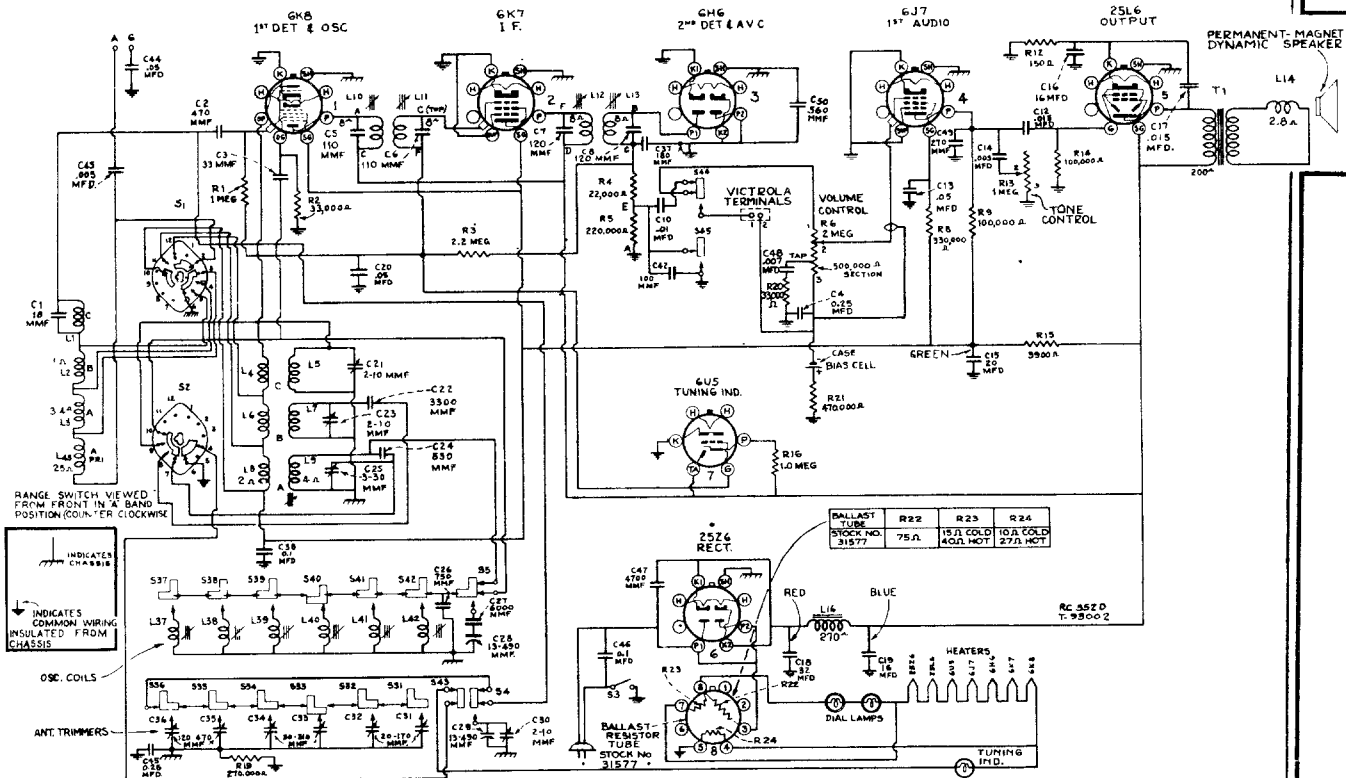
† Make test oscillator connection to lug on tuning condenser stator (oscillator section) in series with .01 mfd. condenser.

Note No. 1.—Accurately tune receiver to the 15.0 mc test oscillator signal. This signal will appear twice (14.09 and 15.0 mc) as dial is turned. Use the higher frequency setting of the tuning condensers (gang furthest out of mesh).

Note No. 2.—Oscillator tracks 455 kc above signal on all bands.

RCA Victor

MODEL 98T2



Adjustments for Electric Tuning

These models have eight push buttons. The left-hand button is a Victrola switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate magnetic-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button, and manually tune in the first station on the list.
3. Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

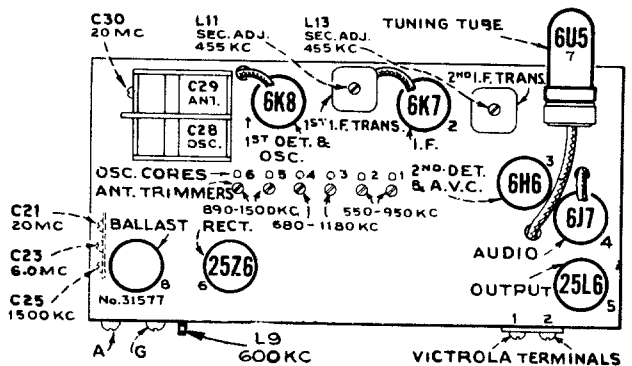
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining five stations in the same manner.
6. Make a final careful adjustment of the oscillator tubes and antenna trimmers.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radiodial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Transformer)
2	6K8 . det. grid cap, in series with .01 mfd.	455 kc		L10 and L11 (1st I-F Transformer)
3	Antenna Terminal, in series with 200 ohms.	600 kc	800 kc (150.5°) "A" band	L9
4		1,500 kc	1,500 kc (28°) "A" band	C25 (osc.) C30 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna Terminal, in series with 400 ohms.	6 mc	6 mc (26.5°) "B" band	C23 (osc.)*
7		20 mc	20 mc (22°) "C" band	C21 (osc.)*
8	Follow "Adjustments for Electric Tuning."			

*Use minimum capacity peak if two peaks can be obtained, and rock gang condenser slightly while adjusting C23 and C21.
Note.—Oscillator tracks 455 kc above signal on all bands.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, move the dial indicator on the drive cable to the left-hand end mark on dial, with gang condenser fully meshed.

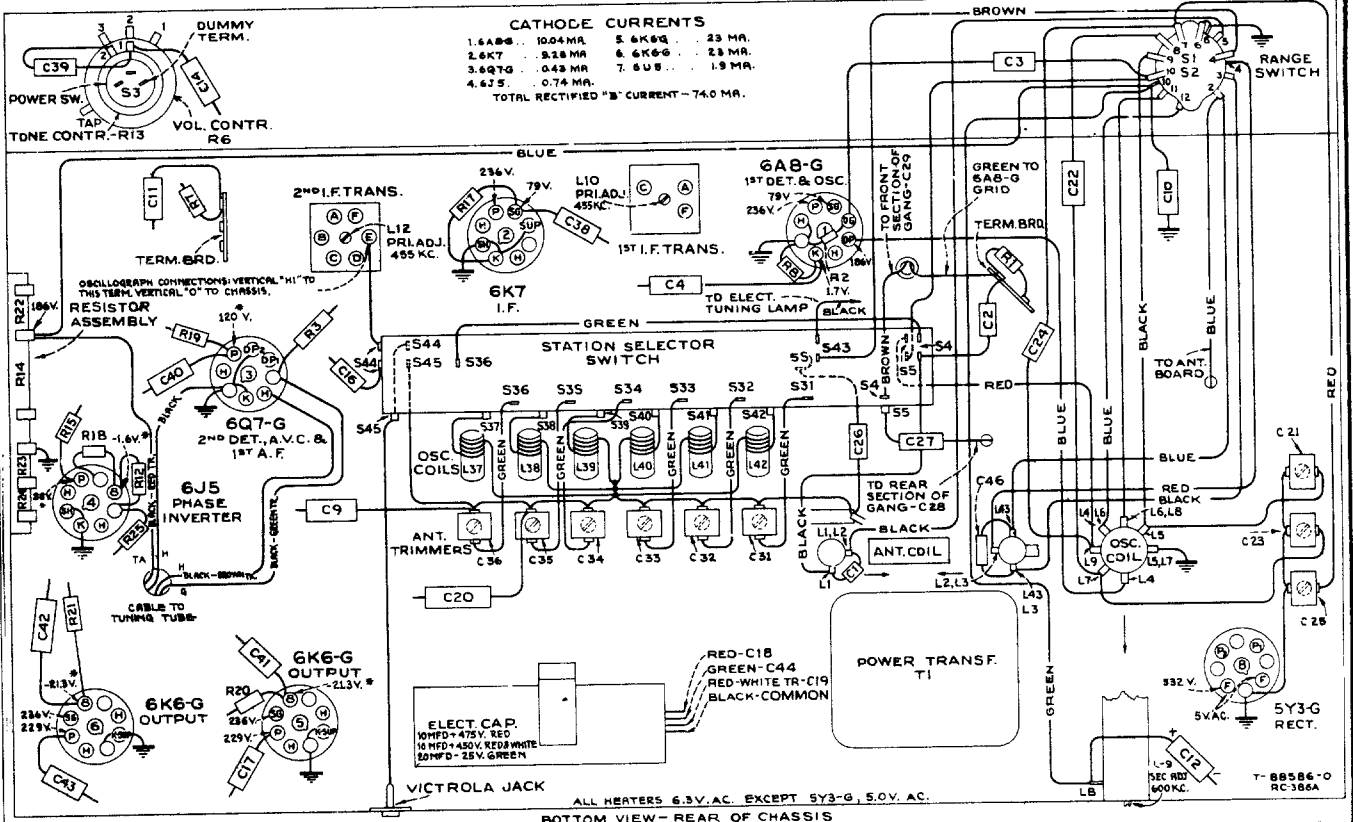


MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

RCA Victor

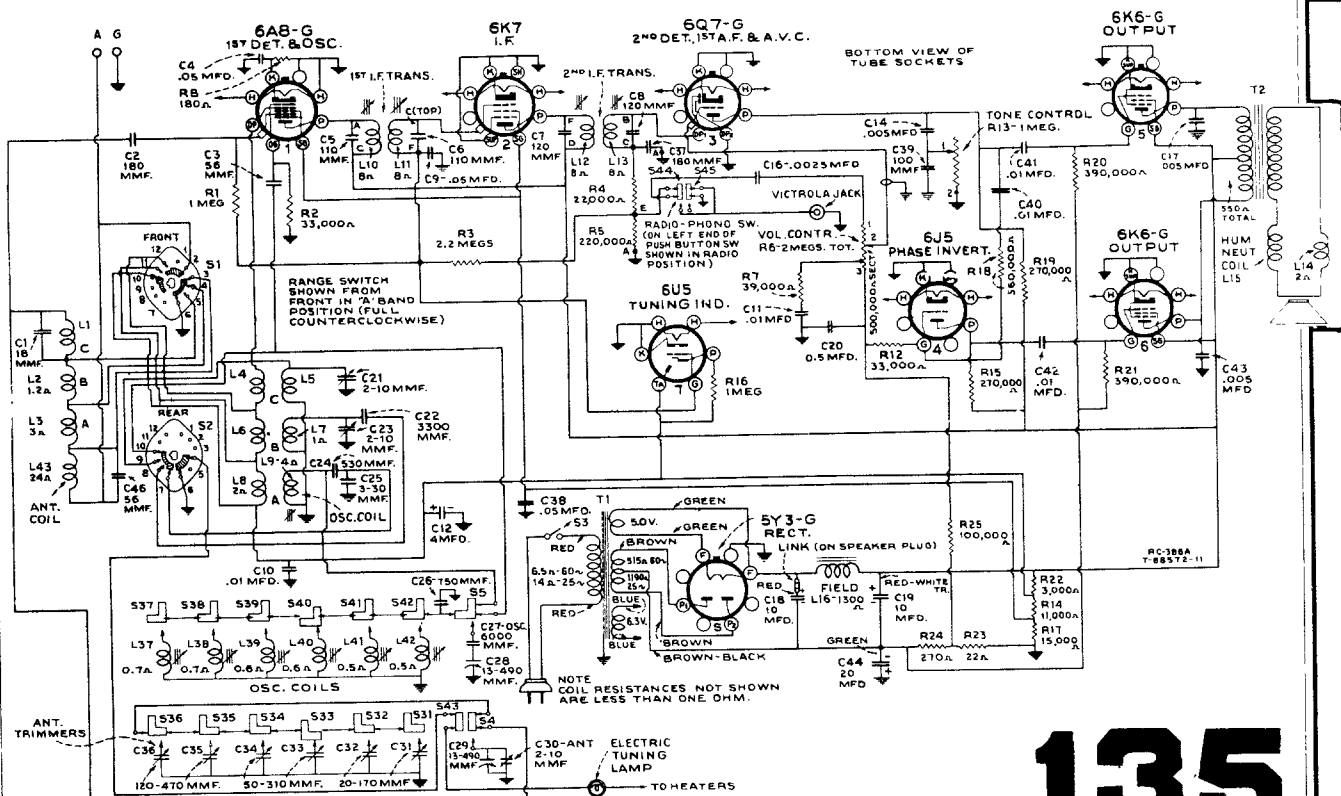
MODELS 98T and 98K2

Chassis No. RC-386A and RC-386A



ALL HEATERS 6.3V. AC. EXCEPT 5Y3-G, 5.0V. AC.

BOTTOM VIEW-REAR OF CHASSIS

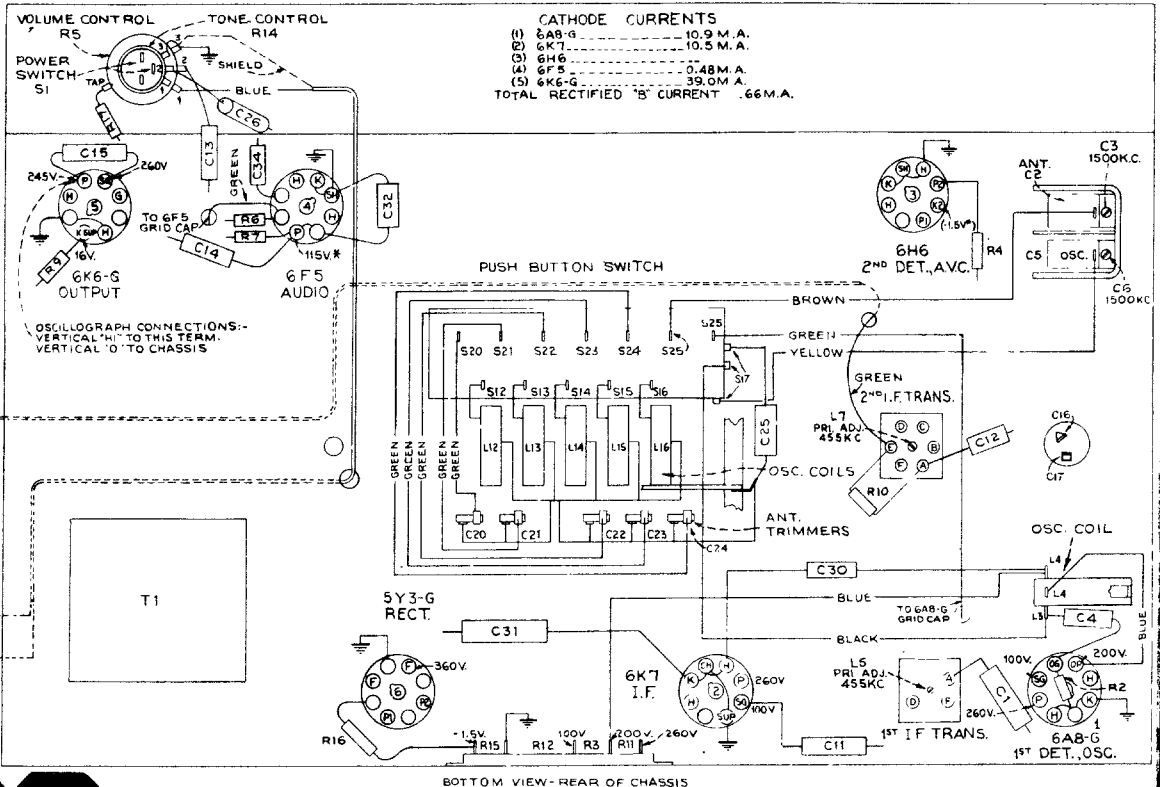
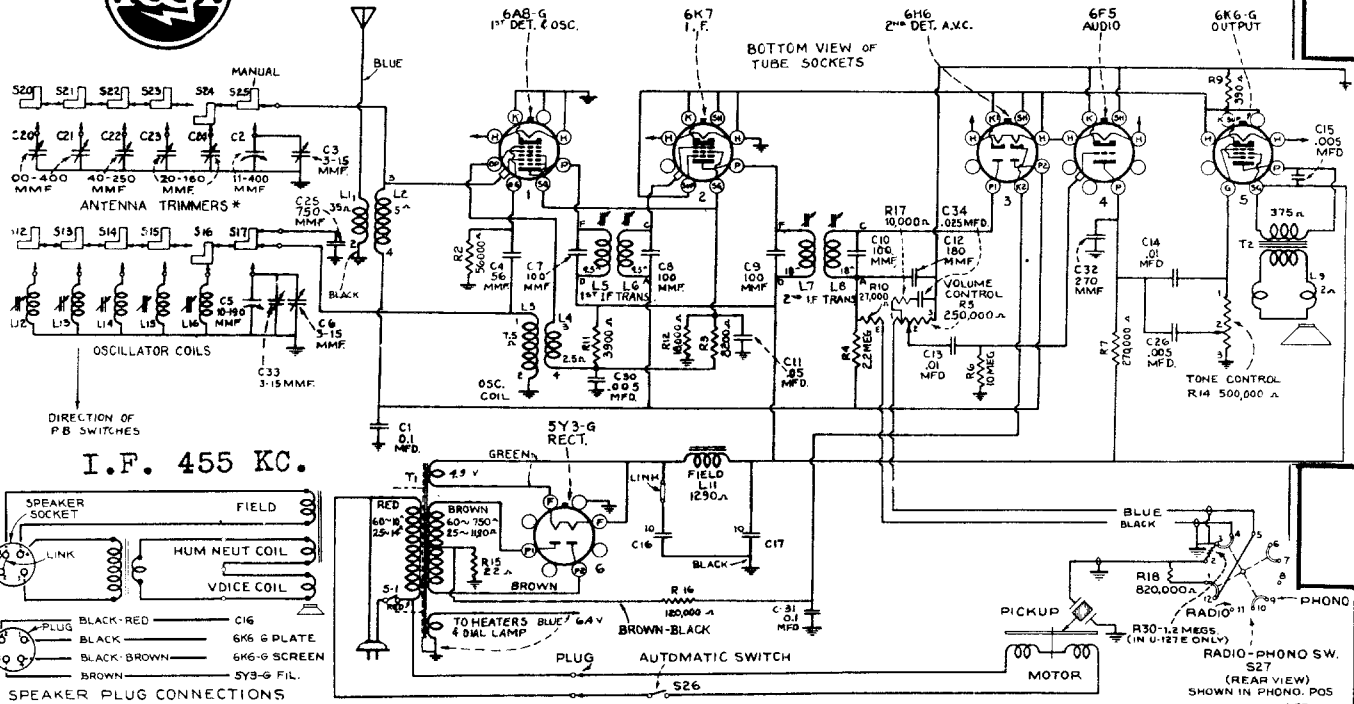


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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



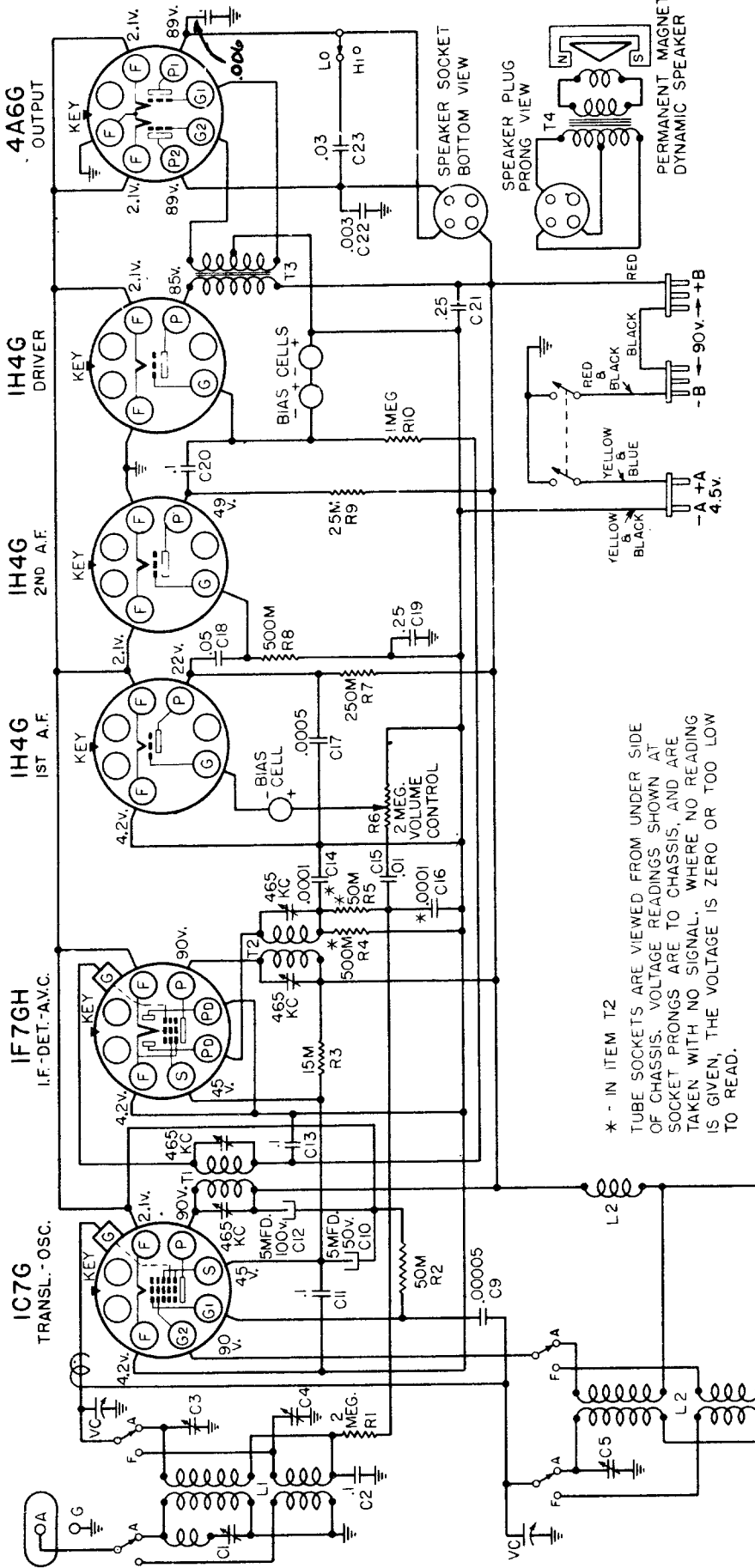
U-121, U-123 (Single-Band), and U-127E



136

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.505 & 101.505X



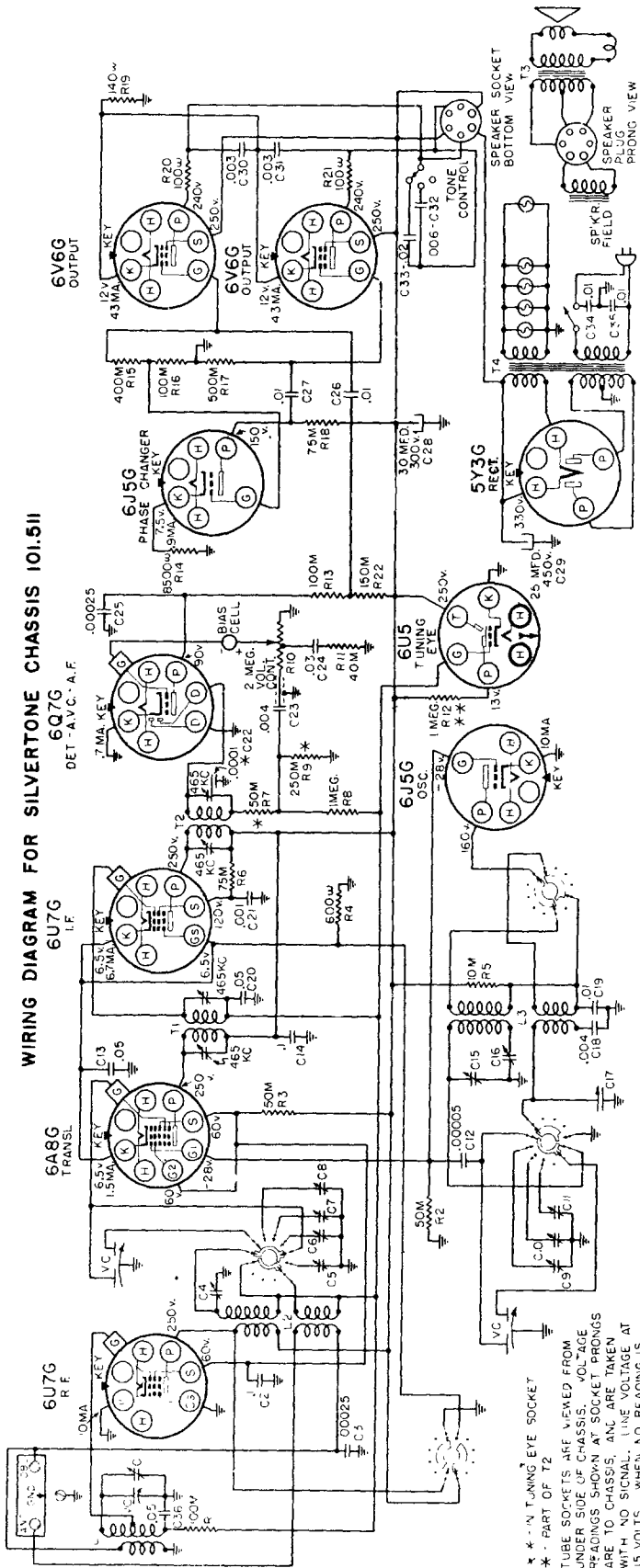
* - IN ITEM T2
 TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

DIAL LIGHT
 SWITCH OPERATED BY PUSHING VOLUME CONTROL KNOB IN.
 (MODELS 4632A & 4633A ONLY)

TWO FLASHLITE CELLS (3v.)

Sears, Roebuck and Co.
 Chicago, Ill.

Models 4632A, 4633A, 6014, 6015, 6044, 6045, 6058, 6059,
 6063, 6064, 6065, 6144, and 6164



GENERAL INFORMATION & SERVICE HINTS

THE AVC CIRCUIT:

The diode current of one of the 6Q7G diode plates, flowing through the 250M ohm resistor, R9, creates a voltage drop across it. This voltage is applied to the control grids of the RF, translator, and IF tubes, to provide AVC.

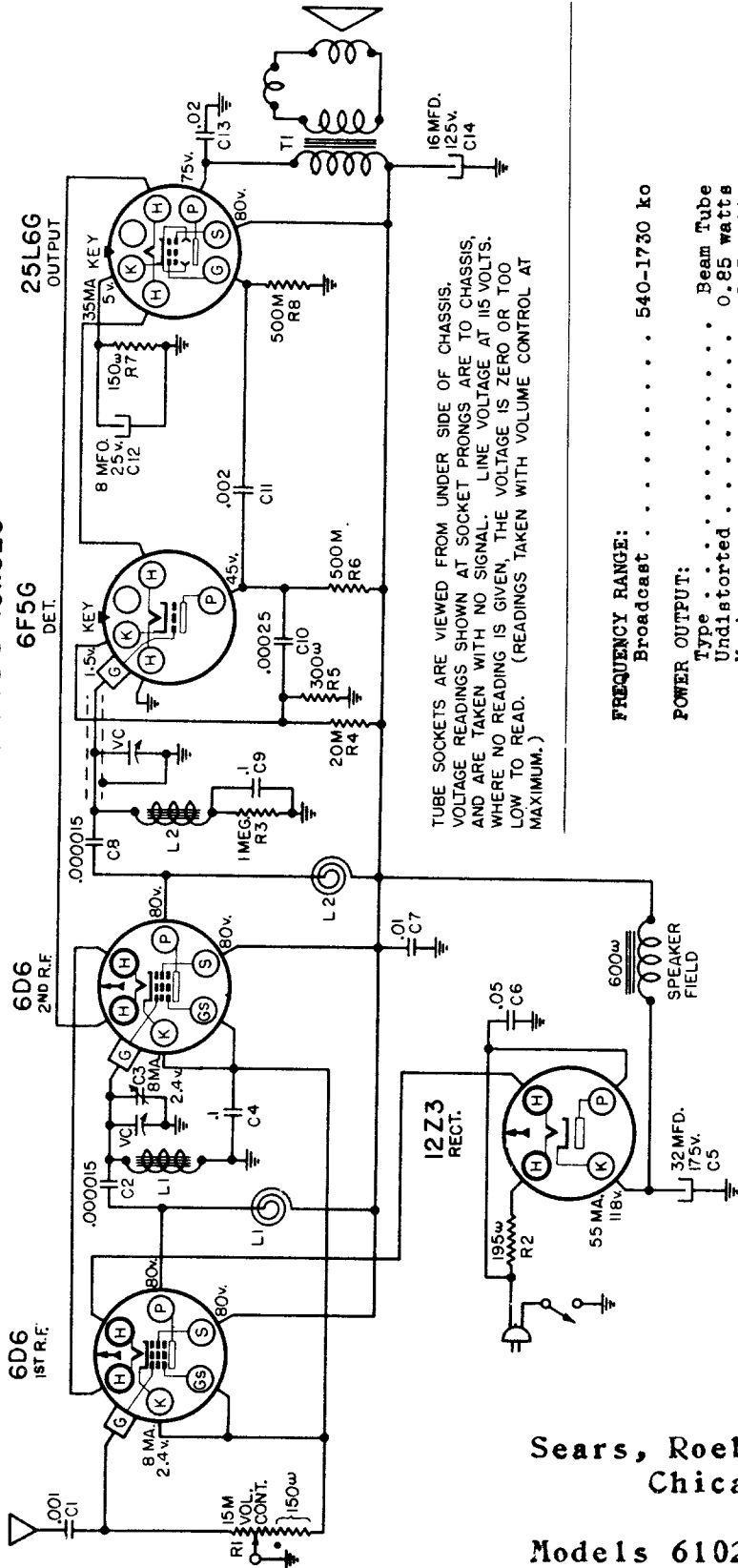
ELIMINATING WHISTLE AT 930 KC:

A whistle, due to a beat between the second harmonic (930 kc) of the 465 kc IF, and a 930 kc signal may be experienced. In localities where the 930 kc station is one that is frequently listened to, it will be desirable to shift the whistle to some other point where it will not be objectionable. This can be done by shifting the IF frequency of the receiver. Determine at what point between 900 kc and 960 kc the whistle will be least objectionable. Dividing this frequency by two will give the new IF frequency to which the receiver should be aligned. For example, if it is determined that a whistle at 915 kc would not be objectionable, the IF should be realigned at 915/2 or 457.5 kc. Try to select the new IF frequency as near as possible to 455 kc.

Sears, Roebuck & Co.
Chicago.
Models 6036, 6136.

* - N TUNING EYE SOCKET
* - PART OF T2
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. LINE VOLTAGE AT 115 VOLTS. WHEN NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ. READINGS TAKEN WITH WAVE SWITCH IN BROADCAST POSITION.

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.526
6F5G DET.
6D6 2ND R.F.
6D6 1ST R.F.



TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ. (READINGS TAKEN WITH VOLUME CONTROL AT MAXIMUM.)

FREQUENCY RANGE:
Broadcast 540-1730 kc

POWER OUTPUT:
Type Beam Tube
Undistorted 0.85 watts
Maximum 1.5 watts

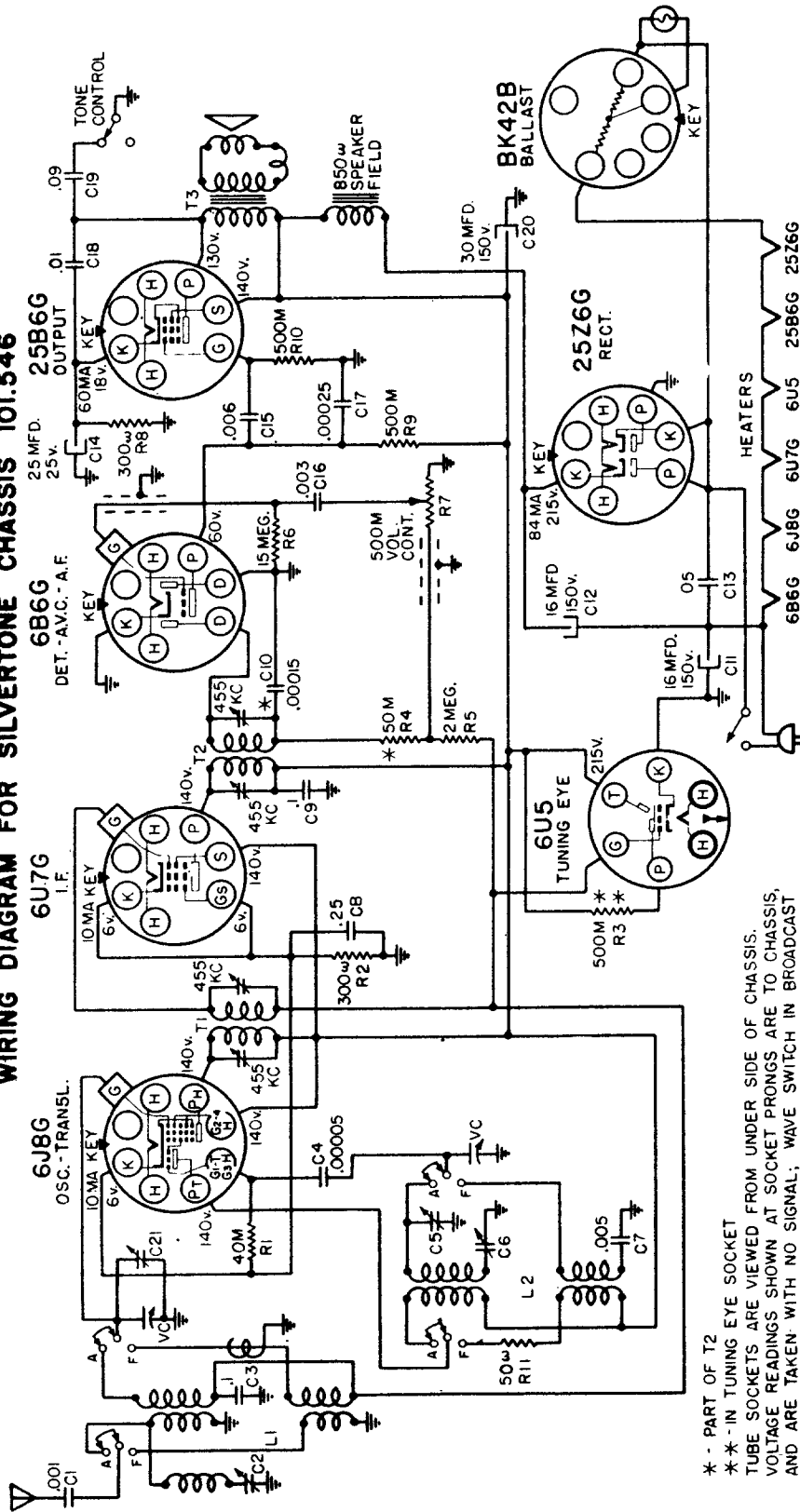
ALIGNMENT PROCEDURE

The receiver need not be taken out of the cabinet for alignment. Either a broadcast signal of about 1500 kc should be tuned in or else a signal generator, connected through a .0003 mfd. condenser to the set's antenna, should be used. Tune in the signal and adjust the trimmer (accessible through the hole in the bottom of the cabinet) for maximum loud speaker response. This can be done most accurately, if the volume control setting is reduced to give low volume level. (This set has no AVC.) The variable should be rocked a degree or two during the adjustment. An insulated screw driver should be used, since the chassis may be above ground potential as explained previously.

Sears, Roebuck and Co.
Chicago.
Models 6102, 6103, 6105

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.546



* - PART OF T2

** - IN TUNING EYE SOCKET
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS.
VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS,
AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST
POSITION. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING
IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION
"AM"	Closed	455 kc	.1 mfd.	6J80 Grid	T2, T1	IF Output IF Input
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Lead	C3*	Wave Trap
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Lead	C5, C31	Oscillator Translator
"AM"	600 kc (root)	600 kc	.0002 mfd.	Ant. Lead	C6	Padder

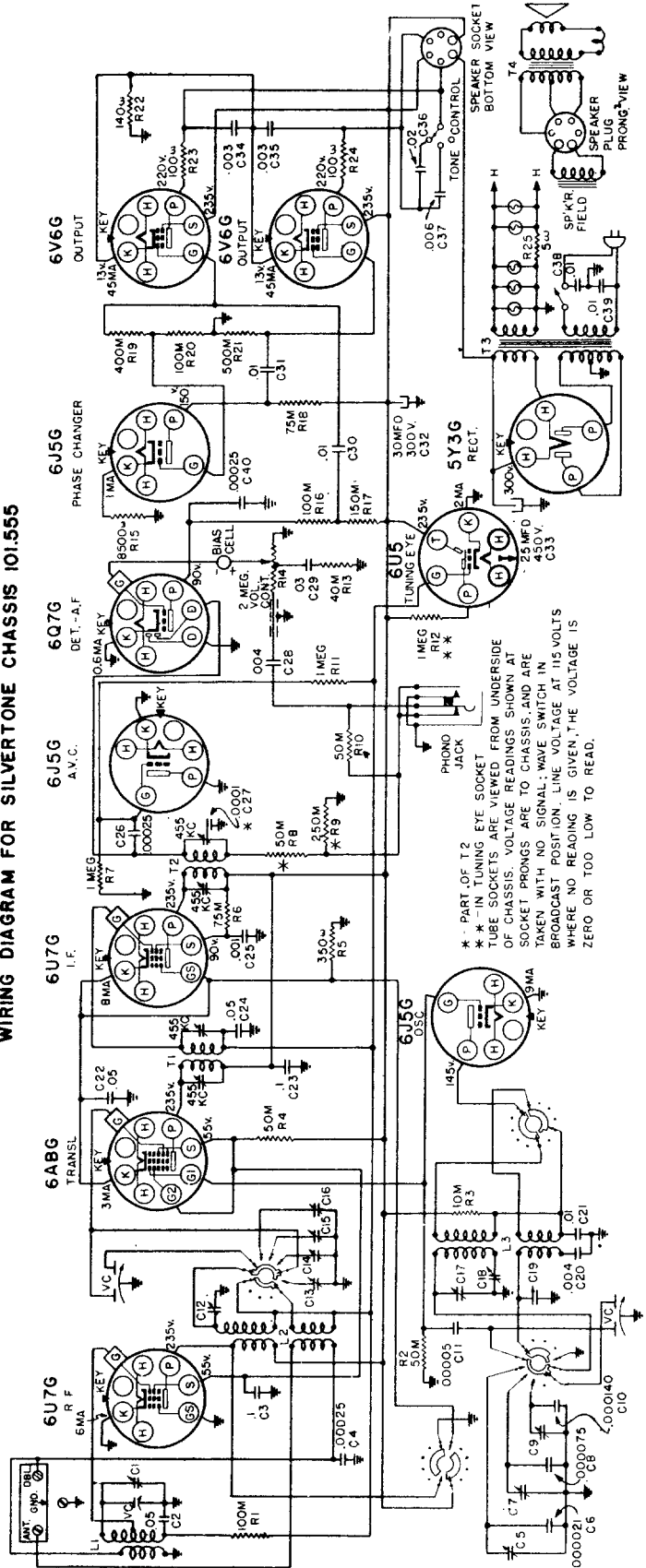
Sears, Roebuck & Co.

Models 6200, 6120, 6126,
6127, 6119, 6250.

**Sears, Roebuck & Co.
Chicago.**
**Models 6158, 6159,
6192.**

WAVE BAND- SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	6ABG Grid	IF Output	810
"SW"	15 mc (rock)	15 mc	400 ohms.	Ant. Term.	Translator	40
"9"	9.55 mc	9.55 mc	400 ohms.	Ant. Term.	Oscillator	60
"11"	11.71 mc	11.71 mc	400 ohms.	Ant. Term.	Oscillator	40
"15"	14.9 mc	14.9 mc	400 ohms.	Ant. Term.	Oscillator	40
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	Translator,	30
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	Osc., transl., Cl Padder	40

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.555

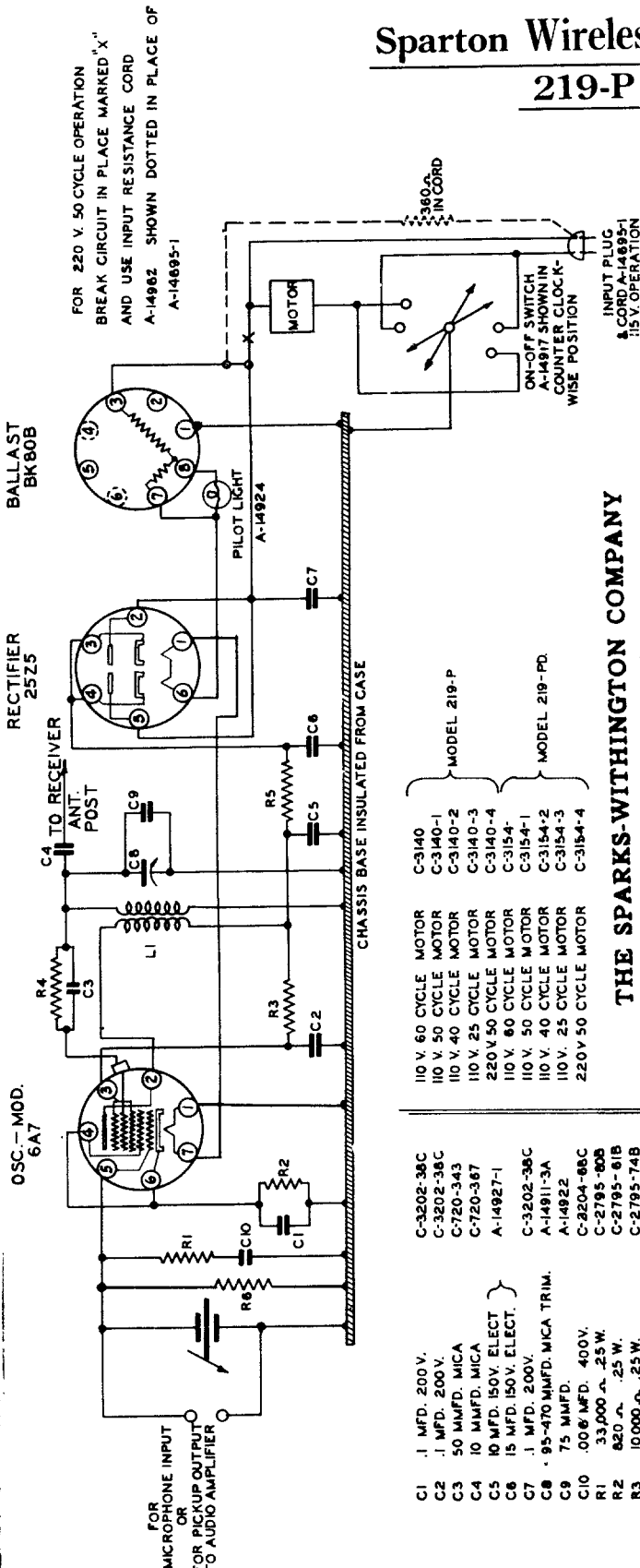


* - PART OF T2
** * - IN TUNING EYE SOCKET
TUBE SOCKETS ARE VIEWED FROM UNDERSIDE
OF CHASSIS. VOLTAGE READINGS SHOWN AT
SOCKET PRONGS ARE TO CHASSIS, AND ARE
TAKEN WITH NO SIGNAL; WAVE SWITCH IN
BROADCAST POSITION. LINE VOLTAGE AT 115 VOLTS
WHERE NO READING IS GIVEN, THE VOLTAGE IS
ZERO OR TOO LOW TO READ.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Sparton Wireless Phonograph Models

219-P 219-PD



THE SPARKS-WITHINGTON COMPANY

SERVICE DIVISION

Jackson, Michigan, U. S. A.

Line Voltage: 115 volts		Antenna Not Connected.	
Control Switch in Center Position		Microphone Not Connected.	
Tube	Function	Voltage of Socket Prongs to Gnd. (See Prong Nos. on Schematic Diagram)	
6A7	Oscillator-Modulator	No. 1	No. 2
25Z5	Rectifier	0	120
BK-80B	Ballast	6.5*	117*
		0	117*
		150	150
		117*	117*
		4.5	4.5
		0	0
		6.5*	6.5*
		31.5*	31.5*
		37*	37*

Notes: Voltage readings are for schematic diagram on back of sheet. Allow 15% or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages.

*AC volts.

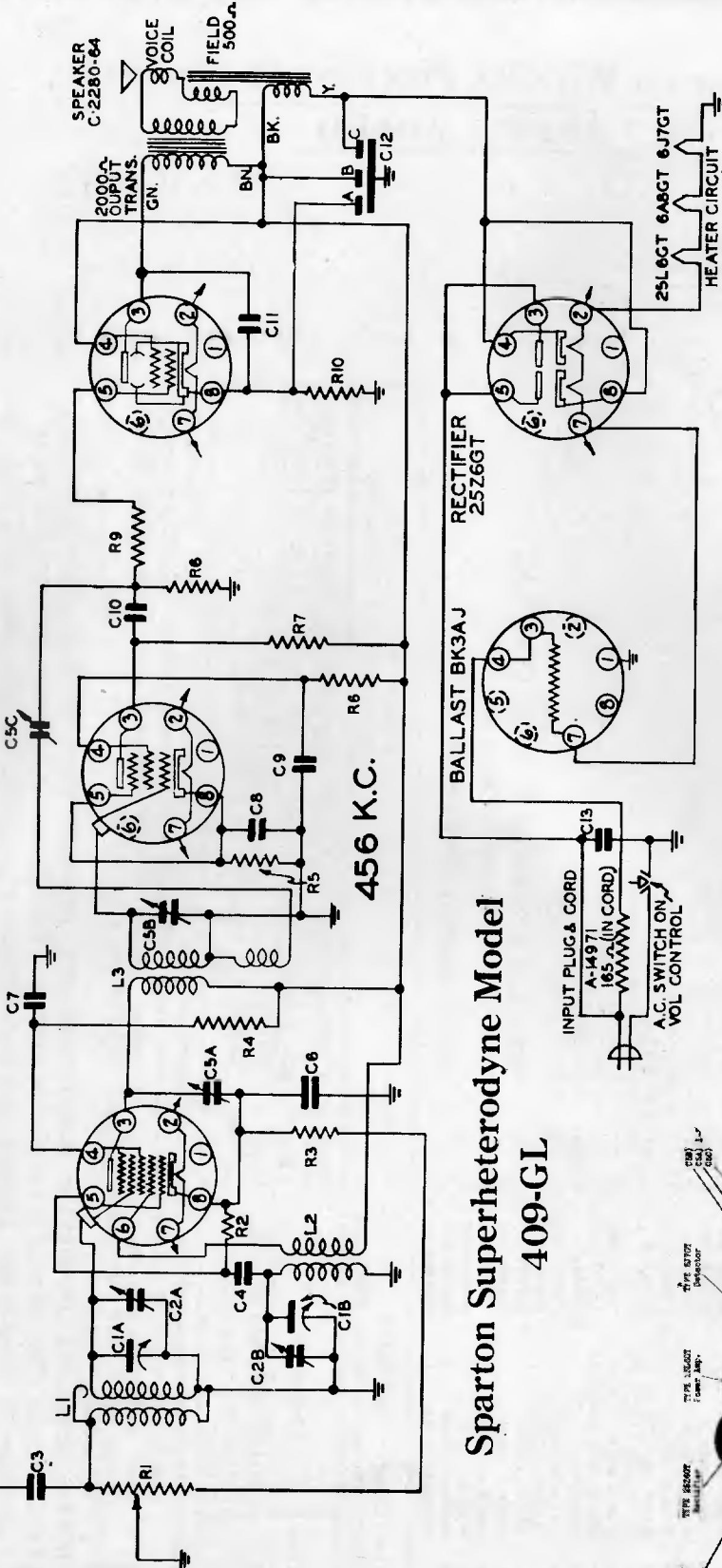
NOTE: Original production models did not have resistor R6 and condenser C10 included in the circuit as shown above. In these first run production sets resistor R1 connected across the microphone tip jacks in the same position as shown for resistor R6. The above change can be made easily, when servicing any of the first run Models 219-P Wireless Phonographs.

POWER OUTPUT
25L6GT

DETECTOR
6J7GT

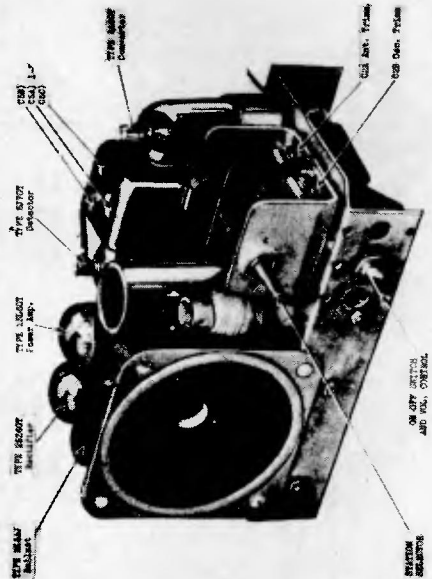
CONVERTER
6ABGT

ANTENNA



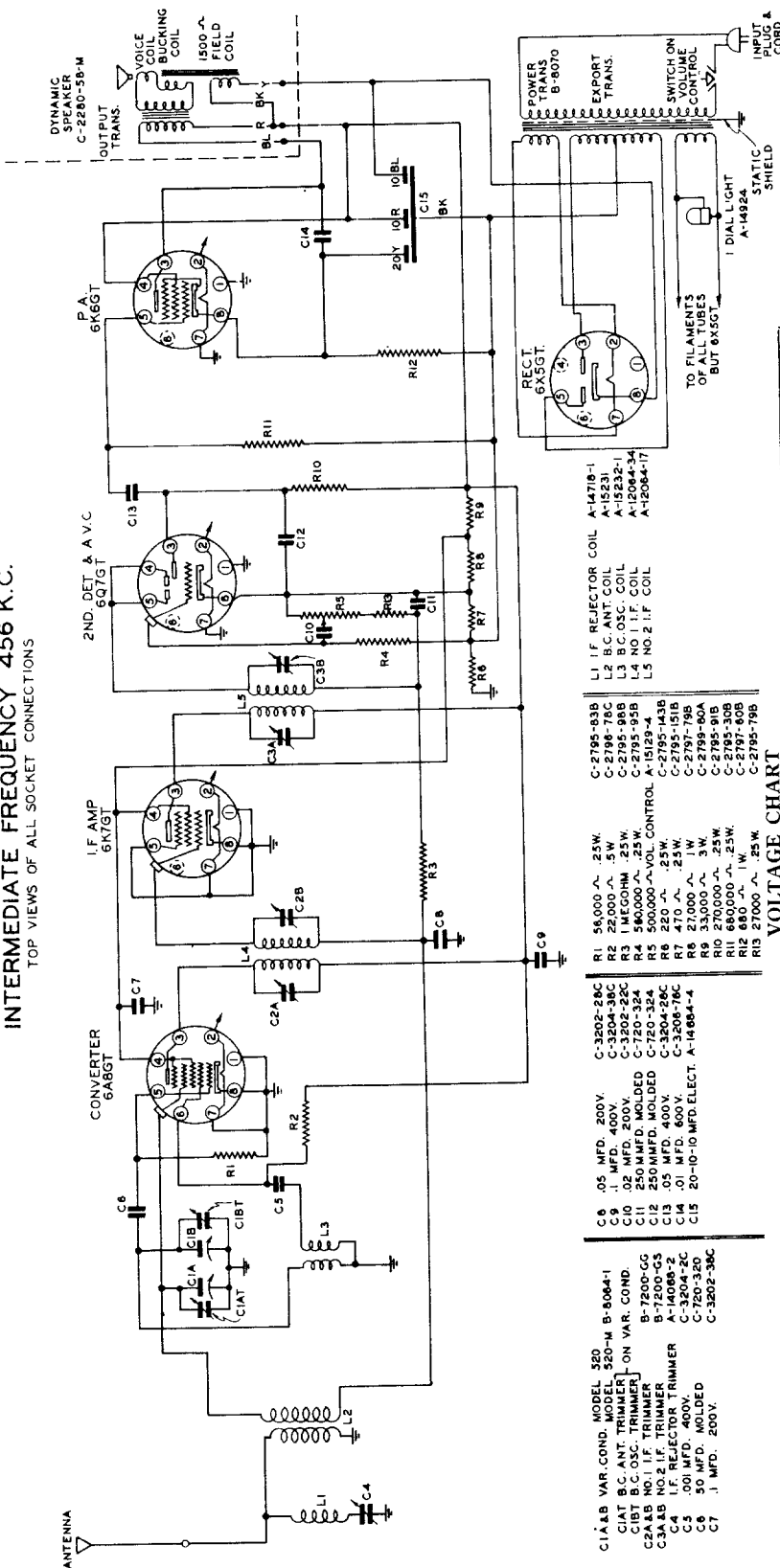
Sparton Superheterodyne Model
409-GL

C1A	B	C	50 MMF. MICA
C2A	B	C	50 MMF. MICA
C3	.001 MFD. 400 V.		
C4	50 MMF. MICA		
C5A	B & C	I.F. TRIMMER	
C6	.01 MFD. 200V.		
C7	.05 MFD. 200V.		
C8	10 MFD. 25 V.		
C9	.01 MFD. 200V.		
C10	.01 MFD. 200V.		
C11	.02 MFD. 400 V.		
C12	B & C	20-25-25 MFD. ELECT.	
C13	.05 MFD. 400 V.		
R1	58,000 Ω	.25 W.	
R2	390 Ω	.25 W.	
R3	39,000 Ω	.25 W.	
R4	27,000 Ω	.25 W.	
R5	6.2 MEGOHM	.25 W.	
R6	560,000 Ω	.25 W.	
R7	560,000 Ω	.25 W.	
R8	100,000 Ω	.25 W.	
R9	150 Ω	.5 W.	
R10			
L1	B	C	ANT. COIL
L2	B	C	OSC. COIL
L3	I	F	TRANS.
B-7288			
C-3204-2C			
C-720-343			
A-14792			
C-3202-78C			
C-3202-28C			
A-14782-2			
C-3202-20C			
C-3202-20C			
C-3204-78C			
A-14972			
C-3204-28C			
A-12708-A1			
C-2795-83B			
C-2795-57B			
C-2795-B1B			
C-2795-79B			
C-2795-250B			
C-2795-95B			
C-2795-95B			
C-2795-86B			
C-2798-52C			
A-14974			
A-14975			
A-12989-5			



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

SCHEMATIC DIAGRAM SPARTON SUPERHETERODYNE MODELS 520 & 520-M INTERMEDIATE FREQUENCY 456 K.C. TOP VIEWS OF ALL SOCKET CONNECTIONS



- C1A & B VAR COND. MODEL 520
- C1A & B TRIMMER ON VAR. COND.
- C2A & B NO. 1 I.F. TRIMMER
- C3A & B NO. 2 I.F. TRIMMER
- C4 I.F. REJECTOR TRIMMER
- C5 .001 MFD. 400V.
- C6 .50 MFD. MOLDED
- C7 .1 MFD. 200V.
- C8 .05 MFD. 200V.
- C9 .1 MFD. 400V.
- C10 .02 MFD. 200V.
- C11 500,000 μ . .25 W.
- C12 250,000 MFD. MOLDED
- C13 .05 MFD. 400V.
- C14 .05 MFD. 400V.
- C15 20-10-10 MFD ELECT. A-14684-4
- R1 56,000 Ω . .25W.
- R2 22,000 Ω . .5W.
- R3 1 MEGOHM. .25 W.
- R4 580,000 Ω . .25 W.
- R5 300,000 Ω . .25 W.
- R6 470 Ω . .25 W.
- R7 27,000 Ω . .1 W.
- R8 33,000 Ω . .3 W.
- R9 270,000 Ω . .25 W.
- R10 680,000 Ω . .25 W.
- R11 27,000 Ω . .25 W.
- R12 680 Ω . .1 W.
- R13 27,000 Ω . .25 W.
- C-2785-83B
- C-2785-78C
- C-2785-95B
- C-2785-95B
- C-15123-4
- C-2785-143B
- C-2785-151B
- C-2785-90A
- C-2785-91B
- C-2785-92B
- C-2785-93B
- C-2785-94B
- C-2785-95B
- L1 I.F. REJECTOR COIL A-14718-1
- L2 B.C. ANT. COIL A-15232-1
- L3 B.C. O.F. COIL A-2084-34
- L4 NO. 1 I.F. COIL A-12084-17
- L5 NO. 2 I.F. COIL

VOLTAGE CHART

Line Voltage: 115 volts

Position of Volume Control: Full with Antenna Disconnected

Tube	Function	#1	#2	#3	#4	#5	#6	#7	#8	Grid Cap
6A8GT	Converter	0	0	250	67	4	175	*6.3	0	.1
6K7GT	I. F. Amp.	0	0	250	67	0	1.5	*6.3	0	.1
6Q7GT	2nd. Det. AVC-AF	0	0	65	**	**	**	*6.3	0	0
6K6GT	P. A.	0	0	225	250	0	2.5	*6.3	10	-
6X5GT	Rectifier	-	0	275*	0	0	275*	0	0	300

Notes: Voltage readings are for schematic diagram on back of sheet. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages. *AC volts. **Cannot be measured with Weston Analyzer #665 Type 2.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

SCHEMATIC DIAGRAM SPARTAN SUPERHETERODYNE MODEL 1160 INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS
BAGG. CONVERTER

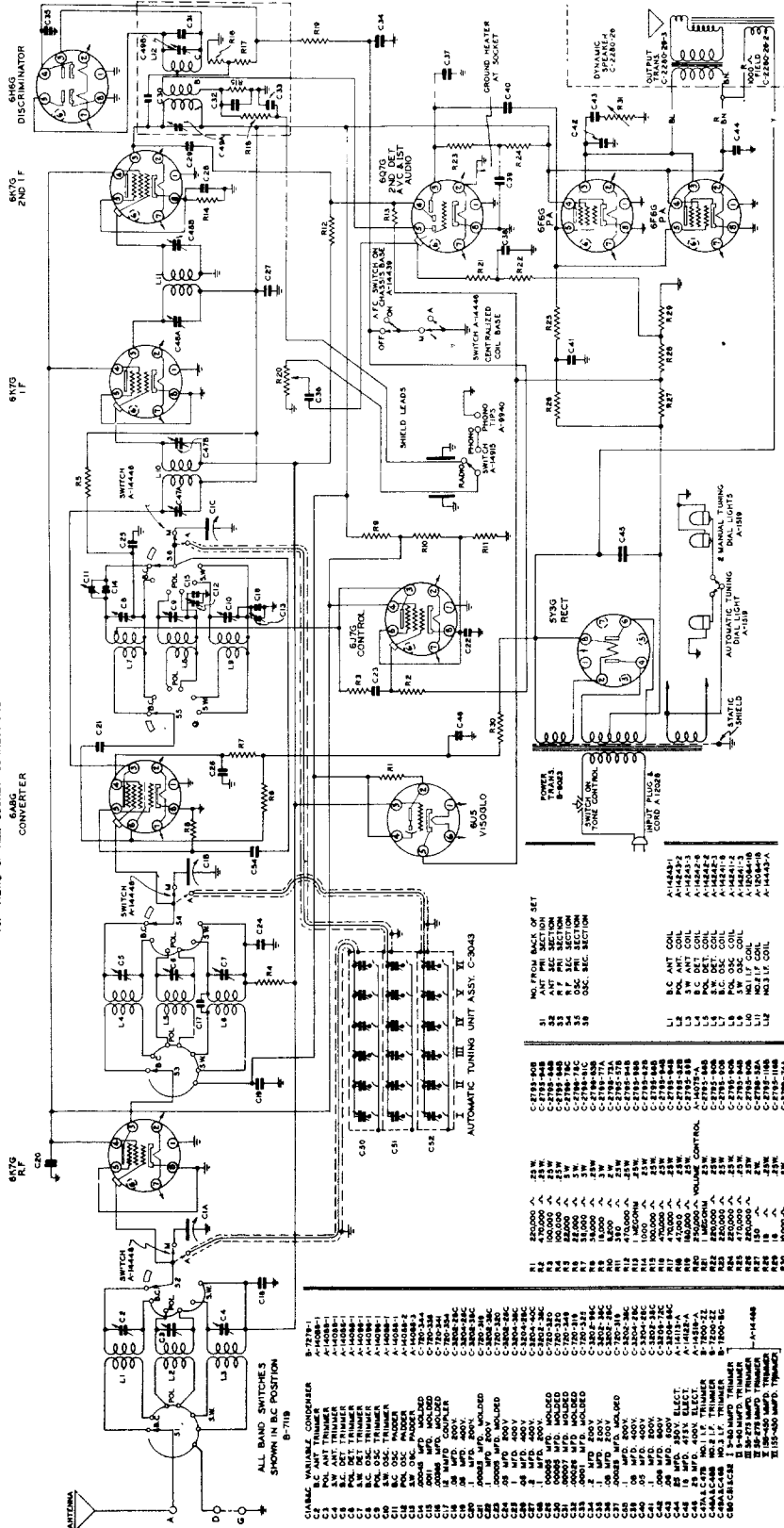


TABLE I
VACUUM TUBE COMPRESSOR

C1	6Y7G	6Y7G	6Y7G	6H6G	6W5	6X4
C2	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C3	6W5	6W5	6W5	6W5	6W5	6W5
C4	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C5	6W5	6W5	6W5	6W5	6W5	6W5
C6	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C7	6W5	6W5	6W5	6W5	6W5	6W5
C8	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C9	6W5	6W5	6W5	6W5	6W5	6W5
C10	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C11	6W5	6W5	6W5	6W5	6W5	6W5
C12	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C13	6W5	6W5	6W5	6W5	6W5	6W5
C14	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C15	6W5	6W5	6W5	6W5	6W5	6W5
C16	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C17	6W5	6W5	6W5	6W5	6W5	6W5
C18	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C19	6W5	6W5	6W5	6W5	6W5	6W5
C20	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C21	6W5	6W5	6W5	6W5	6W5	6W5
C22	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C23	6W5	6W5	6W5	6W5	6W5	6W5
C24	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C25	6W5	6W5	6W5	6W5	6W5	6W5
C26	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1
C27	6W5	6W5	6W5	6W5	6W5	6W5
C28	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1	A-14088-1

TABLE II
RESISTORS

R1	100,000	100,000	100,000	100,000	100,000	100,000
R2	100,000	100,000	100,000	100,000	100,000	100,000
R3	100,000	100,000	100,000	100,000	100,000	100,000
R4	100,000	100,000	100,000	100,000	100,000	100,000
R5	100,000	100,000	100,000	100,000	100,000	100,000
R6	100,000	100,000	100,000	100,000	100,000	100,000
R7	100,000	100,000	100,000	100,000	100,000	100,000
R8	100,000	100,000	100,000	100,000	100,000	100,000
R9	100,000	100,000	100,000	100,000	100,000	100,000
R10	100,000	100,000	100,000	100,000	100,000	100,000
R11	100,000	100,000	100,000	100,000	100,000	100,000
R12	100,000	100,000	100,000	100,000	100,000	100,000
R13	100,000	100,000	100,000	100,000	100,000	100,000
R14	100,000	100,000	100,000	100,000	100,000	100,000
R15	100,000	100,000	100,000	100,000	100,000	100,000
R16	100,000	100,000	100,000	100,000	100,000	100,000
R17	100,000	100,000	100,000	100,000	100,000	100,000
R18	100,000	100,000	100,000	100,000	100,000	100,000
R19	100,000	100,000	100,000	100,000	100,000	100,000
R20	100,000	100,000	100,000	100,000	100,000	100,000
R21	100,000	100,000	100,000	100,000	100,000	100,000
R22	100,000	100,000	100,000	100,000	100,000	100,000
R23	100,000	100,000	100,000	100,000	100,000	100,000
R24	100,000	100,000	100,000	100,000	100,000	100,000
R25	100,000	100,000	100,000	100,000	100,000	100,000
R26	100,000	100,000	100,000	100,000	100,000	100,000
R27	100,000	100,000	100,000	100,000	100,000	100,000
R28	100,000	100,000	100,000	100,000	100,000	100,000

TABLE III
CAPACITORS

C1	500,000	500,000	500,000	500,000	500,000	500,000
C2	500,000	500,000	500,000	500,000	500,000	500,000
C3	500,000	500,000	500,000	500,000	500,000	500,000
C4	500,000	500,000	500,000	500,000	500,000	500,000
C5	500,000	500,000	500,000	500,000	500,000	500,000
C6	500,000	500,000	500,000	500,000	500,000	500,000
C7	500,000	500,000	500,000	500,000	500,000	500,000
C8	500,000	500,000	500,000	500,000	500,000	500,000
C9	500,000	500,000	500,000	500,000	500,000	500,000
C10	500,000	500,000	500,000	500,000	500,000	500,000
C11	500,000	500,000	500,000	500,000	500,000	500,000
C12	500,000	500,000	500,000	500,000	500,000	500,000
C13	500,000	500,000	500,000	500,000	500,000	500,000
C14	500,000	500,000	500,000	500,000	500,000	500,000
C15	500,000	500,000	500,000	500,000	500,000	500,000
C16	500,000	500,000	500,000	500,000	500,000	500,000
C17	500,000	500,000	500,000	500,000	500,000	500,000
C18	500,000	500,000	500,000	500,000	500,000	500,000
C19	500,000	500,000	500,000	500,000	500,000	500,000
C20	500,000	500,000	500,000	500,000	500,000	500,000
C21	500,000	500,000	500,000	500,000	500,000	500,000
C22	500,000	500,000	500,000	500,000	500,000	500,000
C23	500,000	500,000	500,000	500,000	500,000	500,000
C24	500,000	500,000	500,000	500,000	500,000	500,000
C25	500,000	500,000	500,000	500,000	500,000	500,000
C26	500,000	500,000	500,000	500,000	500,000	500,000
C27	500,000	500,000	500,000	500,000	500,000	500,000
C28	500,000	500,000	500,000	500,000	500,000	500,000

TABLE IV
COILS

L1	100,000	100,000	100,000	100,000	100,000	100,000
L2	100,000	100,000	100,000	100,000	100,000	100,000
L3	100,000	100,000	100,000	100,000	100,000	100,000
L4	100,000	100,000	100,000	100,000	100,000	100,000
L5	100,000	100,000	100,000	100,000	100,000	100,000
L6	100,000	100,000	100,000	100,000	100,000	100,000
L7	100,000	100,000	100,000	100,000	100,000	100,000
L8	100,000	100,000	100,000	100,000	100,000	100,000
L9	100,000	100,000	100,000	100,000	100,000	100,000
L10	100,000	100,000	100,000	100,000	100,000	100,000
L11	100,000	100,000	100,000	100,000	100,000	100,000
L12	100,000	100,000	100,000	100,000	100,000	100,000

TABLE V
SWITCHES

S1	100,000	100,000	100,000	100,000	100,000	100,000
S2	100,000	100,000	100,000	100,000	100,000	100,000
S3	100,000	100,000	100,000	100,000	100,000	100,000

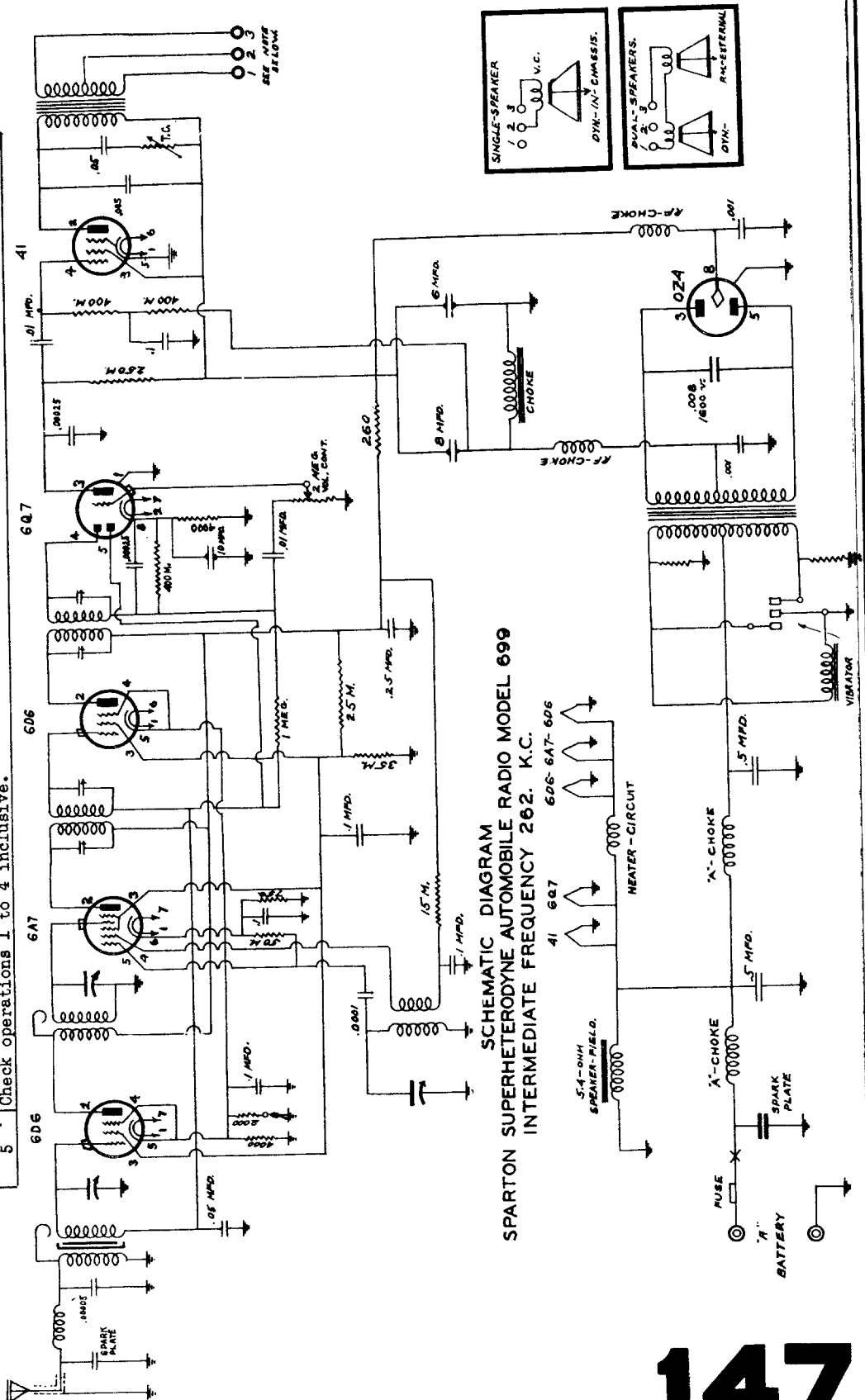
TABLE VI
MOTOR

M1	100,000	100,000	100,000	100,000	100,000	100,000
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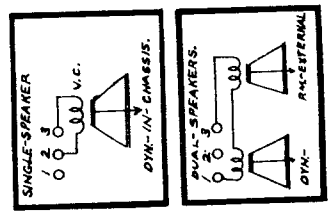
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	TUNING COND. SETTING	TRIMMER	REMARKS
1	I.F.	6A7 Grid	.1 mf.	262	Closed	2 trimmers	2nd I.F.
2	Broad. Osc.	Ant.	250 mmf.	1580	Open	2 trimmers	1st I.F.
3	Broad. Ant. & R.F.	Ant.	250 mmf.	1400	1400	Osc.	Adj. to max.
4						Ant.	Adj. to max.
5						R.F.	Adj. to max.

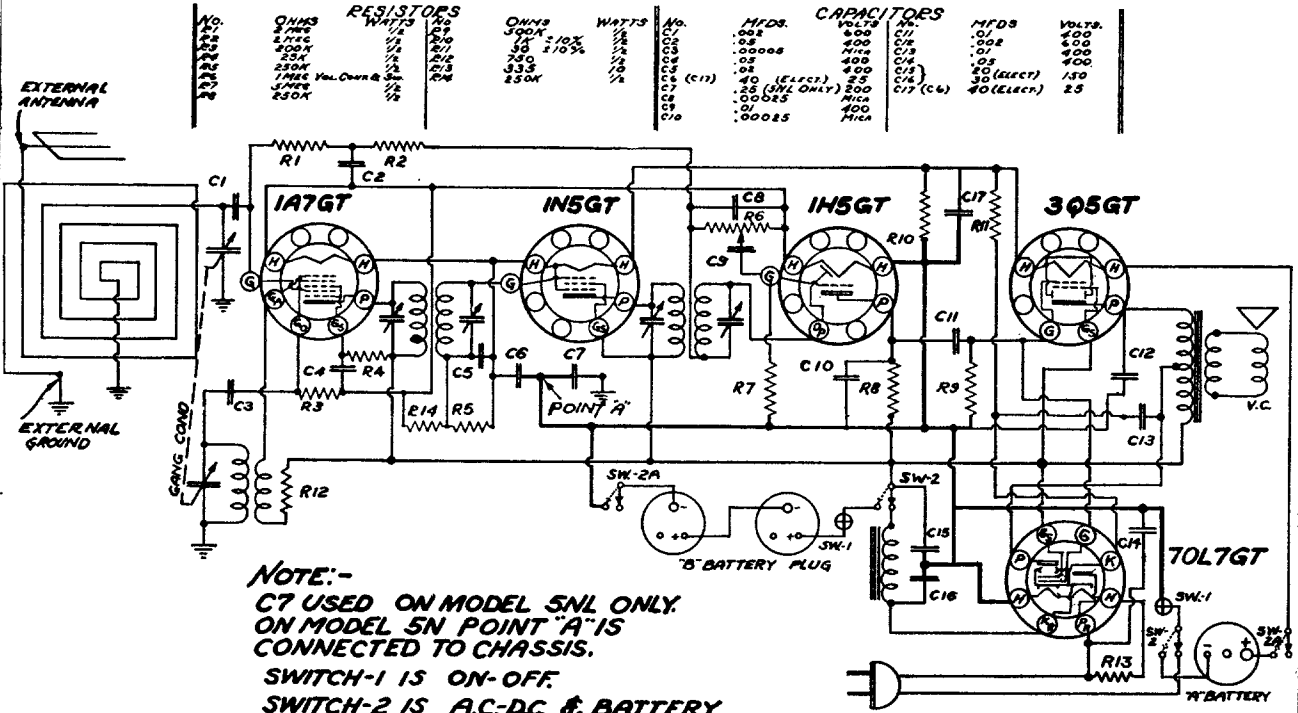
Check sensitivity at 1000 KC and 600 KC.
Check operations 1 to 4 inclusive.



SCHEMATIC DIAGRAM
SPARTON SUPERHETERODYNE AUTOMOBILE RADIO MODEL 699
INTERMEDIATE FREQUENCY 262. K.C.

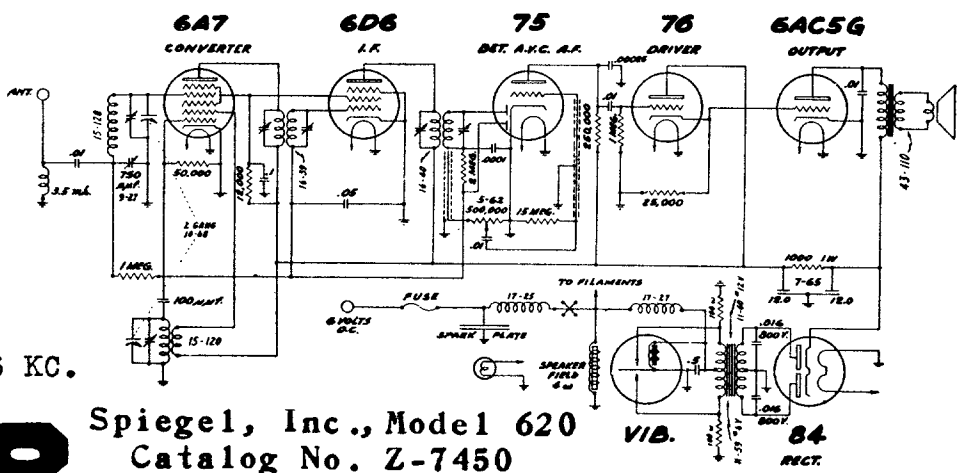
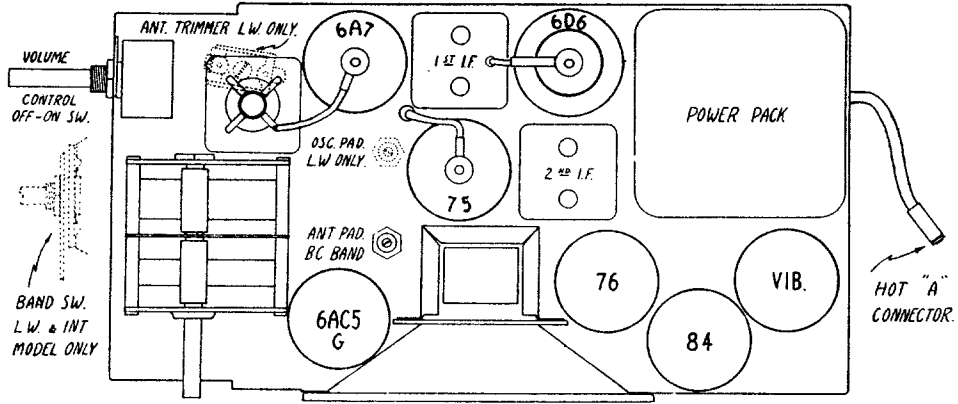


MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



NOTE:-
C7 USED ON MODEL 5N1 ONLY.
ON MODEL 5N POINT "A" IS
CONNECTED TO CHASSIS.
SWITCH-1 IS ON-OFF.
SWITCH-2 IS A.C.-D.C. & BATTERY.
SWITCH-2 SHOWN FOR A.C.-D.C.
IF 455 K.C.
ON MODEL 5N SWITCH, SWITCH 2A NOT USED.

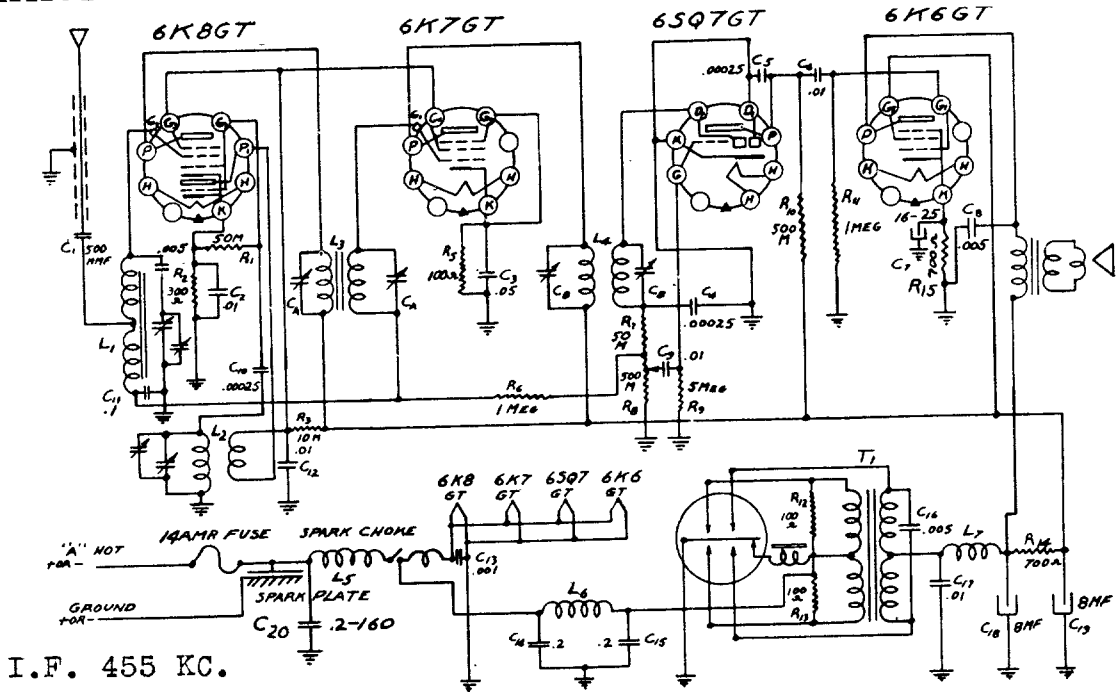
Spiegel, Inc. Model 5N
 Cat. No. Z-7126



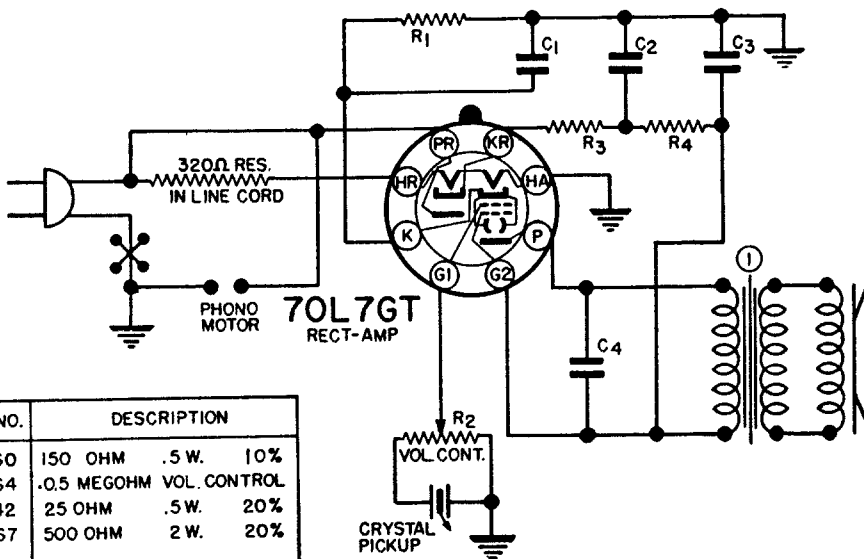
I.F. 456 KC.

Spiegel, Inc., Model 620
 Catalog No. Z-7450

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Spiegel, Inc., Chicago, Illinois
 Model 297, Catalog Nos. Z-7456 and Z-7458



DIAG. NO.	PART NO.	DESCRIPTION
R ₁	N-1360	150 OHM .5 W. 10%
R ₂	N-1864	.05 MEGOHM VOL. CONTROL
R ₃	N-1742	25 OHM .5 W. 20%
R ₄	N-1867	500 OHM 2 W. 20%
C ₁	N-1866	20 MFD. 25V. } ELECTRO.
C ₂		30 MFD. 150V. }
C ₃		30 MFD. 150V. }
C ₄	N-1344	.01 MFD. 400V.
1	N-1863	5 1/2" P.M. SPEAKER (TE-38)
	N-1865	LINE RES. CORD
1	N-1910	5 1/2" P.M. SPKR. (TE-40B41)

Spiegel, Inc., Chicago, Illinois
 Phonograph Model "TE"
 Catalog Numbers Z-7020 and Z-7021

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

MODELS 91-III, 98-III AND 910-III

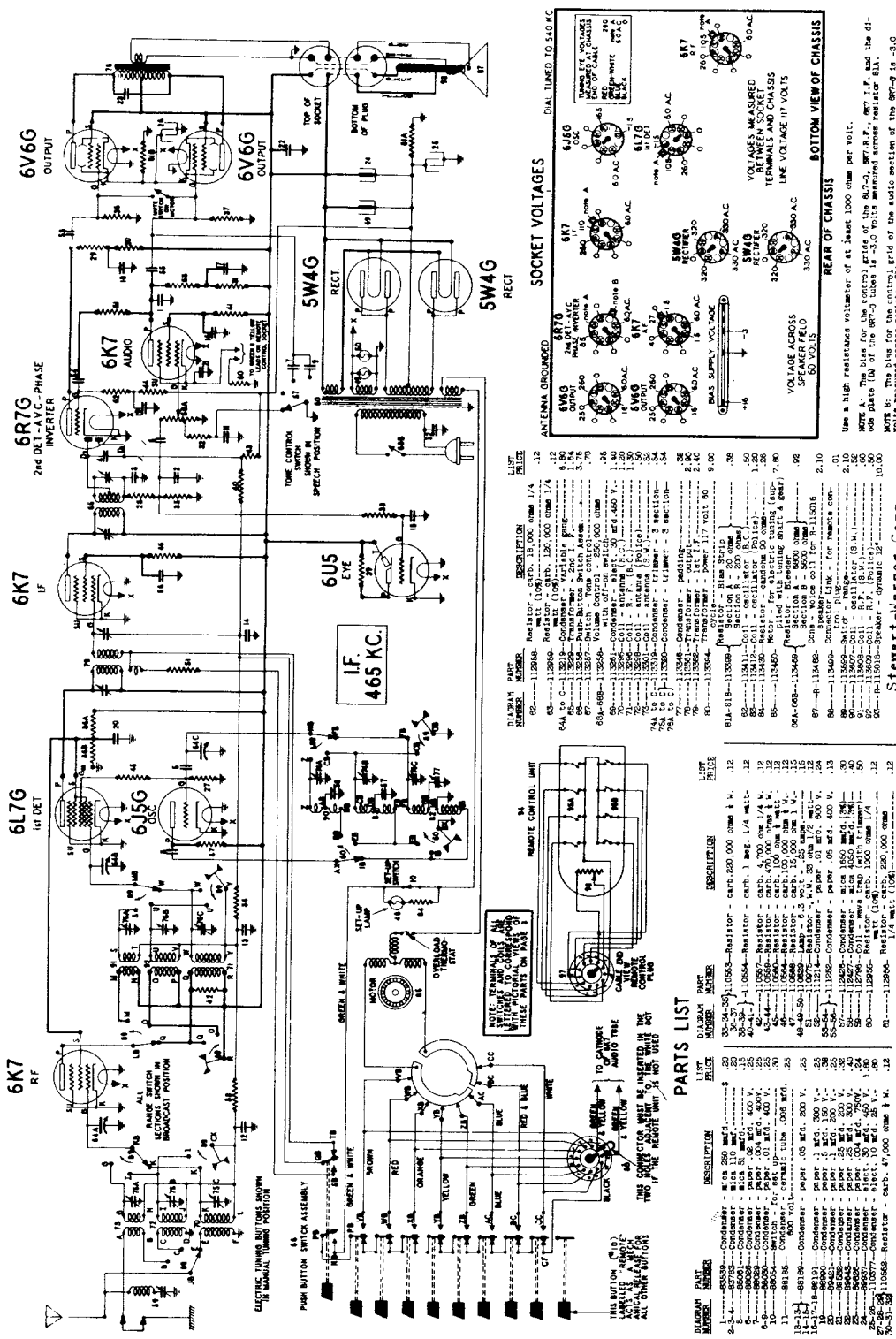


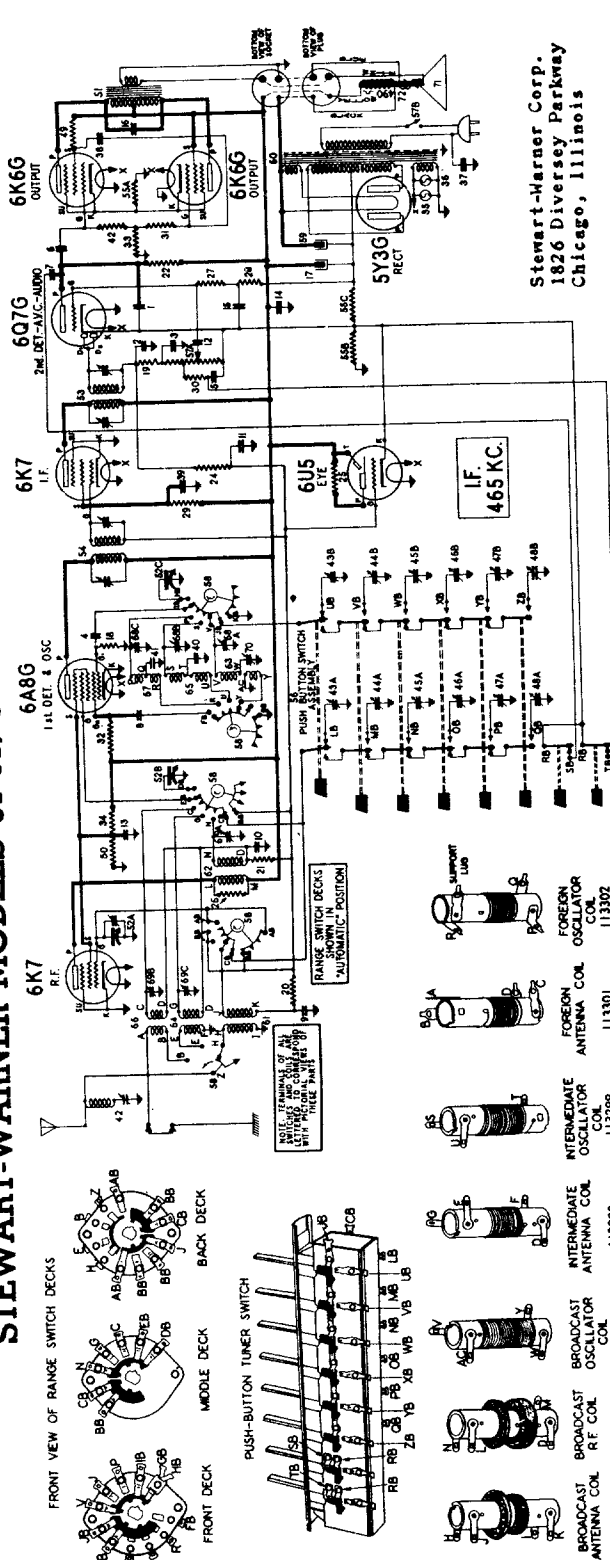
DIAGRAM PART NUMBER	DESCRIPTION	LIST PRICE
55.....	112956-Resistor - carb. 10,000 ohm 1/4	.12
56.....	112956-Resistor - carb. 120,000 ohm 1/4	.12
57.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
58.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
59.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
60.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
61.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
62.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
63.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
64.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
65.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
66.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
67.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
68.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
69.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
70.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
71.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
72.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
73.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
74.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
75.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
76.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
77.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
78.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
79.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
80.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
81.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
82.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
83.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
84.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
85.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
86.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
87.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
88.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
89.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
90.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
91.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
92.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
93.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
94.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
95.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
96.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
97.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
98.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
99.....	112956-Resistor - carb. 100,000 ohm 1/4	.12
100.....	112956-Resistor - carb. 100,000 ohm 1/4	.12

DIAGRAM PART NUMBER	DESCRIPTION	LIST PRICE
101.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
102.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
103.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
104.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
105.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
106.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
107.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
108.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
109.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
110.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
111.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
112.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
113.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
114.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
115.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
116.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
117.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
118.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
119.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
120.....	112956-Resistor - carb. 200,000 ohm 1/4	.12

DIAGRAM PART NUMBER	DESCRIPTION	LIST PRICE
121.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
122.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
123.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
124.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
125.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
126.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
127.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
128.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
129.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
130.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
131.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
132.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
133.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
134.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
135.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
136.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
137.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
138.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
139.....	112956-Resistor - carb. 200,000 ohm 1/4	.12
140.....	112956-Resistor - carb. 200,000 ohm 1/4	.12

Stewart-Warner Corp.
1826 Diversey Parkway
Chicago, Illinois

STEWART-WARNER MODELS 91-81, 98-81 AND 910-81 CHASSIS



Stewart-Warner Corp.
1826 Diversey Parkway
Chicago, Illinois

Part No.	Description	Per. ft.	Per. ft.
11622	Washer—flat steel for nut chassis		
11623	Washer—flat steel for nut chassis		
11624	Washer—flat steel for nut chassis		
11625	Washer—flat steel for nut chassis		
11626	Washer—flat steel for nut chassis		
11627	Washer—flat steel for nut chassis		
11628	Washer—flat steel for nut chassis		
11629	Washer—flat steel for nut chassis		
11630	Washer—flat steel for nut chassis		
11631	Washer—flat steel for nut chassis		
11632	Washer—flat steel for nut chassis		
11633	Washer—flat steel for nut chassis		
11634	Washer—flat steel for nut chassis		
11635	Washer—flat steel for nut chassis		
11636	Washer—flat steel for nut chassis		
11637	Washer—flat steel for nut chassis		
11638	Washer—flat steel for nut chassis		
11639	Washer—flat steel for nut chassis		
11640	Washer—flat steel for nut chassis		
11641	Washer—flat steel for nut chassis		
11642	Washer—flat steel for nut chassis		
11643	Washer—flat steel for nut chassis		
11644	Washer—flat steel for nut chassis		
11645	Washer—flat steel for nut chassis		
11646	Washer—flat steel for nut chassis		
11647	Washer—flat steel for nut chassis		
11648	Washer—flat steel for nut chassis		
11649	Washer—flat steel for nut chassis		
11650	Washer—flat steel for nut chassis		
11651	Washer—flat steel for nut chassis		
11652	Washer—flat steel for nut chassis		
11653	Washer—flat steel for nut chassis		
11654	Washer—flat steel for nut chassis		
11655	Washer—flat steel for nut chassis		
11656	Washer—flat steel for nut chassis		
11657	Washer—flat steel for nut chassis		
11658	Washer—flat steel for nut chassis		
11659	Washer—flat steel for nut chassis		
11660	Washer—flat steel for nut chassis		
11661	Washer—flat steel for nut chassis		
11662	Washer—flat steel for nut chassis		
11663	Washer—flat steel for nut chassis		
11664	Washer—flat steel for nut chassis		
11665	Washer—flat steel for nut chassis		
11666	Washer—flat steel for nut chassis		
11667	Washer—flat steel for nut chassis		
11668	Washer—flat steel for nut chassis		
11669	Washer—flat steel for nut chassis		
11670	Washer—flat steel for nut chassis		
11671	Washer—flat steel for nut chassis		
11672	Washer—flat steel for nut chassis		
11673	Washer—flat steel for nut chassis		
11674	Washer—flat steel for nut chassis		
11675	Washer—flat steel for nut chassis		
11676	Washer—flat steel for nut chassis		
11677	Washer—flat steel for nut chassis		
11678	Washer—flat steel for nut chassis		
11679	Washer—flat steel for nut chassis		
11680	Washer—flat steel for nut chassis		
11681	Washer—flat steel for nut chassis		
11682	Washer—flat steel for nut chassis		
11683	Washer—flat steel for nut chassis		
11684	Washer—flat steel for nut chassis		
11685	Washer—flat steel for nut chassis		
11686	Washer—flat steel for nut chassis		
11687	Washer—flat steel for nut chassis		
11688	Washer—flat steel for nut chassis		
11689	Washer—flat steel for nut chassis		
11690	Washer—flat steel for nut chassis		
11691	Washer—flat steel for nut chassis		
11692	Washer—flat steel for nut chassis		
11693	Washer—flat steel for nut chassis		
11694	Washer—flat steel for nut chassis		
11695	Washer—flat steel for nut chassis		
11696	Washer—flat steel for nut chassis		
11697	Washer—flat steel for nut chassis		
11698	Washer—flat steel for nut chassis		
11699	Washer—flat steel for nut chassis		
11700	Washer—flat steel for nut chassis		

PARTS LIST

Diagram Number	Part Number	Description	Price
55A to 55C	113251	Resistor—wire wtd. Sec. C, 18 ohm	\$0.10
55	57A-57B	Push Button Switch Armature with switch	1.80
56	113252	Condenser—mica 200 mfd., 50 volt	.25
57	113253	Condenser—mica 100 mfd., 50 volt	.25
58	113254	Condenser—mica 50 mfd., 50 volt	.25
59	113255	Condenser—mica 25 mfd., 50 volt	.25
60	113256	Condenser—mica 10 mfd., 50 volt	.25
61	113257	Condenser—mica 5 mfd., 50 volt	.25
62	113258	Condenser—mica 2.5 mfd., 50 volt	.25
63	113259	Condenser—mica 1.25 mfd., 50 volt	.25
64	113260	Condenser—mica .625 mfd., 50 volt	.25
65	113261	Condenser—mica .3125 mfd., 50 volt	.25
66	113262	Condenser—mica .15625 mfd., 50 volt	.25
67	113263	Condenser—mica .078125 mfd., 50 volt	.25
68	113264	Condenser—mica .0390625 mfd., 50 volt	.25
69	113265	Condenser—mica .01953125 mfd., 50 volt	.25
70	113266	Condenser—mica .009765625 mfd., 50 volt	.25
71	113267	Condenser—mica .0048828125 mfd., 50 volt	.25
72	113268	Condenser—mica .00244140625 mfd., 50 volt	.25
73	113269	Condenser—mica .001220703125 mfd., 50 volt	.25
74	113270	Condenser—mica .0006103515625 mfd., 50 volt	.25
75	113271	Condenser—mica .00030517578125 mfd., 50 volt	.25
76	113272	Condenser—mica .000152587890625 mfd., 50 volt	.25
77	113273	Condenser—mica .0000762939453125 mfd., 50 volt	.25
78	113274	Condenser—mica .00003814697265625 mfd., 50 volt	.25
79	113275	Condenser—mica .000019073486328125 mfd., 50 volt	.25
80	113276	Condenser—mica .0000095367431640625 mfd., 50 volt	.25
81	113277	Condenser—mica .00000476837158203125 mfd., 50 volt	.25
82	113278	Condenser—mica .000002384185791015625 mfd., 50 volt	.25
83	113279	Condenser—mica .0000011920928955078125 mfd., 50 volt	.25
84	113280	Condenser—mica .00000059604644775390625 mfd., 50 volt	.25
85	113281	Condenser—mica .000000298023223876953125 mfd., 50 volt	.25
86	113282	Condenser—mica .0000001490116119384765625 mfd., 50 volt	.25
87	113283	Condenser—mica .00000007450580596923828125 mfd., 50 volt	.25
88	113284	Condenser—mica .0000000372529029846469140625 mfd., 50 volt	.25
89	113285	Condenser—mica .000000018626451492323453125 mfd., 50 volt	.25
90	113286	Condenser—mica .0000000093132257461117169140625 mfd., 50 volt	.25
91	113287	Condenser—mica .00000000465661287305585791015625 mfd., 50 volt	.25
92	113288	Condenser—mica .000000002328306436527778955078125 mfd., 50 volt	.25
93	113289	Condenser—mica .0000000011641532182638894775390625 mfd., 50 volt	.25
94	113290	Condenser—mica .00000000058207660913194473876953125 mfd., 50 volt	.25
95	113291	Condenser—mica .00000000029103830456597236928955078125 mfd., 50 volt	.25
96	113292	Condenser—mica .0000000001455191522829861846469140625 mfd., 50 volt	.25
97	113293	Condenser—mica .000000000072759576141492323453125 mfd., 50 volt	.25
98	113294	Condenser—mica .0000000000363797880707461117169140625 mfd., 50 volt	.25
99	113295	Condenser—mica .00000000001818989403537305585791015625 mfd., 50 volt	.25
100	113296	Condenser—mica .0000000000090949470176876928955078125 mfd., 50 volt	.25
101	113297	Condenser—mica .000000000004547473508843846469140625 mfd., 50 volt	.25
102	113298	Condenser—mica .00000000000227373675442192323453125 mfd., 50 volt	.25
103	113299	Condenser—mica .000000000001136868377211061117169140625 mfd., 50 volt	.25
104	113300	Condenser—mica .0000000000005684341855555585791015625 mfd., 50 volt	.25
105	113301	Condenser—mica .000000000000284217092777778955078125 mfd., 50 volt	.25
106	113302	Condenser—mica .00000000000014210854638894775390625 mfd., 50 volt	.25
107	113303	Condenser—mica .000000000000071054271692323453125 mfd., 50 volt	.25
108	113304	Condenser—mica .0000000000000355271358461117169140625 mfd., 50 volt	.25
109	113305	Condenser—mica .00000000000001776356792305585791015625 mfd., 50 volt	.25
110	113306	Condenser—mica .000000000000008881783961527778955078125 mfd., 50 volt	.25
111	113307	Condenser—mica .0000000000000044408919807638894775390625 mfd., 50 volt	.25
112	113308	Condenser—mica .00000000000000222044599038194473876953125 mfd., 50 volt	.25
113	113309	Condenser—mica .00000000000000111022299519097236928955078125 mfd., 50 volt	.25
114	113310	Condenser—mica .0000000000000005551114978955078125 mfd., 50 volt	.25
115	113311	Condenser—mica .00000000000000027755574894775390625 mfd., 50 volt	.25
116	113312	Condenser—mica .000000000000000138777874473876953125 mfd., 50 volt	.25
117	113313	Condenser—mica .000000000000000069388937236928955078125 mfd., 50 volt	.25
118	113314	Condenser—mica .00000000000000003469446861846469140625 mfd., 50 volt	.25
119	113315	Condenser—mica .0000000000000000173472343092323453125 mfd., 50 volt	.25
120	113316	Condenser—mica .00000000000000000867361715461117169140625 mfd., 50 volt	.25
121	113317	Condenser—mica .000000000000000004336808576305585791015625 mfd., 50 volt	.25
122	113318	Condenser—mica .0000000000000000021684042881527778955078125 mfd., 50 volt	.25
123	113319	Condenser—mica .00000000000000000108420214407638894775390625 mfd., 50 volt	.25
124	113320	Condenser—mica .00000000000000000054210107236928955078125 mfd., 50 volt	.25
125	113321	Condenser—mica .0000000000000000002710505361846469140625 mfd., 50 volt	.25
126	113322	Condenser—mica .000000000000000000135525271692323453125 mfd., 50 volt	.25
127	113323	Condenser—mica .0000000000000000000677626358461117169140625 mfd., 50 volt	.25
128	113324	Condenser—mica .00000000000000000003388131792305585791015625 mfd., 50 volt	.25
129	113325	Condenser—mica .000000000000000000016940658961527778955078125 mfd., 50 volt	.25
130	113326	Condenser—mica .0000000000000000000084703294807638894775390625 mfd., 50 volt	.25
131	113327	Condenser—mica .0000000000000000000042351647403876953125 mfd., 50 volt	.25
132	113328	Condenser—mica .000000000000000000002117582370193876953125 mfd., 50 volt	.25
133	113329	Condenser—mica .000000000000000000001058791185097236928955078125 mfd., 50 volt	.25
134	113330	Condenser—mica .0000000000000000000005293955925461117169140625 mfd., 50 volt	.25
135	113331	Condenser—mica .00000000000000000000026469779627305585791015625 mfd., 50 volt	.25
136	113332	Condenser—mica .000000000000000000000132348898136527778955078125 mfd., 50 volt	.25
137	113333	Condenser—mica .00000000000000000000006617444907638894775390625 mfd., 50 volt	.25
138	113334	Condenser—mica .000000000000000000000033087224538194473876953125 mfd., 50 volt	.25
139	113335	Condenser—mica .000000000000000000000016543612269597236928955078125 mfd., 50 volt	.25
140	113336	Condenser—mica .000000000000000000000008271806134894775390625 mfd., 50 volt	.25
141	113337	Condenser—mica .00000000000000000000000413590309473876953125 mfd., 50 volt	.25
142	113338	Condenser—mica .0000000000000000000000020679515473876953125 mfd., 50 volt	.25
143	113339	Condenser—mica .0000000000000000000000010339757736928955078125 mfd., 50 volt	.25
144	113340	Condenser—mica .0000000000000000000000005169878868194473876953125 mfd., 50 volt	.25
145	113341	Condenser—mica .0000000000000000000000002584939434092323453125 mfd., 50 volt	.25
146	113342	Condenser—mica .00000000000000000000000012924697170193876953125 mfd., 50 volt	.25
147	113343	Condenser—mica .00000000000000000000000006462348585097236928955078125 mfd., 50 volt	.25
148	113344	Condenser—mica .000000000000000000000000032311742927305585791015625 mfd., 50 volt	.25
149	113345	Condenser—mica .0000000000000000000000000161558714636527778955078125 mfd., 50 volt	.25
150	113346	Condenser—mica .0000000000000000000000000080779357182638894775390625 mfd., 50 volt	.25
151	113347	Condenser—mica .00000000000000000000000000403896785913194473876953125 mfd., 50 volt	.25
152	113348	Condenser—mica .00000000000000000000000000201948392956597236928955078125 mfd., 50 volt	.25
153	113349	Condenser—mica .0000000000000000000000000010097419647894775390625 mfd., 50 volt	.25
154	113350	Condenser—mica .00000000000000000000000000050487098239473876953125 mfd., 50 volt	.25
155	11		

STEWART-WARNER MODEL 91-648 RECEIVER

152

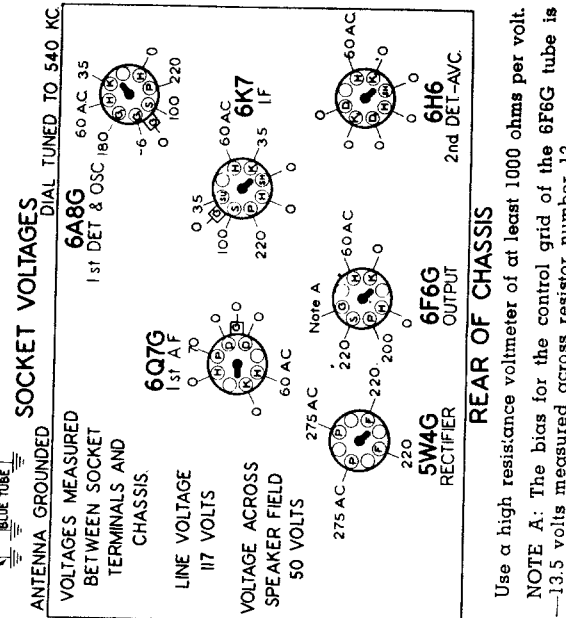
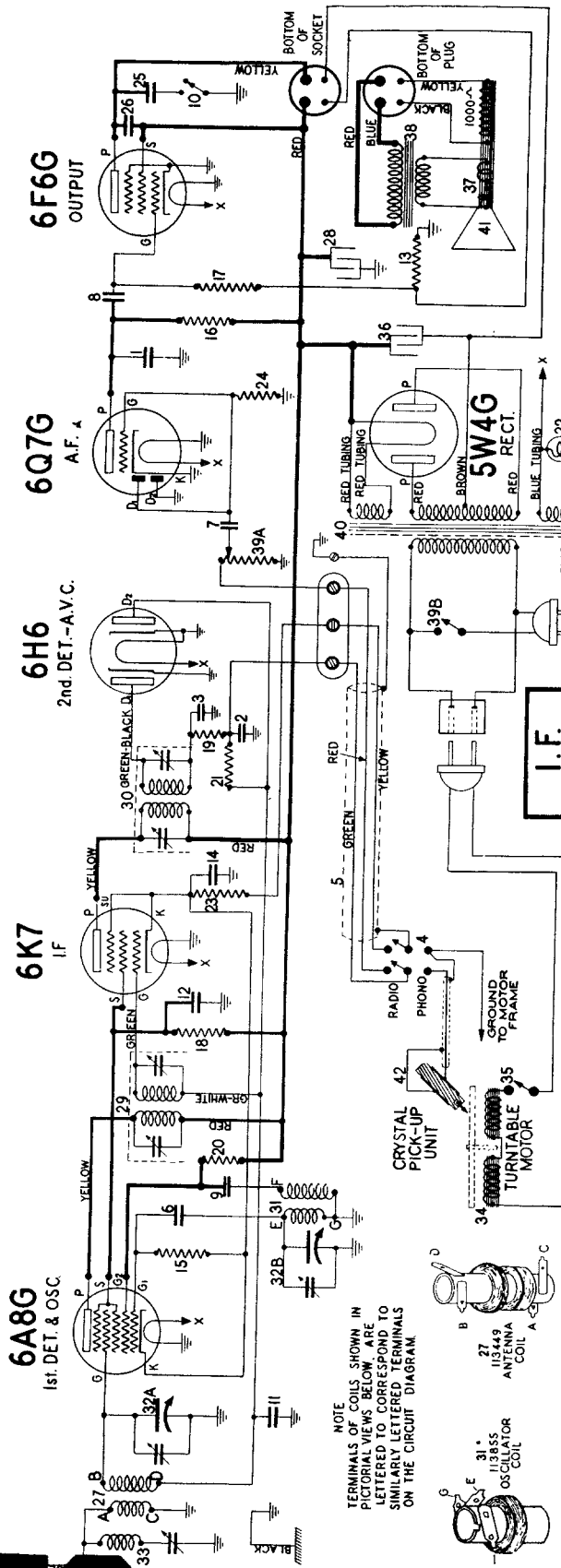


Diagram Number	Part Number	Description
1	83539	Condenser—mica 260 mmfd.
2-3	83783	Condenser—mica 110 mmf.
4	84566	Switch—"phono-radio", D.P.D.T.
5	84572	Cable—Shielded for Phono. Pickup.
6	85061	Condenser—mica 51 mmfd.
7-8	88026	Condenser—paper .02 mfd. 400 Volt
9	88030	Condenser—paper .01 mfd. 400 Volt
10	88054	Switch for tone control.
11	88189	Condenser—paper .05 mfd. 200 Volt
12	88191	Condenser—paper .1 mfd. 300 Volt
13	88462	Resistor—W. W. 270 ohms 1 W. 10%
14	89532	Condenser—paper .25 mfd. 200 Volt
15	110552	Resistor—carbon 47,000 ohms 1/4 W.
16	110553	Resistor—carbon 220,000 ohms 1/4 W.
17	110559	Resistor—carbon 470,000 ohms 1/4 W.
18-19	110566	Resistor—carbon 33,000 ohms 1/4 W.
20	110569	Resistor—carbon 10,000 ohms 1/4 W.
21	110580	Resistor—carbon 3.3 meg. 1/4 watt
22	110629	Dial bulb—6.3 volt .25 amps.
23	112974	Resistor—carbon 220 ohms 1/4 W. (10%)
24	112975	Resistor—carbon 10 meg. 1/4 watt.
25	113034	Condenser—paper .04 mfd. 600 volt
26	113035	Condenser—paper .006 mfd. 600 V
27	113449	Antenna coil
28	113808	Condenser—electrolytic 8 mfd. 350 V.
29	113853	Transformer—1st I.F.
30	113854	Transformer—2nd I.F.
31	113855	Coil—oscillator
32A-32B	113869	Condenser—gang
33	113889	Coil—wave trap
34	114400	Phono. motor & turntable.
35	114437	Toggle Switch—phono. power off-on switch
36	114972	Condenser—elect. 16 mfd. 45 V.
37	U-115048	Speaker—dynamic 6"
38	U-116212	Output transformer for U-115048 speaker
39A-39B	116274	Volume control 500,000 ohms with switch
40	116283	Transformer—power 110 V 60 C.
41	U-116296	Cone & voice coil assembly for U-115048 speaker
42	116300	Phono. pickup head.

REAR OF CHASSIS

Use a high resistance voltmeter of at least 1000 ohms per volt.
NOTE A: The bias for the control grid of the 6F6G tube is —13.5 volts measured across resistor number 13.

MODEL 97-56-S CHASSIS
RECEIVER MODELS 97-561 to 97-569

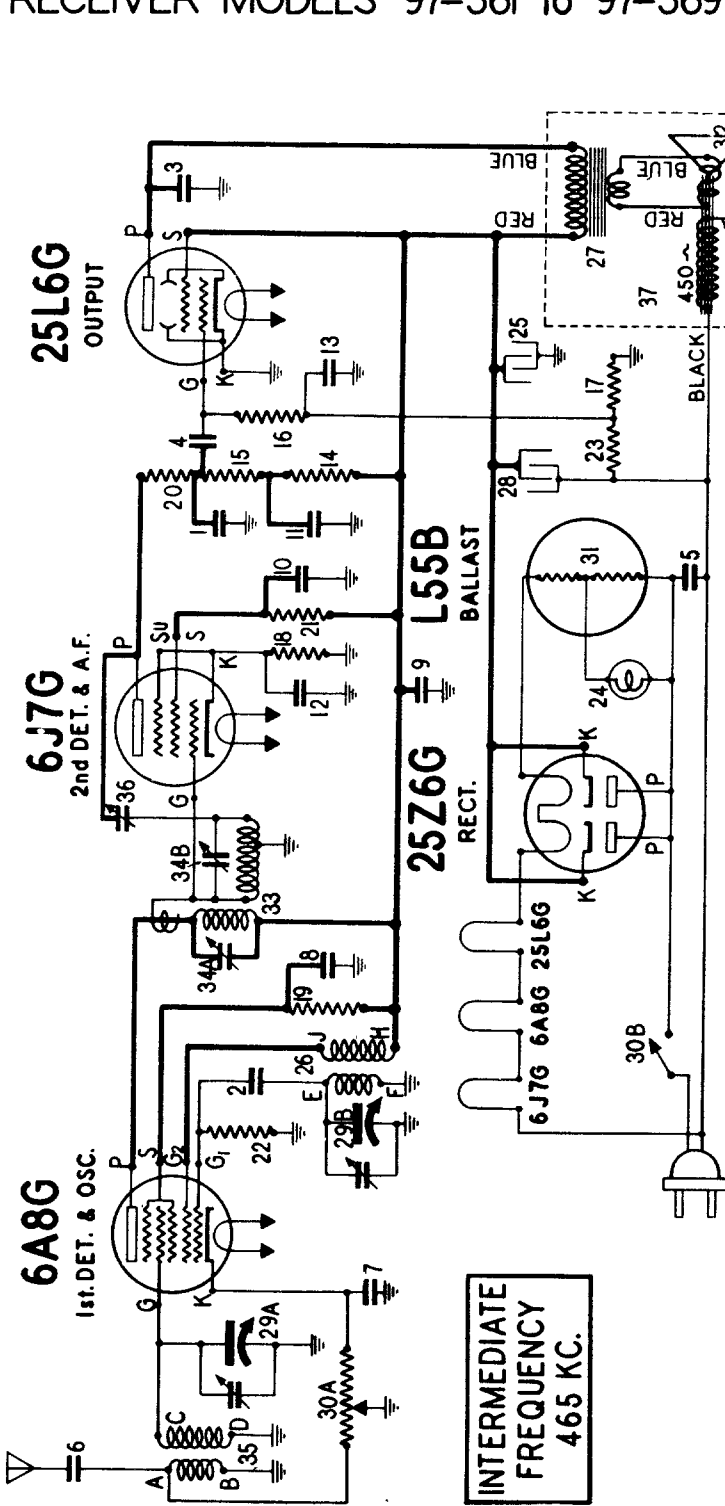
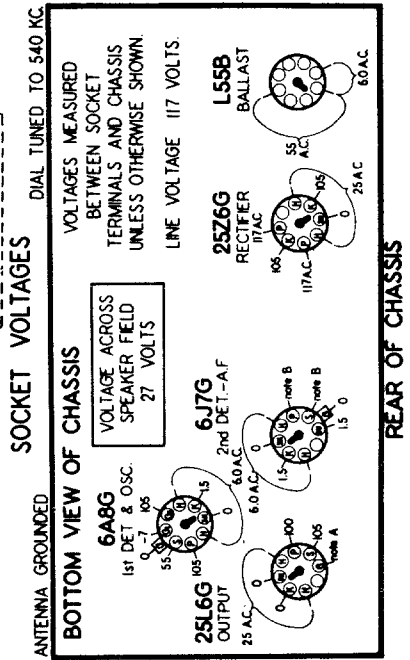
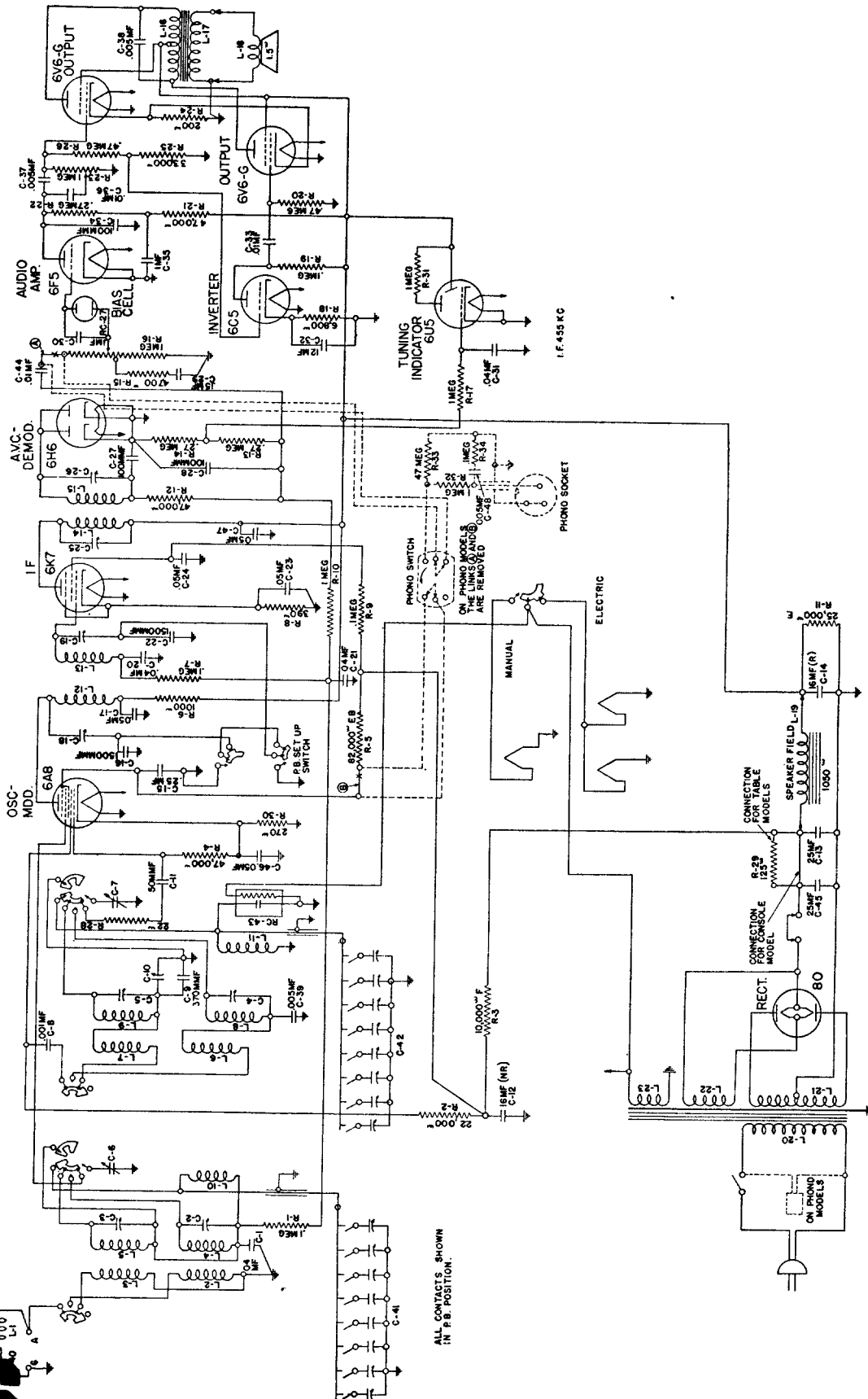


DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	85539	Condenser - mica 260 mfd.
2	83783	Condenser - mica 110 mfd.
3-4-5	8802E	Condenser - paper .02 mfd.
6	88029	Condenser - paper .004 mfd.
7-8-9-10-11	89421	Condenser - paper .1 mfd.
12-13	89532	Condenser - paper .25 mfd.
14	110553	Resistor - carbon 220,000
15-16	110559	Resistor - carbon 470,000
17	110594	Resistor - carbon 100,000
18	110595	Resistor - carbon 22,000
19	110596	Resistor - carbon 35,000
20	110599	Resistor - carbon 10,000
21	110570	Resistor - carbon 2.2 meg. 1/4 watt
22	110578	Resistor - carbon 68,000 ohm 1/4 watt
23	110584	Resistor - carbon 350,000 ohm 1/4 watt
24	110629	Lamp - 6.3 volt-.25 amp.
25	112898	Condenser - electrolytic 10 mfd. 150 volt
26	115042	Coil - oscillator output for 6J7G
27	R-113543	Transformer - spectrolytic for 6J7G
28	113472	Condenser - variable gang- with on-off switch
29A - 29B	113476	Condenser - variable gang- with on-off switch
30A - 30B	113501	Volume control - 20,000 ohms
31	113506	Ballast Resistor - L55B-
32	R-113737	Cone - voice coil assem. for R-115025 speaker
33	R-113737	Transformer - I.F. (with trimmer)
34A - 34B	113743	Condenser - trimmer (2 sections for I.F.)
35	113744	Coil - antenna
36	113745	Condenser - trimmer (regen control)
37	R-115025	Speaker - Dynamic - 5" (sub. R-115013)



Stromberg-Carlson Nos. 340 and 341 Radio Receivers

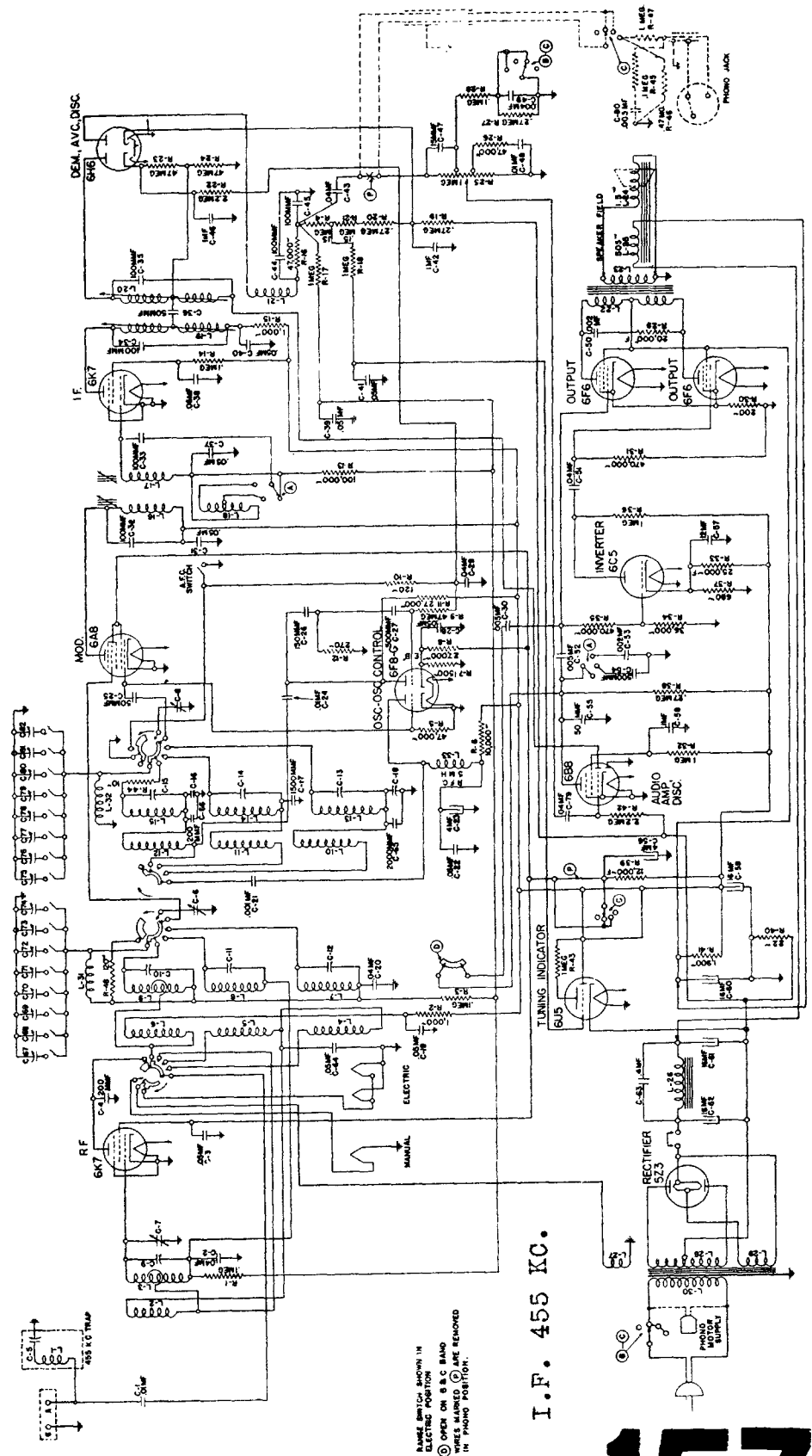
STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY
ROCHESTER, NEW YORK



Stromberg-Carlson No. 350 Radio Receivers
 STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY
 ROCHESTER, NEW YORK

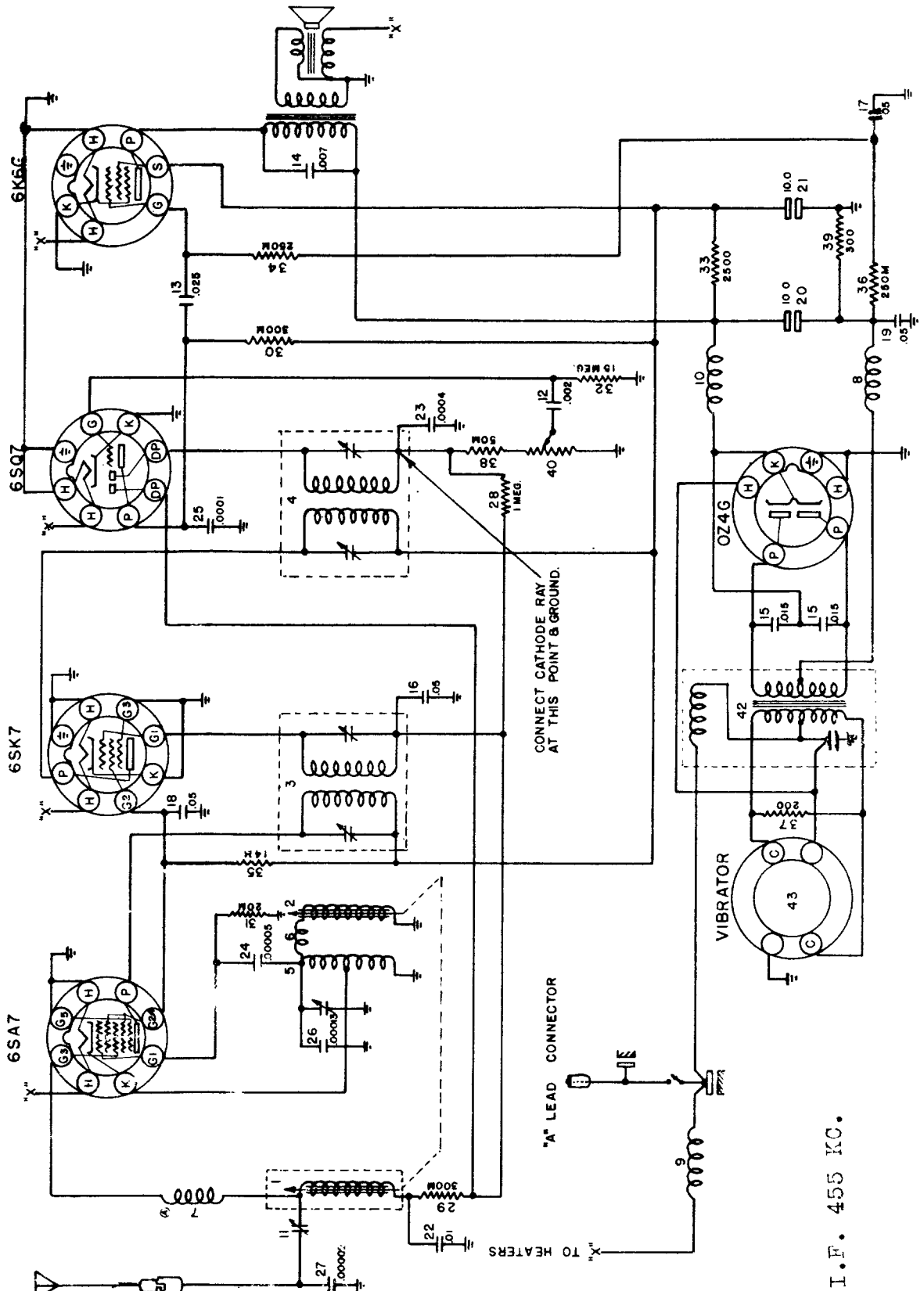
ELECTRICAL SPECIFICATIONS

Type of Circuit..... Superheterodyne with A. F. C. Electric Tuning
 Tuning Ranges..... A—530 to 1700 Kc.; B—1700 to 5600 Kc.; C—5600 to 18,000 Kc.

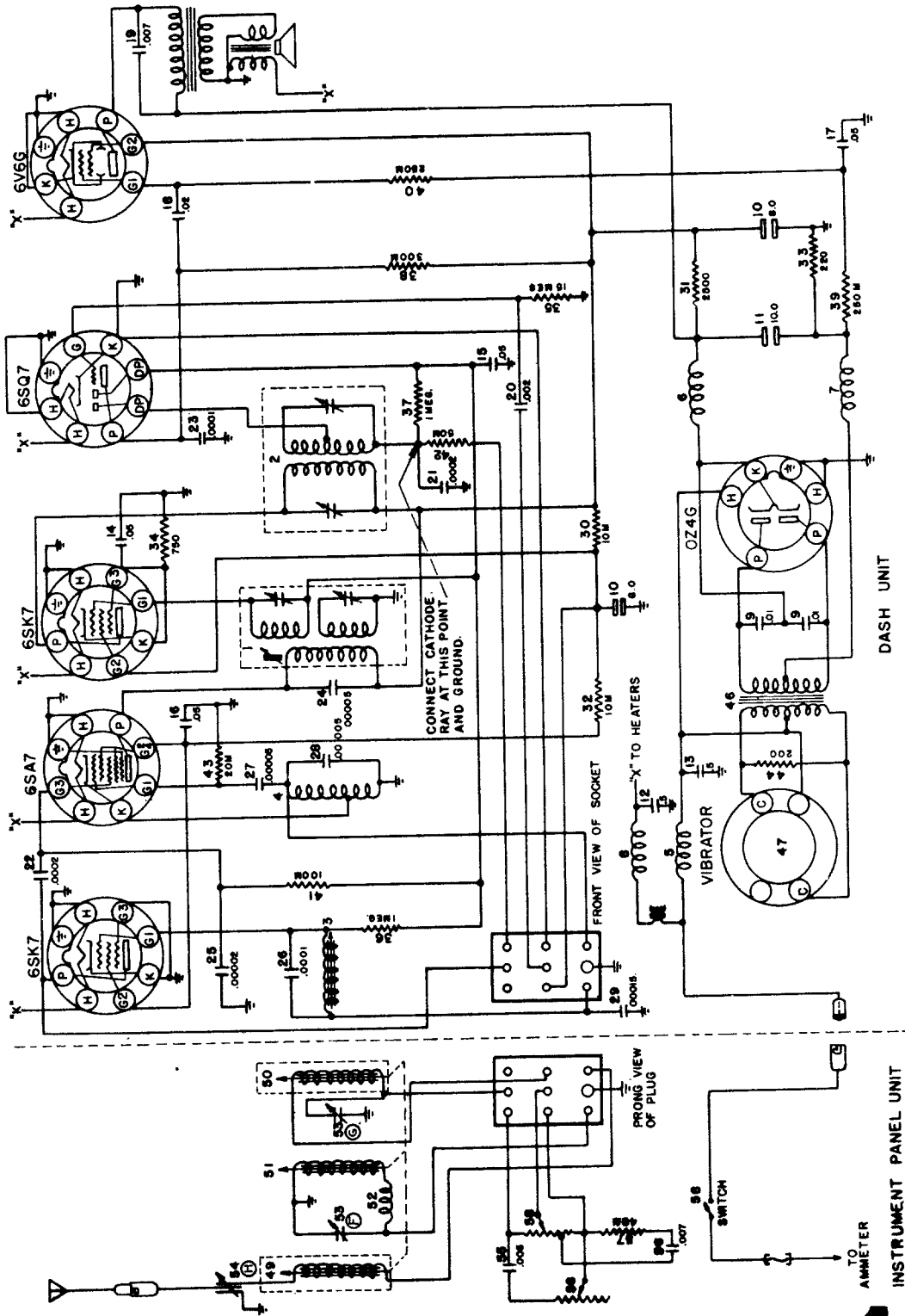


I.F. 455 KC.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



DELCO MODEL R-678 CIRCUIT DIAGRAM

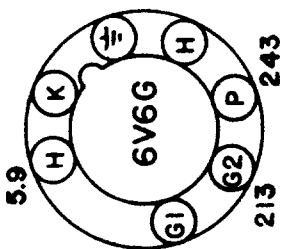
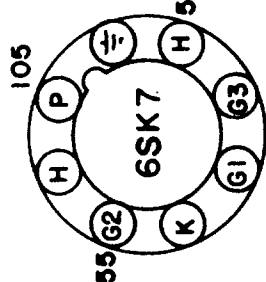
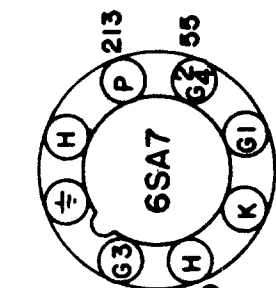
I.F. 455 KC.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

SERVICE INSTRUCTIONS--DELCO MODEL R-678--Cont'd.

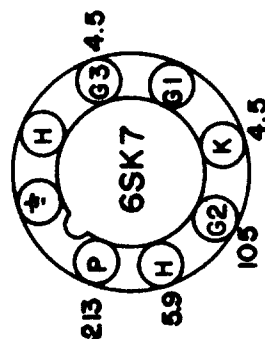
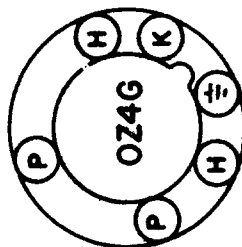
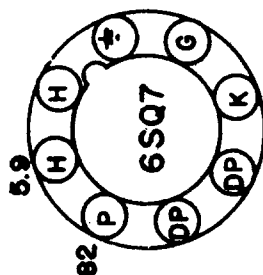
Tuning is accomplished by means of the conventional manual control or by means of five push-buttons which mechanically adjust the position of the iron cores in the tuning coils, tuning the radio to preselected frequencies

UNITED MOTORS SERVICE INCORPORATED

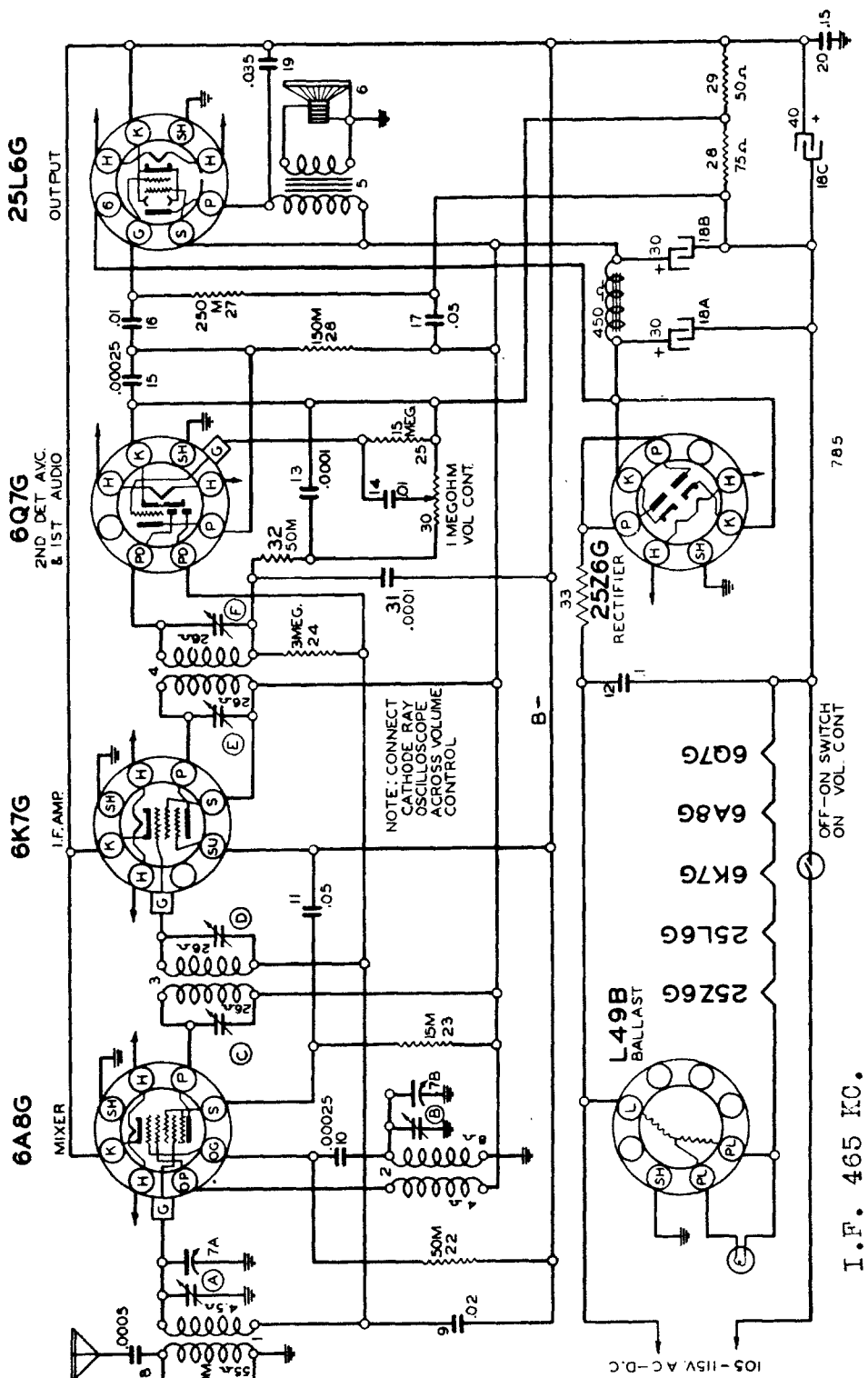


VOLTAGE READINGS TAKEN BETWEEN SOCKET TERMINALS AND GROUND WITH D.C. VOLTMETER HAVING RESISTANCE OF 1000 OHMS PER VOLT. ALL READINGS TAKEN WITH 5.9 FILAMENT VOLTAGE AT TUBES.

CURRENT DRAIN WITH SPEAKER & DIAL LIGHT 6.7 AMPS. "B" SUPPLY DRAIN 50 M.A.



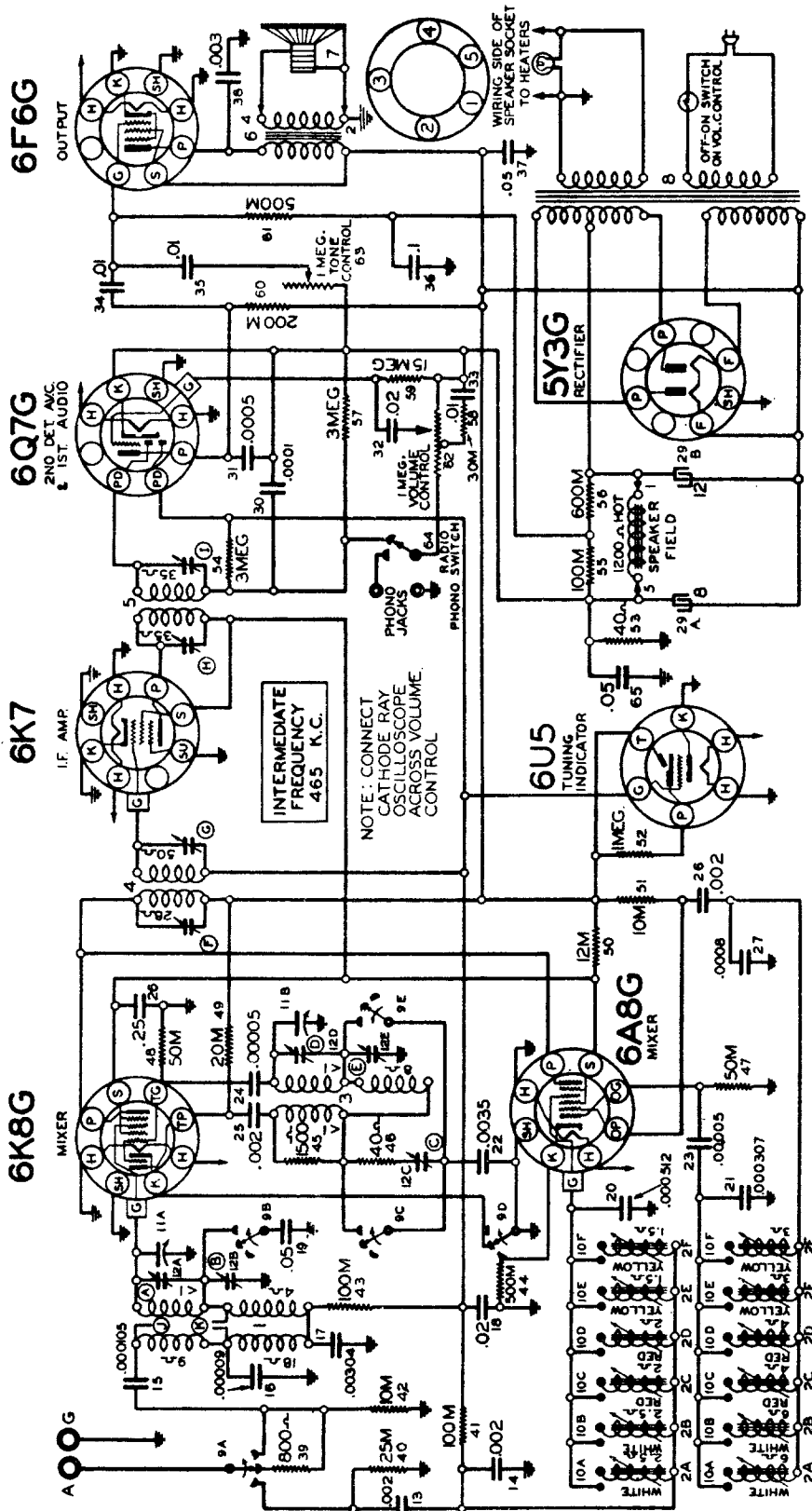
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



DELCO MODELS R-1134-35-39 CIRCUIT DIAGRAM

United Motors Service, Inc.
 3044 West Grand Blvd.
 Detroit, Mich.

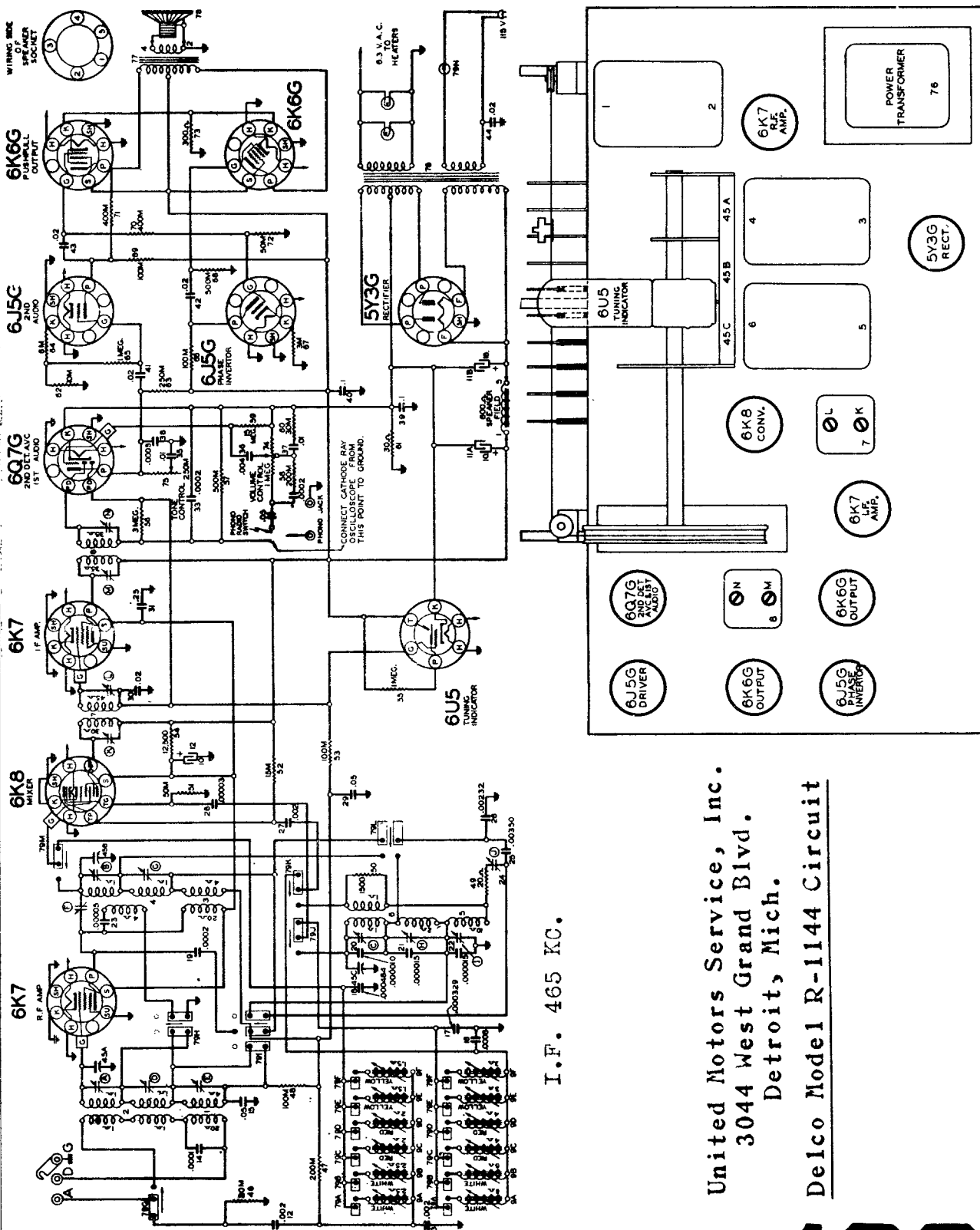
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



United Motors Service, Inc.
 3044 West Grand Blvd.
 Detroit, Michigan

DELCO MODEL R-1142 CIRCUIT DIAGRAM

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



I.F. 465 KC.

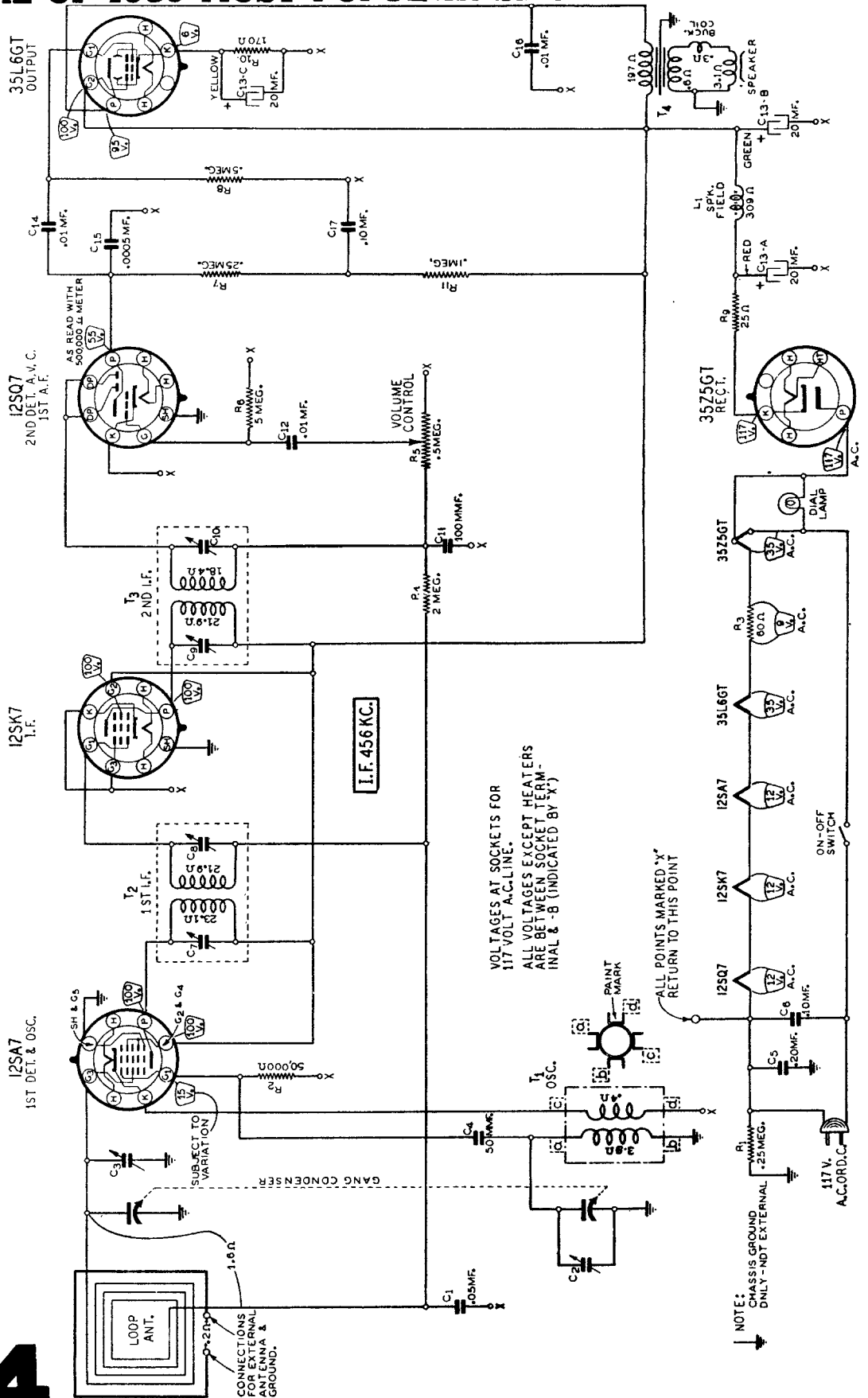
United Motors Service, Inc.
 3044 West Grand Blvd.
 Detroit, Mich.
 Delco Model R-1144 Circuit

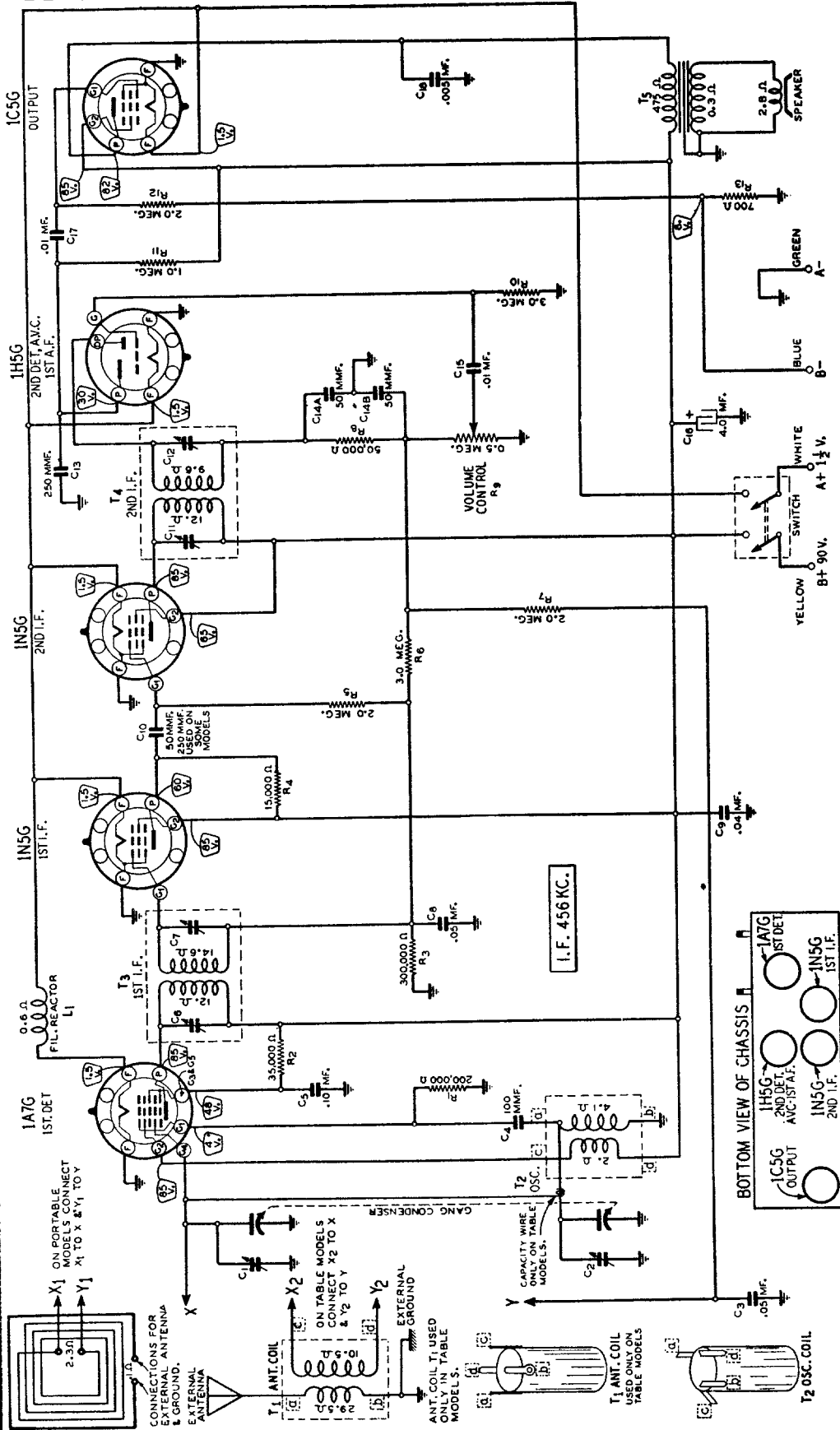
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Series 5D2

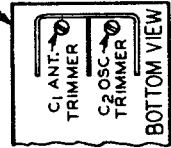
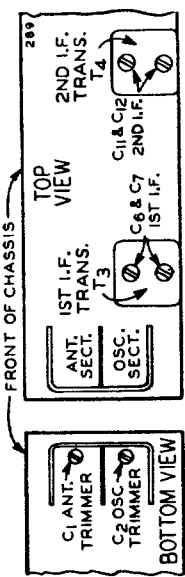
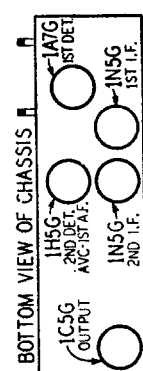
Wells-Gardner & Co.
2701 N. Kildare Ave.
Chicago, Illinois

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Truetone Model D937
Factory Model 5B3-2



I.F. 456 KC.

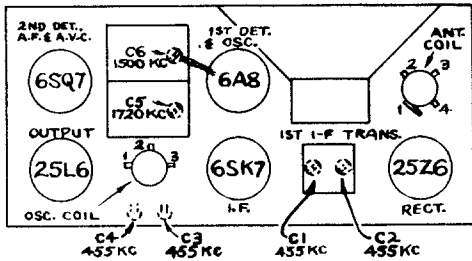
Westinghouse Radio Model WR-165

Five-Tube, Single-Band, AC-DC, Superheterodyne Receiver

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible. The antenna should be rolled up and kept at least one foot from chassis during alignment.



Trimmer Locations

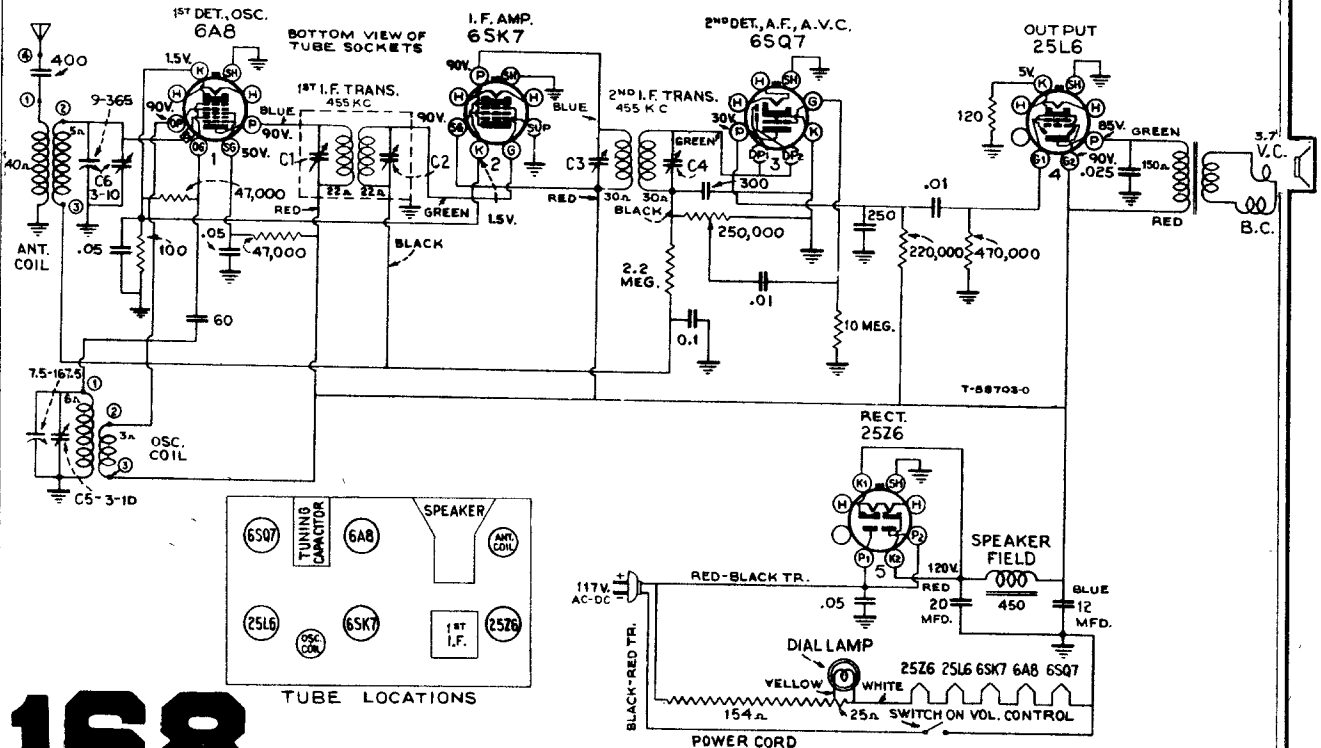
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6A8 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,800 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal.	C6 (antenna)

INTERMEDIATE FREQUENCY..... 455 kc
 POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted..... 1.5 watts
 Maximum..... 2.0 watts
 LOUDSPEAKER
 Type..... 4-inch Electrodynamic

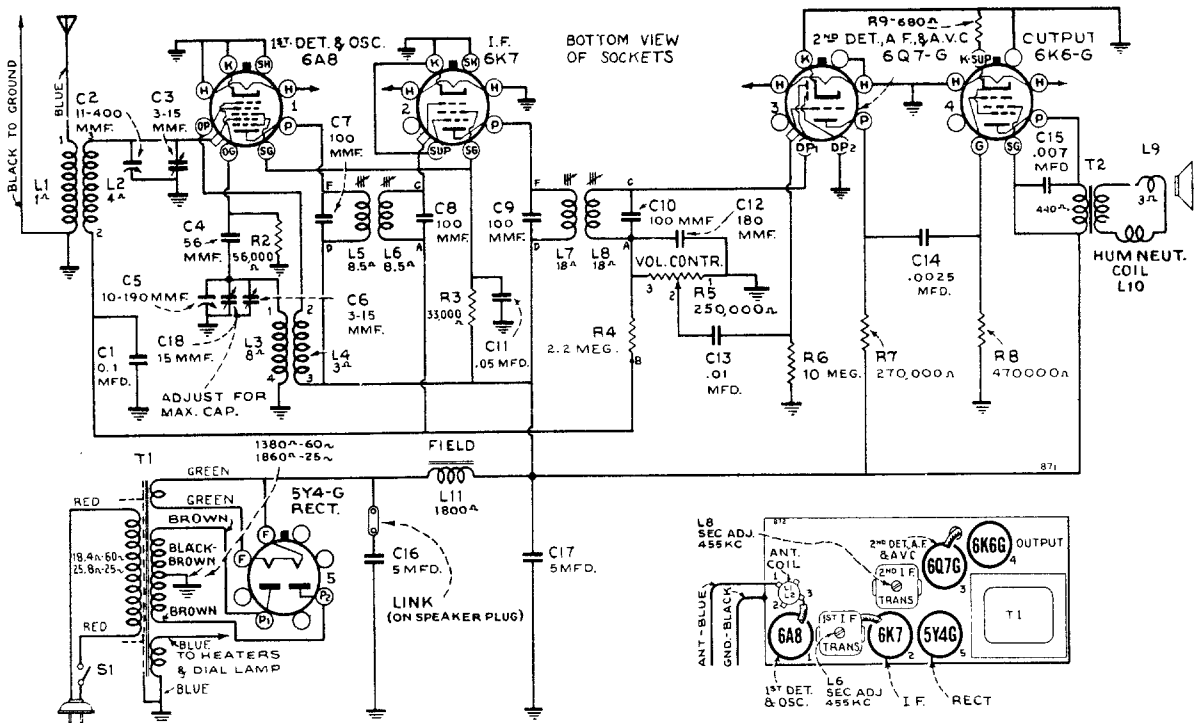
Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Resistor in Power Cord.—The power cord contains a resistor which becomes warm during operation.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

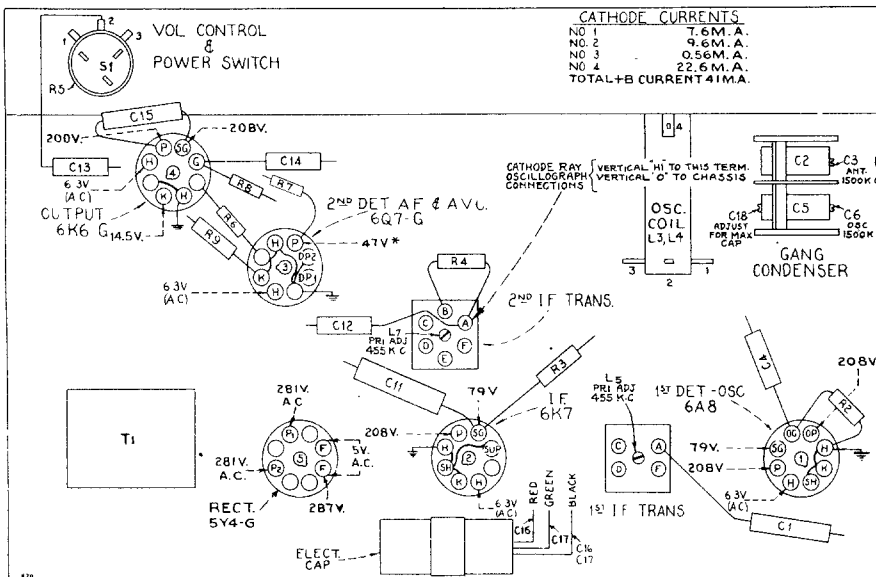


MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Model WR-256

Five-Tube, Single-Band, Superheterodyne Receiver



BOTTOM VIEW - REAR OF CHASSIS

Tube Socket Voltages and Location of Parts

* Note: Values with star (*) are operating voltages. Values not starred are actual measured voltages.

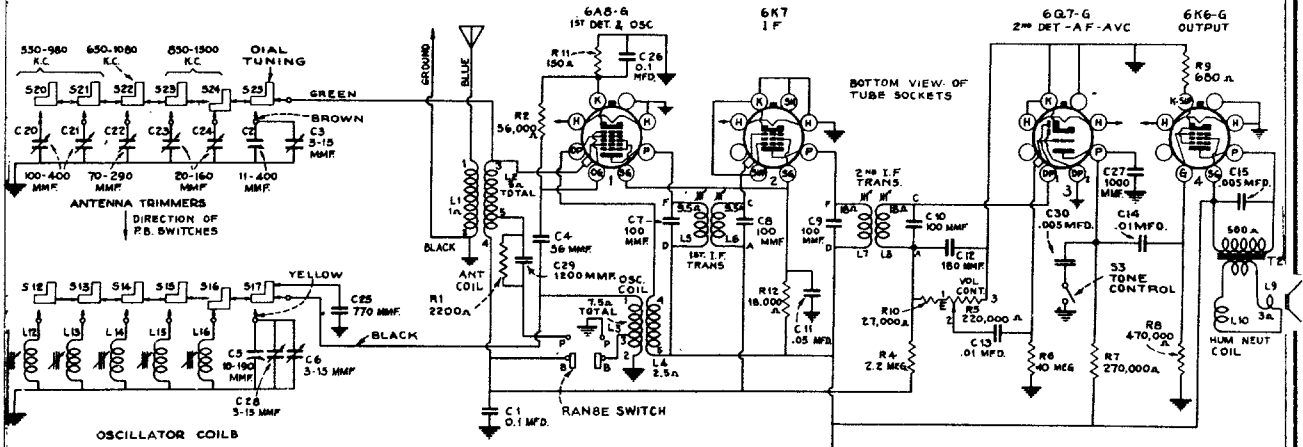
Measurements made to chassis unless otherwise indicated. Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, 250, and 500 volts. (Use nearest range above the specified measured voltage.)

Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle supply.

WESTINGHOUSE
ELECTRIC SUPPLY COMPANY

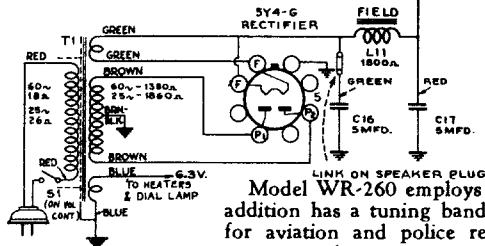
169

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

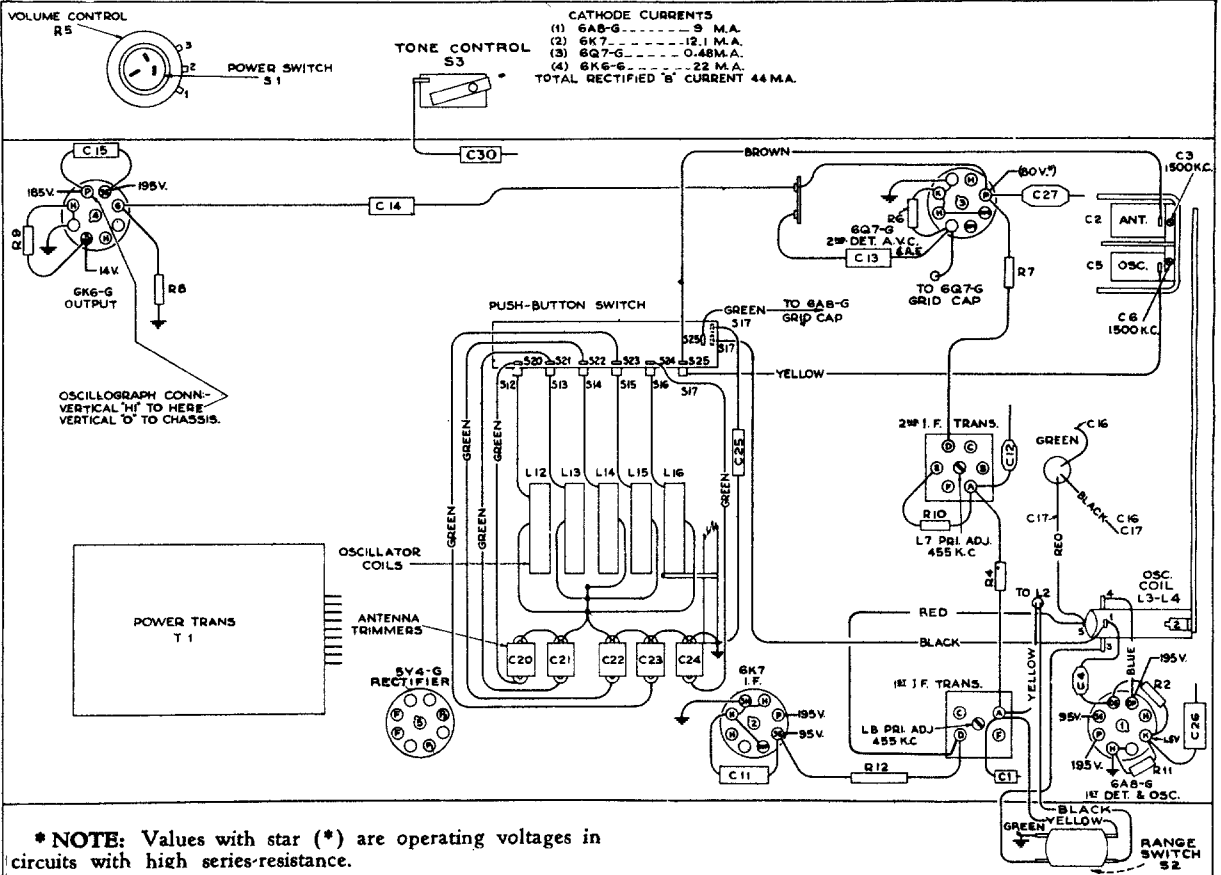


WR-258 WR-260

Westinghouse
Radio



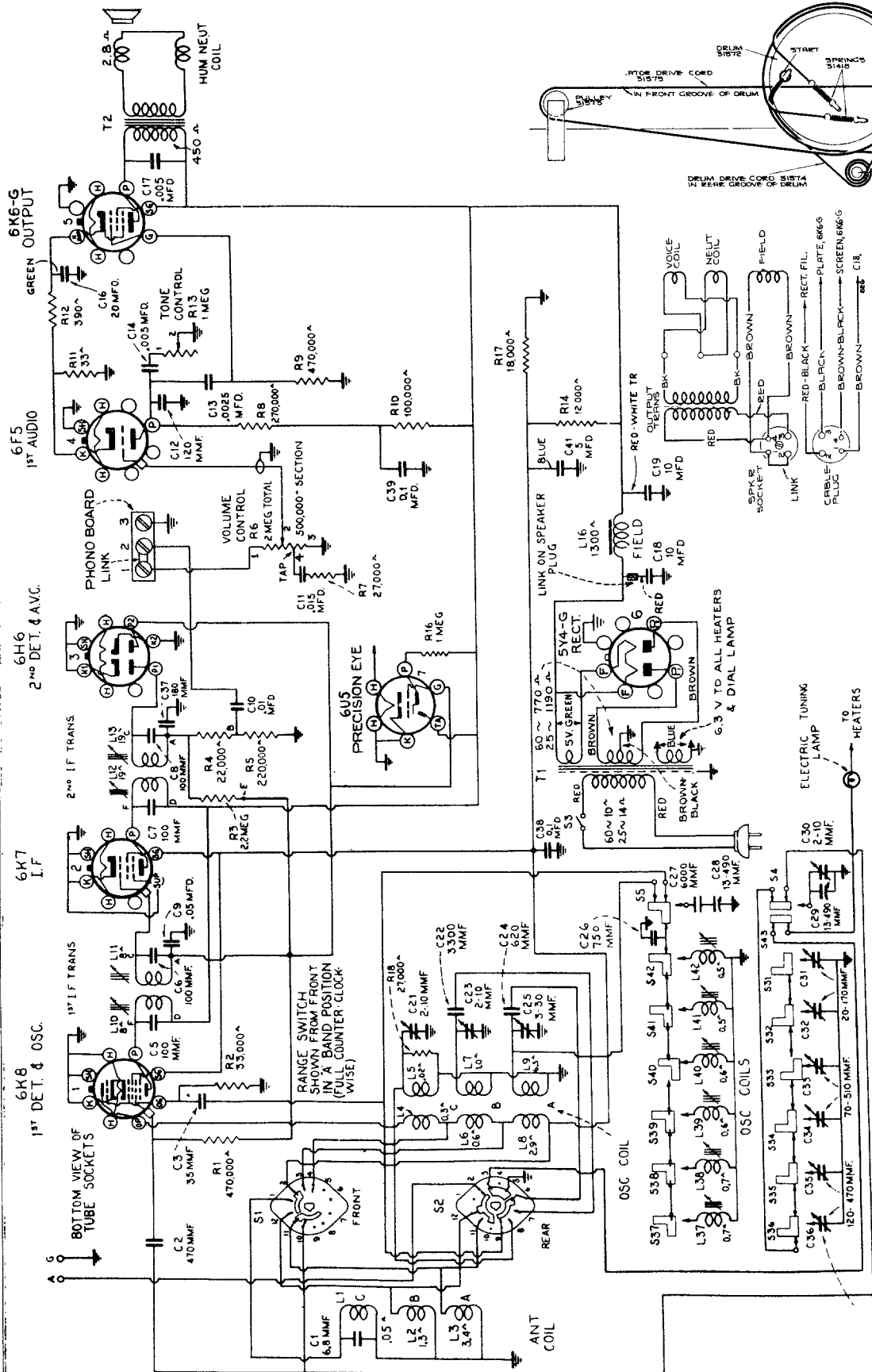
Model WR-260 employs all features of the WR-258 and in addition has a tuning band covering from 1,550 to 3,500 kc for aviation and police reception. It also has a two-point tone control.



WR-260 Bottom View of Chassis Showing Socket Voltages, Parts Location, and R-F Wiring

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



Westinghouse Radio Model WR-264

Loudspeaker Wiring

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

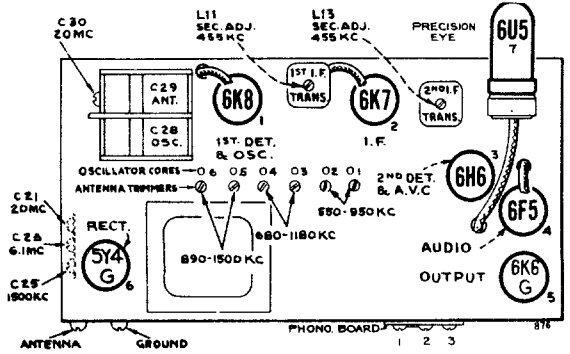
Output Meter Alignment.—If this method is used, connect the meter across the voice-coil, and turn the receiver volume control to maximum.

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

Calibration Scale on Indicator - Drive - Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.



Tube and Trimmer Locations

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

After completion of alignment, seal the i-f core-adjusting screws with household cement.

The dial tuning (right hand) push button must be pushed in for steps 1 to 5 inclusive.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point	L12 and L13 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc	between 550-750 kc	L10 and L11 (1st I-F Trans.)
3	Antenna Terminal, in series with 400 ohms	20 mc	20 mc (28°) "C" band	C21 (osc.)* C30 (ant.)**
4	Antenna Terminal, in series with 400 ohms	6.1 mc	6.1 mc (31°) "B" band	C23 (osc.)†
5	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (28½°) "A" band	C25 (osc.)
6	Follow "Adjustments for Electric Tuning"			

* Use minimum capacity peak if two peaks can be obtained.

** Rock gang slightly and use maximum capacity peak if two peaks can be obtained with C30. Check to determine that C21 has been adjusted to the correct peak by tuning to approximately 28° (19.09 mc), where a weaker signal should be received.

† Use minimum capacity peak if two peaks can be obtained. Check to determine that C23 has been adjusted to the correct peak by turning to approximately 49° (5.19 mc), at which point a weaker signal should be received.

ADJUSTMENTS FOR ELECTRIC TUNING

This receiver has seven push buttons. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate permeability tuned oscillator coils and separate antenna trimmers which must be adjusted for the

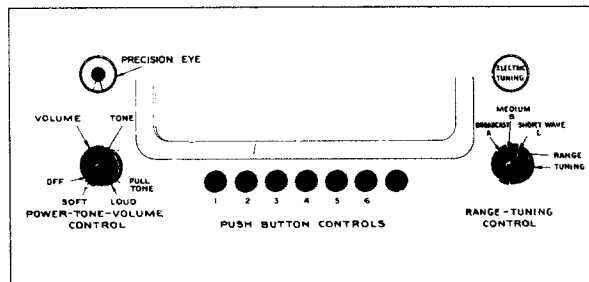
desired stations. Use an insulated screwdriver or alignment tool for making adjustments. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies. See "Tube and Trimmer Locations" view for frequency coverage of each button.
2. Push in the dial-tuning button, and manually tune in the first station on the list.
3. Push in station button No. 1 (left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

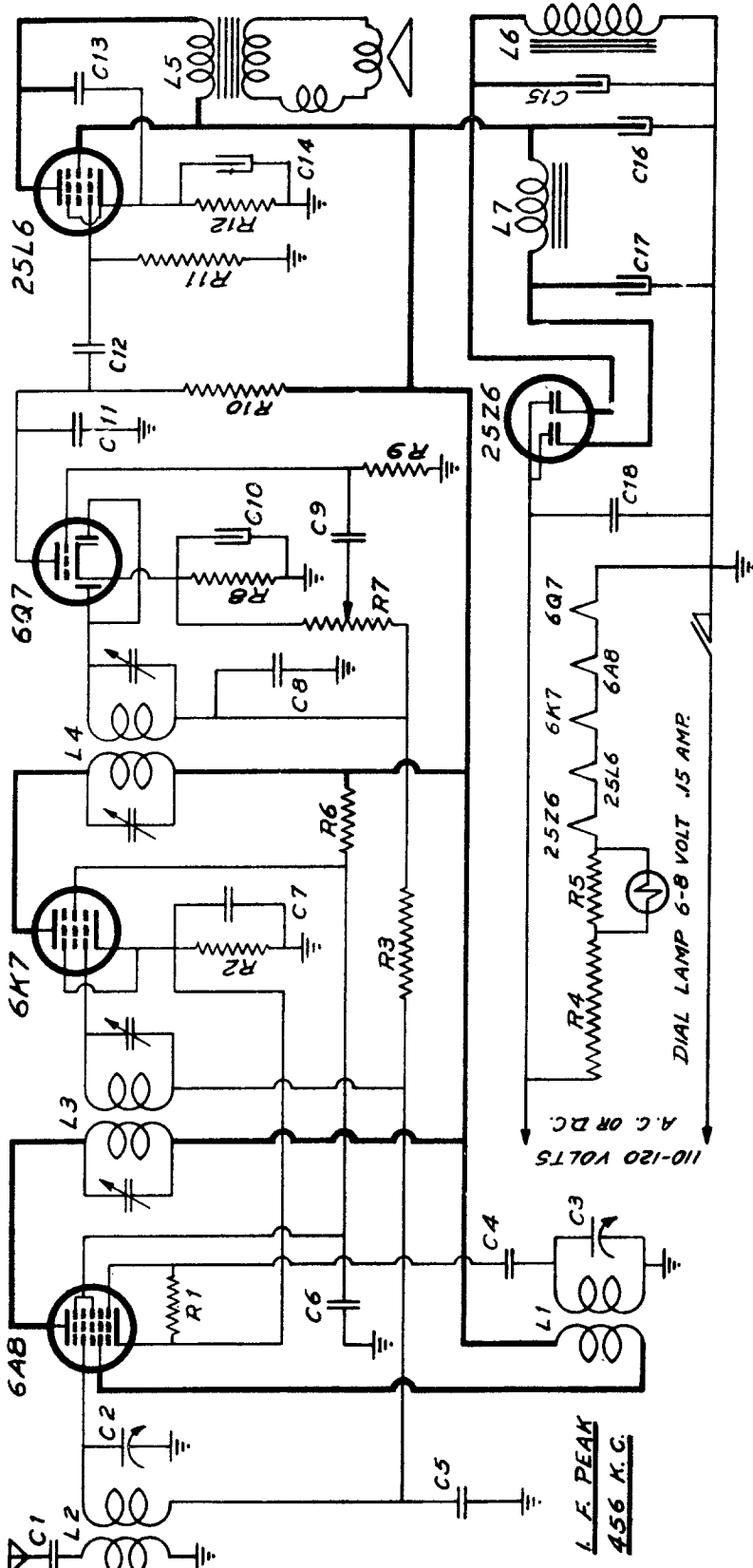
5. Adjust for each of the remaining five stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers. Use the Precision Eye to ensure sharp peaking.



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Westinghouse
Model WR-264

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



Wilcox-Gay Corporation, Charlotte, Mich.

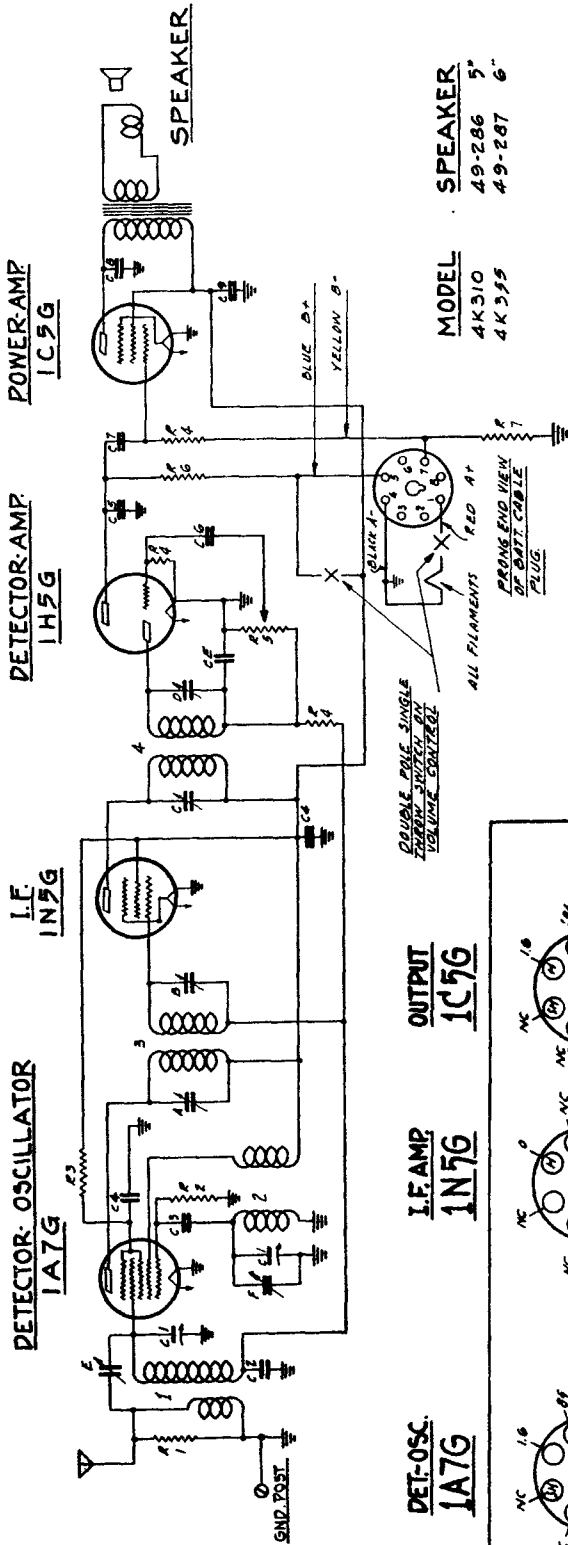
Model 1 A-53
(Cont.)

- | | |
|-------------|---|
| RESISTORS | CONDENSERS |
| R1 53-298 | C1 75-2003 |
| R2 53-1062 | C2 CS 77-2015 |
| R3 53-926 | C3 Two Gang Variable Condenser |
| R4 20-2011 | C4 .00005 Mfd Mica Condenser |
| R5 53-2018 | C5 .1 Mfd 200 V. Paper Cond. |
| R6 53-1042 | C6 .1 Mfd 200 V. Paper Cond. |
| R7 19-2012 | C7 .0005 Mfd Mica Condenser |
| R8 53-913 | C8 .01 Mfd 400 V. Paper Cond. |
| R9 53-925 | C9 10 Mfd 25 W. V. Dry Elect. Cond. |
| R10 53-924 | C10 .01 Mfd 600 V. Paper Cond. |
| R11 53-925 | C11 .002 Mfd 600 V. Paper Cond. |
| R12 53-2014 | C12 10 Mfd 25 W. V. Dry Elect. Cond. |
| | C13 .01 Mfd 400 V. Paper Cond. |
| | C14 Two Gang Variable Condenser |
| | C15 .00005 Mfd Mica Condenser |
| | C16 .1 Mfd 200 V. Paper Cond. |
| | C17 .1 Mfd 200 V. Paper Cond. |
| | C18 .002 Mfd 600 V. Paper Cond. |
| | C19 .1 Mfd 200 V. Paper Cond. |
| | L1 17-2232 |
| | L2 17-2230 |
| | L3 60-2055 |
| | L4 60-2052 |
| | L5 64-2043 |
| | L6 64-2043 |
| | L7 14-2202 |
| | L8 Oscillator Coil Assembly |
| | L9 Preset Selector Coil Assembly |
| | L10 First I.F. Trans. Assembly |
| | L11 Second I.F. Trans. Assembly |
| | L12 5" Speaker, Output Trans. for 25L6 Tube |
| | L13 3000 Ohm Field on L5 |
| | L14 14-2202 |
| | L15 1p Henry Filter Choke |

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Models 4K310, 4K331, 4K355

CHASSIS No. 5412

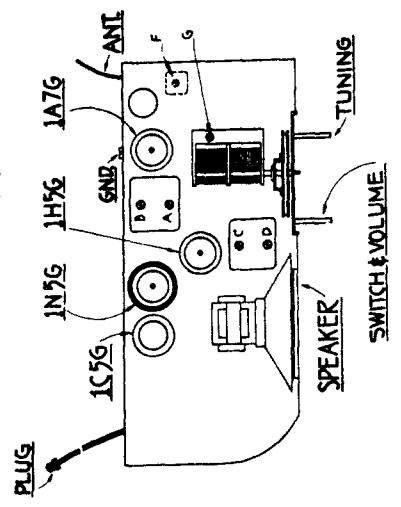
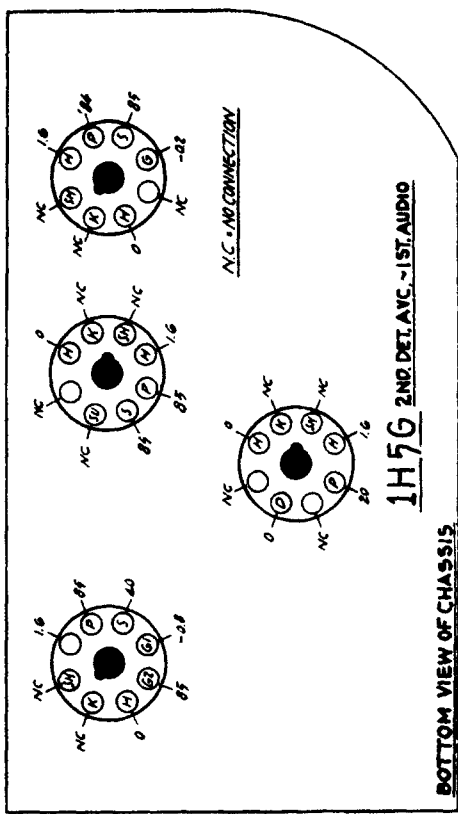


MODEL
4K310
4K331

SPEAKER
49-286 5"
49-287 6"

CHASSIS PART NO.	DESCRIPTION
C-1	27T-78
C-2	22-250
C-3	22-212
C-4	22-162
C-5	22-162
C-6	22-243
C-7	22-243
C-8	22-243
C-9	22-243
R-1	63-587
R-2	63-584
R-3	63-584
R-4	63-584
R-5	63-587
R-6	63-271
R-7	63-288

CHASSIS PART NO.	DESCRIPTION
1	5-674
2	5-6381
3	95-573
4	95-573
5	95-573
A	1ST I.F. TRANS. PRIMARY
B	1ST I.F. TRANS. SECONDARY
C	2ND I.F. TRANS. PRIMARY
D	2ND I.F. TRANS. SECONDARY
E	ANTENNA TRIMMER
F	BROADCAST OSC. (ON GRASS)

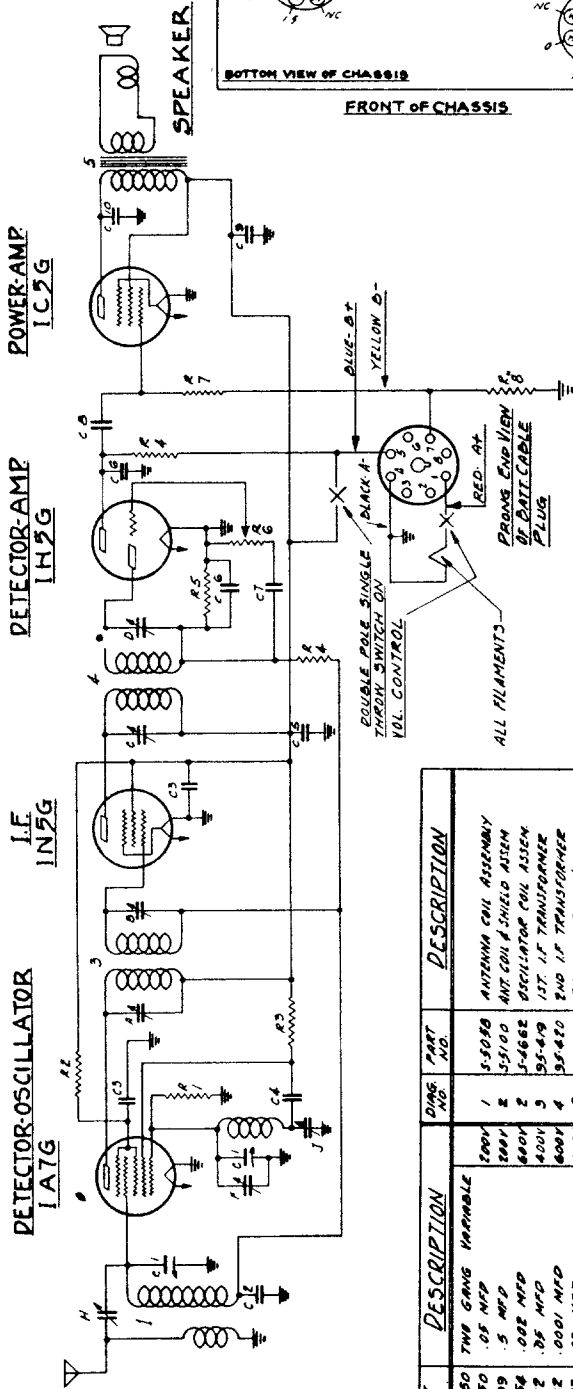


I.F. FREQUENCY 455 K.G.
4 TUBE BATTERY SUPERHETERODYNE
CHASSIS NO. 5412
ZENITH RADIO CORPORATION
CHICAGO ILLINOIS

All voltages measured from point indicated to chassis using a 1000 ohm per volt meter.
Antenna disconnected — volume control at minimum and condenser plates in full mesh.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

176



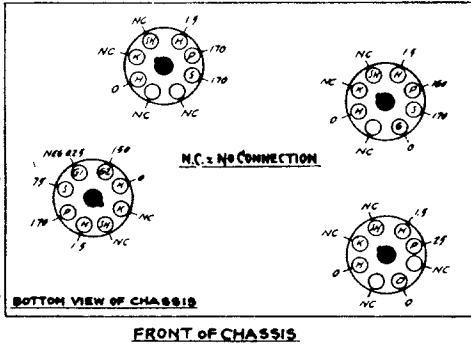
DET.-OSC
1A7G

POWER-AMP
1C5G

DETECTOR-AMP
1H2G

I.F.
1N5G

DETECTOR-OSCILLATOR
1A7G



BOTTOM VIEW OF CHASSIS

FRONT OF CHASSIS

OUTPUT
1C5G

2ND DET. AMP
1ST. AUDIO
1H5G

Model 1 4K329

I.F. FREQUENCY 456 KC.

4-TUBE BATTERY SUPERHETERODYNE

CHASSIS NO. 5413

ZENITH RADIO CORPORATION

CHICAGO, ILL.

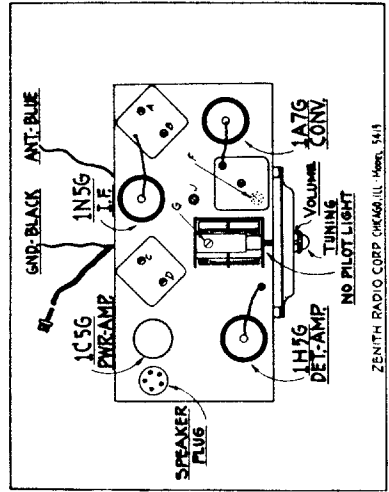
DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C-1	22-650	TUNING GANG VARIABLE	1	5-5030	ANTENNA COIL ASSEMBLY
C-2	22-250	.05 MFD	2	5-5100	ANT. COIL & SHIELD ASSEM.
C-3	22-199	.5 MFD	3	5-4682	OSCILLATOR COIL ASSEM.
C-4	22-354	.002 MFD	4	55-479	1ST. I.F. TRANSFORMER
C-5	22-212	.25 MFD	5	55-420	2ND I.F. TRANSFORMER
C-6	22-162	.0001 MFD	6		SPEAKER TRANS. (IN SPEAKER)
C-7	22-327	.02 MFD	7		1ST. I.F. TRANS. M.P.I.
C-8	22-180	.02 MFD	8		1ST. I.F. TRANS. SEC.
C-9	22-604	8 MFD ELECTROLYTIC	9		2ND I.F. TRANS. M.P.I.
C-10	22-492	.002 MFD	10		2ND I.F. TRANS. SEC.
R-1	63-325	150 M OHM	A	22-305	BROADCAST OSCILLATOR
R-2	63-594	68 M OHM	B		ANTENNA BRIDGE
R-3	63-630	560 OHM	C	22-519	OSCILLATOR PADDER
R-4	63-271	1 MEG OHM	D		
R-5	63-568	300 M OHM	E		
R-6	63-566	1 MEG OHM VOL CONTROL	F		
R-7	63-600	22 MEG OHM	G		
R-8	63-338	1000 OHM	H		
			J		

ALIGNMENT PROCEDURE

Operation	Connect Test Oscillator to—	Dummy Antenna	Set Test Osc. Jo	Band	Set Dial At	Adjust Trimmers	Purpose
1	1st Det. Grid	1/2 Mfd.	456	Br'dc't	600	ABCD	I. F. Algm't.
2	Rec. Ant. Lead	200 Mmfd.	1500	"	1500	F	Set Osc. to Scale Algm't of Ant.
3	"	200 Mmfd.	1500	"	1500	G	Algm't of Ant.
4	"	200 Mmfd.	600	"	600	J	Rock gang & adj. for max. output
5	"	200 Mmfd.	1500	"	1500	FG	Rock gang & adj. for max. output

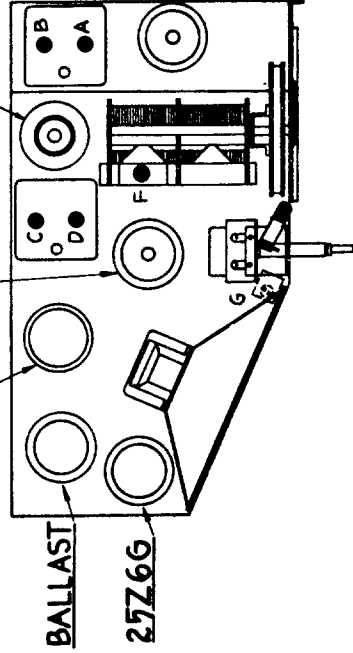
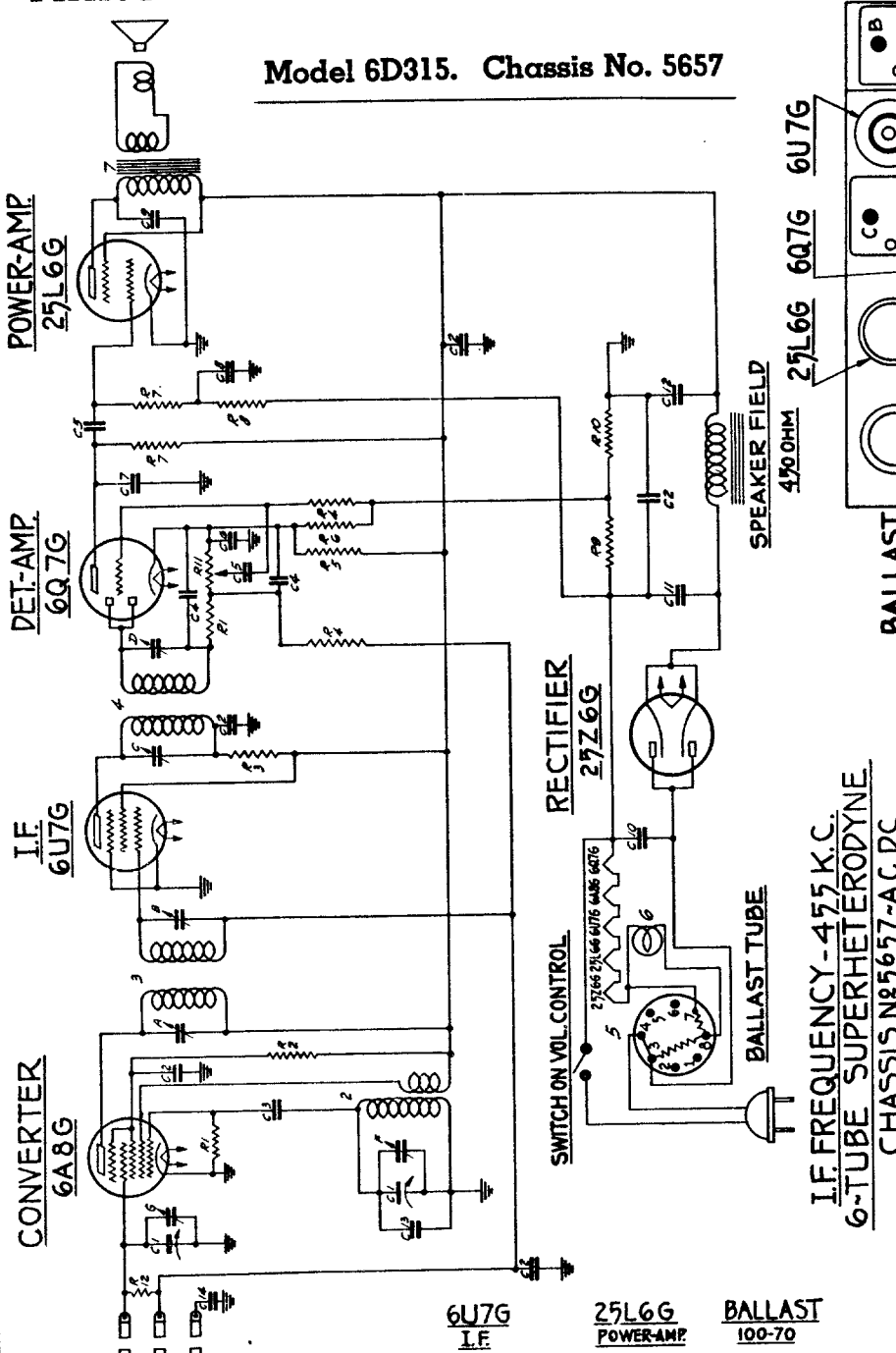
ZENITH RADIO CORP. CHICAGO, ILL. (Mfg. 5413)

Location of tubes and trimmers



MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

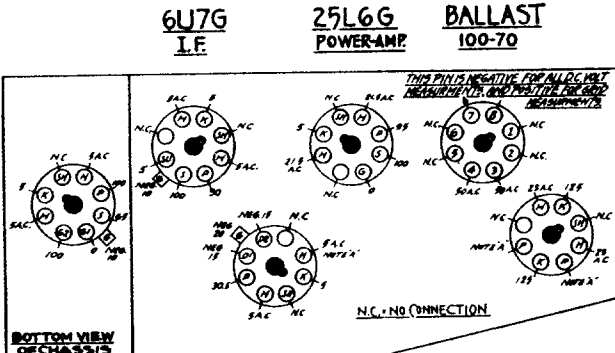
Model 6D315. Chassis No. 5657



Location of tubes and trimmers

I.F. FREQUENCY - 455 K.C.
6-TUBE SUPERHETERODYNE
CHASSIS NO. 5657-A.C.D.C.

ZENITH RADIO CORPORATION



BOTTOM VIEW OF CHASSIS 312

FRONT OF CHASSIS

6Q7G
DET.-AMP.

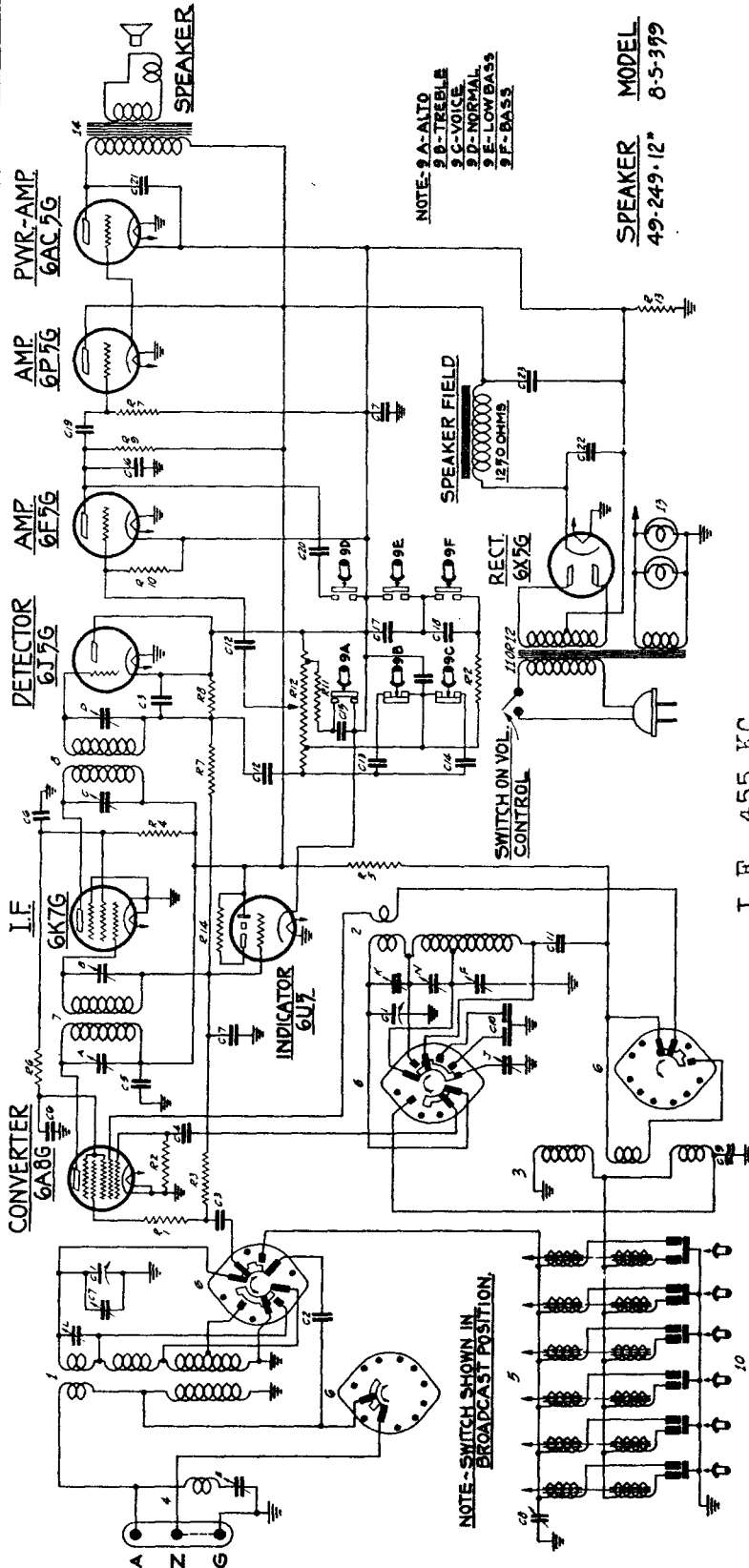
Q. NO.	PART NO.	DESCRIPTION	Q. NO.	PART NO.	DESCRIPTION
P-1	89-999	470 OHM	100-70	100-70	BALLAST TUBE
P-2	89-443	10 OHM	100-16	100-16	RECTIFIER TRANS. SPEAKER TRANS.
P-3	89-971	10 OHM	A	A	1ST I.F. TRANS. SEC.
P-4	89-971	10 OHM	B	B	2ND I.F. " SEC.
P-5	89-971	10 OHM	C	C	3RD I.F. " SEC.
P-6	89-971	10 OHM	D	D	BROADCAST OSC. (M58A)
P-7	89-971	10 OHM	E	E	ANT. BROADCAST
P-8	89-971	10 OHM	F	F	
P-9	89-971	10 OHM			
P-10	89-971	10 OHM			
P-11	89-971	10 OHM			
P-12	89-971	10 OHM			
1	5-720	LOOP ANT. ASS'Y.			
2	1-576	OSC. COLL. ASS'Y.			
3	89-588	1ST I.F. TRANS.			
4	89-591	2ND I.F. TRANS.			
C-1	22-801	TUNING VARIABLE			
C-2	22-290	0.5 MFD			
C-3	22-182	0.0025 MFD			
C-4	22-182	0.001 MFD.			
C-5	22-182	0.01 MFD.			
C-6	22-182	0.1 MFD.			
C-7	22-182	0.005 MFD.			
C-8	22-327	0.2 MFD.			
C-9	22-327	0.4 MFD.			
C-10	22-327	0.8 MFD.			
C-11	22-661	40 MFD ELECTROLYTIC			
C-12	22-660	16 MFD			
C-13	22-802	500 OHM			
C-14	22-319	SOMMERED 0.05 MFD			

Model 6D315

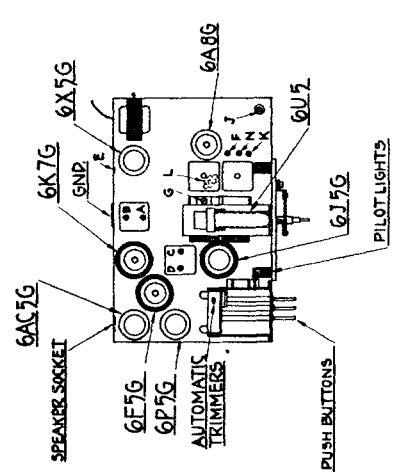
CHASSIS No. 5657

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



I.F. 455 KC.



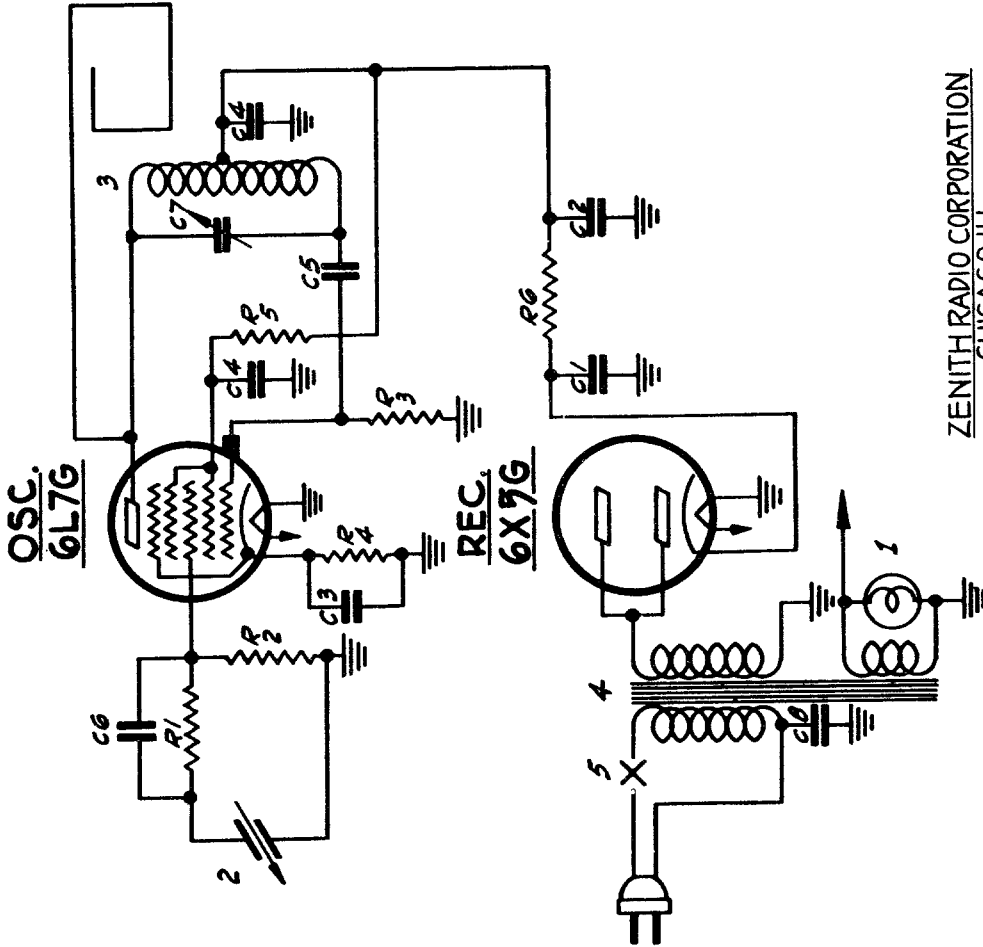
Location of tubes and trimmers

PART NO.	DESCRIPTION	QTY	PART NO.	DESCRIPTION	QTY	PART NO.	DESCRIPTION	QTY
22-117	100K MFD	1	1-1234	ANT. COIL ASSEMBLY	1	1-1234	ANT. COIL ASSEMBLY	1
22-118	100K MFD	1	1-1235	ANT. COIL ASSEMBLY	1	1-1235	ANT. COIL ASSEMBLY	1
22-119	100K MFD	1	1-1236	ANT. COIL ASSEMBLY	1	1-1236	ANT. COIL ASSEMBLY	1
22-120	100K MFD	1	1-1237	ANT. COIL ASSEMBLY	1	1-1237	ANT. COIL ASSEMBLY	1
22-121	100K MFD	1	1-1238	ANT. COIL ASSEMBLY	1	1-1238	ANT. COIL ASSEMBLY	1
22-122	100K MFD	1	1-1239	ANT. COIL ASSEMBLY	1	1-1239	ANT. COIL ASSEMBLY	1
22-123	100K MFD	1	1-1240	ANT. COIL ASSEMBLY	1	1-1240	ANT. COIL ASSEMBLY	1
22-124	100K MFD	1	1-1241	ANT. COIL ASSEMBLY	1	1-1241	ANT. COIL ASSEMBLY	1
22-125	100K MFD	1	1-1242	ANT. COIL ASSEMBLY	1	1-1242	ANT. COIL ASSEMBLY	1
22-126	100K MFD	1	1-1243	ANT. COIL ASSEMBLY	1	1-1243	ANT. COIL ASSEMBLY	1
22-127	100K MFD	1	1-1244	ANT. COIL ASSEMBLY	1	1-1244	ANT. COIL ASSEMBLY	1
22-128	100K MFD	1	1-1245	ANT. COIL ASSEMBLY	1	1-1245	ANT. COIL ASSEMBLY	1
22-129	100K MFD	1	1-1246	ANT. COIL ASSEMBLY	1	1-1246	ANT. COIL ASSEMBLY	1
22-130	100K MFD	1	1-1247	ANT. COIL ASSEMBLY	1	1-1247	ANT. COIL ASSEMBLY	1
22-131	100K MFD	1	1-1248	ANT. COIL ASSEMBLY	1	1-1248	ANT. COIL ASSEMBLY	1
22-132	100K MFD	1	1-1249	ANT. COIL ASSEMBLY	1	1-1249	ANT. COIL ASSEMBLY	1
22-133	100K MFD	1	1-1250	ANT. COIL ASSEMBLY	1	1-1250	ANT. COIL ASSEMBLY	1
22-134	100K MFD	1	1-1251	ANT. COIL ASSEMBLY	1	1-1251	ANT. COIL ASSEMBLY	1
22-135	100K MFD	1	1-1252	ANT. COIL ASSEMBLY	1	1-1252	ANT. COIL ASSEMBLY	1
22-136	100K MFD	1	1-1253	ANT. COIL ASSEMBLY	1	1-1253	ANT. COIL ASSEMBLY	1
22-137	100K MFD	1	1-1254	ANT. COIL ASSEMBLY	1	1-1254	ANT. COIL ASSEMBLY	1
22-138	100K MFD	1	1-1255	ANT. COIL ASSEMBLY	1	1-1255	ANT. COIL ASSEMBLY	1
22-139	100K MFD	1	1-1256	ANT. COIL ASSEMBLY	1	1-1256	ANT. COIL ASSEMBLY	1
22-140	100K MFD	1	1-1257	ANT. COIL ASSEMBLY	1	1-1257	ANT. COIL ASSEMBLY	1
22-141	100K MFD	1	1-1258	ANT. COIL ASSEMBLY	1	1-1258	ANT. COIL ASSEMBLY	1
22-142	100K MFD	1	1-1259	ANT. COIL ASSEMBLY	1	1-1259	ANT. COIL ASSEMBLY	1
22-143	100K MFD	1	1-1260	ANT. COIL ASSEMBLY	1	1-1260	ANT. COIL ASSEMBLY	1
22-144	100K MFD	1	1-1261	ANT. COIL ASSEMBLY	1	1-1261	ANT. COIL ASSEMBLY	1
22-145	100K MFD	1	1-1262	ANT. COIL ASSEMBLY	1	1-1262	ANT. COIL ASSEMBLY	1
22-146	100K MFD	1	1-1263	ANT. COIL ASSEMBLY	1	1-1263	ANT. COIL ASSEMBLY	1
22-147	100K MFD	1	1-1264	ANT. COIL ASSEMBLY	1	1-1264	ANT. COIL ASSEMBLY	1
22-148	100K MFD	1	1-1265	ANT. COIL ASSEMBLY	1	1-1265	ANT. COIL ASSEMBLY	1
22-149	100K MFD	1	1-1266	ANT. COIL ASSEMBLY	1	1-1266	ANT. COIL ASSEMBLY	1
22-150	100K MFD	1	1-1267	ANT. COIL ASSEMBLY	1	1-1267	ANT. COIL ASSEMBLY	1
22-151	100K MFD	1	1-1268	ANT. COIL ASSEMBLY	1	1-1268	ANT. COIL ASSEMBLY	1
22-152	100K MFD	1	1-1269	ANT. COIL ASSEMBLY	1	1-1269	ANT. COIL ASSEMBLY	1
22-153	100K MFD	1	1-1270	ANT. COIL ASSEMBLY	1	1-1270	ANT. COIL ASSEMBLY	1
22-154	100K MFD	1	1-1271	ANT. COIL ASSEMBLY	1	1-1271	ANT. COIL ASSEMBLY	1
22-155	100K MFD	1	1-1272	ANT. COIL ASSEMBLY	1	1-1272	ANT. COIL ASSEMBLY	1
22-156	100K MFD	1	1-1273	ANT. COIL ASSEMBLY	1	1-1273	ANT. COIL ASSEMBLY	1
22-157	100K MFD	1	1-1274	ANT. COIL ASSEMBLY	1	1-1274	ANT. COIL ASSEMBLY	1
22-158	100K MFD	1	1-1275	ANT. COIL ASSEMBLY	1	1-1275	ANT. COIL ASSEMBLY	1
22-159	100K MFD	1	1-1276	ANT. COIL ASSEMBLY	1	1-1276	ANT. COIL ASSEMBLY	1
22-160	100K MFD	1	1-1277	ANT. COIL ASSEMBLY	1	1-1277	ANT. COIL ASSEMBLY	1
22-161	100K MFD	1	1-1278	ANT. COIL ASSEMBLY	1	1-1278	ANT. COIL ASSEMBLY	1
22-162	100K MFD	1	1-1279	ANT. COIL ASSEMBLY	1	1-1279	ANT. COIL ASSEMBLY	1
22-163	100K MFD	1	1-1280	ANT. COIL ASSEMBLY	1	1-1280	ANT. COIL ASSEMBLY	1
22-164	100K MFD	1	1-1281	ANT. COIL ASSEMBLY	1	1-1281	ANT. COIL ASSEMBLY	1
22-165	100K MFD	1	1-1282	ANT. COIL ASSEMBLY	1	1-1282	ANT. COIL ASSEMBLY	1
22-166	100K MFD	1	1-1283	ANT. COIL ASSEMBLY	1	1-1283	ANT. COIL ASSEMBLY	1
22-167	100K MFD	1	1-1284	ANT. COIL ASSEMBLY	1	1-1284	ANT. COIL ASSEMBLY	1
22-168	100K MFD	1	1-1285	ANT. COIL ASSEMBLY	1	1-1285	ANT. COIL ASSEMBLY	1
22-169	100K MFD	1	1-1286	ANT. COIL ASSEMBLY	1	1-1286	ANT. COIL ASSEMBLY	1
22-170	100K MFD	1	1-1287	ANT. COIL ASSEMBLY	1	1-1287	ANT. COIL ASSEMBLY	1
22-171	100K MFD	1	1-1288	ANT. COIL ASSEMBLY	1	1-1288	ANT. COIL ASSEMBLY	1
22-172	100K MFD	1	1-1289	ANT. COIL ASSEMBLY	1	1-1289	ANT. COIL ASSEMBLY	1
22-173	100K MFD	1	1-1290	ANT. COIL ASSEMBLY	1	1-1290	ANT. COIL ASSEMBLY	1
22-174	100K MFD	1	1-1291	ANT. COIL ASSEMBLY	1	1-1291	ANT. COIL ASSEMBLY	1
22-175	100K MFD	1	1-1292	ANT. COIL ASSEMBLY	1	1-1292	ANT. COIL ASSEMBLY	1
22-176	100K MFD	1	1-1293	ANT. COIL ASSEMBLY	1	1-1293	ANT. COIL ASSEMBLY	1
22-177	100K MFD	1	1-1294	ANT. COIL ASSEMBLY	1	1-1294	ANT. COIL ASSEMBLY	1
22-178	100K MFD	1	1-1295	ANT. COIL ASSEMBLY	1	1-1295	ANT. COIL ASSEMBLY	1
22-179	100K MFD	1	1-1296	ANT. COIL ASSEMBLY	1	1-1296	ANT. COIL ASSEMBLY	1
22-180	100K MFD	1	1-1297	ANT. COIL ASSEMBLY	1	1-1297	ANT. COIL ASSEMBLY	1
22-181	100K MFD	1	1-1298	ANT. COIL ASSEMBLY	1	1-1298	ANT. COIL ASSEMBLY	1
22-182	100K MFD	1	1-1299	ANT. COIL ASSEMBLY	1	1-1299	ANT. COIL ASSEMBLY	1
22-183	100K MFD	1	1-1300	ANT. COIL ASSEMBLY	1	1-1300	ANT. COIL ASSEMBLY	1
22-184	100K MFD	1	1-1301	ANT. COIL ASSEMBLY	1	1-1301	ANT. COIL ASSEMBLY	1
22-185	100K MFD	1	1-1302	ANT. COIL ASSEMBLY	1	1-1302	ANT. COIL ASSEMBLY	1
22-186	100K MFD	1	1-1303	ANT. COIL ASSEMBLY	1	1-1303	ANT. COIL ASSEMBLY	1
22-187	100K MFD	1	1-1304	ANT. COIL ASSEMBLY	1	1-1304	ANT. COIL ASSEMBLY	1
22-188	100K MFD	1	1-1305	ANT. COIL ASSEMBLY	1	1-1305	ANT. COIL ASSEMBLY	1
22-189	100K MFD	1	1-1306	ANT. COIL ASSEMBLY	1	1-1306	ANT. COIL ASSEMBLY	1
22-190	100K MFD	1	1-1307	ANT. COIL ASSEMBLY	1	1-1307	ANT. COIL ASSEMBLY	1
22-191	100K MFD	1	1-1308	ANT. COIL ASSEMBLY	1	1-1308	ANT. COIL ASSEMBLY	1
22-192	100K MFD	1	1-1309	ANT. COIL ASSEMBLY	1	1-1309	ANT. COIL ASSEMBLY	1
22-193	100K MFD	1	1-1310	ANT. COIL ASSEMBLY	1	1-1310	ANT. COIL ASSEMBLY	1
22-194	100K MFD	1	1-1311	ANT. COIL ASSEMBLY	1	1-1311	ANT. COIL ASSEMBLY	1
22-195	100K MFD	1	1-1312	ANT. COIL ASSEMBLY	1	1-1312	ANT. COIL ASSEMBLY	1
22-196	100K MFD	1	1-1313	ANT. COIL ASSEMBLY	1	1-1313	ANT. COIL ASSEMBLY	1
22-197	100K MFD	1	1-1314	ANT. COIL ASSEMBLY	1	1-1314	ANT. COIL ASSEMBLY	1
22-198	100K MFD	1	1-1315	ANT. COIL ASSEMBLY	1	1-1315	ANT. COIL ASSEMBLY	1
22-199	100K MFD	1	1-1316	ANT. COIL ASSEMBLY	1	1-1316	ANT. COIL ASSEMBLY	1
22-200	100K MFD	1	1-1317	ANT. COIL ASSEMBLY	1	1-1317	ANT. COIL ASSEMBLY	1

Model 85359. Chassis No. 5807

PHONOGRAPH OSCILLATOR

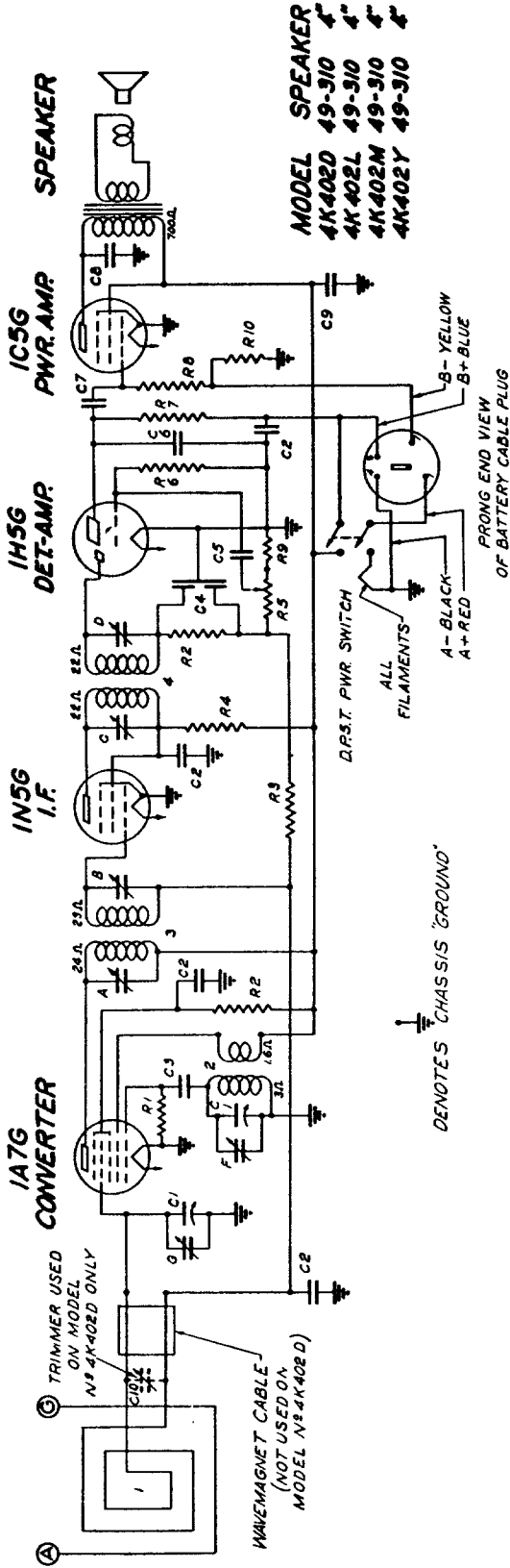
MODEL-S 6622



ZENITH RADIO CORPORATION
CHICAGO, ILL.

DIAG. NO.	PART NO.	DESCRIPTION	
C-1	22-768	16 MFD. ELECTROLYTIC	200V
C-2	22-769	40 MFD. "	150V
C-3	22-250	.05 MFD	200V
C-4	22-196	.01 MFD	600V
C-5	22-182	.00025 MFD	600V
C-6	22-147	.0005 MFD	600V
C-7	22-463	TRIMMER	1000V
C-8	22-525	.005 MFD	1000V
R-1	63-658	390 M OHM	1/4 W
R-2	63-654	180 M OHM	1/4 W
R-3	63-593	47 M OHM	1/4 W
R-4	63-589	1000 OHM	1/4 W
R-5	63-587	4700 OHM	1/4 W
R-6	63-964	4700 OHM	1/2 W
1	100-36	PILOT LIGHT-6.3V. 25A.	
2	142-14	PICK-UP ARM - COMPLETE	
3	142-16	CRYSTAL UNIT ONLY	
4	5-6625	OSC. COIL ASSEM.	
5	95-587	POWER TRANS.	
	85-170	SWITCH	

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

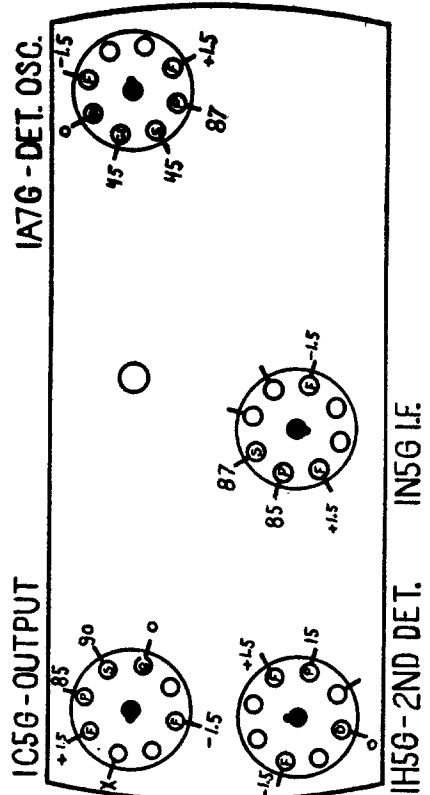


MODEL SPEAKER
 4K402D 49-310 4"
 4K402L 49-310 4"
 4K402M 49-310 4"
 4K402Y 49-310 4"

1 1/2 V. BATTERY PORTABLE
I.F. FREQUENCY 455 KC.
4 TUBE SUPERHETERODYNE
CHASSIS N^o 5419
ZENITH RADIO CORPORATION
CHICAGO, ILL.

Model 4K402
 CHASSIS No. 5419

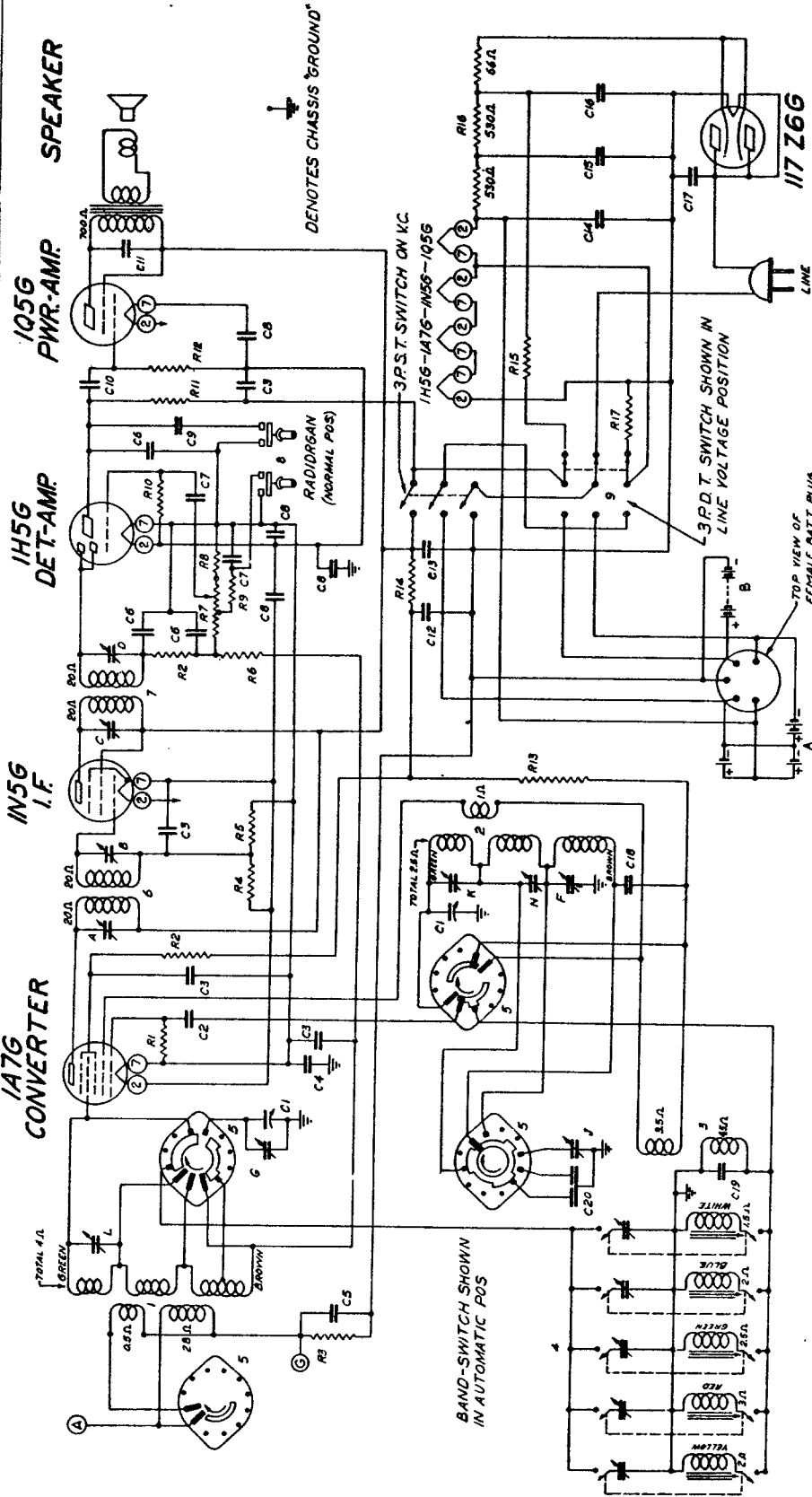
DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	22-985	TWO-GANG VARIABLE	1	W	WAVEMAGNET ASSEMBLY
C2	22-929	.05 MFD.	2	W	OSCILLATOR COIL ASSEM.
C3		100 MMFD.	3	W	57030 1ST I.F. TRANS. ASSEM.
C4		DUAL 100 MMFD.	4	W	95-606 2ND I.F. TRANS.
C5	22-926	01 MFD.			
C6	22-162	2000 MFD.	A	W	1ST I.F. TRANS. PRI.
C7	22-243	01 MFD.	B	W	2ND I.F. TRANS. PRI.
C8	22-448	0.004 MFD.	C	W	2ND I.F. TRANS. SEC.
C9	22-684	B.M.F.D. ELECTROLYTIC	D	W	BROADCAST OSC. (ON GANG)
C10	22-982	TRIMMER COND.	F	W	ANTENNA BROADCAST (ON GANG)
R1	63-652	120 M OHM			
R2	63-593	47 M OHM			
R3	63-689	3.9 MEG OHM			
R4	63-583	1000 OHM			
R5	63-1034	VOLUME CONTROL			
R6	63-604	10 MEG OHM			
R7	63-271	1 MEG OHM			
R8	63-600	2.2 MEG OHM			
R9	63-587	4700 OHM			
R10	63-238	1000 OHM			



NOTE

All measurements with 1000 ohms per volt meter — loop antenna not connected — volume at minimum — All readings made with fresh Zenith (part No. Z-59) battery pack with speaker in circuit.
 All voltages measured from contact X on 1C56 tube socket to point indicated.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



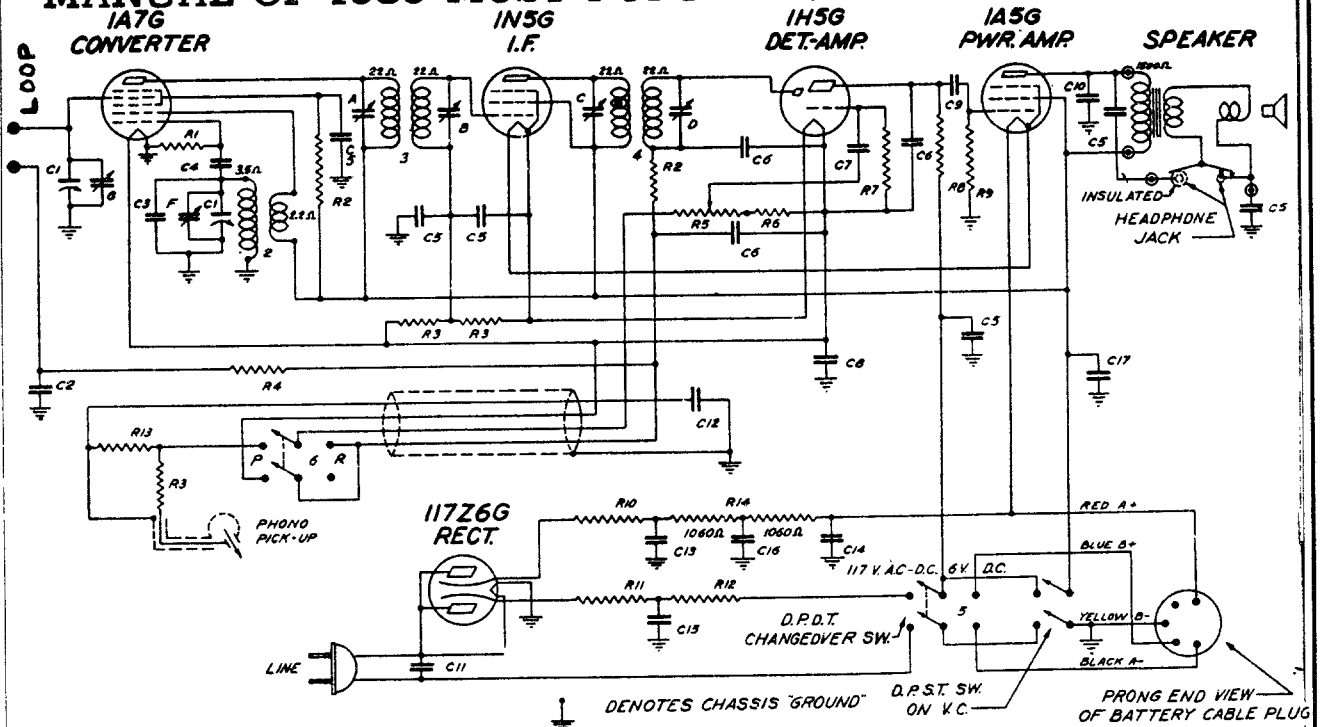
MODEL SPEAKER
5G461 49-316 8"
5G442 49-317 10"
5G461 49-318 10"

I.F. FREQUENCY 455 KC
5 TUBE SUPERHETERODYNE
110V. A.C. - BATT. PACK - UNIVERSAL
CHASSIS N°5539 - 3 BAND
ZENITH RADIO CORPORATION
CHICAGO, ILL.

DATE	PART NO.	DESCRIPTION	DATE	PART NO.	DESCRIPTION
C1	22-978	TWO-GANG VARIABLE	1	53-252	3800 OHM
C2	22-979	50 MMFD	2	53-253	1000 OHM
C3	22-980	.05 MF	3	63-1036	3-SECTION CANGOHM
C4	22-330	25 MF	4	63-1037	90 OHM WIREWOUND
C5	22-330	25 MF	5	57-252	ANTENNA COIL ASSEMBLY
C6	22-926	.01 MF	6	57-253	OSC. COIL ASSEMBLY
C7	22-927	.01 MF	7	57-254	OSC. COUPLING COIL ASSEM.
C8	22-927	.01 MF	8	57-255	OSC. COUPLING COIL ASSEM.
C9	22-927	.01 MF	9	65-102	3 BAND SELECTOR ASSEM.
C10	22-843	.01 MF	1	95-107	117 V.F. TRANSFORMER
C11	22-448	.004	2	95-108	250 V.F. TRANSFORMER
C12	22-806	20 MF	3	56-904	5690 OHM
C13	22-806	20 MF	4	56-905	5690 OHM
C14	22-806	20 MF	5	56-906	5690 OHM
C15	22-806	20 MF	6	56-907	5690 OHM
C16	22-330	.05 MF	7	56-908	5690 OHM
C17	22-983	.05 MF	8	56-909	5690 OHM
C18	22-330	.05 MF	9	56-910	5690 OHM
R1	63-654	180 OHM	R14	53-252	3800 OHM
R2	63-655	180 OHM	R15	53-253	1000 OHM
R3	63-656	180 OHM	R16	63-1036	3-SECTION CANGOHM
R4	63-657	180 OHM	R17	63-1037	90 OHM WIREWOUND
R5	63-658	180 OHM	R18	57-252	ANTENNA COIL ASSEMBLY
R6	63-659	180 OHM	R19	57-253	OSC. COIL ASSEMBLY
R7	63-660	180 OHM	R20	57-254	OSC. COUPLING COIL ASSEM.
R8	63-661	180 OHM	R21	57-255	OSC. COUPLING COIL ASSEM.
R9	63-662	180 OHM	R22	65-102	3 BAND SELECTOR ASSEM.
R10	63-663	180 OHM	R23	95-107	117 V.F. TRANSFORMER
R11	63-664	180 OHM	R24	95-108	250 V.F. TRANSFORMER
R12	63-665	180 OHM	R25	56-904	5690 OHM
R13	63-666	180 OHM	R26	56-905	5690 OHM
R14	63-667	180 OHM	R27	56-906	5690 OHM
R15	63-668	180 OHM	R28	56-907	5690 OHM
R16	63-669	180 OHM	R29	56-908	5690 OHM
R17	63-670	180 OHM	R30	56-909	5690 OHM
R18	63-671	180 OHM	R31	56-910	5690 OHM

MODELS 5G441, 5G442, 5G461 (Chassis No. 5539)

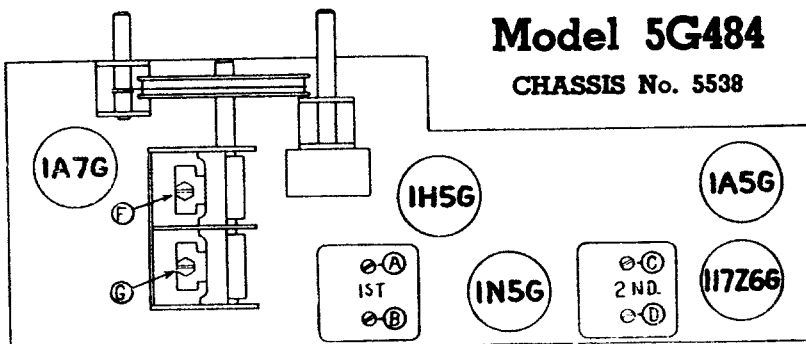
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	22-800	TWO-GANG VARIABLE	C15	22-871	20 MFD ELECTROLYTIC	R9	63-600	2.2 MEGOHM	6	65-197	PHONO SWITCH
C2	22-130	2 MFD.	C16		20 "	R10	63-1022	150 OHM WIREWOUND			
C3	22-902	30 MMFD.	C17		20 "	R11	63-605	1000 OHM			
C4	22-152	0.0025 MFD.				R12	63-603	2200 OHM			
C5	22-829	.05 MFD.	R1	63-652	120 M OHM	R13	63-591	22 M OHM	A		1ST I.F. TRANS. PRI
C6	22-168	.0001 MFD	R2	63-593	47 M OHM	R14	63-1033	2-SECTION CANDOHM	B		1ST I.F. SEC
C7	22-826	.01 MFD.	R3	63-296	220 M OHM	1		WAVEMAGNET ASSEMBLY	C		2ND I.F. PRI
C8	22-350	.25 MFD.	R4	63-649	3.9 MEGOHM	2	S7027	OSC. COIL ASSEMBLY	D		2ND I.F. SEC
C9	22-243	.01 MFD.	R5	63-1026	VOLUME CONTROL	3	95-593	1ST I.F. TRANS.	E		BROADCAST OSC. (ON GANG)
C10	22-192	.002 MFD.	R6	63-587	4700 OHM	4	95-594	2ND I.F. TRANS.	F		ANTENNA BDCAST (")
C11	22-869	.05 MFD.	R7	63-604	10 MEGOHM	5	63-180	POWER SWITCH	G		
C12	22-827	.1 MFD.	R8	63-271	1 MEGOHM						
C13	22-918	40 MFD ELECTROLYTIC									
C14	22-918	20 MFD.									

ALIGNMENT PROCEDURE

Operation	Connect Test Oscillator to	Dummy Antenna	Set Test Oscillator to	Band	Set Dial At	Adjust Trimmers	Purpose
1	1st Det. Grid	.5 Mfd.	455	—	600	A-B-C-D	I. F. Alignment
2	Single Turn Loop coupled loosely to Wave Magnet		1400	—	1400	F	Set Osc. to Scale
3	"		1400	—	1400	G	Alignment of Antenna

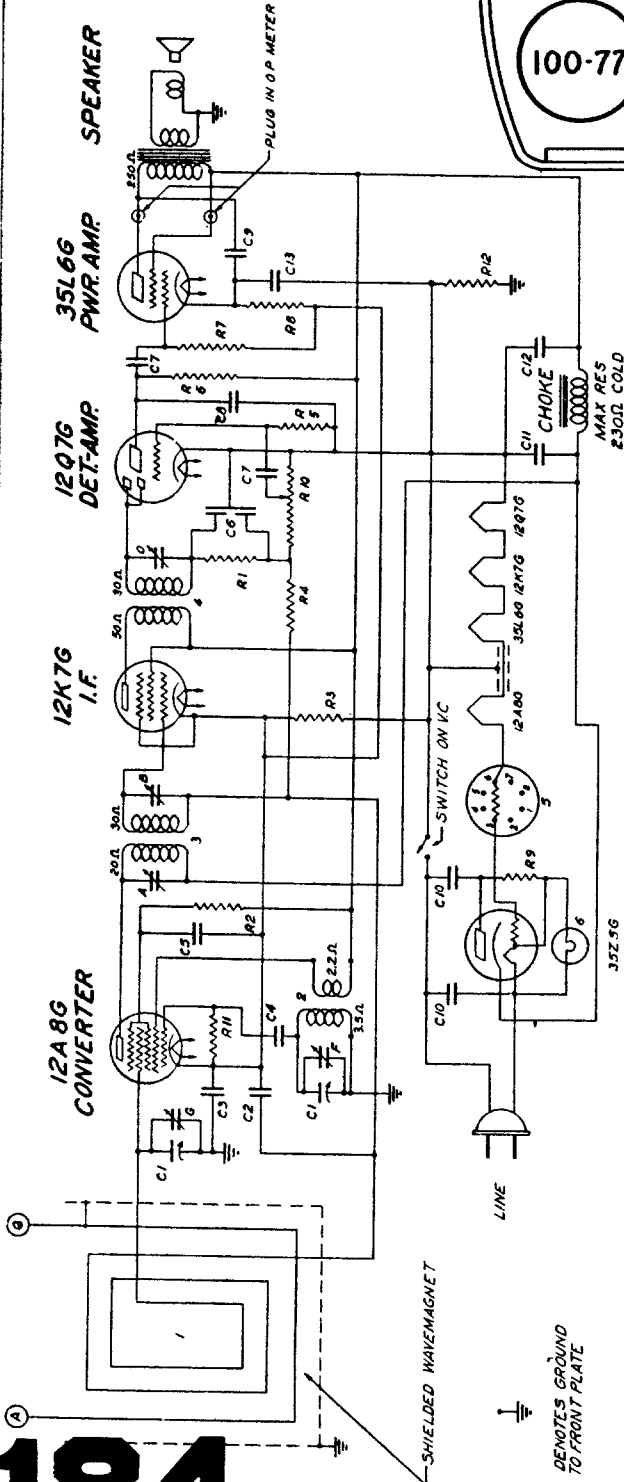
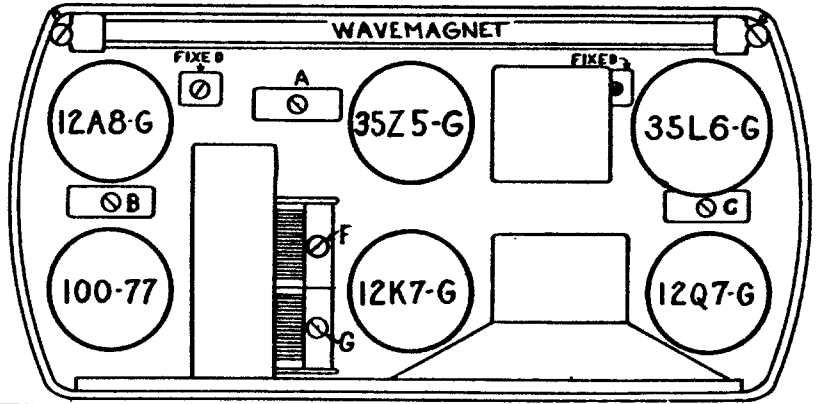


110 VOLT A.C. BATTERY PACK
 PORTABLE PHONO
 I.F. FREQUENCY 455 KC.
 5 TUBE SUPERHETERODYNE
 CHASSIS No. 5538
 ZENITH RADIO CORPORATION
 CHICAGO, ILL.

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MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

I.F. FREQUENCY 455 KC.
6 TUBE SUPERHETERODYNE
CHASSIS N^o 5659-5663 AC.DC.
ZENITH RADIO CORPORATION
CHICAGO, ILL.

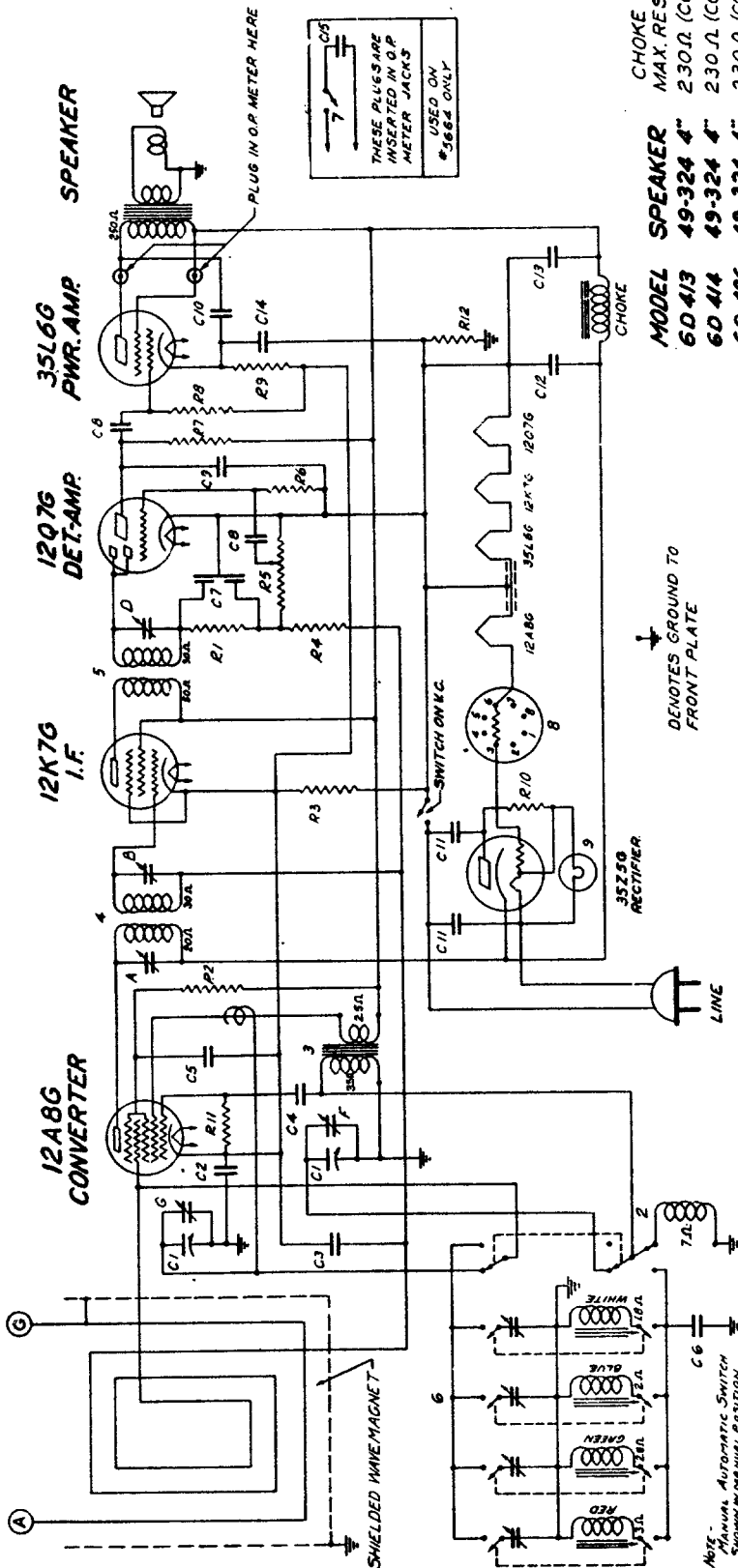


DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	22-985	2-UGS VARIABLE	4	58693	2ND I.F. TRANS
C2	22-250	.05 MFD	5	58694	1ST I.F. TRANS
C3	22-130	.1 MFD	6	100-67	PILOT LIGHT 5.5 V. 15A
C4	22-100	100 MFD	7	W5 5/7	TO NE CONTROL SWITCH
C5	22-841	.02 MFD	4	W	1ST I.F. TRANS PRI
C6	22-841	.02 MFD	5	W	1ST I.F. TRANS SEC
C7	22-831	.005 MFD	6	W	2ND I.F. TRANS SEC
C8	22-831	.005 MFD	7	W	BROADCAST OSC (ON GANG)
C9	22-863	.03 MFD	4	W	ANT (.....)
C10	22-837	.16 MFD	5	W	
C11	22-837	.16 MFD	6	W	
C12	22-837	.16 MFD	7	W	
C13	22-841	.02 MFD	4	W	
C14	22-841	.02 MFD	5	W	
R1	63-583	27 M OHM	4	W	
R2	63-578	25 M OHM	5	W	
R3	63-600	22 MEG OHM	6	W	
R4	63-602	22 MEG OHM	7	W	
R5	63-297	220 M OHM	4	W	
R6	63-297	220 M OHM	5	W	
R7	63-606	150 OHM WIREWOUND	6	W	
R8	63-1017	27 OHM CONTROL	7	W	
R9	63-715	220 M OHM	4	W	
R10	63-717	220 M OHM	5	W	
R11	63-717	220 M OHM	6	W	
R12	63-717	220 M OHM	7	W	
R13	63-717	220 M OHM	4	W	
R14	63-717	220 M OHM	5	W	
R15	63-717	220 M OHM	6	W	
R16	63-717	220 M OHM	7	W	
R17	63-717	220 M OHM	4	W	
R18	63-717	220 M OHM	5	W	
R19	63-717	220 M OHM	6	W	
R20	63-717	220 M OHM	7	W	
R21	63-717	220 M OHM	4	W	
R22	63-717	220 M OHM	5	W	
R23	63-717	220 M OHM	6	W	
R24	63-717	220 M OHM	7	W	
R25	63-717	220 M OHM	4	W	
R26	63-717	220 M OHM	5	W	
R27	63-717	220 M OHM	6	W	
R28	63-717	220 M OHM	7	W	
R29	63-717	220 M OHM	4	W	
R30	63-717	220 M OHM	5	W	
R31	63-717	220 M OHM	6	W	
R32	63-717	220 M OHM	7	W	
R33	63-717	220 M OHM	4	W	
R34	63-717	220 M OHM	5	W	
R35	63-717	220 M OHM	6	W	
R36	63-717	220 M OHM	7	W	
R37	63-717	220 M OHM	4	W	
R38	63-717	220 M OHM	5	W	
R39	63-717	220 M OHM	6	W	
R40	63-717	220 M OHM	7	W	
R41	63-717	220 M OHM	4	W	
R42	63-717	220 M OHM	5	W	
R43	63-717	220 M OHM	6	W	
R44	63-717	220 M OHM	7	W	
R45	63-717	220 M OHM	4	W	
R46	63-717	220 M OHM	5	W	
R47	63-717	220 M OHM	6	W	
R48	63-717	220 M OHM	7	W	
R49	63-717	220 M OHM	4	W	
R50	63-717	220 M OHM	5	W	
R51	63-717	220 M OHM	6	W	
R52	63-717	220 M OHM	7	W	
R53	63-717	220 M OHM	4	W	
R54	63-717	220 M OHM	5	W	
R55	63-717	220 M OHM	6	W	
R56	63-717	220 M OHM	7	W	
R57	63-717	220 M OHM	4	W	
R58	63-717	220 M OHM	5	W	
R59	63-717	220 M OHM	6	W	
R60	63-717	220 M OHM	7	W	
R61	63-717	220 M OHM	4	W	
R62	63-717	220 M OHM	5	W	
R63	63-717	220 M OHM	6	W	
R64	63-717	220 M OHM	7	W	
R65	63-717	220 M OHM	4	W	
R66	63-717	220 M OHM	5	W	
R67	63-717	220 M OHM	6	W	
R68	63-717	220 M OHM	7	W	
R69	63-717	220 M OHM	4	W	
R70	63-717	220 M OHM	5	W	
R71	63-717	220 M OHM	6	W	
R72	63-717	220 M OHM	7	W	
R73	63-717	220 M OHM	4	W	
R74	63-717	220 M OHM	5	W	
R75	63-717	220 M OHM	6	W	
R76	63-717	220 M OHM	7	W	
R77	63-717	220 M OHM	4	W	
R78	63-717	220 M OHM	5	W	
R79	63-717	220 M OHM	6	W	
R80	63-717	220 M OHM	7	W	
R81	63-717	220 M OHM	4	W	
R82	63-717	220 M OHM	5	W	
R83	63-717	220 M OHM	6	W	
R84	63-717	220 M OHM	7	W	
R85	63-717	220 M OHM	4	W	
R86	63-717	220 M OHM	5	W	
R87	63-717	220 M OHM	6	W	
R88	63-717	220 M OHM	7	W	
R89	63-717	220 M OHM	4	W	
R90	63-717	220 M OHM	5	W	
R91	63-717	220 M OHM	6	W	
R92	63-717	220 M OHM	7	W	
R93	63-717	220 M OHM	4	W	
R94	63-717	220 M OHM	5	W	
R95	63-717	220 M OHM	6	W	
R96	63-717	220 M OHM	7	W	
R97	63-717	220 M OHM	4	W	
R98	63-717	220 M OHM	5	W	
R99	63-717	220 M OHM	6	W	
R100	63-717	220 M OHM	7	W	

MODELS 6D410, 6D411, 6D425 (Chassis No. 5659)

Operation	Connect Test Oscillator to	Dummy Antenna	Set Test Oscillator to	Band	Set Dial At	Adjust Trimmers	Purpose
1	1st Det. Grid	.5 Mfd.	455	B'dcast	600	A B C	I. F. Alignm't
2	Single Turn Loop Loosely Coupled to Wave Magnet	—	1500	"	1500	F	Set Osc. to Scale
3		—	1500	"	"	G	Alignment of Ant.

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MODEL	SPEAKER	CHOKE	MAX. RES.
6D 413	49-324 4"	230 Ω	(COLD)
6D 414	49-324 4"	230 Ω	(COLD)
6D 426	49-324 4"	230 Ω	(COLD)
6D 427	49-324 4"	230 Ω	(COLD)
6D 446	49-336 5"	325 Ω	(HOT)
6D 455	49-324 4"	230 Ω	(COLD)

I.F. FREQUENCY 455KC.
 6 TUBE SUPERHETERODYNE
 CHASSIS *5660 & *5664 AC-DC.
 ZENITH RADIO CORPORATION
 CHICAGO, ILL.

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
C1	25-888 TWO GANG VARIABLE	1A W	5 6903 12W I.F. TRANS. ASSEMBLY	5	3 6997 AUTOMATIC TUNING UNIT ASSEM.
C2	22-939 1 MFD	1A W	5 6997 AUTOMATIC TUNING UNIT ASSEM.	6	MS 517 TONE CONTROL SWITCH
C3	22-250 100 MFD	1A W	7 100-77 BALLAST TUBE	7	100-67 PILOT LIGHT BULB
C4	22-881 100 MFD	1A W	8 100-67 PILOT LIGHT BULB	8	15 I.F. TRANS.
C5	22-881 100 MFD	1A W	9 100-67 PILOT LIGHT BULB	9	15 I.F. TRANS.
C6	22-881 100 MFD	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
C7	22-837 .01 MFD	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
C8	22-883 .0005 MFD	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
C9	22-883 .0005 MFD	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
C10	22-836 .03 MFD	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
C11	22-839 .05 MFD	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
C12	22-839 .05 MFD	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
C13	22-839 .05 MFD	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
C14	22-841 20 MFD	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
C15	22-841 20 MFD	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
R1	63-531 47 M OHM	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
R2	63-531 47 M OHM	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
R3	63-572 15 OHM	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
R4	63-600 2.2 MEG OHM	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
R5	63-600 2.2 MEG OHM	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
R6	63-602 4.7 MEG OHM	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
R7	63-256 200 M OHM	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
R8	63-537 470 M OHM	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
R9	63-684 150 OHM WIREWOUND	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
R10	63-1071 27 OHM WIREWOUND	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
R11	63-713 47 OHM OHM	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
R12	63-717 220 OHM OHM	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S1	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S2	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S3	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S4	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S5	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
S6	5692 OSC. COUPLER COIL ASSEMBLY	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
S7	5692 OSC. COUPLER COIL ASSEMBLY	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
S8	5692 OSC. COUPLER COIL ASSEMBLY	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
S9	5692 OSC. COUPLER COIL ASSEMBLY	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S10	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S11	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S12	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S13	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S14	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
S15	5692 OSC. COUPLER COIL ASSEMBLY	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
S16	5692 OSC. COUPLER COIL ASSEMBLY	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
S17	5692 OSC. COUPLER COIL ASSEMBLY	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
S18	5692 OSC. COUPLER COIL ASSEMBLY	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S19	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S20	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S21	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S22	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S23	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
S24	5692 OSC. COUPLER COIL ASSEMBLY	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
S25	5692 OSC. COUPLER COIL ASSEMBLY	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
S26	5692 OSC. COUPLER COIL ASSEMBLY	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
S27	5692 OSC. COUPLER COIL ASSEMBLY	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S28	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S29	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S30	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S31	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S32	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
S33	5692 OSC. COUPLER COIL ASSEMBLY	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
S34	5692 OSC. COUPLER COIL ASSEMBLY	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
S35	5692 OSC. COUPLER COIL ASSEMBLY	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
S36	5692 OSC. COUPLER COIL ASSEMBLY	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S37	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S38	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S39	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S40	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S41	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.
S42	5692 OSC. COUPLER COIL ASSEMBLY	1A W	1 15 I.F. TRANS.	1	15 I.F. TRANS.
S43	5692 OSC. COUPLER COIL ASSEMBLY	1A W	2 15 I.F. TRANS.	2	15 I.F. TRANS.
S44	5692 OSC. COUPLER COIL ASSEMBLY	1A W	3 15 I.F. TRANS.	3	15 I.F. TRANS.
S45	5692 OSC. COUPLER COIL ASSEMBLY	1A W	4 15 I.F. TRANS.	4	15 I.F. TRANS.
S46	5692 OSC. COUPLER COIL ASSEMBLY	1A W	5 15 I.F. TRANS.	5	15 I.F. TRANS.
S47	5692 OSC. COUPLER COIL ASSEMBLY	1A W	6 15 I.F. TRANS.	6	15 I.F. TRANS.
S48	5692 OSC. COUPLER COIL ASSEMBLY	1A W	7 15 I.F. TRANS.	7	15 I.F. TRANS.
S49	5692 OSC. COUPLER COIL ASSEMBLY	1A W	8 15 I.F. TRANS.	8	15 I.F. TRANS.
S50	5692 OSC. COUPLER COIL ASSEMBLY	1A W	9 15 I.F. TRANS.	9	15 I.F. TRANS.

MODELS 6D413, 6D414, 6D426, 6D427, 6D446, 6D455 (Chassis No. 5660)

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Models 6D413, 6D414, 6D426, 6D427, 6D446, 6D455

CHASSIS No. 5660

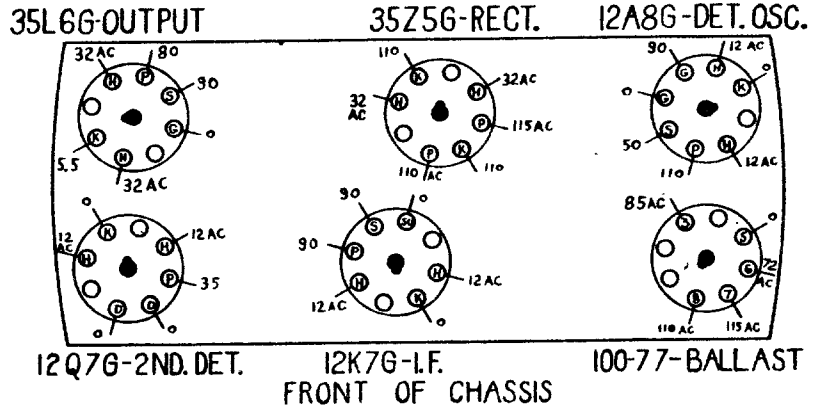
Zenith Radio Corporation

NOTE

Voltages measured from No. 7 pin on ballast tube to point indicated using a 1000 ohm per volt meter. Vol. control at minimum. Antenna disconnected.

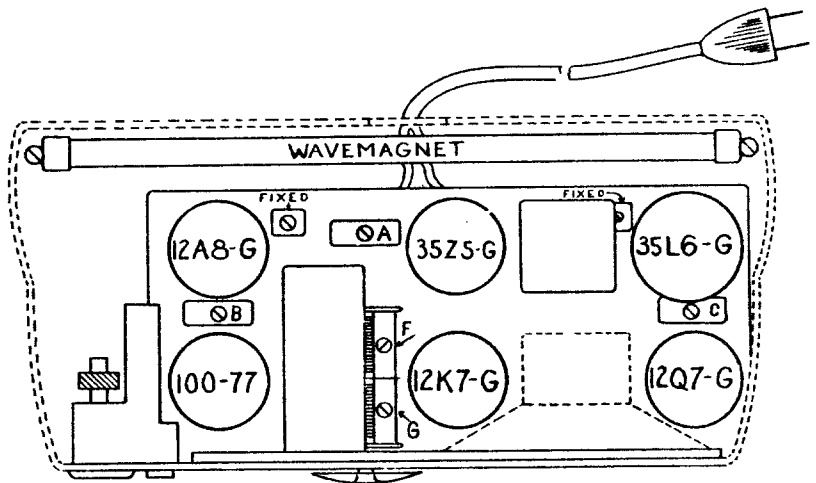
All filament voltages measured across each respective tube, using an A.C. volt-meter.

Line voltage — 110v.



LEGEND

- NC—No Connection
- SH—Shield
- H—Heater
- P—Plate
- S—Screen
- G—Grid
- SU—Suppressor
- D—Diode
- F—Filament
- K—Cathode



Location of tubes and trimmers

ALIGNMENT PROCEDURE

Operation	Connect Test Oscillator to	Dummy Antenna	Set Test Oscillator to	Band	Set Dial At	Adjust Trimmers	Purpose
1	1st Det. Grid	.5 Mfd.	455	B'dcast	600	A B C	I. F. Alignm't.
2	Single Turn Loop Loosely Coupled to Wave Magnet	—	1500	"	1500	F	Set Osc. to Scale
3	Wave Magnet	—	1500	"	"	G	Alignment of Ant.

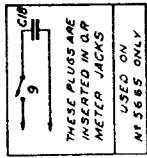
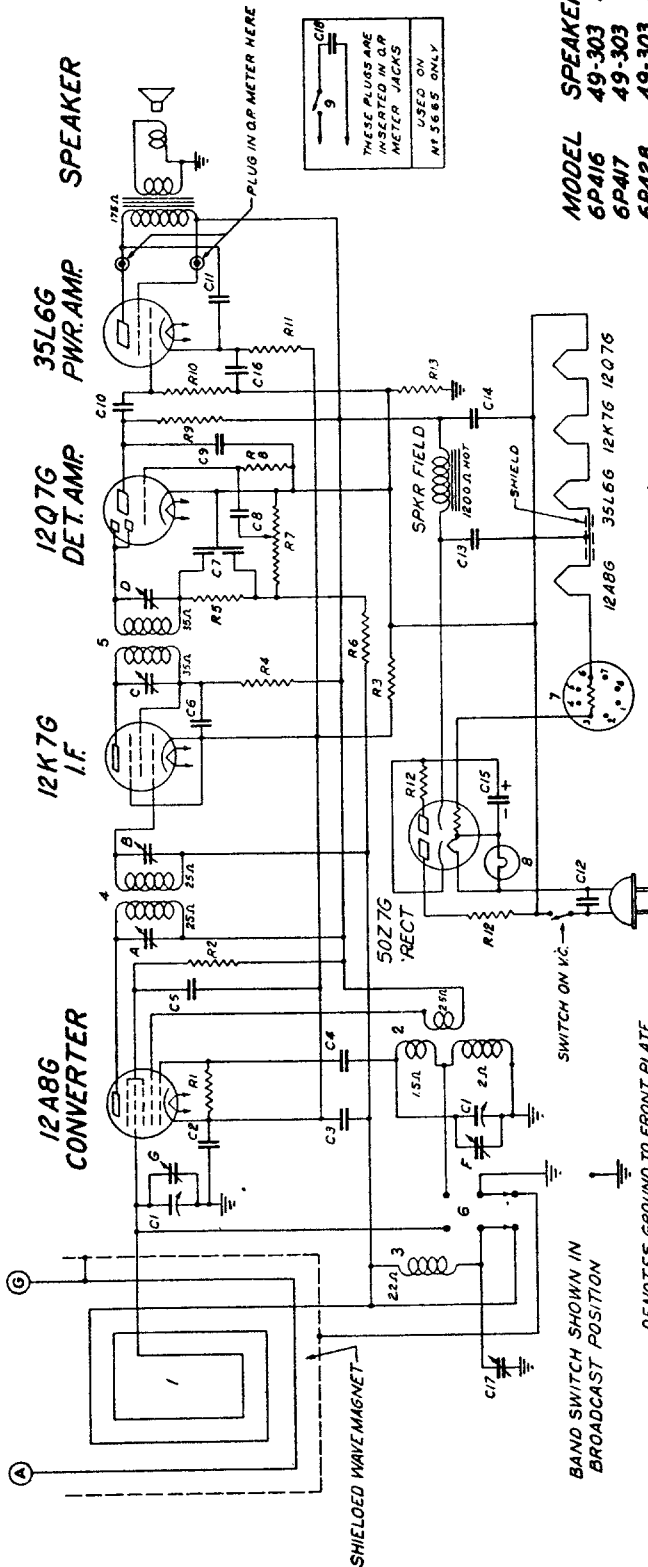
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

Models 6P416, 6P417, 6P428

CHASSIS No. 5661

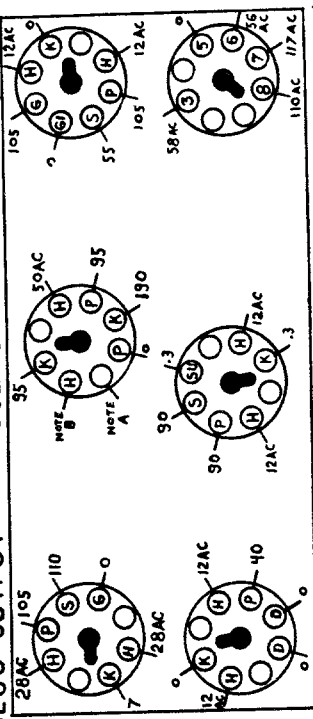
MODEL SPEAKER
 6P416 49-303 5"
 6P417 49-303 5"
 6P428 49-303 5"

I. F. FREQUENCY 455KC
 6 TUBE SUPERHETERODYNE
 VOLTAGE DOUBLER A.C.
 CHASSIS No. 5661/5665
 ZENITH RADIO CORPORATION



DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	22-845	TWO GANG VARIABLE	R5	63-593	47 M OHM
C2	22-190	.1 MFD	R6	63-722	2.2 MEG OHM
C3	22-250	.05 MFD	R7	63-028	VOLUME CONTROL
C4	22-212	100 MFD	R8	63-976	15 MEG OHM
C5	22-212	100 MFD	R9	63-296	200 M OHM
C6	22-212	100 MFD	R10	63-597	470 M OHM
C7	22-212	100 MFD	R11	63-586	100 OHM
C8	22-212	100 MFD	R12	63-583	200 OHM
C9	22-838	.005 MFD	R13	93-711	2.0 M OHM
C10	22-833	.0005 MFD	R14	56B13	WAVEMAGNET ASSEMBLY
C11	22-837	.03 MFD	R15	56B13	WAVEMAGNET ASSEMBLY
C12	22-875	.15 MFD	R16	56B13	SHUNT ANT.
			R17	56B15	1.8 I.F. TRANS.

35L6G-OUTPUT 50Z7G-RECT. 12A86-DET.OSC.



- A. This lug is C.T. of fil and is one side of pilot light supply line. Lug No. 7 is return for pilot light.
- B. This lug (No. 8) has a 50 v. A. C. potential with respect to lug No. 2 and also a 117 v. A.C. potential with respect to line switch.

NOTE
 Voltages measured from No. 7 pin on ballast tube to point indicated using a 1000 ohm per volt meter. Vol. control at minimum. Antenna disconnected.
 All filament voltages measured across each respective tube, using a 0-50 A. C. volt meter.

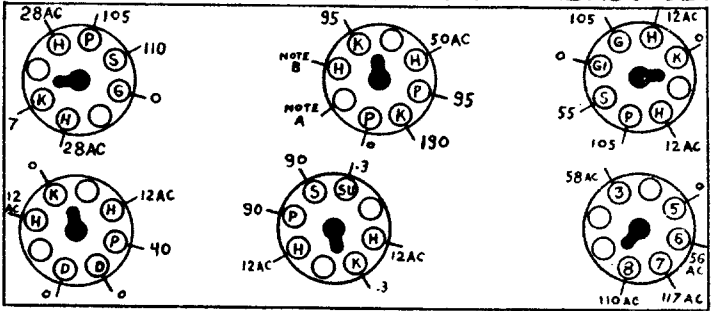
MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS

I.F. FREQUENCY 455KC
 6 TUBE SUPERHETERODYNE
 VOLTAGE DOUBLER A.C.
 CHASSIS No. 5662 & 5666
 ZENITH RADIO CORPORATION
 CHICAGO, ILL.

35L6G-OUTPUT

50Z7G-RECT.

12A8G-DET.OSC.

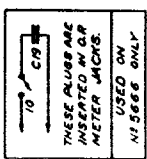
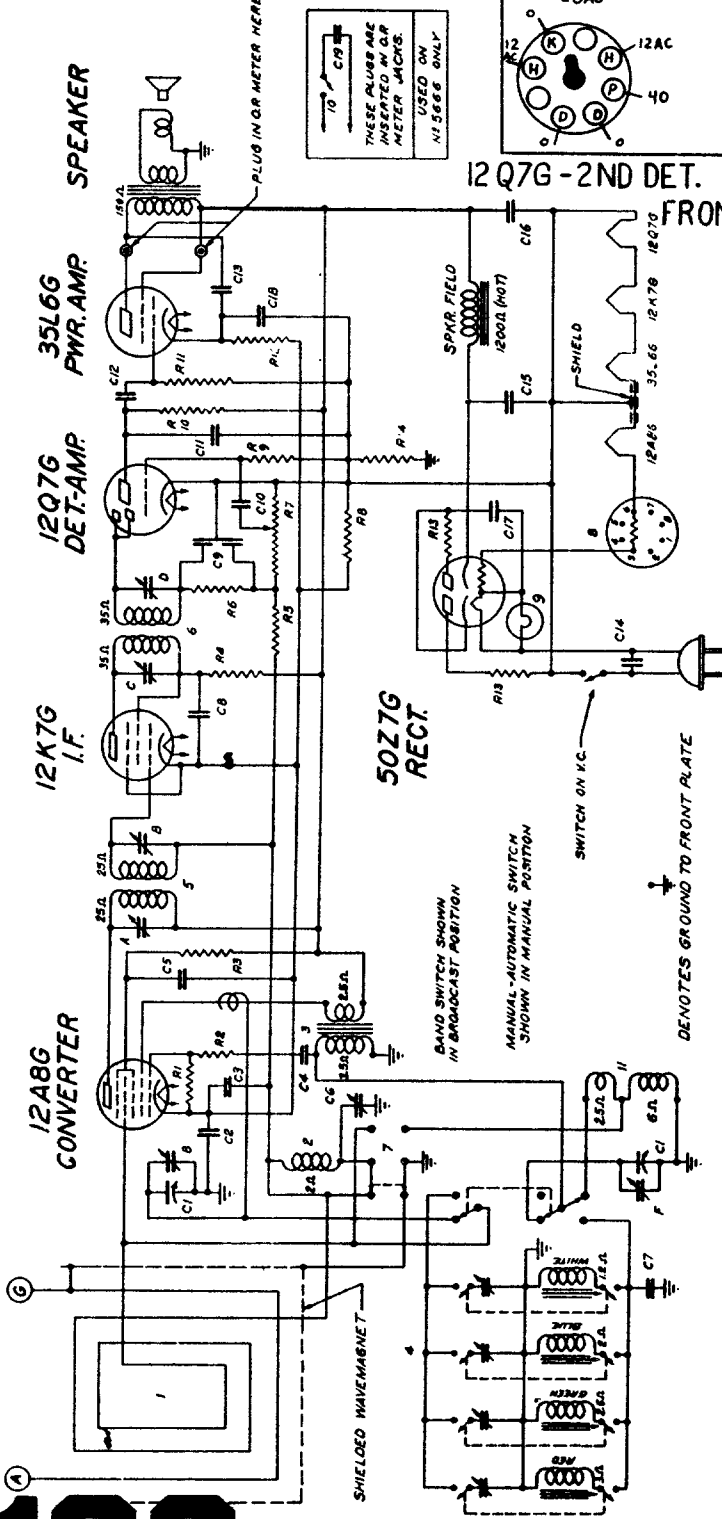


12Q7G-2ND DET.

12K7G-I.F.

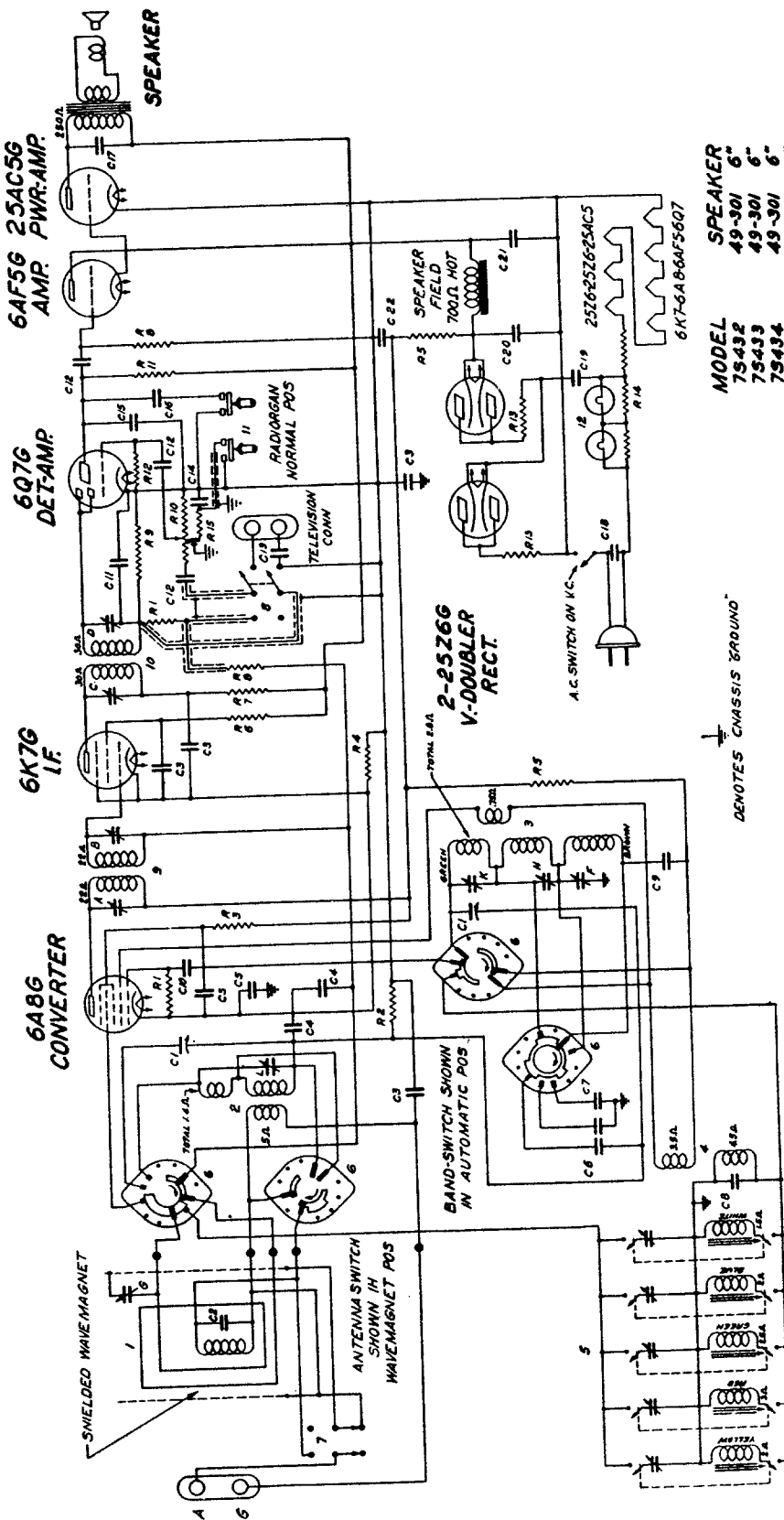
100-79 BALLAST

FRONT OF CHASSIS



QWAS	PART NO.	DESCRIPTION	QWAS	PART NO.	DESCRIPTION
C1	22-848	TWO-BAND VARIABLE	9	100-79	PILOT LIGHT 25 V. - 17A
C2	22-190	.1 MFD.	10	MS-517	TONE CONTROL SWITCH
C3	22-850	100 MFD.	11	S-7005	OSCILLATOR COIL ASSEMBLY
C4	22-861	100 MFD.	A	1E1 I.F. TRANS. PRI	
C5	22-862	100 MFD.	B	1E1 I.F. SEC	
C6	22-863	100 MFD.	C	2SP I.F. SEC.	
C7	22-864	100 MFD.	D	3000 OHM OSC. (W/RESNG)	
C8	22-865	100 MFD.	E	ANTENNA & BROADCAST (-)	
C9	22-866	100 MFD.	F	1E1 I.F. TRANS. ASSEMBLY	
C10	22-867	100 MFD.	G	1E1 I.F. TRANS. SEC.	
C11	22-868	100 MFD.	H	1E1 I.F. TRANS. SEC.	
C12	22-869	100 MFD.	I	1E1 I.F. TRANS. SEC.	
C13	22-870	100 MFD.	J	1E1 I.F. TRANS. SEC.	
C14	22-871	100 MFD.	K	1E1 I.F. TRANS. SEC.	
C15	22-872	100 MFD.	L	1E1 I.F. TRANS. SEC.	
C16	22-873	100 MFD.	M	1E1 I.F. TRANS. SEC.	
C17	22-874	100 MFD.	N	1E1 I.F. TRANS. SEC.	
C18	22-875	100 MFD.	O	1E1 I.F. TRANS. SEC.	
C19	22-876	100 MFD.	P	1E1 I.F. TRANS. SEC.	
C20	22-877	100 MFD.	Q	1E1 I.F. TRANS. SEC.	
C21	22-878	100 MFD.	R	1E1 I.F. TRANS. SEC.	
C22	22-879	100 MFD.	S	1E1 I.F. TRANS. SEC.	
C23	22-880	100 MFD.	T	1E1 I.F. TRANS. SEC.	
C24	22-881	100 MFD.	U	1E1 I.F. TRANS. SEC.	
C25	22-882	100 MFD.	V	1E1 I.F. TRANS. SEC.	
C26	22-883	100 MFD.	W	1E1 I.F. TRANS. SEC.	
C27	22-884	100 MFD.	X	1E1 I.F. TRANS. SEC.	
C28	22-885	100 MFD.	Y	1E1 I.F. TRANS. SEC.	
C29	22-886	100 MFD.	Z	1E1 I.F. TRANS. SEC.	
C30	22-887	100 MFD.	AA	1E1 I.F. TRANS. SEC.	
C31	22-888	100 MFD.	AB	1E1 I.F. TRANS. SEC.	
C32	22-889	100 MFD.	AC	1E1 I.F. TRANS. SEC.	
C33	22-890	100 MFD.	AD	1E1 I.F. TRANS. SEC.	
C34	22-891	100 MFD.	AE	1E1 I.F. TRANS. SEC.	
C35	22-892	100 MFD.	AF	1E1 I.F. TRANS. SEC.	
C36	22-893	100 MFD.	AG	1E1 I.F. TRANS. SEC.	
C37	22-894	100 MFD.	AH	1E1 I.F. TRANS. SEC.	
C38	22-895	100 MFD.	AI	1E1 I.F. TRANS. SEC.	
C39	22-896	100 MFD.	AJ	1E1 I.F. TRANS. SEC.	
C40	22-897	100 MFD.	AK	1E1 I.F. TRANS. SEC.	
C41	22-898	100 MFD.	AL	1E1 I.F. TRANS. SEC.	
C42	22-899	100 MFD.	AM	1E1 I.F. TRANS. SEC.	
C43	22-900	100 MFD.	AN	1E1 I.F. TRANS. SEC.	
C44	22-901	100 MFD.	AO	1E1 I.F. TRANS. SEC.	
C45	22-902	100 MFD.	AP	1E1 I.F. TRANS. SEC.	
C46	22-903	100 MFD.	AQ	1E1 I.F. TRANS. SEC.	
C47	22-904	100 MFD.	AR	1E1 I.F. TRANS. SEC.	
C48	22-905	100 MFD.	AS	1E1 I.F. TRANS. SEC.	
C49	22-906	100 MFD.	AT	1E1 I.F. TRANS. SEC.	
C50	22-907	100 MFD.	AU	1E1 I.F. TRANS. SEC.	
C51	22-908	100 MFD.	AV	1E1 I.F. TRANS. SEC.	
C52	22-909	100 MFD.	AW	1E1 I.F. TRANS. SEC.	
C53	22-910	100 MFD.	AX	1E1 I.F. TRANS. SEC.	
C54	22-911	100 MFD.	AY	1E1 I.F. TRANS. SEC.	
C55	22-912	100 MFD.	AZ	1E1 I.F. TRANS. SEC.	
C56	22-913	100 MFD.	BA	1E1 I.F. TRANS. SEC.	
C57	22-914	100 MFD.	BB	1E1 I.F. TRANS. SEC.	
C58	22-915	100 MFD.	BC	1E1 I.F. TRANS. SEC.	
C59	22-916	100 MFD.	BD	1E1 I.F. TRANS. SEC.	
C60	22-917	100 MFD.	BE	1E1 I.F. TRANS. SEC.	
C61	22-918	100 MFD.	BF	1E1 I.F. TRANS. SEC.	
C62	22-919	100 MFD.	BG	1E1 I.F. TRANS. SEC.	
C63	22-920	100 MFD.	BH	1E1 I.F. TRANS. SEC.	
C64	22-921	100 MFD.	BI	1E1 I.F. TRANS. SEC.	
C65	22-922	100 MFD.	BJ	1E1 I.F. TRANS. SEC.	
C66	22-923	100 MFD.	BK	1E1 I.F. TRANS. SEC.	
C67	22-924	100 MFD.	BL	1E1 I.F. TRANS. SEC.	
C68	22-925	100 MFD.	BM	1E1 I.F. TRANS. SEC.	
C69	22-926	100 MFD.	BN	1E1 I.F. TRANS. SEC.	
C70	22-927	100 MFD.	BO	1E1 I.F. TRANS. SEC.	
C71	22-928	100 MFD.	BP	1E1 I.F. TRANS. SEC.	
C72	22-929	100 MFD.	BQ	1E1 I.F. TRANS. SEC.	
C73	22-930	100 MFD.	BR	1E1 I.F. TRANS. SEC.	
C74	22-931	100 MFD.	BS	1E1 I.F. TRANS. SEC.	
C75	22-932	100 MFD.	BT	1E1 I.F. TRANS. SEC.	
C76	22-933	100 MFD.	BU	1E1 I.F. TRANS. SEC.	
C77	22-934	100 MFD.	BV	1E1 I.F. TRANS. SEC.	
C78	22-935	100 MFD.	BW	1E1 I.F. TRANS. SEC.	
C79	22-936	100 MFD.	BX	1E1 I.F. TRANS. SEC.	
C80	22-937	100 MFD.	BY	1E1 I.F. TRANS. SEC.	
C81	22-938	100 MFD.	BZ	1E1 I.F. TRANS. SEC.	
C82	22-939	100 MFD.	CA	1E1 I.F. TRANS. SEC.	
C83	22-940	100 MFD.	CB	1E1 I.F. TRANS. SEC.	
C84	22-941	100 MFD.	CC	1E1 I.F. TRANS. SEC.	
C85	22-942	100 MFD.	CD	1E1 I.F. TRANS. SEC.	
C86	22-943	100 MFD.	CE	1E1 I.F. TRANS. SEC.	
C87	22-944	100 MFD.	CF	1E1 I.F. TRANS. SEC.	
C88	22-945	100 MFD.	CG	1E1 I.F. TRANS. SEC.	
C89	22-946	100 MFD.	CH	1E1 I.F. TRANS. SEC.	
C90	22-947	100 MFD.	CI	1E1 I.F. TRANS. SEC.	
C91	22-948	100 MFD.	CJ	1E1 I.F. TRANS. SEC.	
C92	22-949	100 MFD.	CK	1E1 I.F. TRANS. SEC.	
C93	22-950	100 MFD.	CL	1E1 I.F. TRANS. SEC.	
C94	22-951	100 MFD.	CM	1E1 I.F. TRANS. SEC.	
C95	22-952	100 MFD.	CN	1E1 I.F. TRANS. SEC.	
C96	22-953	100 MFD.	CO	1E1 I.F. TRANS. SEC.	
C97	22-954	100 MFD.	CP	1E1 I.F. TRANS. SEC.	
C98	22-955	100 MFD.	CQ	1E1 I.F. TRANS. SEC.	
C99	22-956	100 MFD.	CR	1E1 I.F. TRANS. SEC.	
C100	22-957	100 MFD.	CS	1E1 I.F. TRANS. SEC.	
C101	22-958	100 MFD.	CT	1E1 I.F. TRANS. SEC.	
C102	22-959	100 MFD.	CU	1E1 I.F. TRANS. SEC.	
C103	22-960	100 MFD.	CV	1E1 I.F. TRANS. SEC.	
C104	22-961	100 MFD.	CW	1E1 I.F. TRANS. SEC.	
C105	22-962	100 MFD.	CX	1E1 I.F. TRANS. SEC.	
C106	22-963	100 MFD.	CY	1E1 I.F. TRANS. SEC.	
C107	22-964	100 MFD.	CZ	1E1 I.F. TRANS. SEC.	
C108	22-965	100 MFD.	DA	1E1 I.F. TRANS. SEC.	
C109	22-966	100 MFD.	DB	1E1 I.F. TRANS. SEC.	
C110	22-967	100 MFD.	DC	1E1 I.F. TRANS. SEC.	
C111	22-968	100 MFD.	DD	1E1 I.F. TRANS. SEC.	
C112	22-969	100 MFD.	DE	1E1 I.F. TRANS. SEC.	
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C115	22-972	100 MFD.	DH	1E1 I.F. TRANS. SEC.	
C116	22-973	100 MFD.	DI	1E1 I.F. TRANS. SEC.	
C117	22-974	100 MFD.	DJ	1E1 I.F. TRANS. SEC.	
C118	22-975	100 MFD.	DK	1E1 I.F. TRANS. SEC.	
C119	22-976	100 MFD.	DL	1E1 I.F. TRANS. SEC.	
C120	22-977	100 MFD.	DM	1E1 I.F. TRANS. SEC.	
C121	22-978	100 MFD.	DN	1E1 I.F. TRANS. SEC.	
C122	22-979	100 MFD.	DO	1E1 I.F. TRANS. SEC.	
C123	22-980	100 MFD.	DP	1E1 I.F. TRANS. SEC.	
C124	22-981	100 MFD.	DQ	1E1 I.F. TRANS. SEC.	
C125	22-982	100 MFD.	DR	1E1 I.F. TRANS. SEC.	
C126	22-983	100 MFD.	DS	1E1 I.F. TRANS. SEC.	
C127	22-984	100 MFD.	DT	1E1 I.F. TRANS. SEC.	
C128	22-985	100 MFD.	DU	1E1 I.F. TRANS. SEC.	
C129	22-986	100 MFD.	DV	1E1 I.F. TRANS. SEC.	
C130	22-987	100 MFD.	DW	1E1 I.F. TRANS. SEC.	
C131	22-988	100 MFD.	DX	1E1 I.F. TRANS. SEC.	
C132	22-989	100 MFD.	DY	1E1 I.F. TRANS. SEC.	
C133	22-990	100 MFD.	DZ	1E1 I.F. TRANS. SEC.	
C134	22-991	100 MFD.	EA	1E1 I.F. TRANS. SEC.	
C135	22-992	100 MFD.	EB	1E1 I.F. TRANS. SEC.	
C136	22-993	100 MFD.	EC	1E1 I.F. TRANS. SEC.	
C137	22-994	100 MFD.	ED	1E1 I.F. TRANS. SEC.	
C138	22-995	100 MFD.	EE	1E1 I.F. TRANS. SEC.	
C139	22-996	100 MFD.	EF	1E1 I.F. TRANS. SEC.	
C140	22-997	100 MFD.	EG	1E1 I.F. TRANS. SEC.	
C141	22-998	100 MFD.	EH	1E1 I.F. TRANS. SEC.	
C142	22-999	100 MFD.	EI	1E1 I.F. TRANS. SEC.	
C143	22-1000	100 MFD.	EJ	1E1 I.F. TRANS. SEC.	
C144	22-1001	100 MFD.	EK	1E1 I.F. TRANS. SEC.	
C145	22-1002	100 MFD.	EL	1E1 I.F. TRANS. SEC.	
C146	22-1003	100 MFD.	EM	1E1 I.F. TRANS. SEC.	
C147	22-1004	100 MFD.	EN	1E1 I.F. TRANS. SEC.	
C148	22-1005	100 MFD.	EO	1E1 I.F. TRANS. SEC.	
C149	22-1006	100 MFD.	EP	1E1 I.F. TRANS. SEC.	
C150	22-1007	100 MFD.	EQ	1E1 I.F. TRANS. SEC.	
C151	22-1008	100 MFD.	ER	1E1 I.F. TRANS. SEC.	
C152	22-1009	100 MFD.	ES	1E1 I.F. TRANS. SEC.	
C153	22-1010	100 MFD.	ET	1E1 I.F. TRANS. SEC.	
C154	22-1011	100 MFD.	EU	1E1 I.F. TRANS. SEC.	
C155	22-1012	100 MFD.	EV	1E1 I.F. TRANS. SEC.	
C156	22-1013	100 MFD.	EW	1E1 I.F. TRANS. SEC.	
C157	22-1014	100 MFD.	EX	1E1 I.F. TRANS. SEC.	
C158	22-1015	100 MFD.	EY	1E1 I.F. TRANS. SEC.	
C159	22-1016	100 MFD.	EZ	1E1 I.F. TRANS. SEC.	
C160	22-1017	100 MFD.	FA	1E1 I.F. TRANS. SEC.	
C161	22-1018	100 MFD.	FB	1E1 I.F. TRANS. SEC.	
C162	22-1019	100 MFD.	FC	1E1 I.F. TRANS. SEC.	
C163	22-1020	100 MFD.	FD	1E1 I.F. TRANS. SEC.	
C164	22-1021	100 MFD.	FE	1E1 I.F. TRANS. SEC.	
C165	22-1022	100 MFD.	FF	1E1 I.F. TRANS. SEC.	
C166	22-1023	100 MFD.	FG	1E1 I.F. TRANS. SEC.	
C167	22-1024	100 MFD.	FH	1E1 I.F. TRANS. SEC.	
C168	22-1025	100 MFD.	FI	1E1 I.F. TRANS. SEC.	
C169	22-1026	100 MFD.	FJ	1E1 I.F. TRANS. SEC.	
C170	22-1027	100 MFD.	FK	1E1 I.F. TRANS. SEC.	
C171	22-1028	100 MFD.	FL	1E1 I.F. TRANS. SEC.	
C172	22-1029	100 MFD.	FM	1E1 I.F. TRANS. SEC.	
C173	22-1030	100 MFD.	FN	1E1 I.F. TRANS. SEC.	
C174					

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



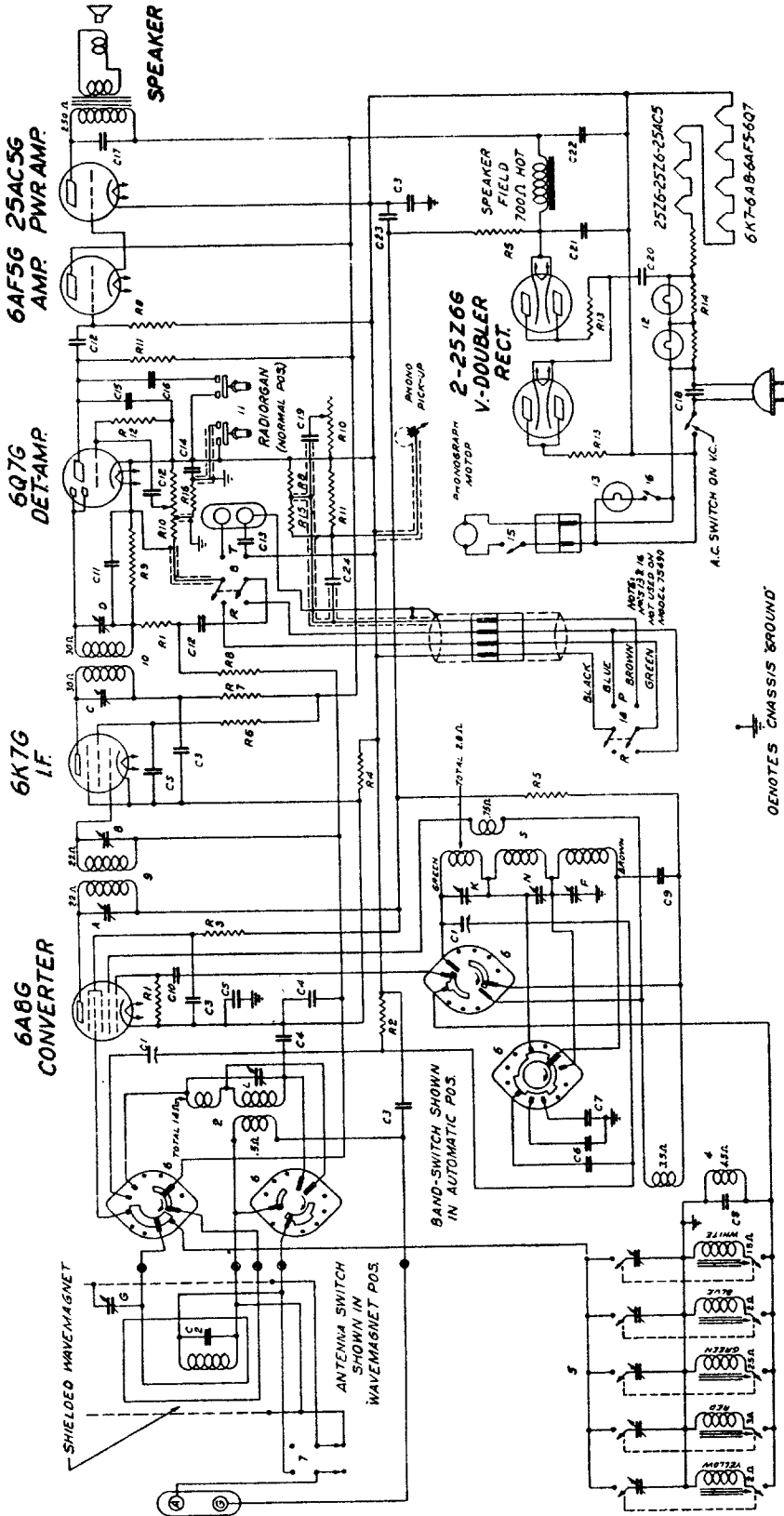
MODEL	SPEAKER
75432	49-301 6"
75433	49-301 6"
75434	49-301 6"
75449	49-301 6"
75450	49-314 8"
75459	49-308 10"
75459	49-314 8"
75460	49-311 10"
75461	49-309 12"
75462	49-311 10"

I.F. FREQUENCY 455 KC.
 7 TUBE SUPERHETERODYNE.
 CHASSIS No. 5719 VOLTAGE DOUBLER AC
 ZENITH RADIO CORPORATION
 CHICAGO, ILL.

DIAG. PART NO.	DIAG. PART NO.	DESCRIPTION	DIAG. PART NO.	DESCRIPTION
C-1	22-849	TRIO-TROUBLE W/P	R-12	65-976 1/2 MEG OHMS
C-2	22-850	TRIO-TROUBLE W/P	R-13	65-1023 2 OHM WIRE WOUND
C-3	22-851	TRIO-TROUBLE W/P	R-14	65-1023 3-SEC. IN. CHODDNEY
C-4	22-852	TRIO-TROUBLE W/P	R-15	65-1113 4 1/2 M OHM
C-5	22-853	TRIO-TROUBLE W/P	1	56958 ANTENNA COIL
C-6	22-854	TRIO-TROUBLE W/P	2	56957 OSCILLATOR
C-7	22-855	TRIO-TROUBLE W/P	3	56958 ANTENNA COIL
C-8	22-856	TRIO-TROUBLE W/P	4	56957 OSCILLATOR
C-9	22-857	TRIO-TROUBLE W/P	5	57044 AUTOMATIC TUNING
C-10	22-858	TRIO-TROUBLE W/P	6	85-185 BAND SELECTOR SWITCH
C-11	22-859	TRIO-TROUBLE W/P	7	85-171 WIRE WOUND
C-12	22-860	TRIO-TROUBLE W/P	8	85-171 WIRE WOUND
C-13	22-861	TRIO-TROUBLE W/P	9	85-171 WIRE WOUND
C-14	22-862	TRIO-TROUBLE W/P	10	85-171 WIRE WOUND
C-15	22-863	TRIO-TROUBLE W/P	11	56958 ANTENNA COIL
C-16	22-864	TRIO-TROUBLE W/P	12	56957 OSCILLATOR
C-17	22-865	TRIO-TROUBLE W/P		
C-18	22-866	TRIO-TROUBLE W/P		
C-19	22-867	TRIO-TROUBLE W/P		
C-20	22-868	TRIO-TROUBLE W/P		
C-21	22-869	TRIO-TROUBLE W/P		
C-22	22-870	TRIO-TROUBLE W/P		

MODELS 75432, 75433, 75434, 75449, 75450, 75458, 75459, 75460, 75461, 75462 (Chassis No. 5719)

MANUAL OF 1939 MOST POPULAR SERVICE DIAGRAMS



MODEL SPEAKER
 7S487 49-312 10"
 7S488 49-309 12"
 7S490 49-314 8"

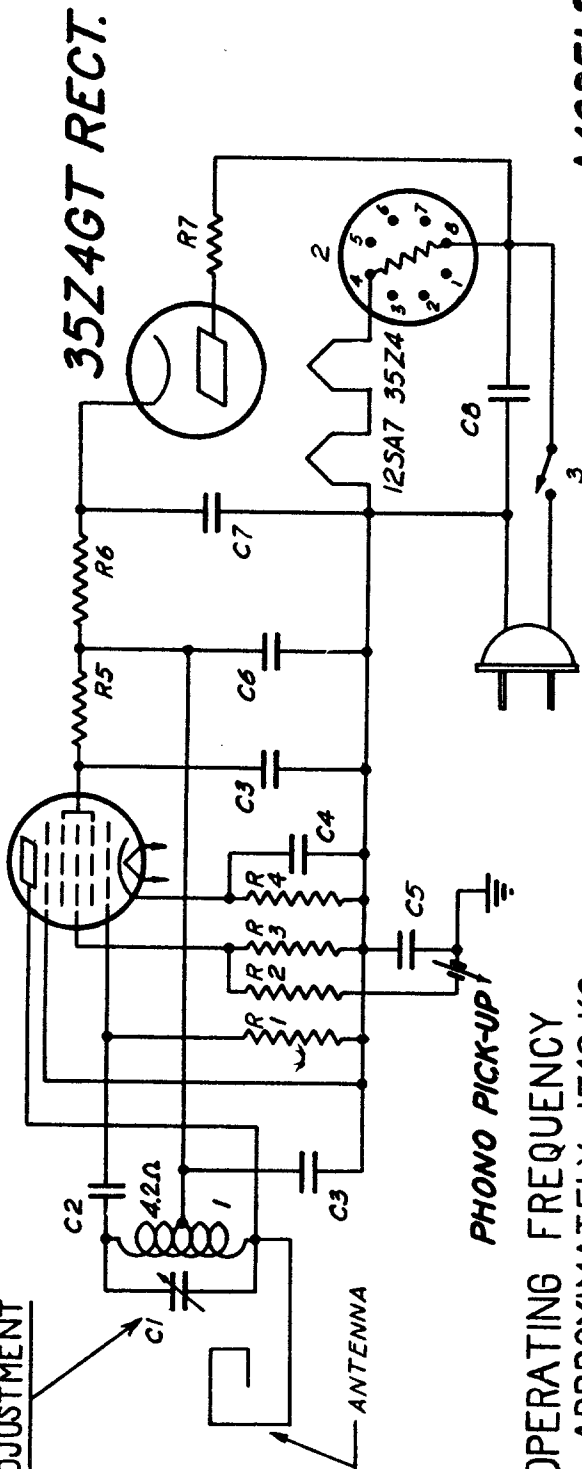
I.F. FREQUENCY 455 KC
 7 TUBE SUPERHETERODYNE
 CHASSIS N°5721 3 BAND
 VOLTAGE DOUBLER AC.
 ZENITH RADIO CORPORATION
 CHICAGO, ILL.

DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	22-860	TWO GANG VARIABLE	16	85-504	DOOR SWITCH (MODEL 1540)
C2	22-182	00025 MFD	16	85-505	DOOR SWITCH (MODEL 1948)
C3	22-826	05 MFD	4	121-F	121 F TRAMS W/
C4	22-829	05 MFD	4	2W1F	2W1F " SEC
C5	22-849	05 MFD	4	22-865	BROADCAST OSC (SEE NOTE)
C6	22-849	05 MFD	4	22-789	SHORT WAVE DETECTOR
C7	22-849	05 MFD	4	22-789	SHORT WAVE DETECTOR
C8	22-849	05 MFD	4	22-789	POLICE BAND OSC (SEE NOTE)
C9	22-850	02 MFD	4		
C10	22-850	50 MFD	4		
C11	22-850	01 MFD	4		
C12	22-850	01 MFD	4		
C13	22-850	01 MFD	4		
C14	22-850	008 MFD	4		
C15	22-850	008 MFD	4		
C16	22-850	008 MFD	4		
C17	22-850	008 MFD	4		
C18	22-850	008 MFD	4		
C19	22-850	008 MFD	4		
C20	22-850	008 MFD	4		
R1	63-393	47M OHM	1	59-600	121 F TRAMS
R2	63-385	150M OHM	2	59-600	121 F TRAMS
R3	63-1019	60M OHM	3	59-600	121 F TRAMS
R4	63-1019	60M OHM	3	59-600	121 F TRAMS
R5	63-1019	60M OHM	3	59-600	121 F TRAMS
R6	63-1019	60M OHM	3	59-600	121 F TRAMS
R7	63-1019	60M OHM	3	59-600	121 F TRAMS
R8	63-1019	60M OHM	3	59-600	121 F TRAMS
R9	63-1019	60M OHM	3	59-600	121 F TRAMS
R10	63-1019	60M OHM	3	59-600	121 F TRAMS
R11	63-1019	60M OHM	3	59-600	121 F TRAMS
R12	63-1019	60M OHM	3	59-600	121 F TRAMS
R13	63-1019	60M OHM	3	59-600	121 F TRAMS
R14	63-1019	60M OHM	3	59-600	121 F TRAMS
R15	63-1019	60M OHM	3	59-600	121 F TRAMS
R16	63-1019	60M OHM	3	59-600	121 F TRAMS
R17	63-1019	60M OHM	3	59-600	121 F TRAMS
R18	63-1019	60M OHM	3	59-600	121 F TRAMS
R19	63-1019	60M OHM	3	59-600	121 F TRAMS
R20	63-1019	60M OHM	3	59-600	121 F TRAMS
R21	63-1019	60M OHM	3	59-600	121 F TRAMS
R22	63-1019	60M OHM	3	59-600	121 F TRAMS
R23	63-1019	60M OHM	3	59-600	121 F TRAMS
R24	63-1019	60M OHM	3	59-600	121 F TRAMS
R25	63-1019	60M OHM	3	59-600	121 F TRAMS
R26	63-1019	60M OHM	3	59-600	121 F TRAMS
R27	63-1019	60M OHM	3	59-600	121 F TRAMS
R28	63-1019	60M OHM	3	59-600	121 F TRAMS
R29	63-1019	60M OHM	3	59-600	121 F TRAMS
R30	63-1019	60M OHM	3	59-600	121 F TRAMS
R31	63-1019	60M OHM	3	59-600	121 F TRAMS
R32	63-1019	60M OHM	3	59-600	121 F TRAMS
R33	63-1019	60M OHM	3	59-600	121 F TRAMS
R34	63-1019	60M OHM	3	59-600	121 F TRAMS
R35	63-1019	60M OHM	3	59-600	121 F TRAMS
R36	63-1019	60M OHM	3	59-600	121 F TRAMS
R37	63-1019	60M OHM	3	59-600	121 F TRAMS
R38	63-1019	60M OHM	3	59-600	121 F TRAMS
R39	63-1019	60M OHM	3	59-600	121 F TRAMS
R40	63-1019	60M OHM	3	59-600	121 F TRAMS
R41	63-1019	60M OHM	3	59-600	121 F TRAMS
R42	63-1019	60M OHM	3	59-600	121 F TRAMS
R43	63-1019	60M OHM	3	59-600	121 F TRAMS
R44	63-1019	60M OHM	3	59-600	121 F TRAMS
R45	63-1019	60M OHM	3	59-600	121 F TRAMS
R46	63-1019	60M OHM	3	59-600	121 F TRAMS
R47	63-1019	60M OHM	3	59-600	121 F TRAMS
R48	63-1019	60M OHM	3	59-600	121 F TRAMS
R49	63-1019	60M OHM	3	59-600	121 F TRAMS
R50	63-1019	60M OHM	3	59-600	121 F TRAMS
R51	63-1019	60M OHM	3	59-600	121 F TRAMS
R52	63-1019	60M OHM	3	59-600	121 F TRAMS
R53	63-1019	60M OHM	3	59-600	121 F TRAMS
R54	63-1019	60M OHM	3	59-600	121 F TRAMS
R55	63-1019	60M OHM	3	59-600	121 F TRAMS
R56	63-1019	60M OHM	3	59-600	121 F TRAMS
R57	63-1019	60M OHM	3	59-600	121 F TRAMS
R58	63-1019	60M OHM	3	59-600	121 F TRAMS
R59	63-1019	60M OHM	3	59-600	121 F TRAMS
R60	63-1019	60M OHM	3	59-600	121 F TRAMS
R61	63-1019	60M OHM	3	59-600	121 F TRAMS
R62	63-1019	60M OHM	3	59-600	121 F TRAMS
R63	63-1019	60M OHM	3	59-600	121 F TRAMS
R64	63-1019	60M OHM	3	59-600	121 F TRAMS
R65	63-1019	60M OHM	3	59-600	121 F TRAMS
R66	63-1019	60M OHM	3	59-600	121 F TRAMS
R67	63-1019	60M OHM	3	59-600	121 F TRAMS
R68	63-1019	60M OHM	3	59-600	121 F TRAMS
R69	63-1019	60M OHM	3	59-600	121 F TRAMS
R70	63-1019	60M OHM	3	59-600	121 F TRAMS
R71	63-1019	60M OHM	3	59-600	121 F TRAMS
R72	63-1019	60M OHM	3	59-600	121 F TRAMS
R73	63-1019	60M OHM	3	59-600	121 F TRAMS
R74	63-1019	60M OHM	3	59-600	121 F TRAMS
R75	63-1019	60M OHM	3	59-600	121 F TRAMS
R76	63-1019	60M OHM	3	59-600	121 F TRAMS
R77	63-1019	60M OHM	3	59-600	121 F TRAMS
R78	63-1019	60M OHM	3	59-600	121 F TRAMS
R79	63-1019	60M OHM	3	59-600	121 F TRAMS
R80	63-1019	60M OHM	3	59-600	121 F TRAMS
R81	63-1019	60M OHM	3	59-600	121 F TRAMS
R82	63-1019	60M OHM	3	59-600	121 F TRAMS
R83	63-1019	60M OHM	3	59-600	121 F TRAMS
R84	63-1019	60M OHM	3	59-600	121 F TRAMS
R85	63-1019	60M OHM	3	59-600	121 F TRAMS
R86	63-1019	60M OHM	3	59-600	121 F TRAMS
R87	63-1019	60M OHM	3	59-600	121 F TRAMS
R88	63-1019	60M OHM	3	59-600	121 F TRAMS
R89	63-1019	60M OHM	3	59-600	121 F TRAMS
R90	63-1019	60M OHM	3	59-600	121 F TRAMS
R91	63-1019	60M OHM	3	59-600	121 F TRAMS
R92	63-1019	60M OHM	3	59-600	121 F TRAMS
R93	63-1019	60M OHM	3	59-600	121 F TRAMS
R94	63-1019	60M OHM	3	59-600	121 F TRAMS
R95	63-1019	60M OHM	3	59-600	121 F TRAMS
R96	63-1019	60M OHM	3	59-600	121 F TRAMS
R97	63-1019	60M OHM	3	59-600	121 F TRAMS
R98	63-1019	60M OHM	3	59-600	121 F TRAMS
R99	63-1019	60M OHM	3	59-600	121 F TRAMS
R100	63-1019	60M OHM	3	59-600	121 F TRAMS

MODELS 7S487, 7S488, 7S490 (Chassis No. 5721)

12SA7GT OSC.

FREQUENCY ADJUSTMENT



PHONO PICK-UP
OPERATING FREQUENCY
APPROXIMATELY 1540 KC.

MODELS
S-7000
S-7001
S-7002
S-7003

PHONOGRAPH OSCILLATOR
ZENITH RADIO CORPORATION
CHICAGO, ILL.

DIAG. N ^o	PART N ^o 1	DESCRIPTION	DIAG. N ^o 2	PART N ^o 2	DESCRIPTION
C1	22-690	TUNING CONDENSER	R2	63-658	390M OHM
C2	22-182	.00025 MFD.	R3	63-260	100M OHM
C3	22-243	.01 MFD.	R4	63-583	1000 OHM
C4	22-829	.05 MFD.	R5	63-964	4700 OHM
C5	22-827	.1 MFD.	R6	63-803	2200 OHM
C6	22-876	{ 8MFD. ELECTROLYTIC	R7	63-575	47 OHM
C7	22-670	{ 40 MFD.			
C8		{ .1 MFD.			
R1	63-591	22 M OHM	1	56854	OSC. COIL ASSEM
			2	100-76	BALLAST TUBE
			3	85-170	AC SWITCH

WIRELESS RECORD PLAYER Models S7000, S7001, S7002, S7003