Most-Often-Needed

1947

VOLUME SEVEN

RADIO DIAGRAMS

and Servicing Information

Compiled by

M. N. BEITMAN

SUPREME PUBLICATIONS

VOLUME 7

PRICE **$2**

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SUPREME PUBLICATIONS

CHICAGO

PREFACE

In Volume 7 of the series "Most-Often-Needed Radio Diagrams," we have tried to incorporate service information on every important and popular radio originally issued between June 1, 1946 and March 1, 1947. These sets are considered 1947 models.

Data included have been selected with the view of being of greatest aid to you in carrying out actual radio repair work. Circuits of popular sets included in this manual are easy to follow. Replacement parts values can be easily determined from schematic information and parts lists. In many places we have added details on alignment, dial stringing, voltage test values, stage gain, parts layout, location of trimmers, method for removal of chassis, and additional data that for certain sets prove of great help. In other sets some of these facts are not needed at all and they have not been included in such cases. In fact, some publishers insult the servicing profession in stating how to remove knobs of the set, or what brand 20-30 mfd., 150 volt, condenser to use for replacement, or how to carry out point-by-point alignment for a simple five-tube one-band super.

The popularity of the previous six volumes of SUPREME PUBLICATIONS diagram manuals speak well for the selection of proper material needed and wanted by shrewd radio servicemen. We will continue to serve you by publishing radio manuals to sell at truly economical prices.

This year it is again our pleasure to extend thanks and appreciation to various radio set manufacturers who have aided us in supplying the material included in this volume. Factory service information is best and we change it as little as possible in making it conform to the requirements of this manual.

M. N. BEITMAN

March 1, 1947

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ADMIRAL CORPORATION. Information on MODEL 5B1A Phono Chassis.

The Model 5B1A is similar to Model 5B1 listed on pages 10 & 11 in Vol. 6, 1946 Manual. The main differences are:

A new rotary phono-radio switch is used to positively eliminate cross talk. This is accomplished by opening the B+ feed to the front end of the set when the switch is in the photograph position. *** A 10 megohm resistor R14 has been added to the circuit to prevent occasional momentary blocking of the 12SK7 tube employed in the I.F. stage.

Admiral Corporation
Model 3A1-AN

See page 7 of Vol. 6 1946 Manual for the similar model 3A1.

VOLTAGE DATA

Voltage measured from socket terminal to point marked "X". Large numerals indicate readings with vacuum tube voltmeter. Small numerals indicate readings with 1000 ohm-per-volt meter.

* * *

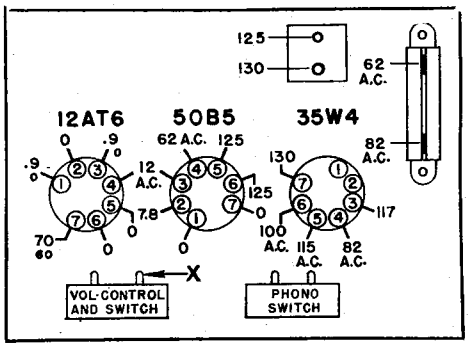
POWER SUPPLY

Operation on 105-125 volts, 60-cycle, alternating current only. Power consumption: 45 watts.

RECORD CHANGER

Complete service information and parts list are covered by a separate service manual. Check record changer for model number since different record changers may be used from time to time.

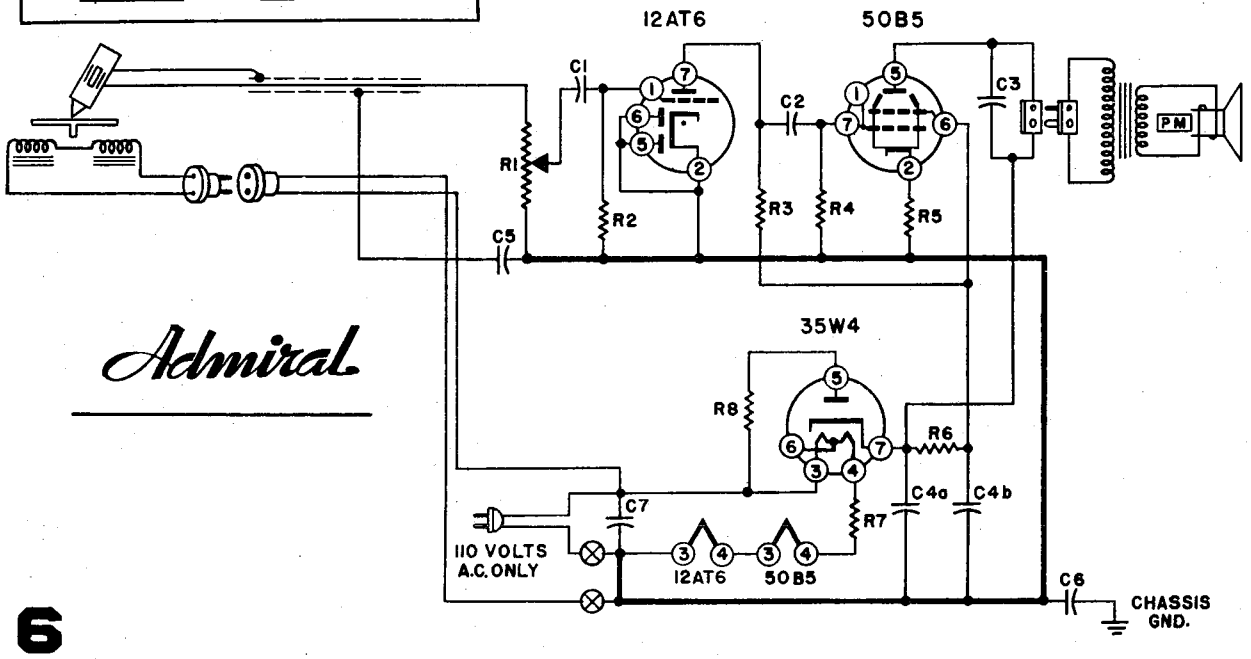
VOLTAGE CHART



RESISTORS			CONDENSERS		
SYMBOL	OHMS	WATTS	SYMBOL	CAPACITY	VOLTS
R1	1,000,000	V.C.	C1	.005 Mfd.	600
R2	10,000,000	½	C2	.01 Mfd.	400
R3	270,000	½	C3	.02 Mfd.	400
R4	470,000	½	C4a	50. Mfd.	150
R5	150	1	C4b	30. Mfd.	150
R6 *	1,500	1	C5	.1 Mfd.	400
R7	130	5	C6	.1 Mfd.	400
R8	33	1	C7	.05 Mfd.	400

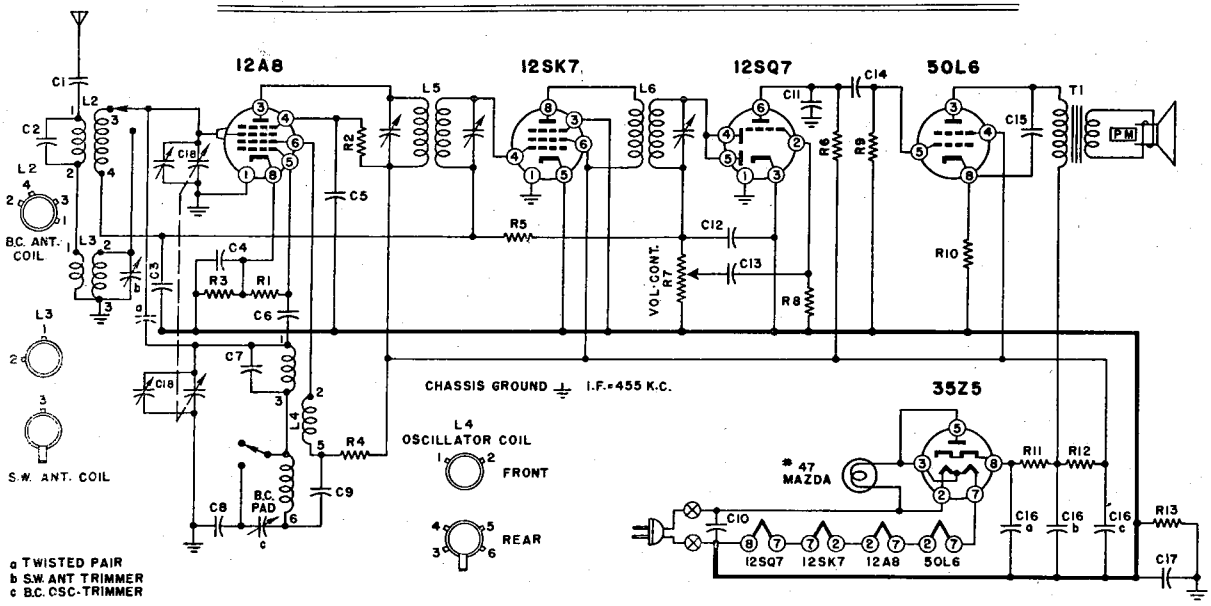
TUBES USED

12AT6—Driver (audio) 50B5—Power Output 35W4—Rectifier

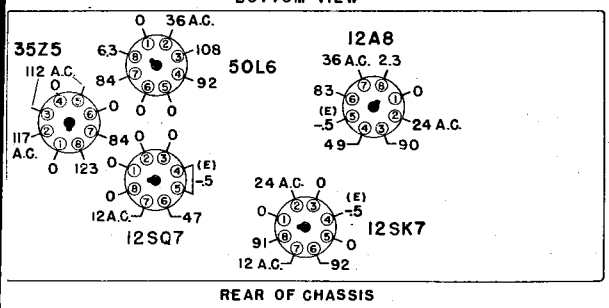


Admiral

Admiral — CHASSIS—5A1



VOLTAGE CHART



VOLTAGE DATA

1. All readings made between Tube Socket Terminals and Terminal No. 8 on the 12SQ7 Socket.
2. Measured on a 117 Volt A.C. line.
3. Volume control full on.
4. Dial tuned to low frequency end, no signal.
5. Voltages indicated (E) obtained on Vacuum Tube volt meter.
6. All other readings shown are made with a 1000 ohm per volt meter.

REPLACEMENT PARTS

CONDENSERS

Symbol	Description	Part No.
C1	.001 Mfd., paper, 400 V.	65A2-5
C2	.00005 Mfd., mica, 500 V.	65B5-11
C3	.05 Mfd., paper, 400 V.	65A2-4
C4	.05 Mfd., paper, 400 V.	65A2-4
C5	.05 Mfd., paper, 400 V.	65A2-4
C6	.0001 Mfd., mica, 500 V.	65B5-17
C7	.00001 Mfd., mica, 500 V.	65B5-1
C8	.003 Mfd., mica, 500 V.	65B1-6
C9	.005 Mfd., paper, 400 V.	65A2-2
C10	.05 Mfd., paper, 400 V.	65A2-4
C11	.0005 Mfd., mica, 500 V.	65B5-27
C12	.00025 Mfd., mica, 500 V.	65B5-22
C13	.01 Mfd., paper, 400 V.	65A2-3
C14	.002 Mfd., paper, 400 V.	65A2-1
C15	.01 Mfd., paper, 400 V.	65A2-3
C16a	30 Mfd., electrolytic, 150 V.	67C7-41
C16b	30 Mfd., electrolytic, 150 V.	
C16c	20 Mfd., electrolytic, 150 V.	
C17	.2 Mfd., paper, 400 V.	65A2-10
b, c	Trimmer Condenser	66A1-1
C18	Tuning Condenser Gang	68A1

RESISTORS

Symbol	Description	Part No.
R1	47,000 Ohms, Carbon, ½ W.	60B8-473
R2	22,000 Ohms, Carbon, ½ W.	60B8-223
R3	470 Ohms, Carbon, ½ W.	60B8-471
R4	3,300 Ohms, Carbon, ½ W.	60B8-332
R5	2.2 Meg Ohms, Carbon, ½ W.	60B8-225
R6	220,000 Ohms, Carbon, ½ W.	60B8-224
R7	.5 Meg. Ohms, Volume Control	75B1-7
R8	4.7 Meg Ohms, Carbon ½ W.	60B8-475
R9	470,000 Ohms, Carbon, ½ W.	60B8-474
R10	220 Ohms, Carbon, ½ W.	60B8-221
R11	150 Ohms, Carbon, 1 W.	60B28-1
R12	1,000 Ohms, Carbon, 1 W.	60B28-2
R13	150,000 Ohms, Carbon, ½ W.	60B28-154

COILS & TRANSFORMERS

Symbol	Description	Part No.
L2	BC, Antenna coil	69A1
L3	SW, Antenna coil	69A2
L4	BC & SW, Oscillator coil	69A3
L5	1st I.F. Trans.	72B2
L6	2nd I.F. Trans.	72B1

MISCELLANEOUS

Description	Part No.
Band Change Switch	77B1-4
Buttons, Snap for Dial Background	13A1-3-2
Cabinet, Ivory Plastic	34D1-1
Cabinet, Mahogany Plastic	34D1-2
Collar for Line Cord Connector	32A19
Connector for Line Cord (female plug)	88A6-2
Cord, Line, 220 V.	89A3
Dial Background	22B7-1
Dial Cord (42 inches)	50A1-1
Dial Pointer Strip	25A3
Dial Pointer Slide	25A2
Drive Drum Assembly	A1012
Fibre Dial Pulley	17A1-3
Knob, Ivory	33A1-1
Knob, Mahogany or Walnut	33A1-2
Pilot light, Mazda No. 47	81A1-8
Pilot light Socket & leads	82A2-2
Shaft, Tuning	28A1-1

5A1—CHASSIS Admiral

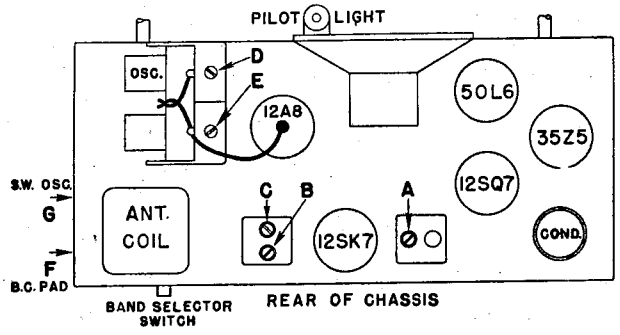
ALIGNMENT PROCEDURE

1. Be sure both set and signal generator are thoroughly warmed up before starting alignment.
2. Turn gang condenser to wide open position and make sure that dial pointer is at position marked "pointer extremes" on the dial diagram (see below).
3. Connect Output Meter across the Voice Coil.
4. Turn receiver Volume Control full on.
5. Use *lowest* output setting of signal generator that will give a satisfactory reading on the Output Meter.
6. Proceed in sequence as indicated in the chart.

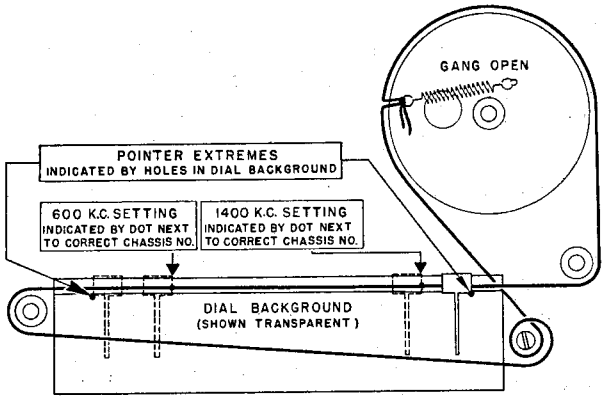
Dummy Antenna in Series with Signal Generator	Signal Generator Frequency	Connect Signal Generator to	Band Switch Position	Receiver Dial Pointer Setting	Adjust Following Trimmers	Type of Adjustment
.00025 Mica	455 K.C.	Grid Cap 12A8 Tube	B.C.	Gang-Condenser Wide open	(A) 2nd I.F. (B) 1st I.F. (C) 1st I.F.	Maximum Deflection Output Meter
.00025 Mica	1730 K.C.	End of Ant. Wire	B.C.	Set to Black dot at extreme upper end of scale.	(D) B.C. Osc.	Maximum Deflection Output Meter
.00025 Mica	1400 K.C.	End of Ant. Wire	B.C.	Tune in Generator Signal	(E) B.C. Ant.	Maximum Deflection Output Meter
.00025 Mica	600 K.C.	End of Ant. Wire	B.C.	Tune in Generator Signal	(F) B.C. Pad Rock Condenser gang while adjusting.	Maximum Deflection Output Meter
Recheck Alignment at 1400 Kc (2nd step above)						
400 ohm Carbon	15 Mc.	End of Ant. Wire	S.W.	Tune in Generator Signal	(G) S.W. Antenna	Maximum Deflection Output Meter

TUBE and TRIMMER LAYOUT

Top View



DIAL STRINGING



Chassis 5A1—A.C.-D.C. 5 tube Superheterodyne covering two bands, (540 K.C.—1730 K.C.) and 5.45 Megacycles—17.5 Megacycles.

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Admiral CHASSIS 7B1

REPLACEMENT PARTS

RESISTORS

Symbol	Description	Part No.
R1	12,000 Ohms 5 Watt	61A1-1
R2	150,000 Ohms ½ Watt	60B8-154
R3	470,000 Ohms ½ Watt	60B8-474
R4	10,000 Ohms 2 Watt	60B20-103
R6	22,000 Ohms ½ Watt	60B8-223
R7	10 Megohms ½ Watt	60B8-106
R8	1 Megohm ½ Watt	60B8-105
R9	2 Megohms, Tone Control	75B1-5
R10	27,000 Ohms ½ Watt	60B8-273
R11	1 Megohm, Volume Control Tapped at Approx. 500,000 ohms	75B2-1
R12	270,000 Ohms ½ Watt	60B8-274
R13	470,000 Ohms ½ Watt	60B8-474
R14	1 Megohm ½ Watt	60B8-105
R15	390 Ohms 1 Watt	60B14-391
R16	10 Megohms ½ Watt	60B8-106
R17	100 Ohms ½ Watt	60B8-101
R18	47,000 Ohms ½ Watt	60B8-473
R19	100,000 Ohms ½ Watt	60B8-104
R20	270,000 Ohms ½ Watt	60B8-274
R22	100 Ohms ½ Watt	60B8-101

CONDENSERS

Symbol	Description	Part No.
C1	1,000 Mmfd., Mica	65B7-33
C2	140 Mmfd., Silver Mica 3%	65B1-26
C3	25 Mmfd., Silver Mica 3%	65B1-28
C4	100 Mmfd., Mica	65B7-17
C5	50 Mmfd., Mica	65B5-11
C6	.05 Mfd., 400 Volts	64B1-22
C7	65 Mmfd., Silver Mica 3%	65B1-27
C8	420 Mmfd., Silver Mica 2%	65B1-13
C10	20 Mmfd., Mica	65B7-5
C11	65 Mmfd., Silver Mica 3%	65B1-27
C12	200 Mmfd., Silver Mica 2%	65B1-14
C13	.1 Mfd., 400 Volts	64B1-20
C14	250 Mmfd., Mica	65B7-22
C15	1,000 Mmfd., Mica	65B7-33
C16	.02 Mfd., 400 Volts	64B1-24
C17	.01 Mfd., 400 Volts, Condenser	64B1-25

CONDENSERS (Cont'd)

Symbol	Description	Part No.
C18	.01 Mfd., 400 Volts, Condenser	64B1-25
C19	.01 Mfd., 600 Volts, Condenser	64B1-10
C20a	30 Mfd., 350 Volts	67C6-25
C20b	30 Mfd., 350 Volts	
C20c	20 Mfd., 25 Volts	
C21a	3-40 Mmfd. Trimmer	66A1-5
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C22a	3-40 Mmfd. Trimmer	66A1-5
C22b	3-40 Mmfd. Trimmer	
C23a	3-40 Mmfd. Trimmer	66A1-5
C23b	3-40 Mmfd. Trimmer	
C24	100 Mmfd., Mica	65B7-17
C26	1,200 Mmfd., Mica	65B5-34
C27	100 Mmfd., Mica	65B7-17

TRANSFORMERS and COILS

Symbol	Description	Part No.
L1	Antenna, Loop	AC104
L2	Coil, S.W. Antenna	AD116-1
L3	Coil, B.C. Antenna	AB100-2
L4	Coil, B.C. R.F.	AB100-1
L5	Coil, S.W. R.F.	AD116-2
L6	Coil, S.W. Oscillator	AD116-3
L7	Coil, B.C. Oscillator	AC101-1
T1	Transformer, 1st I.F.	72B7
T2	Transformer, 2nd I.F.	72B8
T3	Transformer, Power	80B1
T4	Transformer, Output	98B6-1
CH1	Choke, Filter	74A3
CH2	Choke, Oscillator Cathode	AB103-1

SWITCHES, PLUGS and SOCKETS

Symbol	Description	Part No.
S1	Socket, Phono	88A1
S2	Socket, Speaker	87A6-1
S3	Socket and Cord, Phono Motor	89A6-3
SW1	Switch, Antenna	76B1-3
SW2	Switch, Oscillator	76B1-2
SW3	Switch, R.F.	76B1-1
SW4	Switch (on-off) S.P.S.T.	77B1-44

MISCELLANEOUS

Description	Part No.
Background, Dial	22B7-1
Bulb, Pilot Light No. 47	81A1-8
Button (For Phono switch button)	33A8-1
Cable and Plug, Shielded	89A5-1
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Escutcheon, Switch	26A7-1
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Knob, Tone	33B9-3
Knob, Volume	33B9-4
Pin Tip, Antenna (Large)	86A2-1
Pin Tip, Antenna (Small)	86A2-2
Plug, Speaker	88A4-4
Plug, Phono Output	88A2-1
Pointer, Dial	25A3
Slug, B.C. Tuning—Specify color code when ordering	71B1-3
Slug, S.W. Tuning—Specify color code when ordering	71B1-9
Socket, Dial Light	82A2-1
Socket, Speaker	87A6-1
Speaker	78B7
Spring, Drum Tension	19B1-7
Stud, Slug adjusting	27A4

PHONOGRAPH PARTS

See Record Changer Service Manual for Detailed Parts List.

Description	Part No.
Centerpost	G400A12
Crystal Cartridge	409A1
Idler Wheel (407B3 Motor)	G400A23
Idler Wheel (407B2 Motor)	G400A59
Idler Wheel (407B1 Motor)	G400A57
Motor, 60 cycle 115 volt, A.C. (Types 407B1 & 407B2 also used)	407B3

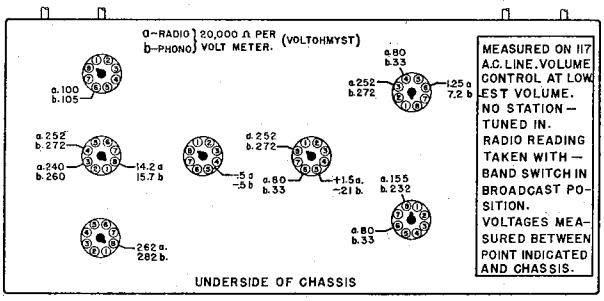
POINTER ADJUSTMENT

Move the dial pointer by means of the tuning control knob to see that it reaches the upper and lower limits as shown on the stringing diagram. In the upper limit position measure the distance D-E and in the lower limit position measure the distance A-B. The distance from A and B must be the same as the distance from D to E. If these distances are not equal, unclamp and move the pointer slide on the string until they are the same. The pointer should be checked again at the upper and lower limit to be sure that it is right. Take care to see that the pointer does not slip during this operation. Reclamp the pointer slide tightly to the string and seal with any quick-drying cement. Set the tuning gang wide open and proceed with operation 3.

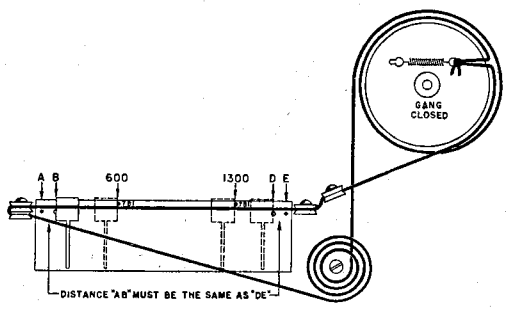
REPLACING TUNING SLUG

If it becomes necessary to change a tuning slug proceed in the following manner: Set the gang to its wide open position, unsolder and remove the old slug. Set the slug adjusting screw about half way down. Place the new slug in such a position that 1⅜ inches of its length is above the coil form. Solder it in this position making sure that it does not slip during the operation and that the slug wire is straight. Proceed to realign the set as shown in the chart.

VOLTAGE CHART



STRINGING DIAGRAM



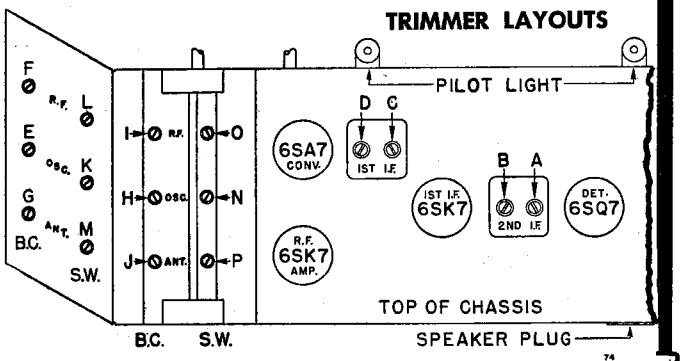
ALIGNMENT PROCEDURE

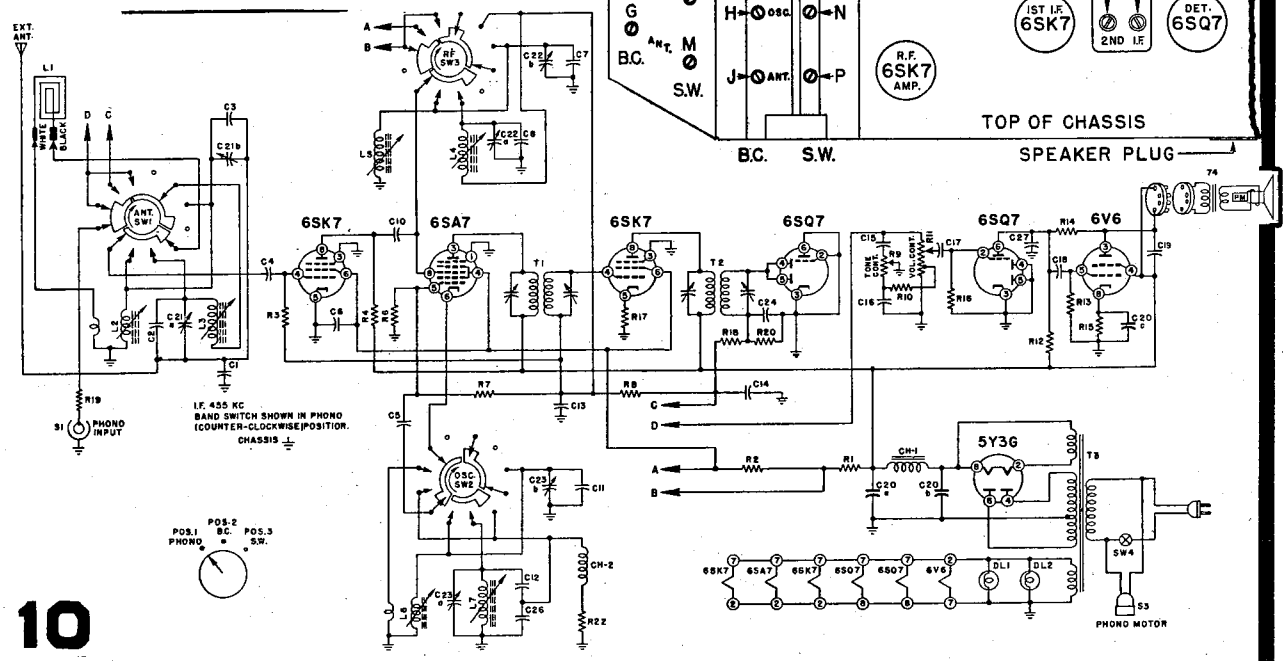
1. Loop must be connected during alignment.
   Check the set screws that hold the tuning drum to the shaft to see that they are tight and that the drum has not slipped on the shaft. The correct position of the drum can be seen on the stringing diagram.
2. In the closed position the stop on the rear of the dial drum must be against the stop post.
3. With the gang wide open, all slugs should be 1⅜ inches out of their coil forms. If there is any serious deviation or if there has been any tampering, turn the adjusting screws until this distance is correct.
4. Be sure both the set and the signal generator are thoroughly warmed up before starting alignment.
5. Turn receiver Volume Control full on.
6. Use lowest output setting of signal generator that gives a satisfactory reading on meter.
7. Proceed in sequence as outlined below.

Step	Connect Signal Generator To	Dummy Antenna Between Radio and Signal Generator	Signal Generator Frequency	Tuning Gang Setting	Adj. Trimmers in Following Order to Max.
1	Set Band Change Switch to Broadcast Position. 6SA7 Grid (Pin #8)	.1 MFD.	455 K.C.	Set Pointer to Upper Limit	A, B, C, D
2	Before proceeding to step 3 check pointer travel as outlined under paragraph below headed "Pointer Adjustment."				
3	Black Loop Lead	20 MMFD. If not available wrap several turns of the generator lead around the black loop lead.	1605 K.C.	Set Pointer to Upper Limit	E, F, G
4	Black Loop Lead		1300 K.C.	Set Pointer to 1300 Mark on Slide Rail	H, I, J
5	Set Band Change Switch to Short Wave Position.				
6	Black Loop Lead	400 Ohms	12.5 M.C.	Set Pointer to Upper Limit	K, L, M
7	Black Loop Lead	400 Ohms	12.0 M.C.	Set Pointer to 1300 Mark on Slide Rail	N, O, P

Admiral

CHASSIS **7B1**





Admiral ALIGNMENT PROCEDURE CHASSIS 10A1

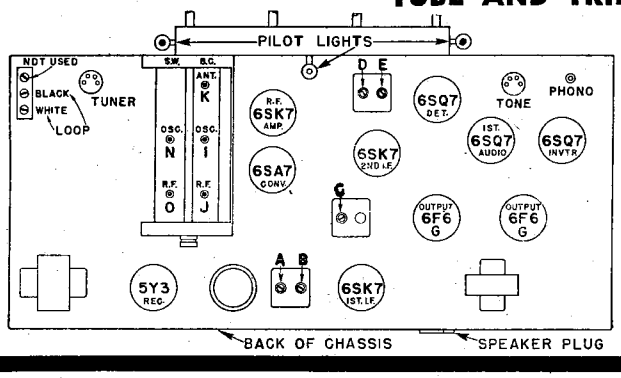
1. Loop must be connected during alignment.
   Check the set screws that hold the tuning drum to the shaft to see that they are tight and that the drum has not slipped on the shaft. The correct position of the drum can be seen on stringing diagram (A).
2. In the wide open position the stop on the rear of the dial drum must be against the stop post.
3. With the gang wide open, all slugs should be 1⅜ inches out of their coil forms. If there is any serious deviation of if there has been any tampering, turn the adjusting screws until this distance is corrected. (See paragraph on Tuning Slug Replacement.)
4. Be sure both the set and the signal generator are thoroughly warmed up before starting alignment.
5. Turn receiver Volume Control full on.
6. Use lowest output setting of signal generator that gives a satisfactory reading on meter.
7. Proceed in sequence as outlined below.

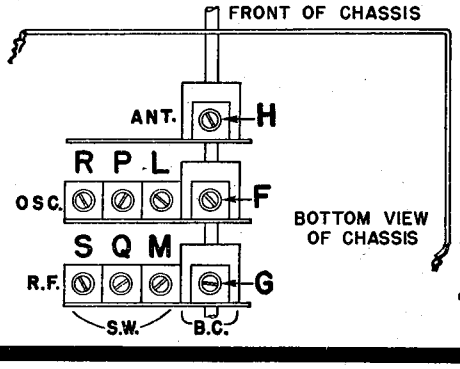
Step	Connect Signal Generator To	Dummy Antenna Between Radio and Signal Generator	Signal Generator Frequency	Tuning Gang Setting	Adj. Trimmers in Following Order To Max.
1	6SA7 Grid (Pin #8)	.1 MFD.	455 K.C.	Pointer to upper limit	E, D, C, B, A
2	Before proceeding to step 3 check pointer travel as outlined under paragraph below headed "Pointer Adjustment." Set Band Change Switch to Broadcast Position.				
3	White Loop Lead	10 MMFD. If not available wrap several turns of the generator lead around the white loop lead.	1605 K.C.	Pointer to upper limit	F, G, H
4	White Loop Lead		1300 K.C.	Set Pointer to 1300 mark on slide rail (See Dial Diagram A)	I, J, K
5	Set Band Change Switch to 49 Meter Position.				
6	White Loop Lead	400 Ohms	7.5 Mc.	Pointer to upper limit	L, M
7	White Loop Lead	400 Ohms	7.2 Mc.	Set Pointer to 1300 mark on slide rail	N, O
8	Set Band Change Switch to 31-25 Meter Position.				
9	White Loop Lead	400 Ohms	12.5 Mc.	Pointer to upper limit	P, Q
10	Set Band Change Switch to 19-16 Meter Position.				
11	White Loop Lead	400 Ohms	18.0 Mc.	Pointer to upper limit	R, S

POINTER ADJUSTMENT

Move the dial pointer by means of the tuning control knob to see that it reaches the upper and lower limits as shown on stringing diagram (A). In the upper limit position measure the distance D-E and in the lower limit position measure the distance A-B. The distance from A and B must be the same as the distance from D to E. If these distances are not equal, unclamp and move the pointer slide on the string until they are the same. The pointer should be checked again at the upper and lower limit to be sure that it is right. Take care to see that the pointer does not slip during this operation. Reclamp the pointer slide tightly to the string and seal with any quick-drying cement. Set the tuning gang wide open and proceed with operation 3.

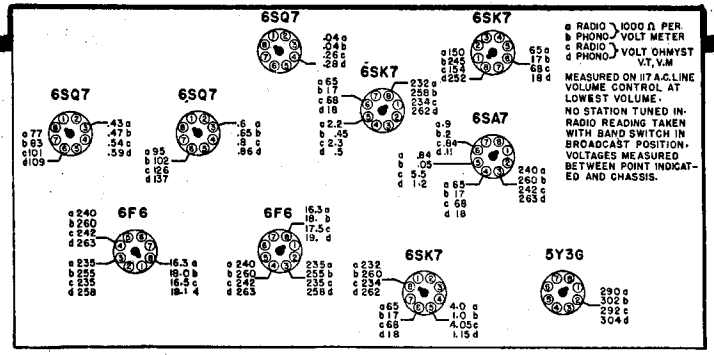
TUBE AND TRIMMER LAYOUTS

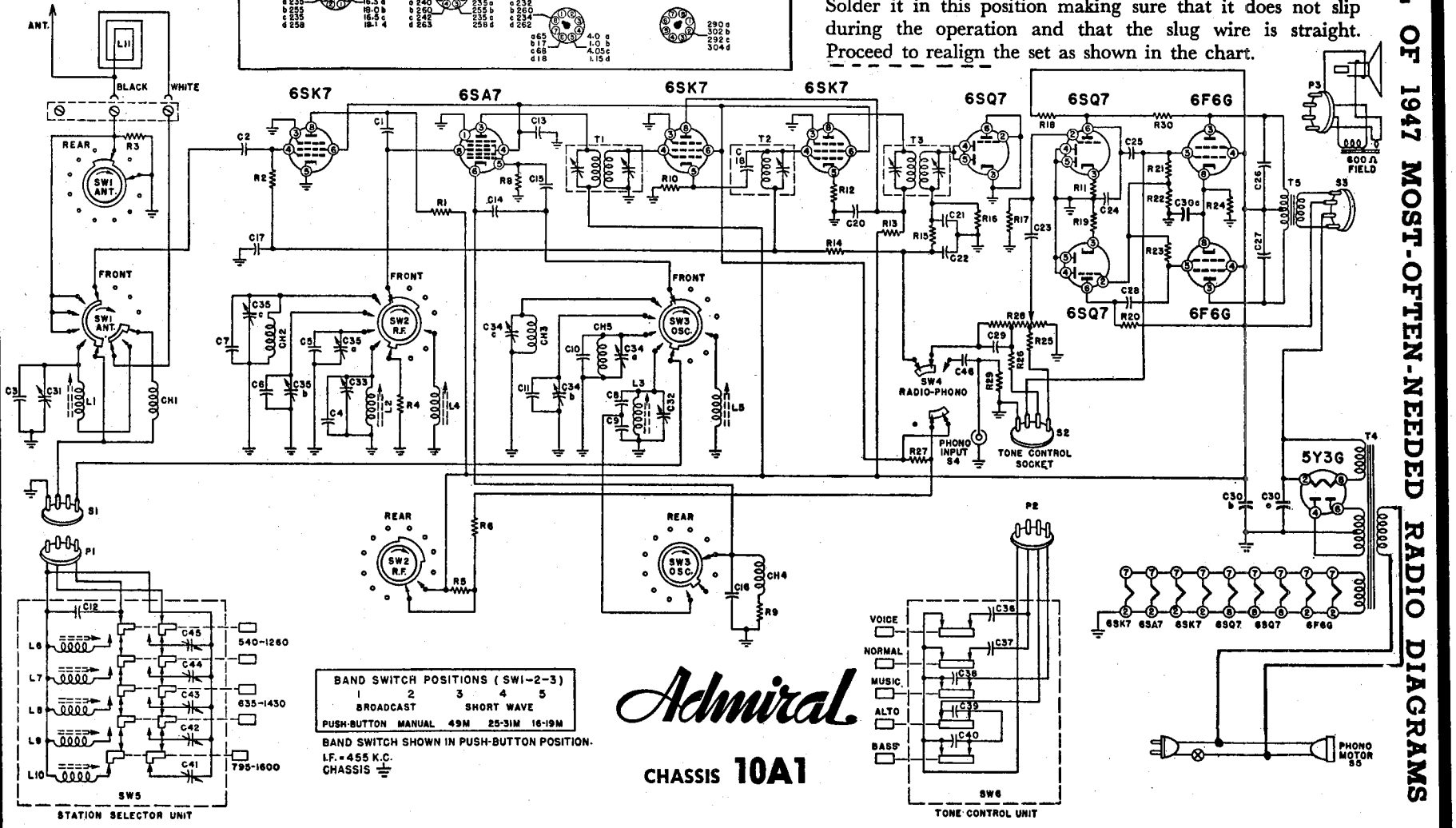




REPLACING TUNING SLUG

If it becomes necessary to change a tuning slug proceed in the following manner: Set the gang to its wide open position, unsolder and remove the old slug. Set the slug adjusting screw about half way down. Place the new slug in such a position that 1⅜ inches of its length is above the coil form. Solder it in this position making sure that it does not slip during the operation and that the slug wire is straight. Proceed to realign the set as shown in the chart.





BAND SWITCH POSITIONS (SW1-2-3)				
1	2	3	4	5
BROADCAST		SHORT WAVE		
PUSH-BUTTON	MANUAL	49M	25-31M	16-19M

BAND SWITCH SHOWN IN PUSH-BUTTON POSITION.
I.F. = 455 K.C.
CHASSIS ⏚

Admiral

CHASSIS 10A1

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Admiral CHASSIS 10A1

CONDENSERS

Symbol	Description	Part
C1	20 mmfd. Mica	65B7-5
C2	200 mmfd. Mica	65B7-21
C3	35 mmfd. Silver Mica	65B1-30
C4	390 mmfd. Silver Mica	65B1-34
C5	250 mmfd. Silver Mica	65B1-35
C6	65 mmfd. Silver Mica	65B1-27
C7	40 mmfd. Silver Mica	65B1-36
C8	140 mmfd. Silver Mica	65B1-26
C9	1000 mmfd. Mica	65B7-33
C10	200 mmfd. Silver Mica	65B1-14
C11	15 mmfd. Silver Mica	65B5-3
C12	60 mmfd. Silver Mica	65B5-13
C13	.1 mfd. 400 Volts	64B1-20
C14	50 mmfd. Mica	65B5-11
C15	50 mmfd. Mica	65B5-11
C16	250 mmfd. Mica	65B5-22
C17	.05 mfd. 200 Volts	64B1-32
C18	20 mmfd. Mica	65B5-5
C20	.1 mfd. 400 Volts	64B1-20
C21	50 mmfd. Mica	65B5-11
C22	50 mmfd. Mica	65B5-11
C23	.002 mfd. 600 Volts	64B1-14
C24	500 mmfd. Mica	65B5-27
C25	.005 mfd. 600 Volts	64B1-12
C26	.005 mfd. 600 Volts	64B1-12
C27	.005 mfd. 600 Volts	64B1-12
C28	.005 mfd. 600 Volts	64B1-12
C29	250 mmfd. Mica	65B5-22
C30a	30 mfd. 350 Volts	
C30b	30 mfd. 350 Volts } Electrolytic	67C6-25
C30c	20 mfd. 25 Volts	
C31	3-40 mmfd.	
C32	3-40 mmfd. } Trimmer	66A12-5
C33	3-40 mmfd.	
C34a	3-40 mmfd.	
C34b	3-40 mmfd. } Trimmer	66B8-3
C34c	3-40 mmfd.	
C35a	3-40 mmfd.	
C35b	3-40 mmfd. } Trimmer	66B8-3
C35c	3-40 mmfd.	

RESISTORS

Symbol	Description	Part Number
R1	10,000 Ohms, 1 Watt	60B14-103
R2	470,000 Ohms, ½ Watt	60B8-474
R3	47,000 Ohms, ½ Watt	60B8-473
R4	470,000 Ohms, ½ Watt	60B8-474
R5	8,200 Ohms, 1 Watt	60B14-822
R6	10,000 Ohms, 5 Watt	61A1-3
R8	22,000 Ohms, ½ Watt	60B8-223
R9	100 Ohms, ½ Watt	60B8-101
R10	1,500 Ohms, ½ Watt	60B8-152
R11	1,500 Ohms, ½ Watt	60B8-152
R12	470 Ohms, ½ Watt	60B8-471
R13	1,000 Ohms, ½ Watt	60B8-102
R14	470,000 Ohms, ½ Watt	60B8-474
R15	47,000 Ohms, ½ Watt	60B8-473
R16	270,000 Ohms, ½ Watt	60B8-274
R17	1.0 Megohm, ½ Watt	60B8-105
R18	270,000 Ohms, ½ Watt	60B8-274
R19	1,000 Ohms, ½ Watt	60B8-102
R20	270,000 Ohms, ½ Watt	60B8-274
R21	470,000 Ohms, ½ Watt	60B8-474
R22	470,000 Ohms, ½ Watt	60B8-474
R23	470,000 Ohms, ½ Watt	60B8-474
R24	270 Ohms, 2 Watt	60B20-271
R25	47,000 Ohms, ½ Watt	60B8-473
R26	100,000 Ohms, ½ Watt	60B8-104
R27	150,000 Ohms, ½ Watt	60B8-154
R28	1 Megohm Volume Control	75B3-3
R29	1 Megohm, ½ Watt	60B8-105
R30	1 Megohm, ½ Watt	60B8-105

C36	.002 mfd., 600 Volts	64B1-14
C37	.001 mfd., 600 Volts	64B1-15
C38	.005 mfd., 600 Volts	64B1-12
C39	.01 mfd., 400 Volts	64B1-25
C40	.005 mfd., 600 Volts	64B1-12
C41	12-170 mmfd. Trimmer	66A12-1
C42 } C43	25-290 mmfd. Trimmer	66A12-2
C44 } C45	40-400 mmfd. Trimmer	66A12-3
C46	.002-600 volts	64B1-14

STRINGING DIAGRAMS

DIAGRAM (A)

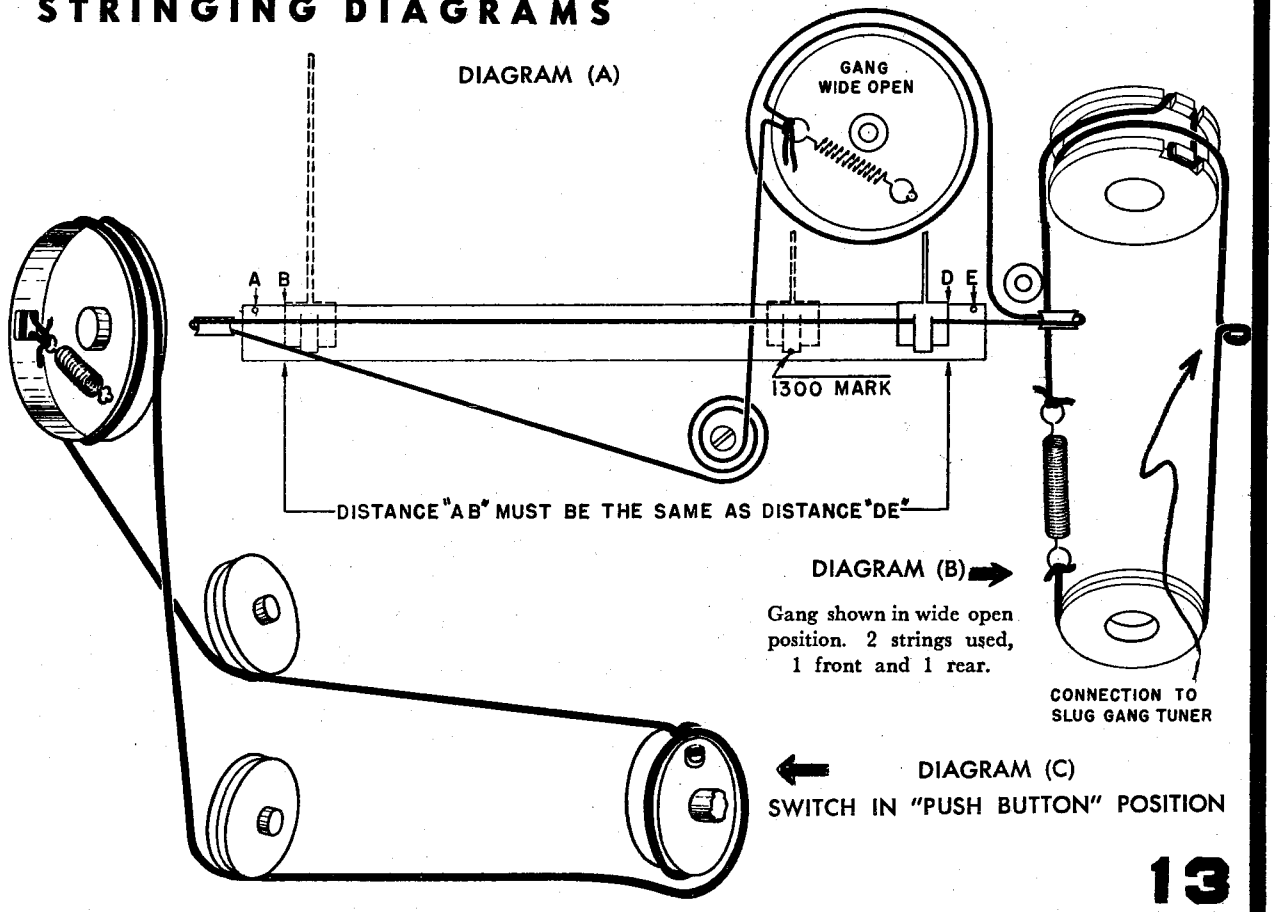


DIAGRAM (B)

Gang shown in wide open position. 2 strings used, 1 front and 1 rear.

DIAGRAM (C)

SWITCH IN "PUSH BUTTON" POSITION

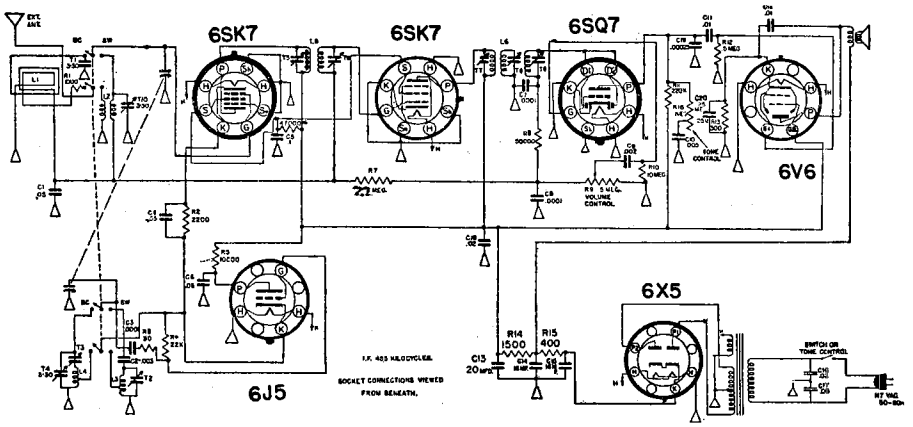
AIR KING PRODUCTS CO., Inc.

Radio Model 4604-A

Model 4604 is similar but uses tube type 7H7 instead of the first 6SK7, a 7B6 instead 6SQ7, and a 7A4 instead 6J5 oscillator.

PARTS LIST

Schematic Location	Part No.	Description
	457	Cabinet
	62172	Cover — back
L1	28135	Coil, loop
L2	28137	Coil, SW — Ant.
L3	28138	Coil, SW osc with trimmer
L4	28136	Coil, BC osc with padder
C1, C4, C6, C16		Condenser, .05 mfd, 400 volts
C5		Condenser, .1 mfd, 400 volts
C9		Condenser, .002 mfd, 400 volts
C10		Condenser, .005 mfd, 400 volts
C11		Condenser, .01 mfd, 400 volts
C12		Condenser, .01 mfd, 800 volts
C18, C17		Condenser, .02 mfd, 400 volts
C3, C8, C7		Condenser, Mica, .0001 mfd, 400 volts
C19		Condenser, Mica, 00025 — 400 volts
C2		Condenser, Mica, .003 — 400 volts
C	1655	Variable condenser
C13, C14, C15	20102	Condensers, electrolytic, 20 mfd, 16 mfd, 16 mfd, 350 volts
C20	20105	Condensers, electrolytic, 25 mf, 25 volts
T1, T10, T4	1725	Condenser, trimmers on bracket (3) 3-30 mmfd
R9	2470	Control, volume, .5 megohm
R16	2521	Control, tone, .25 megohm with switch
	8581	Cord, power
	4579	Dial cord
	40109	Dial scale
	4140	Dial pointer
	4633	Dial spring
	39138	Knob, tone, off-on
	39139	Knob, SW - BC
	39140	Knob, tuning
	39141	Knob, volume
	4911	Lamp, dial #47 (2)
R1		1000 ohm, ½ watt
R2		2200 ohm, ½ watt
R3		47 ohm, ½ watt
R4		22,000 ohm, ½ watt
R5		10,000 ohm, ½ watt
R7		2.2 megohm, ½ watt
R6, R8		47,000 ohm, ½ watt
R11		220,000 ohm, ½ watt
R13		300 ohm, 1 watt, wire wound
R14		1500 ohm, 1 watt, wire wound
R15		400 ohm, 1 watt, wire wound
R10		10 megohm, ½ watt
R12		.5 megohm, ½ watt
	8107	Socket, pilot lamp (2)
	3784	Switch, band, BC - SW
	5866	Speaker, 5" output transformer
	1089	Transformer, power **
L5	3323	Transformer, I.F. Input
L6	3523	Transformer, I.F. Output



ALIGNMENT PROCEDURE

Output meter connection.....Across voice coil

Output meter reading to indicate ½ watt.....1.25V for 3.2 Ohm voice coil

Connection of generator ground.....Receiver chassis

Generator modulation.....Approximately 30% @ 400 cycles

Position of volume control.....Fully clockwise

Position of tone control.....High position

WAVE BAND SW.	POSITION OF DIAL POINTER	GEN. FREQ.	GEN. CONN.	DUMMY ANT.	TRIMMERS ADJ. IN ORDER SHOW	TRIMMER FUNCT.
B. C.	540 kc	455 kc	6SK7 Grid	.1 mfd	T9-T7-T8-T6-T5	I. F.
	1500 kc	1500 kc	* note		T4-T1	Osc. - Ant.
	600 kc	600 kc	* note		T3-Rock Var. Cond.	Osc. - Padder
	1500 kc	1500 kc	* note		Readjust T4	Osc.
S. W.	18 mc	18 mc	Ant. Post	RMA Standard All Wave	T2 **	Osc.
	16 mc	16 mc	Ant. Post	RMA Standard All Wave	T10	Ant.

NOTE:

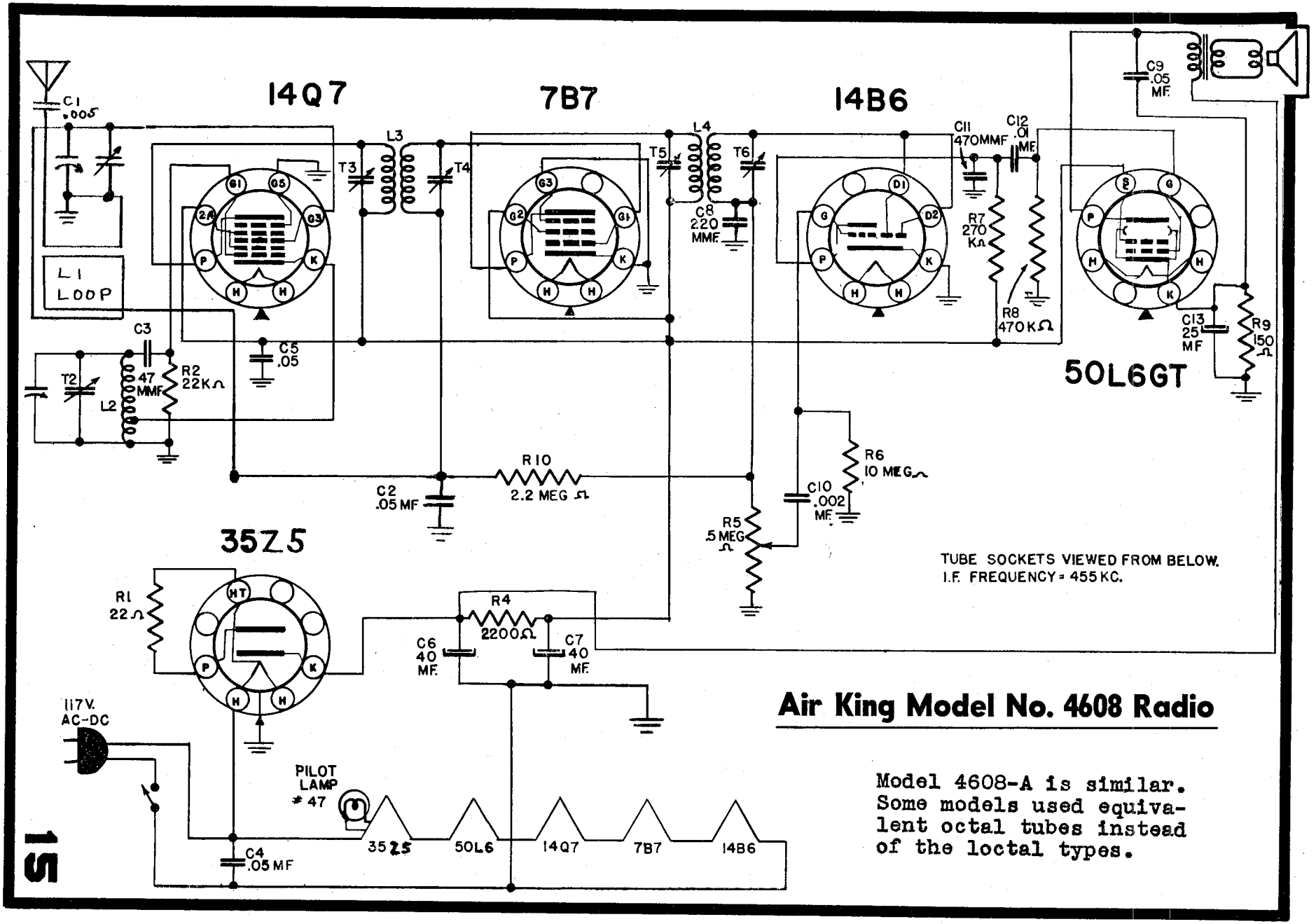
** If two peaks can be had the correct one is with the trimmer screw further out, the other peak is the image.

* Connect a piece of insulated wire to the generator output terminal and place the wire near the loop. Do not make a direct connection.

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

AIR-KING PRODUCTS CO., Inc.

MODEL #4604-A

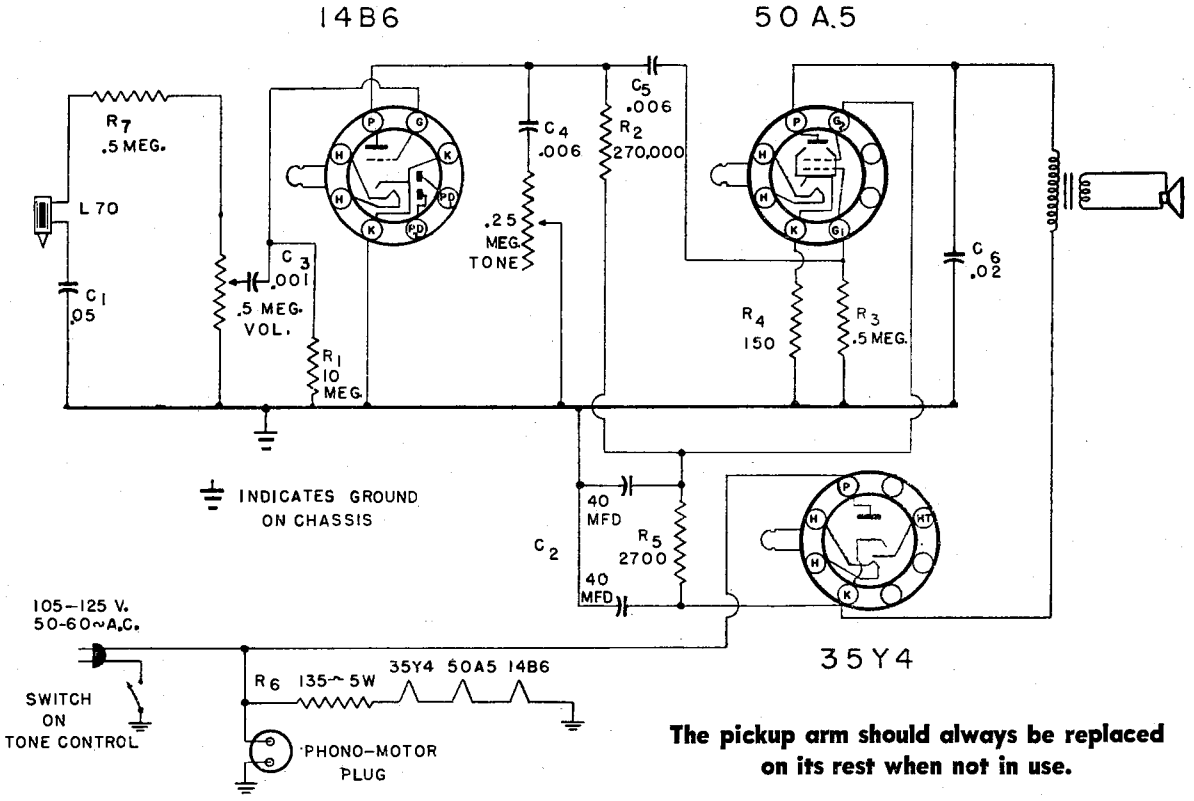


Air King Model No. 4608 Radio

Model 4608-A is similar. Some models used equivalent octal tubes instead of the loctal types.

AIR KING *Model* 4625

3-Tube Amplified Phonograph



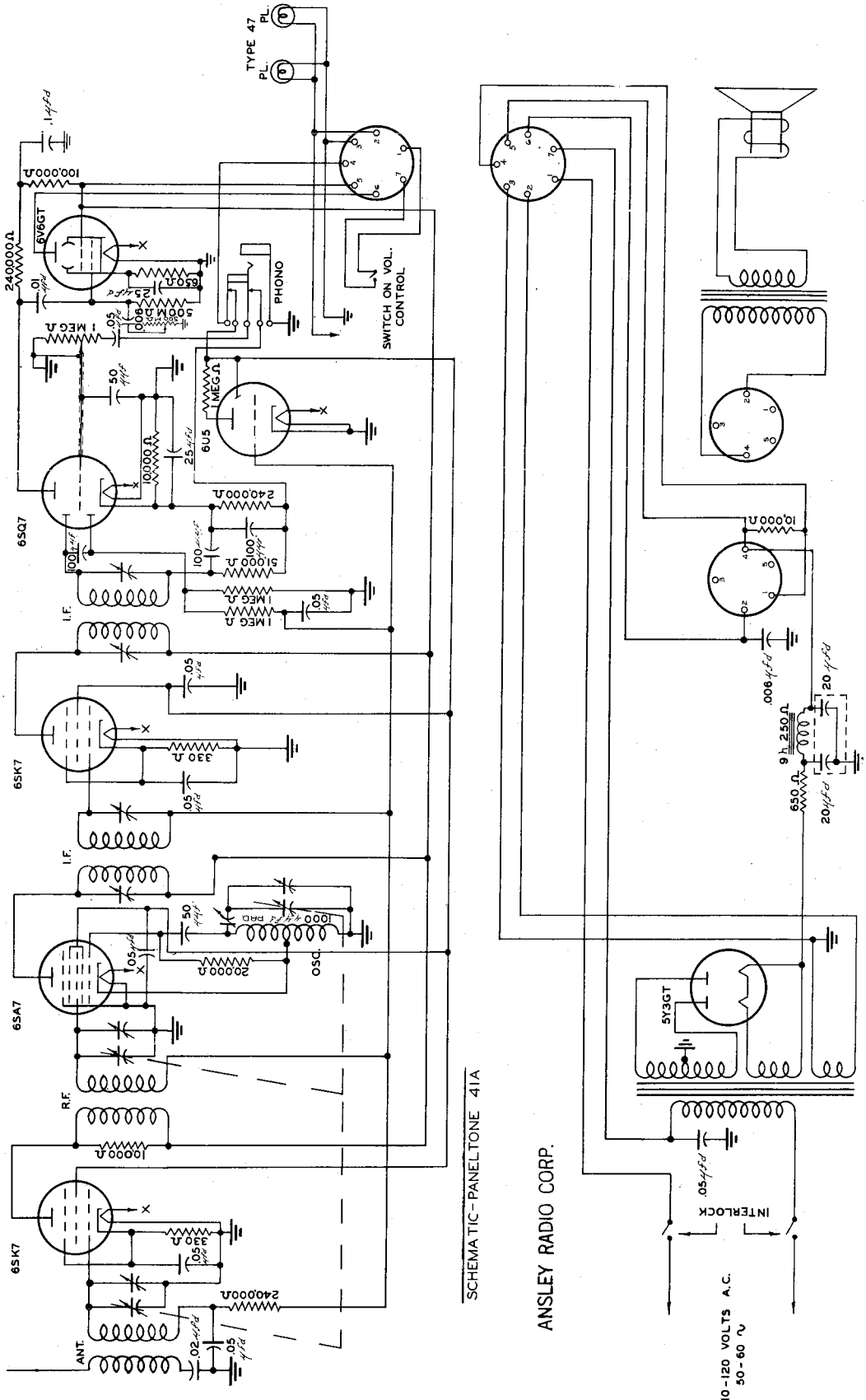
The pickup arm should always be replaced on its rest when not in use.

NOISY RECORDS: A background of noise and scratching indicates worn records. Poor tone may be evidence of a worn needle. Some records will wear longer than others, even if kept equally clean. This is due to quality of manufacture, care given the records, and to the kind of music recorded.

CAUTION: The lead wire which emerges from the rear of the tone arm and goes through the motor board is arranged so that it will not restrict the free movement of the tone arm across the record. It is important that this wire be free and loose at all times. Do not attempt to push the excess wire through the panel. Remove clip from stem before placing records on turntable.

PARTS LIST

Schematic Location	Part No.	Description
	T454	Cabinet
	62180	Cover, back
C4, C5	1971	Condenser, .006 mfd, mica
C1	1967	Condenser, .05 mfd, 200V
C2	2065	Condenser, electrolytic, 40-40 mfd, 150V
C3	1956	Condenser, .001 mfd
C6	1963	Condenser, .02 mfd, 400V
	2473	Control, Tone, with switch, 1/4 Meg.
	2472	Control, Volume, 1/2 Meg.
	5559	Cord, line
	39145	Knob (2)
	6414	Motor
	6342	Pick-up arm with cartridge, L70
	18103	Plug, speaker, male
	18111	Plug, speaker, female
	18112	Plug, motor, male
	18113	Plug, motor, female
	18104	Plug, phono, female
	1861	Plug, phono, male
R6	2238	Resistor, 135 ohms, 5W, wire wound
R5	2378	Resistor, 2700 ohms, 1W
R2	2361	Resistor, 270,000 ohms, 1/2W
R4	2372	Resistor, 150 ohms, 1/2W
R3, R7	2353	Resistor, 500,000 ohms, 1/4W
R1	2335	Resistor, 10 Meg., 1/4W
R8	2363	Resistor, 220,000 ohms, 1/4W
	5855	Speaker, 5", with output trans.
	6417	Turntable, 9"
	54220	Needle, Fidelitone Master

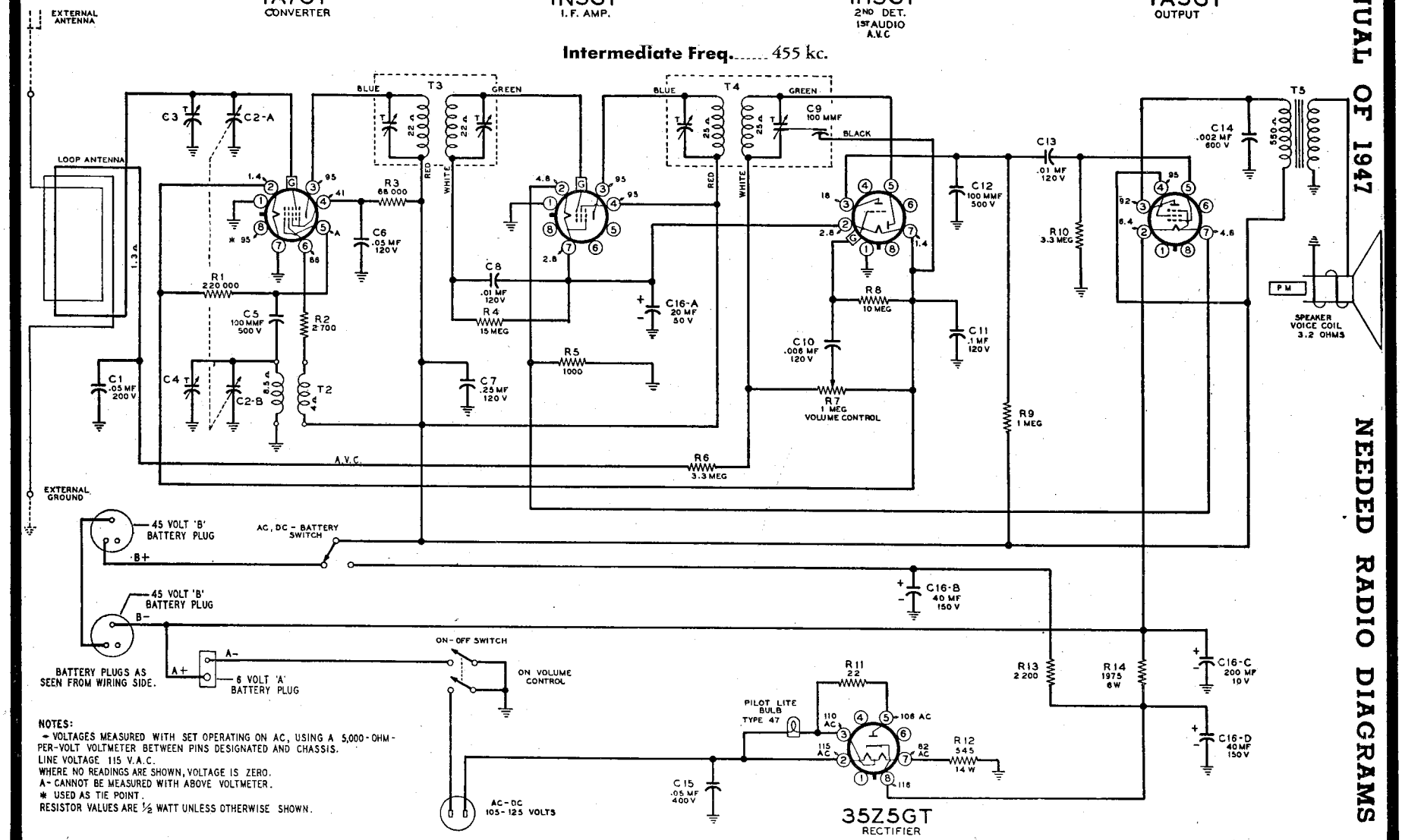


SCHEMATIC—PANELTONE 41A

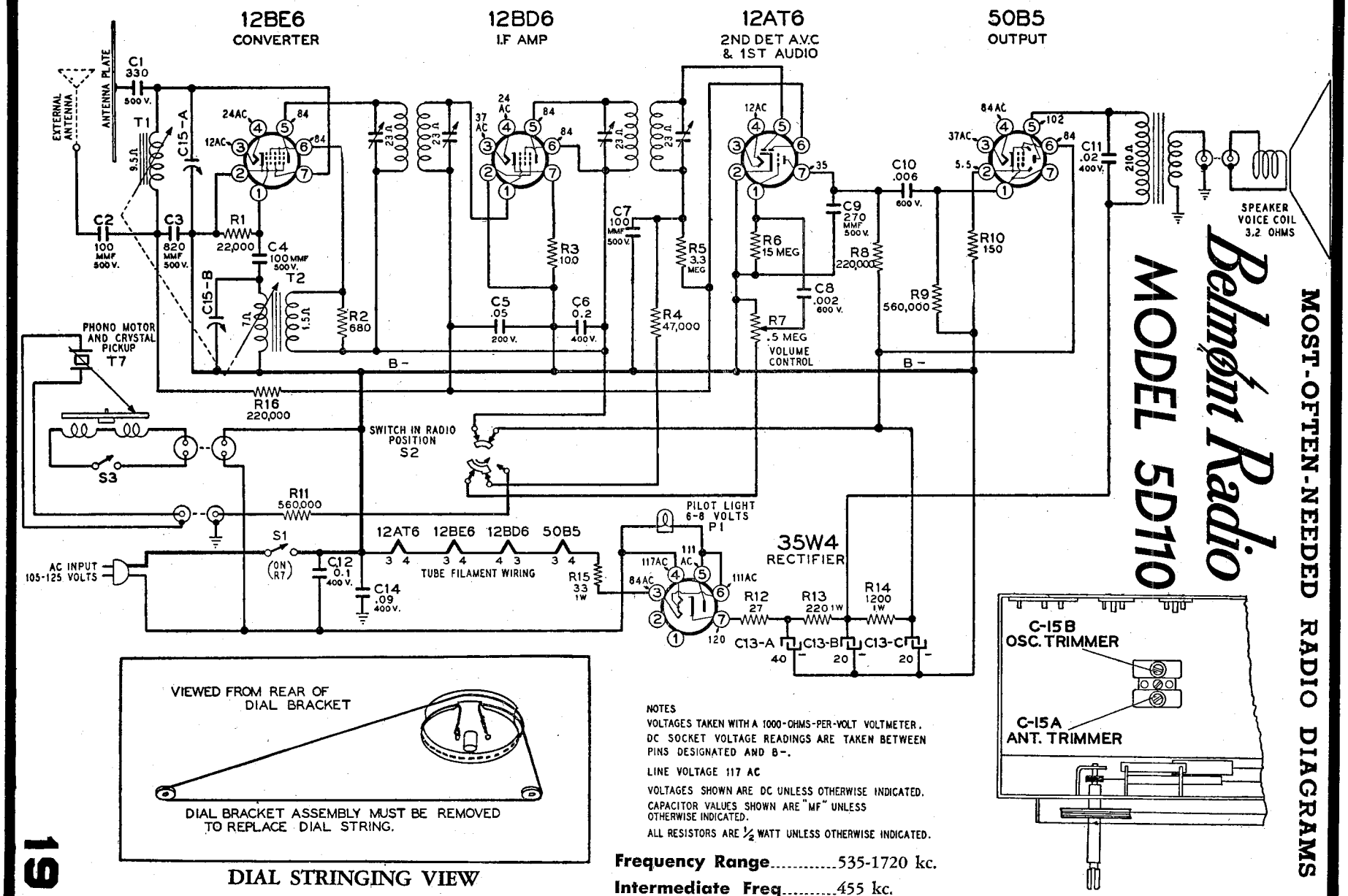
ANSLEY RADIO CORP.

Belmont Radio

MODEL 5P19



NOTES:
- VOLTAGES MEASURED WITH SET OPERATING ON AC, USING A 5,000-OHM-PER-VOLT VOLTMETER BETWEEN PINS DESIGNATED AND CHASSIS.
LINE VOLTAGE 115 V.A.C.
WHERE NO READINGS ARE SHOWN, VOLTAGE IS ZERO.
A- CANNOT BE MEASURED WITH ABOVE VOLTMETER.
* USED AS TIE POINT.
RESISTOR VALUES ARE ½ WATT UNLESS OTHERWISE SHOWN.



DIAL STRINGING VIEW

NOTES

VOLTAGES TAKEN WITH A 1000-OHMS-PER-VOLT VOLTMETER. DC SOCKET VOLTAGE READINGS ARE TAKEN BETWEEN PINS DESIGNATED AND B-.

LINE VOLTAGE 117 AC

VOLTAGES SHOWN ARE DC UNLESS OTHERWISE INDICATED.

CAPACITOR VALUES SHOWN ARE "MF" UNLESS OTHERWISE INDICATED.

ALL RESISTORS ARE ½ WATT UNLESS OTHERWISE INDICATED.

Frequency Range.....535-1720 kc.

Intermediate Freq.....455 kc.

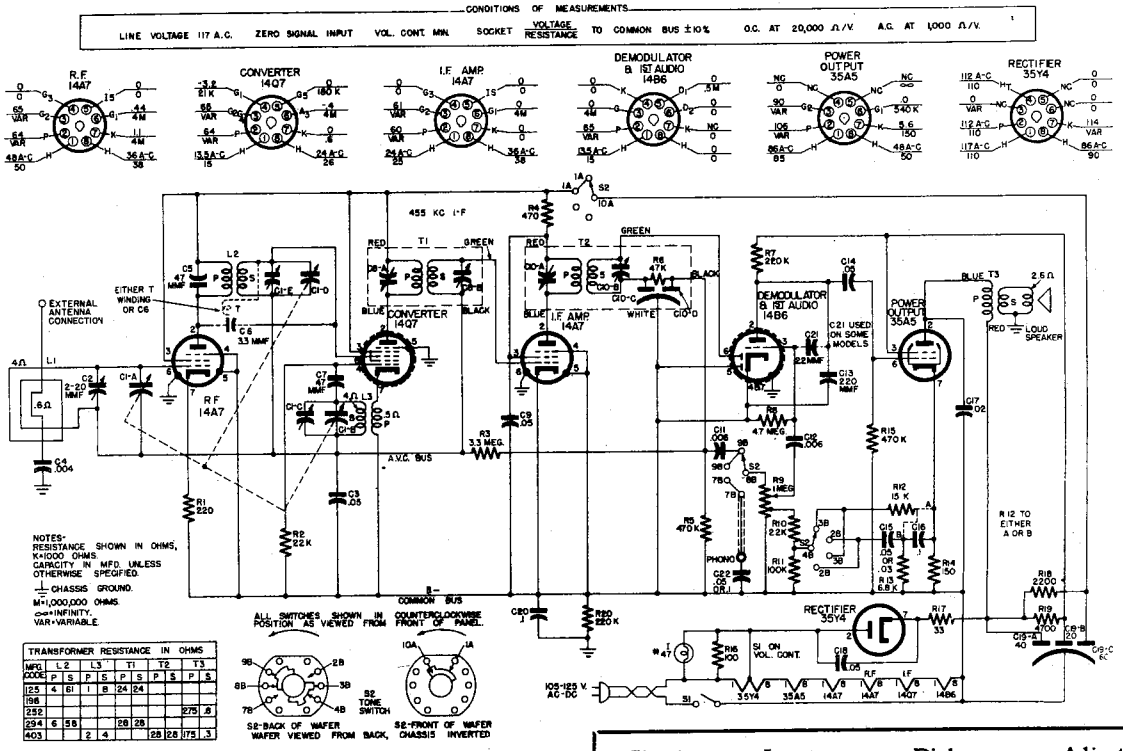
Belmont Radio

MODEL 5D110

MOST-OFTEN-NEEDED RADIO DIAGRAMS

Bendix Radio

MODELS 636A 636C, & 636D



Alignment Procedure

Connect line cord plug to 117 volt, 60 cycles AC power source. Set volume control at maximum clockwise position and tone control (S2) in counterclockwise position. Connect output meter across voice coil. Adjust dial pointer by turning tuning control fully counterclockwise and sliding dial pointer on dial cord until it is exactly 2 3/16" from left end of dial back plate. Make all adjustments in order given in table and for maximum output. Dial Pointer Positions given measured from left hand end of dial back plate. Keep input as low as possible at all times.

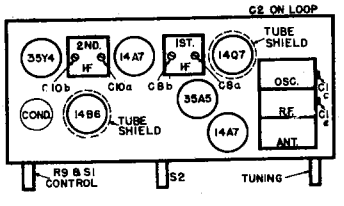
Precautions

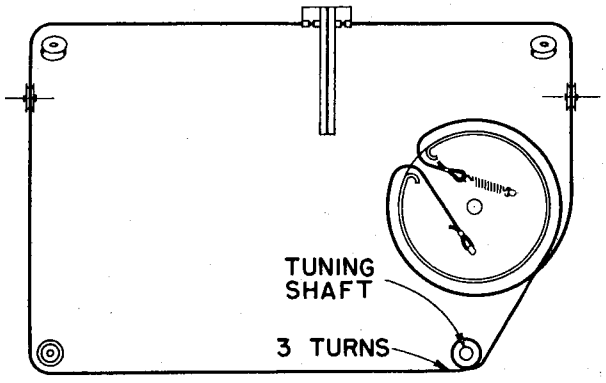
An isolating transformer should be used between the power supply and the receiver if any of the test equipment is AC operated. The use of isolating capacitors is not recommended as AC through the capacitor may introduce hum modulation, and if the capacitors should break down the test instruments will likely be damaged.

Circuit Aligned	Input Freq.	Dial Pointer Position	Adjustments
IF	*455 KC	Max. to right	C10b, C10a C8b, C8a
OSC.	**1475 KC	6 3/4"	C1c
RF	**1475 KC	6 3/4"	C1e, C2
	**965 KC	5	Check
	**580 KC	2-23/32"	Calib.

* Applied to Antenna input .1 mfd. or less.

** Applied to Antenna input through 50 mmf. or less.





Belmont Radio MODEL 6D120

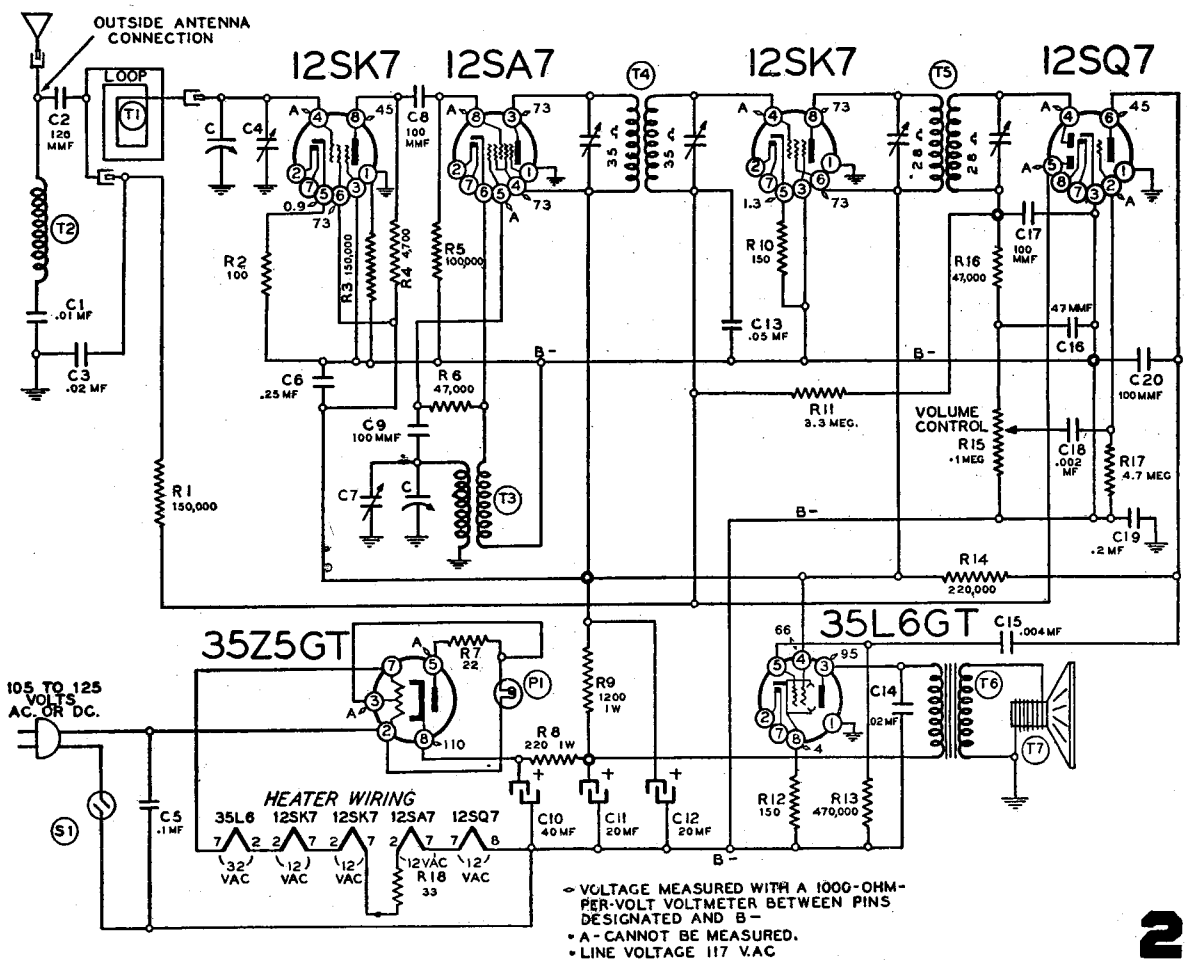
ALIGNMENT PROCEDURE

Output meter across 3.2-ohm output load.
Align for maximum output. Reduce input as needed to keep output near 0.4 volts.
Volume control at maximum for all adjustments.
Connect ground post of signal generator to B— of radio.

Chassis must be removed from cabinet for proper alignment. Slight adjustments of the oscillator and antenna circuits can be made, without removing the chassis, through two holes provided on the bottom of the cabinet. The screws can be reached with a long screwdriver.

SIGNAL GENERATOR			*TUNER SETTING*	*ADJUST FOR MAXIMUM OUTPUT (in order shown)*
Frequency	*Dummy Antenna*	*Connection to Radio*		
455 kc	.1 mf	Grid (pin 8) of 12SA7	Plates out of mesh	Trimmers on output and input I.F. cans
1650 kc	.1 mf	Grid (pin 8) of 12SA7	Plates out of mesh	Oscillator trimmer C7 on bottom of gang
1400 kc	200 mmf	See note below	Set dial at 1400 kc	Antenna trimmer C4 on bottom of gang

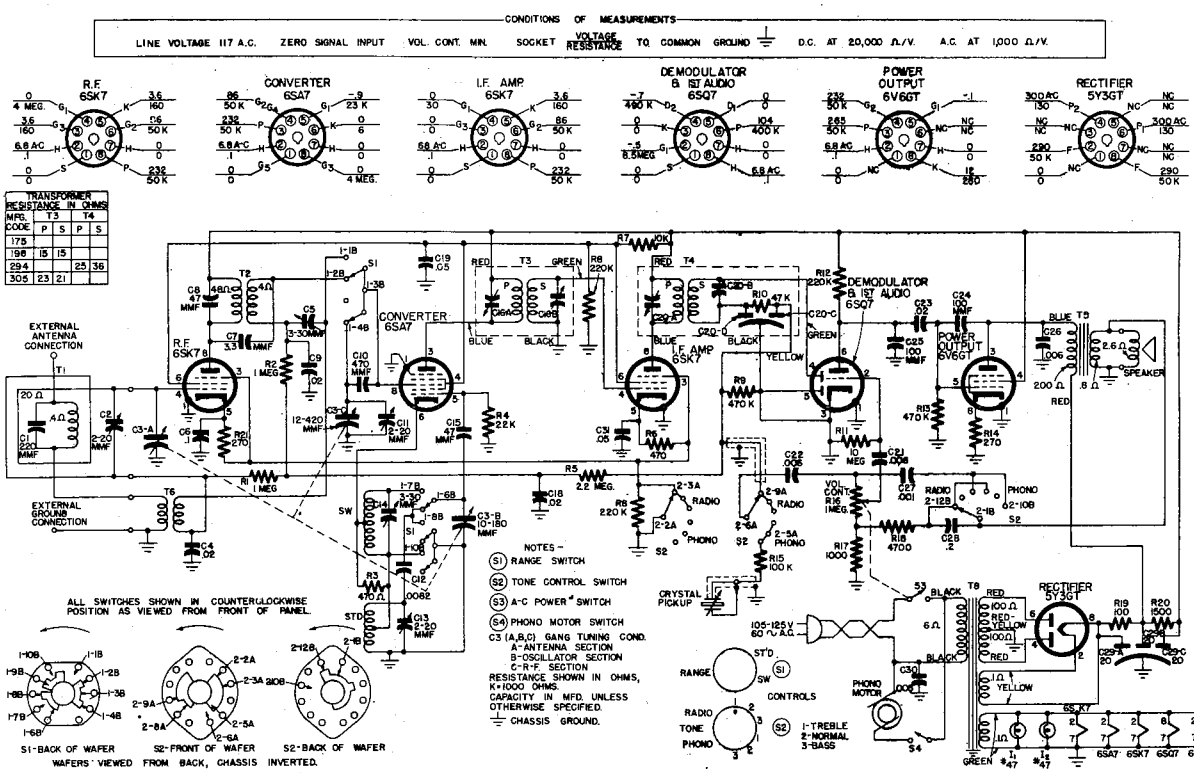
Lay output lead of generator in back of loop antenna. Turn up generator output. Loop will pick up energy.



- VOLTAGE MEASURED WITH A 1000-OHM-PER-VOLT VOLTMETER BETWEEN PINS DESIGNATED AND B—
- A - CANNOT BE MEASURED.
- LINE VOLTAGE 117 V.AC

Bendix Radio

MODELS 676B, 676C, & 676D



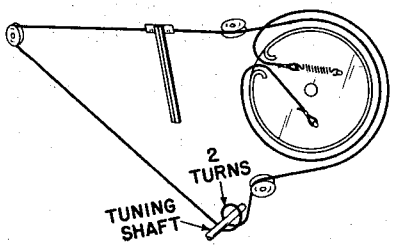
Alignment Procedure

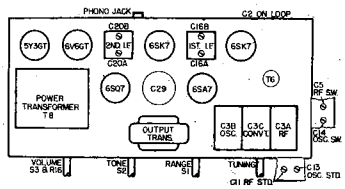
Connect line cord plug to 117 volt, 60 cycles AC power source. Set volume control at maximum clockwise position and tone control (S2) in counterclockwise (Radio 1) position. Connect output meter across voice coil. Adjust dial pointer by turning tuning control fully counterclockwise and sliding dial pointer on dial cord until it is exactly 2 3/4″ from left end of dial back plate. Make all adjustments in order given in table and for maximum output. Dial Pointer Positions given measured from left hand end of dial back plate. Keep input as low as possible at all times. Range switch (S1) in ST'D position except as noted in table.

Circuit Aligned	Input Frequency	Dial Pointer Position	Adjustments
IF	* 455KCS	Max. to right	C20B, C20A C16B, C16A
OSC Broadcast	**1475KCS	7 3/4″	C13
RF Broadcast	**1475KCS **965KCS **580KCS	7 3/4″ 5 15/16″ 3 3/8″	C11, C2 Check Calib.
+OSC Shortwave	**11MCS	7 3/4″	C14
+RF Shortwave	**11MCS 9MCS 6MCS	7 3/4″ 6 9/16″ 3 1/2″	C5 Check Calib.

*Applied to antenna through .1 mfd. or less.

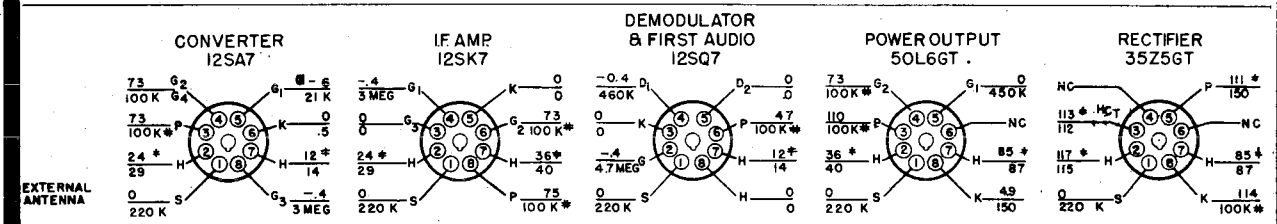
**Applied to antenna through 200 mmf. or less.
+Range switch (S1) in SW position.

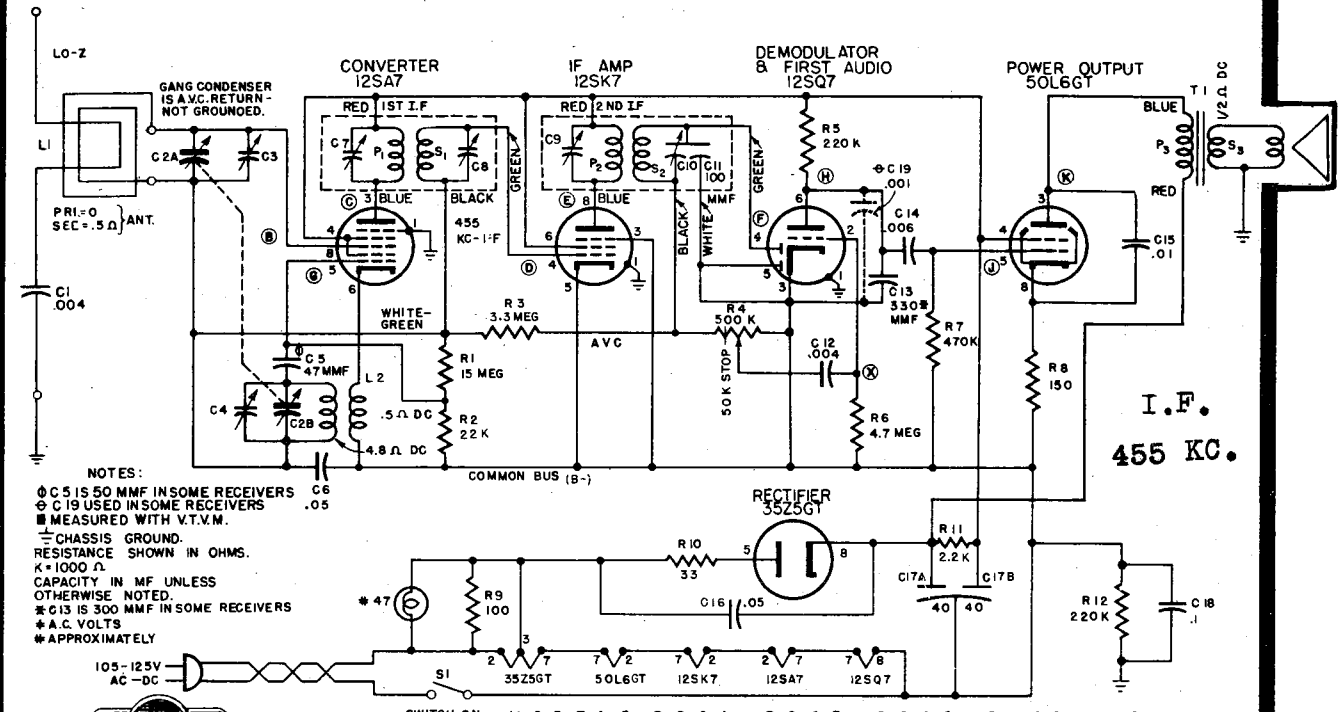




MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

SOCKET VOLTAGE / RESISTANCE TO COMMON BUS ±10%. LINE VOLTAGE - 117 V. A.C. ZERO SIGNAL INPUT. VOL. CONT. MIN. D.C. AT 20,000 Ω/V. A.C. AT 1,000 Ω/V.

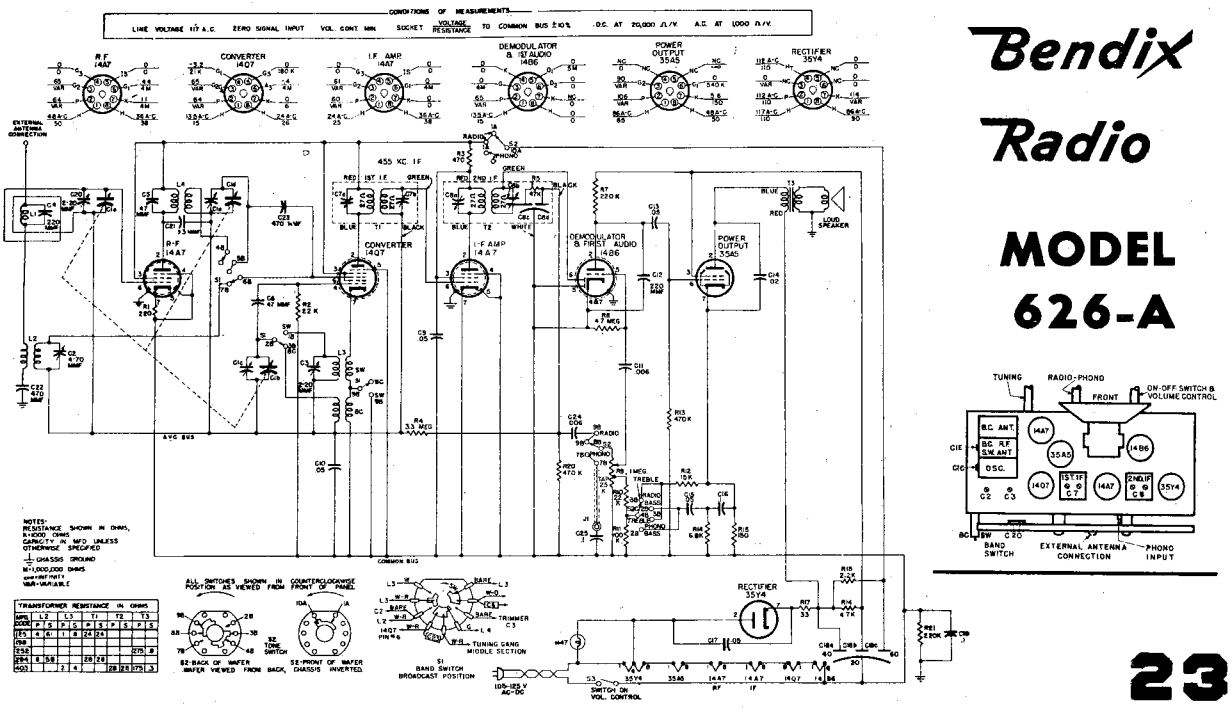




NOTES:
- ΦC5 IS 50 MMF IN SOME RECEIVERS
- ΘC19 USED IN SOME RECEIVERS
- ■ MEASURED WITH V.T.V.M.
- ⏚ CHASSIS GROUND.
- RESISTANCE SHOWN IN OHMS. K = 1000 Ω
- CAPACITY IN MF UNLESS OTHERWISE NOTED.
- *C13 IS 300 MMF IN SOME RECEIVERS
- + A.C. VOLTS
- # APPROXIMATELY

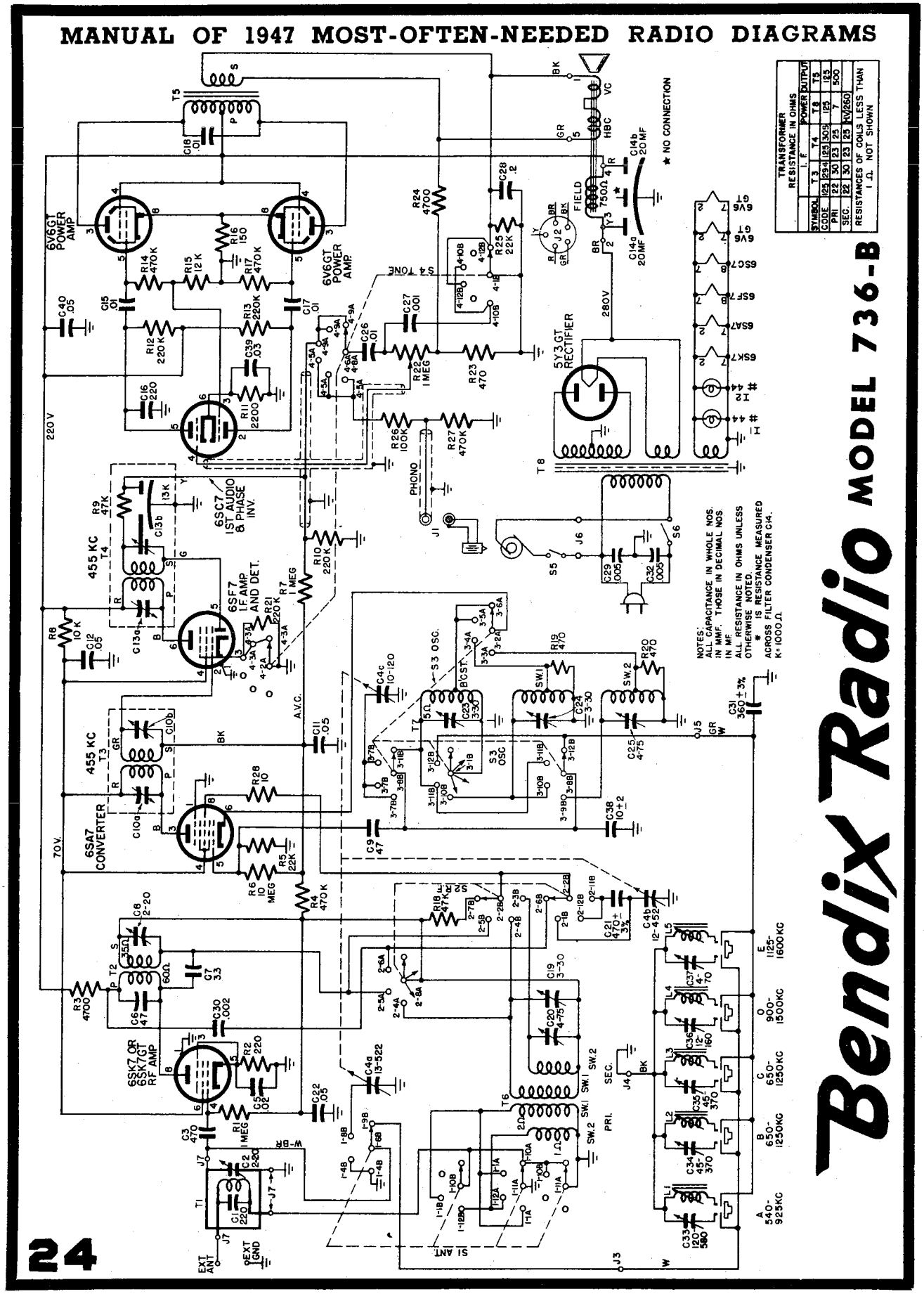
BENDIX RADIO

MODELS 526A, 526B, 526C, 526D, AND 526E



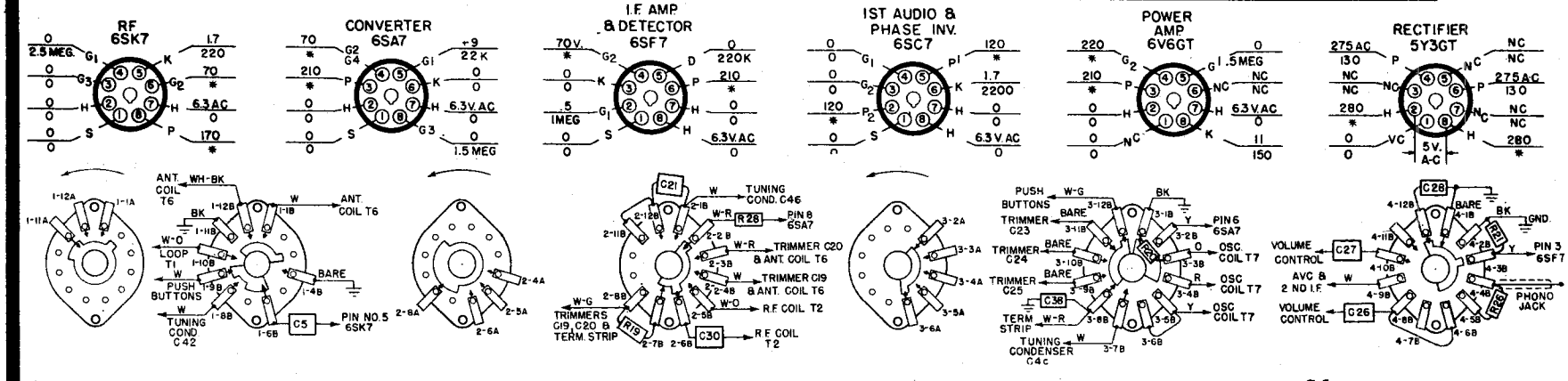
Bendix Radio

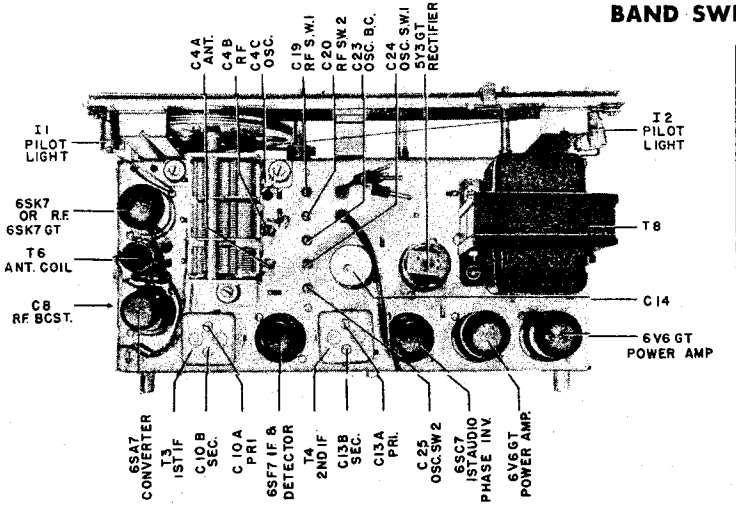
MODEL 626-A


Bendix Radio MODEL 736-B
6V6GT POWER AMP
6V6GT POWER AMP
6SC7 1ST AUDIO & PHASE INV.
6SF7 I.F. AMP AND DET.
6SA7 CONVERTER
6SK7 OR 6SK7GT RF AMP
5Y3GT RECTIFIER
455 KC
455 KC
S3 OSC.
S4 TONE
A.V.C.
PHONO
FIELD
280V
220 V
70 V.
NO CONNECTION
TRANSFORMER RESISTANCE IN OHMS
I. F. POWER OUTPUT
SYMBOL T3 T4 T8 T5
CODE 025 294 823 305 125 125
PRI. 22 30 23 25 P 500
SEC. 22 30 23 25 KV 2500
RESISTANCES OF COILS LESS THAN 1 Ω. NOT SHOWN
NOTES:
ALL CAPACITANCE IN WHOLE NOS. IN MMF. THOSE IN DECIMAL NOS IN MF.
ALL RESISTANCE IN OHMS UNLESS OTHERWISE NOTED.
* IS RESISTANCE MEASURED ACROSS FILTER CONDENSER C14.
K=1000 Ω
A 540-925KC
B 650-1250KC
C 650-1250KC
D 900-1500KC
E 1125-1600KC

CONDITIONS OF MEASUREMENTS

LINE VOLTAGE 117 A.C. ZERO SIGNAL INPUT VOL. CONT. MIN SOCKET VOLTAGE / RESISTANCE TO COMMON GROUND ⏚ D.C. AT 20,000 Ω/V A.C. AT 1,000 Ω/V





Chassis—Top View

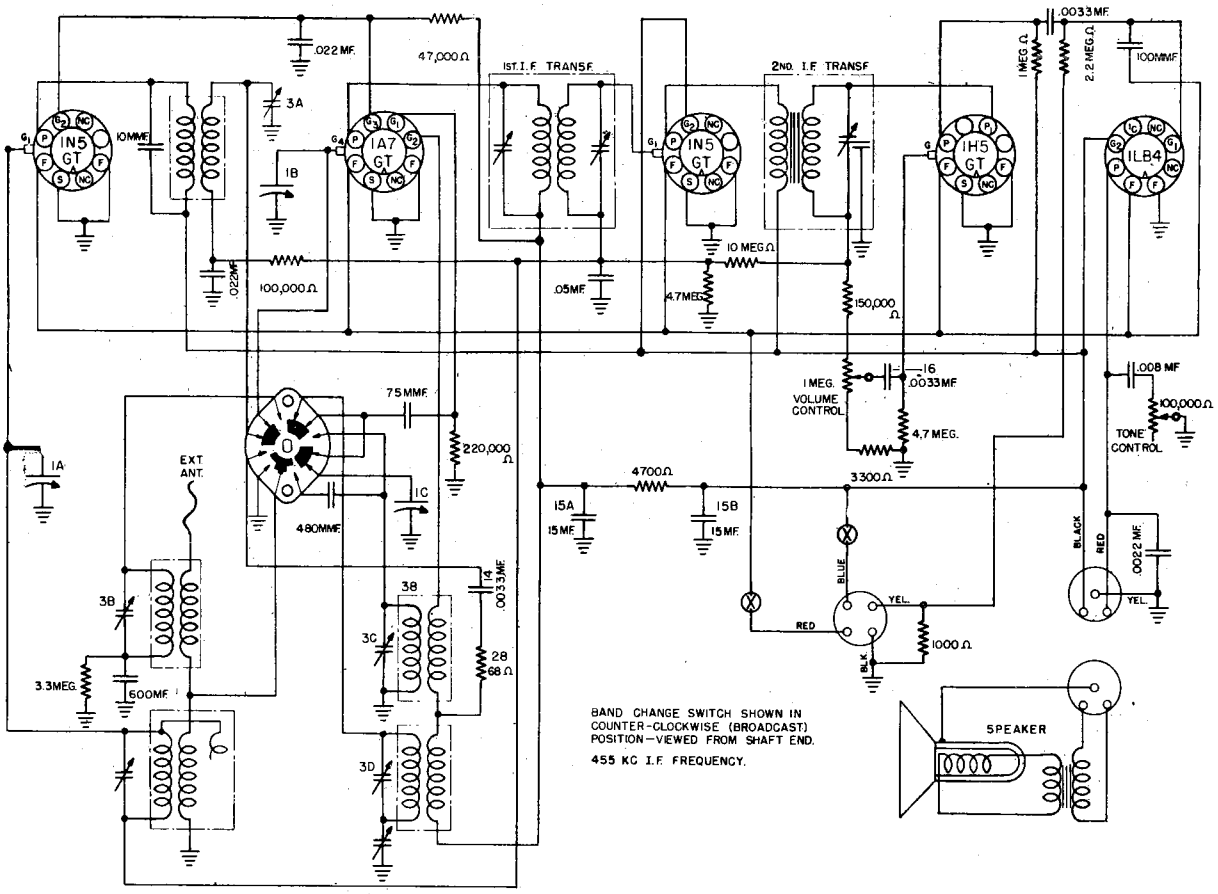
ALIGNMENT PROCEDURE

CIRCUIT	CONTROL POSITIONS	APPLY	THRU	TO	ADJUST
I. F.	Volume—Maximum Tone—Radio Treble Band Switch—Manual Broadcast Tuning Condenser--Fully Meshed (Adjust pointer to reference mark)	455KC	.01 mfd.	Grid 6SF7 I.F. Amp. Grid 6SA7 Conv.	C13b C13a C10b C10a
Broadcast	Pointer at Mark D	1450	200 mmf.	External Antenna Connection	C23 C8 C2
Short Wave Band No. 1	Band Switch—Short Wave No. 1 Pointer at Mark E	12 mc	400 ohms. in series with .01 mfd.	External Antenna Connection	C24 C19
Short Wave Band No. 2	Band Switch—Short Wave No 2 Pointer at Mark F	22mc	400 ohms. in series with .01 mfd.	External Antenna Connection	C25 C20

1. Alignment markers placed along bottom of dial back plate and left edge of pointer used as reference point.
2. Minimum input signal used for perceptible output.
3. After alignment, repeat process for possible slight readjustments.
4. Check calibration of Point A for 600 KC, Point B for 6mc and Point C for 11.5mc. If calibration is inaccurate check gang plates for bending or failure of components.

Bendix Aviation Corp.
Model 736-B

CROSLEY — MODEL 56FC

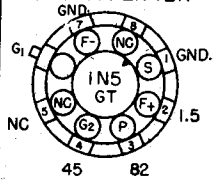


SCHEMATIC DIAGRAM—MODEL 56FC

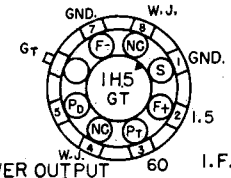
SOCKET VOLTAGE CHART

1. THESE ARE BOTTOM VIEWS OF SOCKETS
2. MEASURE VOLTAGE FROM SOCKET LUG TO CHASSIS (GROUND).
3. THESE VOLTAGES MEASURED USING AN ELECTRONIC VOLTMETER.
4. WJ - WIRING JUNCTION.
5. NC - NO CONNECTION.
6. SOCKET VOLTAGE TOLERANCE, 10%.

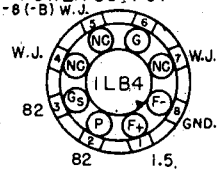
R. F. AMPLIFIER



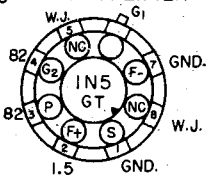
DET. A.V.C. 1ST A.F.



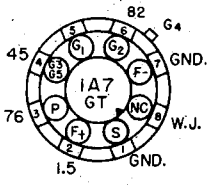
POWER OUTPUT



I. F. AMPLIFIER



MIXER



CROSLEY

MODELS: 56 PA, 56 PB

TYPE: Five-tube, combination, battery Portable and AC-DC Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kilocycles.

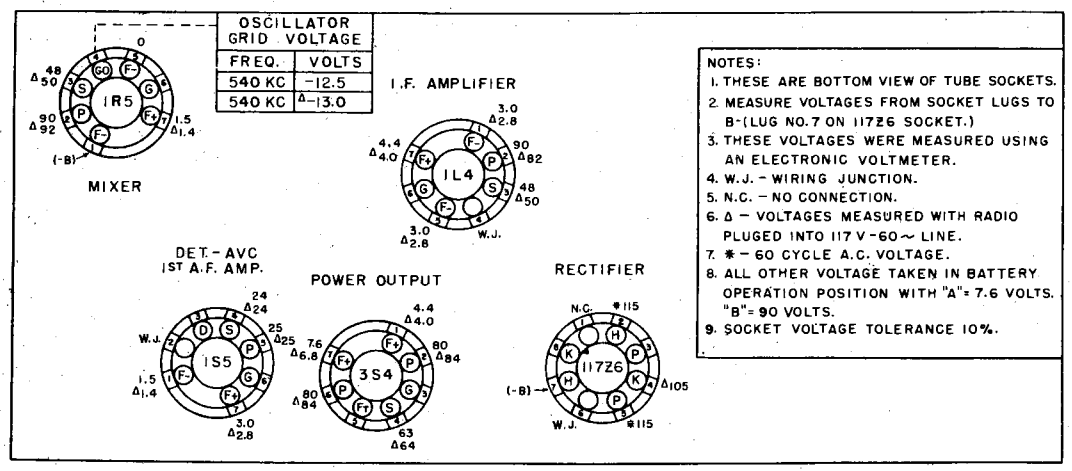
INTERMEDIATE FREQUENCY: 455 kc.

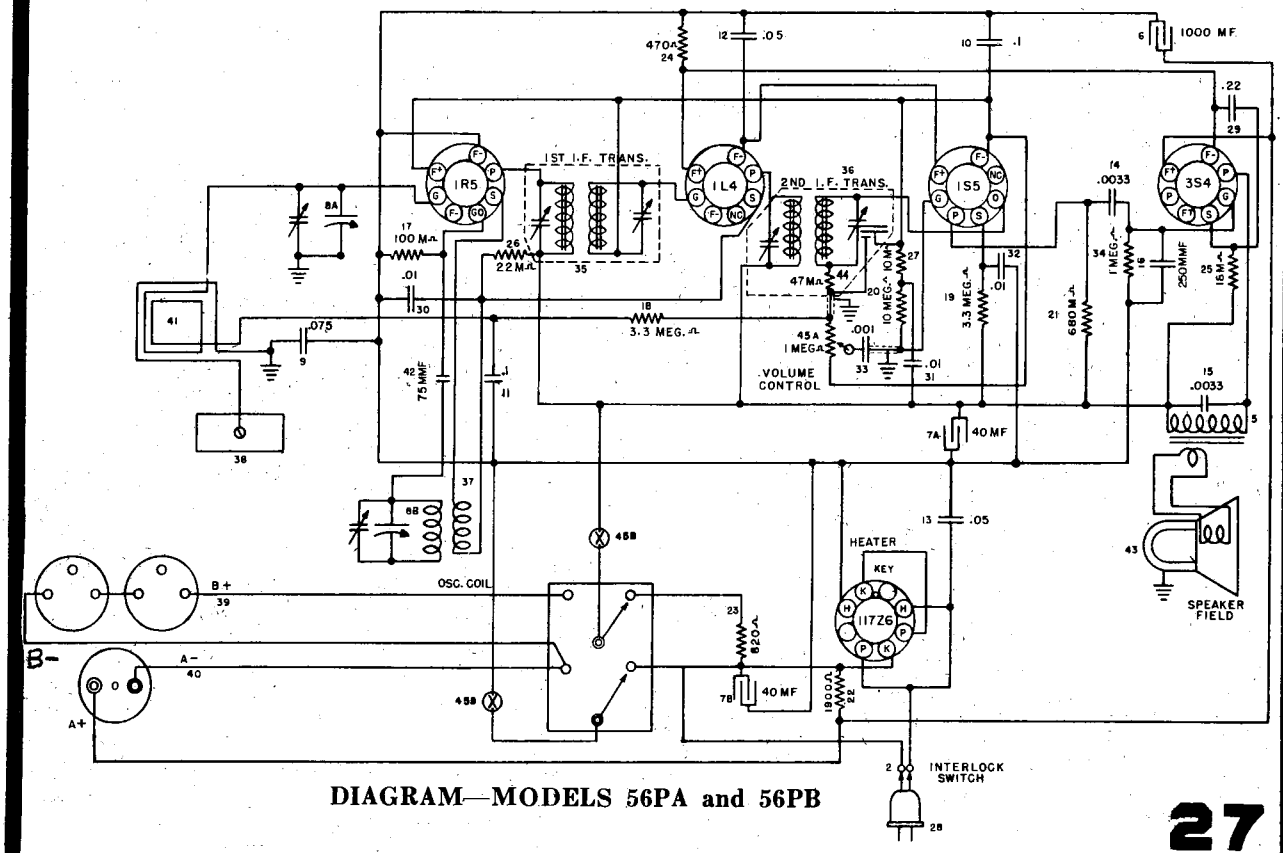
POWER SUPPLY: AC-DC or BATTERY.

VOLTAGE RATING: AC-DC, 110 to 120 volts. Battery "A" 7½ volts "B" 90 volts.

POWER OUTPUT: 180 M.W. maximum.

SOCKET VOLTAGE CHART





DIAGRAM—MODELS 56PA and 56PB

CROSLEY

MODELS 56PA and 56PB

ALIGNMENT PROCEDURE

Turn the tuning condenser to the completely closed position against the stop and set the dial pointer to the reference line at the end of the dial scale.

Connect the output meter across the speaker voice coil.

Connect the high side of the signal generator to the external antenna wire of the loop, that connects to the terminal screw on the bottom of the cabinet, as indicated in the alignment chart. Connect signal generator ground through a O. 1 mt. condenser to B—. (No. 1 pin on 1R5 tube).

Turn the volume control on full and adjust the signal generator output to produce approximately mid-scale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

Alignment Sequence	Signal Generator Output			Position of Tuning Dial KC	Adjust for Maximum Outout
	Frequency in KC	In Series with	To		
1	455	200 mmf.	Ant.	1620	A & B
2	1620	200 mmf.	Ant.	1620	C
3	1400	200 mmf.	Ant.	1400	*D

***NOTE:** Batteries should be placed against battery stop in front half of cabinet

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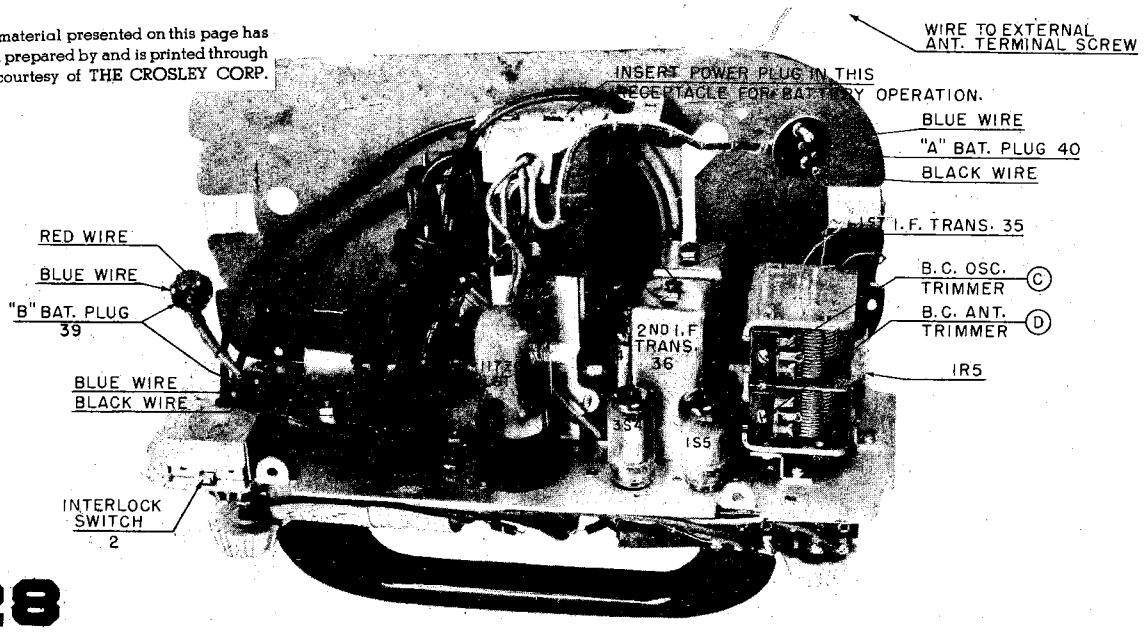
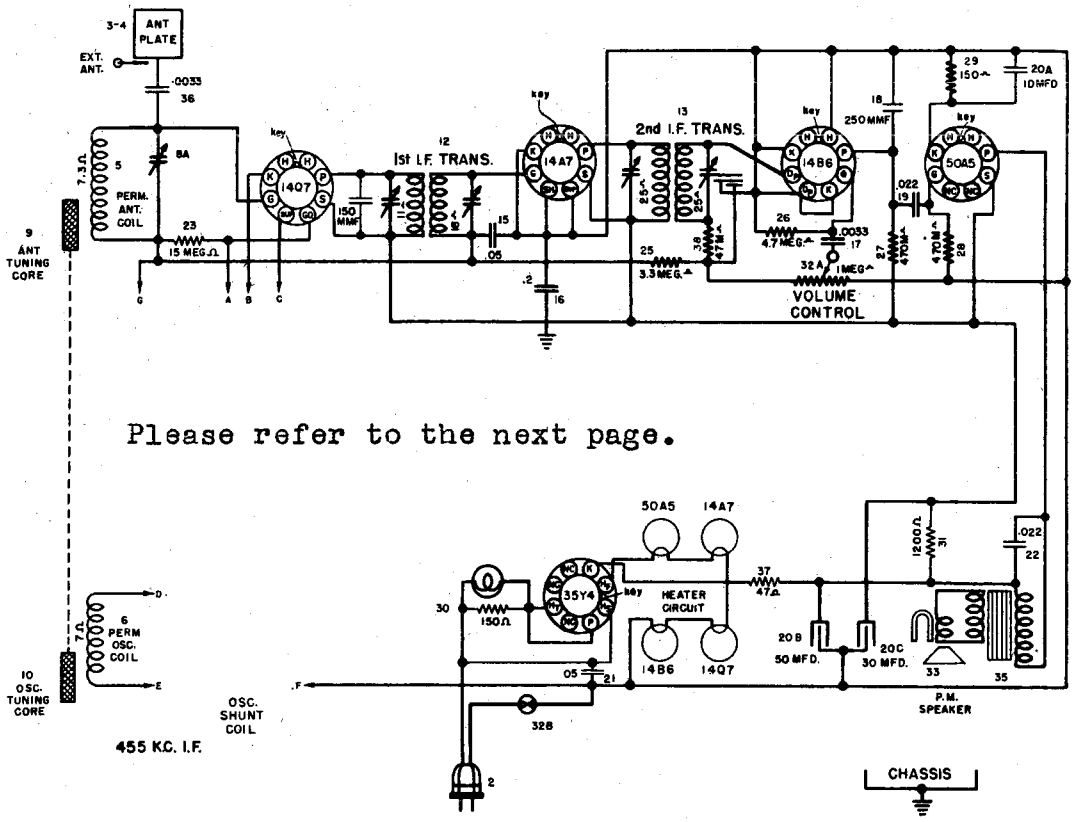
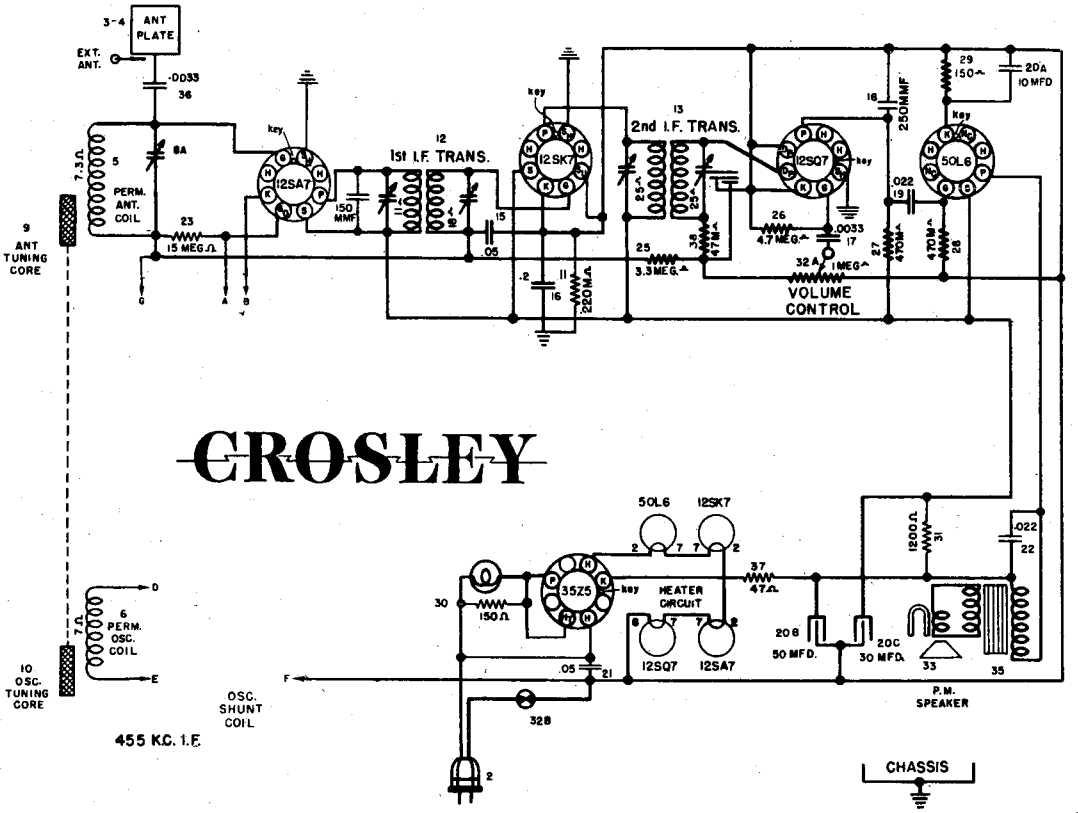




Please refer to the next page.

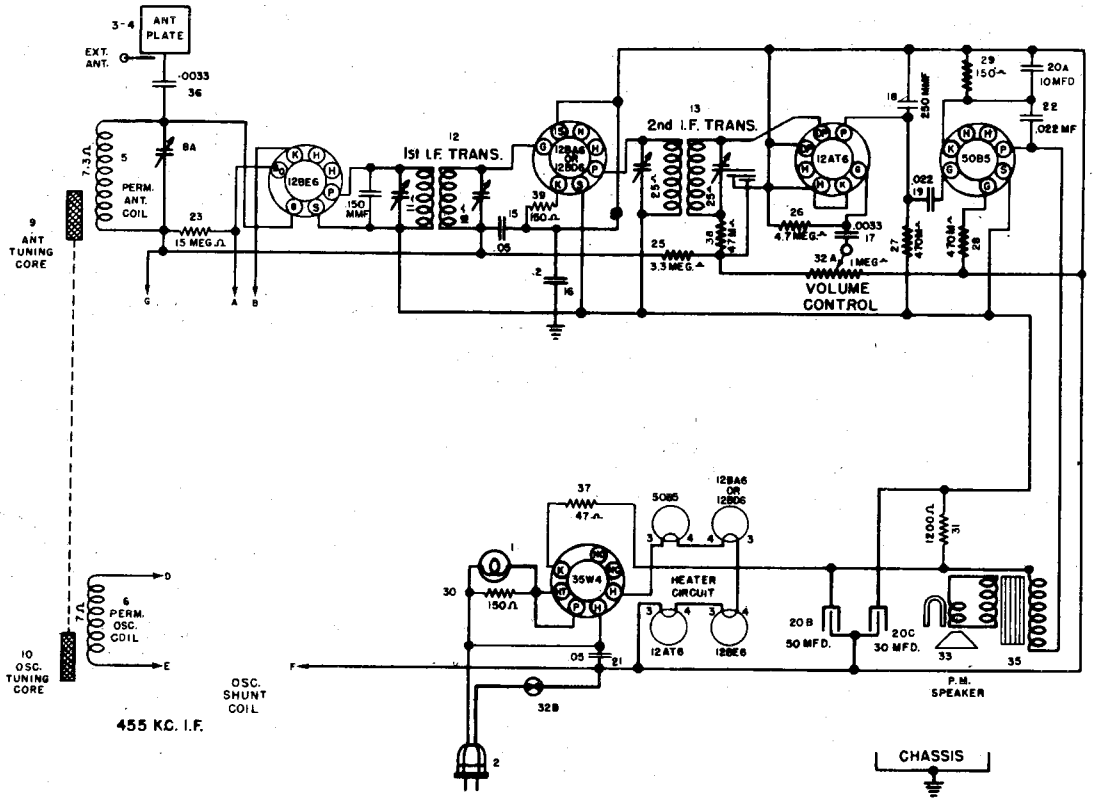
SCHEMATIC DIAGRAM—MODEL 56TG, 56TH, 56TJ (LOCTAL)



CROSLEY

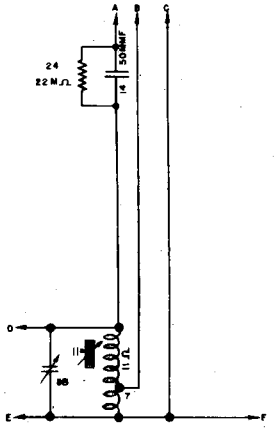
SCHEMATIC DIAGRAM—MODEL 56TG-O, 56TH-O, 56TJ-O (OCTAL)

CROSLEY

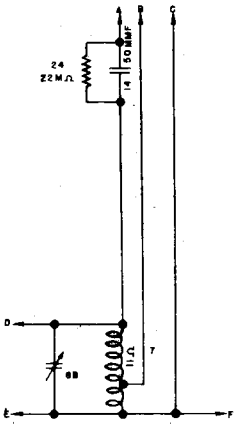


SCHEMATIC DIAGRAM—MODEL 56TG-M, 56TH-M, 56TJ-M (MINIATURE)

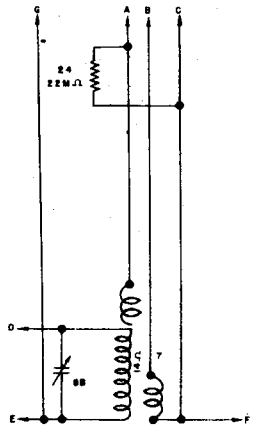
Select oscillator shunt coil circuit which corresponds to the model radio you are servicing. Connection G is used in the 3rd production sets.



THE ABOVE OSCILLATOR SHUNT COIL IS USED IN THE FIRST PRODUCTION MODELS. IT IS MOUNTED ON THE PERMEABILITY TUNER AND USES AN ADJUSTABLE IRON CORE. "C" IS NOT USED WITH A MINIATURE OR AN OCTAL TUBE.



THIS OSCILLATOR SHUNT COIL IS USED IN THE SECOND PRODUCTION MODELS. IT IS MOUNTED ON THE REAR OF THE PERMEABILITY TUNER AND DOES NOT USE AN ADJUSTABLE IRON CORE. "C" IS NOT USED WITH A MINIATURE OR AN OCTAL TUBE.



THIS OSCILLATOR SHUNT COIL IS USED IN THE THIRD PRODUCTION MODELS. IT IS MOUNTED UNDER THE CHASSIS AND DOES NOT USE AN ADJUSTABLE IRON CORE. "C" IS NOT USED WITH A MINIATURE OR AN OCTAL TUBE.

MODEL 56TP

FREQUENCY RANGE: American Broadcast Band: 540 to 1600 kc. (Selector switch at A.)

Overseas Short-wave Band: 5.8 to 15 mc. (Selector switch at 0.)

INTERMEDIATE FREQUENCY: 455 kc.

POWER SUPPLY: 60 cycle a.c. only.

VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION: 35 watts nominal.

POWER OUTPUT: 1.5 watts minimum.

TUBE COMPLEMENT:

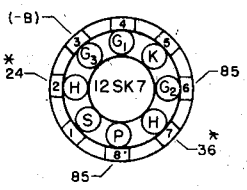
Type	Function
12SA7 (or GT/G)	Mixer
12SK7 (or GT/G)	I.F. Amplifier
12SQ7 (or GT/G)	Detector, AVC, 1st A.F. Amplifier
50L6GT	A.F. Power Output
35Z5GT/G	Rectifier

DIAL BULB: Type 47, 6.3 volts, .15 amp.

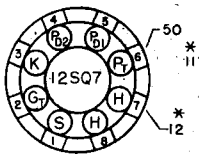
NOTE: 9

OSCILLATOR GRID VOLTAGES		
BAND	FREQUENCY	VOLTS
AMERICAN	540 KC	- 4.9
OVERSEAS	5.7 MC	- 3.8

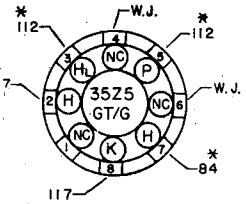
I. F. AMPLIFIER



DET. - A.V.C. - 1st A.F.



RECTIFIER



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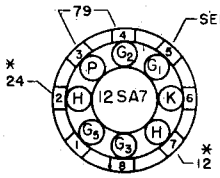
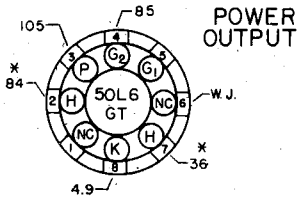


NOTES:

1. TUBE SOCKETS ARE BOTTOM VIEWS.
2. MEASURE VOLTAGES FROM SOCKET LUG TO -B (PIN 3 ON THE 12SK7.
3. VOLTAGES AS MEASURED WITH AN ELECTRONIC VOLTMETER.
4. WJ - WIRING JUNCTION.
5. NC - NO CONNECTION.
6. * - AC VOLTAGES
7. VOLTAGE TOLERANCE, 10%
8. LINE VOLTAGE 117V, 60 ∿ AC.

POWER OUTPUT



VOLTAGE CHART

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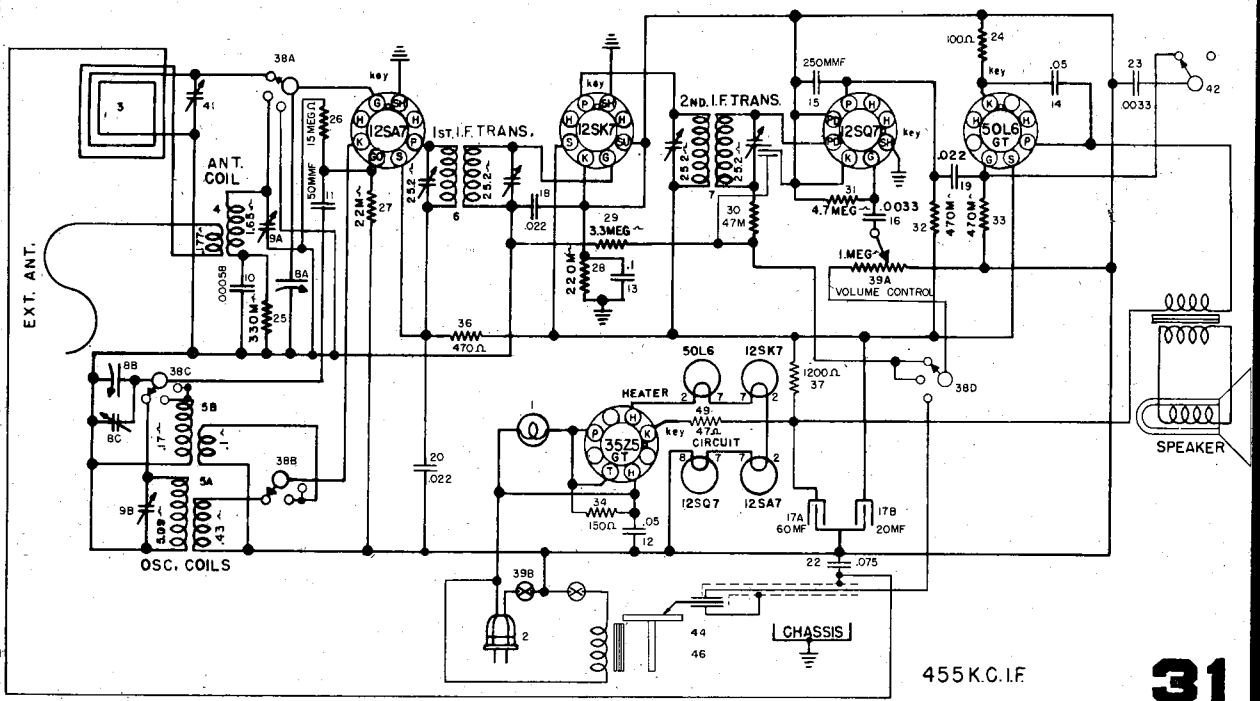
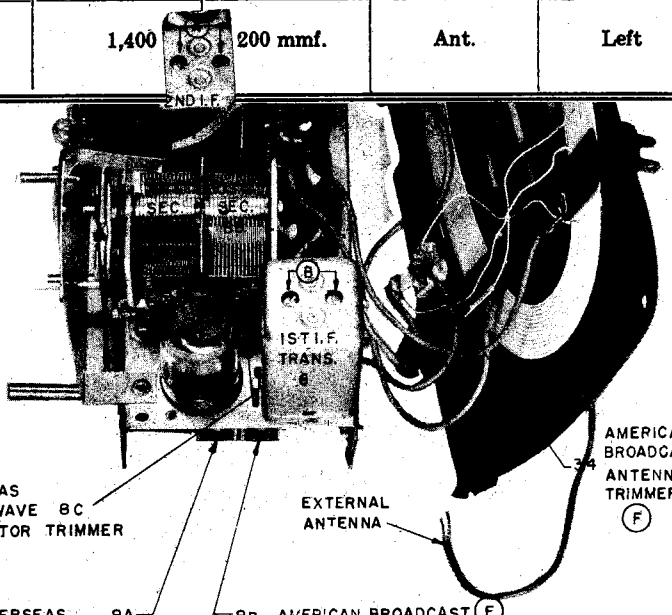
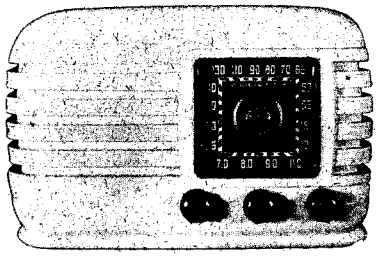


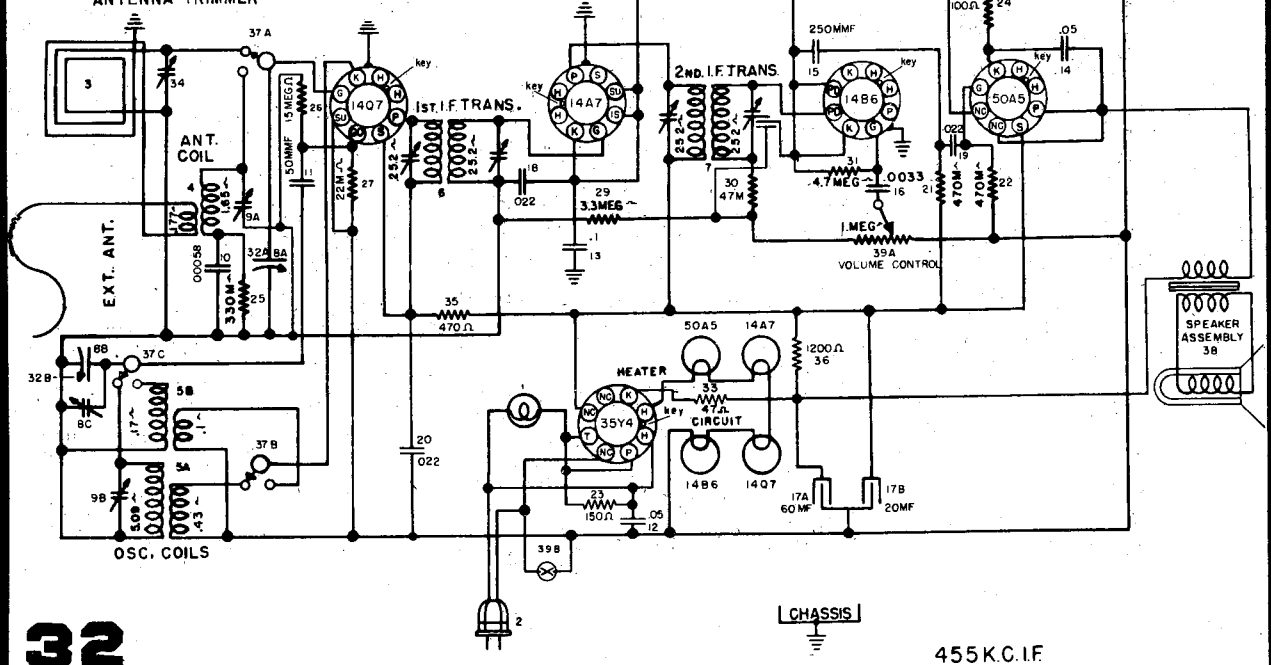
Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series with	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Ant.	Left	1,620	A & B
2	15,300	400 ohms	Ant.	Right	15,300	C
3	15,000	400 ohms	Ant.	Right	15,000	D
4	1,400	200 mmf.	Ant.	Left	1,400	E & F

CROSLEY

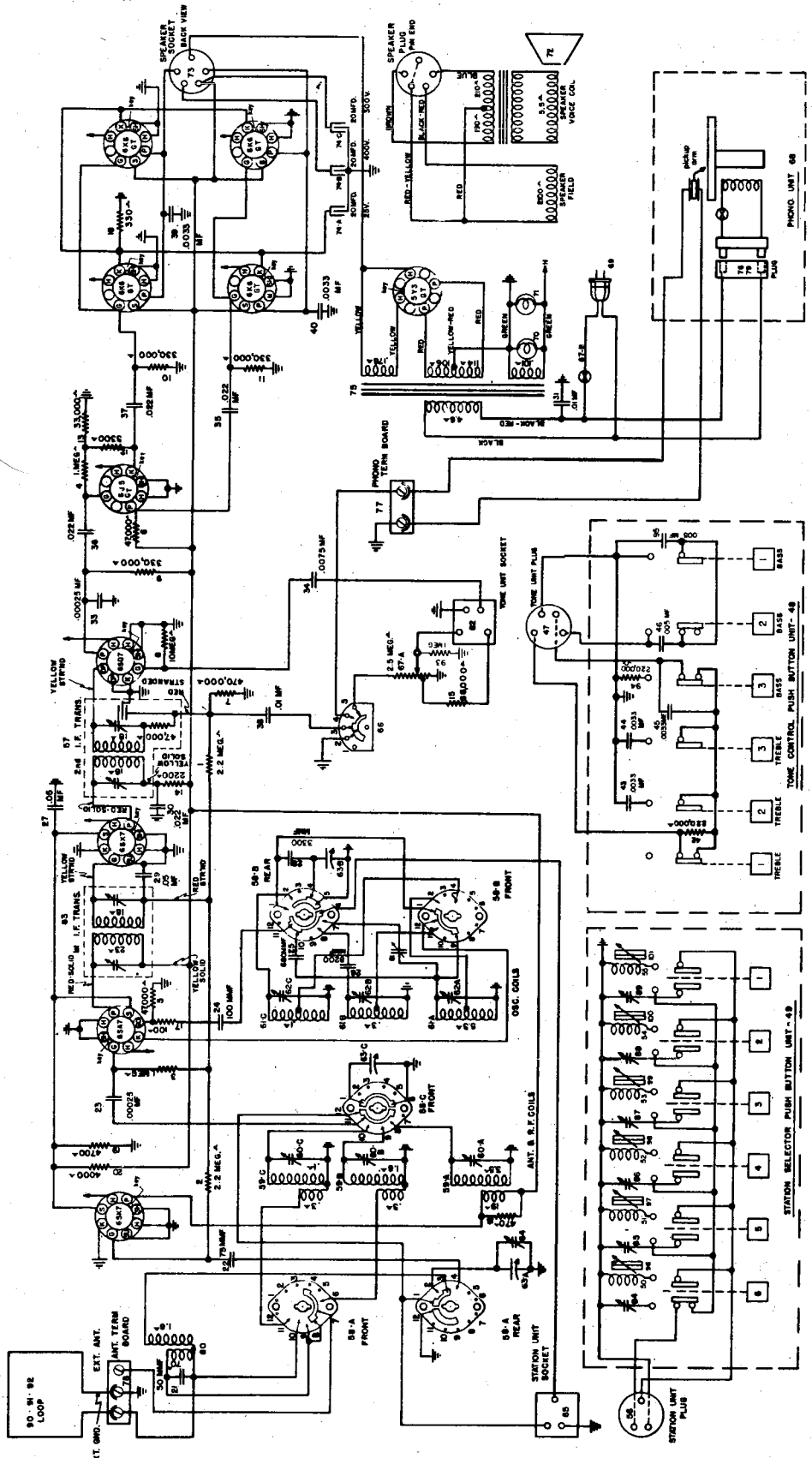
MODEL: 56TX-L







CROSLEY



SCHEMATIC DIAGRAM — MODEL 106CP

Alignment information is on the next page.

ALIGNMENT PROCEDURE — MODEL 106CP

Turn the tuning capacitor to the completely closed position against the stop, anl set the dial pointer to the reference line at the end of the dial scale.

Set the tone control buttons all the way out.

If the chassis is removed from the cabinet, connect the shorting bar from the volume control (67A) to the coupling capacitor (34) on the tone unit socket.

Connect the output meter across the speaker output transformer connections on the 6K6 tubes.

The r. f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the low side (ground) of the signal generator to the chassis.

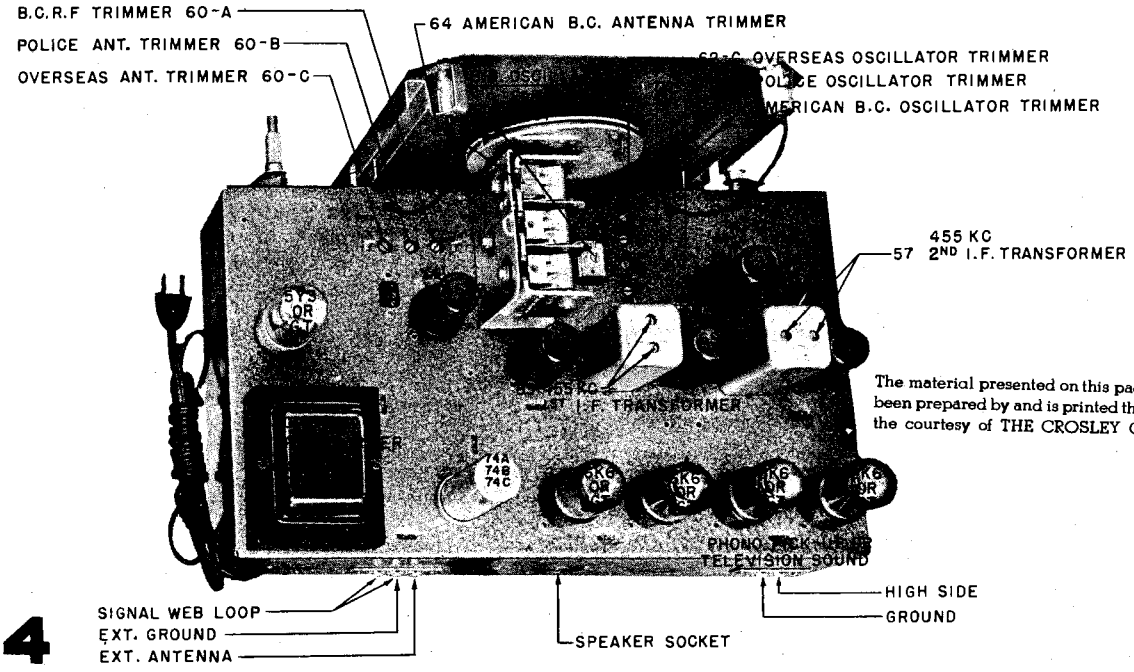
Turn the volume control on full and adjust the signal generator output to produce a noticeable output meter reading.

Alignment adjustment locations are shown in Chassis Top View, at bottom of page.

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series With	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Rear Gang Section	American BC	Fully Open	57 & 83
2	1400	200 mmf.	Ext. Ant.	American BC	1400	62-A
3	1400	200 mmf.	Ext. Ant.	American BC	1400	60--A&6A
4	600	200 mmf.	Ext. Ant.	American BC	600	81
5	6500	400 ohms	Ext. Ant.	Police	Fully Open	62-B
6	6000	400 ohms	Ext. Ant.	Police	6000	60-B
*7	18,300	400 ohms	Ext. Ant.	Overseas	Fully Open	62 C
8	18,000	400 ohms	Ext. Ant.	Overseas	18,000	60-C

The American Broadcast Band must be aligned with the loop antenna connected.

*NOTE: When aligning the short-wave oscillator trimmer (62C), be sure that the circuit is aligned at the correct frequency and not at the image frequency which is 910 kilocycles lower as indicated by the receiving dial. To check: tune in the generator frequency, then increase the generator output and tune in the image frequency. The image frequency should be weaker than the fundamental and audible 910 kilocycles lower on the receiver dial. If the image cannot be tuned in, the oscillator trimmer is adjusted to the wrong peak; i. e., the oscillator trimmer may be adjusted to the image or one of the harmonics instead of the fundamental frequency. The correct peak is the second one heard as the trimmer adjustment screw is opened from the completely closed position.



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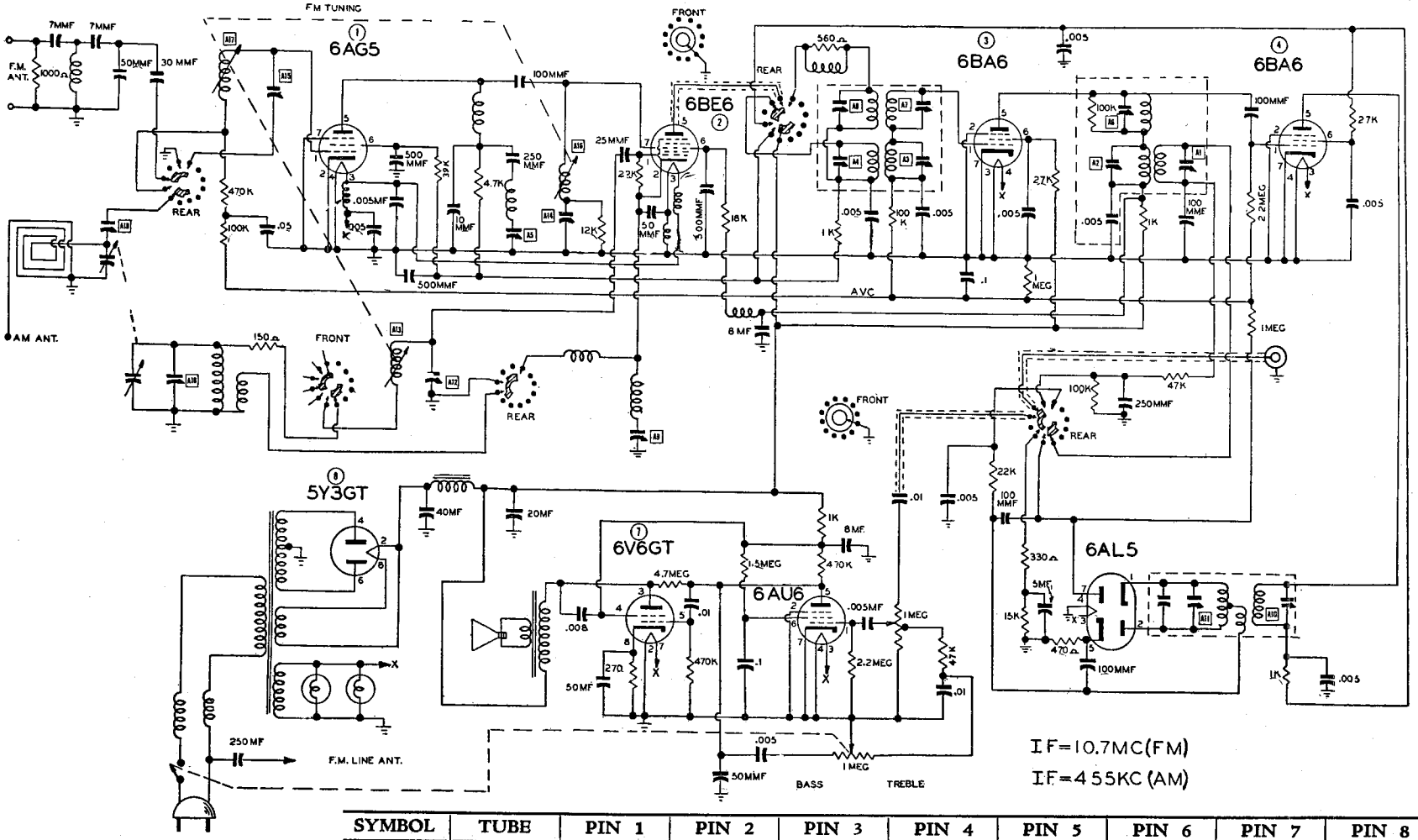
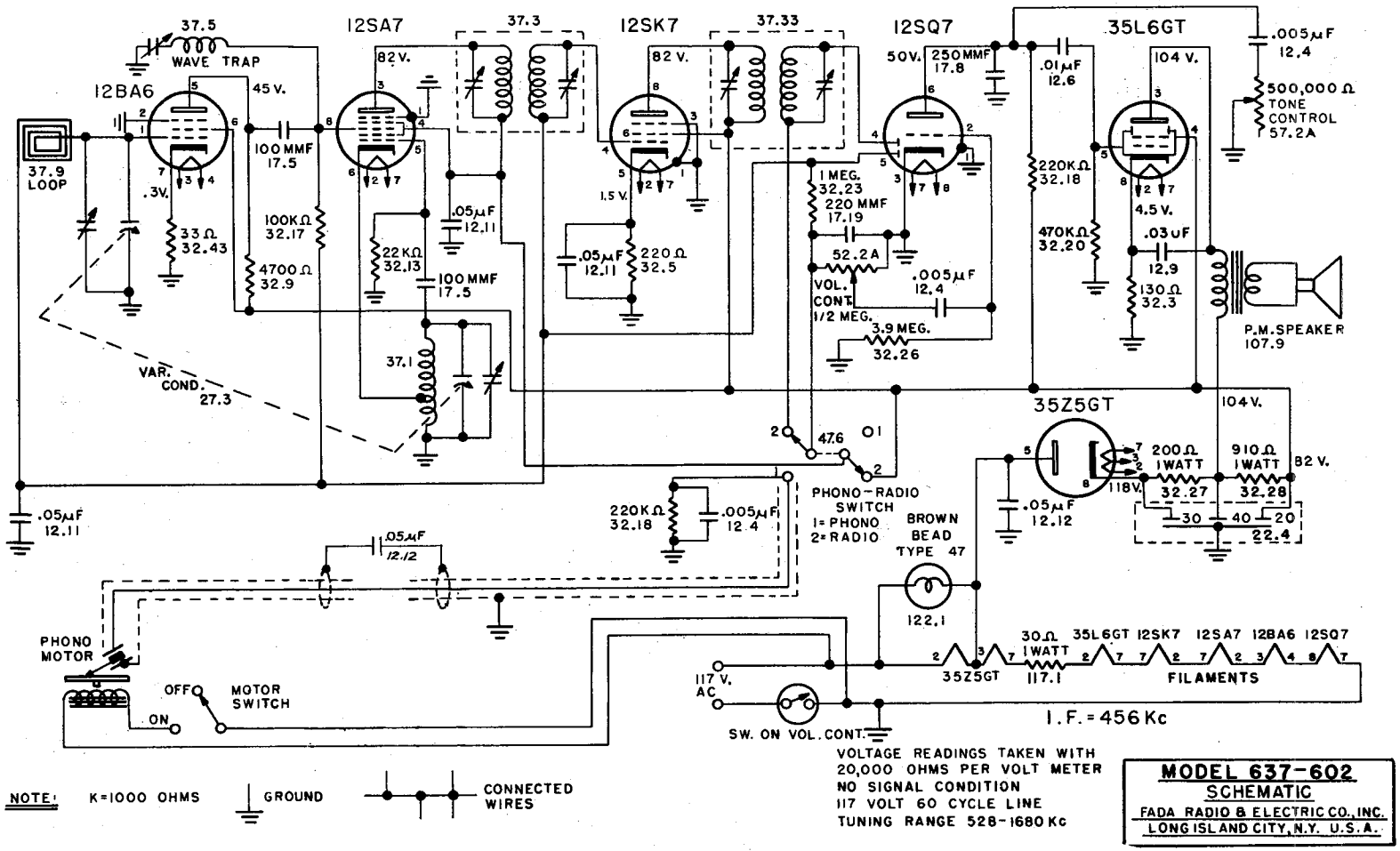


Emerson Radio

Model 528

Chassis 120038

SYMBOL	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6AG5	-0.5 DC	0	6.5 AC	0	225 DC	137 DC	0	
2	6BE6	-0.3 DC	0	0	6.5 AC	270 DC	100 DC	0	
3	6BA6	-0.1 DC	0	0	6.5 AC	260 DC	115 DC	0	
4	6BA6	-0.4 DC	0	6.5 AC	0	0	0	0	
4A	6BA6	-0.3 DC	0	6.5 AC	0	250 DC	110 DC	0	
5	6AL5	0	0	6.5 AC	0	0	0	-0.8 DC	
6	6AU6	-0.8 DC	0	6.5 AC	0	105 DC	32 DC	0	
7	6V6GT	0	0	260 DC	270 DC	0	105 DC	6.5 AC	13.5 DC
8	5Y3GT	0	300 DC	0	300 AC	0	300 AC	0	300 DC



MODEL 637-602
SCHEMATIC
FADA RADIO & ELECTRIC CO., INC.
LONG ISLAND CITY, N.Y. U.S.A.

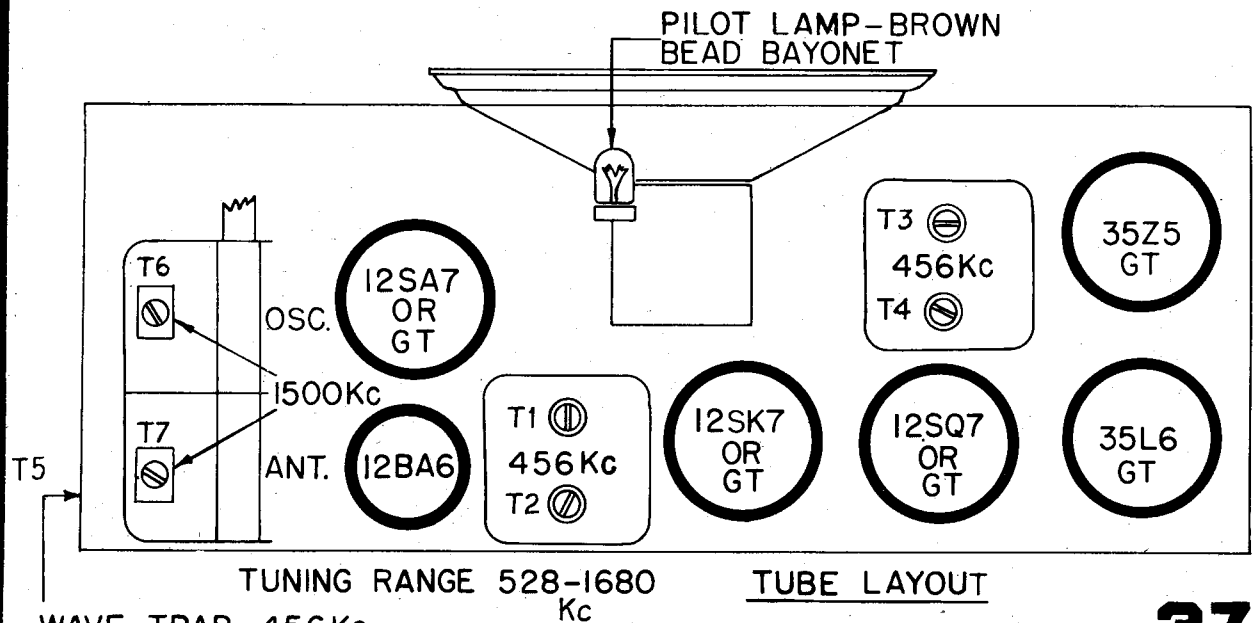
Power supply 105-125 V 60 cycles A.C. only
Power consumption 45 Watts Total
Frequency Range 1680-528 KC
I.F. Circuits 456 KC

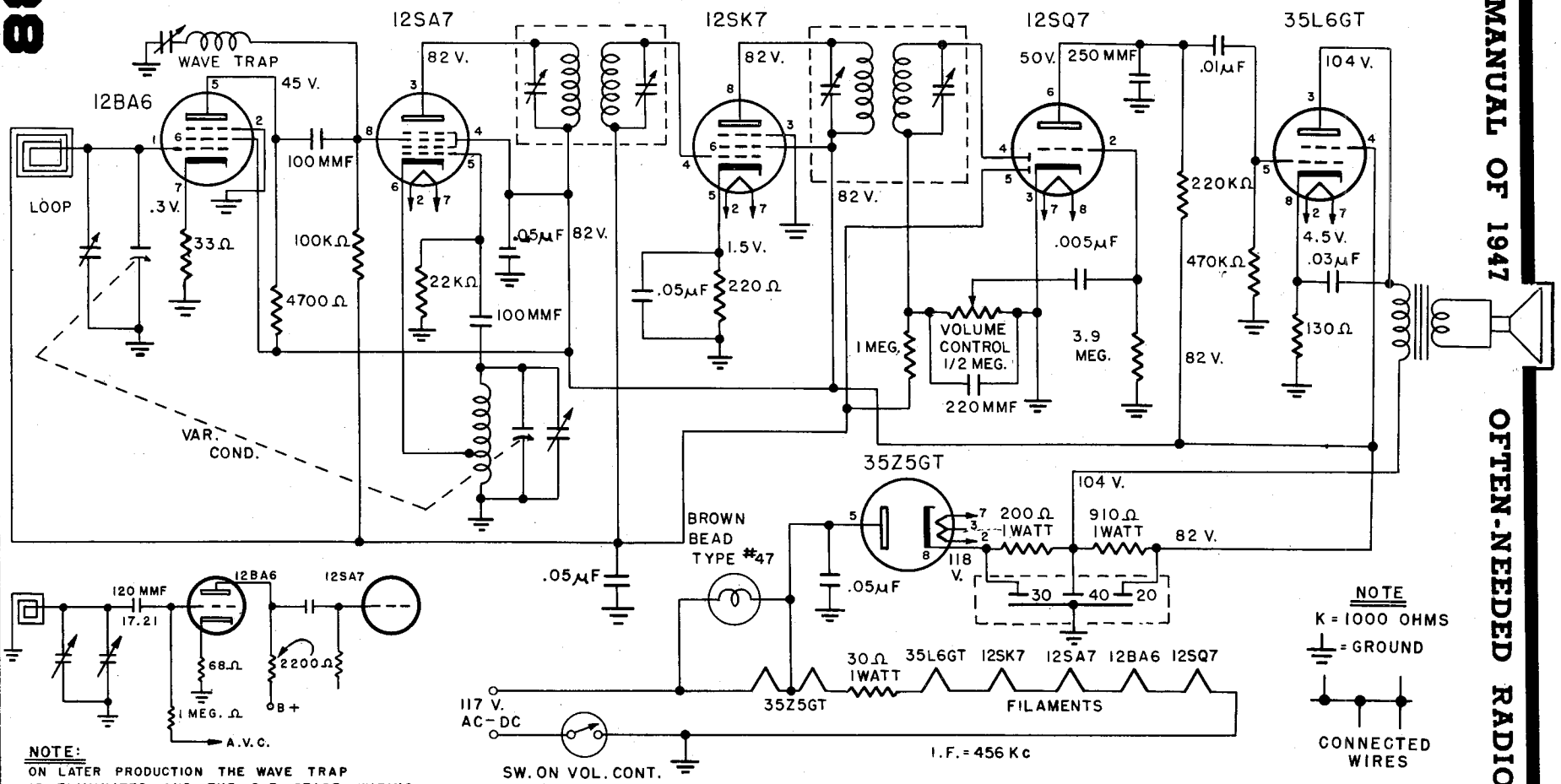
FADA RADIO & ELECTRIC CO., Inc.

Fada Radio Model 1001 ***** Alignment Procedure

Volume Control full on.
Low range A.C. meter connected across voice coil to indicate output.
Keep signal generator attenuated so as to maintain ½ scale reading on output meter.
Make certain that dial pointer is exactly on index line (top left side of dial plate) when variable condenser is fully meshed.

Receiver Dial at:	Signal Generator	Dummy Antenna	Connect Signal Generator to:	Refer to Chassis Layout for Location of Trimmers
1 Full Open 2	Exactly 456 KC	.1 MF	Control Grid 12SA7 Tube Pin No. 8 on 12SA7 Socket	Adjust for Maximum Output T1, T2, T3 & T4
Full Open 3	Exactly 456 KC	.1 MF	Control Grid 12BA6 Tube (R.F.) (Top) Rear Section Variable Condenser	Adjust for Minimum Output T5 Note: On later production this trimmer is eliminated.
Full Open 4	Exactly 1680 KC		Radiating Loop (½ meter) 20" from Receiver	Adjust for Maximum Output T6
Approx. 1500 KC 5	Approx. 1500 KC		Radiating Loop (½ meter) 20" from Receiver	Adjust for Maximum Output T7
Approx. 600 KC 6	Approx. 600 KC		Radiating Loop (½ meter) 20" from Receiver	Check tracking and bend slotted end plate (rear section) of variable if necessary.





NOTE:
ON LATER PRODUCTION THE WAVE TRAP IS ELIMINATED AND THE R.F. STAGE WIRING IS ARRANGED AS SHOWN ABOVE.

Power supply (40-60 cycles AC) 105-125V AC-DC

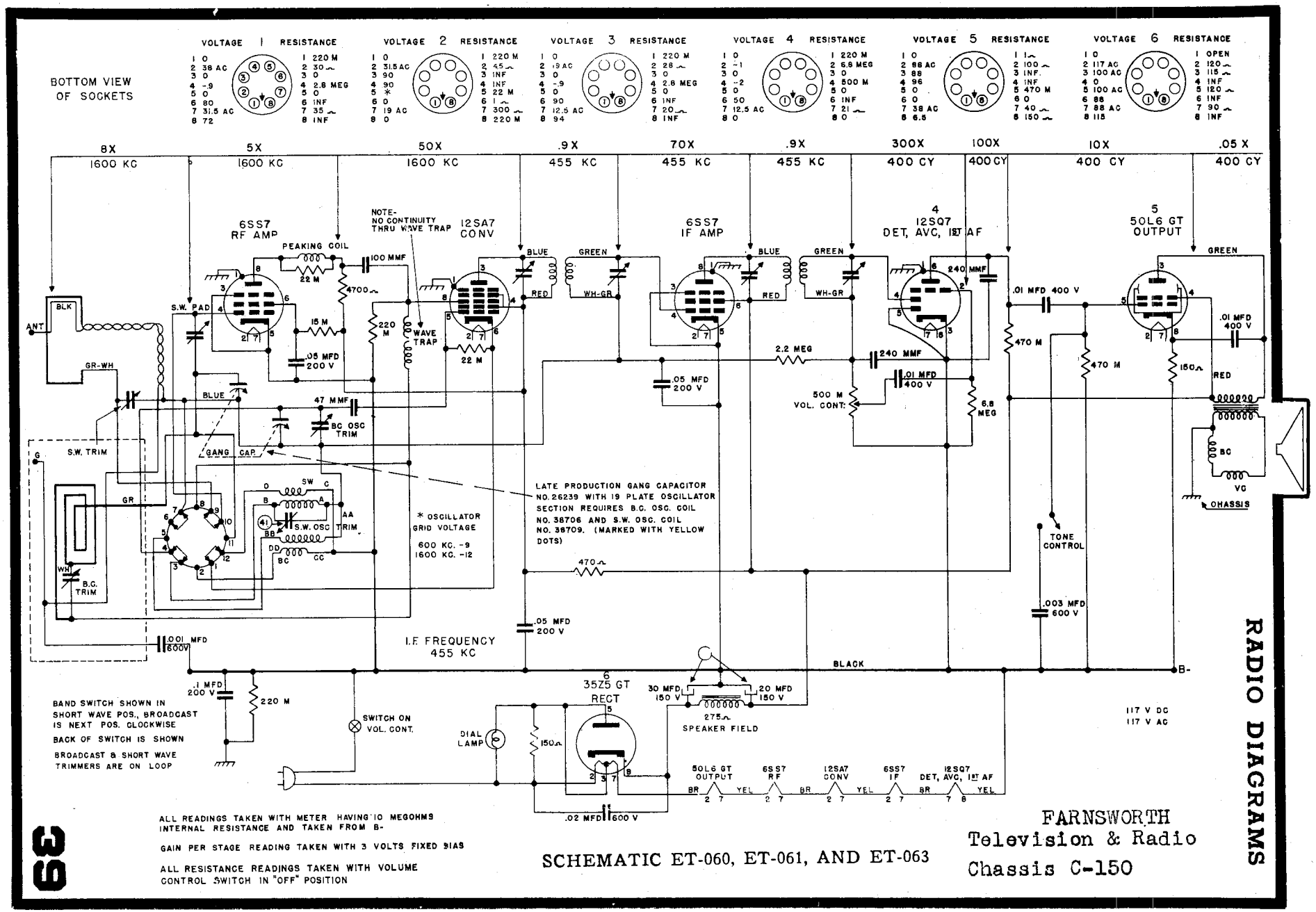
Power consumption 30 Watts

Frequency Range 1680-528 KC

I.F. Circuits 456 KC

VOLTAGE READINGS TAKEN WITH
20,000 OHMS PER VOLT METER
NO SIGNAL CONDITION
117 VOLT 60 CYCLE LINE
TUNING RANGE 528- 1680 Kc

MODEL 1001
SCHEMATIC
FADA RADIO & ELECTRIC CO., INC.
LONG ISLAND CITY, N.Y. U.S.A.


BOTTOM VIEW OF SOCKETS
VOLTAGE 1 RESISTANCE
1 0
2 38 AC
3 0
4 -9
5 0
6 80
7 31.5 AC
8 72
1 220 M
2 30
3 0
4 2.8 MEG
5 0
6 INF
7 35
8 INF
VOLTAGE 2 RESISTANCE
1 0
2 31.5 AC
3 90
4 90
5 *
6 0
7 19 AC
8 0
1 220 M
2 45
3 INF
4 INF
5 22 M
6 1
7 300
8 220 M
VOLTAGE 3 RESISTANCE
1 0
2 -9 AC
3 0
4 -9
5 0
6 90
7 12.5 AC
8 94
1 220 M
2 28
3 0
4 2.8 MEG
5 0
6 INF
7 20
8 INF
VOLTAGE 4 RESISTANCE
1 0
2 -1
3 0
4 -2
5 0
6 50
7 12.5 AC
8 0
1 220 M
2 6.8 MEG
3 0
4 500 M
5 0
6 INF
7 21
8 0
VOLTAGE 5 RESISTANCE
1 0
2 88 AC
3 88
4 96
5 0
6 0
7 38 AC
8 6.5
1 1
2 100
3 INF.
4 INF
5 470 M
6 0
7 40
8 150
VOLTAGE 6 RESISTANCE
1 0
2 117 AC
3 100 AC
4 0
5 100 AC
6 88
7 88 AC
8 115
1 OPEN
2 120
3 115
4 INF
5 120
6 INF
7 90
8 INF
8X 1600 KC
5X 1600 KC
50X 1600 KC
.9X 455 KC
70X 455 KC
.9X 455 KC
300X 400 CY
100X 400 CY
10X 400 CY
.05 X 400 CY
6SS7 RF AMP
NOTE- NO CONTINUITY THRU WAVE TRAP
12SA7 CONV
6SS7 IF AMP
4 12SQ7 DET, AVC, 1ST AF
5 50L6 GT OUTPUT
PEAKING COIL
22 M
100 MMF
4700
15 M
220 M
WAVE TRAP
.05 MFD 200 V
S.W. PAD
ANT
BLK
GR-WH
BLUE
47 MMF
BC OSC TRIM
S.W. TRIM
GANG CAP
GR
WH
B.G. TRIM
.001 MFD 600V
SW
S.W. OSC TRIM
BB
DD
BC
CC
AA
* OSCILLATOR GRID VOLTAGE
600 KC. -9
1600 KC. -12
LATE PRODUCTION GANG CAPACITOR NO. 26239 WITH 19 PLATE OSCILLATOR SECTION REQUIRES B.C. OSC. COIL NO. 38706 AND S.W. OSC. COIL NO. 38709. (MARKED WITH YELLOW DOTS)
I.F. FREQUENCY 455 KC
BLUE
RED
GREEN
WH-GR
2.2 MEG
240 MMF
.01 MFD 400 V
500 M VOL. CONT.
6.8 MEG
470 M
150
BC
VC
CHASSIS
TONE CONTROL
.003 MFD 600 V
470
.05 MFD 200 V
BLACK
B-
6 35Z5 GT RECT
30 MFD 150 V
20 MFD 150 V
275 SPEAKER FIELD
.1 MFD 200 V
220 M
SWITCH ON VOL. CONT.
DIAL LAMP
150
.02 MFD 600 V
117 V DC
117 V AC
50L6 GT OUTPUT
6SS7 RF
12SA7 CONV
6SS7 IF
12SQ7 DET, AVC, 1ST AF
BR
YEL
BAND SWITCH SHOWN IN SHORT WAVE POS., BROADCAST IS NEXT POS. CLOCKWISE
BACK OF SWITCH IS SHOWN
BROADCAST & SHORT WAVE TRIMMERS ARE ON LOOP
ALL READINGS TAKEN WITH METER HAVING 10 MEGOHMS INTERNAL RESISTANCE AND TAKEN FROM B-
GAIN PER STAGE READING TAKEN WITH 3 VOLTS FIXED BIAS
ALL RESISTANCE READINGS TAKEN WITH VOLUME CONTROL SWITCH IN "OFF" POSITION
SCHEMATIC ET-060, ET-061, AND ET-063
FARNSWORTH
Television & Radio
Chassis C-150
RADIO DIAGRAMS
69

Farnsworth Models ET-060, ET-061, ET-063, Chassis C-150

EQUIPMENT AND PROCEDURE FOR ALIGMENT

A Signal Generator calibrated at 455 Kc., 600 Kc., 1000 Kc., 1500 Kc., 15 Mc., 12.5 Mc., and 10 Mc., and an output indicator are required to properly align this receiver. All adjustments should be made with the volume control set for maximum, keeping the signal generator output as low as possible to prevent AVC action and incorrect adjustments.

Connect the low side of the Signal Generator to the chassis through a .1 Mfd. condenser. Connect the high side to antenna lead at rear of set through dummy load of 100 MMF for Broadcast and 400 ohms for Shortwave.

The loop antenna should be placed in approximately the position relative to chassis as when chassis is installed in cabinet.

When aligning the Shortwave Oscillator, use the peak found farthest out from maximum capacity on the oscillator trimmer. Use the peak nearest maximum capacity on the loop trimmer.

TABULATION FOR ALIGNMENT

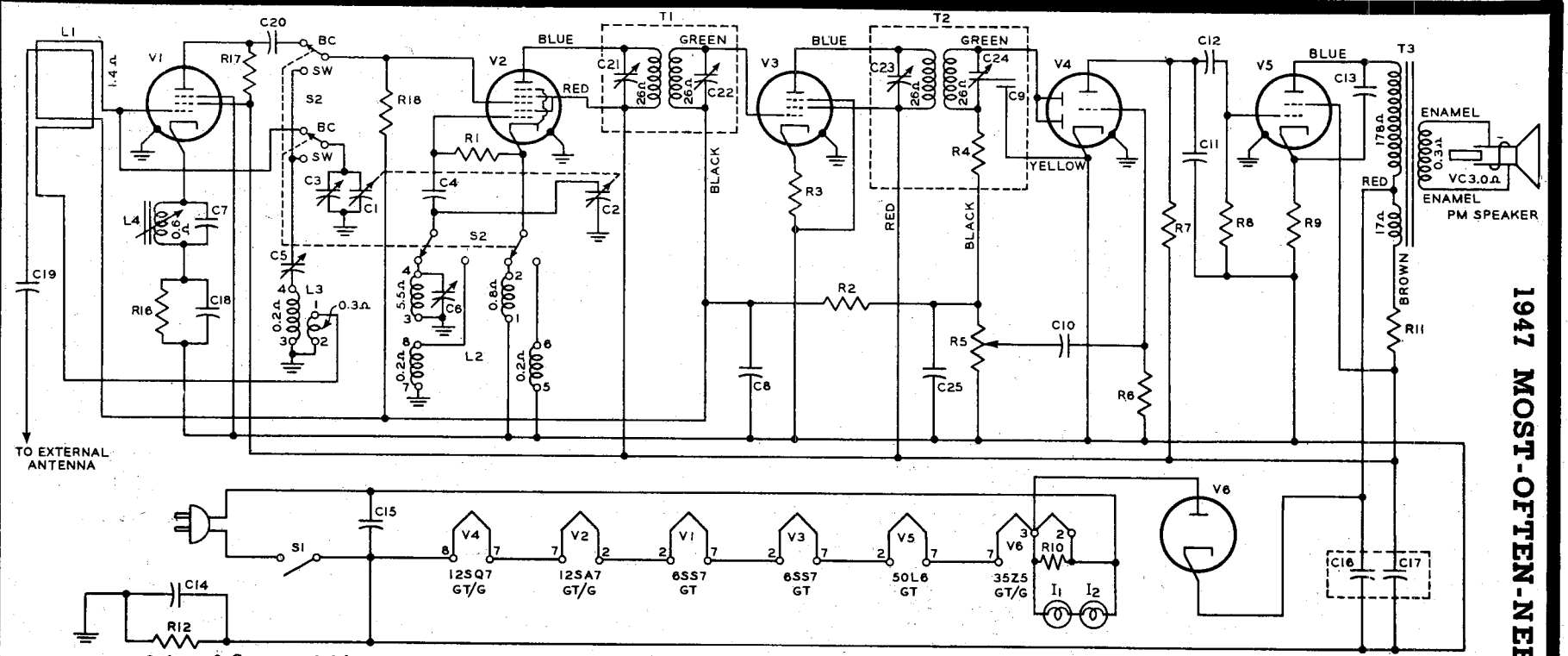
STEPS	DUMMY ANTENNA	SET GENERATOR AT	SET GANG AT	ADJUST	LOCATED	TO OBTAIN
1	SET VOLUME CONTROL FOR MAXIMUM OUTPUT					
2	100 MMF.	455 Kc.	Minimum Capacity	2nd. I.F. Trimmers	Top of I.F. Transformer	Maximum Output
3				1st. I.F. Trimmers		
4		1500 Kc.	1500 Kc.	B.C. Osc. Trimmer	On Tuning Capacitor	
5		1500 Kc.	1500 Kc.	B.C. Ant. Trimmer	On Loop Antenna	
6	Check Pointer for Calibration at 1000 Kc. and 600 Kc.					
	SHORT WAVE BAND					
7	400 Ohms	15 Mc.	Minimum Capacity	S.W. Osc. Trimmer	Chassis Near Rear	Maximum Output
8		12.5 Mc.	12.5 Mc. Rock Gang	S.W. Ant. Trimmer	On Loop	
9	Check	10 Mc.	10 Mc. Rock Gang	S.W. Ant. Padder	Chassis Near Front	

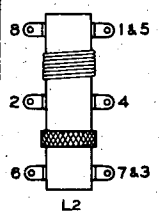
1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Federal Telephone & Radio

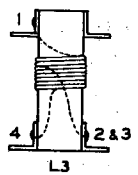
Models 1030T & 1540T

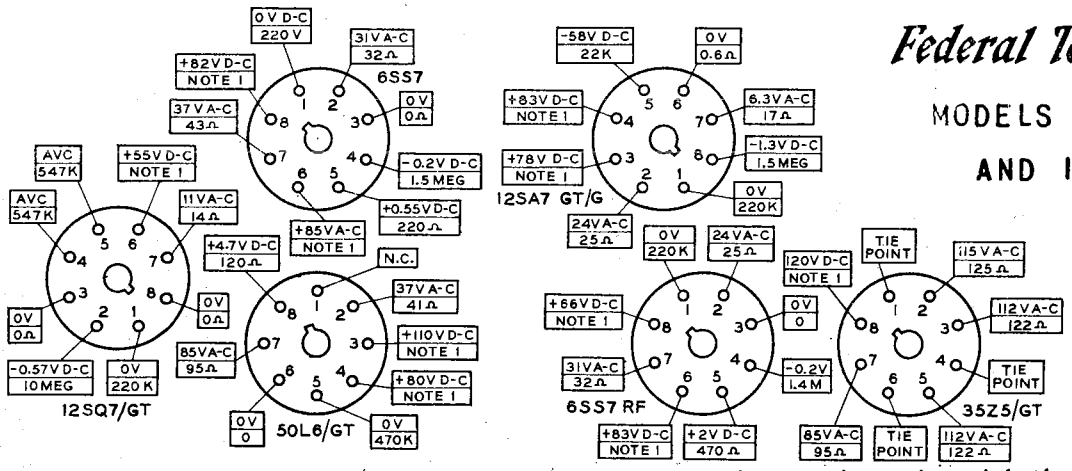
See next page for alignment information.





C 1	2 Gang variable
C 2	Part of C 1
C 3	Part of C 1
C 4	100 mmfd mica ± 10% 500 v D.C. working
C 5	Compression trimmer 70-470 mmf
C 6	Compression trimmer 1.6-18 mmf(part of C 5)
C 7	3000 mmfd mica ± 10% 500 v D.C. working
C 8	.05 mfd, tubular,paper,400 v D.C. working
C 9	125 mmfd mica, ± 25% part of T2
C 10	.01 mfd,paper,tubular 400 v D.C. working
C 11	.0015 mfd, mica± 20% 500 V C.C. working
C 12	.01 mfd, paper tubular 400 v D.C. working
C 13	.01 mfd, paper tubular 400 v D.C. working
C 14	.2 mfd paper tubular 400 v D.C. working
C 15	.05 mfd paper dielectric 400 v D.C. working.
C 16	Electrolytic, 2 section Common cathode 40 mfd 150 DCWV Sect. 1 40 mfd 150 DCWV Sect. 2
C 17	Part of C 16
C 18	.1 mfd, paper, tubular 400 v D.C. working
C 19	.002 mfd. paper, tubular, 600 v D.C. working
C 20	470 mmf.mica ± 20% 500 v D.C. working
C 21	Part of T1
C 22	Part of T1
C 23	Part of T2
C 24	Part of T2
C 25	100 mmf.mica ± 10% 500 v D.C. working
I1, I2	3.2 v, 160 ma.miniature bayonet base
L1	200.5 uh ± 1 uh;dist.cap.12mmf max.
L2	2 band osc coil assy.
L3	SW. RF Coil
L4	Slug tuned, variation 30-55 uh ± 10%
LS1	5" p.m., 3.2 ohm v.c.
R1	22000 ohms ± 20% 1/2 watt carbon
R2	1.0 megohm ± 20%, 1/2 watt carbon
R3	220 ohms ± 20%, 1/2 watt carbon
R4	47000 ohms, ± 20%, 1/2 watt carbon Part of T2
R5	500,000 ohms taper 50,000 ohms at 1/2 rotation, with "on-off" switch
R6	10.0 megohm ± 20%, 1/2 watt carbon
R7	0.22 megohm ± 20%, 1/2 watt carbon
R8	0.47 megohm ± 20%, 1/2 watt carbon
R9	120 ohms ± 10%, 1/2 watt carbon
R10	270 ohms ± 10%, 1/2 watt carbon
R11	1500 ohms ± 5%, 1 watt carbon
R12	220,000 ohms ±20%, 1/2 watt carbon
R16	470 ohms ± 20%, 1/2 watt carbon
R17	4700 ohms ± 20%, 1/2 watt carbon
R18	0.1 megohm ± 20%, 1/2 watt carbon
S1	Part of R5
S2	4 pole, 2 position
T1	Double tuned, 455 kc.
T2	" " " "
T3	Primary Impedance 2500 ohms, secondary 3.2 ohms,





Federal Telephone

MODELS 1030T AND 1540T

1. Resistance readings at these points will vary since they are in series with the leakage of the electrolytic condensers which is subject to change.
2. All D.C. measurements were made with a meter having a sensitivity of 20,000 ohms per volt. A.C. measurements were made with a 1000 ohms per voltmeter.
3. Measured values are from socket pin to circuit ground. (pin 8 of 12SQ7 socket).
4. Tolerances of component values make possible a variation of ± 20% in readings

Punch marks are provided on the dial back plate at 600 kc, 1000 kc, 1400 Kc and 1600 Kc for alignment purposes.

With tuning condenser completely open, set dial pointer to 1600 Kc punch mark.

Connect output meter across voice coil terminals on speaker frame.

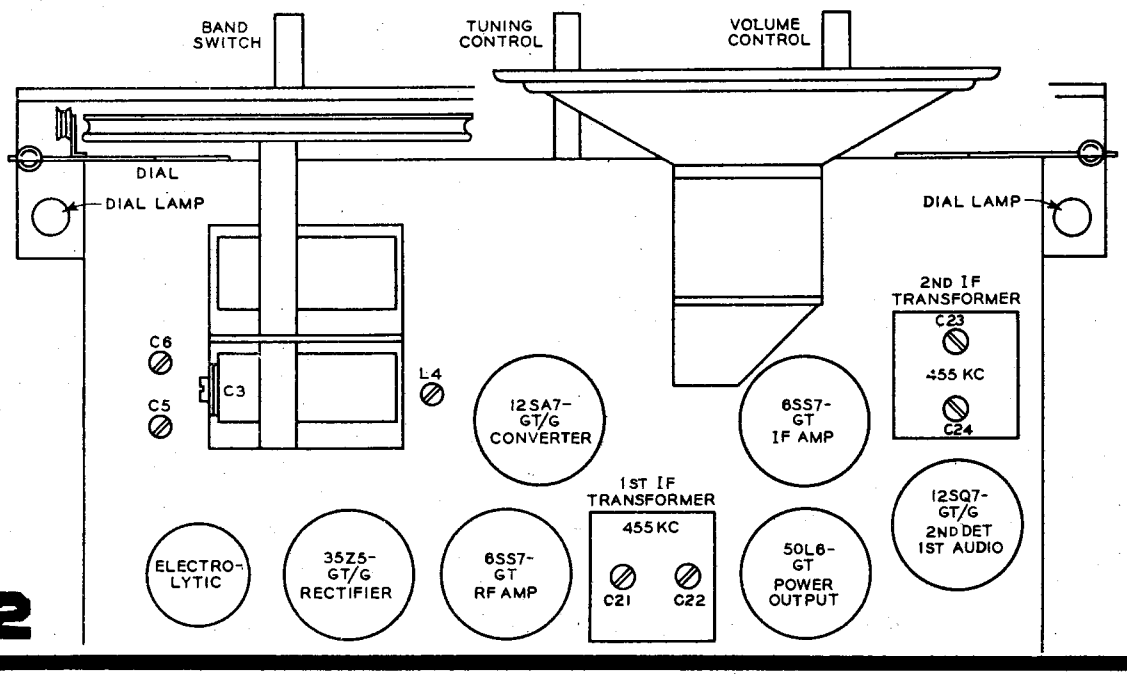
Connect low side of signal generator lead thru a 0.1 mfd coupling condenser to chassis ground.

Connect high side of generator thru proper dummy antenna to the receiver external antenna connection.

Keep signal generator output at lowest practical level and proceed according to table below.

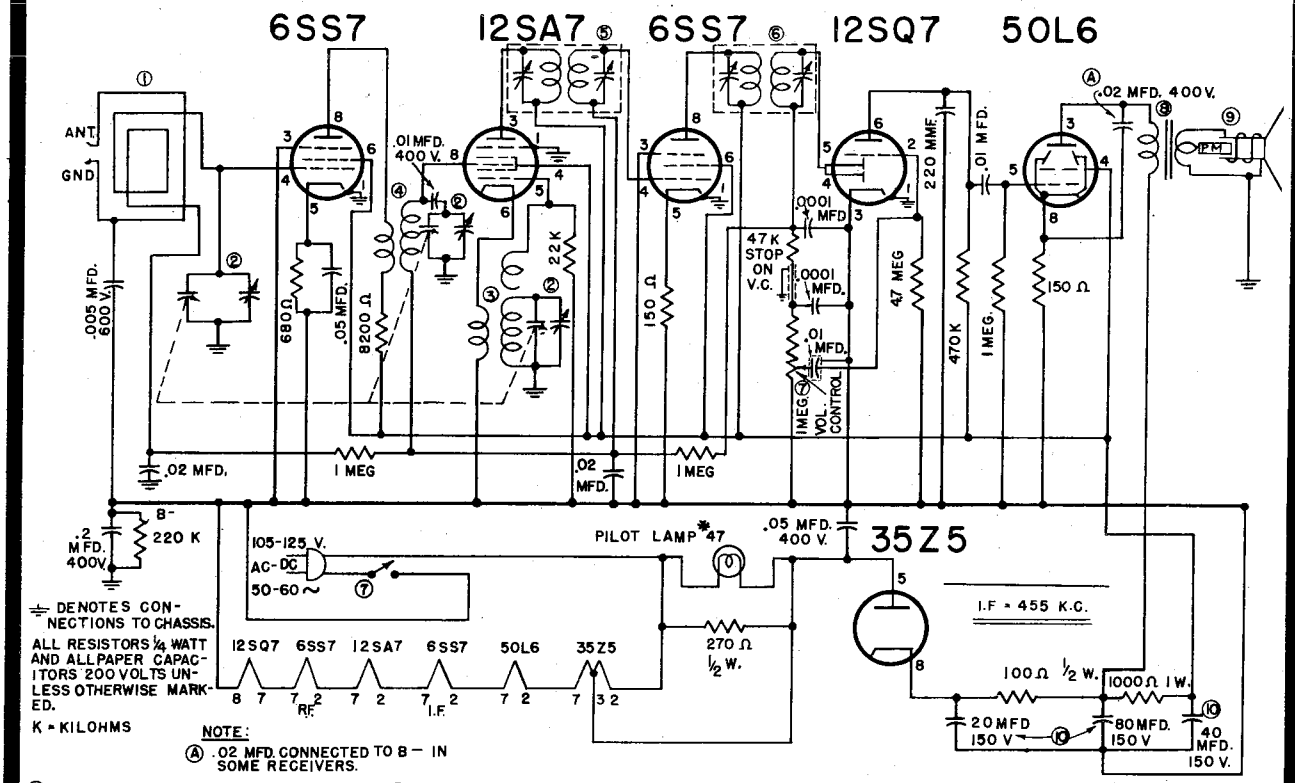
ALIGNMENT CHART

DUMMY ANTENNA	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	ADJUSTMENT POINTS	OUTPUT METER READING
0.1 MFD.	455 Kc	B.C.	Tuning Condenser Open	C24, C23, C22, C21	Max.
0.1 MFD.	455 Kc	B.C.	Tuning Condenser Open	L4	Min.
200 MMFD.	1600 Kc	B.C.	Tuning Condenser Open	C6	Max.
200 MMFD.	1400 Kc	B.C.	1400 Kc	C3	Max.
200 MMFD.	600 Kc	B.C.	600 Kc	L1 (Check, adjust if necessary)	Max.
400 ohms	6 Mc	S.W.	6 Mc	C5	Max.



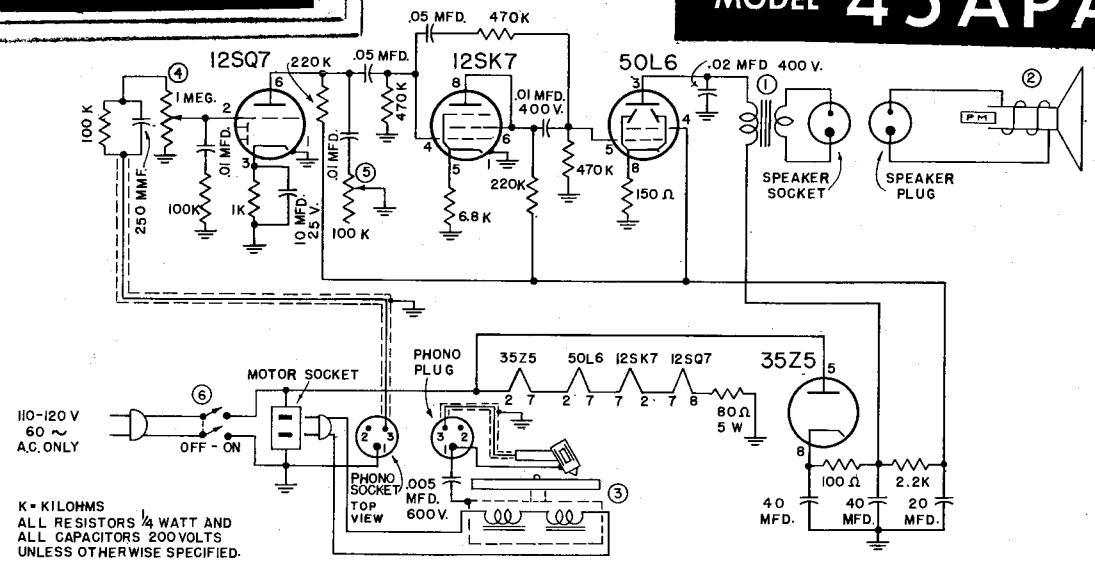
GAROD RADIO

MODEL 6BU-1A

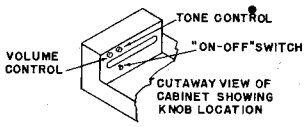


① 1.421 LOOP ANTENNA ASSEMBLY
② 2.201 3 GANG VARIABLE CAPACITOR
③ 1.402-1 OSCILLATOR COIL
④ 1.420 R.F. INTERSTAGE COIL
⑤ 1.259 1 ST. I.F. TRANSFORMER
⑥ 1.409 2 ND I.F. TRANSFORMER
⑦ 8.200-4 VOLUME CONTROL & SWITCH
⑧ 9.200 OUTPUT TRANSFORMER
⑨ 30.300 5" P.M. SPEAKER
⑩ 5.400-7 ELECTROLYTIC CAP. 80-40-20 MFD.

MODEL 45APA



① 9.200 OUTPUT TRANSFORMER
② 30.307 8" PM SPEAKER
③ 36.101 AUTOMATIC RECORD CHANGER
④ 1 MEG VOLUME CONTROL
⑤ 100 K TONE CONTROL
⑥ D.P.D.T. "ON-OFF" SWITCH



ALIGNMENT:

Realignment of this receiver should not be attempted unless all other possible causes have been thoroughly investigated. An accurately calibrated signal generator, which will cover the necessary bands, and an output meter for indicating the effect of adjustments are required.

During the alignment procedure, all adjustments should be made under the following conditions (refer to Trimmer and Tube Location Diagram below for trimmer location):

(a) Line voltage as indicated on instruction sheet.

(b) Volume Control at maximum position.

(c) Tone Control at extreme left position (brilliant).

(d) Minimum input from signal generator. This procedure should be adhered to, otherwise adjustments will be broad, due to the action of the automatic volume control.

BROADCAST *(Band Switch in extreme left position)*

I. F. Adjustment:

(1) Set the signal generator to 455 KC and connect to the lower side of the Loop Antenna Trimmer through a .1 MFD capacitor. Connect the signal generator ground lead to the chassis. Connect a suitable output meter across the speaker voice coil connections. Turn the Variable Capacitor to the extreme clockwise position (minimum capacity).

(2) Adjust the trimmers located at the top of the first and second I. F. Transformers for maximum output as indicated on the output meter.

BC. R. F. Adjustment: It is desirable to align this band on the loop.

(1) Couple the signal generator to the receiver loop by means of a two or three turn loop.

(2) With the Variable Capacitor set at the extreme clockwise position (minimum capacity), tune in the 1650 KC signal by means of the broadcast oscillator trimmer (C1).

(3) Set the signal generator to 1500 KC and turn the Tuning Control so that this frequency is indicated on the dial. Adjust the Antenna Trimmer (C2) on the loop for maximum output.

(4) Set the signal generator to 600 KC and turn the Tuning Control so that this frequency is indicated on the dial. Adjust the broadcast oscillator padder capacitor (C3) for maximum response while "rocking" the Variable Capacitor. Recheck the 1500 KC high frequency adjustment trimmer (C2).

SHORT WAVE *(Band Switch in the middle position)*

(1) Connect the signal generator through a standard short wave dummy antenna to the antenna (green wire) and the ground lead to the chassis of the receiver. Set the signal generator to 18.5 MC.

(2) With the Variable Capacitor set at the extreme clockwise position (minimum capacity), tune in the 18.5 MC signal by means of the S. W. oscillator trimmer (C4).

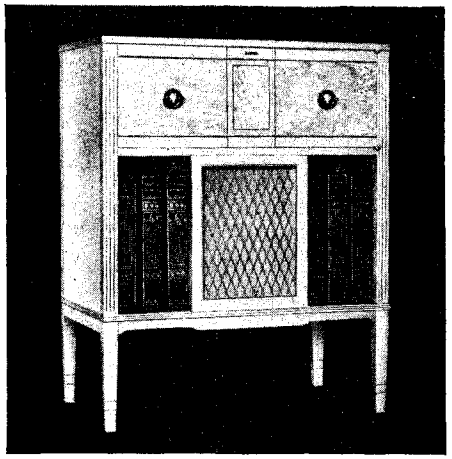
(3) Set the signal generator to 16 MC and turn the tuning control so that this frequency is indicated on the dial. Adjust the Antenna Trimmer (C5) on the short wave coil for maximum output while rocking the Variable Capacitor from left to right for maximum output. No other adjustments are necessary.

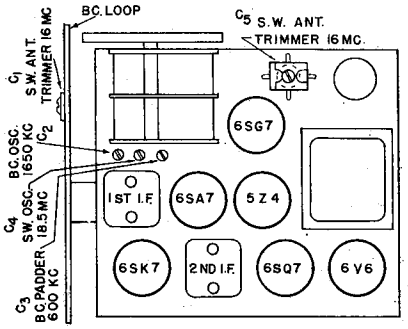
LINE VOLTAGE: This receiver is designed for operation on 105-125 Volts, 50-60 Cycles, Alternating Current (AC) only.

POWER CONSUMPTION INCLUDING RECORD CHANGER: 85 Watts.

TUNING RANGE: Broadcast: 540 to 1650 Kilocycles (180 to 555 Meters)

Short Wave: 5.7 to 18.5 Megacycles (16 to 53 Meters)





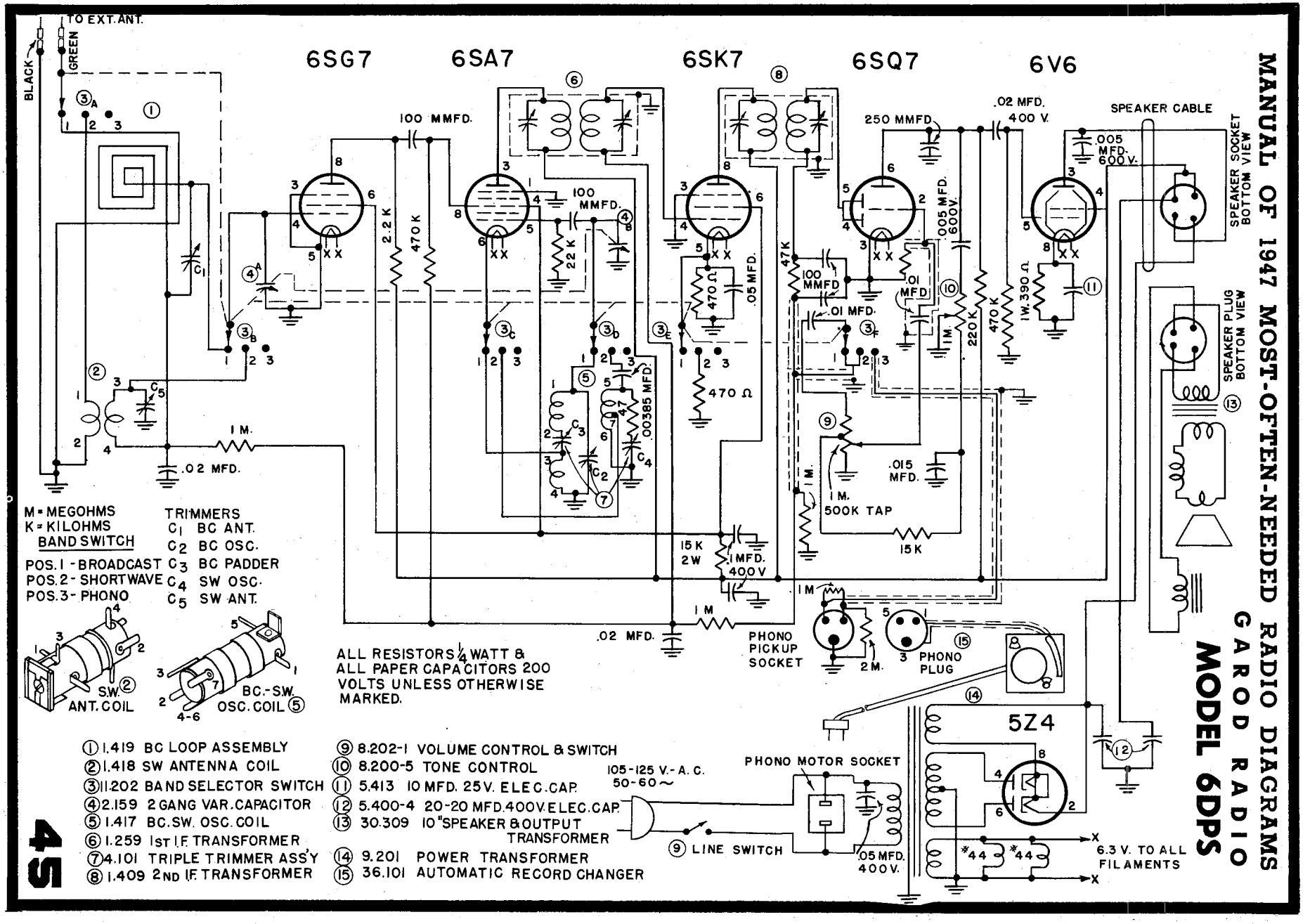
TRIMMER AND TUBE LOCATION DIAGRAM

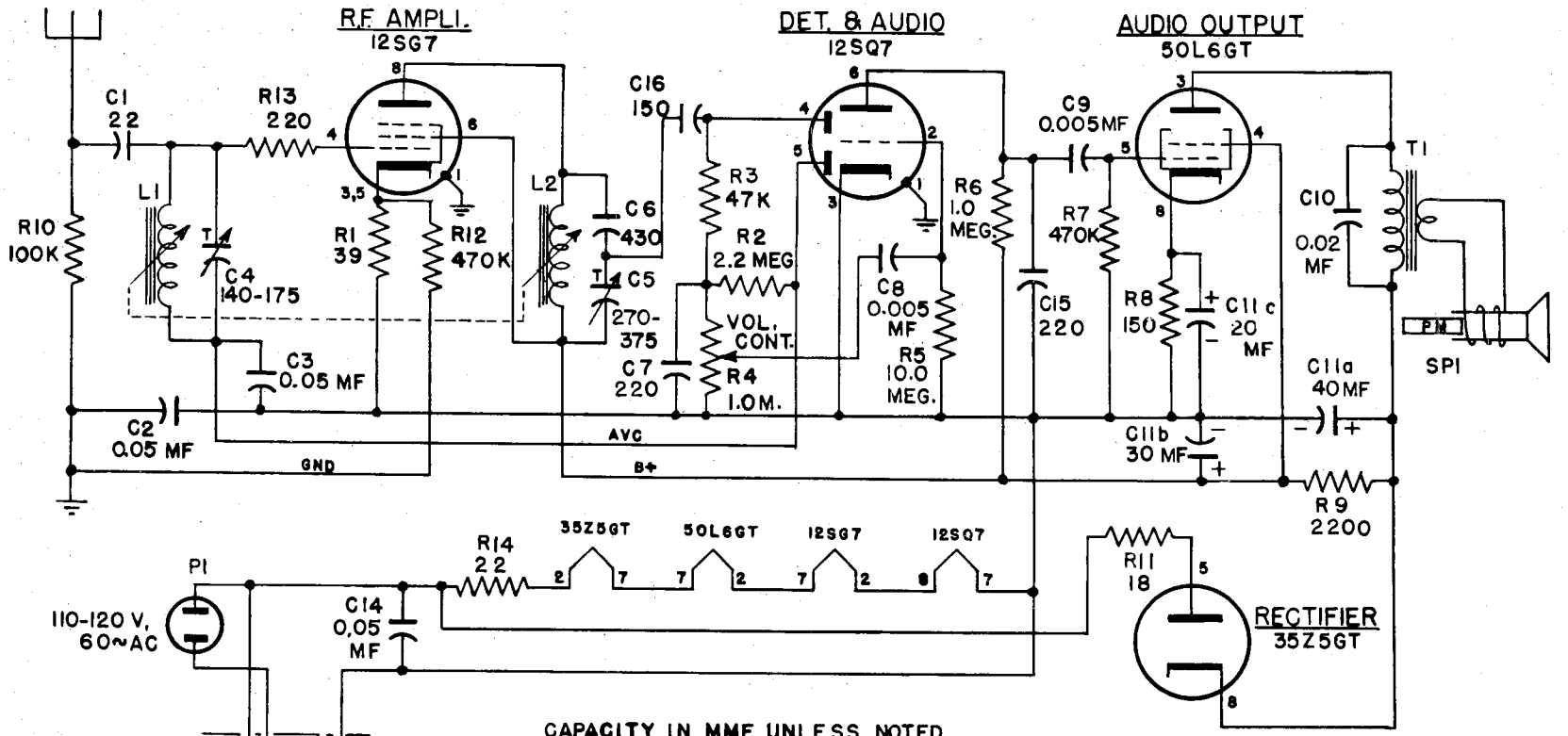
MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

GAROD RADIO

The Sheraton

MODEL **6DPS**


MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS
GAROD RADIO
MODEL 6DPS
6SG7
6SA7
6SK7
6SQ7
6V6
5Z4
TO EXT. ANT.
BLACK
GREEN
100 MMFD.
2.2 K
470 K
22 K
470 Ω
.05 MFD.
.00385 MFD.
47K
100 MMFD
.01 MFD.
250 MMFD.
.005 MFD. 600V.
.02 MFD. 400 V.
220K
1M.
470 K
1W. 390 Ω
.005 MFD. 600V.
SPEAKER CABLE
SPEAKER SOCKET BOTTOM VIEW
SPEAKER PLUG BOTTOM VIEW
.02 MFD.
1 M.
500K TAP
.015 MFD.
15K
15K 2W
1MFD. 400V
2M.
PHONO PICKUP SOCKET
PHONO PLUG
PHONO MOTOR SOCKET
105-125 V.- A. C. 50-60 ~
9 LINE SWITCH
.05 MFD. 400V.
*44
*44
6.3 V. TO ALL FILAMENTS
M = MEGOHMS
K = KILOHMS
BAND SWITCH
POS. 1 - BROADCAST
POS. 2 - SHORTWAVE
POS. 3 - PHONO
TRIMMERS
C1 BC ANT.
C2 BC OSC.
C3 BC PADDER
C4 SW OSC.
C5 SW ANT.
S.W. ANT. COIL
BC.-SW. OSC. COIL
4-6
ALL RESISTORS 1/4 WATT & ALL PAPER CAPACITORS 200 VOLTS UNLESS OTHERWISE MARKED.
1 1.419 BC LOOP ASSEMBLY
2 1.418 SW ANTENNA COIL
3 11.202 BAND SELECTOR SWITCH
4 2.159 2 GANG VAR. CAPACITOR
5 1.417 BC. SW. OSC. COIL
6 1.259 1ST I.F. TRANSFORMER
7 4.101 TRIPLE TRIMMER ASS'Y
8 1.409 2ND I.F. TRANSFORMER
9 8.202-1 VOLUME CONTROL & SWITCH
10 8.200-5 TONE CONTROL
11 5.413 10 MFD. 25V. ELEC. CAP.
12 5.400-4 20-20 MFD. 400V. ELEC. CAP.
13 30.309 10" SPEAKER & OUTPUT TRANSFORMER
14 9.201 POWER TRANSFORMER
15 36.101 AUTOMATIC RECORD CHANGER
45



CAPACITY IN MMF UNLESS NOTED

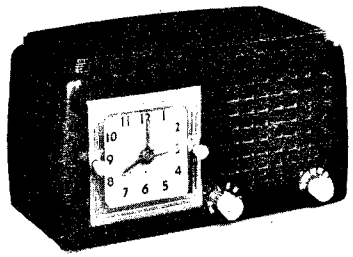
GENERAL ELECTRIC

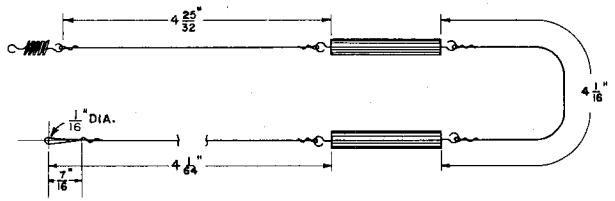
RADIO & CLOCK

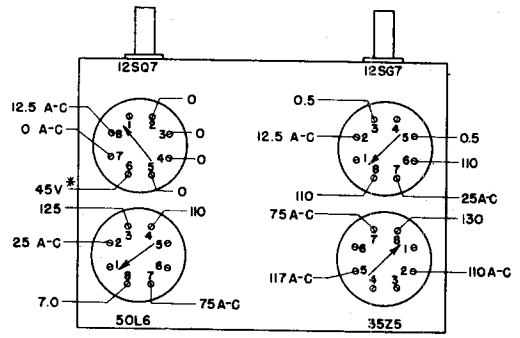
SERVICE DATA

FOR

MODEL 50







*Measured with 20,000 ohm/volt meter

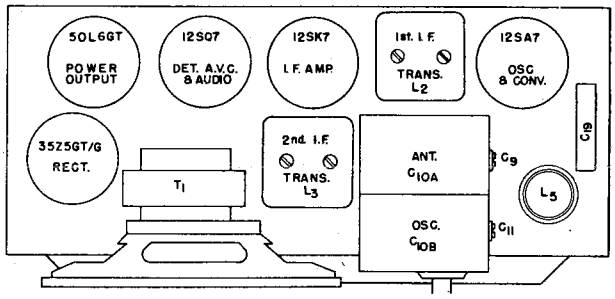
GENERAL ELECTRIC

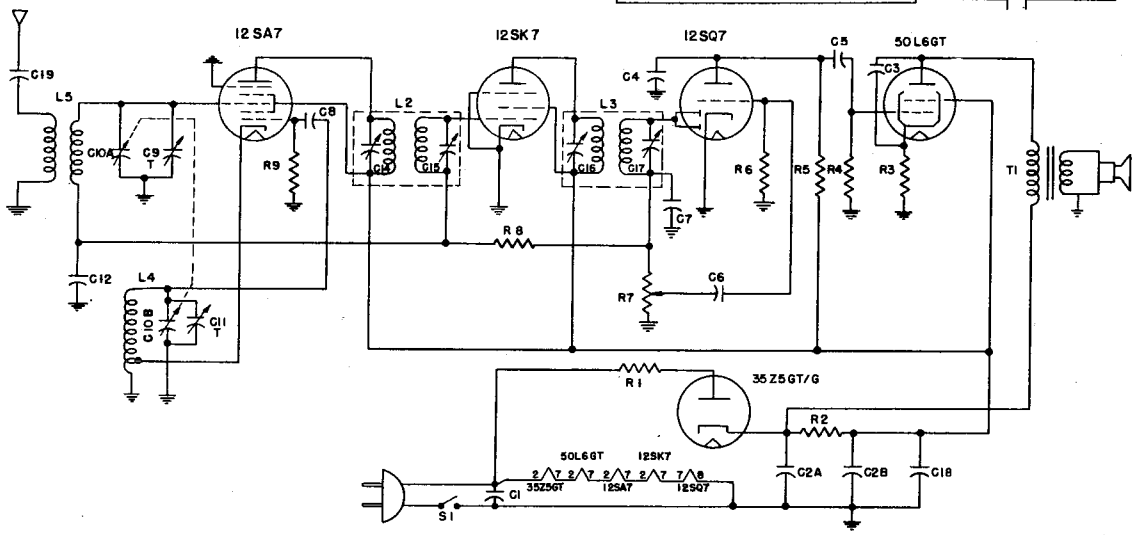
RADIO

SERVICE DATA

FOR

MODELS YRB 60-1 AND YRB 60-2





Symbol	Description	Symbol	Description	Symbol	Description
C1	.05 mfd paper capacitor	C10A	Variable condenser, ant. section	R1	18 ohm ½ watt carbon resistor
C2A	40 mfd 150 volt electrolytic capacitor	C10B	Variable condenser, osc. section	R2	1500 ohm 2 watt carbon resistor
C2B	40 mfd 150 volt electrolytic capacitor	C11	Oscillator trimmer	R3	150 ohm ½ watt carbon resistor
C3	.02 mfd paper capacitor	C12	.05 mfd paper capacitor	R4	470,000 ohm ¼ watt carbon resistor
C4	330 mmfd mica capacitor	C18	.05 mfd paper capacitor	R5	220,000 ohm ¼ watt carbon resistor
C5	.01 mfd paper capacitor	C19	.005 mfd paper capacitor	R6	10 megohm ¼ watt carbon resistor
C6	.005 mfd paper capacitor	L2	1st I.F. transformer	R7	Volume control, 0.5 megohm,
C7	330 mmfd mica capacitor	L3	2nd I.F. transformer	R8	2.2 megohm ¼ watt carbon resistor
C8	47 mmfd mica capacitor	L4	Oscillator coil	R9	22,000 ohm ¼ watt carbon resistor
C9	Antenna trimmer	L5	Antenna coil	T1	Output transformer

ALIGNMENT PROCEDURE

ALIGNMENT FREQUENCIES

I.F. . . . . 455 kc
R.F. . . . . 1725 and 1500 kc
The location of all trimmers is shown in Fig. 1.

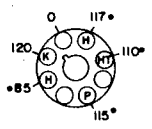
I.F. ALIGNMENT

Connect an output meter across the voice coil. Turn the volume control to maximum. Set test oscillator to 455 kc and keep the oscillator output as low as a readable meter reading will permit. Apply signal to the converter grid through a .05 mfd capacitor and align progressively the trimmers in the 2nd and 1st I.F. transformer cans.

R.F. ALIGNMENT

Apply the R.F. alignment signals through a standard I.R.E. dummy antenna to the receiver antenna post. With the gang condenser wide open, align the oscillator trimmer (C11) to 1725 kc. Change the generator signal to 1500 kc, tune the receiver to the signal and peak antenna trimmer (C9) for maximum output.

35Z5GT/G



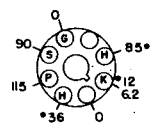
VOLTAGES MEASURED BETWEEN SOCKET TERMINALS AND CHASSIS

● INDICATES A.C. VOLTS
A.C. LINE 117 VOLTS
NO SIGNAL INPUT

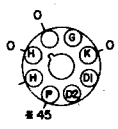
ALL VOLTAGES MEASURED WITH 1000 OHM/VOLT METER

* MEASURED ON 300 V SCALE

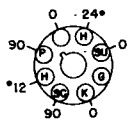
50L6GT



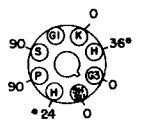
12SQ7

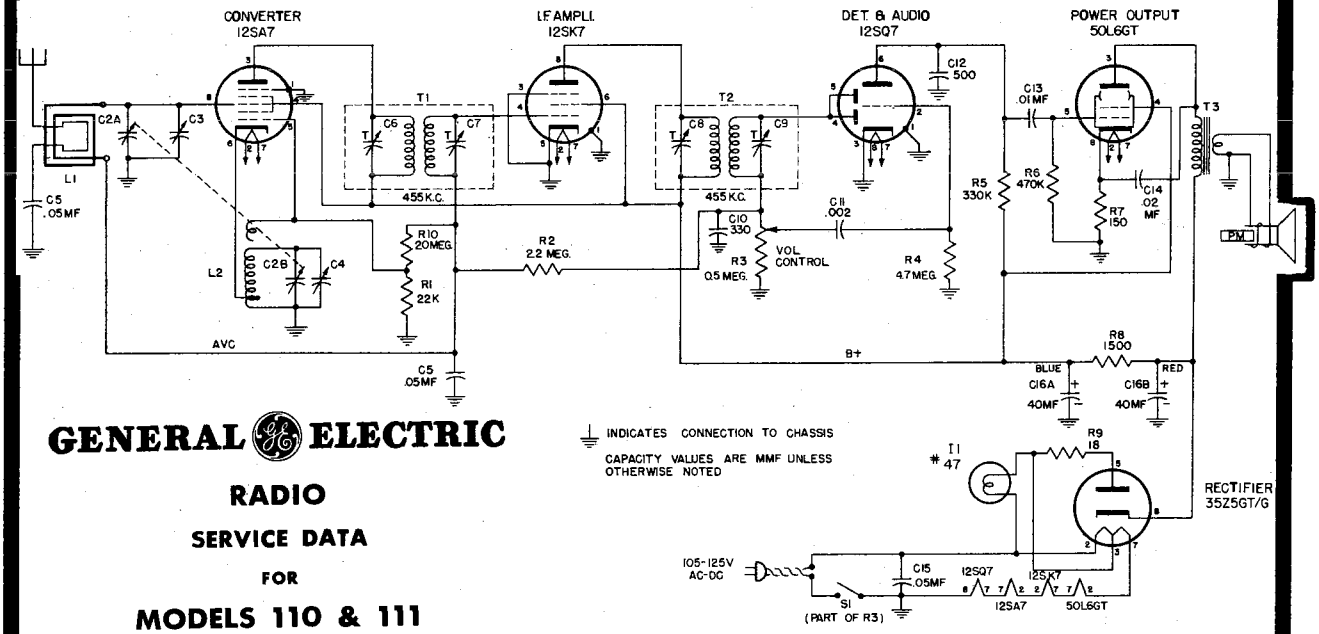


12SK7



12SA7





GENERAL ELECTRIC

RADIO

SERVICE DATA

FOR

MODELS 110 & 111

ELECTRICAL CIRCUIT ALIGNMENT

ALIGNMENT FREQUENCIES:

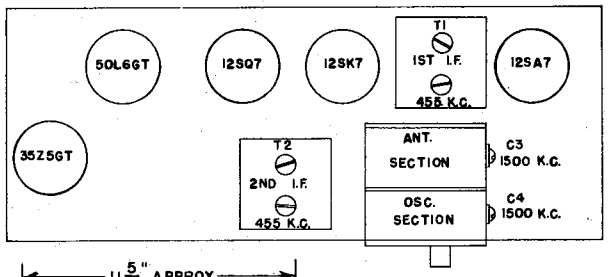
R-F ..... 1500 kilocycles
I-F ..... 455 kilocycles

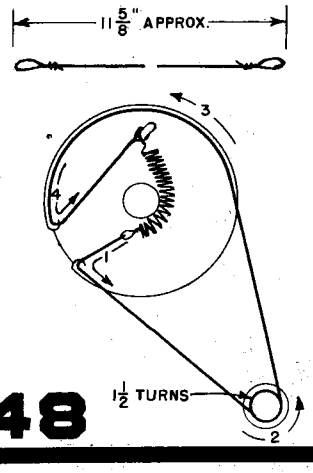
EQUIPMENT REQUIRED:

1. Line isolation transformer.
2. A-c output meter, 1½ volts full scale.
3. Test oscillator with tone modulation.
4. 0.05 mf. paper capacitor.
5. 50 mmf. mica capacitor.
6. Insulated screwdriver.

PROCEDURE—GENERAL. *1.* Remove chassis from cabinet. Turn pointer as far counterclockwise as possible. The pointer should set horizontal. If it doesn't, remove the dial window and slip the pointer on its shaft until it is horizontal.

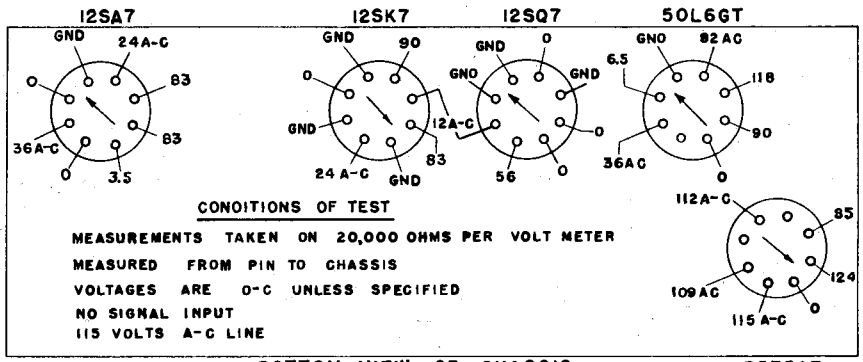
2. Connect the line cord to the line through an isolation 1:1 ratio transformer.
3. Connect output meter across loudspeaker voice coil terminals.
4. Keep radio volume control at maximum and attenuate the test oscillator signal output so that the output meter reading never exceeds 1 volt.
5. For R-F alignment, the Beam-a-scope assembly should be connected and dressed in exactly the same location it would occupy if installed in the cabinet.
6. Connect the capacitor as listed in column 2, between the output "high side" of the test oscillator and the point of input specified.

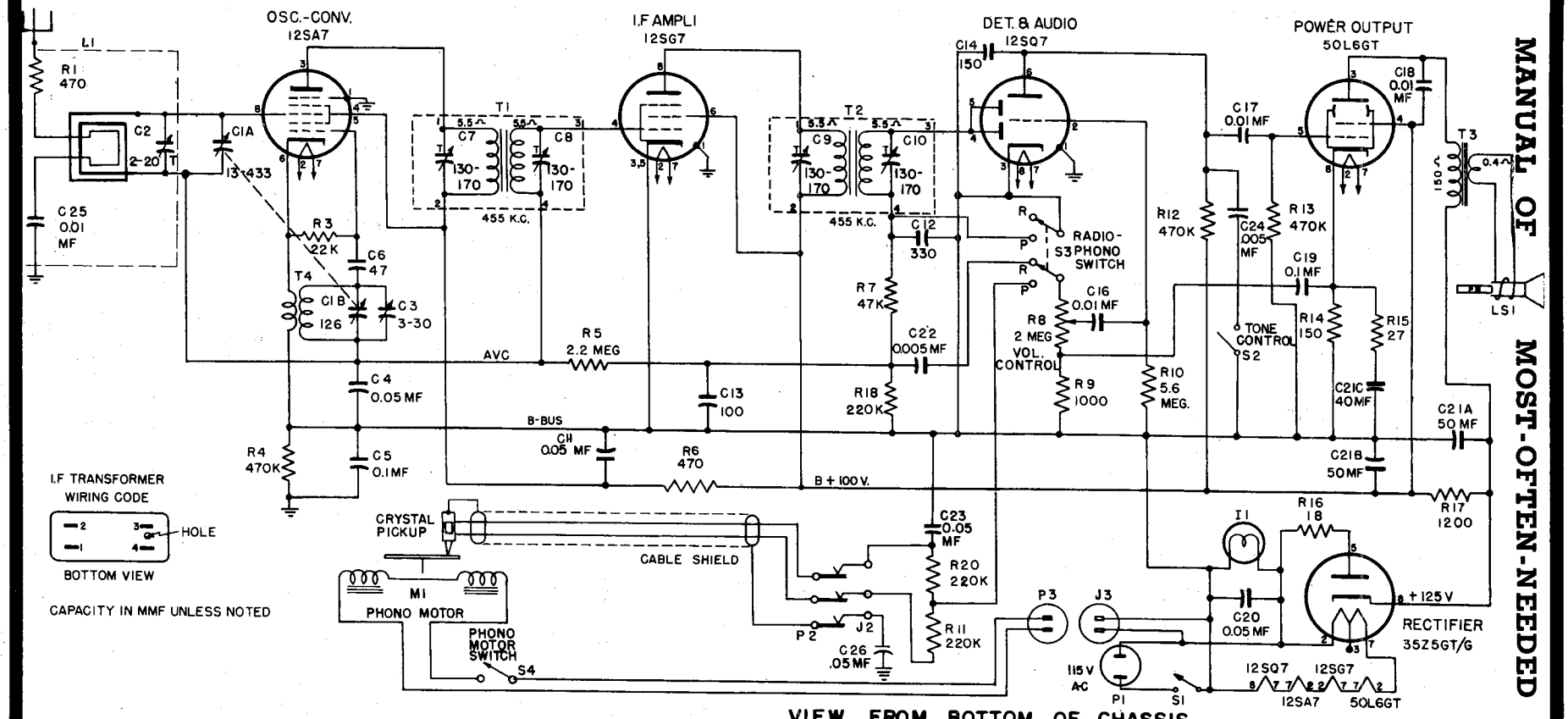




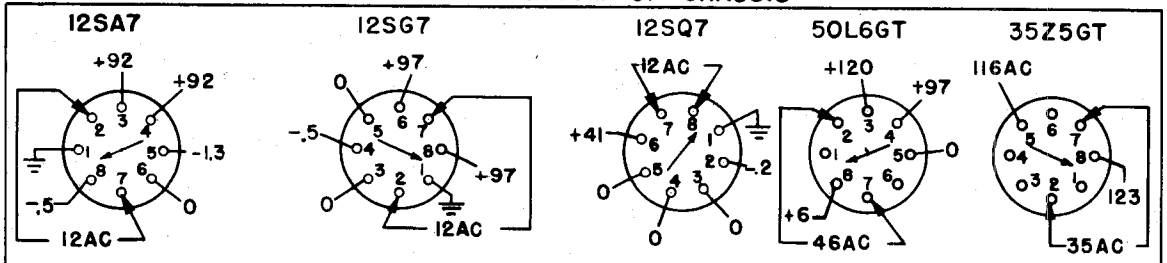
ALIGNMENT CHART

Step	Connect Test Oscillator to	Test Oscillator Setting	Pointer Setting on Radio	Adjustment for Maximum Output
1	12SG7 grid in series with 0.05 mf. cap.	455 kc	1500 kc	2nd I-F trans. trimmers
2	12SA7 grid in series with 0.05 mf. cap.	455 kc	1500 kc	1st and 2nd I-F trans. trimmers
3	Ant. post in series with 50 mmf.	1500 kc	1500 kc	C4 (osc.)
4	Ant. post in series with 50 mmf.	1500 kc	1500 kc	C3 (R-F)





VIEW FROM BOTTOM OF CHASSIS



GENERAL ELECTRIC

RADIO-PHONOGRAPH

SERVICE DATA

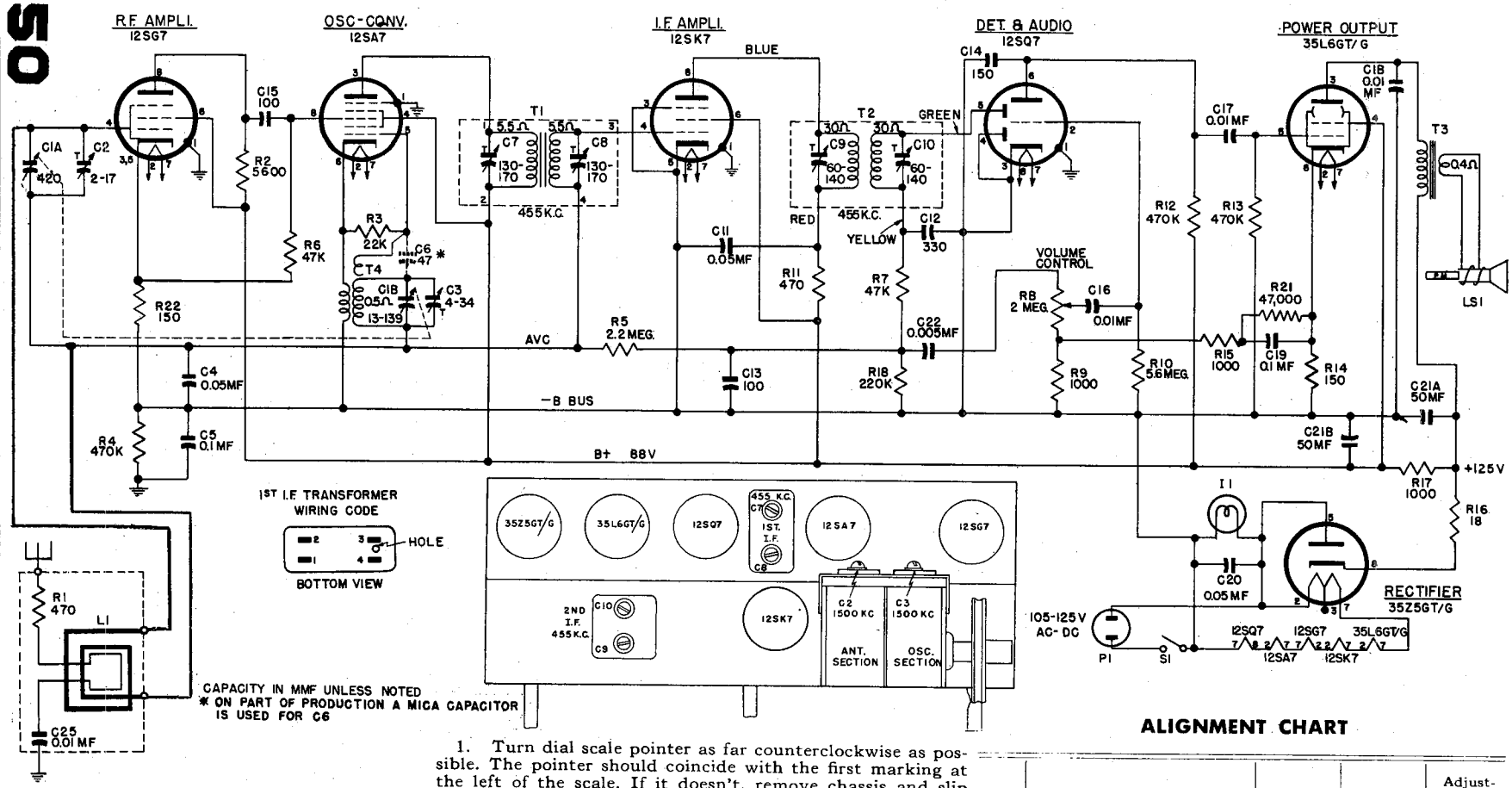
FOR

MODEL 106

CONDITION OF TEST

MEASUREMENTS TAKEN ON 20,000 OHMS PER VOLT METER

MEASURED FROM PIN TO B- BUS UNLESS SHOWN OTHERWISE



GENERAL ELECTRIC

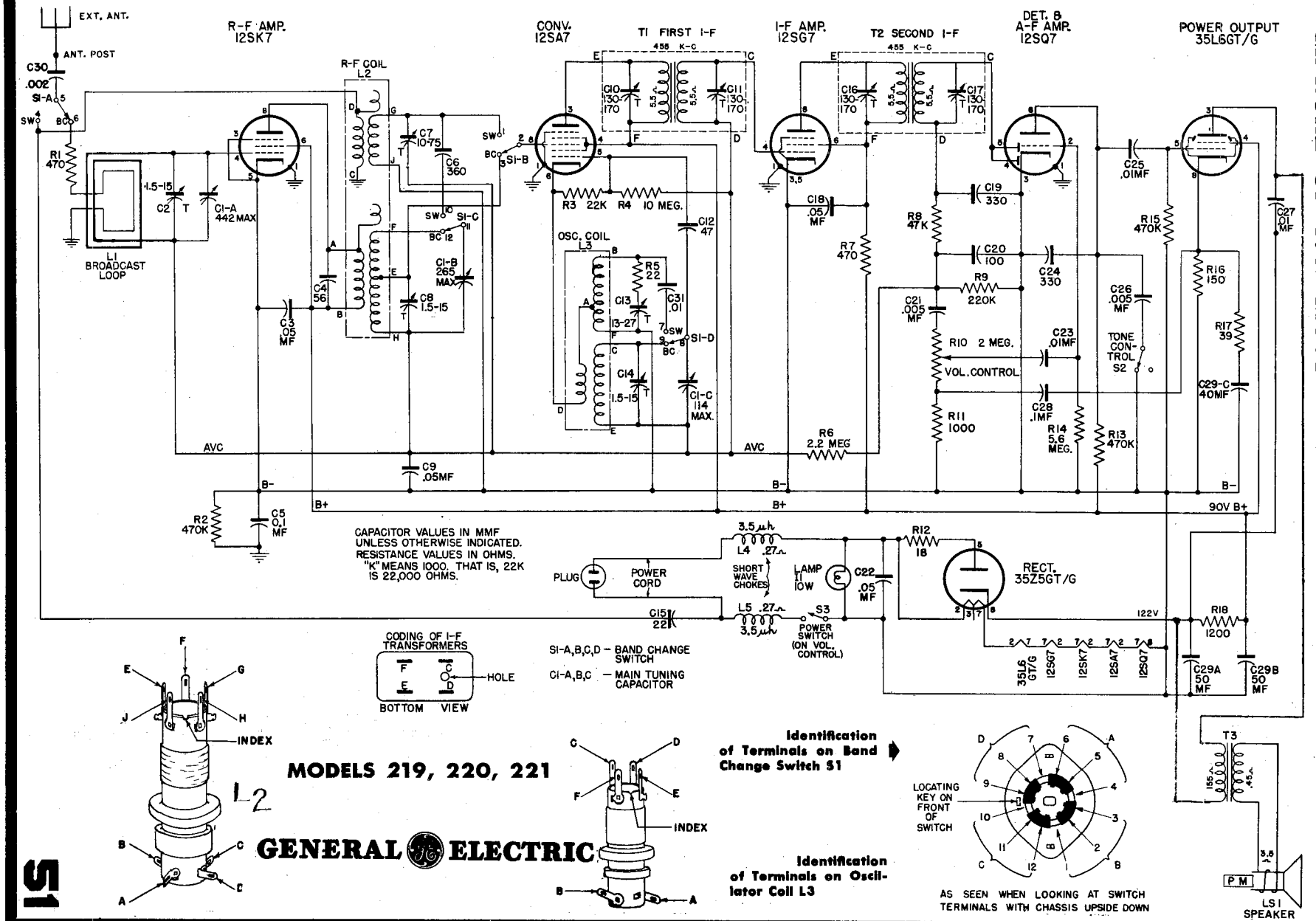
MODELS 200, 203 & 205

1. Turn dial scale pointer as far counterclockwise as possible. The pointer should coincide with the first marking at the left of the scale. If it doesn't, remove chassis and slip pointer on shaft until the pointer is under reference mark when chassis is bolted in place.
2. For i-f and r-f alignments, the output meter is connected across the loudspeaker voice coil terminals.
3. Keep radio volume control at maximum and attenuate test oscillator signal output so that the output meter reading never exceeds 1¼ volts.
4. The chassis must be removed from the cabinet during I-F alignment. For R-F alignment bolt the chassis in the cabinet securely.
5. Connect the capacitor as listed in column 2, between the output "High Side" of test oscillator and the point of input specified.

ALIGNMENT CHART

Step	Connect Test Oscillator to	Test Osc. Setting	Pointer Setting on Radio	Adjustment for Maximum Output
1	12SK7 grid in series with 0.05 mf cap.	455 kc	1500 kc	2nd I-F Trans. Trimmers
2	12SA7 grid in series with 0.05 mf cap.	455 kc	1500 kc	1st and 2nd I-F Trans. Trimmers
3	Ant. Post in series with 50 mmf	1500 kc	1500 kc	C3 (Osc.)
4	Ant. Post in series with 50 mmf	1500 kc	1500 kc	C2 (R-F)

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



GENERAL ELECTRIC RADIO

TWO-BAND A-C–D-C SUPERHETERODYNE SERVICE DATA

for

MODELS 219, 220, 221

ALIGNMENT

Equipment Needed.

Signal Generator, modulated 30% with 400 cycles.
One—60 mmf. capacitor
One—.05 mf. capacitor
One—400-ohm resistor
One—output meter
One—insulated screw driver.

General.

For a complete alignment, the i-f should be aligned before the r-f.

The i-f sections may be aligned with the chassis removed from the cabinet, but for the final r-f alignment the chassis should be in place, in the cabinet.

Fig. 3 identifies and locates all trimmers.

Be sure the radio has been "on" for at least 10 minutes before making any alignment adjustments.

In order to be sure of frequency stability in the signal generator, follow the manufacturer's recommended procedure for use.

When making connections to the signal generator, avoid any ground connections to the radio unless an isolation transformer is used in the power line.

I-F Alignment.

1. Remove chassis from cabinet.
2. Connect output meter across the speaker voice coil.
3. Set volume control for maximum.
4. Connect output terminal of signal generator through a .05 mf. capacitor to pin 4 of the 12SG7 (i-f amplifier) tube.
5. Set signal generator frequency to 455 kc.
6. Set dial pointer on radio to approximately 1500 kc.
7. Peak second i-f trimmers, C16 and C17, for maximum output.
8. It is important to keep the output reading under 1¼ volts by reducing the input or gain control so as to avoid spurious results due to a.v.c. action.
9. Disconnect signal generator from 12SG7 and connect (through .05 mf. capacitor) to pin eight of the 12SA7 converter.
10. Keeping output below 1¼ volts as before, peak the first i-f trimmers, C10 and C11, for maximum output.
11. Check second and first i-f trimmer adjustments.

Broadcast R-F Alignment.

When making the following alignment, the Beam-a-Scope (loop antenna) must be mounted to the chassis, and the chassis must be installed in the cabinet. All trimmer adjusting screws are available through the hole in the loop antenna frame.

1. Connect the output of the signal generator through a 60 mmf. capacitor, to the radio antenna post.
2. Set the signal generator and dial pointer to 1500 kc.
3. Adjust C14, C8, and C2 for maximum output. If two peaks are obtained when adjusting C14, the correct point is the one with the trimmer plates the furthest apart.

Shortwave R-F Alignment.

1. Set Band Change switch to SW position.
2. Set dial pointer and signal generator to 9.5 mc.
3. Remove chassis carefully, so as not to disturb the setting of the dial pointer.
4. Connect the output of the signal generator through a .05 mf. capacitor to pin eight of the 12SA7 converter tube.
5. Adjust C13 (under the chassis) for maximum output. Two points of maximum output may be obtained. The correct point is the one with the trimmer plates closest together.
6. Remove the signal generator connection, and connect its output through a 400-ohm resistor to the radio antenna post. Peak C7 for maximum output while rocking-in the main tuning condenser.
7. Replace the chassis in the cabinet, and check the setting of C7.

STAGE GAINS AND VOLTAGE CHECKS

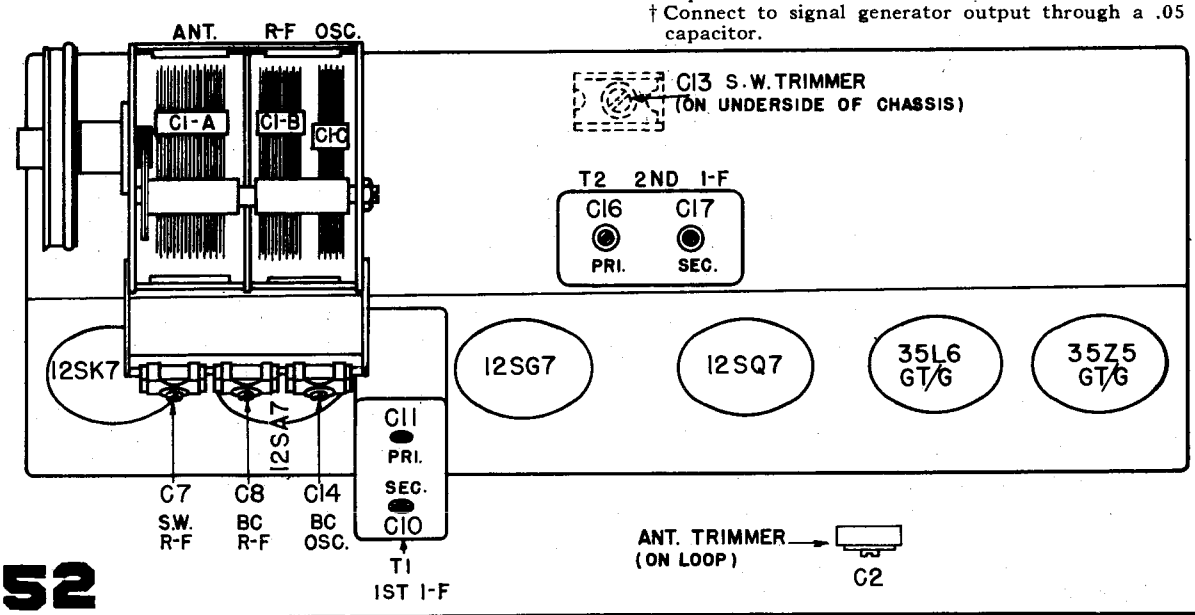
The following information will be useful to servicemen equipped with vacuum tube voltmeters or similar voltage measuring instruments. The stage gain values listed may have a tolerance of 20%.

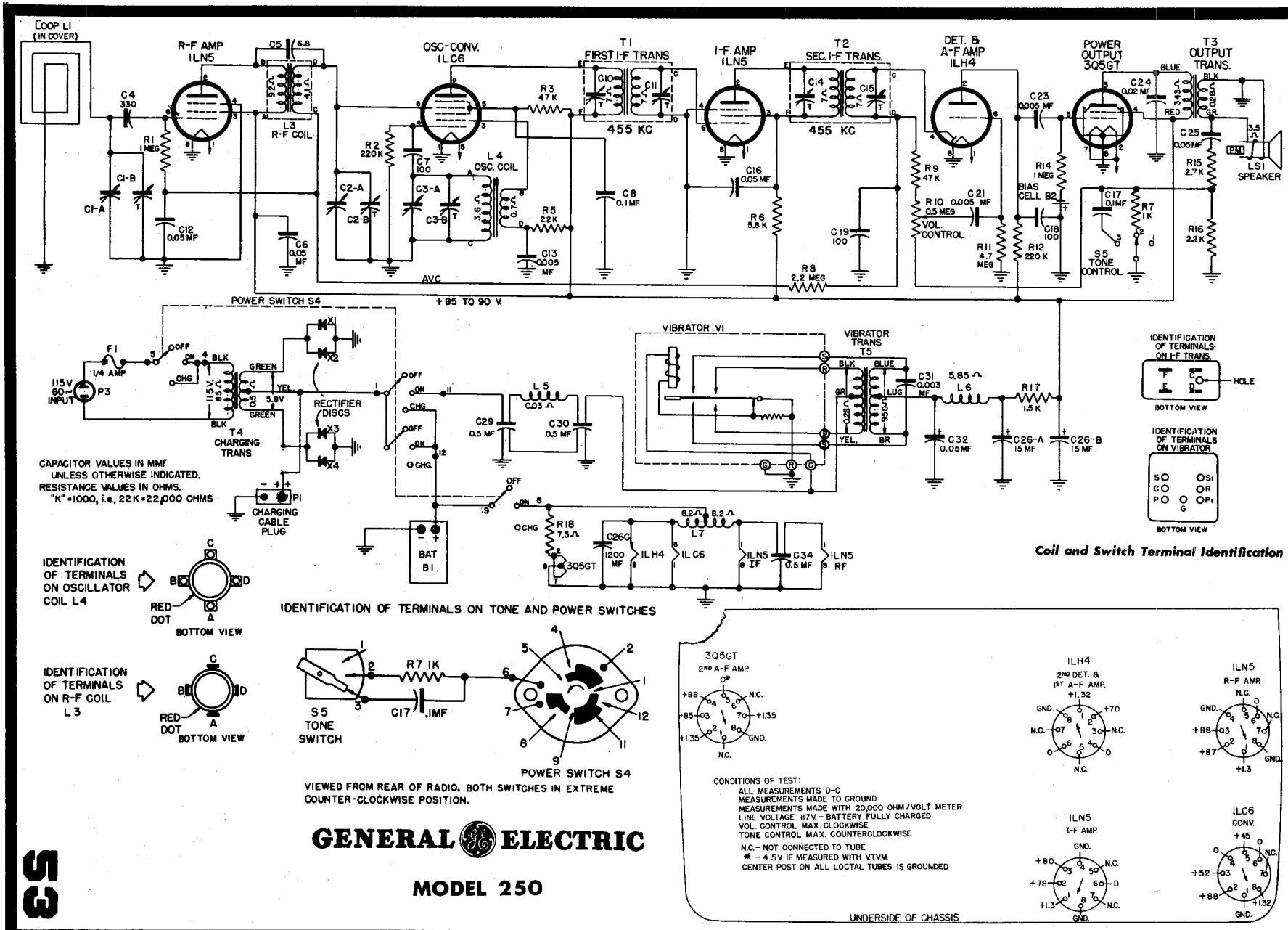
Stage Gains.

(1)	Antenna terminal* to pin 4 of 12SK7	4 @ 1000 kc
(2)	Pin 4 of 12SK7† to pin 8 of 12SA7	10 @ 1000 kc
(3)	Pin 8 of 12SA7† to pin 4 of 12SG7	35 @ 455 kc
(4)	Pin 4 of 12SG7† to pins 4 or 5 of 12SQ7	100 @ 455 kc

* Connect to signal generator output through a 60 mmf. capacitor.

† Connect to signal generator output through a .05 mf. capacitor.



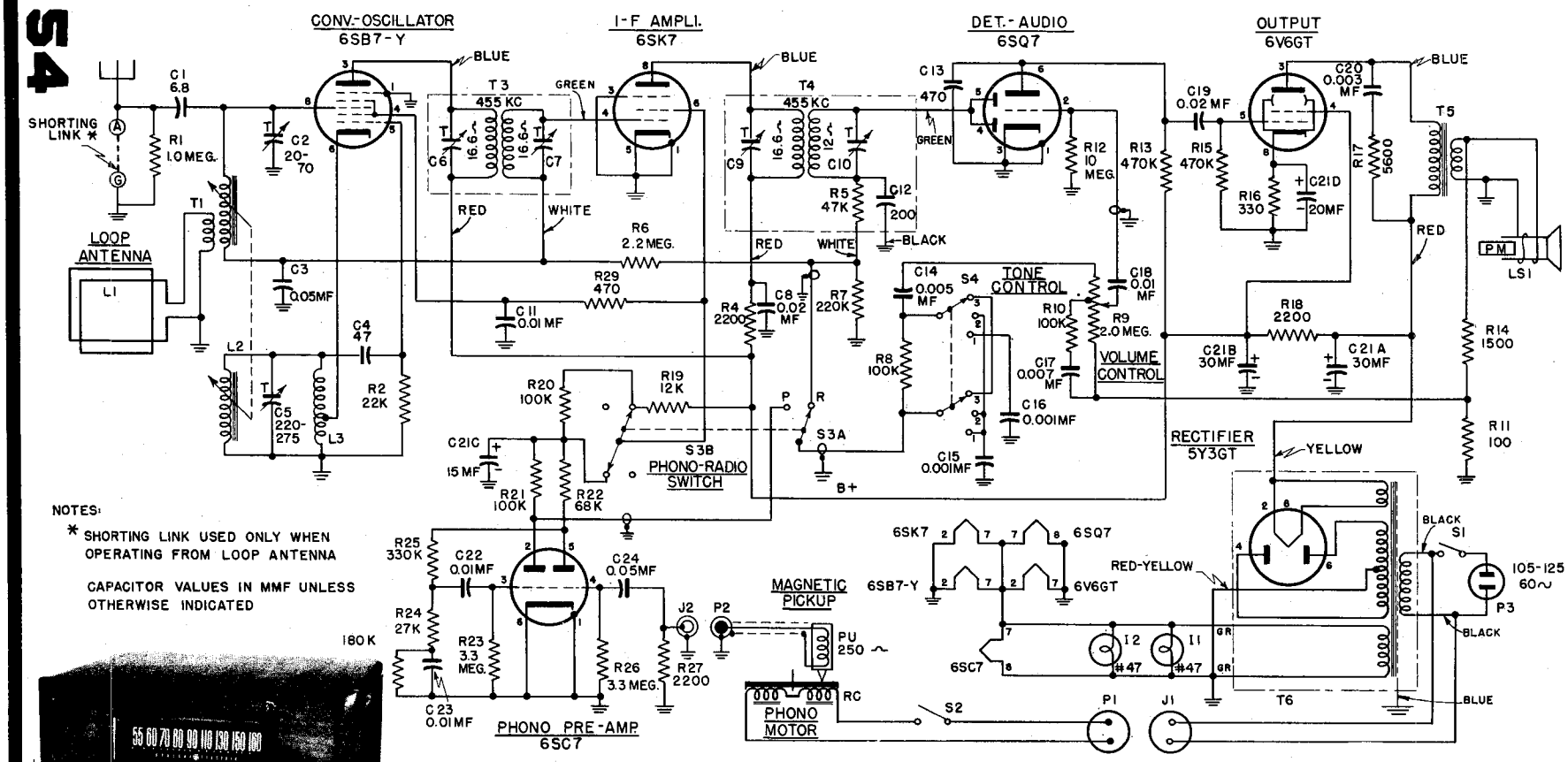


MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

GENERAL ELECTRIC

MODEL 250

53



NOTES:

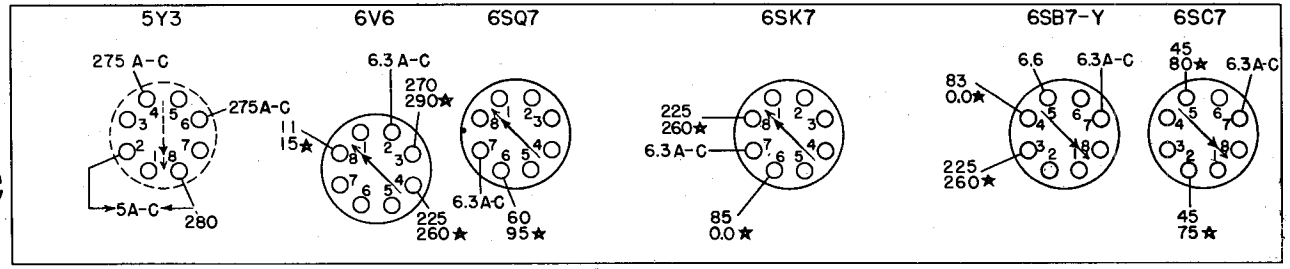
* SHORTING LINK USED ONLY WHEN OPERATING FROM LOOP ANTENNA

CAPACITOR VALUES IN MMF UNLESS OTHERWISE INDICATED

GENERAL ELECTRIC

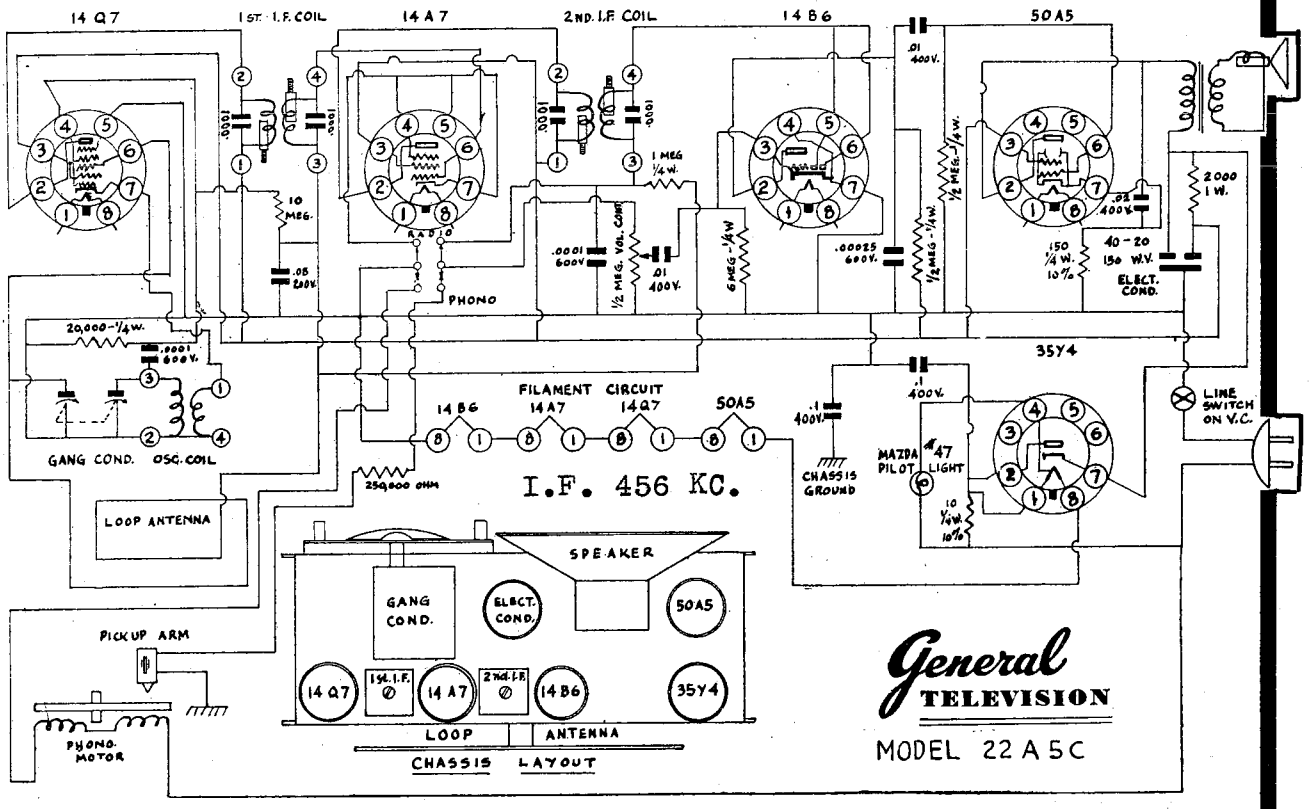
RADIO

SERVICE DATA FOR MODEL 303



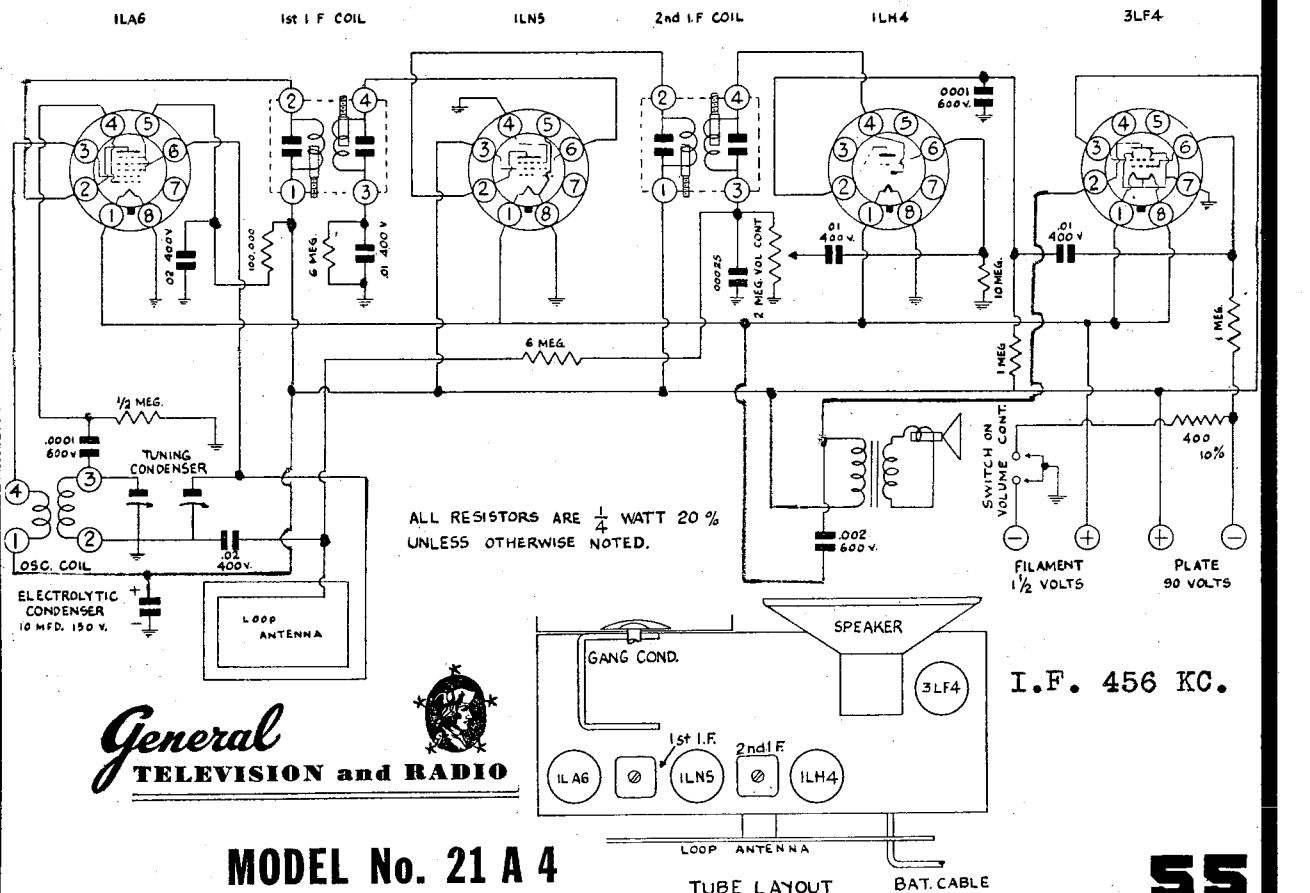
VALUES OBTAINED WITH 20000 OHMS PER VOLT METER
READINGS ARE BETWEEN PIN AND CHASSIS WITH A LINE VOLTAGE OF 117 VOLTS

★ VALUES OBTAINED WITH RADIO-PHONO SWITCH IN PHONO POSITION
ALL READINGS TAKEN WITH RADIO-PHONO SWITCH IN RADIO POSITION UNLESS OTHERWISE INDICATED



General TELEVISION

MODEL 22 A 5C



General TELEVISION and RADIO

I.F. 456 KC.

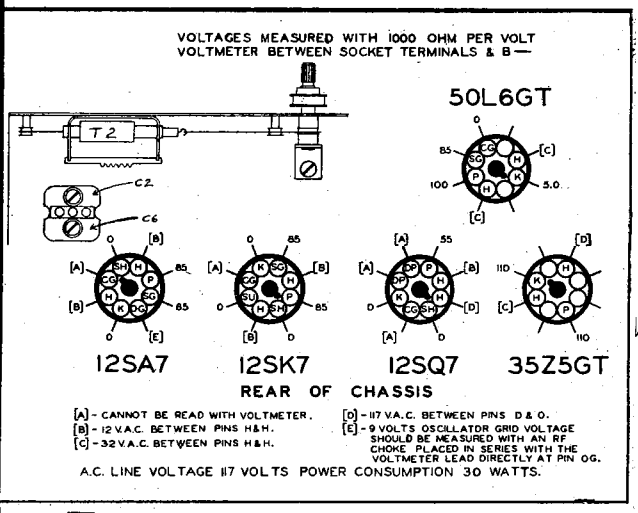
MODEL No. 21 A 4

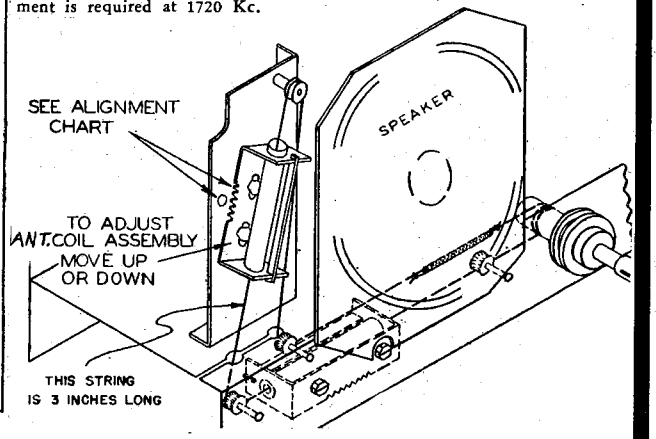
W. T. GRANT COMPANY

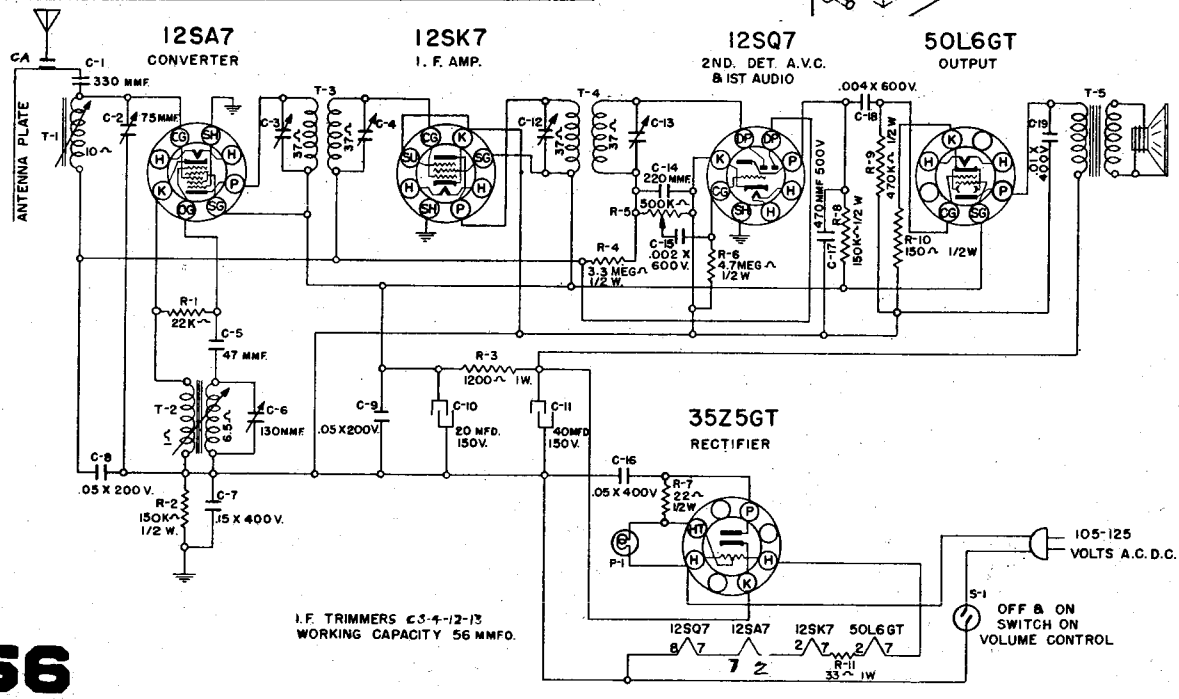
Models 500 and 501—Series A

SIGNAL GENERATOR				TUNER SETTING	ADJUST TRIMMERS MAXIMUM OUTPUT (in order shown)
Frequency	Dummy Antenna	Connection to Radio	Ground Connection		
455 kc	.1 mf	Metal antenna plate	12SQ7 Pin 3	Iron cores all the way out	Trimmers on output and input I.F. cans
1720 kc	.1 mf	Metal antenna plate	12SQ7 Pin 3	Iron cores all the way out	Oscillator trimmer C6
1720 kc	200 mmf	External antenna clip	12SQ7 Pin 3	Iron cores all the way out	Antenna trimmer C2
1400 kc	200 mmf	External antenna clip	12SQ7 Pin 3	Turn dial to 1400 kc	Adjust position of ant. coil (see coil assembly view)
1720 kc	200 mmf	External antenna clip	12SQ7 Pin 3	Turn dial to 1720 kc	Antenna trimmer C2

After the antenna coil has been tracked at 1400 Kc. it is necessary to check the antenna trimmer (C2) adjustment again at 1720 Kc. If no appreciable change in trimmer adjustment is made the coil is in track, if the trimmer requires considerable change it will be necessary to again adjust the position of the antenna coil at 1400 Kc. These two adjustments should be tried several times until no change of trimmer adjustment is required at 1720 Kc.

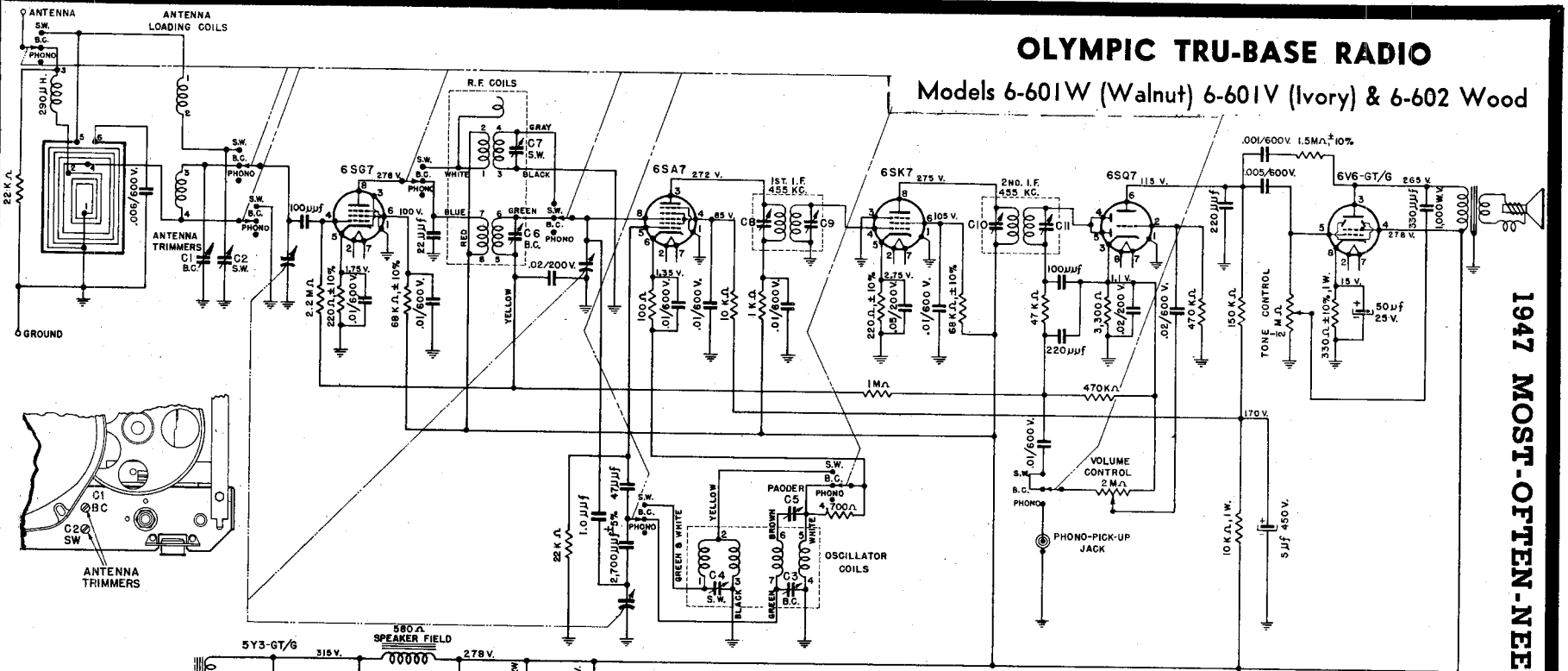


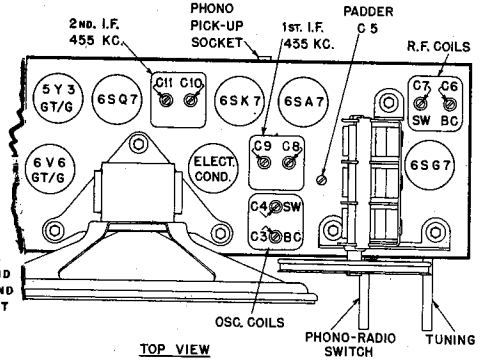




OLYMPIC TRU-BASE RADIO

Models 6-601W (Walnut) 6-601V (Ivory) & 6-602 Wood





TOP VIEW

NOTES:

1. ALL RESISTORS ±20% TOLERANCE, ½ WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ±20% TOLERANCE, UNLESS OTHERWISE SPECIFIED.
3. BAND SELECTOR SWITCH SHOWN IN BROADCAST POSITION.
4. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND GROUND, WITH VOLUME CONTROL FULL ON AND WITH BAND SWITCH SET IN "B.C." POSITION USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ±10%, MEASURED WITH AN INPUT VOLTAGE OF 117 V., 60 CYCLES, A.C.
5. TERMINAL NUMBERS ON ANTENNA LOOP CORRESPOND WITH TERMINAL LUGS ON LOOP ON BACK OF CHASSIS.

STEP	SET BAND SWITCH ON	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO-	SET SIGNAL GENERATOR TO-	TURN POINTER TO-	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE).
1	B.C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 4 OF THE 6SK7 TUBE IN SERIES WITH A .1 MFD. 400 VOLT CONDENSER.	455 KC.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN).	C 11 AND C 10 (2ND. I.F. TRANSFORMER)
2	B.C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 6 OF THE 6SA7 TUBE IN SERIES WITH A .1 MFD. 400 VOLT CONDENSER.	455 KC.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN).	C 9 AND C 8 (1ST. I.F. TRANSFORMER)
3	B.C.	REPEAT STEPS 1 AND 2			
4	B.C.	USE RADIATED SIGNAL (CONNECT BOTH SIDES OF SIGNAL GENERATOR TO RADIATION LOOP).	1700 KC.	1700 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 3 (OSCILLATOR TRIMMER)
5	B.C.		1400 KC.	RESONANCE, APPROXIMATELY 1400 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 6 AND C 1 (R.F. AND ANTENNA TRIMMERS)
6	B.C.		600 KC.	RESONANCE, APPROXIMATELY 600 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 5 (PADDER) ROCK VARIABLE FOR MAXIMUM SIGNAL
7	B.C.	REPEAT STEPS 4, 5 AND 6			
8	S.W.		18 MC.	18 MC. CALIBRATION POINT ON DIFFUSER PLATE	C 4 (OSCILLATOR TRIMMER) SECOND PEAK FROM TIGHT POSITION. C 7 (R.F. TRIMMER) SECOND PEAK FROM TIGHT POSITION. C 2 (ANTENNA TRIMMER)
9	S.W.		6 MC.	RESONANCE	CHECK THAT POINTER (AT RESONANCE) COINCIDES WITH 6 MC. CALIBRATION POINT. IF NOT REPEAT STEP 8.
10	S.W.	REPEAT STEPS 8 AND 9			

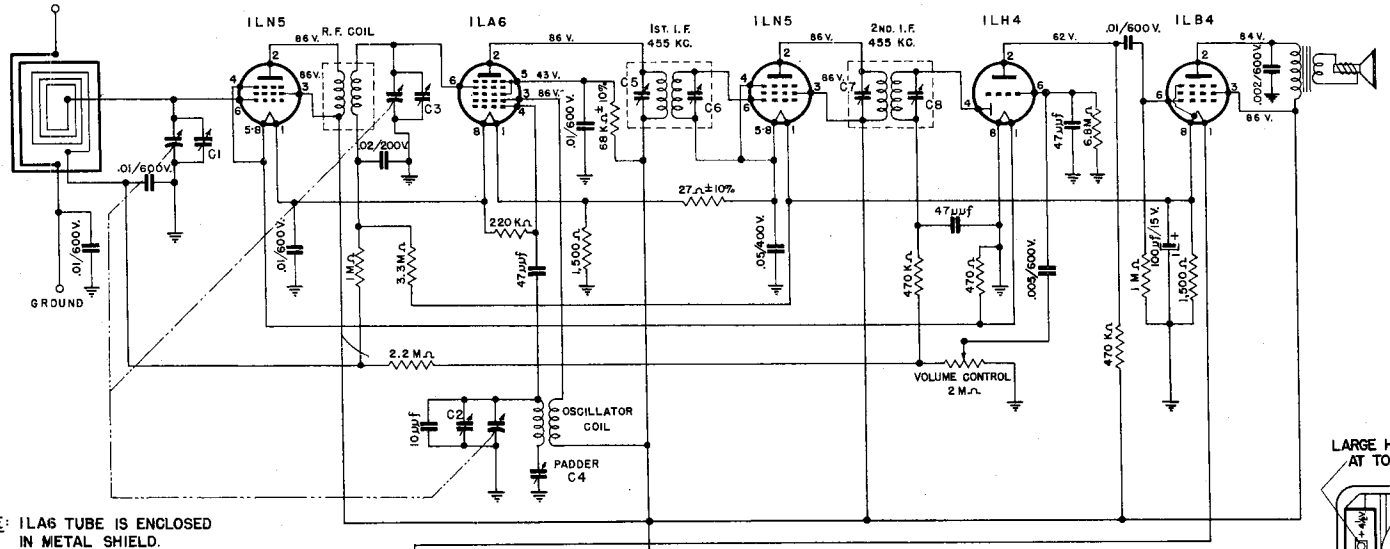
1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

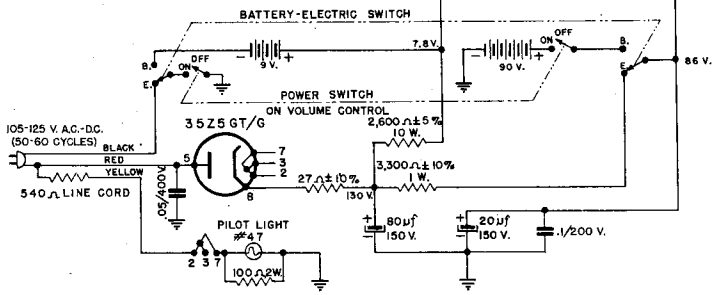
OLYMPIC RADIO

Model 6-606

HAMILTON RADIO

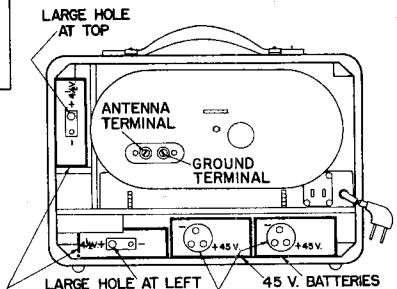


NOTE: 1LA6 TUBE IS ENCLOSED IN METAL SHIELD.

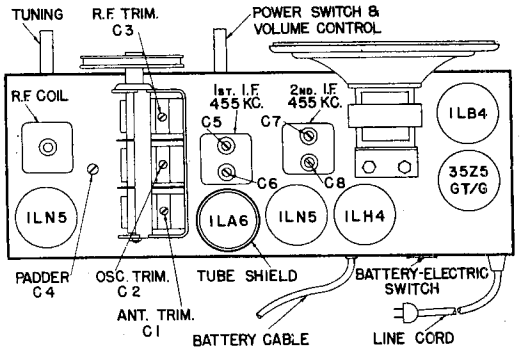


NOTES:

1. ALL RESISTORS ± 20% TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ± 20% TOLERANCE.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND GROUND, WITH VOLUME CONTROL FULL ON, USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ± 10%, EXCEPT FILAMENT VOLTAGE WHICH SHOULD BE KEPT WITHIN ± 5%. ALL READINGS MEASURED ON ELECTRIC POWER OPERATION WITH AN INPUT VOLTAGE OF 117 V., 60 CYCLES, A.C.
4. 1LA6 TUBE IS ENCLOSED IN METAL SHIELD.



REAR VIEW OF CABINET
SHOWING PLACEMENT OF BATTERIES



TOP VIEW OF CHASSIS

ALIGNMENT PROCEDURE CHART

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO-	SET SIGNAL GENERATOR TO-	SET POINTER TO-	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)
1	R.F. SECTION OF VARIABLE CONDENSER IN SERIES WITH .1 MFD. COND.	455 KC.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN.)	C8, C7, C6, C5 AND REPEAT IN SAME ORDER (1ST. AND 2ND. I.F. TRANSFORMERS.)
2	ANTENNA TERMINAL OF ANTENNA LOOP IN SERIES WITH 50 MMFD. COND.	1500 KC.	1500 KC. (150 ON DIAL)	C2, C3, C1 OSCILLATOR, R.F. AND ANTENNA TRIMMERS
3		600 KC.	600 KC. (APPROX. 60 ON DIAL.)	C4 PADDER ROCK DIAL FOR MAXIMUM SIGNAL
4		REPEAT STEPS 2 AND 3		

1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

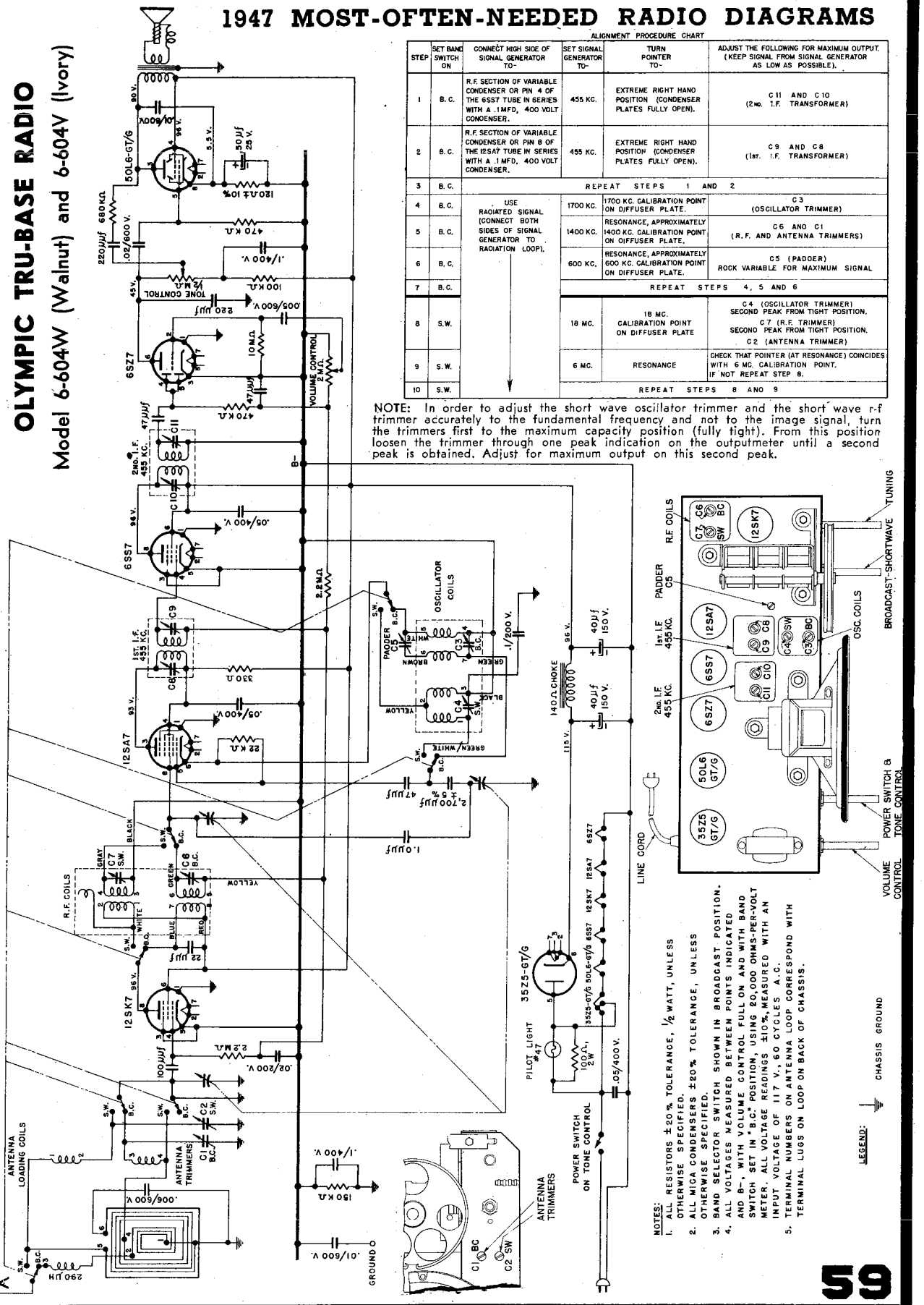
OLYMPIC TRU-BASE RADIO

Model 6-604W (Walnut) and 6-604V (Ivory)

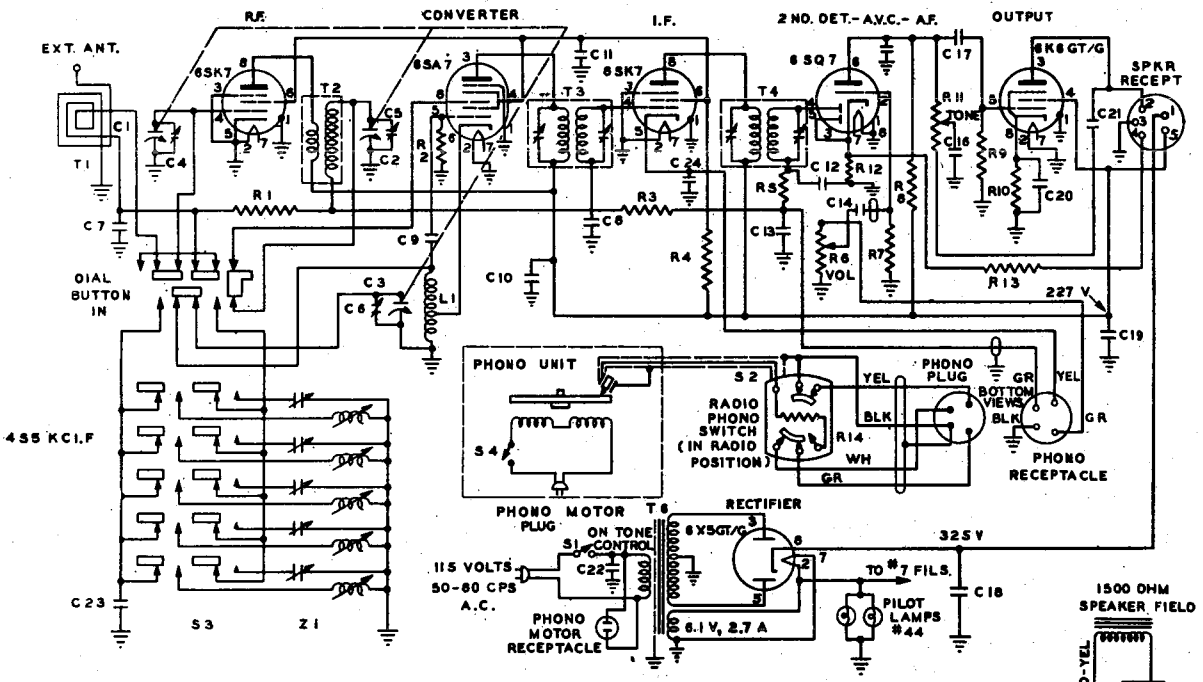
ALIGNMENT PROCEDURE CHART

STEP	SET BAND SWITCH ON	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO-	SET SIGNAL GENERATOR TO-	TURN POINTER TO-	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE).
1	B. C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 4 OF THE 6SS7 TUBE IN SERIES WITH A .1MFD, 400 VOLT CONDENSER.	455 KC.	EXTREME RIGHT HAND POSITION (CONDENSER PLATES FULLY OPEN).	C 11 AND C 10 (2ND. I.F. TRANSFORMER)
2	B. C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 8 OF THE 12SA7 TUBE IN SERIES WITH A .1MFD, 400 VOLT CONDENSER.	455 KC.	EXTREME RIGHT HAND POSITION (CONDENSER PLATES FULLY OPEN).	C 9 AND C 8 (1ST. I.F. TRANSFORMER)
3	B. C.	REPEAT STEPS 1 AND 2			
4	B. C.	USE RADIATED SIGNAL (CONNECT BOTH SIDES OF SIGNAL GENERATOR TO RADIATION LOOP).	1700 KC.	1700 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 3 (OSCILLATOR TRIMMER)
5	B. C.		1400 KC.	RESONANCE, APPROXIMATELY 1400 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 6 AND C 1 (R.F. AND ANTENNA TRIMMERS)
6	B. C.		600 KC.	RESONANCE, APPROXIMATELY 600 KC. CALIBRATION POINT ON DIFFUSER PLATE.	C 5 (PADDER) ROCK VARIABLE FOR MAXIMUM SIGNAL
7	B. C.	REPEAT STEPS 4, 5 AND 6			
8	S.W.		18 MC.	18 MC. CALIBRATION POINT ON DIFFUSER PLATE	C 4 (OSCILLATOR TRIMMER) SECOND PEAK FROM TIGHT POSITION. C 7 (R.F. TRIMMER) SECOND PEAK FROM TIGHT POSITION. C 2 (ANTENNA TRIMMER)
9	S.W.		6 MC.	RESONANCE	CHECK THAT POINTER (AT RESONANCE) COINCIDES WITH 6 MC. CALIBRATION POINT. IF NOT REPEAT STEP 8.
10	S.W.	REPEAT STEPS 8 AND 9			

NOTE: In order to adjust the short wave oscillator trimmer and the short wave r-f trimmer accurately to the fundamental frequency and not to the image signal, turn the trimmers first to the maximum capacity position (fully tight). From this position loosen the trimmer through one peak indication on the outputmeter until a second peak is obtained. Adjust for maximum output on this second peak.



NOTES:
1. ALL RESISTORS ±20% TOLERANCE, ½ WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ±20% TOLERANCE, UNLESS OTHERWISE SPECIFIED.
3. BAND SELECTOR SWITCH SHOWN IN BROADCAST POSITION.
4. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON AND WITH BAND SWITCH SET IN "B.C." POSITION, USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ±10%, MEASURED WITH AN INPUT VOLTAGE OF 117 V., 60 CYCLES A.C.
5. TERMINAL NUMBERS ON ANTENNA LOOP CORRESPOND WITH TERMINAL LUGS ON LOOP ON BACK OF CHASSIS.



SYMBOL	DESCRIPTION
C1-C2-C3	Three-Section Variable (388-388-180 Mmf.)
C4, C5, C6	Trimmers; Part of Variable Condenser
C7, C8	.05 Mfd, 200 Volt, Tubular Paper
C9, C12, C13, C15	100 Mmf ±20%, Mica
C10, C11, C24	.05 Mfd, 400 Volt, Tubular Paper
C14, C16	.005 Mfd, 600 Volt, Tubular Paper
C17	.01 Mfd, 600 Volt, Tubular Paper
C18-C19-C20	Dry Electrolytic Condenser (20-20-20 Mfd/450-450-25 Volt)
C21	.001 Mfd, 600 Volt, Tubular Paper
C22	.01 Mfd, 600 Volt, Tubular Paper (Metal Can)
C23	500 Mmf ±5%, Silver Mica
L1	Oscillator Coil
LS	10" Electrodynamic Speaker (with Transformer)
R1, R8, R14	.22 Megohm ±20%, ½ Watt
R2	22,000 Ohm ±20%, ½ Watt
R3	2.2 Megohm ±20%, ½ Watt
R4	10,000 Ohm ±10%, 2 Watt
R5	47,000 Ohm ±20%, ½ Watt
R6	.5 Megohm Potentiometer (Volume)
R7	10 Megohm ±20%, ½ Watt
R9	.47 Megohm ±20%, ½ Watt
R10	560 Ohm ±10%, ½ Watt
R11	.25 Megohm Potentiometer With Switch (Tone)
R12	47 Ohm ±20%, ½ Watt
R13	330 Ohm ±20%, ½ Watt

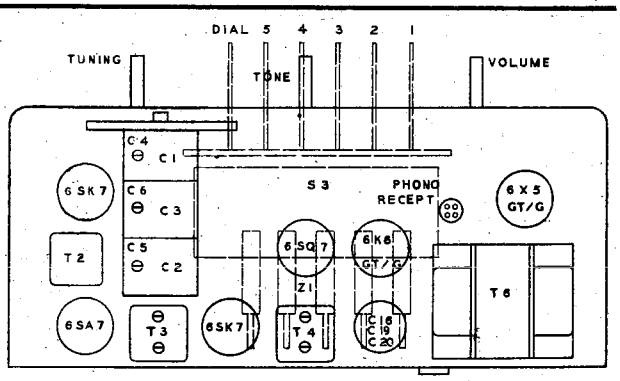
PIN NO.	1	2	3	4	5	6	7	8
6SK7 (R.F.)	0	0	0	—.5	0	+85	6.1A.C.	+227
6SA7	0	0	+227	+85	—7	0	6.1A.C.	—.7
6SK7 (I.F.)	0	0	0	—.7	0	+85	6.1A.C.	+227
6SQ7	0	—.5	0	—.25	0	+95	6.1A.C.	0
6K6GT/G	0	0	+217	+227	0	+325 *	6.1A.C.	+15
6X5GT/G	0	6.1A.C.	290A.C.	—	290A.C.	—	0	+325

D.C. voltages measured with 20,000 ohm/volt meter.
A.C. voltages measured with 1,000 ohm/volt meter.
All voltages measured with reference to chassis.
Line voltage 117.5.

* Means tie point.
NOTE: The above readings are obtained with no signal input to the receiver and the radio-phono switch in the RADIO position.

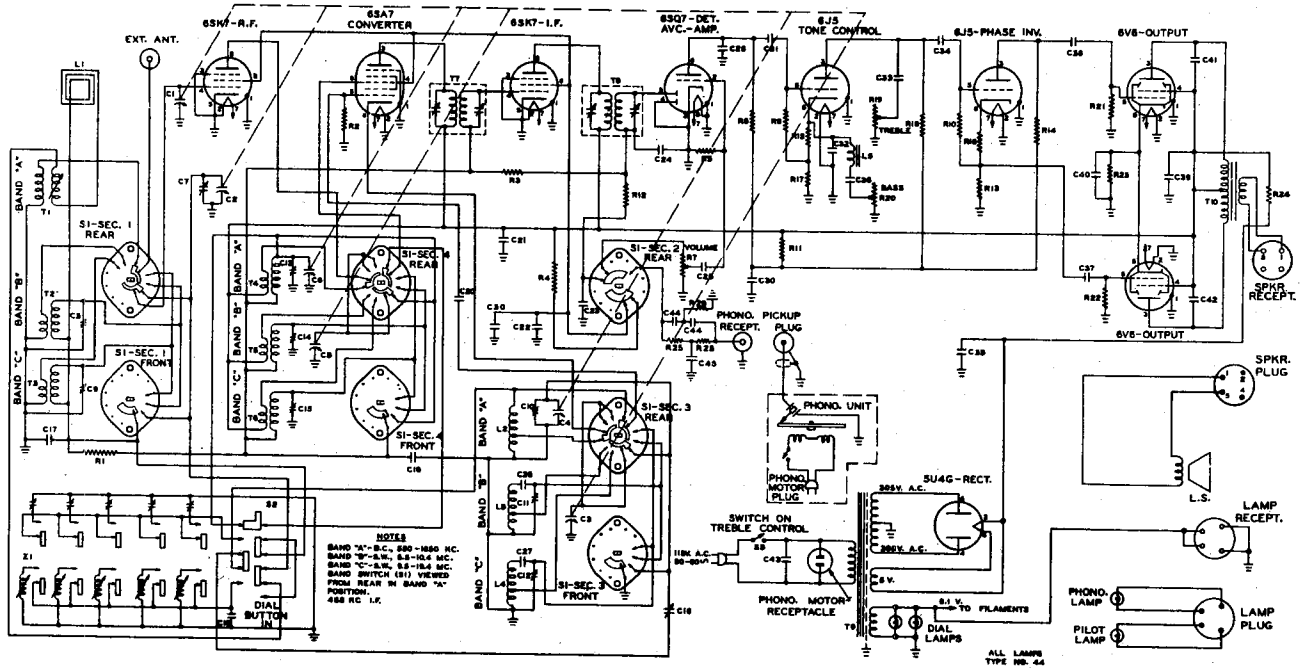
Hoffman Model A500 with Chassis 107S is electrically identical with Chassis 107 except for the following:

1. Ten-inch P.M. speaker, part number 9010, has been substituted for ten-inch electrodynamic speaker, part number 9012.
2. A 1500-ohm resistor, part number 4701, has been connected in the filter circuit in place of the 1500-ohm speaker field.



Hoffman Radio Corp.

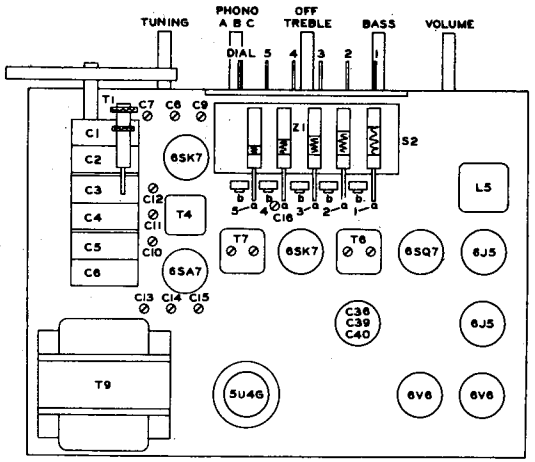
Model A500, Chassis 107



MODEL A 501 CHASSIS No. 108S

Hoffman
RADIO CORP.

LOS ANGELES, CALIFORNIA



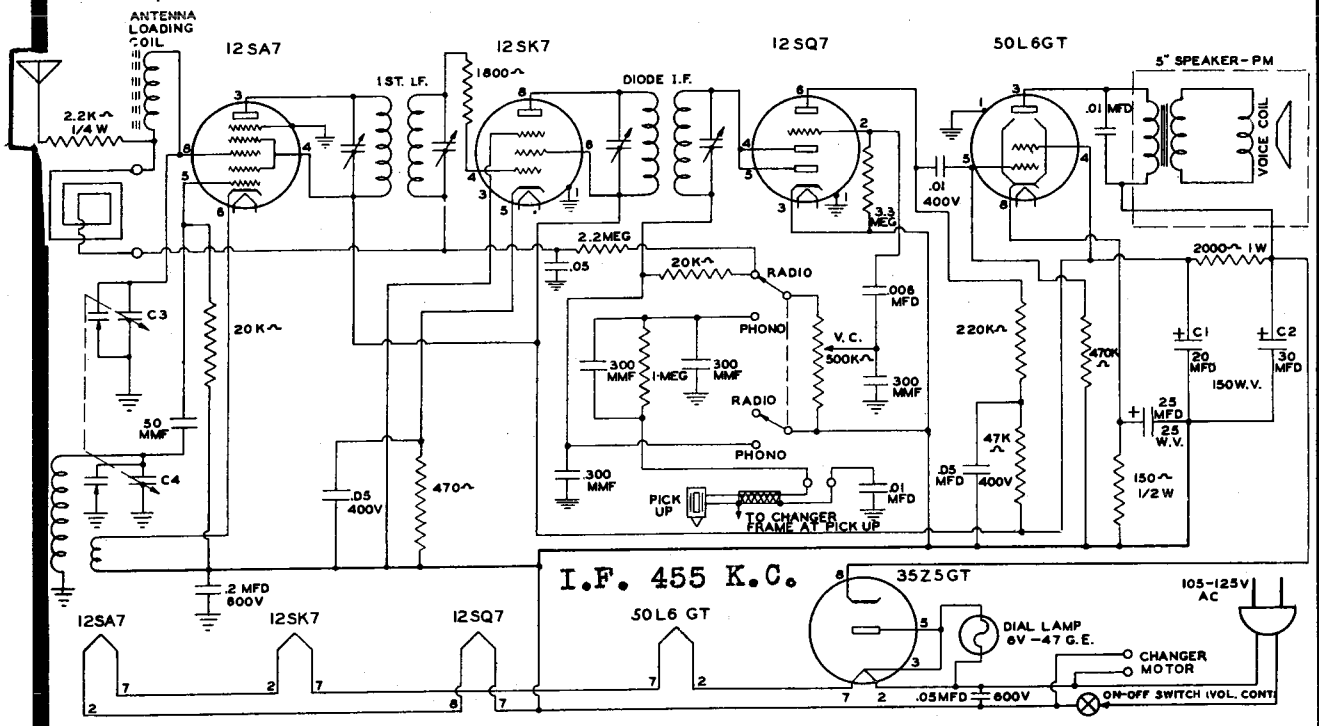
TUNING RANGES:

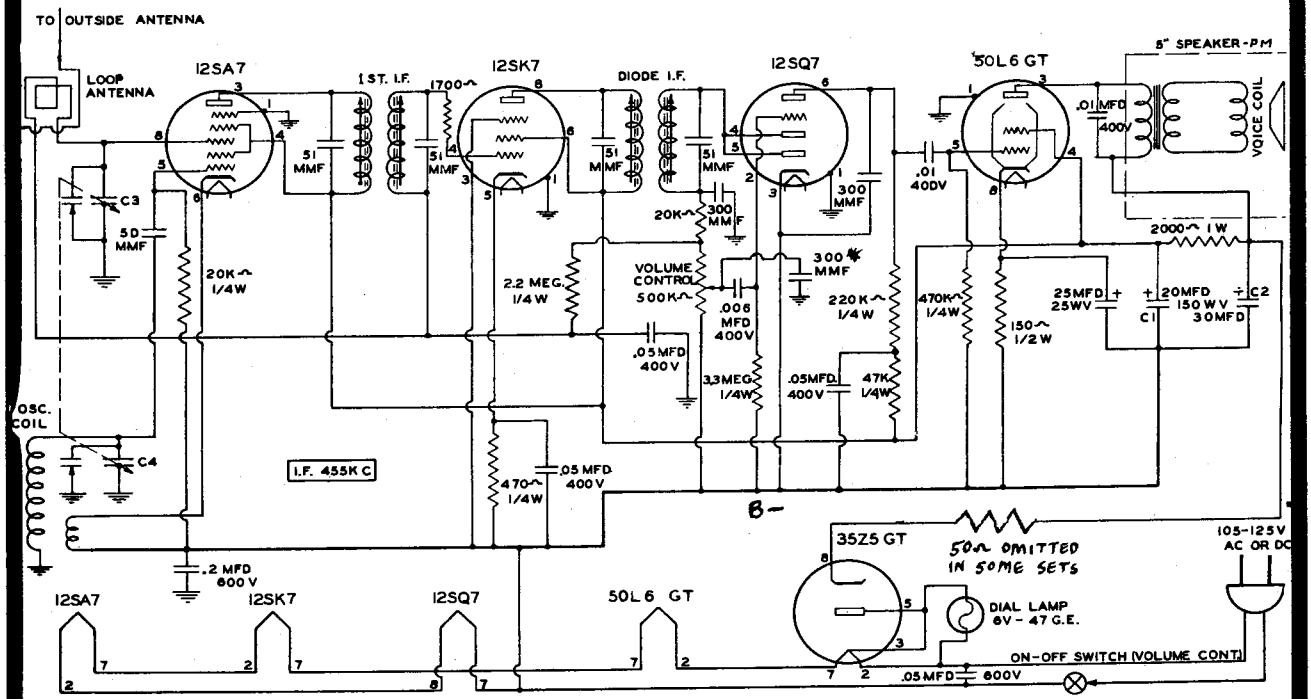
Band "A"	540 Kc to 1600 Kc.
Band "B"	5.6 Mc to 10.4 Mc
Band "C"	9.4 Mc to 19.4 Mc
Intermediate Frequency	455 Kc

SYMBOL	DESCRIPTION
C1-C2, C3-C4, C5-C6	Three-Section Variable with Split Stator, (160-260, 160-260, 160-260 Mmf.)
C7, C8, C9	Three-Section Trimmer Assembly
C10, C11, C12	Three-Section Trimmer Assembly
C13, C14, C15	Three-Section Trimmer Assembly
C16	110-560 Mmf. Padder, Band "A"
C17, C18	.05 Mfd., 200 Volt, Tubular Paper
C19	500 Mmf. ±5%, Silver Mica
C20	47 Mmf. ±10%, Mica
C21, C22	.05 Mfd., 400 Volt, Tubular Paper
C23, C24, C25	100 Mmf. ±20%, Mica
C26	1050 Mmf. ±5%, Mica
C27	2300 Mmf. ±5%, Mica
C28	.005 Mfd., 600 Volt, Tubular Paper
C30	10 Mfd., 450 Volt, Tubular Electrolytic
C31, C32, C33, C34	.01 Mfd., 400 Volt, Tubular Paper
C35	.5 Mfd., 200 Volt, Tubular Paper
C36, C37	.02 Mfd., 400 Volt, Tubular Paper
C38-C39-C40	20-20-20 Mfd./450-450-25 V. Electrolytic
C41, C42	.01 Mfd., 600 Volt, Tubular Paper
C43	.01 Mfd., 600 Volt, Tubular Paper (Metal Can)
C44	330 Mmfd. ±5%, Mica
C45	650 Mmfd. ±5%, Mica
L1	Loop Antenna
L2	Oscillator Coil (Band "A")
L3-L4	Oscillator Coil (Bands "B" and "C")
L5	5 HY Choke (Bass Boost)
LS	12-inch Loudspeaker, Permanent Magnet
R1	.1 Megohm ±20%, ½ Watt
R2	22,000 Ohm ±20%, ½ Watt
R3	2.2 Megohm ±20%, ½ Watt
R4	10,000 Ohm ±20%, 3 Watt
R5	10 Megohm ±20%, ½ Watt
R7	.5 Megohm Potentiometer (Volume Control)
R8	.22 Megohm ±20%, ½ Watt
R9, R10	1 Megohm ±20%, ½ Watt
R11	47,000 Ohm ±20%, 1 Watt
R12	47,000 Ohm ±20%, ½ Watt
R15, R16	2200 Ohm ±20%, ½ Watt
R17, R18	10,000 Ohm ±20%, ½ Watt
R19	.25 Meg. Pot. with Switch (Treble Control)
R20	50,000 Ohm Potentiometer (Bass Control)
R21, R22	.47 Megohm ±20%, ½ Watt
R23	220 Ohm ±20%, 3 Watt
R24	500 Ohm ±10%, 20 Watt
R13, R14, R25	47,000 Ohm ±5%, ½ Watt
R26	22,000 Ohm ±5%, ½ Watt
S1	Band Change Switch
S2	Pushbutton Switch Assembly
S3	On-Off Switch (on Treble Control)
T1	Antenna Coil (Band "A")
T2-T3	Antenna Coil (Bands "B" and "C")
T4	R.F. Coil, Shielded (Band "A")
T5-T6	R.F. Coil (Bands "B" and "C")
T7	Input I.F. Transformer
T8	Output I.F. Transformer
T9	Power Transformer

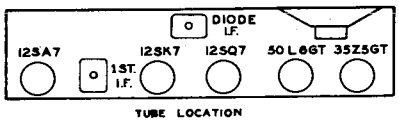
HOWARD RADIO COMPANY

Model 901-AP



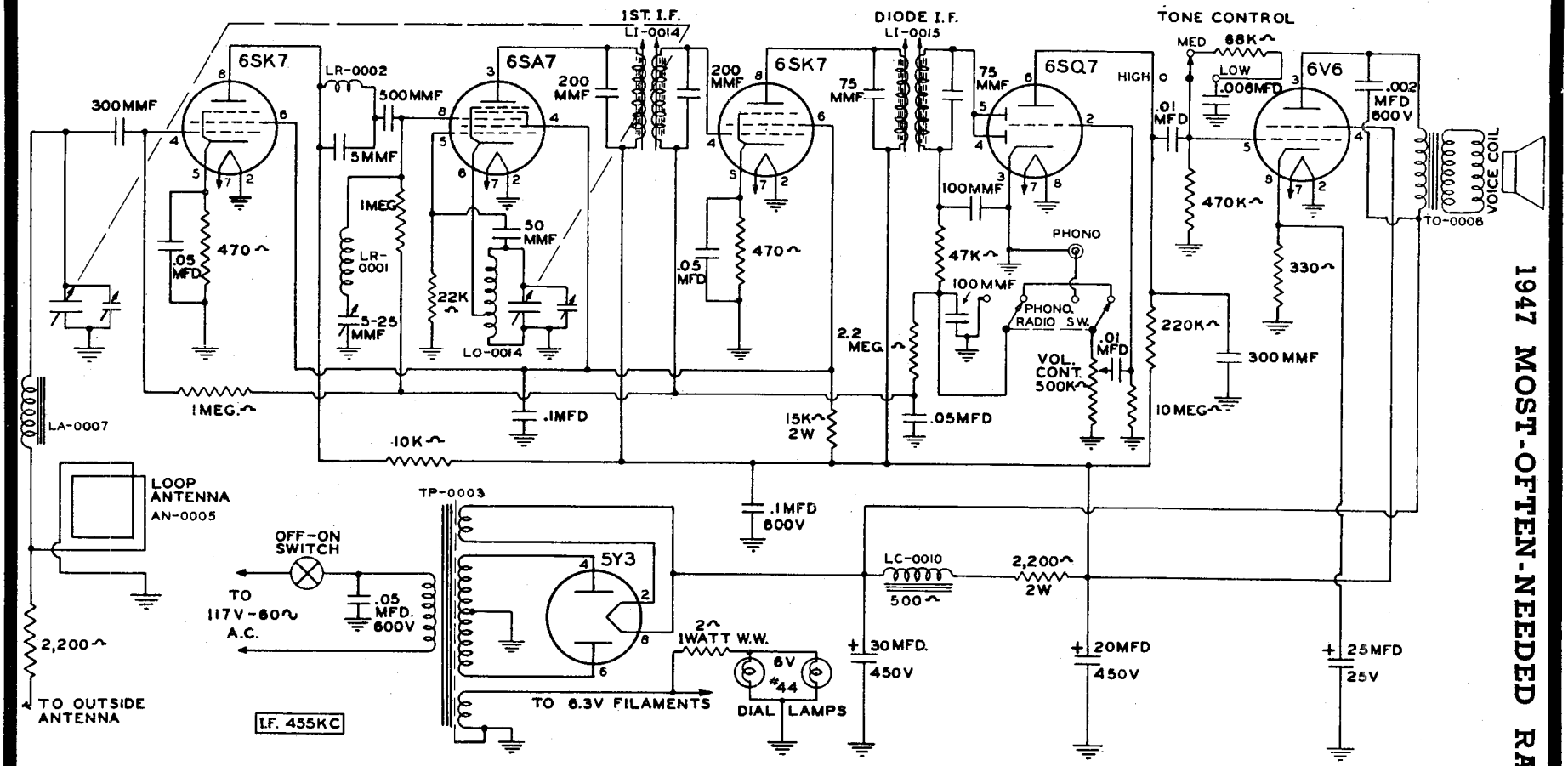


* IN SOME SETS THIS CONDENSER GOES TO B- INSTEAD OF GRN.



TUBE LOCATION

HOWARD RADIO CO.	
MODEL 901-A	
SD-0001-D	



PHONO.-RADIO SWITCH SHOWN IN RADIO POSITION.

HOWARD RADIO COMPANY

MODEL No. 906

Voltage measurements from ground using vacuum tube voltmeter.

Tube	Use	Cath.	S.G.	Plate	B+
6SK7	R.F.	1.8	79	210	
6SA7	Converter		79	230	
6SK7	I.F.	2.3	79	240	
6SQ7	Det.			115	
6V6	Out.	11	235	225	
5Y3				AC	285

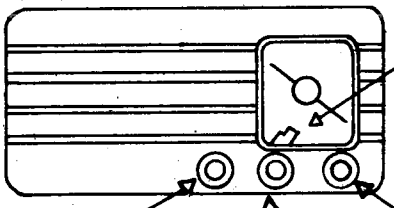
1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

HOWARD RADIO

MODEL 920 BATTERY SET

BATTERIES

1½ Volt "A" Battery
90 Volt "B" Battery
Follow connections as shown on Battery Label.



SWITCH INDICATING FLAG

Battery Saver Full Power "Off" when flag is out of sight.

VOLUME CONTROL

TUNING CONTROL

BATTERY SWITCH

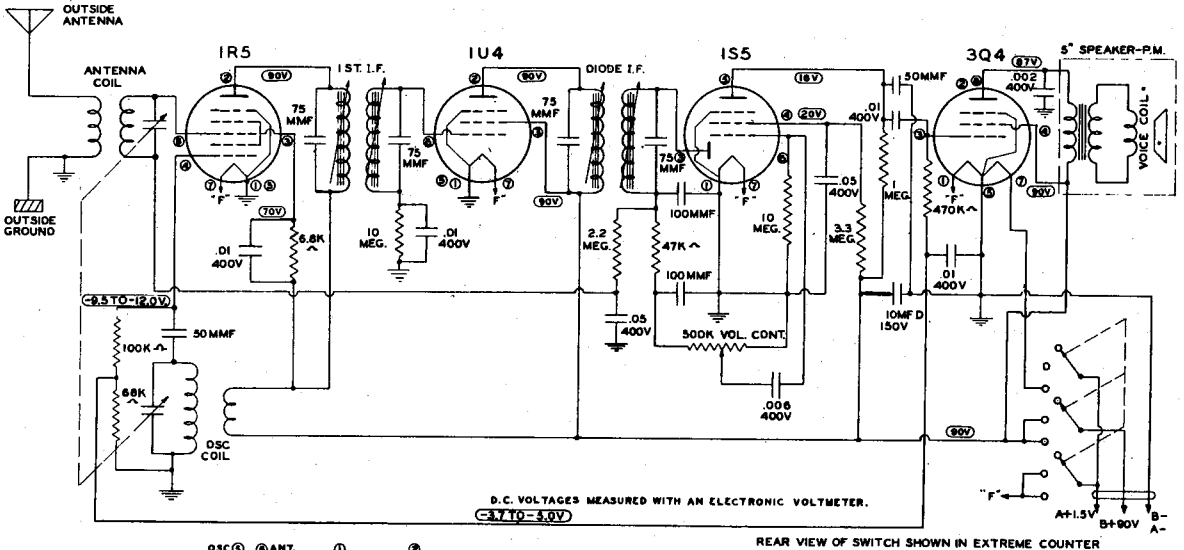
BATTERY CONSERVATION

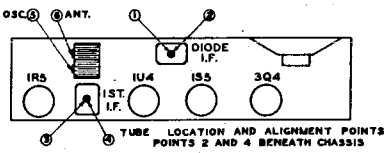
1. Turn Battery Switch "Off" when set is not in use.
2. Use "Battery Saver" on all strong stations.
3. Use heavy duty pack or batteries.
4. The following batteries are some well known makes that can be used with this instrument;
   Burgess No.17GD60
   Eveready No.758

"OFF POSITION": Switch turned counter-clockwise

"BATTERY SAVER": Switch turned clockwise - one step.

"FULL POWER"; Switch turned clockwise - two steps. Flag will indicate "Full Power".



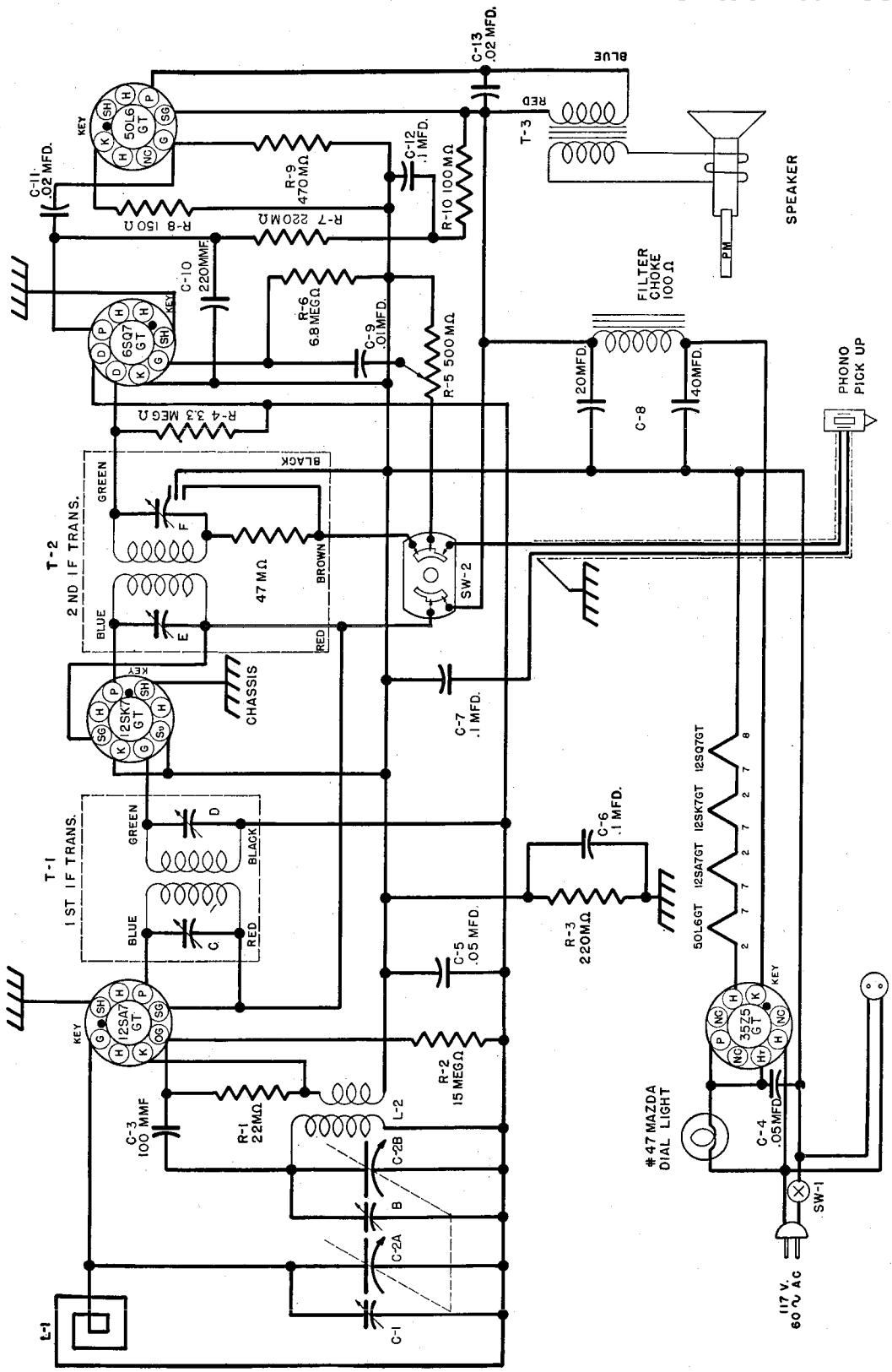


I.F. 455 KC

International Detrola Corp.

FIVE-TUBE, BROADCAST BAND, AC

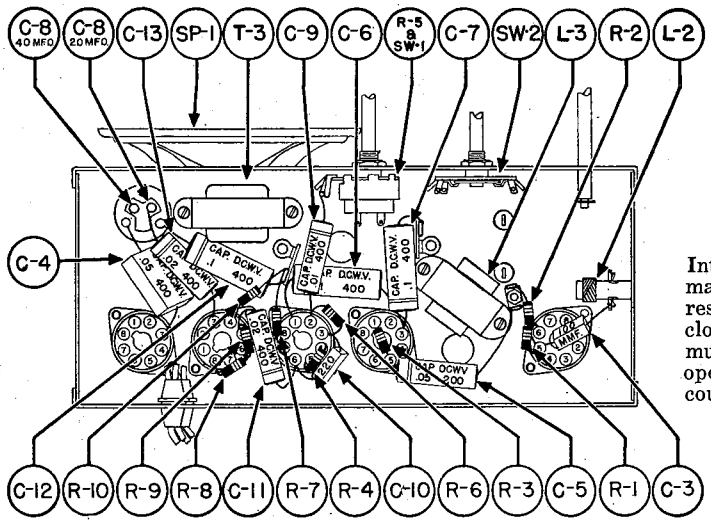
Radio Chassis Model 558



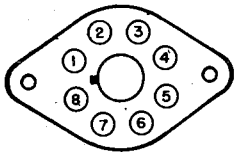
International Detrola Corp. — Radio Chassis Model 558

All DC voltages measured with a 1000 ohm-per-volt meter from ON-OFF switch (—B) to socket contact indicated. All AC voltages are measured from ON-OFF switch (—B) to socket contact indicated.

TUBE	POSITION	1	2	3	4	5	6	7	8
12SA7GT	Converter	0	36.3 AC	108	108	–5.6	0	23.8 AC	0
12SK7GT	IF Amplifier	0	11.4 AC	0	0	0	108	23.8 AC	108
12SQ7GT	Detector—1st Audio	0	0	0	0	0	43	11.4 AC	0
50L6GT	Power Output	0	85 AC	100	108	0	0	36.3 AC	7.3
35Z5GT	Rectifier	0	117 AC	112 AC	0	112 AC	0	85 AC	117



Volume Control full on. No signal. Line voltage 117 volts AC.

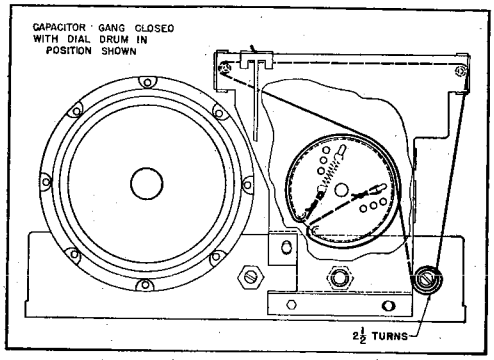


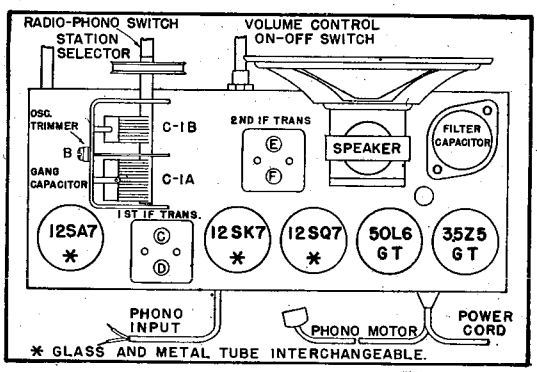
Intermediate Frequency and Oscillator adjustments may be made with the loop disconnected provided a resistor of 10,000 to 50,000 ohms is substituted to close the 12SA7GT grid circuit. The loop alignment must be done with the loop and chassis mounted in operating position in the cabinet. A single turn loosely coupled to loop may be substituted for RMA loop.

ALIGNMENT PROCEDURE

GENERATOR	CONNECTION AT RADIO	DUMMY ANTENNA	DIAL	TO TUNE TRIMMERS	REMARKS
IF 455 kc.	12SA7GT grid	.1 mfd.	HF end	IF trimmers C D E F	Tune to max.
1620 kc.	12SA7GT grid	RMA loop	HF end	Osc. trimmer B	Set limit of band
1400 kc.	Through loop*	RMA loop	1400 kc.	Ant. trimmer A	Tune to max.

* Loop trimmer accessible through bottom of cabinet.

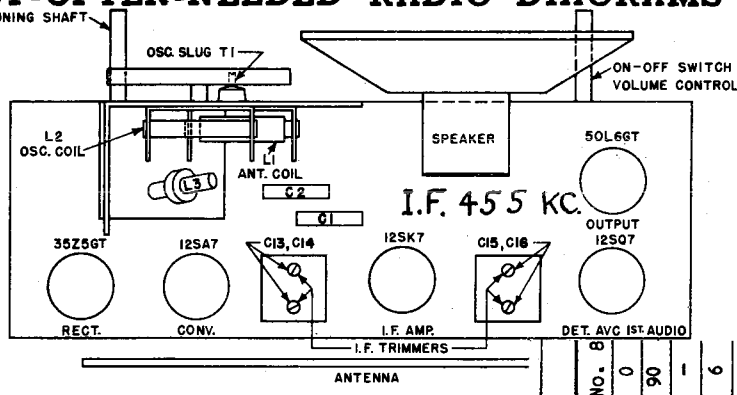


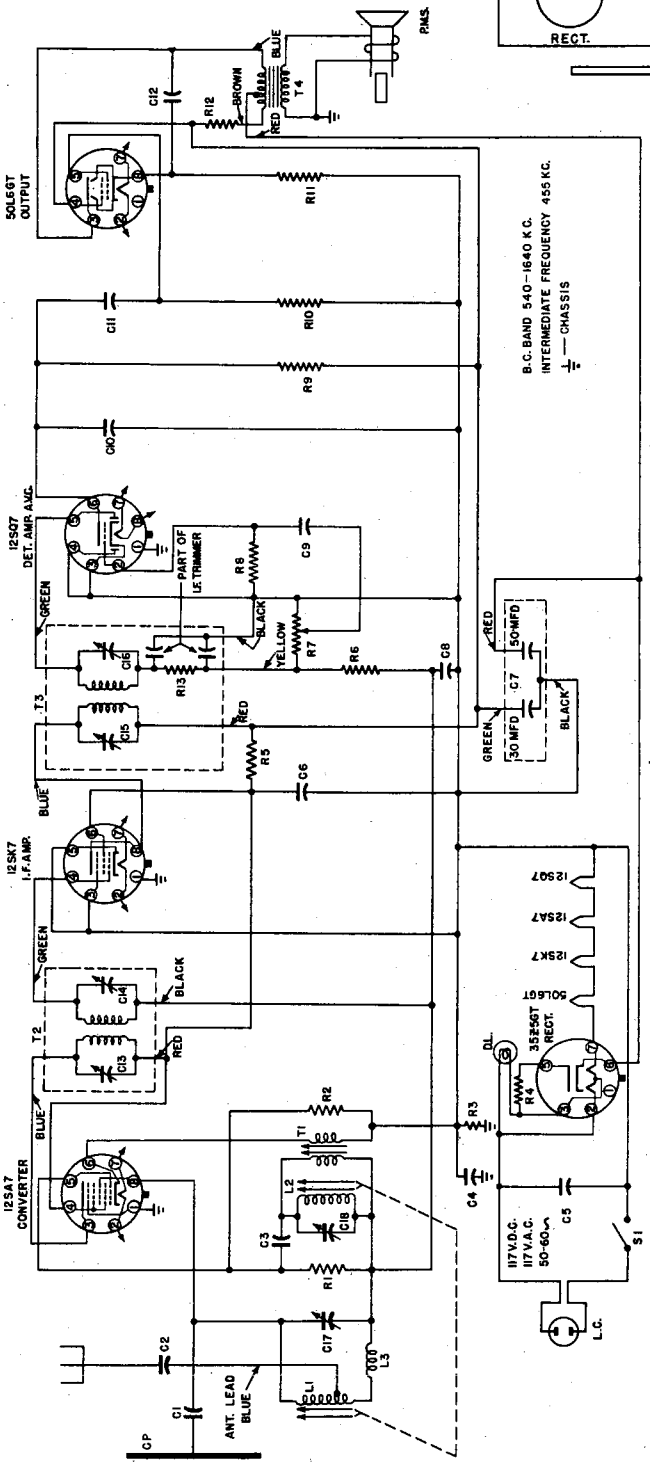


LEAR

MODELS 565 565BL

566, 567, 568

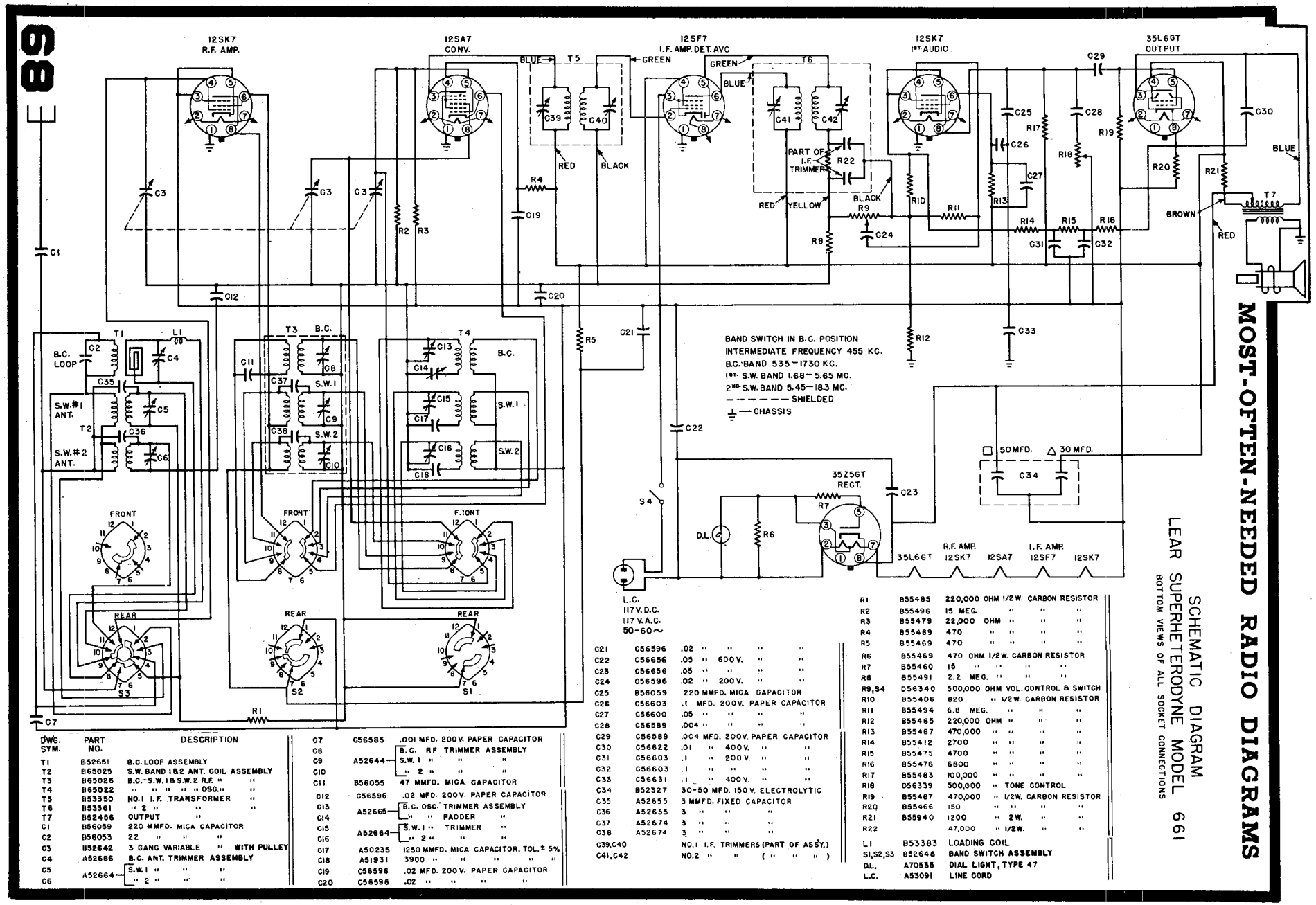




DWG. SYM.	PART NO.	DESCRIPTION
R1	55496	15 meg. ½ w. carbon resistor
R2	55479	22,000 ohm ½ w. carbon resistor
R3	55485	220,000 ohm ½ w. carbon resistor
R4	55460	15 ohm ½ w. carbon resistor
R5	55475	4,700 ohm ½ w. carbon resistor
R6	55491	2.2 meg. ½ w. carbon resistor
R7,S1	56340	500,000 ohm vol. control & line sw.
R8	55491	2.2 meg. ½ w. carbon resistor
R9	55487	470,000 ohm ½ w. carbon resistor
R10	55487	470,000 ohm ½ w. carbon resistor
R11	55466	150 ohm ½ w. carbon resistor
R12	55674	1,200 ohm 1 w. carbon resistor
R13	55481	47,000 ohm ½ w. carbon resistor
L1,L2	54284	Slug tuner & pully assy.
C17,C18	53385	Antenna loading coil
L3	53091	Line cord
L.C.	70535	Dial light, type 47
D.L.	53450	5" Permanent magnet speaker
P.M.S.		

DWG. SYM.	PART NO.	DESCRIPTION
CP	52570	Antenna Assy. LOOP
T1	54282	Oscillator Transformer Assy.
T2	53350	#1 I.F. Transformer Assy.
T3	53361	#2 I.F. Transformer Assy.
T4	52531	Output Transformer
C1	56053	22 mmfd. Mica Capacitor
C2	56053	22 mmfd. Mica Capacitor
C3	56055	47 mmfd. Mica Capacitor
C4	56631	.1 mfd. 400 v. Paper Capacitor
C5	56656	.05 mfd. 600 v. Paper Capacitor
C6	56631	.1 mfd. 400 v. Paper Capacitor
C7	52326	50 - 30 mfd. 150 v. Electrolytic
C8	56600	.05 mfd 200 v. Paper Capacitor
C9	56596	.02 mfd. 200 v. Paper Capacitor
C10	56059	220 mmfd. Mica Capacitor
C11	56583	.004 mfd. 200 v. Paper Capacitor
C12	56628	.05 mfd. 400v. Paper Capacitor
C13,C14		#1 I.F. Trimmers (Part of assy.)
C15,C16		#2 I.F. Trimmers (Part of assy.)

TUBE	FUNCTION	Voltage of each socket prong to B- (Prong No. 3 of 12SK7)							
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
12SA7	Oscillator - Converter	0	-	90	90	0	0	-	0
12SK7	I-F Amplifier	0	-	0	0	0	90	-	90
12SQ7	Detector - AVC - 1st. Audio	0	0	0	0	0	28	-	-
50L6	Beam Power Amplifier	0		115	90	0	0	-	6
35Z5	Rectifier	-	-	-	-	110 AC	-	-	117



MOST-OFTEN-NEEDED RADIO DIAGRAMS

SCHEMATIC DIAGRAM
LEAR SUPERHETERODYNE MODEL 661

BOTTOM VIEWS OF ALL SOCKET CONNECTIONS

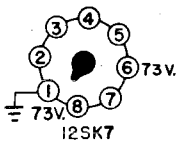
DWG. SYM.	PART NO.	DESCRIPTION
T1	B52651	B.C. LOOP ASSEMBLY
T2	B65025	S.W. BAND 1 & 2 ANT. COIL ASSEMBLY
T3	B65026	B.C.-S.W. 1 & S.W. 2 R.F. " "
T4	B65022	" " " " " OSC. " "
T5	B53350	NO. 1 I.F. TRANSFORMER "
T6	B53361	" 2 " " "
T7	B52456	OUTPUT "
C1	B56059	220 MMFD. MICA CAPACITOR
C2	B56053	22 " " "
C3	B52642	3 GANG VARIABLE " WITH PULLEY
C4	A52686	B.C. ANT. TRIMMER ASSEMBLY
C5	A52664	S.W. 1 " " "
C6		" 2 " " "

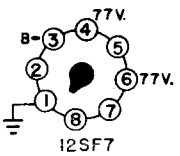
C7	C56585	.001 MFD. 200V. PAPER CAPACITOR
C8	A52644	B.C. R.F. TRIMMER ASSEMBLY
C9		S.W. 1 " " "
C10		" 2 " " "
C11	B56055	47 MMFD. MICA CAPACITOR
C12	C56596	.02 MFD. 200V. PAPER CAPACITOR
C13	A52665	B.C. OSC. TRIMMER ASSEMBLY
C14		" " PADDER "
C15	A52664	S.W. 1 " TRIMMER "
C16		" 2 " " "
C17	A50235	1250 MMFD. MICA CAPACITOR. TOL. ± 5%
C18	A51931	3900 " " " " "
C19	C56596	.02 MFD. 200V. PAPER CAPACITOR
C20	C56596	.02 " " " "

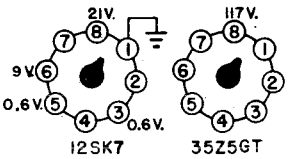
C21	C56596	.02 " " " "
C22	C56656	.05 " 600V. " "
C23	C56656	.05 " " " "
C24	C56596	.02 " 200V. " "
C25	B56059	220 MMFD. MICA CAPACITOR
C26	C56603	.1 MFD. 200V. PAPER CAPACITOR
C27	C56600	.05 " " " "
C28	C56589	.004 " " " "
C29	C56589	.004 MFD. 200V. PAPER CAPACITOR
C30	C56622	.01 " 400V. " "
C31	C56603	.1 " 200V. " "
C32	C56603	.1 " " " "
C33	C56631	.1 " 400V. " "
C34	B52327	30-50 MFD. 150 V. ELECTROLYTIC
C35	A52655	3 MMFD. FIXED CAPACITOR
C36	A52655	3 " " "
C37	A52674	3 " " "
C38	A52674	3 " " "
C39,C40		NO. 1 I.F. TRIMMERS (PART OF ASS'Y.)
C41,C42		NO. 2 " " (" " ")

R1	B55485	220,000 OHM 1/2W. CARBON RESISTOR
R2	B55496	15 MEG. " " "
R3	B55479	22,000 OHM " " "
R4	B55469	470 " " " "
R5	B55469	470 " " " "
R6	B55469	470 OHM 1/2W. CARBON RESISTOR
R7	B55460	15 " " " "
R8	B55491	2.2 MEG. " " "
R9,S4	D56340	500,000 OHM VOL. CONTROL & SWITCH
R10	B55406	820 " 1/2W. CARBON RESISTOR
R11	B55494	6.8 MEG. " " "
R12	B55485	220,000 OHM " " "
R13	B55487	470,000 " " " "
R14	B55412	2700 " " " "
R15	B55475	4700 " " " "
R16	B55476	6800 " " " "
R17	B55483	100,000 " " " "
R18	D56339	500,000 " TONE CONTROL
R19	B55487	470,000 " 1/2W. CARBON RESISTOR
R20	B55466	150 " " " "
R21	B55940	1200 " 2W. " "
R22		47,000 " 1/2W. " "
L1	B53383	LOADING COIL
S1,S2,S3	B52646	BAND SWITCH ASSEMBLY
DL.	A70535	DIAL LIGHT, TYPE 47
L.C.	A53091	LINE CORD

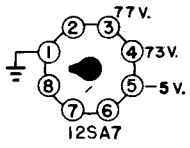
LEAR
Model 661

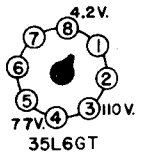






ALL VOLTAGES SHOWN ARE D.C. MEASUREMENTS TAKEN FROM B-WITH A 1000 OHM PER VOLT VOLTMETER. SET OPERATING ON 117 V., 60~ WITH VOLUME CONTROL ON FULL AND BAND SWITCH IN BC. POSITION.
ALLOW ±10% ON ALL MEASUREMENTS.



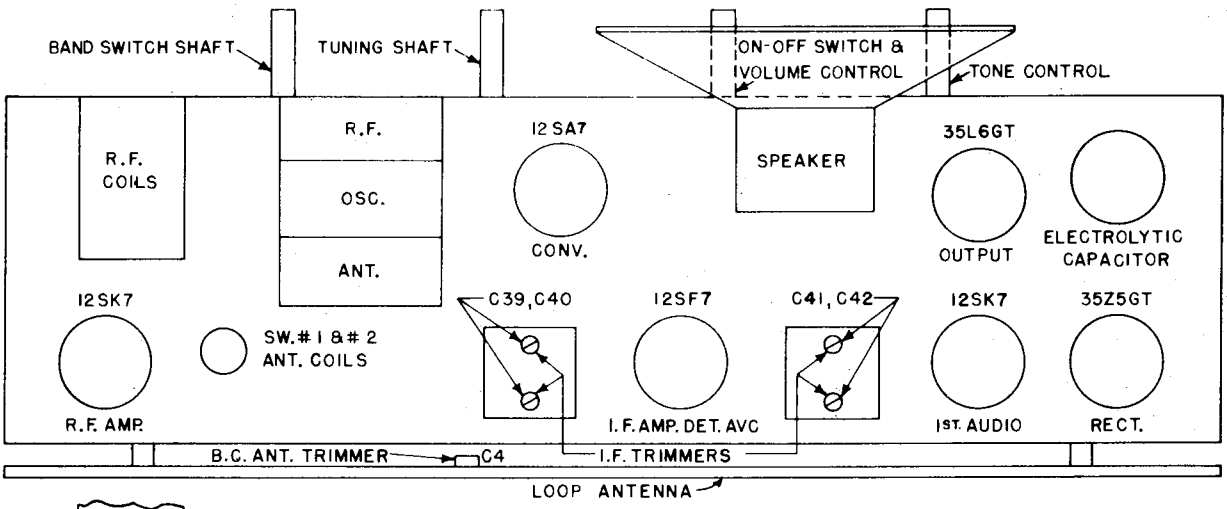


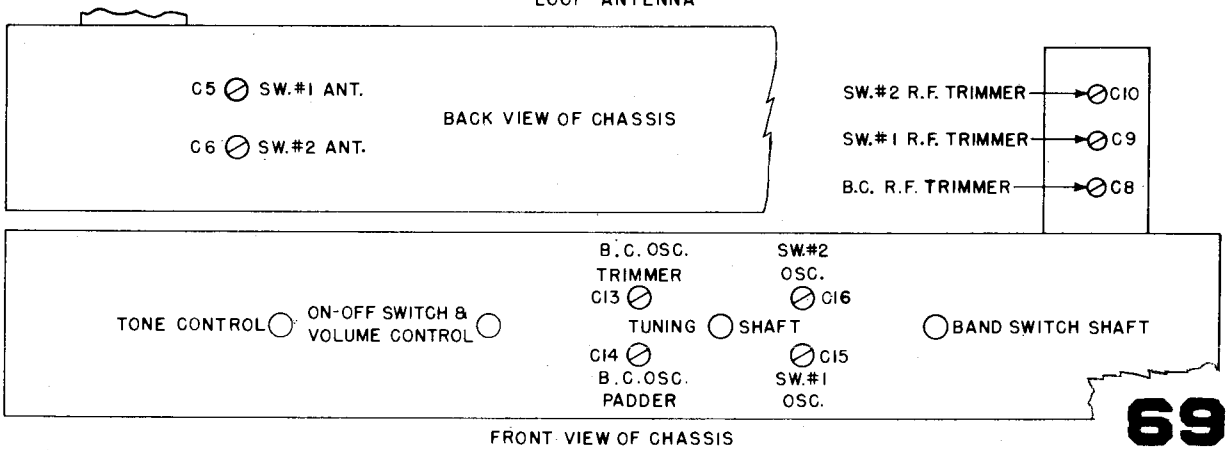
ALIGNMENT

ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	DIAL AND CONDENSER SETTING	TRIMMER	REMARKS
Set dial pointer to last mark at low frequency end of dial with gang condenser closed.							
2nd. IF	12SA7 Grid & B–	.05 mf	455 KC	BC	open	C41 & C42	Max. Output
1st. IF						C39 & C40	Max. Output
BC	Ant. lead and B–	200 mmf.	1500 KC	BC	1500 KC	C13, C8, C4	Max. Output
			600 KC		600 KC	C14	Osc. Padder
Repeat operations 4 and 5 until alignment frequencies fall on correct calibration points.							
SW 1	Ant. lead and B–	400 ohms (res.)	5 MC	1	5 MC	C15, C9, C5	Max. Output
			1800 KC		1800 KC		**
SW 2	Ant. lead and B–	400 ohms (res.)	16 MC	2	16 MC	C16*, C10, C6	Max. Output
			6 MC		6 MC		**

* Rock dial while trimming C16 at 16 MC

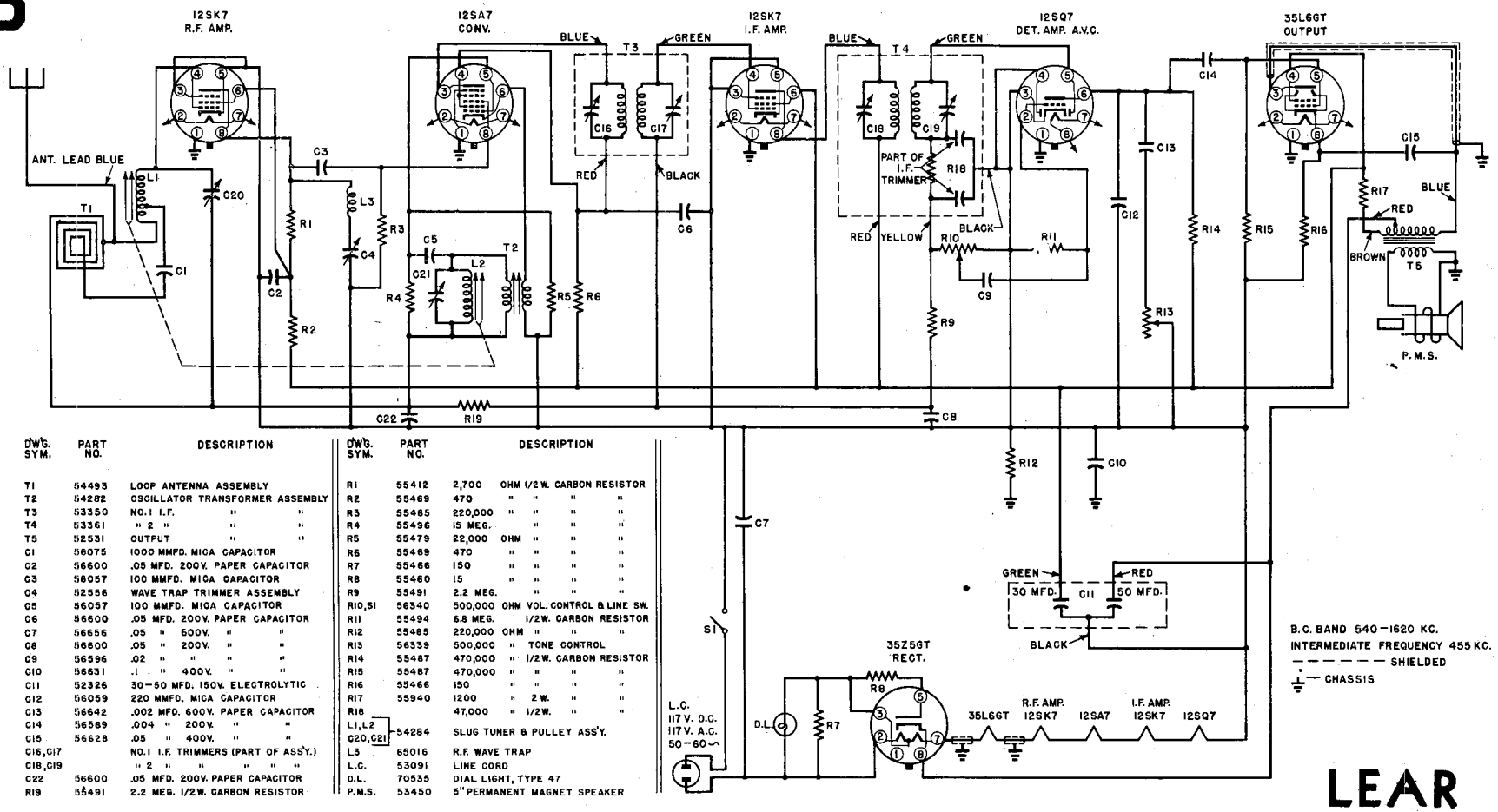
** Check sensitivity and dial calibration





LEAR SUPERHETERODYNE MODELS 6614, 6615, 6616, 6619

BOTTOM VIEWS OF ALL SOCKET CONNECTIONS



DWG. SYM.	PART NO.	DESCRIPTION
T1	54493	LOOP ANTENNA ASSEMBLY
T2	54282	OSCILLATOR TRANSFORMER ASSEMBLY
T3	53350	NO.1 I.F. " "
T4	53361	" 2 " " "
T5	52531	OUTPUT " "
C1	56075	1000 MMFD. MICA CAPACITOR
C2	56600	.05 MFD. 200V. PAPER CAPACITOR
C3	56057	100 MMFD. MICA CAPACITOR
C4	52556	WAVE TRAP TRIMMER ASSEMBLY
C5	56057	100 MMFD. MICA CAPACITOR
C6	56600	.05 MFD. 200V. PAPER CAPACITOR
C7	56656	.05 " 600V. " "
C8	56600	.05 " 200V. " "
C9	56596	.02 " " " "
C10	56631	.1 " 400V. " "
C11	52326	30-50 MFD. 150V. ELECTROLYTIC
C12	56059	220 MMFD. MICA CAPACITOR
C13	56642	.002 MFD. 600V. PAPER CAPACITOR
C14	56589	.004 " 200V. " "
C15	56628	.05 " 400V. " "
C16,C17		NO.1 I.F. TRIMMERS (PART OF ASS'Y.)
C18,C19		" 2 " " " " "
C22	56600	.05 MFD. 200V. PAPER CAPACITOR
R19	55491	2.2 MEG. 1/2W. CARBON RESISTOR

DWG. SYM.	PART NO.	DESCRIPTION
R1	55412	2,700 OHM 1/2 W. CARBON RESISTOR
R2	55469	470 " " " "
R3	55485	220,000 " " " "
R4	55496	15 MEG. " " "
R5	55479	22,000 OHM " " "
R6	55469	470 " " " "
R7	55466	150 " " " "
R8	55460	15 " " " "
R9	55491	2.2 MEG. " " "
R10,S1	56340	500,000 OHM VOL. CONTROL & LINE SW.
R11	55494	6.8 MEG. 1/2W. CARBON RESISTOR
R12	55485	220,000 OHM " " "
R13	56339	500,000 " TONE CONTROL
R14	55487	470,000 " 1/2W. CARBON RESISTOR
R15	55487	470,000 " " " "
R16	55466	150 " " " "
R17	55940	1200 " 2 W. " "
R18		47,000 " 1/2W. " "
L1,L2 C20,C21	54284	SLUG TUNER & PULLEY ASS'Y.
L3	65016	R.F. WAVE TRAP
L.C.	53091	LINE CORD
D.L.	70535	DIAL LIGHT, TYPE 47
P.M.S.	53450	5" PERMANENT MAGNET SPEAKER

B.C. BAND 540-1620 KC.
INTERMEDIATE FREQUENCY 455 KC.
- - - - - - SHIELDED
⏚ CHASSIS

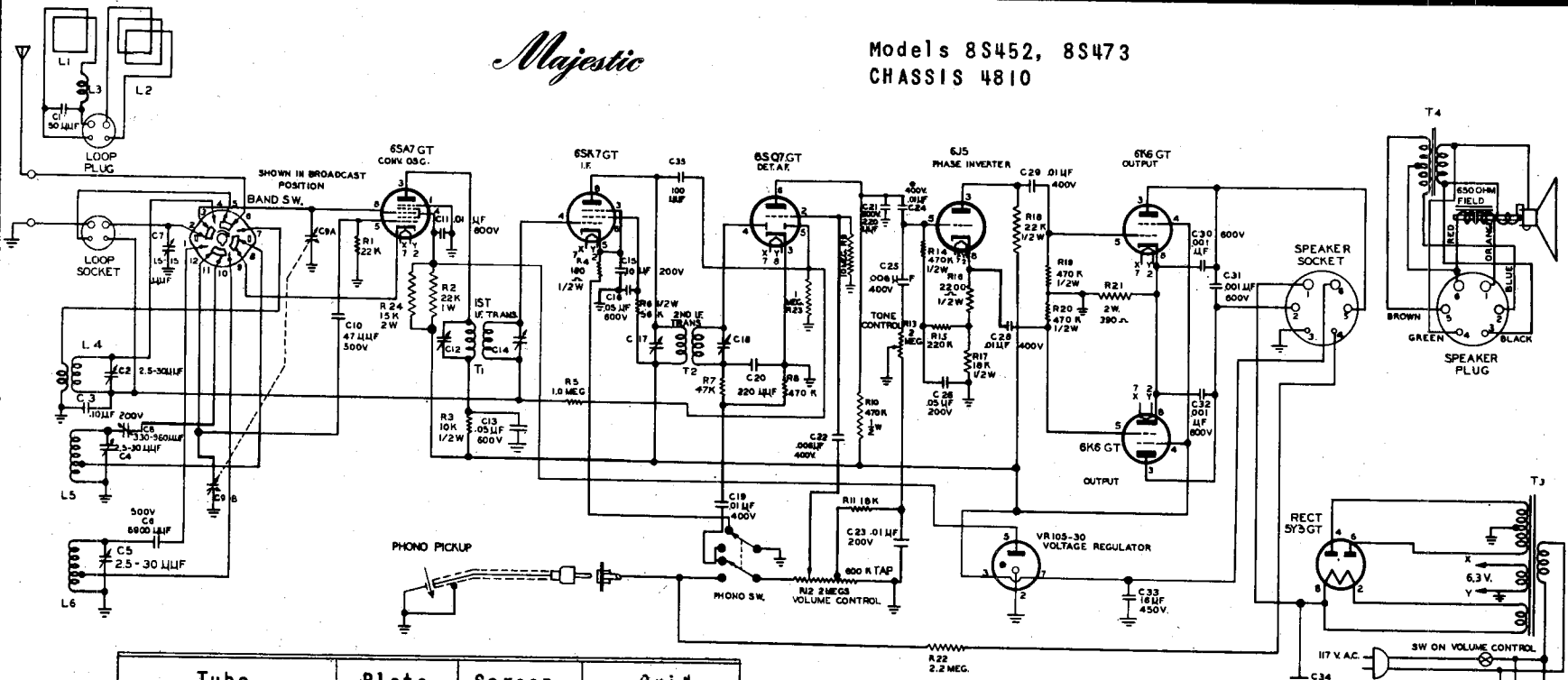
TUBE	FUNCTION	Voltage of each socket prong to B- (Prong No. 3 of 12SK7 IF Tube)							
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
12SK7	R. F. Amplifier	0	....	0	0	0	81	....	53
12SA7	Converter	0	....	83	82	7	0	....	0
12SK7	I. F. Amplifier	0	....	0	0	0	84	0	84
12SQ7	Detector - Amplifier - A.V.C.	0	6	0	0	0	38	....	....
35L6GT	Output	0	....	110	84	0	0	....	4
35Z5GT	Rectifier	....	....	....	....	108AC	....	....	117

I.F. 455 KC.

LEAR

Majestic

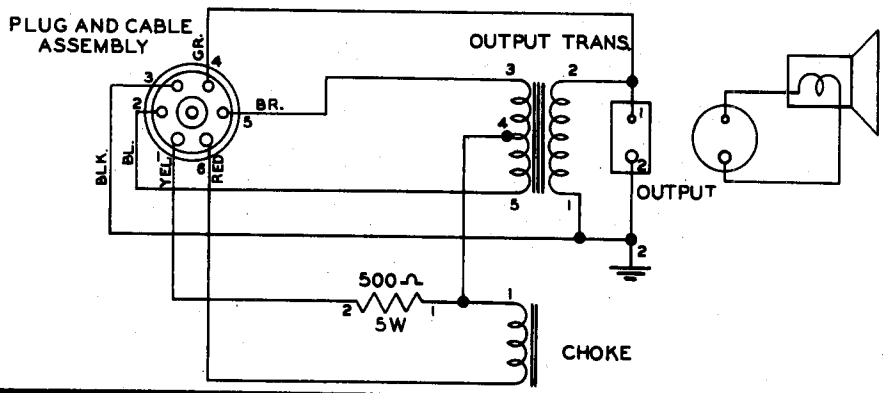
Models 8S452, 8S473
CHASSIS 4810



Tube	Plate	Screen	Grid
6SA7 (Conv)	240-265	105	0
6SK7 (I.F.)	282-296	106-122	2.1 - 2.5
6SQ7 (A.F.)	72-84	-	0
6J5 (Ph.Inv.)	208-220	-	6.0 - 7.5
6K6 (Out)	270-280	280-285	22.5 - 24
VR-105	105	-	-

NOTE: All voltages measured to ground with 1,000 ohm per volt meter.

When permanent magnet speakers are used, Model S-1200 filter box is added to circuit.



Majestic

Models 8S452, 8S473
CHASSIS 4810

ALIGNMENT

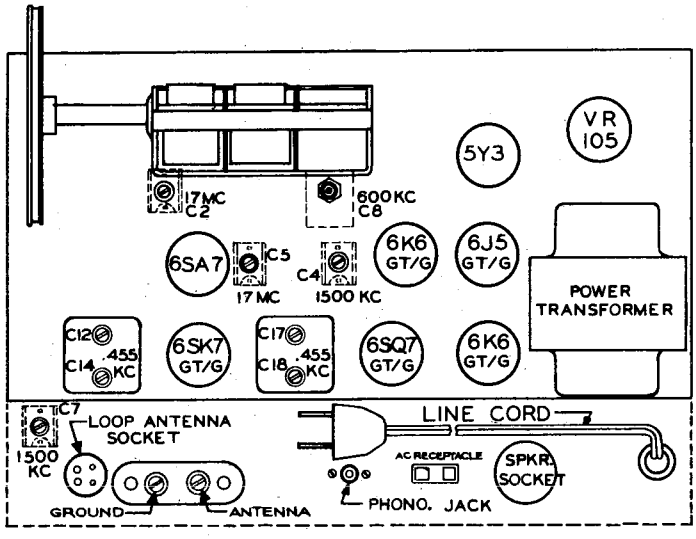
Before aligning, close tuning condenser (plates fully meshed). Set pointer to center of extreme left hand mark on the dial.

When aligning broadcast band, connect to output of the signal generator a loop, about 12 inches in diameter, consisting of two or three turns of wire. Place this loop in a plane parallel to that of the receiver loop antenna and about a foot away from it. The receiver loop antenna should be in about the same position relative to the chassis as it is when installed in the cabinet.

While aligning, turn the volume control full on and keep the signal generator output as low as possible.

Step	Dummy Antenna	Test Oscillator Connection	Test Oscillator Frequency	Receiver Bandswitch	Receiver Dial	Adjust for Maximum	Notes
1	.01 mfd	6SA7 grid	455 kc	B.C.	Any quiet spot	C18, C17 C14, C12	
2	Loop	-	1500 kc	B.C.	150	C4, C7	
3	Loop	-	600 kc	B.C.	60	C8	Note #1
4	400 ohms	Receiver antenna post	17 mc	S.W.	17	C2, C5	

Note #1 - Rock gang while making this adjustment. Then recheck step 2.



TUBE LAYOUT

Before aligning, make sure that the dial pointer is exactly horizontal when the tuning condenser is closed (plates fully meshed). While aligning the receiver, turn the volume control full on and keep the signal generator output as low as possible, to prevent AVC action and false readings.

Band-switch positions are extreme right for Broadcast, center for 3.6 to 8.5 mc., extreme left for 8.5 to 19 mc.

STEP	DUMMY ANT.	TEST. OSC. CONNECTION	TEST. OSC. FREQUENCY	RECEIVER BANDSWITCH	RECEIVER DIAL	ADJUST IN ORDER SHOWN	NOTES
1	.01 mfd	1LC6 grid (pin 6)	455 KC.	Right	Any Quiet Spot	T8, T7	#1
2	200 mmfd	ANT. post	600 KC.	Right	.6	"C"	#2
3	200 mmfd	ANT. post	1400 KC.	Right	1.4	Osc.Trimmer	
4	200 mmfd	ANT. post	1400 KC.	Right	1.4	R.F.Trimmer Ant.Trimmer	#3
5	400 ohms	ANT. post	4 MC.	Center	4	"B"	#2
6	400 ohms	ANT. post	8 MC.	Center	8	Osc.Trimmer	#4
7	400 ohms	ANT. post	8 MC.	Center	8	R.F.Trimmer Ant.Trimmer	
8	400 ohms	ANT. post	9 MC.	Left	9	"A"	#2
9	400 ohms	ANT. post	18 MC.	Left	18	Osc.Trimmer	#4
10	400 ohms	ANT. post	18 MC.	Left	18	R.F.Trimmer Ant.Trimmer	

NOTE #1 - Ground oscillator grid (1LC6 pin 4) while adjusting I.F. transformers.

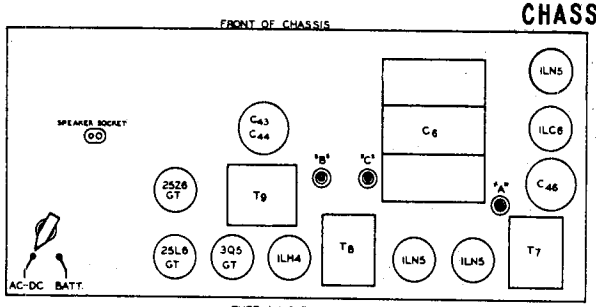
NOTE #2 - "Rock" tuning gang while making this adjustment.

NOTE #3 - Carefully repeat steps 1 through 4.

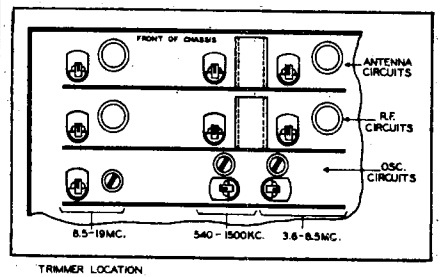
NOTE #4 - When making short wave oscillator adjustments, take great care to see that alignment is not made on the image. When the trimmer is correctly adjusted, a weaker peak will be noticed at a receiver dial adjustment which is 910 KC lower than the aligning frequency.

Majestic

MODELS GI-426, GI-426Y
CHASSIS 4807, 4808

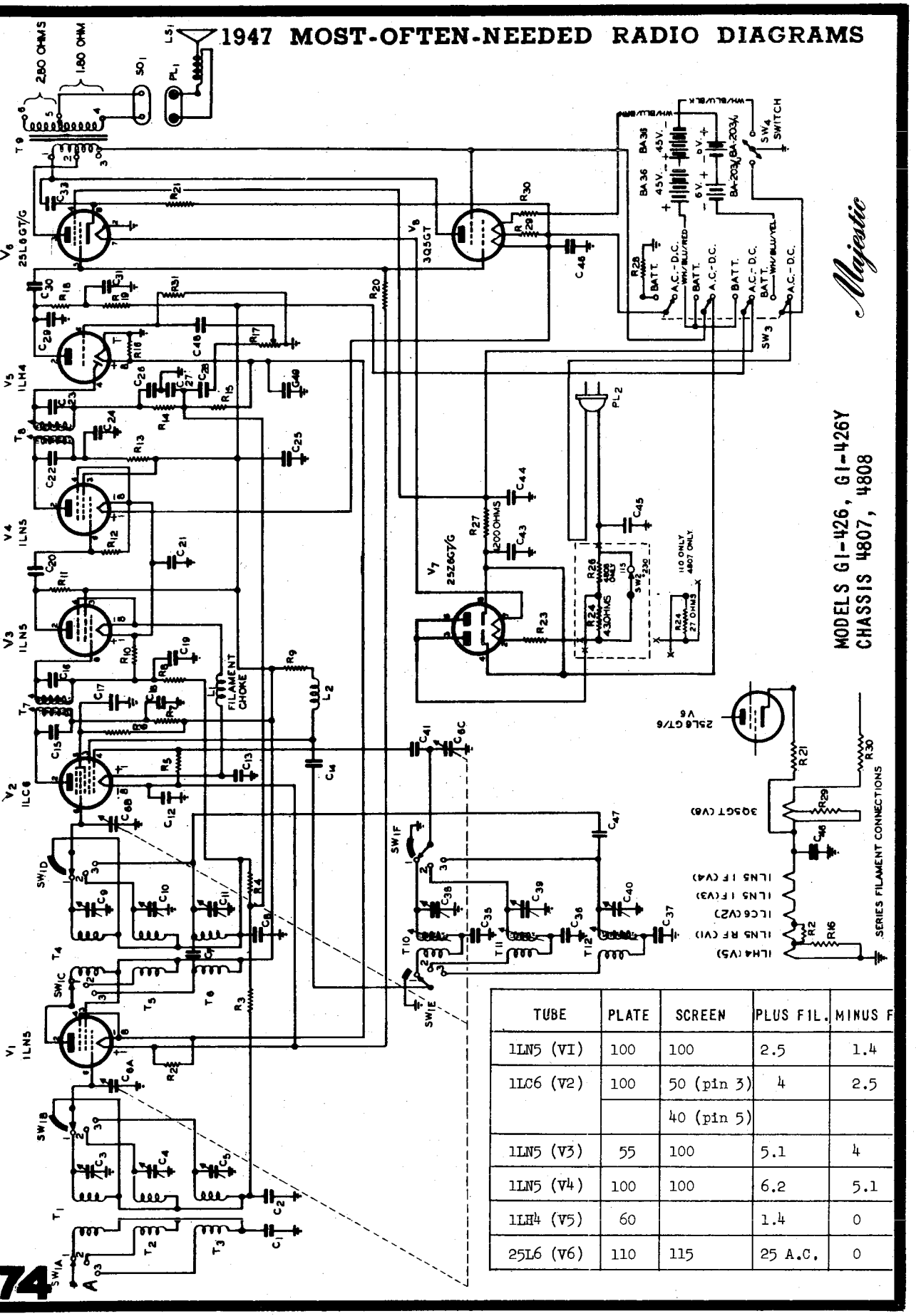


TUBE LAYOUT CHART

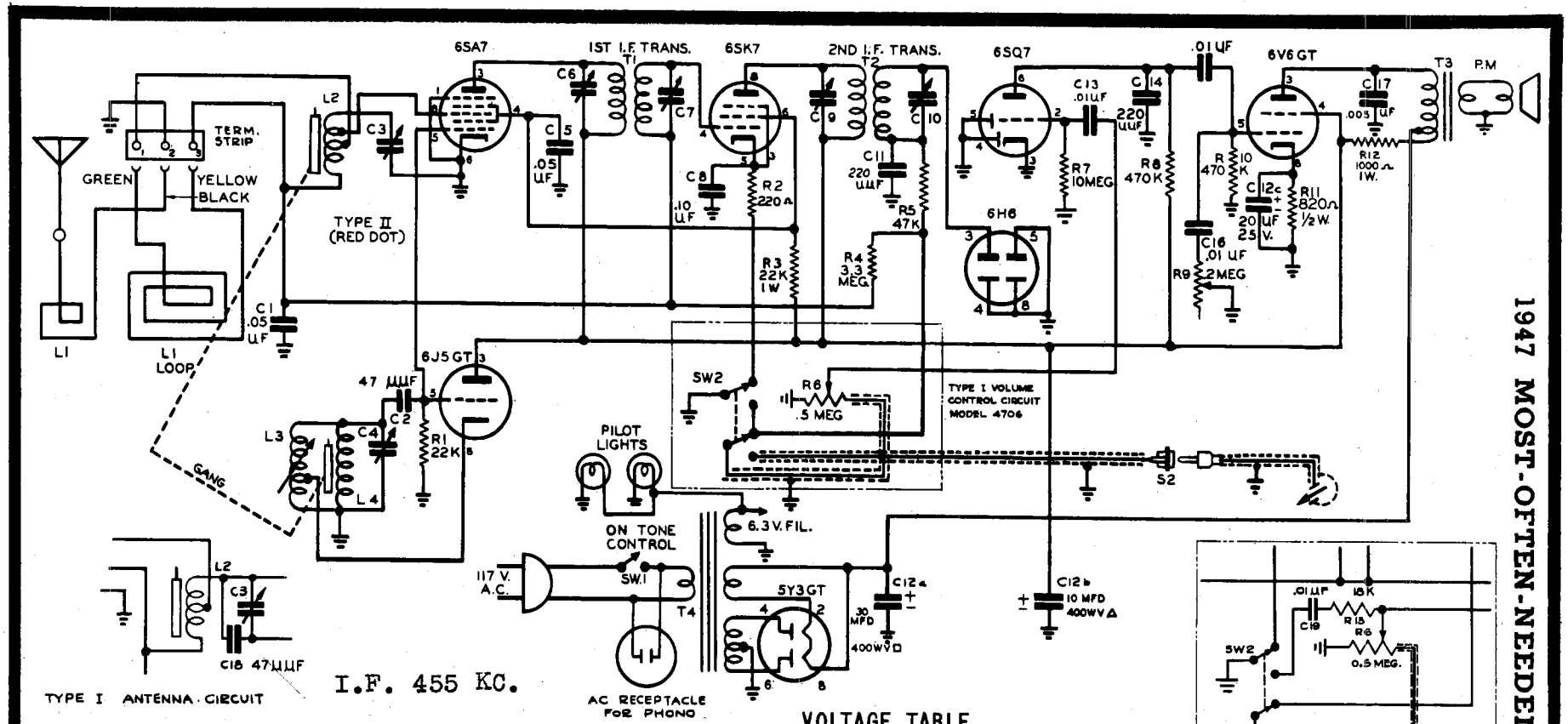


TRIMMER LOCATION

ITEM	DESCRIPTION
C1,C28,C30,C48	.006 mfd +20% 600 v molded paper
C2,C8	.05 mfd +20% -10% 200 v molded paper
C3,C9,C10,C38,C39,C40	Ceramic Trimmer 7-35 mmfd
C4,C5,C11	Ceramic Trimmer 34-72 mmfd
C6A,C6B,C6C	Variable, 3 gang
C7	15 mmfd +20% 500 v fixed ceramic
C12,C13,C21,C25,C31,C49	.1 mfd +40% -10% 400 v molded paper
C14	.0022 mfd 10% 500 v mica
C15	150 mmfd 5% 500 v mica
C16,C23	82 mmfd 5% 500 v mica
C17,C19	.02 mfd +40% -10% 200 v molded paper
C18	.01 mfd +20% -10% 400 v molded paper
C20	220 mmfd 20% 400 v fixed ceramic
C22	51 mmfd 5% 500 v mica
C24	.05 mfd +40% - 10% 600 v molded paper
C26,C27,C41	100 mmfd 20% 500 v molded mica
C29	470 mmfd 20% 500 v molded paper
C33,C45	.01 mfd +40% -10% 600 v molded paper
C34,C43,C42,C44	40-40 mfd 250 v dual electrolytic
C35	430 mmfd 2% 500 v molded mica
C36	2200 mmfd 5% 500 v molded mica
C37	.003 mfd 5% 500 v molded mica
C46	1000 mfd 15 v electrolytic
J1	Phone jack
L1	Line filter choke coil
L2	R.F. choke
LS1	Speaker, P.M. 6"
SO1	Speaker receptacle
PL1	Speaker plug
R2	270 ohm 10% 1/4 watt carbon
R3,R8,R10	3.3 megohms 10% 1/2 watt carbon
R4	3.9 megohms 10% 1/4 watt carbon
R5	220,000 ohm 20% 1/4 watt carbon
R6	68,000 ohm 10% 1/4 watt carbon
R7,R13	1,000 ohm 20% 1/4 watt carbon
R9,R11	22,000 ohm 10% 1/4 watt carbon
R12,R15,R18	470,000 ohm 20% 1/2 watt carbon
R14	47,000 ohm 20% 1/4 watt carbon
R16,R29	330 ohm 10% 1/2 watt carbon
R17	1 megohm 20% variable with switch
R19	100,000 ohm 20% 1/4 watt carbon
R20	470,000 ohm 10% 1/4 watt carbon
R21	62 ohm 5% 1/2 watt carbon
R22	10 ohm 20% 1 watt carbon
R23	220 ohms 5% 30 watt wirewound
R24	43 ohm 5% 8 watt wirewound
R25	2200 ohm 10% 1/2 watt carbon
R26	260 ohm 5% 60 watt wirewound
R27	4700 ohm 10% 1 watt carbon
R28	820 ohm 10% 1/4 watt carbon
R30	27 ohm 10% 1/4 watt carbon
R31	12 megohms 10% 1/4 watt carbon



TUBE	PLATE	SCREEN	PLUS FIL.	MINUS F
1LN5 (VI)	100	100	2.5	1.4
1LC6 (V2)	100	50 (pin 3)	4	2.5
		40 (pin 5)		
1LN5 (V3)	55	100	5.1	4
1LN5 (V4)	100	100	6.2	5.1
1LH4 (V5)	60		1.4	0
25L6 (V6)	110	115	25 A.C.	0



VOLTAGE TABLE

TUBE	PLATE	SCREEN	CATHODE
6SA7 (CONV.)	244	74	..
6J5 (OSC.)	244	..	..
6SK7 (I.F.)	244	74	1.6
6SQ7 (A.F.)	75		
6V6 (OUT)	268	243	11

Majestic

MODELS 7C432, 7C447
CHASSIS 4706, 4707, 4708.

1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

McMurdo Silver Co., Inc.

D.C. volts 3, 12, 30, 120, 300 and 1200 at 51 megohms constant input resistance (1 megohm in capacity-isolating test prod). Same six ranges in reverse polarity by shift of FUNCTION knob. Accuracy ±3%.

D.C. volts 7.5, 30, 75, 300, 750 and 3000 at 126 megohms constant input resistance (obtained at Vx2.5 and COM-GND jacks). Same six ranges in reverse polarity by shift of FUNCTION knob. Accuracy ±3%.

A.C. volts 3, 12, 30, 120, 300 and 1200 volts at circuit loading equivalent to 6.6 megohms shunted by 50 mmfd. (diode probe plugged into panel socket). Accuracy ±5%.

R.F. volts same as A.C. volts but at circuit loading equivalent to 6.6 megohms shunted by 8 mmfd. (diode probe withdrawn for direct contacting to circuit to be measured). Accuracy ±5%.

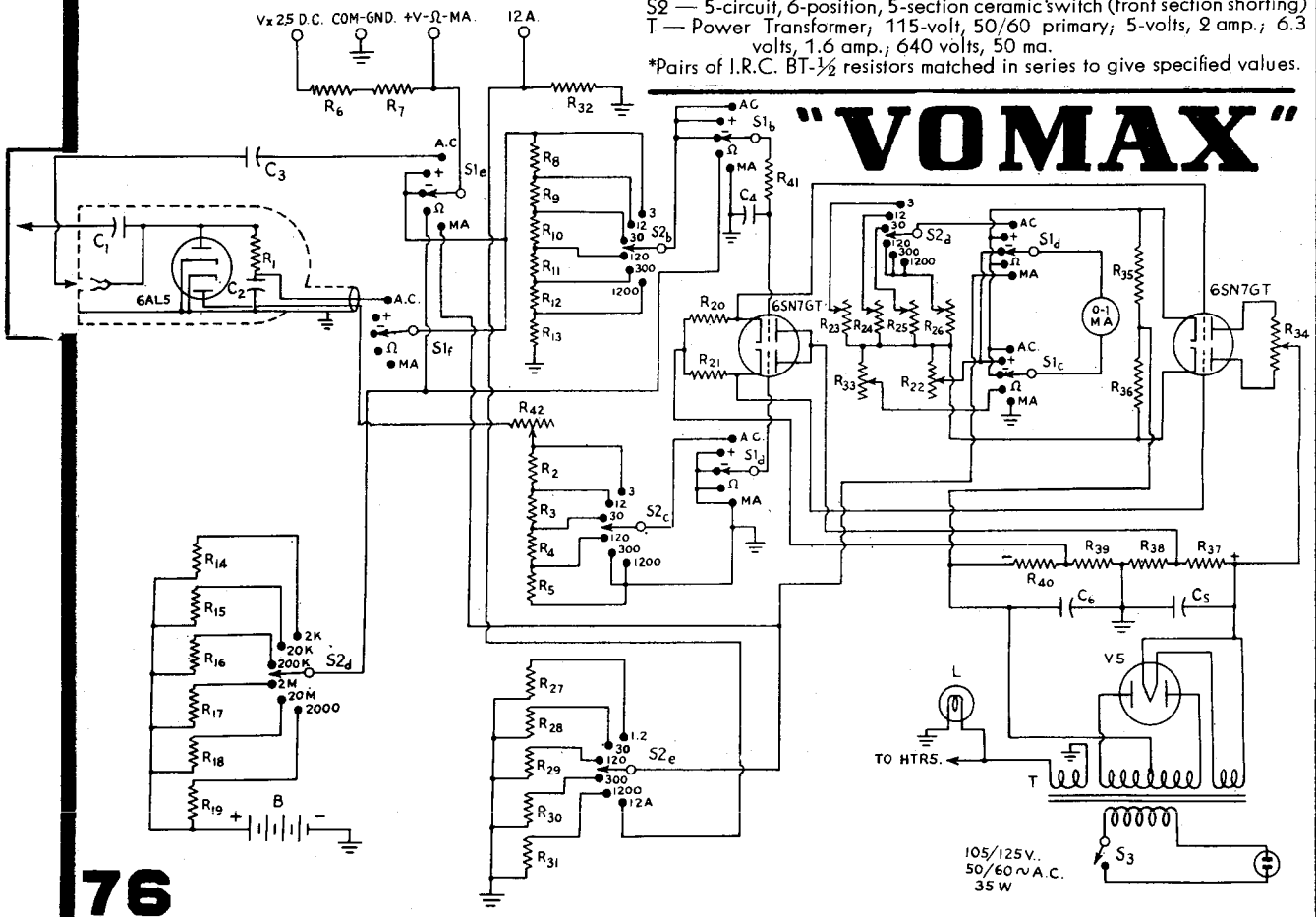
OHMS: Six resistance ranges, all zero-left, of 2,000, 20,000, 200,000 ohms and 2, 20 and 2,000 megohms. Accuracy ±2% of full scale, ±1% of indicated resistance.

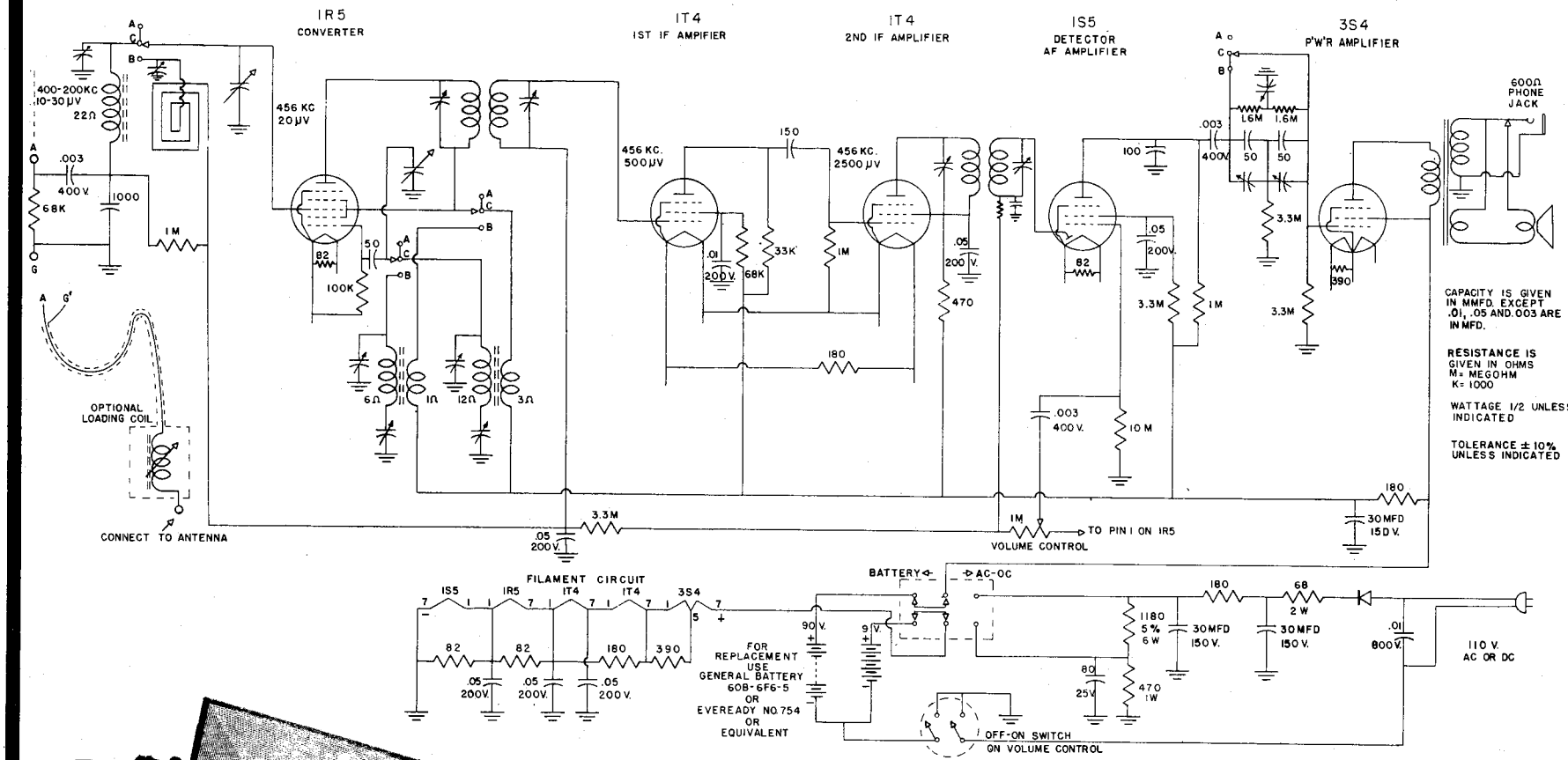
DECIBELS: Three db. ranges (0 db. =1 milliwatt in 600 ohms) of −10/+10, +10/+30 and +30/+50 db.

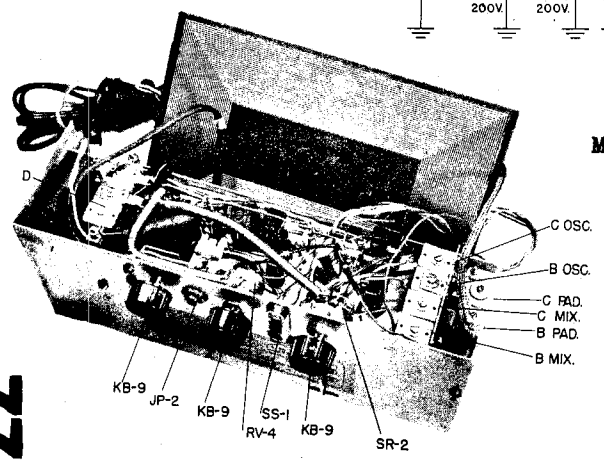
CURRENT: Six direct current ranges of 1.2, 30, 120, 300 1200 milliamperes and 12 amperes.

PARTS LIST

C1 — 0.0005-ufd. silver-mica
C2 — 0.001-ufd. mica
C3 — 0.03-ufd. 3000-volt tubular oil
C4 — 0.005-ufd. mica
C5, C6 — 8-ufd. 350-volt electrolytic
R1 — 20-megohm, ±5 per cent, ¼-watt carbon resistor
R2, R9 — 7.5 megohms, ½ watt metalized resistors*
R3 — 1.5 megohms, ½ watt metalized resistors*
R4, R11 — 750,000 ohms, ½ watt metalized resistors*
R5 — 250,000 ohms ½ watt metalized resistors*
R6, R7, R8 — 37.5 megohms, — watt metalized resistors*
R10 — 3.75 megohms, ½ watt metalized resistors*
R12 — 375,000 ohms, ½ watt metalized resistors*
R13 — 125,000 ohms, ½ watt metalized resistors*
R14 — 10-ohm, 1 per cent ½ watt wire-wound
R15 — 100 ohms, ½ watt metalized resistors*
R16 — 1,000 ohms, ½ watt metalized resistors*
R17 — 10,000 ohms, ½ watt metalized resistors*
R18 — 100,000 ohms, ½ watt metalized resistors*
R19 — 10 megohms, ½ watt metalized resistors*
R20, R21, R41 — 5.1 megohm, ±5 per cent, ½ watt metalized
R22, R23, R24, R25, R26 — 3000 ohm wire-wound potentiometer
R-27 — 258.4 ohm, 1 per cent wire-wound resistor
R28 — 1.758 ohm, 1 per cent wire-wound resistor
R29 — 0.423 ohm, 1 per cent wire wound resistor
R30 — 0.161 ohm, 1 per cent wire-wound resistor
R31 — 0.028 ohm, 1 per cent wire-wound resistor
R32 — Special-Set in test to give 12-ampere range
R33 — 10,000 ohm, wire-wound potentiometer with s.p.s.t. switch
R34 — 3000 ohm wire-wound potentiometer
R35, R36, R37, R40 — 43,000 ohms, ±5 per cent, 2 watt
R38, R39 — 4,300 ohm, ±5 per cent, ½ watt metalized resistors.
R42 — 10 megohm potentiometer
S1 — 5-position, 6-circuit, 3-section ceramic switch
S2 — 5-circuit, 6-position, 5-section ceramic switch (front section shorting)
T — Power Transformer; 115-volt, 50/60 primary; 5-volts, 2 amp.; 6.3 volts, 1.6 amp.; 640 volts, 50 ma.
*Pairs of I.R.C. BT-½ resistors matched in series to give specified values.



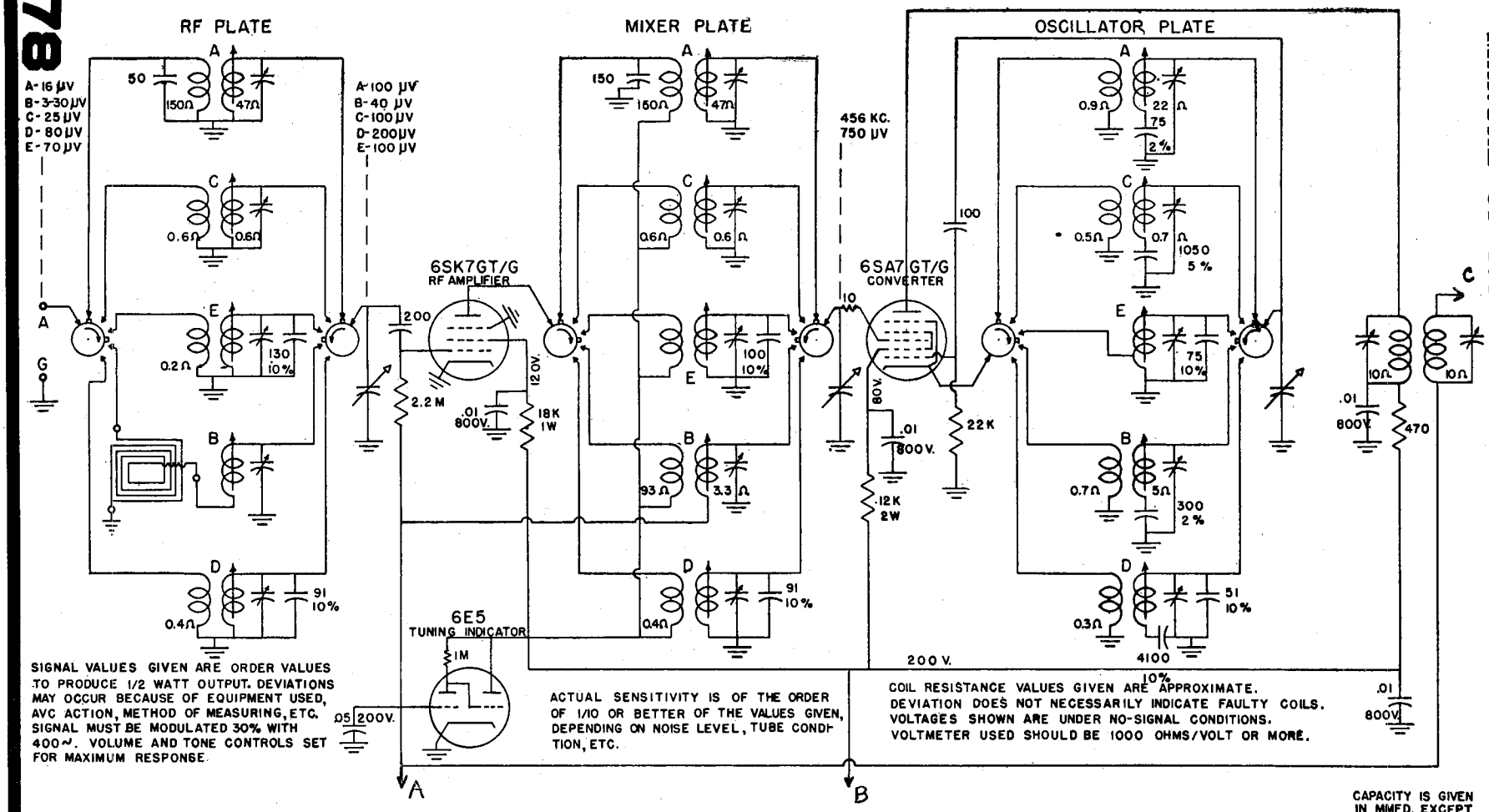




MIDWEST MODEL P-6, PB-6

ALIGNMENT. A VTVM should be used to read avc voltage when aligning this receiver; for 50 milliwatts audio avc voltage is approximately 0.6. The schematic shows various sensitivities which can be used to trace any lack of gain.

Connection	Signal	Band	Dial	Adjustment
Through .05 mfd. to converter grid.	456 KC	B	1000 KC	Peak 1st and 3rd IF transformer trimmers.
Through 50 mfg. to antenna post	400 KC	C	400 KC	Peak C RF and Oscillator trimmers.
	200 KC	C	200 KC	Peak C oscillator padder.
None	Use local stations at either end. Peak B oscillator padder on low end and peak B RF and oscillator trimmers at the high end.			



SIGNAL VALUES GIVEN ARE ORDER VALUES TO PRODUCE 1/2 WATT OUTPUT. DEVIATIONS MAY OCCUR BECAUSE OF EQUIPMENT USED, AVC ACTION, METHOD OF MEASURING, ETC. SIGNAL MUST BE MODULATED 30% WITH 400~. VOLUME AND TONE CONTROLS SET FOR MAXIMUM RESPONSE.

ACTUAL SENSITIVITY IS OF THE ORDER OF 1/10 OR BETTER OF THE VALUES GIVEN, DEPENDING ON NOISE LEVEL, TUBE CONDITION, ETC.

COIL RESISTANCE VALUES GIVEN ARE APPROXIMATE. DEVIATION DOES NOT NECESSARILY INDICATE FAULTY COILS. VOLTAGES SHOWN ARE UNDER NO-SIGNAL CONDITIONS. VOLTMETER USED SHOULD BE 1000 OHMS/VOLT OR MORE.

CAPACITY IS GIVEN IN MMFD. EXCEPT .01, .02 & .05 ARE MFD.

RESISTANCE IS GIVEN IN OHMS
M = MEGOHM
K = 1000 OHMS

WATTAGE IS 1/2 EXCEPT WHERE INDICATED

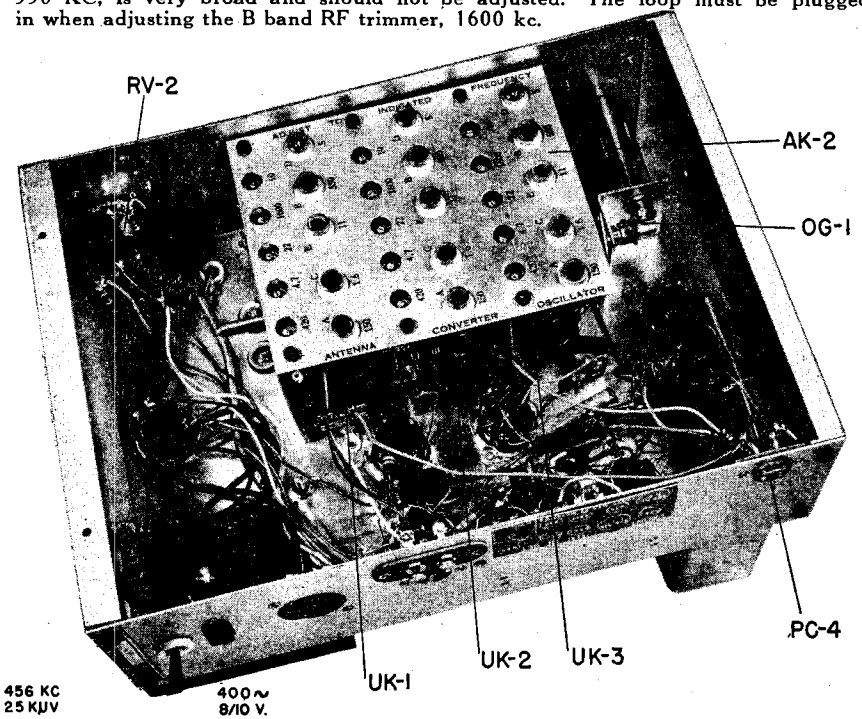
TOLERANCE IS ± 20 % UNLESS INDICATED

MIDWEST SERIES 8 SUPER AM RADIO RECEIVER

1947 Models — S-8, ST-8, TM-8 and other Midwest Models using STM-8 Chassis

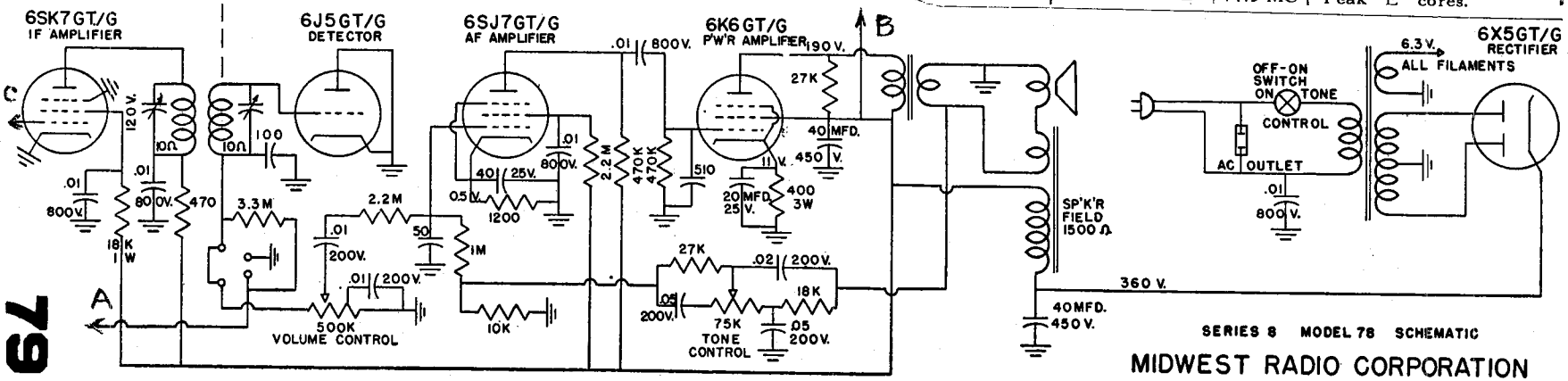
Balance of circuit is on the next page. Points marked A, B, and C, connect to corresponding points. Where applicable, notes apply to both parts of the schematic.

R. F. alignment should be made in the usual manner. There is no inter-action between bands. The only precaution is that a dummy antenna be used between the generator and the antenna post on the receiver. This may be simply a 200 micro micro farad condenser in series with a 400 ohm resistor. The B band RF padder, 550 KC, is very broad and should not be adjusted. The loop must be plugged in when adjusting the B band RF trimmer, 1600 kc.



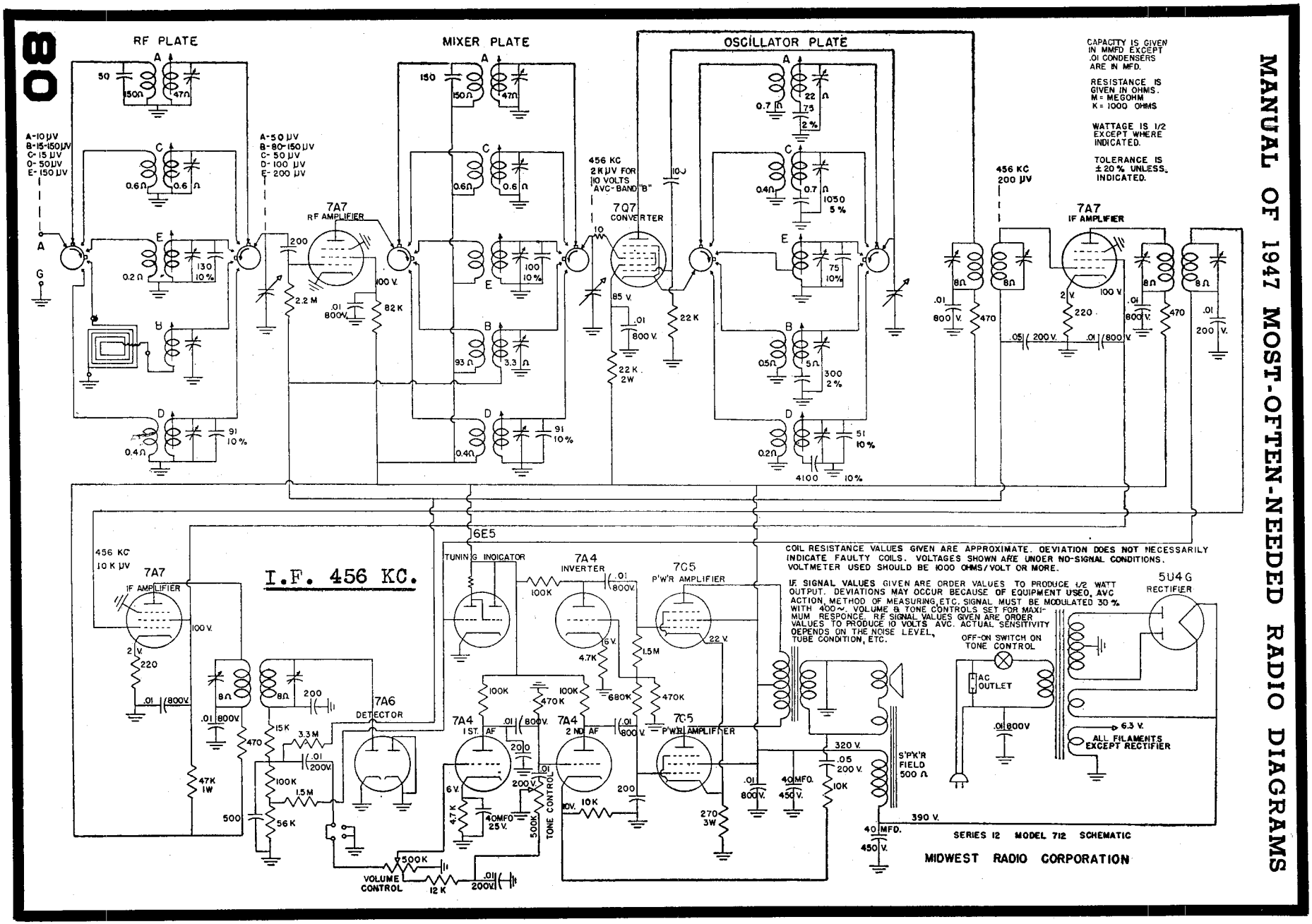
ALIGNMENT — The schematic includes the various signal strengths necessary for standard output of 0.5 watt. The output indicator may be an audio frequency meter across the voice coil or a vacuum tube voltmeter at the avc. For 0.5 watt the voltage at the voice coil is 1.2 volts or 2.5 to 3.5 volts avc. if a 30% modulated signal is used. I.F. alignment should be made with band switch on "B," pointer tuned to 1000 kc. and signal to mixer grid through a .05 mfd. condenser. Trim both I.F. transformers for maximum reading.

Coupling	Signal	Band Switch	Dial	Adjustment
To converter grid thru .05 mfd capacitor	456 KC	B	1000 KC	Peak 1st and 2nd IF trimmers.
To "A" on antenna-ground terminal strip through 200 mmfd. and 400 ohms in series.	400 KC	A	400 KC	Peak RF, converter and oscillator trimmers marked "A".
	150 KC	A	150 KC	Peak RF, converter and oscillator cores marked "A".
	1600 KC	B	1600 KC	Peak "B" trimmers. Loop must be plugged in.
	550 KC	B	550 KC	Peak "B" cores except RF. Loop must be plugged in.
	4.7 MC	C	4.7 MC	Peak "C" trimmers.
	1.6 MC	C	1.6 MC	Peak "C" cores.
	10 MC	D	10 MC	Peak "D" trimmers.
	5 MC	D	5 MC	Peak "D" cores.
	22 MC	E	22 MC	Peak "E" trimmers.
	11.5 MC	E	11.5 MC	Peak "E" cores.



SERIES 8 MODEL 78 SCHEMATIC

MIDWEST RADIO CORPORATION

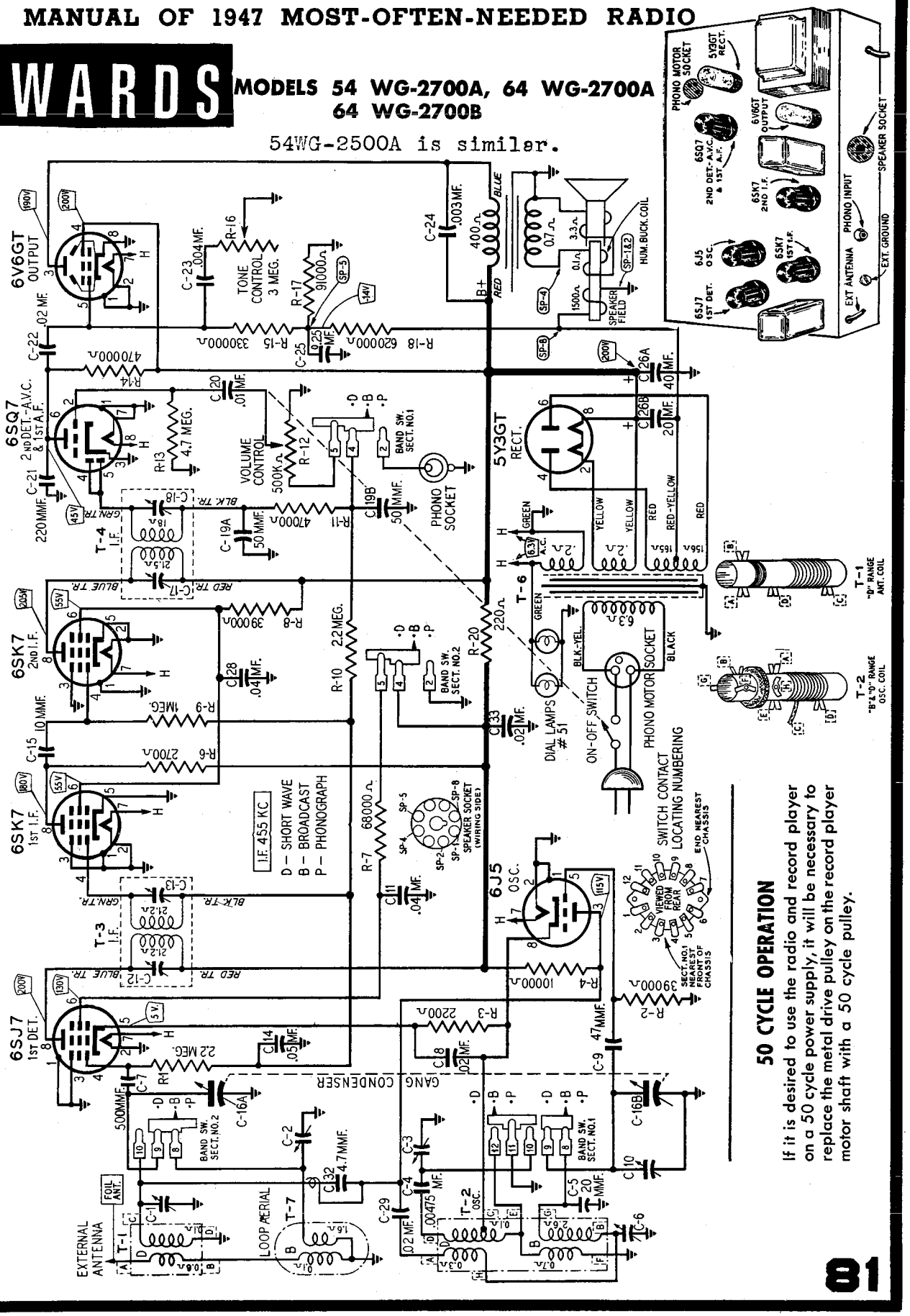


MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

WARDS

MODELS 54 WG-2700A, 64 WG-2700A
64 WG-2700B

54WG-2500A is similar.



50 CYCLE OPERATION

If it is desired to use the radio and record player on a 50 cycle power supply, it will be necessary to replace the metal drive pulley on the record player motor shaft with a 50 cycle pulley.

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.

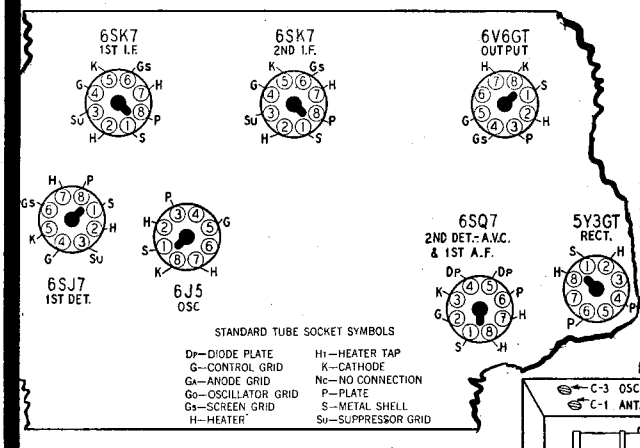
The following equipment is required for aligning:
An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
Output Indicating Meter; Non-Metallic Screwdriver.
Dummy Antennas—.1 mf., 100 mmf., and 400 ohms.

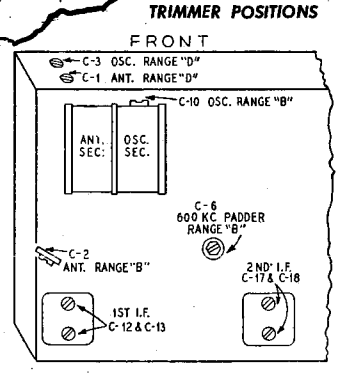
	SIGNAL GENERATOR		Dummy Antenna	Band Switch Setting	Condenser Setting	ADJUST TRIMMERS TO MAXIMUM
	Frequency Setting	Connection at Radio				
I-F	455 kc	6SJ7, Pin 4	.1 mf	B Range	Turn Rotor to Full Open	2nd I-F (C17) & (C18) 1st I-F (C12) & (C13)
RANGE B	1600 kc	Antenna Lead	100 mmf	B Range	Turn Rotor to Full Open	Oscillator Range B (C10)
	1400 kc	Antenna Lead	100 mmf	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note A	Antenna Range B (C2)
	600 kc	Antenna Lead	100 mmf	B Range	Turn Rotor to Max. Output	600 kc (C6) Rock Rotor—See Note B
Repeat above oscillator adjustments at 1600 and 600 kc until readjusting the oscillator Range B Trimmer (C10) causes no further improvement in output.						
RANGE D	18,300 kc	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C3)
	17,000 kc	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Antenna Range D (C1) Rock Rotor—See Note B
LOOP RANGE B	Reassemble chassis in cabinet. 1400 kc	Antenna Lead	100 mmf	B Range	Turn Rotor to Max. Output	Antenna Range B (C2)

After each range is completed, repeat the procedure as a final check.

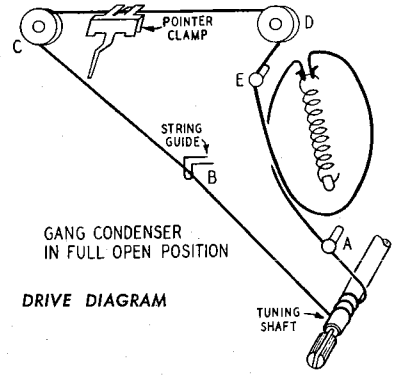
NOTE A—If the pointer is not at 1400 KC on the dial, re-set pointer at the 1400 KC mark on the dial scale.

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





Turn the gang condenser to the fully open position. Use a new drive cord 46" long and tie one end to the tension spring. Hook the other end of the tension spring to the tab on the drive pulley. Pass the cord through the slot in the drive pulley rim and continue one half turn counterclockwise around the drive pulley. Then pass the cord around idler stud A and wind three turns clockwise around the tuning shaft (turns must progress away from chassis). Pass cord through string guide B, over pulleys C and D and around idler stud E. Wrap ¾ turn counterclockwise around drive pulley, stretch the tension spring and tie free end of the cord to spring. Cut off any excess string.

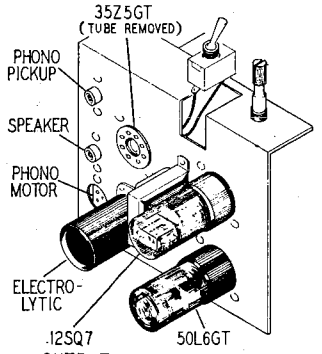


Montgomery Ward & Co.

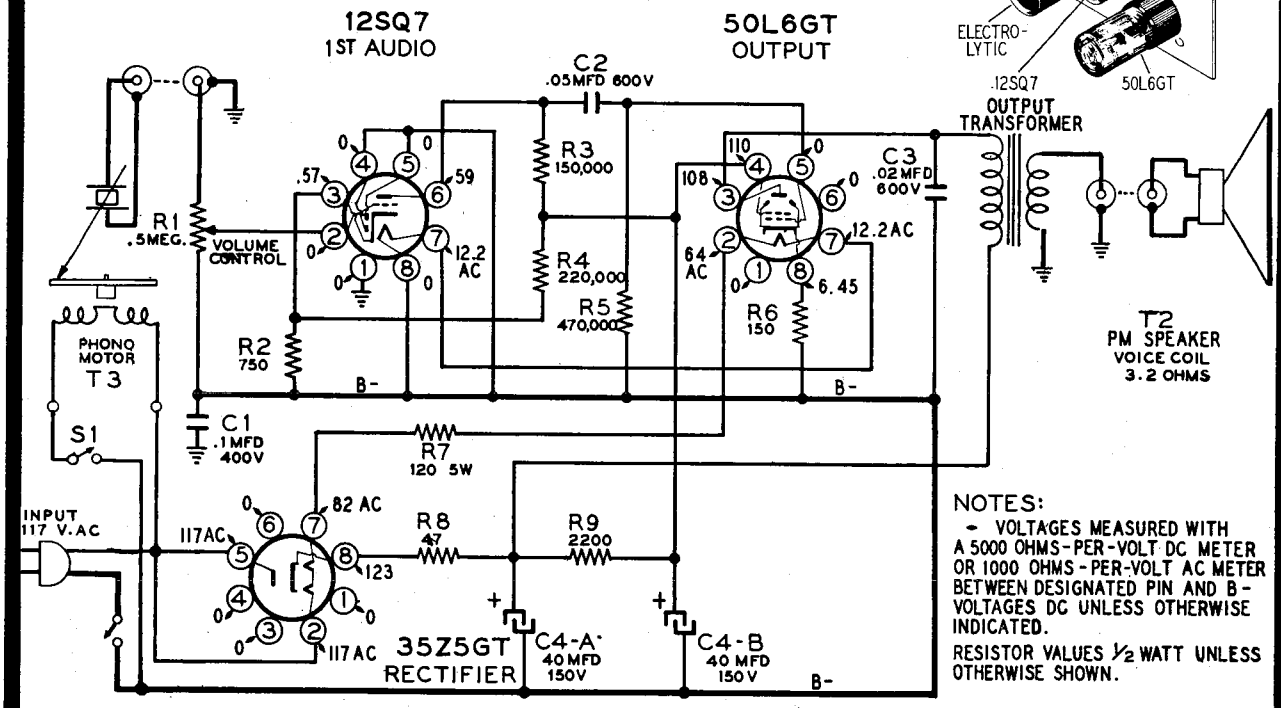
Models 54 WG-2700A,
64 WG-2700A, & -B

WARDS

MODEL 64BR-916A



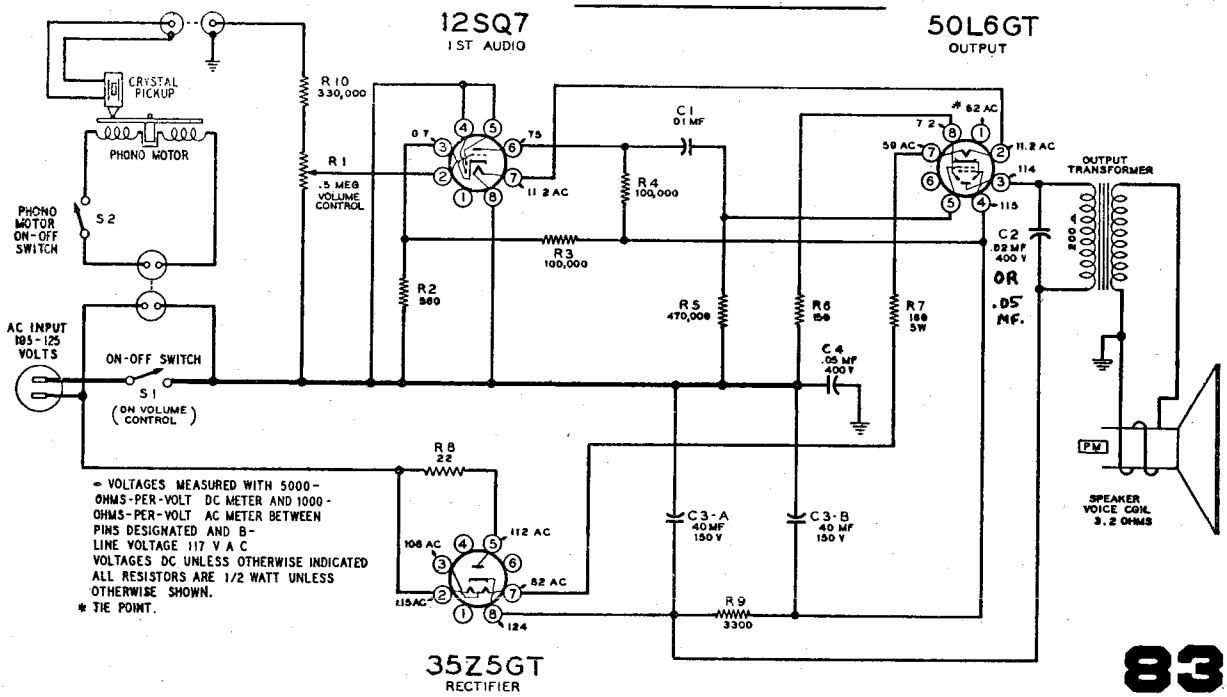
Power supply . . 105 to 125 volts AC, 60 cycles, 60 watts
Power output of amplifier . . . . 1.5 watts maximum
Sensitivity (for 1 watt output) . . . 0.25 volts average



NOTES:
- VOLTAGES MEASURED WITH A 5000 OHMS-PER-VOLT DC METER OR 1000 OHMS-PER-VOLT AC METER BETWEEN DESIGNATED PIN AND B- VOLTAGES DC UNLESS OTHERWISE INDICATED.

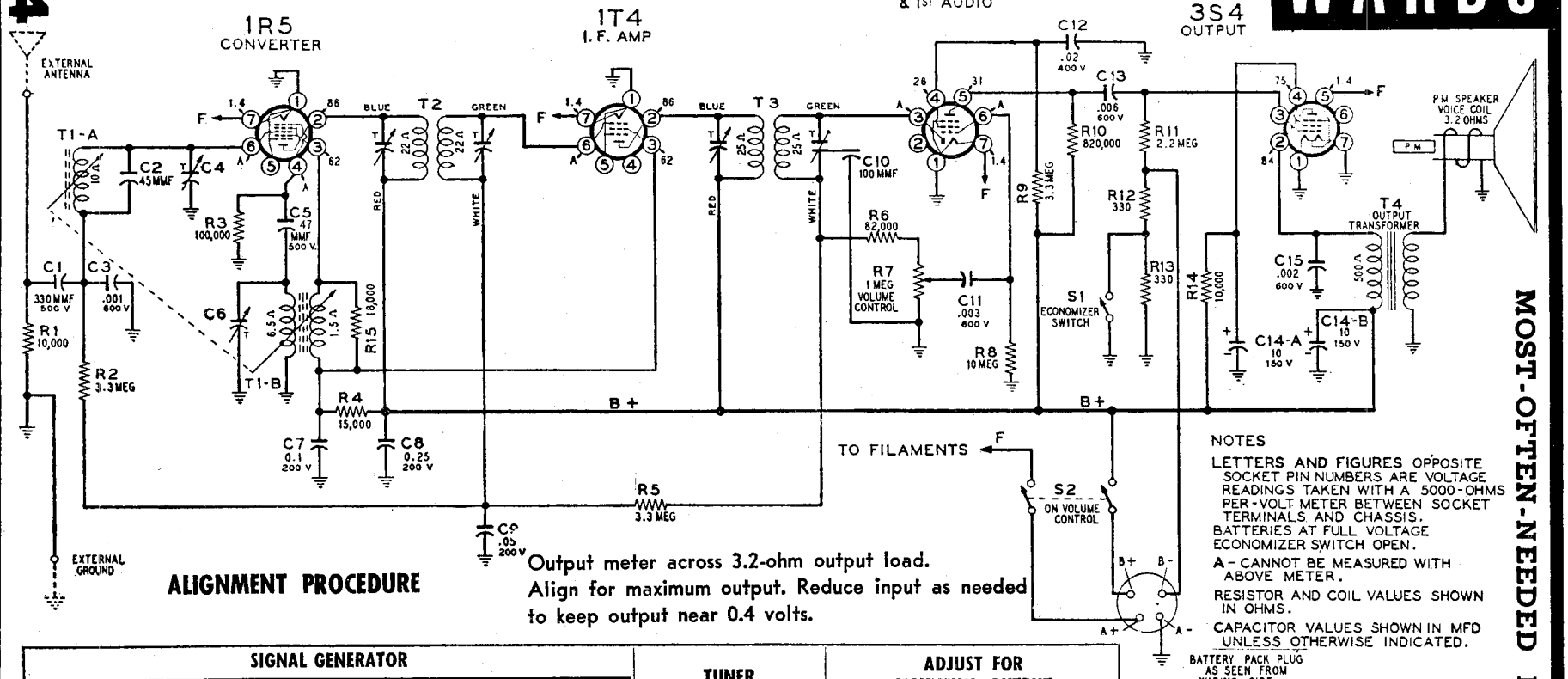
RESISTOR VALUES ½ WATT UNLESS OTHERWISE SHOWN.

MODEL 64BR-917B



- VOLTAGES MEASURED WITH 5000-OHMS-PER-VOLT DC METER AND 1000-OHMS-PER-VOLT AC METER BETWEEN PINS DESIGNATED AND B-
LINE VOLTAGE 117 V A C
VOLTAGES DC UNLESS OTHERWISE INDICATED
ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SHOWN.
* TIE POINT.

MODELS 64BR-1205A, 1206A



ALIGNMENT PROCEDURE

Output meter across 3.2-ohm output load.
Align for maximum output. Reduce input as needed to keep output near 0.4 volts.

SIGNAL GENERATOR			TUNER SETTING	ADJUST FOR MAXIMUM OUTPUT (in order shown)
Frequency	Coupling Capacitor	Connection to Radio		
455 kc	.1 mf	Grid (pin 6) of 1R5	Iron cores all the way out	Trimmers on output and input I. F. cans
1700 kc	.1 mf	Grid (pin 6) of 1R5	Iron cores all the way out	Oscillator trimmer C6
1700 kc	200 mmf	Antenna lead	Iron cores all the way out	Antenna trimmer C4
1400 kc	200 mmf	Antenna lead	Turn dial to 1400 kc	Adjust position of ant. coil (see coil view)*

*This adjustment and the previous adjustment are interlocking; therefore repeat the two adjustments alternately for best results.

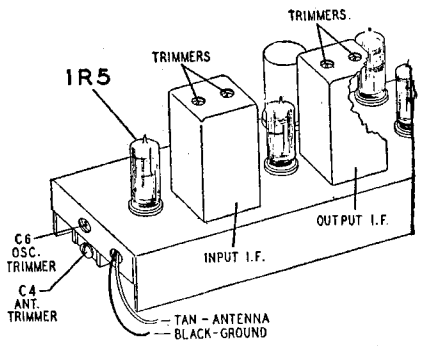
NOTES

LETTERS AND FIGURES OPPOSITE SOCKET PIN NUMBERS ARE VOLTAGE READINGS TAKEN WITH A 5000-OHMS PER-VOLT METER BETWEEN SOCKET TERMINALS AND CHASSIS. BATTERIES AT FULL VOLTAGE ECONOMIZER SWITCH OPEN.

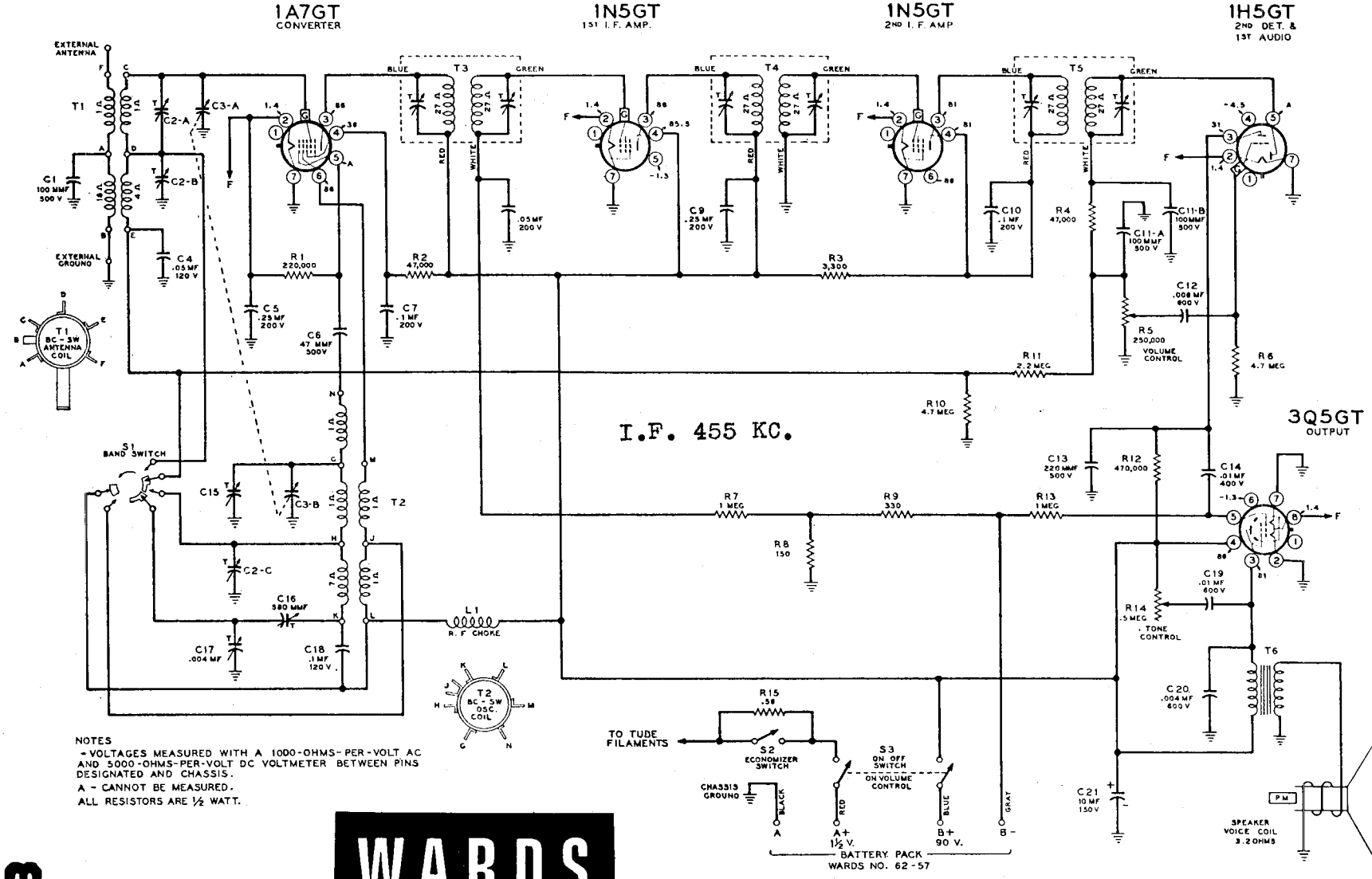
A- CANNOT BE MEASURED WITH ABOVE METER.

RESISTOR AND COIL VALUES SHOWN IN OHMS.

CAPACITOR VALUES SHOWN IN MFD UNLESS OTHERWISE INDICATED.



MOST-OFTEN-NEEDED RADIO DIAGRAMS



NOTES

- VOLTAGES MEASURED WITH A 1000-OHMS-PER-VOLT AC AND 5000-OHMS-PER-VOLT DC VOLTMETER BETWEEN PINS DESIGNATED AND CHASSIS.

A - CANNOT BE MEASURED.

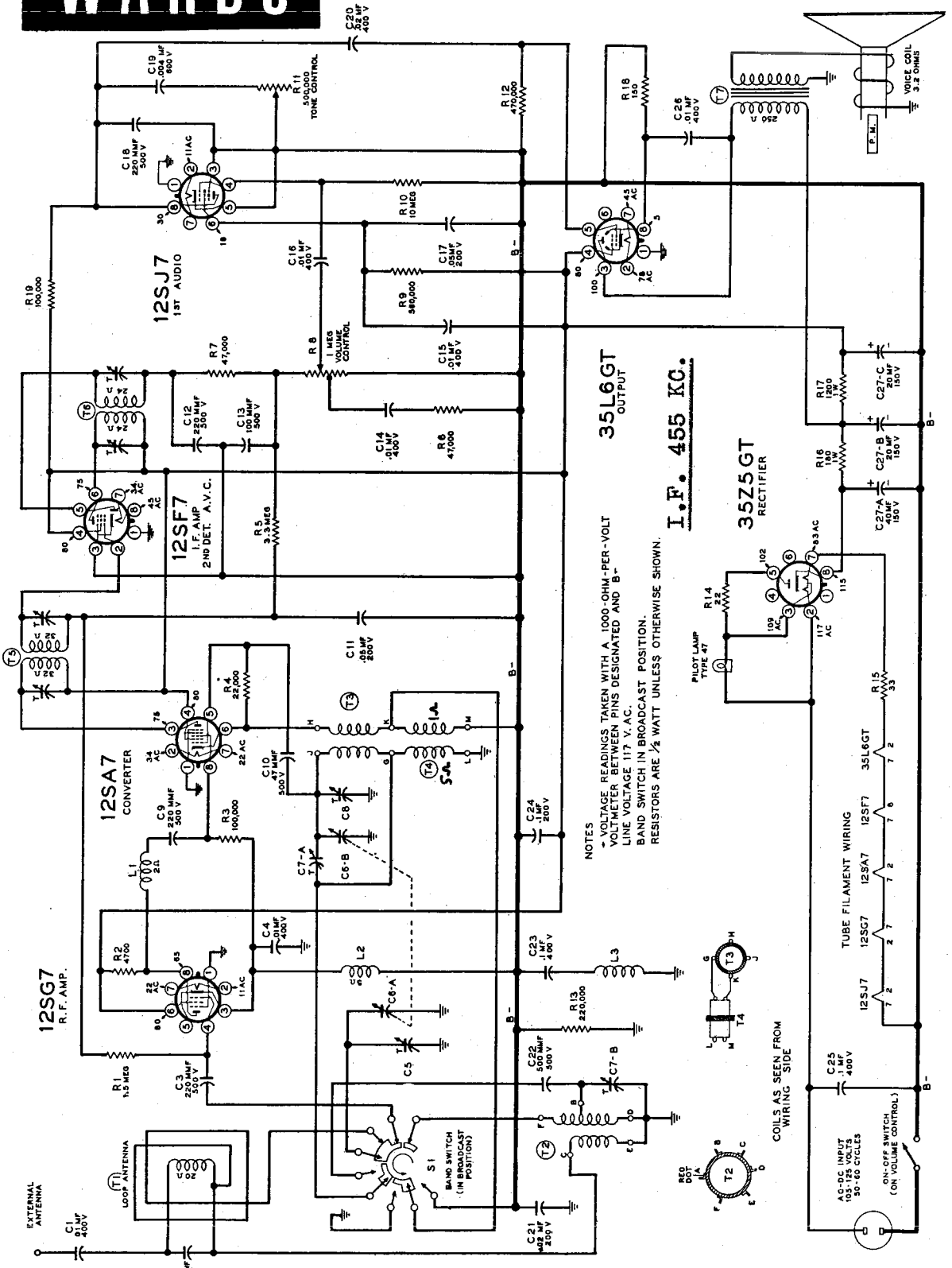
ALL RESISTORS ARE ½ WATT.

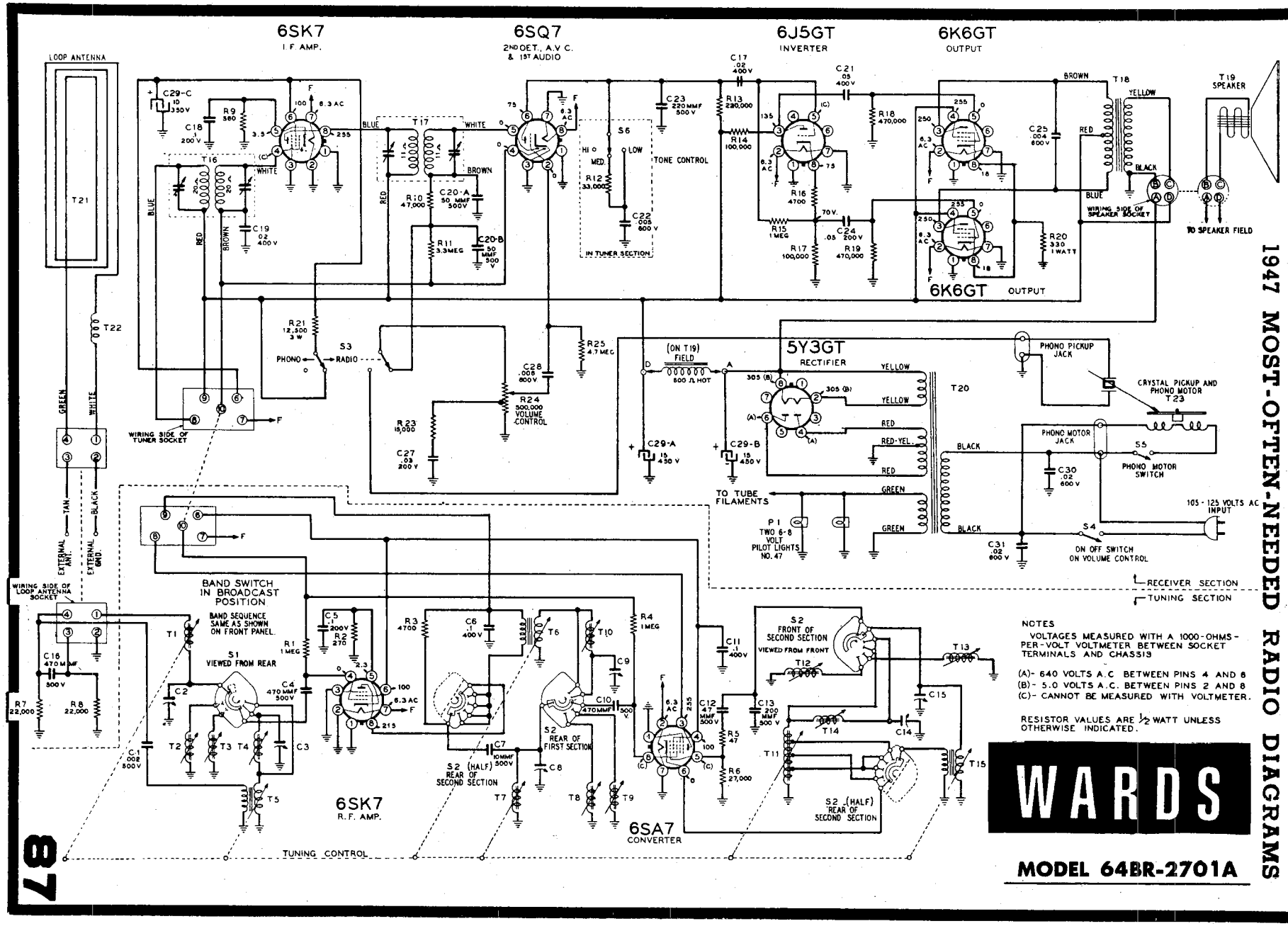
WARDS

MODELS 64BR-1208A, 64BR-2200A

WARDS

MODELS 64BR-1513A, 1514A





NOTES

VOLTAGES MEASURED WITH A 1000-OHMS-PER-VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND CHASSIS

(A)- 640 VOLTS A.C. BETWEEN PINS 4 AND 8
(B)- 5.0 VOLTS A.C. BETWEEN PINS 2 AND 8
(C)- CANNOT BE MEASURED WITH VOLTMETER.

RESISTOR VALUES ARE ½ WATT UNLESS OTHERWISE INDICATED.

WARDS

MODEL 64BR-2701A

1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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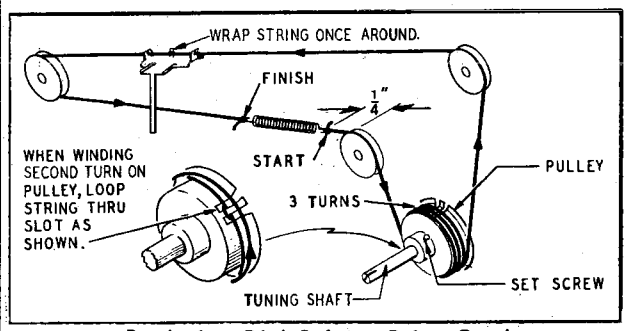
MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

M O N T G O M E R Y W A R D

MODEL 64BR-2701A



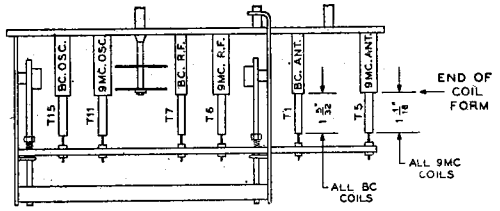
Replacing Dial Pointer Drive Cord

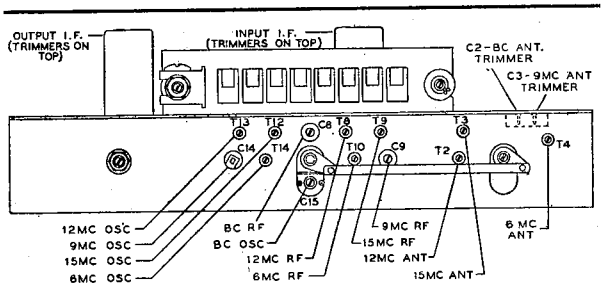
After stringing, spring must be 1/4" from idler when tuning shaft is in extreme counterclockwise position. To do this: Loosen set screw; hold tuning shaft firm and turn pulley by hand until spring is 1/4" from idler; tighten screw.

MECHANICAL ADJUSTMENT—The core tuning bar (see illustration of coils below) and dial pointer must be adjusted mechanically before any electrical alignment is attempted. Rotate the manual tuning control until the core bar is farthest from the coils. For proper adjustment the bar should be approximately 1/32 of an inch from the two rod guide angles.

With the core bar in this position, adjust the dial pointer to coincide with 1600 kc on the dial scale (see pointer alignment diagram).

Rotate the core of each of the three broadcast coils (see illustration) until the end of the core is 1-5/32" from the end of the coil form. Rotate the three 9-mc cores until this dimension is 1-1/6" for these coils.



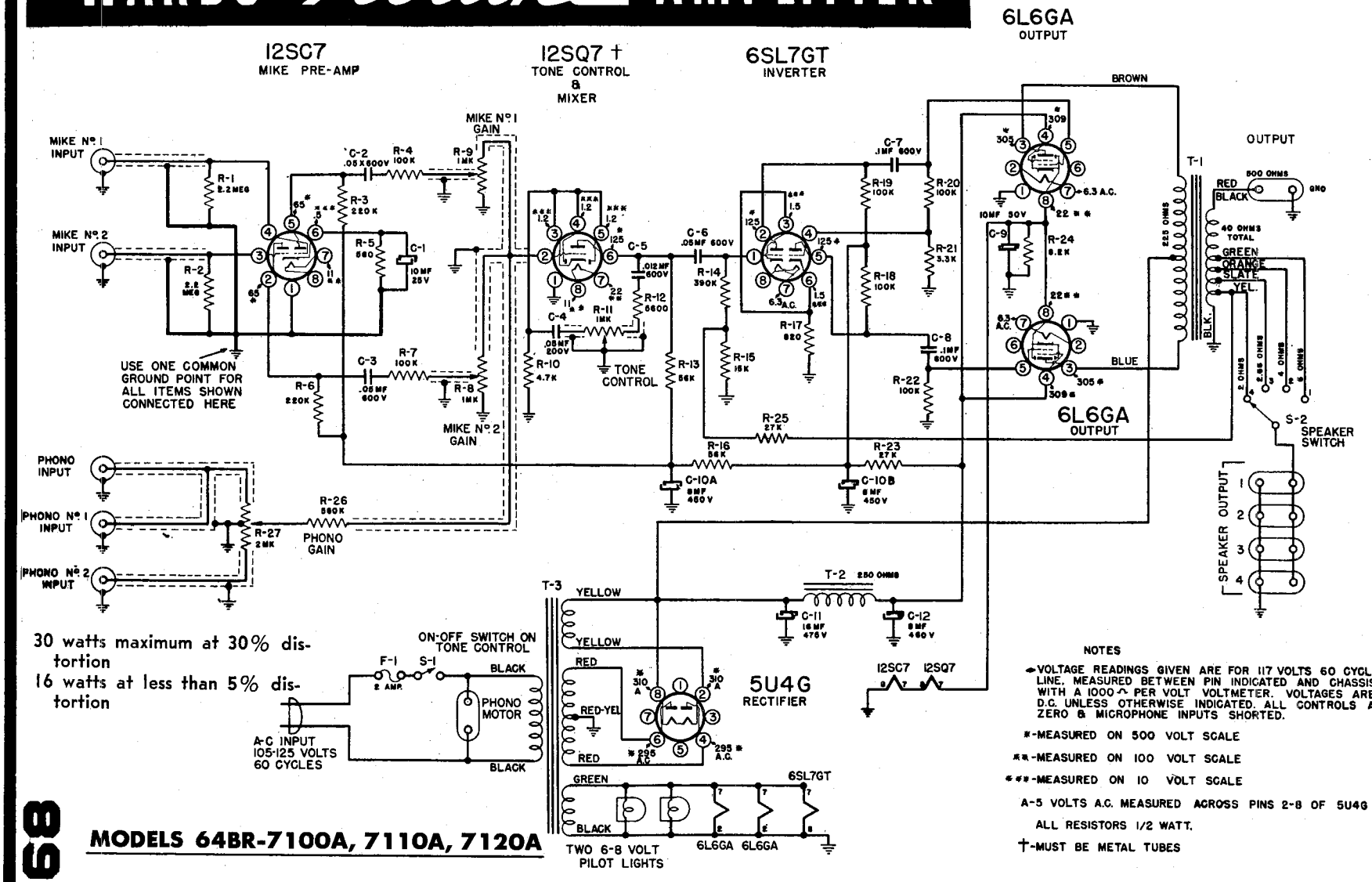


ELECTRICAL ADJUSTMENT—To align the set make the following preliminary adjustments: Set the tone pushbutton for treble tone; set the volume control at maximum; connect the ground post of the signal generator to the radio chassis; connect the output meter across a 3.2-ohm output load; and allow the receiver and signal generator to warm up for several minutes.

Align the set according to the sequence given in the chart. The indicated coupling capacitor is to be connected in series between the signal generator output lead and the receiver. Adjust the set for maximum output; reduce the input as needed to keep the output near 1.3 volts.

BAND SWITCH SETTING	SIGNAL GENERATOR			DIAL POINTER SETTING	ADJUST TO MAXIMUM OUTPUT IN ORDER SHOWN
	Frequency	Coupling Capacitor	Connection to Receiver		
Broadcast (for I. F.)	455 kc	.1 mf	Grid (pin 8) of converter (6SA7)	1600 kc	Trimmers on output and input I. F. cans
Broadcast	1600 kc	200 mmf	Antenna lead	1600 kc	BC Osc. trimmer C15 BC R. F. trimmer C8 BC Ant. trimmer C2
	1400 kc	200 mmf	Antenna lead	1400 kc	Rotate cores of BC R. F. coil T7 and BC Ant. coil T1
31 Meter	9.6 mc	400 ohms	Antenna lead	9.6 mc	9 mc Osc. trimmer C14 9 mc R. F. trimmer C9 9 mc Ant. trimmer C3
49 Meter	6.1 mc	400 ohms	Antenna lead	6.1 mc	6 mc Osc. coil T14 6 mc R. F. coil T10 6 mc Ant. coil T4
25 Meter	11.8 mc	400 ohms	Antenna lead	11.8 mc	12 mc Osc. coil T13 12 mc R. F. coil T8 12 mc Ant. coil T2
19 Meter	15.2 mc	400 ohms	Antenna lead	15.2 mc	15 mc Osc. coil T12 15 mc R. F. coil T9 15 mc Ant. coil T3

WARDS *Airline* AMPLIFIER



30 watts maximum at 30% distortion
16 watts at less than 5% distortion

NOTES

◂VOLTAGE READINGS GIVEN ARE FOR 117 VOLTS 60 CYCLES LINE. MEASURED BETWEEN PIN INDICATED AND CHASSIS WITH A 1000 ~ PER VOLT VOLTMETER. VOLTAGES ARE D.C. UNLESS OTHERWISE INDICATED. ALL CONTROLS AT ZERO & MICROPHONE INPUTS SHORTED.

*-MEASURED ON 500 VOLT SCALE

**-MEASURED ON 100 VOLT SCALE

***-MEASURED ON 10 VOLT SCALE

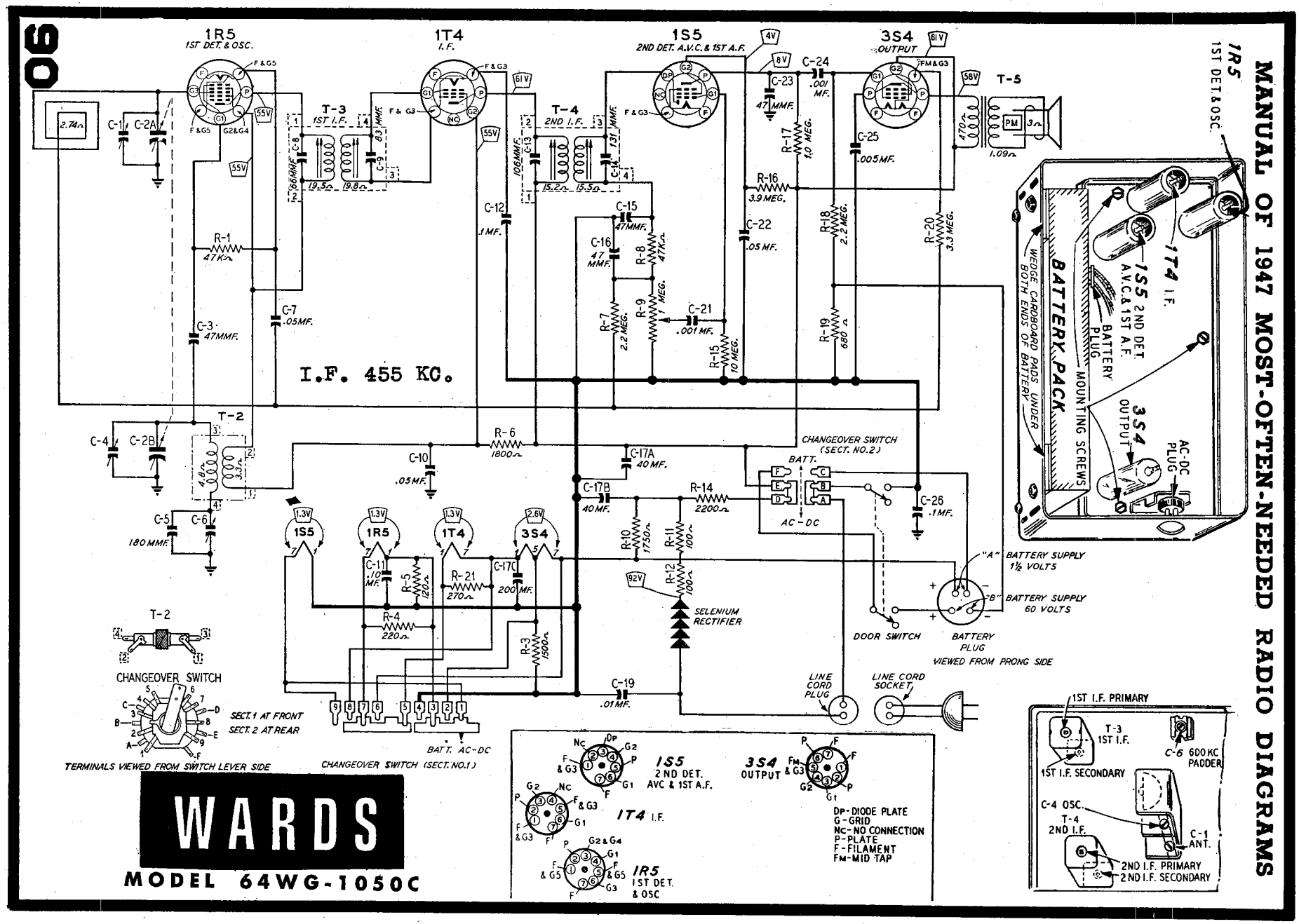
A-5 VOLTS A.C. MEASURED ACROSS PINS 2-8 OF 5U4G

ALL RESISTORS 1/2 WATT.

†-MUST BE METAL TUBES

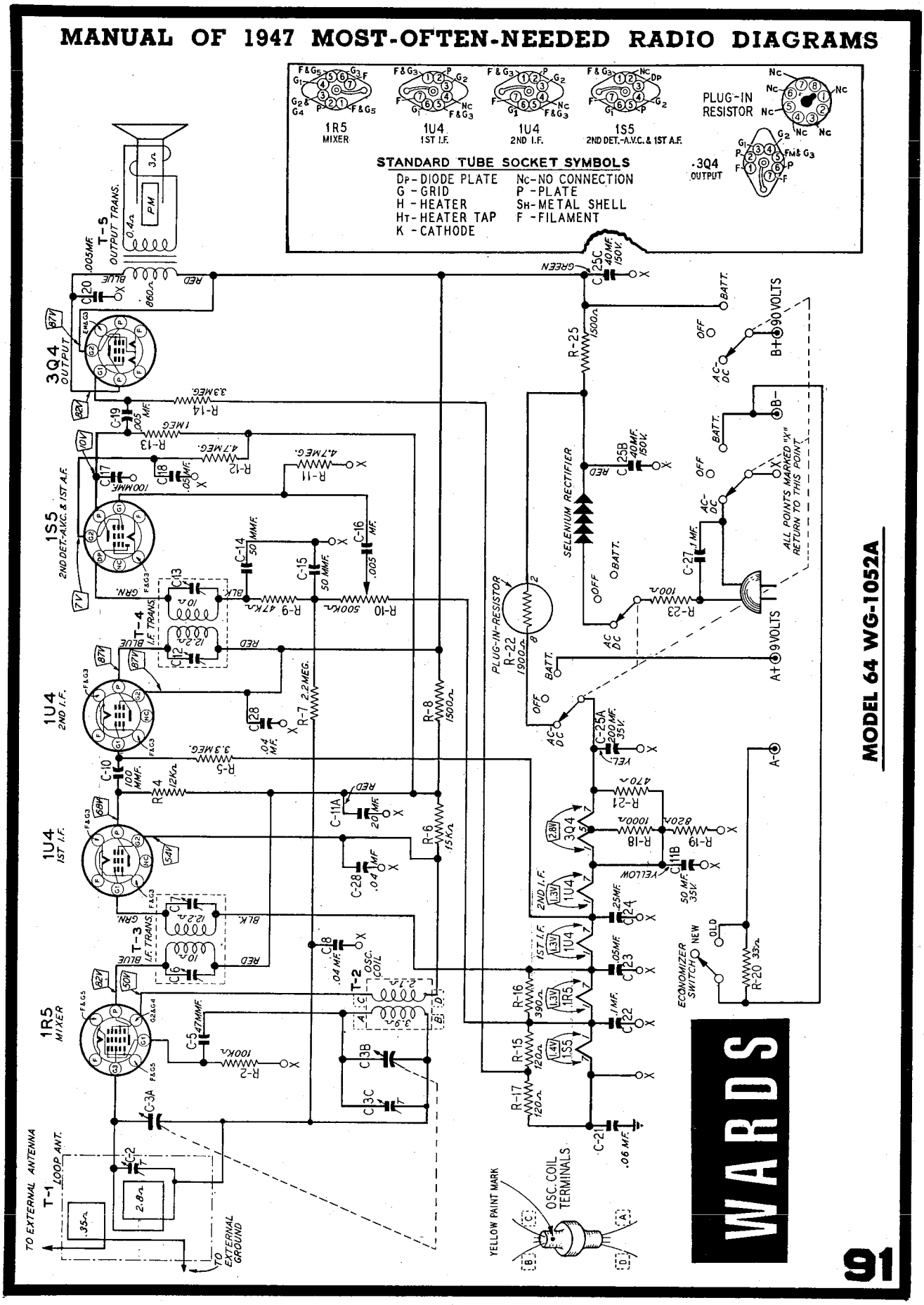
MODELS 64BR-7100A, 7110A, 7120A

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



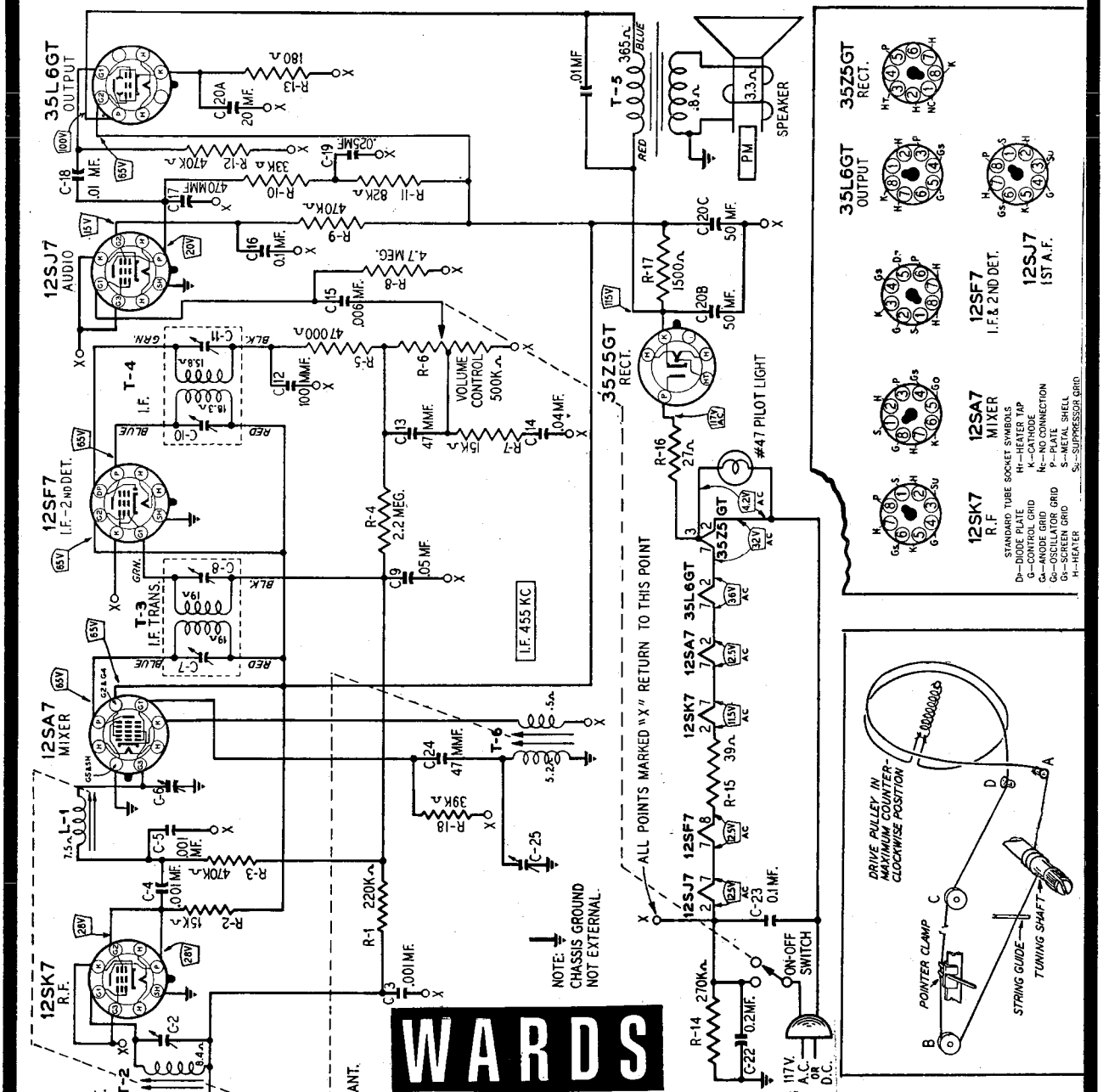
WARDS

MODEL 64WG-1050C



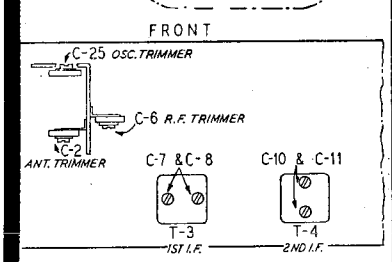
WARDS

MODEL 64 WG-1052A



WARDS

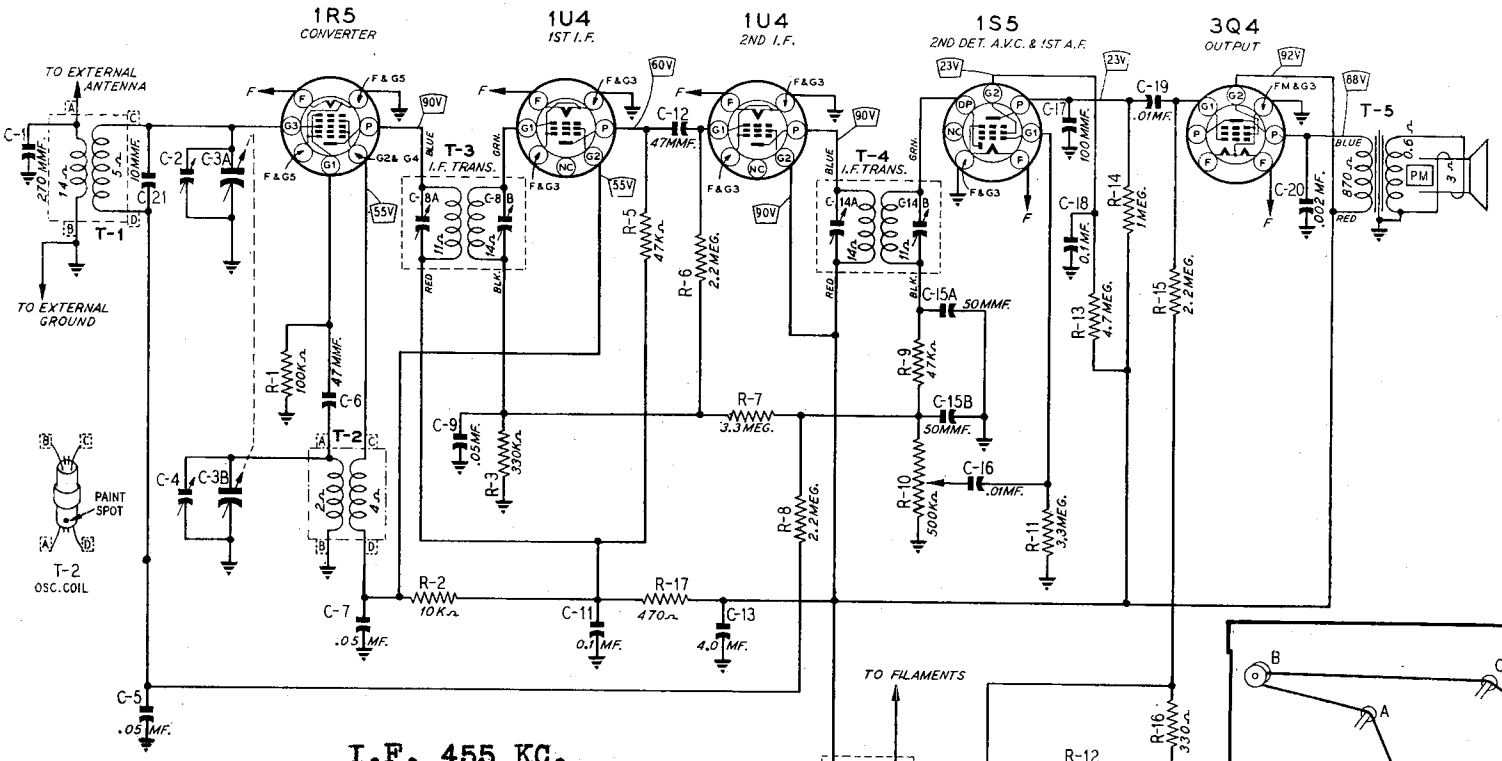
MODELS 64WG-1511A, 64WG-1512A, 64WG-1809A



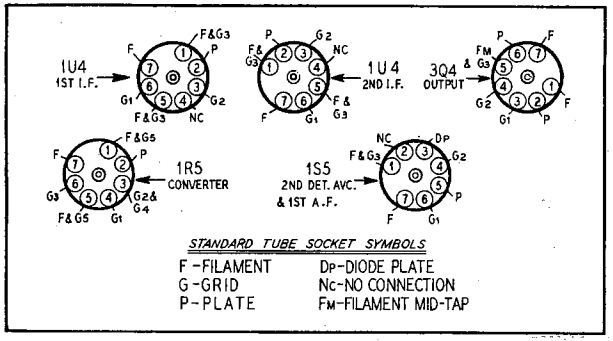
SIGNAL GENERATOR			Coupling Capacitor	DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM OUPUT IN ORDER SHOWN (See Trimmer Illustration)
Frequency Setting	Connection to Receiver	Ground Connection			
455 kc	Control Grid 12SF7—I-F (Prong No. 2)	Point "X" 12SK7—R-F (Prong No. 3)	.1 mf	1600 kc	2nd I-F (C10) & (C11)
455 kc	Control Grid 12SA7—1st Det. (Prong No. 8)	Same as above	.1 mf	1600 kc	1st I-F (C7) & (C8)
1400 kc	Control Grid 12SA7—1st Det. (Prong No. 8)	Same as above	.1 mf	1400 kc Index Line. See Note A	Oscillator (C25)
1400 kc	External Antenna Clip on Loop	Chassis	50 mmf	1400 kc Index Line. See Note A	R-F (C-6) Antenna (C-2)

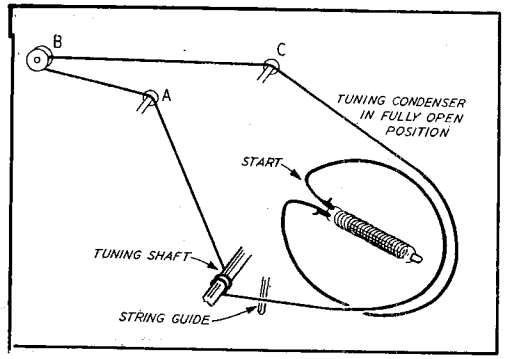
WARDS

MODEL 64 WG-1207B



I.F. 455 KC.

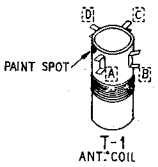


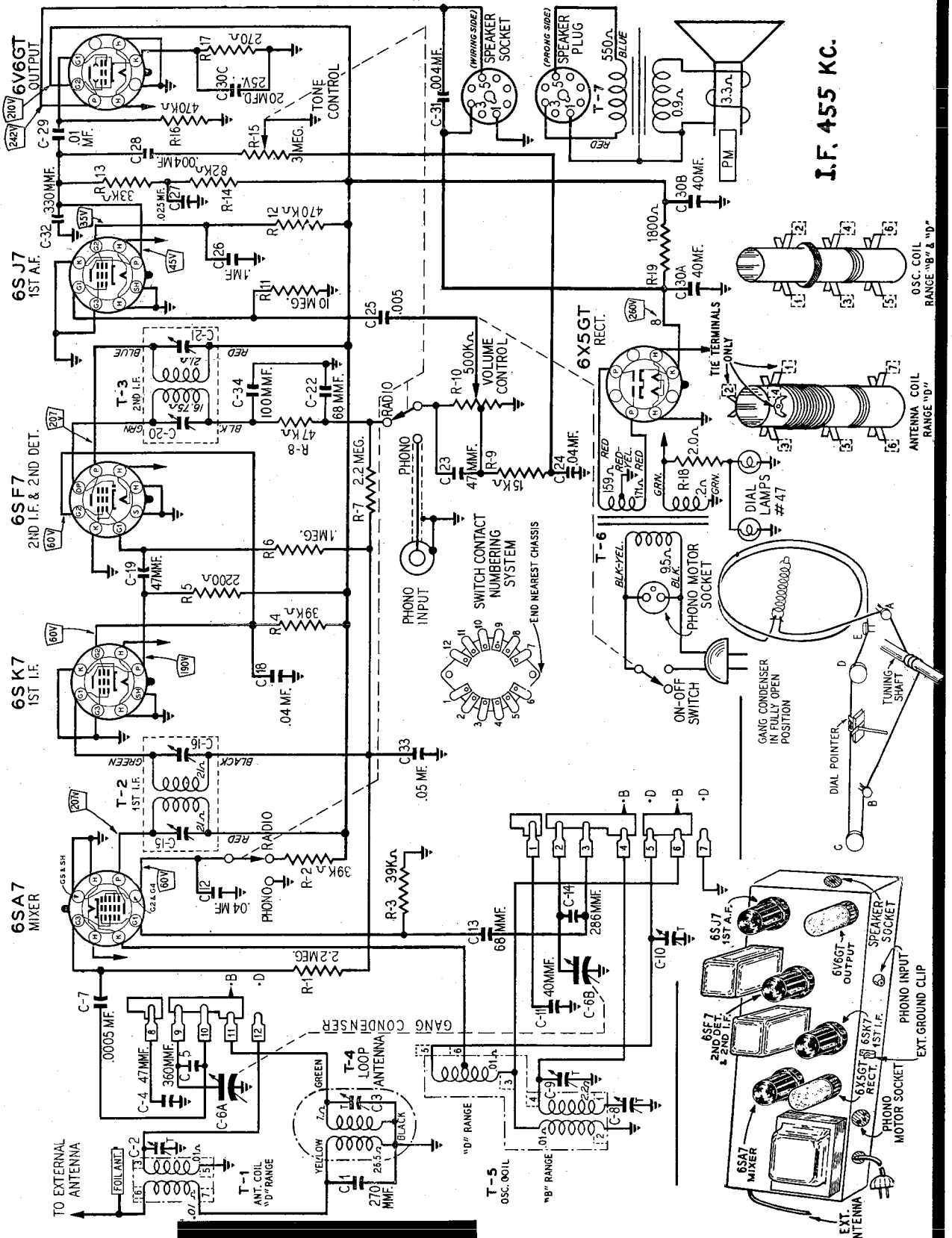


Socket voltages are shown on the schematic diagram at the tube socket terminals. All voltages are between the socket terminal and the chassis.

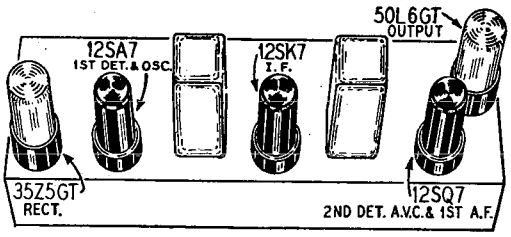
All readings, except those for the 1S5 tube, were taken with a 1000 ohm-per-volt meter and read on a 500 volt scale. The plate and screen voltages for the 1S5 tube were read with a vacuum tube voltmeter. Conditions of measurement are:

Battery voltages under load.....B, 90 volts
A, 1½ Volts
Volume control.....maximum
Signal input.....none

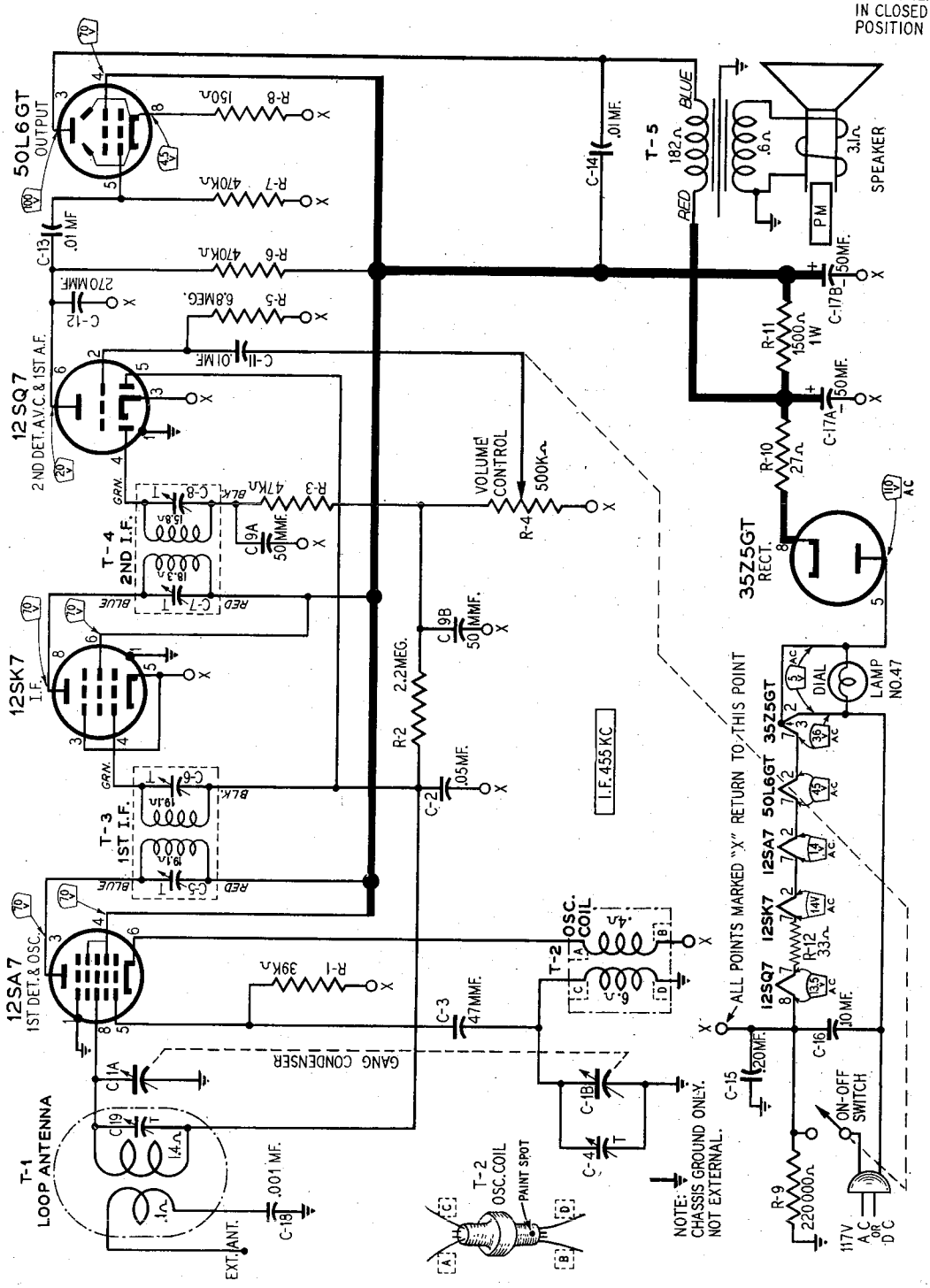




MODEL 64 WG-1807A

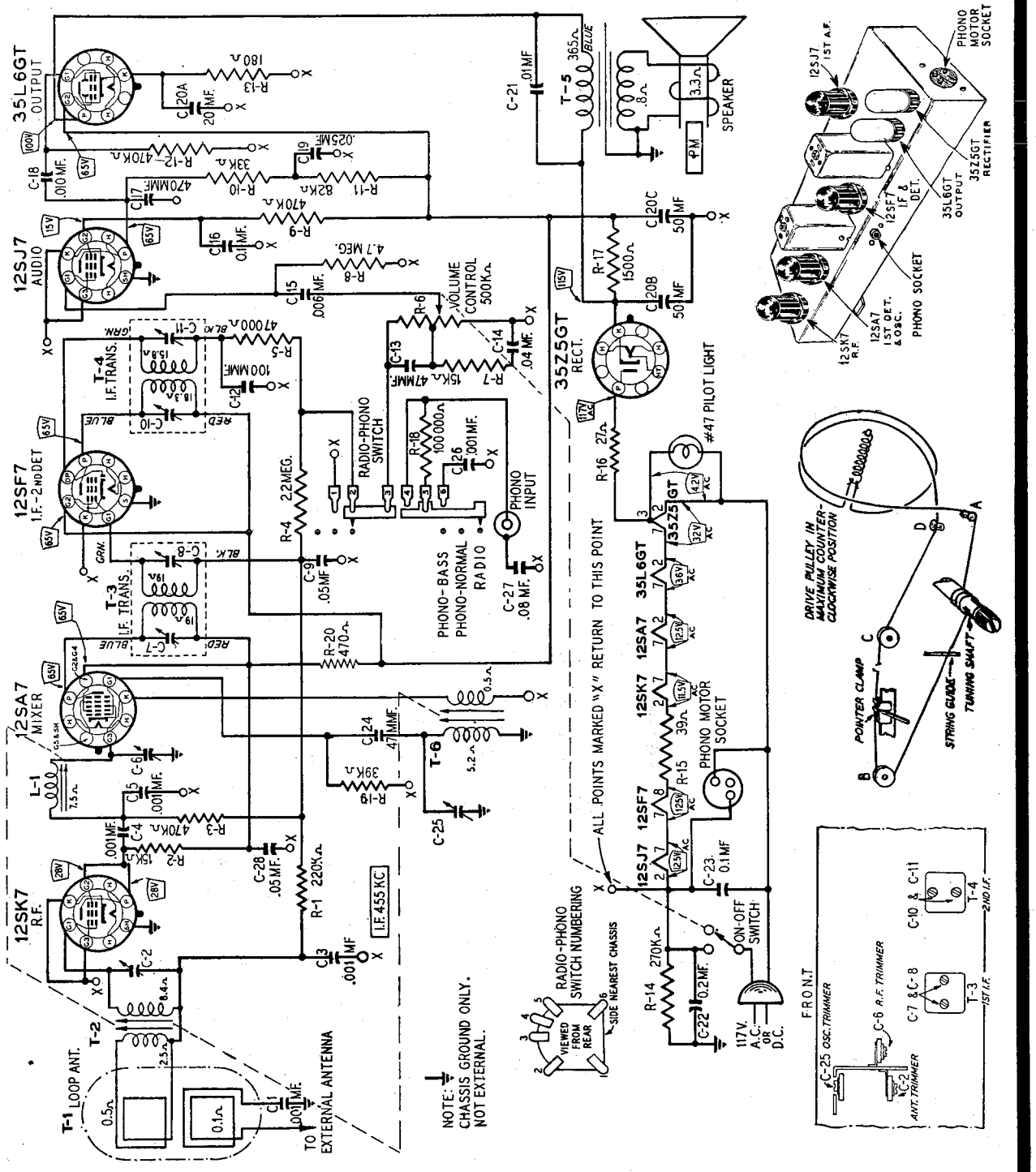


DRIVE CORD DIAGRAM



MODELS 64 WG-1801C

WARDS



MODEL 64 WG-2009B

Frequency Range.....540-1600 KC
Intermediate Frequency.455 KC

WARDS

WARDS

MODEL 64 WG-2500B

Intermediate Frequency . 455 KC

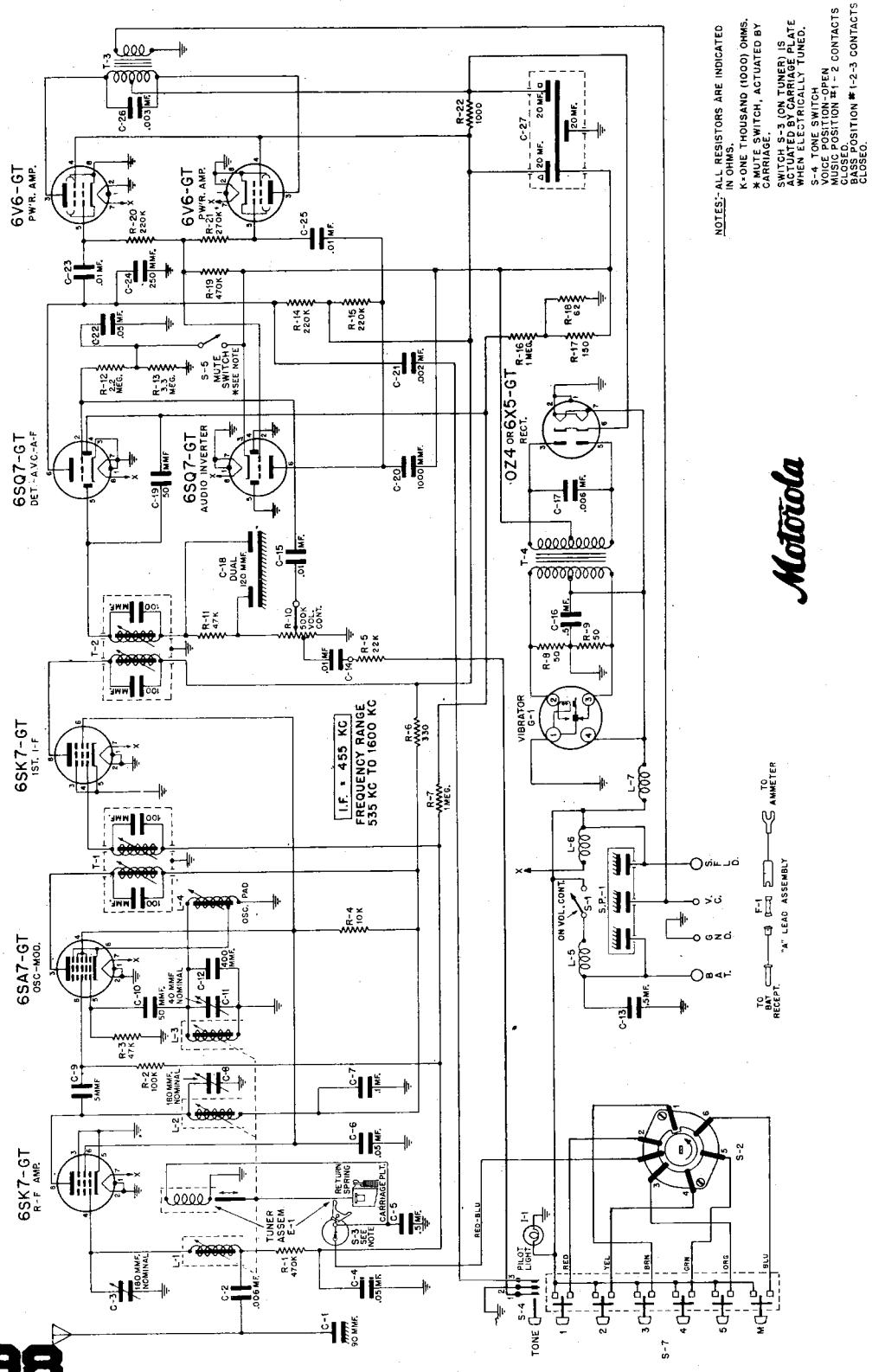
TUBE SOCKET VOLTAGES

Socket voltages are shown on the schematic diagram at the tube socket terminals. All voltages are between the socket terminal and chassis ground.

The readings were taken with a 1000 ohm per volt meter and all plate and screen voltages read on a 500 volt scale.

Motorola AUTO Radio

MODEL CR6



Motorola Model CR6 is an 8 tube automotive type superhetrodyne radio receiver specifically designed for installation in 1946 Plymouth, Dodge, DeSoto and Chrysler cars.

Alignment information on Model CR6 is on the next page.

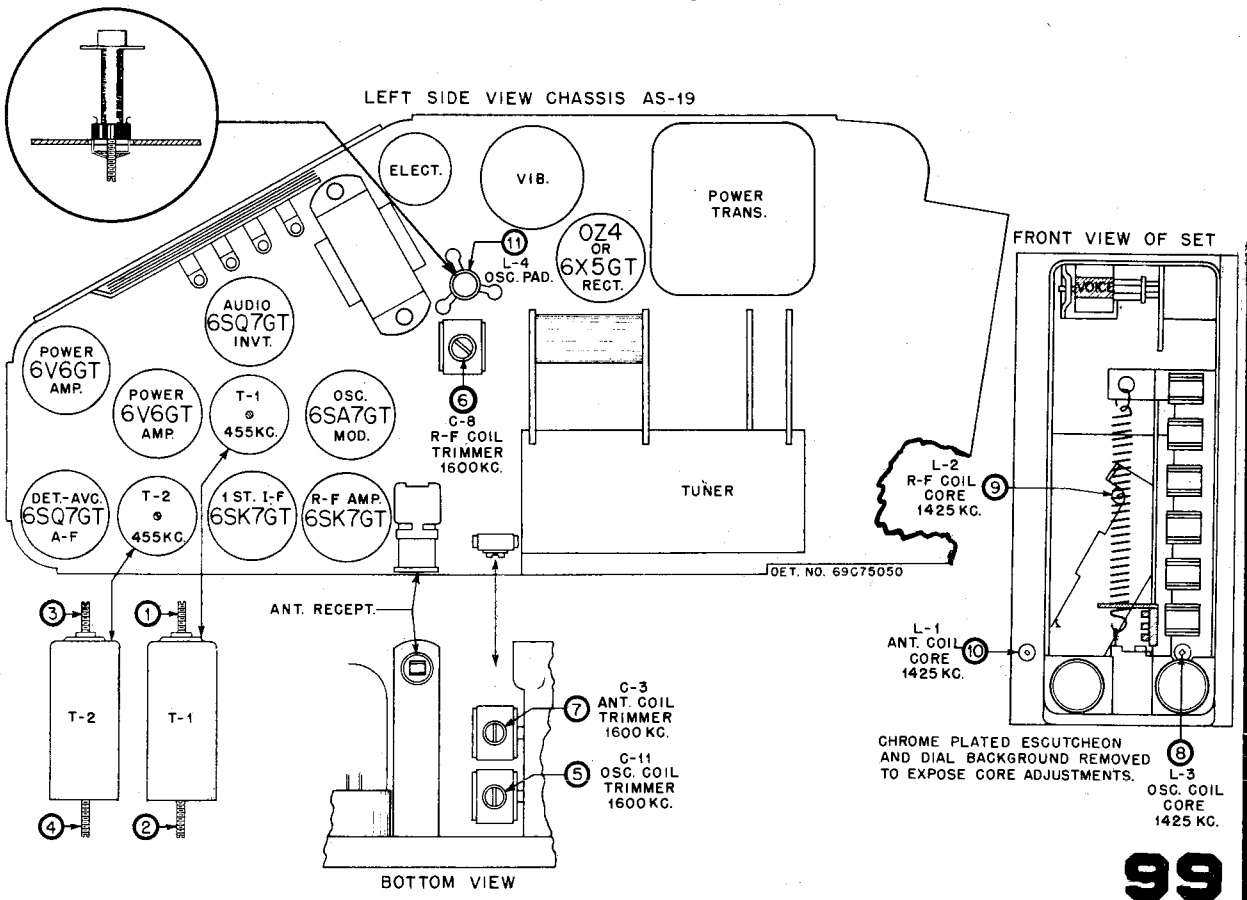
Motorola AUTO Radio

MODEL CR6

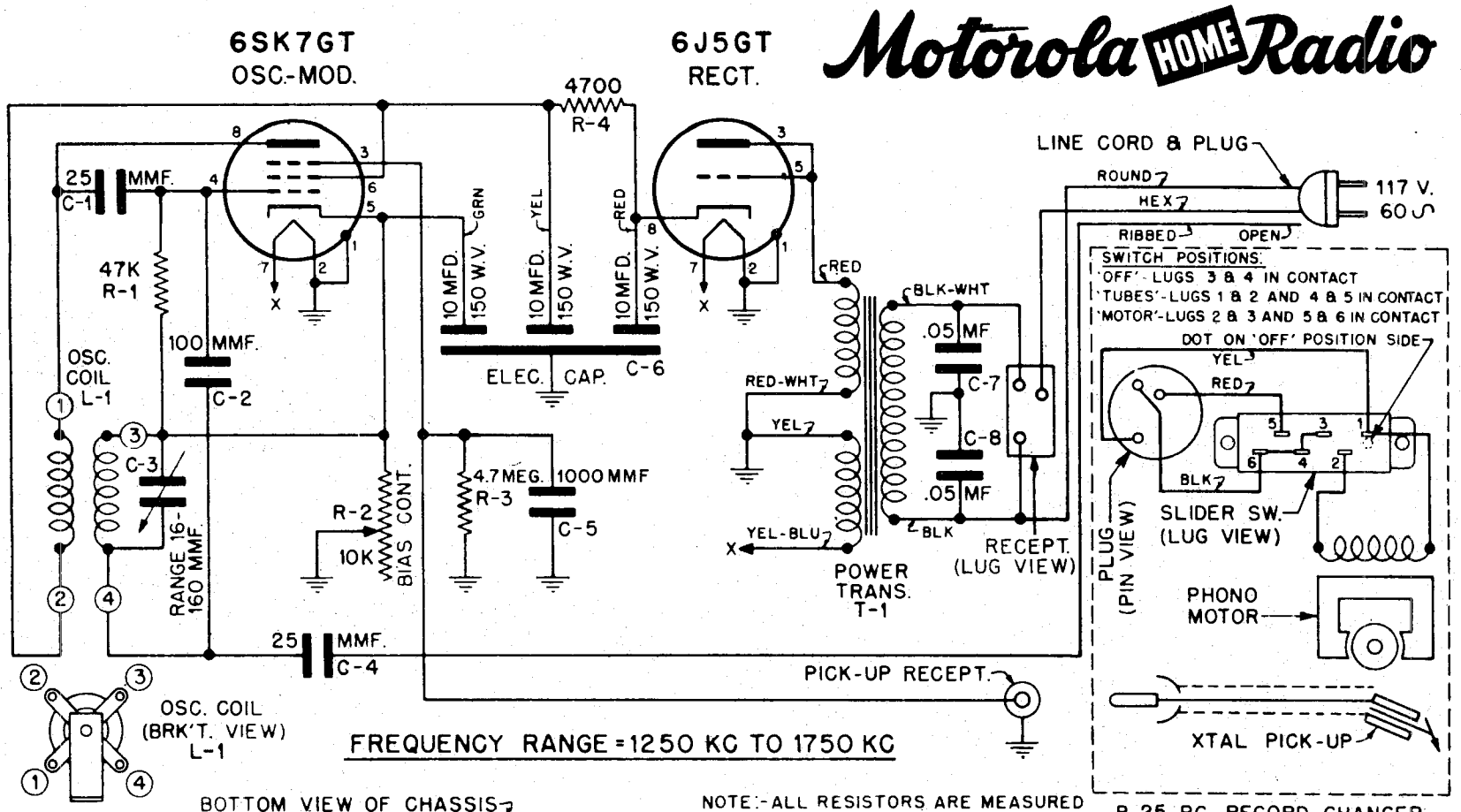
ALIGNMENT TABLE

STEP	TUNER POSITION SET TO	DUMMY ANTENNA	SIGNAL GENERATOR LEAD CONNECTED TO	SIG. GEN. SET AT	ADJUST FOR PEAK ON OUTPUT METER
1.	High frequency end (cores out)	.1 mfd. at Sig. Gen.	Osc.-Mod. grid (#5 pin)	455 Kc	#1 and 2 P & S in T-1 #3 and 4 P & S in T-2
2.	High frequency end, tuning shaft against stop. Cores should be set to project 1-1/8" from cans.	60 mmf. at Sig. Gen. in series in 21" long coax lead.	Antenna Receptacle	1600 Kc	#5 Osc. trimmer C-11 #6 R.F. trimmer C-8 #7 Ant. trimmer C-3
3.	EXACTLY one full turn in from high frequency end. Use knob set screw as an indicator. Start measuring turn the moment tuner carriage starts moving inward.	"	"	1425 Kc	#8 Osc. Core of L-3 #9 R.F. Core of L-2 #10 Ant. Core of L-1
4.	EXACTLY four more full turns in (as indicated by knob setscrew)	"	"	Power turned OFF	#11 Osc.Pad core of L-4 for maximum noise.

5. Assemble and install receiver in car and connect car antenna. Turn the dial to approximately 1400 Kc (not to a local station) and adjust antenna trimmer for maximum noise.

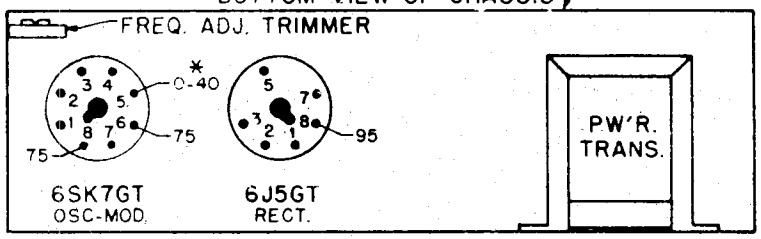


Motorola HOME Radio



B-25-RC RECORD CHANGER

BOTTOM VIEW OF CHASSIS



NOTE:- ALL RESISTORS ARE MEASURED IN OHMS UNLESS OTHERWISE SPECIFIED.

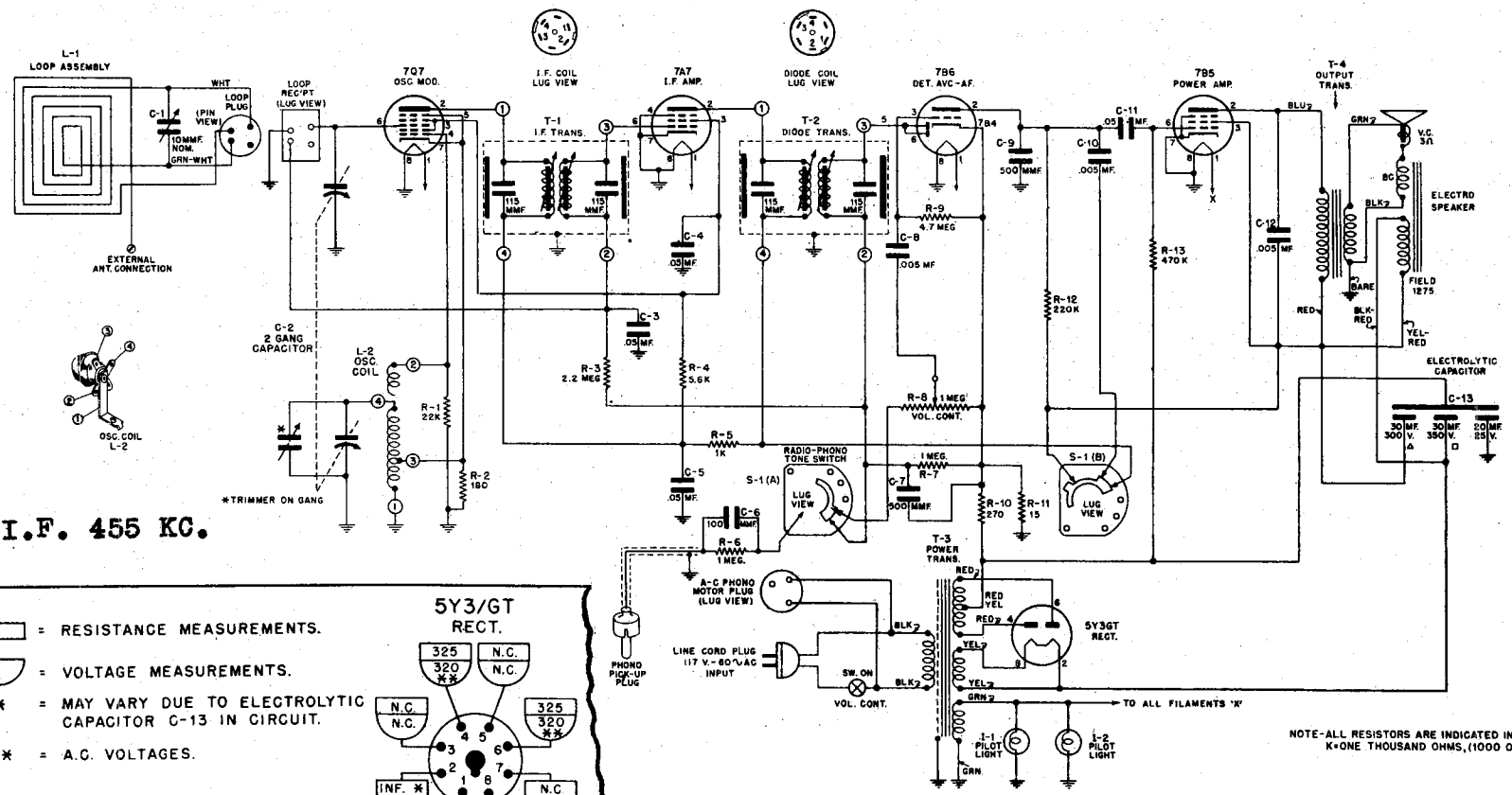
CHASSIS HS-18

MODEL WR6, 7 & 8

NOTE:- ALL VOLTAGES MEASURED WITH A 1,000 OHM PER VOLT VOLTMETER TO CHASSIS.
* VARIES WITH SETTING OF BIAS CONTROL

GALVIN MANUFACTURING CORPORATION

Motorola HOME Radio



I.F. 455 KC.

= RESISTANCE MEASUREMENTS.

= VOLTAGE MEASUREMENTS.

* = MAY VARY DUE TO ELECTROLYTIC CAPACITOR C-13 IN CIRCUIT.

** = A.C. VOLTAGES.

PHONO-RADIO SWITCH IN RADIO POSITION.

VOLUME CONTROL ON FULL, DIAL SET TO L. AND NO STATION TUNED IN.

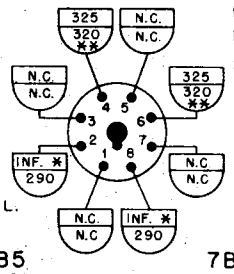
VOLTAGE TOLERANCE ± 10%

RESISTANCE TOLERANCE ± 20%

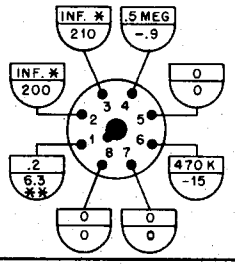
NOTE-ALL RESISTORS ARE INDICATED IN OHMS K=ONE THOUSAND OHMS, (1000 OHMS).

NOTE: A VTVM WAS USED TO MAKE VOLTAGE MEASUREMENTS. ALL MEASUREMENTS ARE MADE FROM TUBE BASE PIN TERMINALS TO CHASSIS.

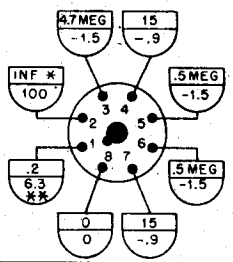
5Y3/GT RECT.



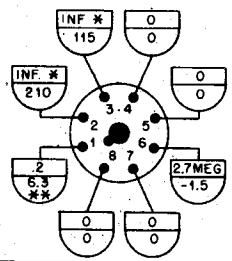
7B5 P'WR. AMP.



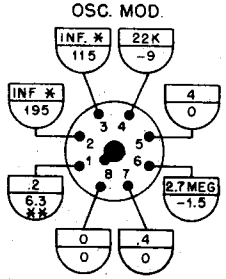
7B6 DET. AVC. AF.



7A7 I-F AMP.



7Q7 OSC. MOD.



Motorola

Model 55F11

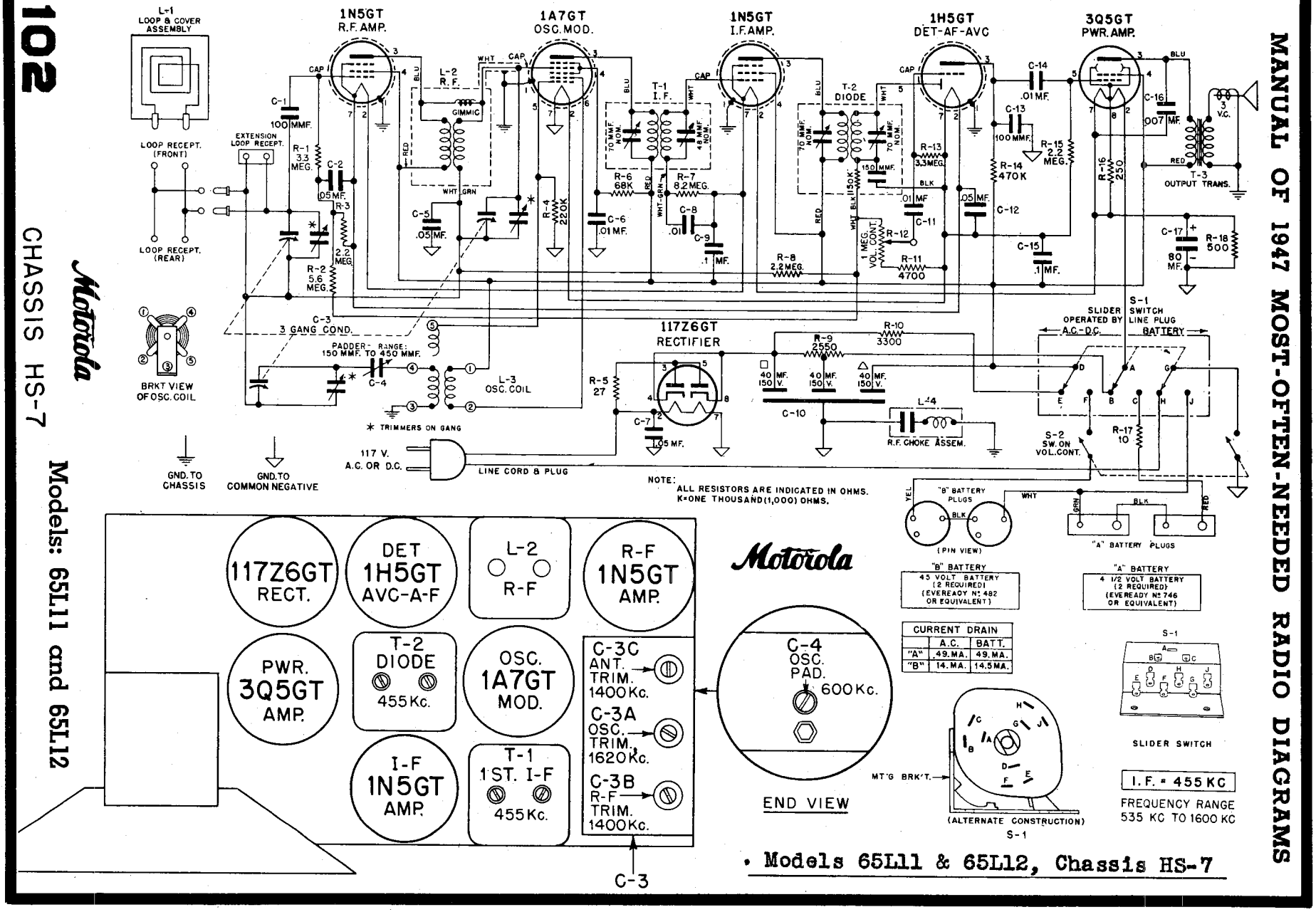
Chassis HS-30

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Motorola

CHASSIS HS-7

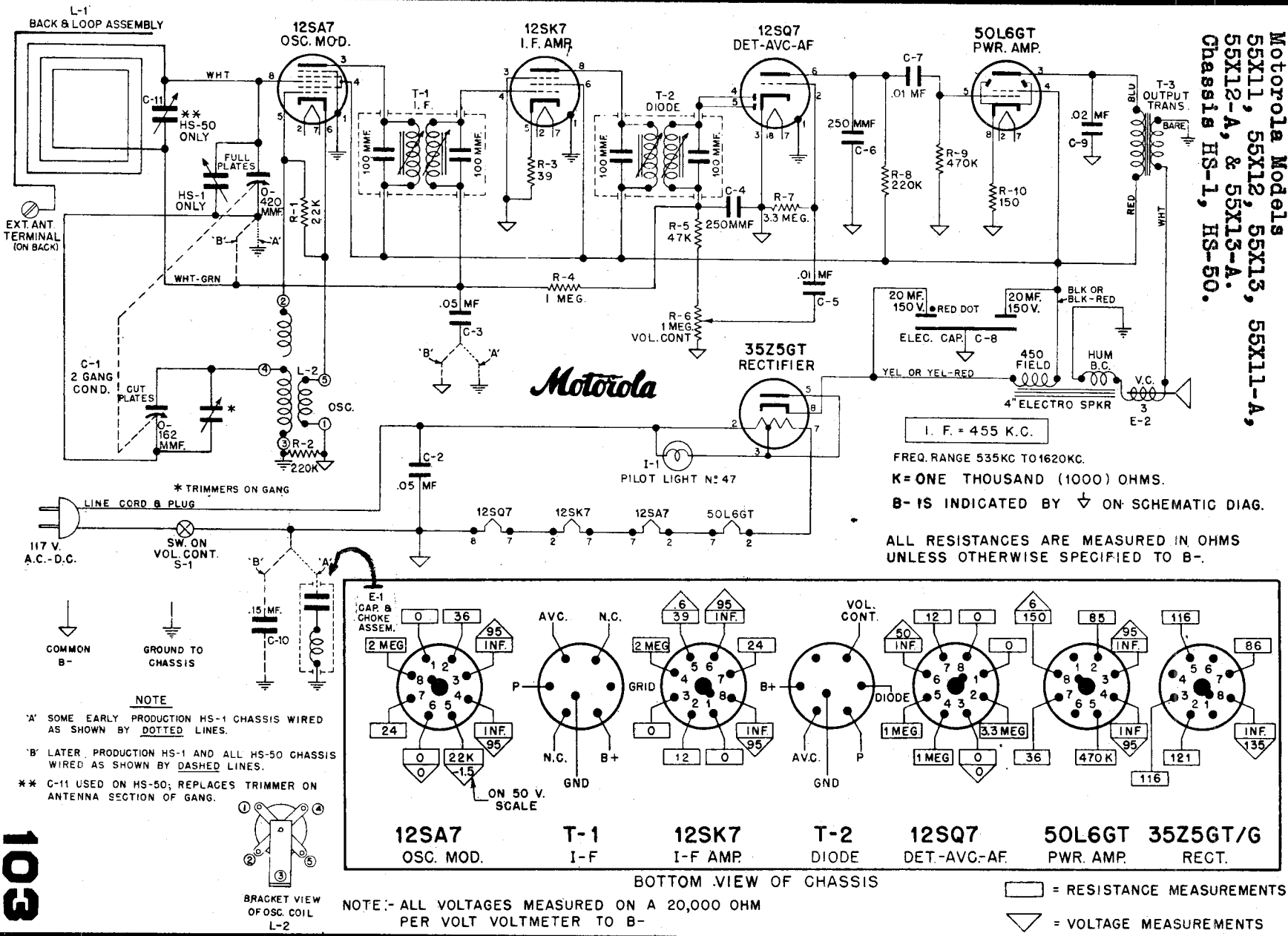
Models: 65L11 and 65L12



• Models 65L11 & 65L12, Chassis HS-7

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Motorola Models
55X11, 55X12, 55X13, 55X11-A, 55X12-A, & 55X13-A.
Chassis HS-1, HS-50.



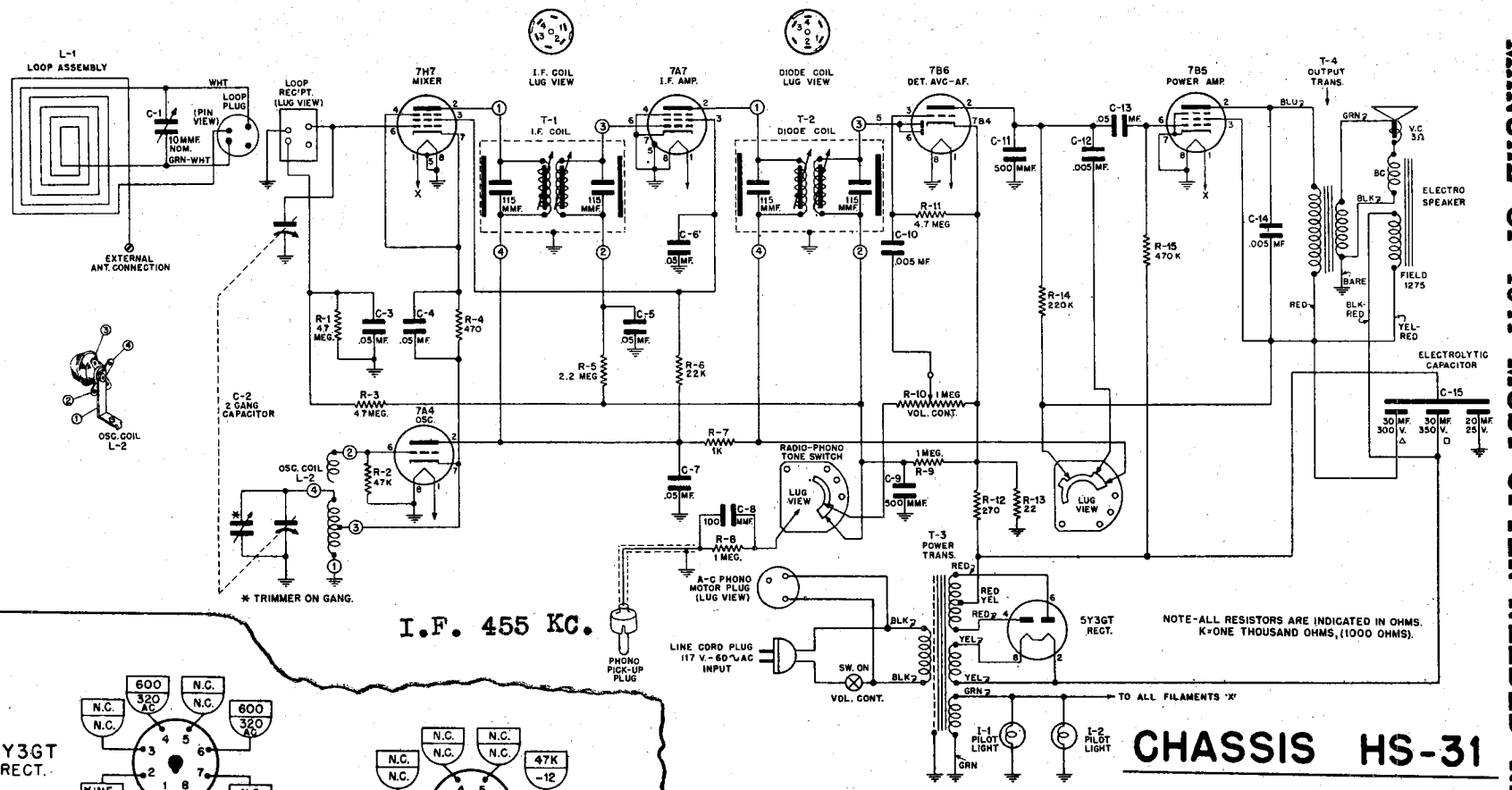
NOTE

'A' SOME EARLY PRODUCTION HS-1 CHASSIS WIRED AS SHOWN BY DOTTED LINES.

'B' LATER PRODUCTION HS-1 AND ALL HS-50 CHASSIS WIRED AS SHOWN BY DASHED LINES.

** C-11 USED ON HS-50; REPLACES TRIMMER ON ANTENNA SECTION OF GANG.

NOTE:- ALL VOLTAGES MEASURED ON A 20,000 OHM PER VOLT VOLTMETER TO B-

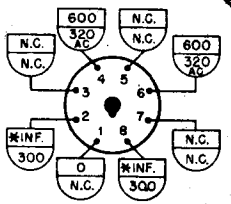


CHASSIS HS-31

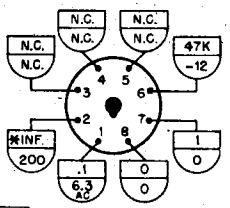
Motorola

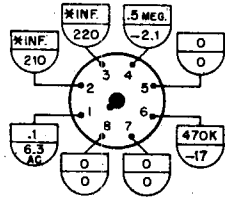
MODELS 65F11 and 65F12

5Y3GT RECT.

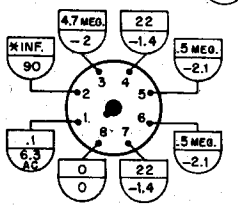


7A4 OSC.



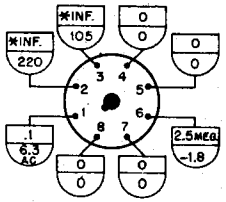


7B5 PW'R. AMP.

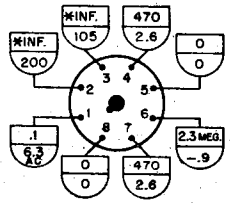


7B6 DET.—AVC—A-F

* MAY VARY DUE TO ELECTROLYTIC CAPACITOR C-15 IN CIRCUIT.



7A7 I-F AMP.



7H7 MIXER

NOTE:- A VTVM WAS USED TO MAKE MEASUREMENTS. IF A 20,000 OHM PER VOLT METER IS USED ALL GRID & AVC VOLTAGES WILL READ LOWER.

MEASUREMENTS ARE MADE FROM TUBE BASE PIN TERMINALS TO CHASSIS.

PHONO-RADIO SWITCH IN RADIO POSITION.

VOLUME CONTROL ON FULL, DIAL SET TO I.F. END AND NO STATION TUNED IN.

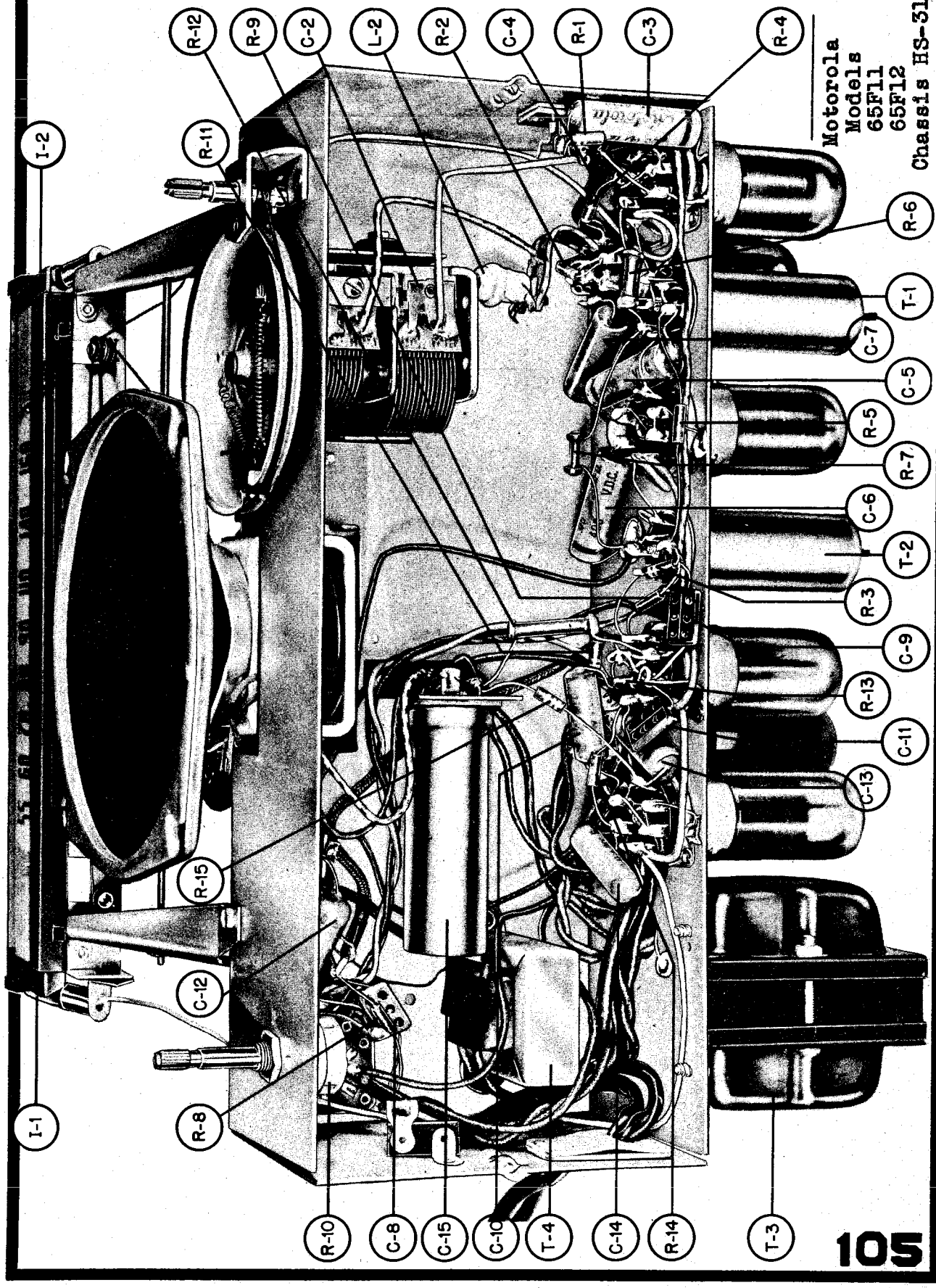
VOLTAGE TOLERANCE ± 10%.

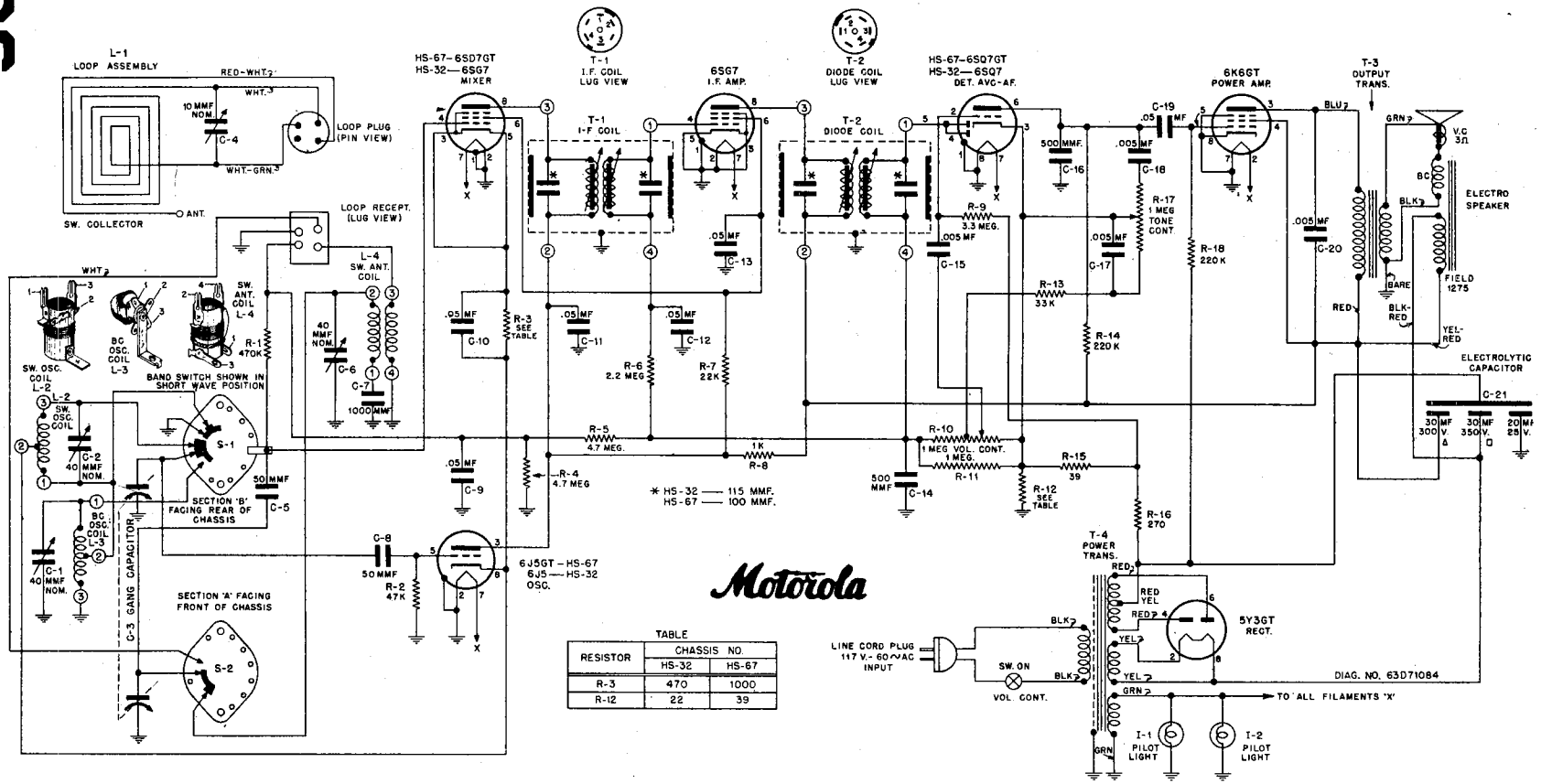
RESISTANCE TOLERANCE ± 20%.

▭ = RESISTANCE MEASUREMENTS.

◡ = VOLTAGE MEASUREMENTS.

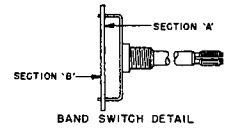
Motorola
Models
65F11
65F12
Chassis HS-31





TABLE

RESISTOR	CHASSIS NO.	
	HS-32	HS-67
R-3	470	1000
R-12	22	39



BAND SWITCH DETAIL

NOTE:-ALL RESISTORS ARE INDICATED IN OHMS.
K=ONE THOUSAND OHMS, (1000 OHMS)

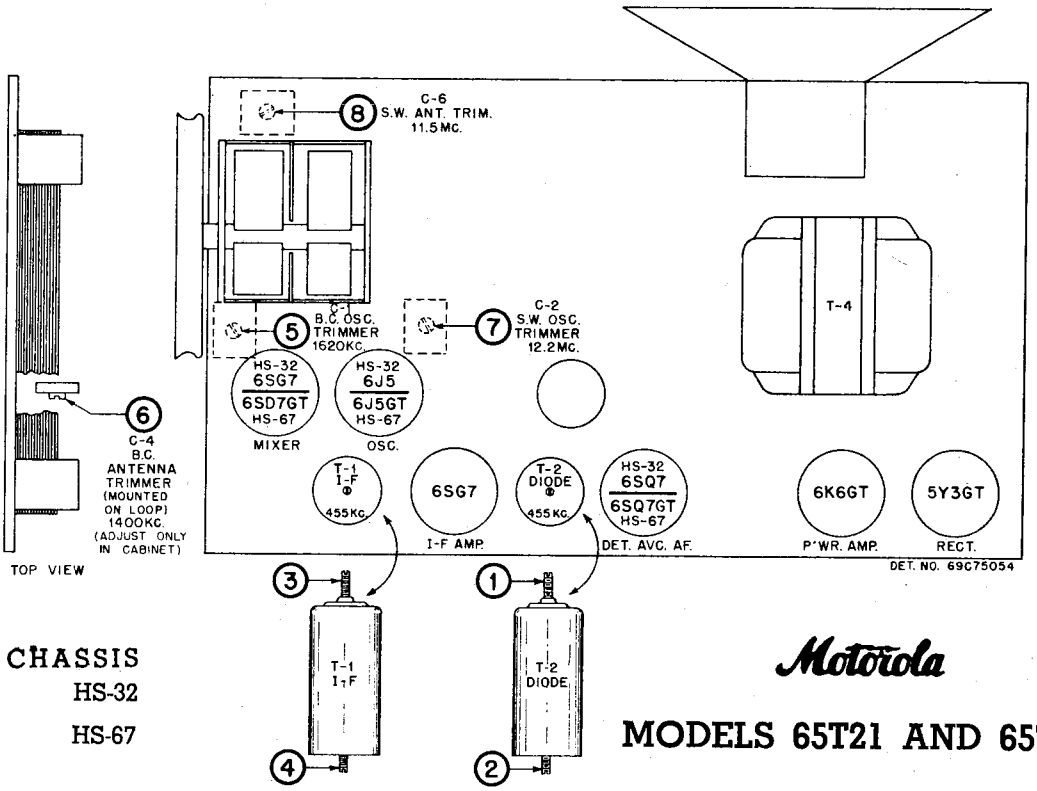
I-F-455 KC

BC-1620-535 KC
SW-12.2-5.6 MC

GALVIN MANUFACTURING CORPORATION

MODELS 65T21 AND 65T21B

CHASSIS
HS-32
HS-67



CHASSIS
HS-32
HS-67

Motorola

MODELS 65T21 AND 65T21B

ALIGNMENT AND SENSITIVITY CHART

Connect output meter across speaker voice coil (.38V = .05 watts)
Volume control set at maximum for all operations.

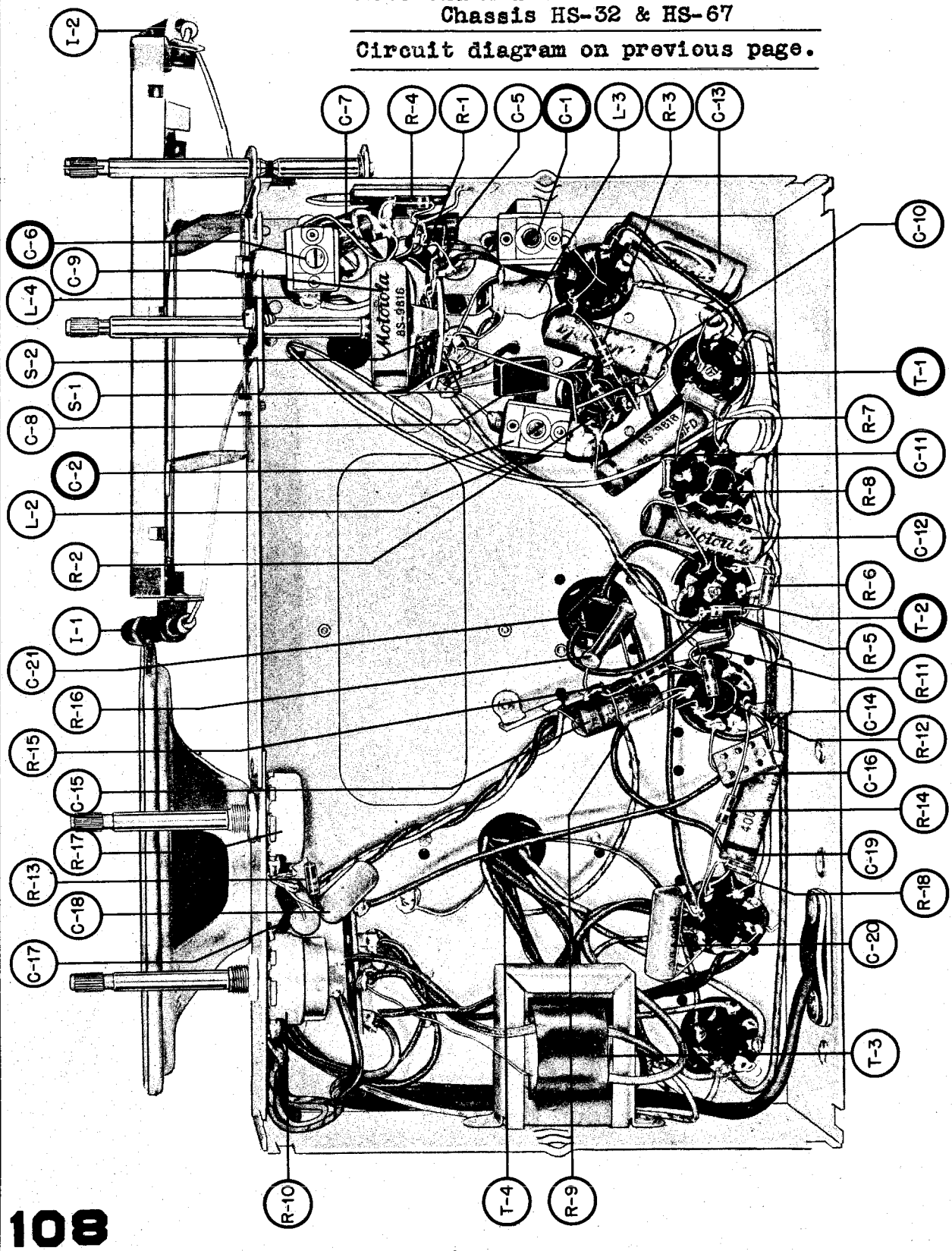
OPERATION IN ORDER	GANG CAPACITOR SET AT	BAND SWITCH SET AT	DUMMY ANTENNA	GENERATOR CONNECTED TO	ADJUST TRIMMER OR IRON CORE	GENERATOR SET AT (400 ∿ 30% MODULATED)	AVERAGE INPUT FOR .38V OUTPUT
1. Adjust I.F's for maximum	Minimum	B.C.	.1 mf	Osc. - Mod. grid	1-2-3-4	455 Kc	900 microvolts to I.F. grid 4.5 microvolts to Osc.-Mod. grid (455 Kc)
2. Set B.C. Oscillator trimmer	1620 Kc	B.C.	None	Radiation loop*	5 B.C. Osc. trimmer C-1	1620 Kc	———
3. Adjust B.C. loop trimmer for maximum	1400 Kc	B.C.	None	Radiation loop*	6 B.C. loop trimmer C-4 (on loop) should be adjusted with set in cabinet	1400 Kc	6.5 microvolts to Osc.-Mod. grid through .1 mf dummy
4. Set S.W. Oscillator trimmer	12.2 Mc	S.W.	50 mmf.	Antenna terminal	7 S.W. Osc. trimmer C-2	12.2 Mc	———
5. Adjust S.W.	11.5 Mc	S.W.	50 mmf.	Antenna terminal	8 S.W. Antenna trimmer C-6	11.5 Mc	5 microvolts to Antenna terminal
6. Repeat above steps for maximum accuracy							.045 volt to 1st A.F. grid (400 ∿ cycle audio)

*Connect signal generator to a 5" dia., 3 turn loop. Distance between loops always over 12". Adjust distance and generator output to maintain output of 50 milliwatts (.38v on output meter).

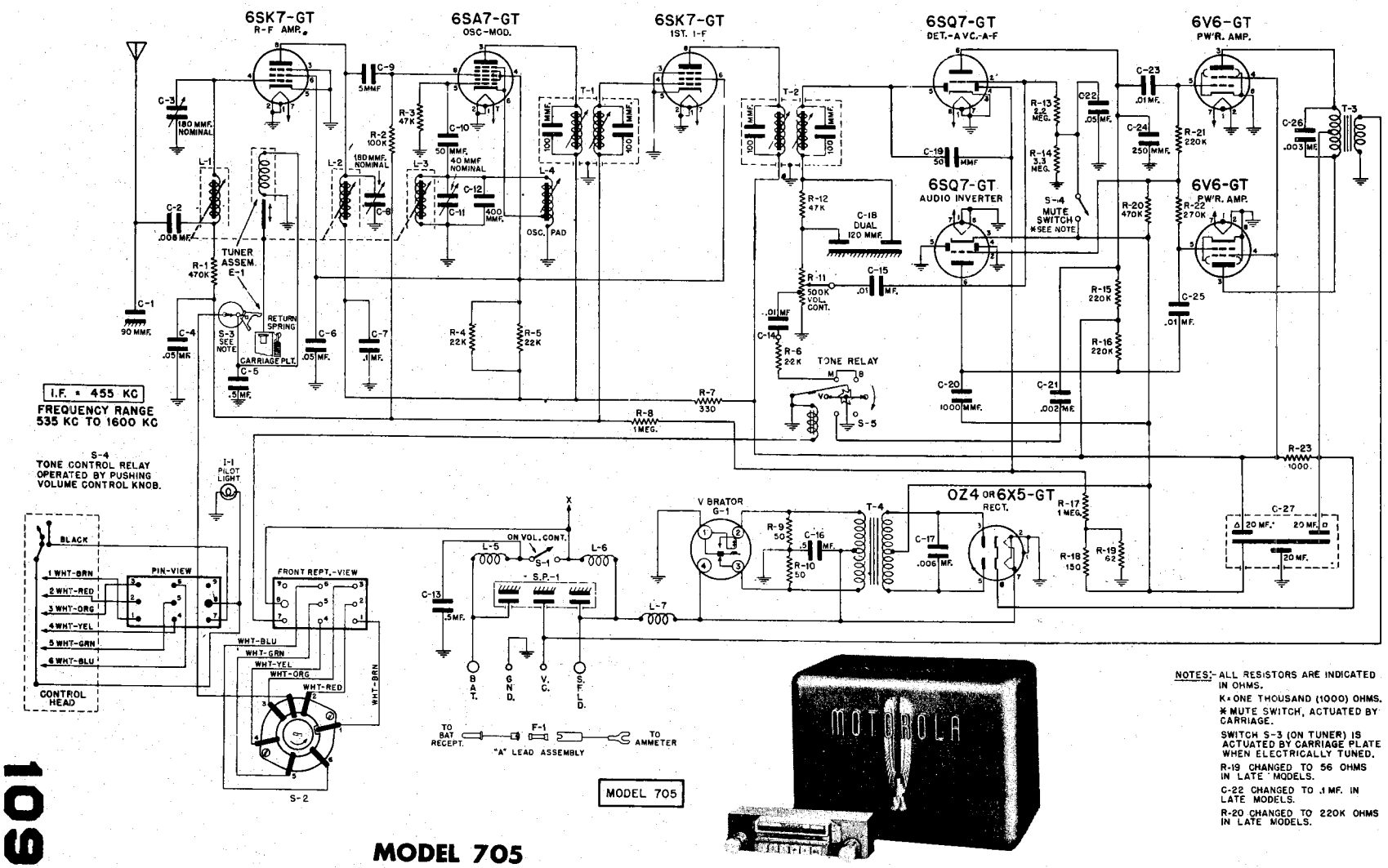
Galvin Manufacturing Corporation

Motorola Models 65T21 and 65T21B
Chassis HS-32 & HS-67

Circuit diagram on previous page.



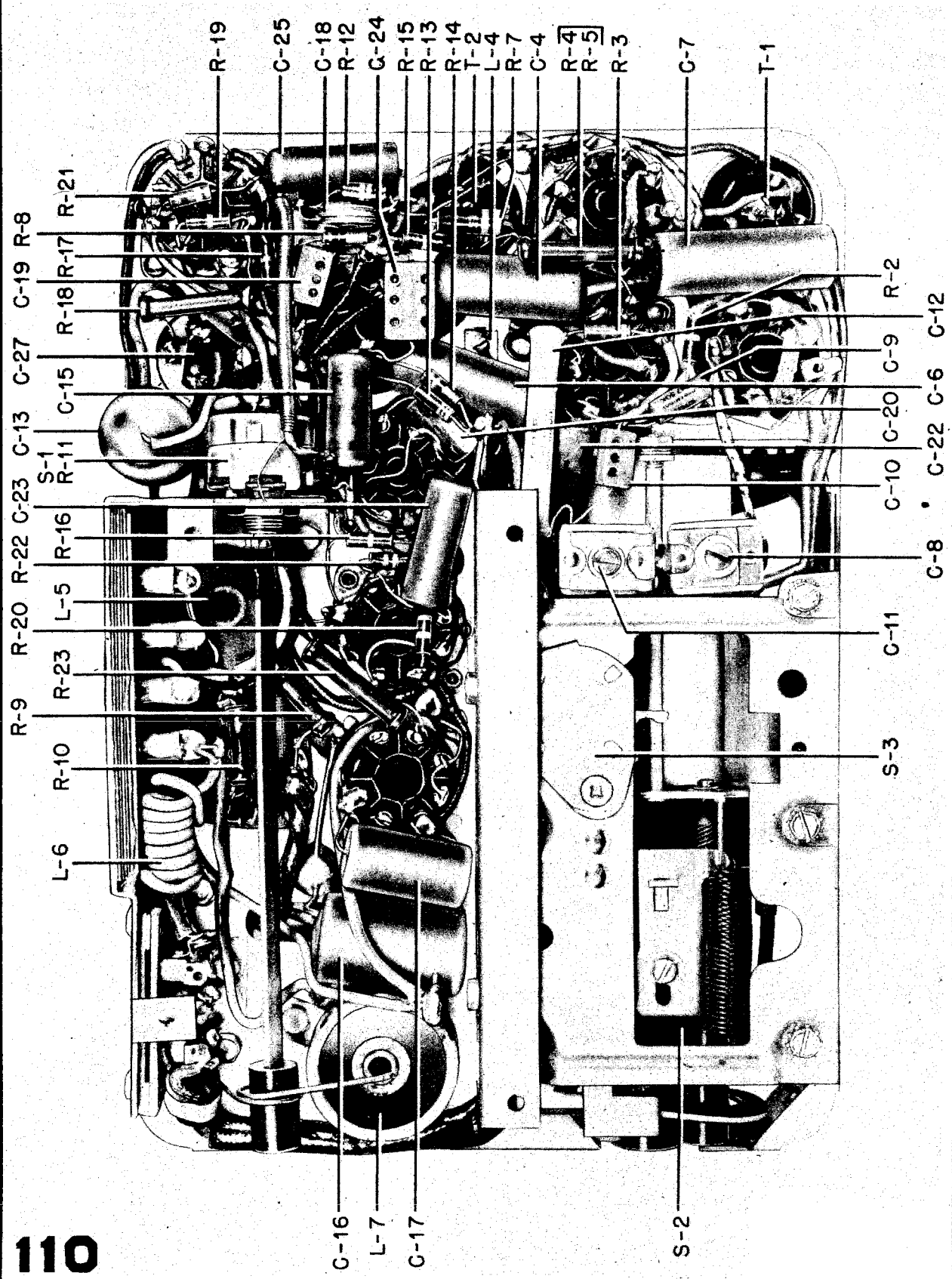
GALVIN MANUFACTURING CORPORATION

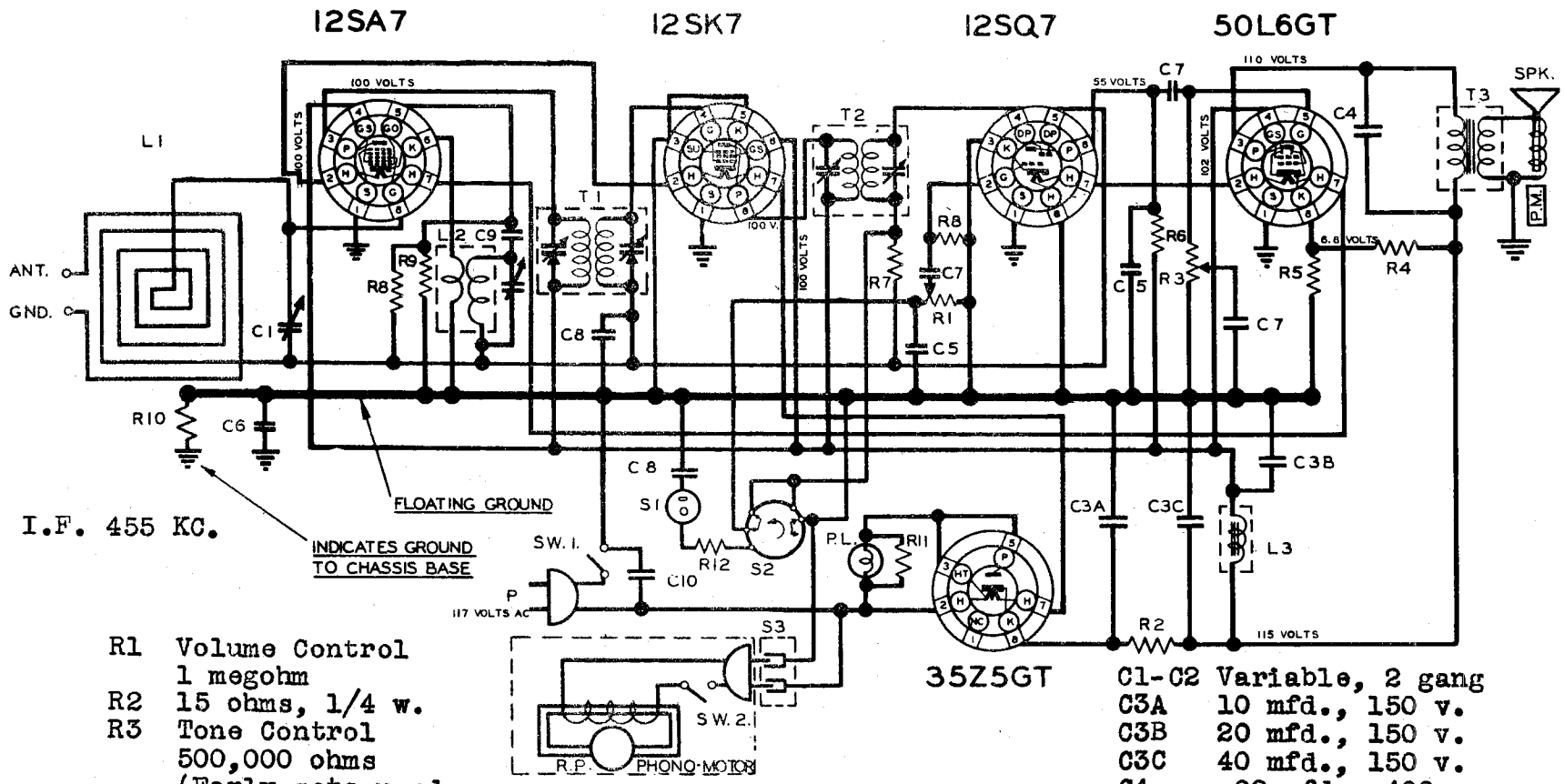


NOTES:- ALL RESISTORS ARE INDICATED IN OHMS.
K = ONE THOUSAND (1000) OHMS.
* MUTE SWITCH, ACTUATED BY CARRIAGE.
SWITCH S-3 (ON TUNER) IS ACTUATED BY CARRIAGE PLATE WHEN ELECTRICALLY TUNED.
R-19 CHANGED TO 56 OHMS IN LATE MODELS.
C-22 CHANGED TO .1 MF. IN LATE MODELS.
R-20 CHANGED TO 220K OHMS IN LATE MODELS.

MODEL 705

Motorola Model 705 Auto Radio -*- Circuit on previous page.





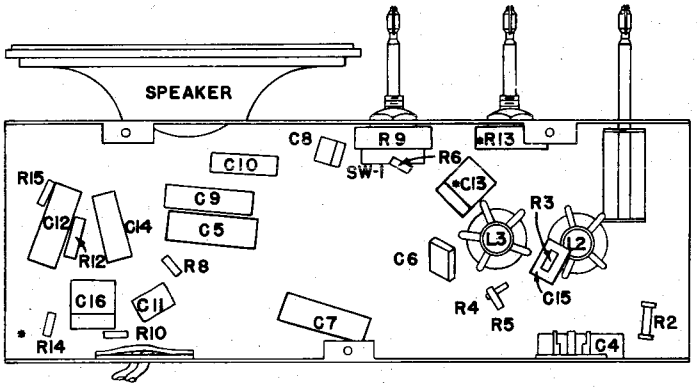
R1	Volume Control 1 megohm	C1-C2	Variable, 2 gang
R2	15 ohms, 1/4 w.	C3A	10 mfd., 150 v.
R3	Tone Control 500,000 ohms (Early sets used 50,000 ohms in plate circuit)	C3B	20 mfd., 150 v.
		C3C	40 mfd., 150 v.
		C4	.02 mfd., 400 v.
R4	12,000 , 1 watt	C5	500 mmfd., 500 v.
R5	150 ohms, 1/4 w.	C6	.2 mfd., 400 v.
R6	470,000 , 1/4 w.	C7	.002 mfd., 600 v.
R7	2.2 megohms, "	C8	.05 mfd., 200 v.
R8	15 megohms, "	C9	50 mmfd., 500 v.
R9	22,000 ohms, "	C10	.05 mfd., 400 v.
R10	330,000 ohms "		
R11	680 ohms, 1/4 w.		
R12	1 megohm, 1/4 w.		

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS.
VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO FLOATING GROUND AND ARE TAKEN WITH NO SIGNAL.
A.C. LINE VOLTAGE AT 117 VOLTS.
WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

ARVIN RADIO - MODEL 558 CHASSIS RE-204

5 TUBE AC-DC RADIO-PHONO COMBINATION

MANUFACTURED BY NOBLITT-SPARKS INDUSTRIES, INC., COLUMBUS IND.



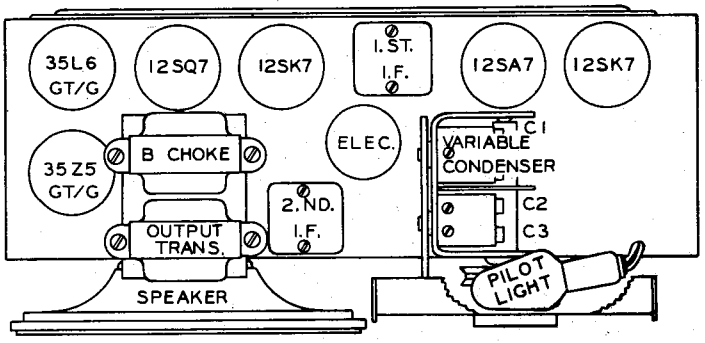
LOCATION OF PARTS UNDER CHASSIS

ARVIN RADIO

Noblitt-Sparks Industries

Models 664 & 664-A

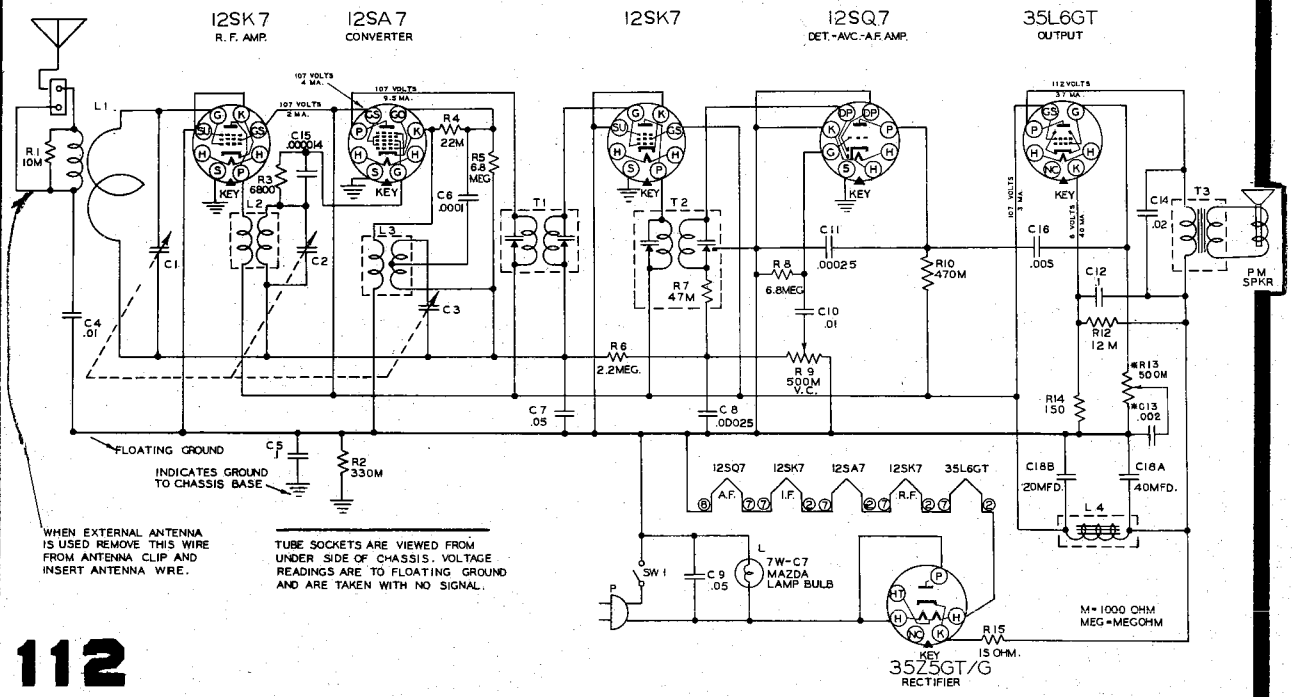
RE-206-1

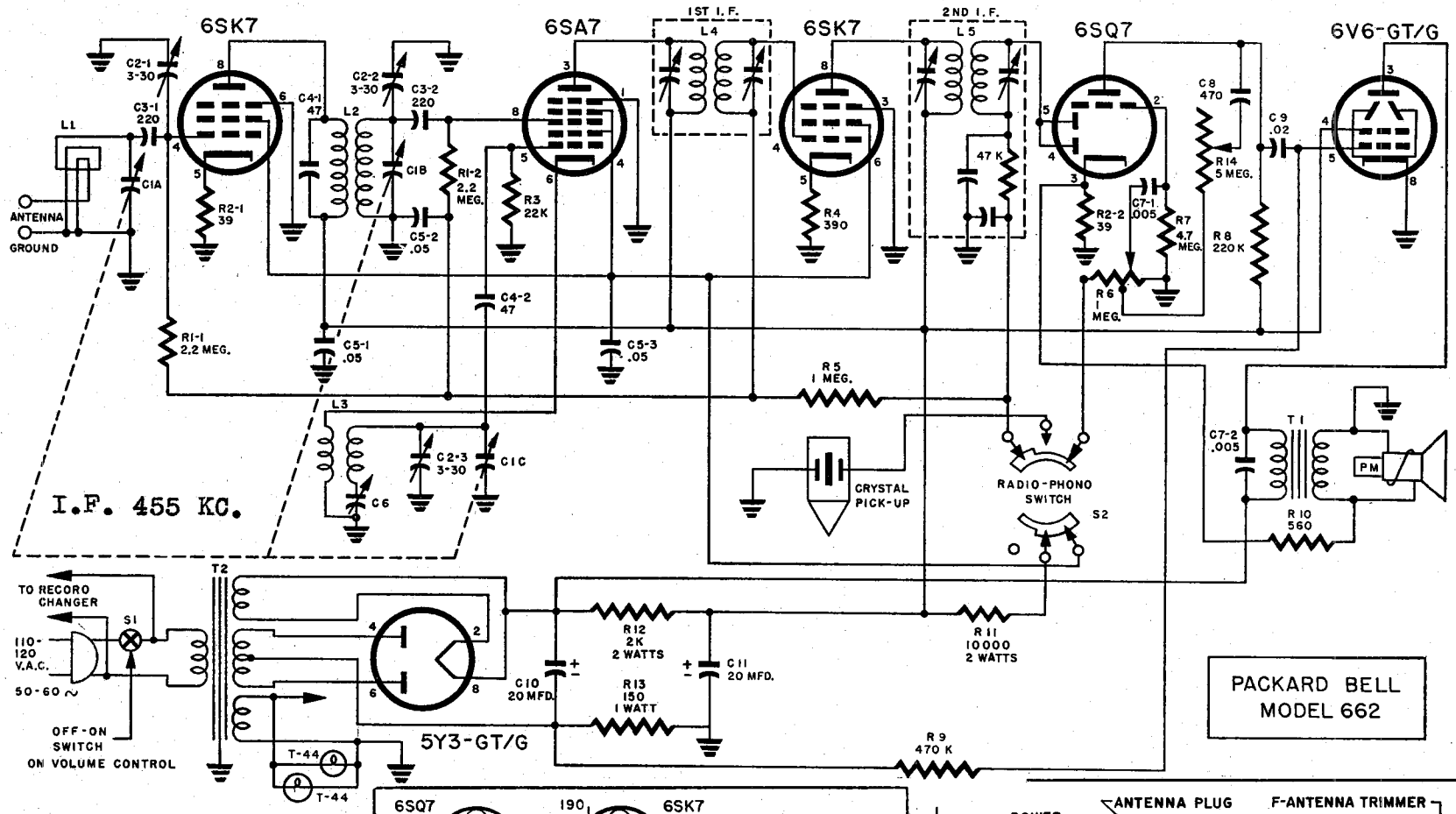


TUBE LAYOUT

Intermediate frequency—455 Kc. I-f and r-f measurements made at 200 milliwatts output—approximately .8 volt on a rectifier type voltmeter connected across the voice coil. Dummy load for r-f—50 uufd condenser in series with generator lead, or standard alignment loop. Dummy load for i-f—.05 ufd condenser in series with generator lead. To calibrate, set pointer vertical with gang closed. Trim osc. mixer and antenna circuits only at 1400 Kc.

Approximate max. sensitivities for standard output: I-f—125 uv. R-f with standard loop: at 600 Kc—150 uv/m; at 1000 Kc—125 uv/m; at 1400 Kc—75 uv/m. R-f at antenna clip: at 600 Kc—25 uv; at 1000 Kc—15 uv; at 1400 Kc 15 uv.

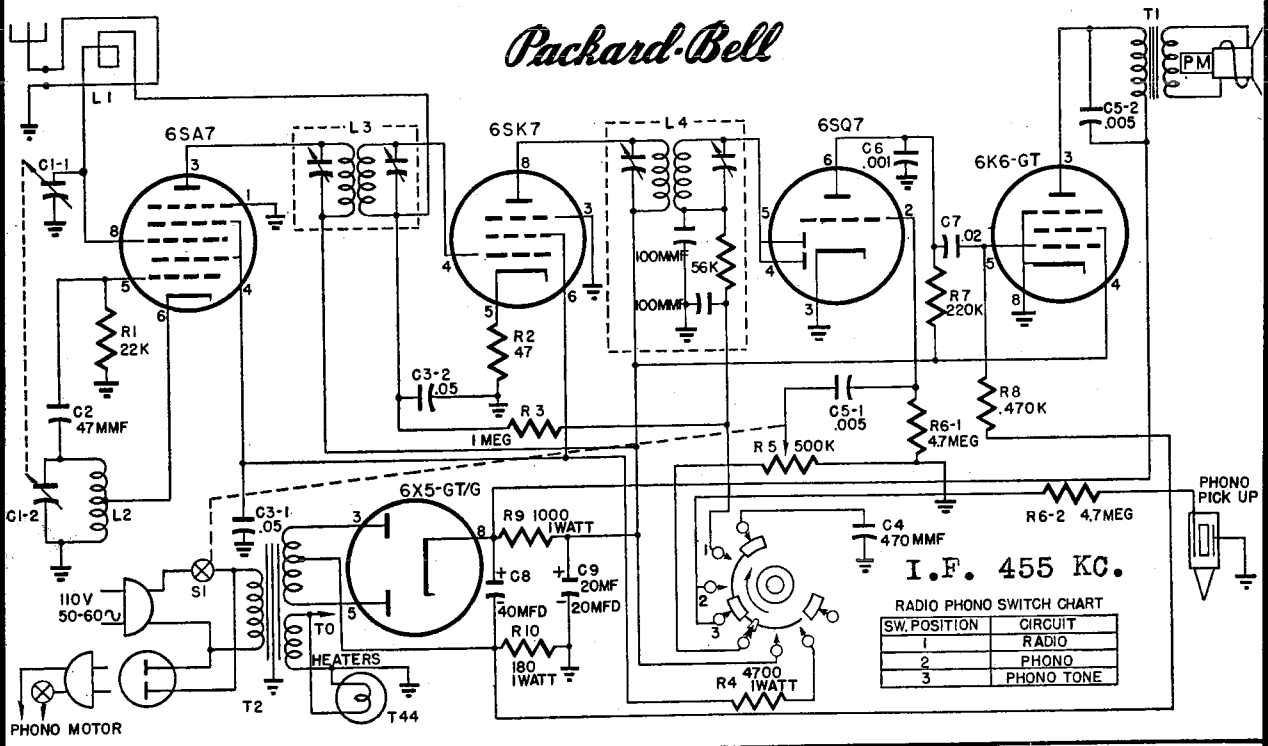




Packard-Bell
SERVICE DATA
MODEL 662

MODEL 563 COMBINATION RADIO-PHONOGRAPH

Packard-Bell

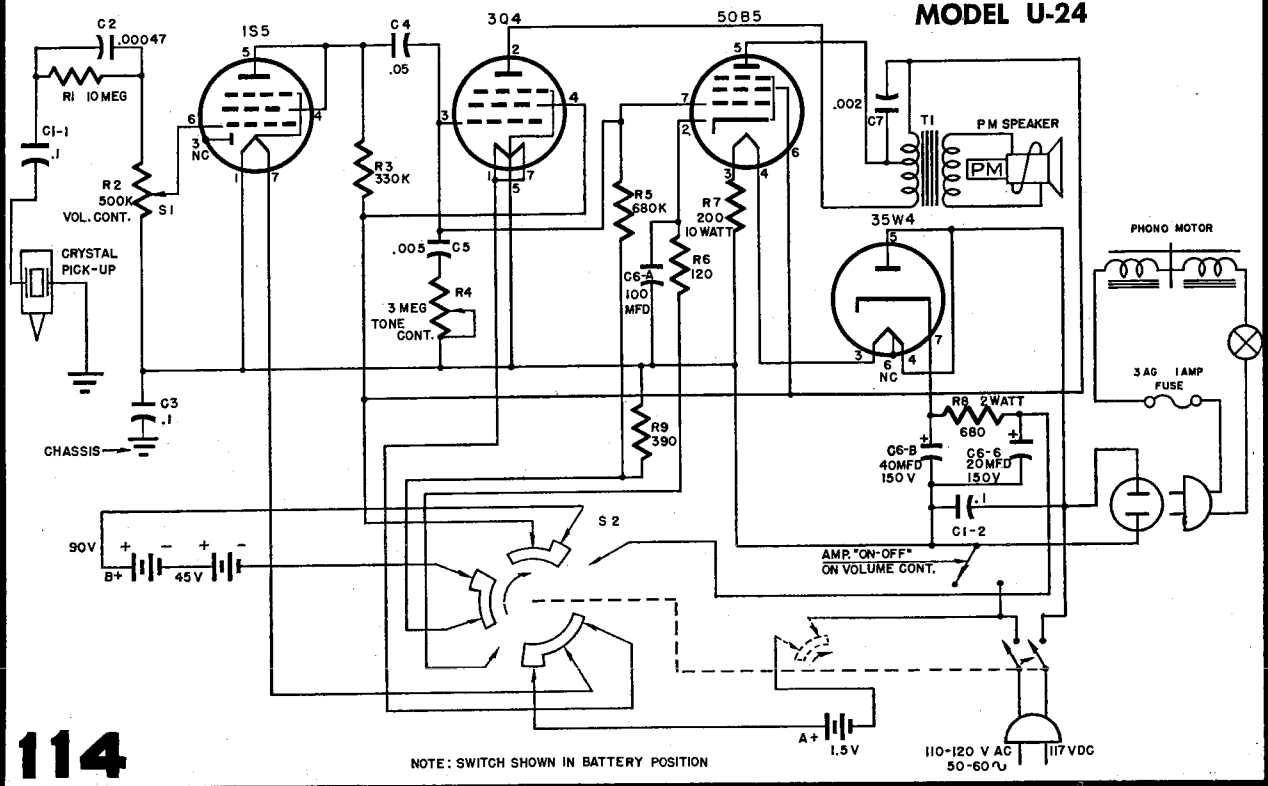


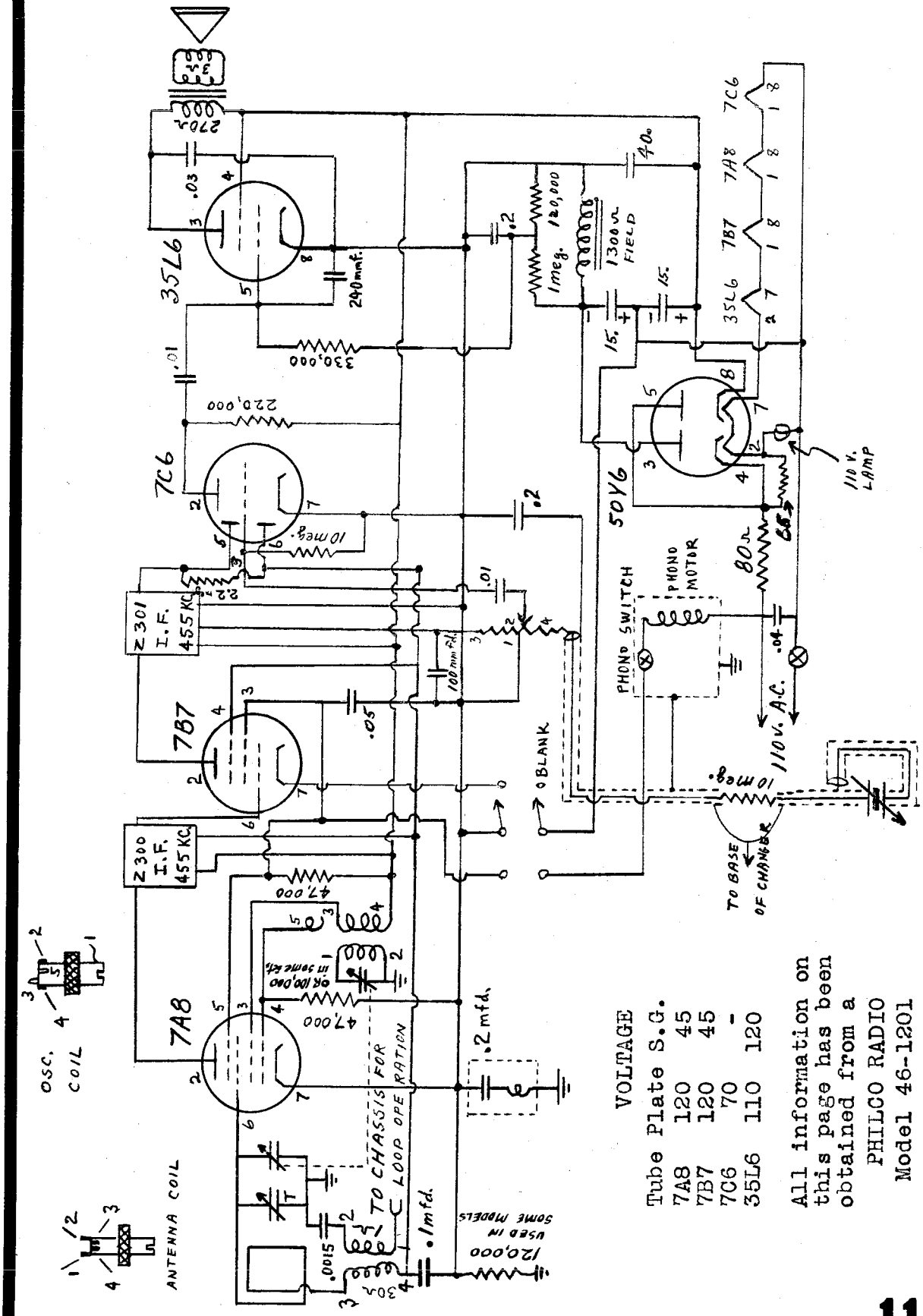
Packard-Bell

PHONOGRAPH MODEL C-1461

Capitol PHONOGRAPH HOLLYWOOD

MODEL U-24

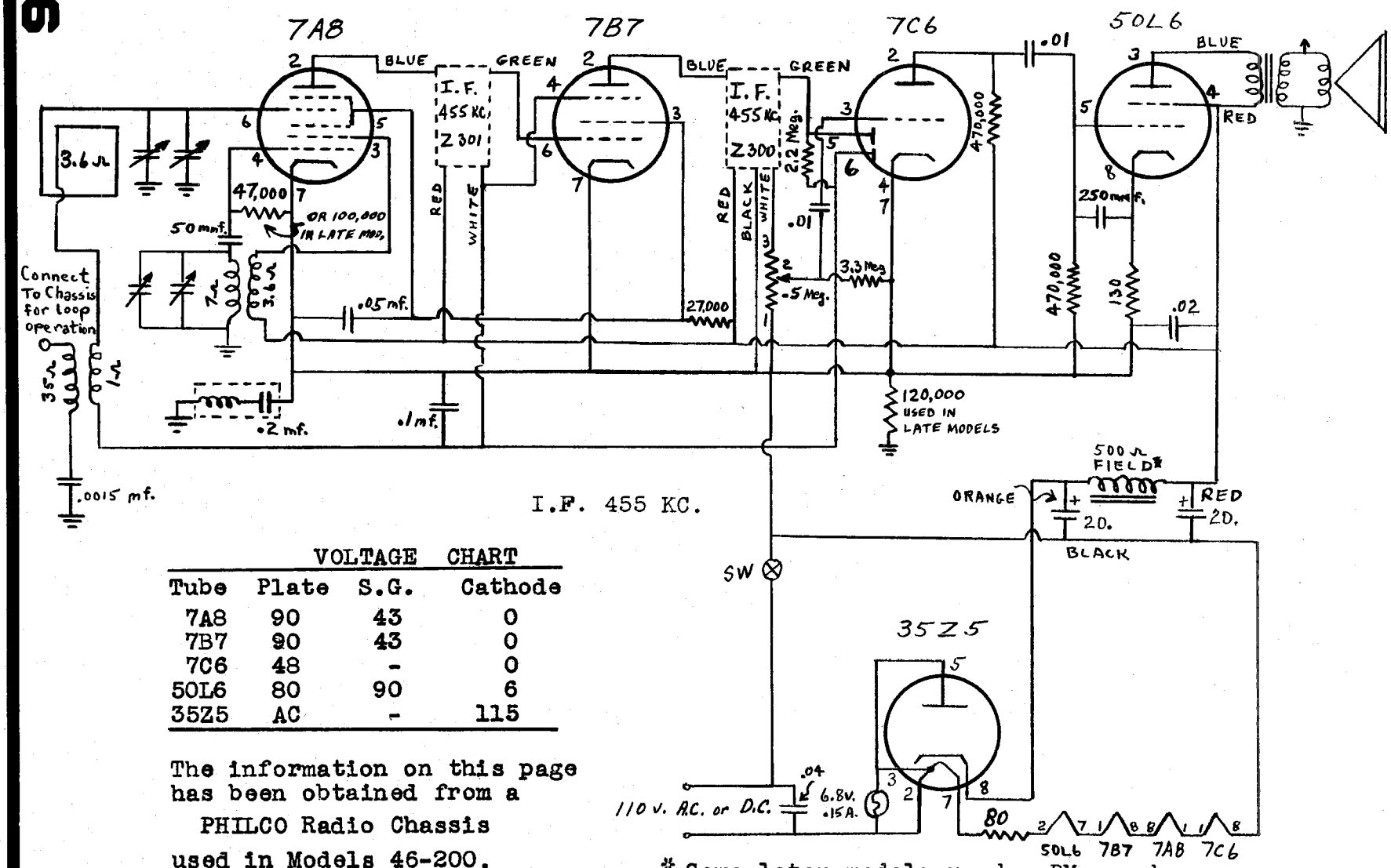




VOLTAGE

Tube	Plate	S.G.
7A8	120	45
7B7	120	45
7C6	70	-
35L6	110	120

All information on this page has been obtained from a PHILCO RADIO Model 46-1201



I.F. 455 KC.

VOLTAGE CHART

Tube	Plate	S.G.	Cathode
7A8	90	43	0
7B7	90	43	0
7C6	48	-	0
50L6	80	90	6
35Z5	AC	-	115

The information on this page has been obtained from a

PHILCO Radio Chassis

used in Models 46-200, 46-201, 46-202, 46-203.

* Some later models used a PM speaker with 220 and 1200 ohm resistors instead of the field; filter condenser 30-25-20.

RCA VICTOR

64F1, 64F2, 64F3

(RC-1037) (RC1037) (RC1037A)

and CV45 ELECTRIFIER

(R. R. 1001) Mfr. No. 274

Alignment Procedure

Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

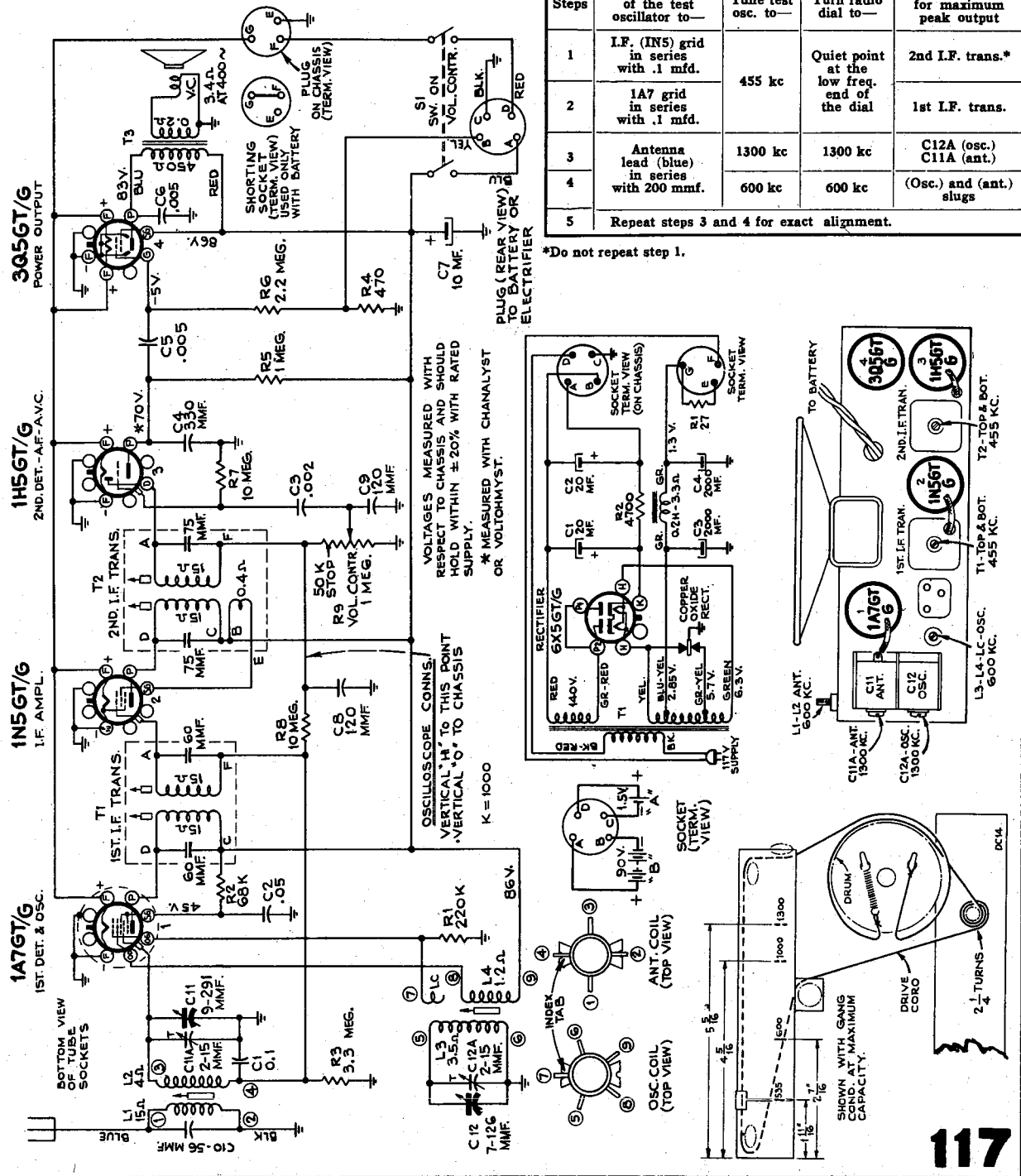
Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

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 AVC action.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be set at the left-hand end dial calibration mark.

Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust following for maximum peak output
1	I.F. (1N5) grid in series with .1 mfd.	455 kc	Quiet point at the low freq. end of the dial	2nd I.F. trans.*
2	1A7 grid in series with .1 mfd.			1st I.F. trans.
3	Antenna lead (blue) in series with 200 mmf.	1300 kc	1300 kc	C12A (osc.) C11A (ant.)
4		600 kc	600 kc	(Osc.) and (ant.) slugs
5	Repeat steps 3 and 4 for exact alignment.			

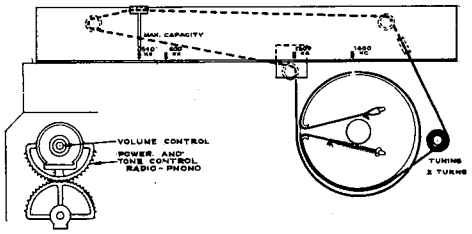
*Do not repeat step 1.



RCA VICTOR

65U, 65AU

Chassis No. RC1017A



Dial Pointer Adjustment.—Rotate tuning condenser fully counter-clockwise (plates fully meshed). Adjust indicator pointer to left (max. cap.) mark on dial back plate.

CAUTION.—CLOSE TUNING CONDENSER PLATES COMPLETELY (C-C-W) BEFORE REMOVING CHASSIS FROM CABINET.

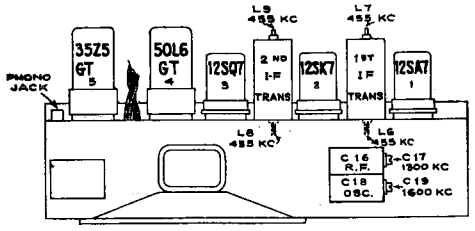
Take off both wooden strips on bottom of cabinet by removing woodscrews before loosening chassis bolts.

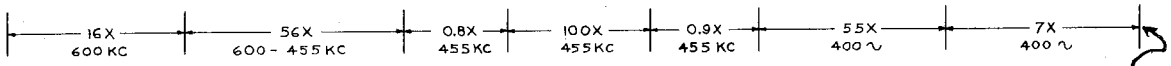
Test Oscillator.—Connect high side of test oscillator as shown in chart Connect low side through a .01 mf capacitor to common "—B". Keep the output signal as low as possible to avoid a-v-c action.

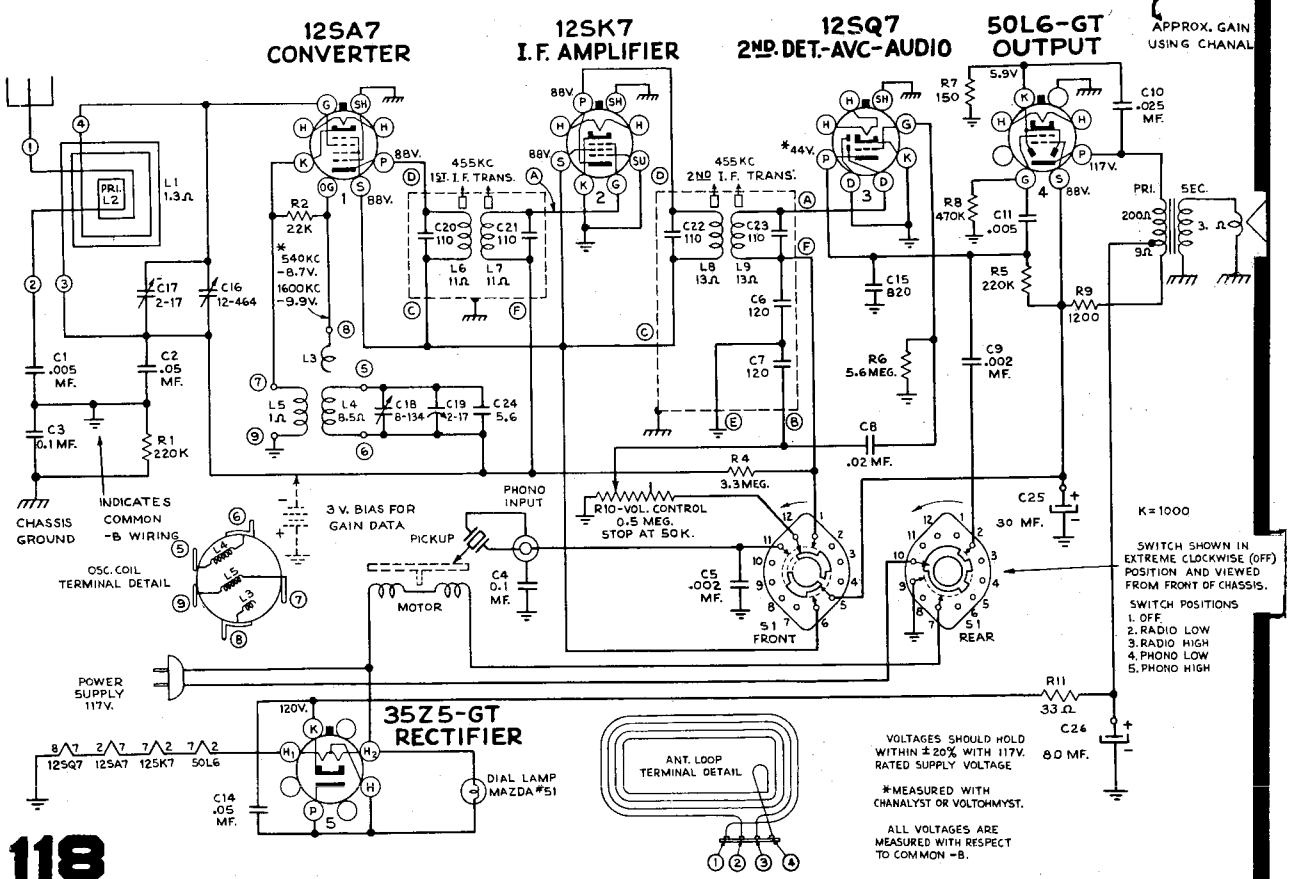
Output Meter.—Connect meter across speaker voice coil. Turn volume control clockwise to radio maximum high position (3) for alignment.

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	I.F. grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I.F. transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I.F. transformer *
	NOTE.—ANTENNA LOOP AND RECORD CHANGER MUST BE IN CABINET			
3	Antenna terminal in series with 220 mmfd.	1600 kc	Gang at minimum	C19 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C17 (ant.)
5	Repeat steps 3 and 4.			

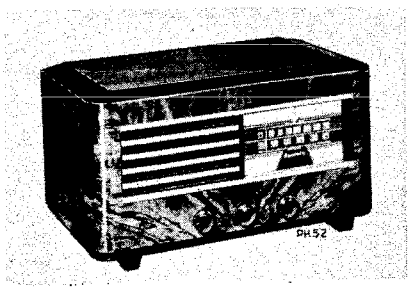
*Do not readjust L8 or L9 when test oscillator is connected to 1st Det.



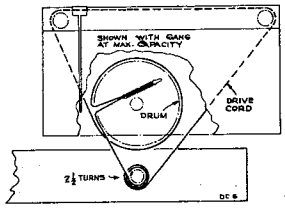




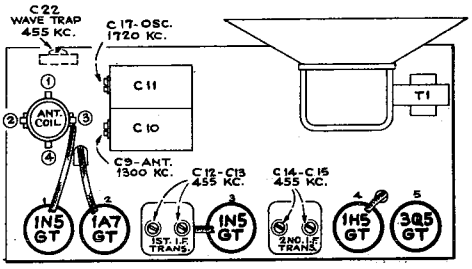
Radiola Model 66-1 (RC-1004E)



Model 66-1



Dial Cord Assembly



Alignment Procedure

Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

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

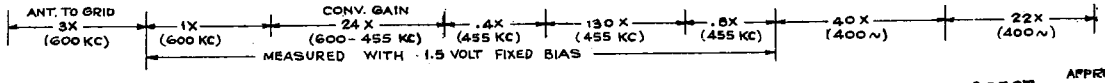
Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid AVC action.

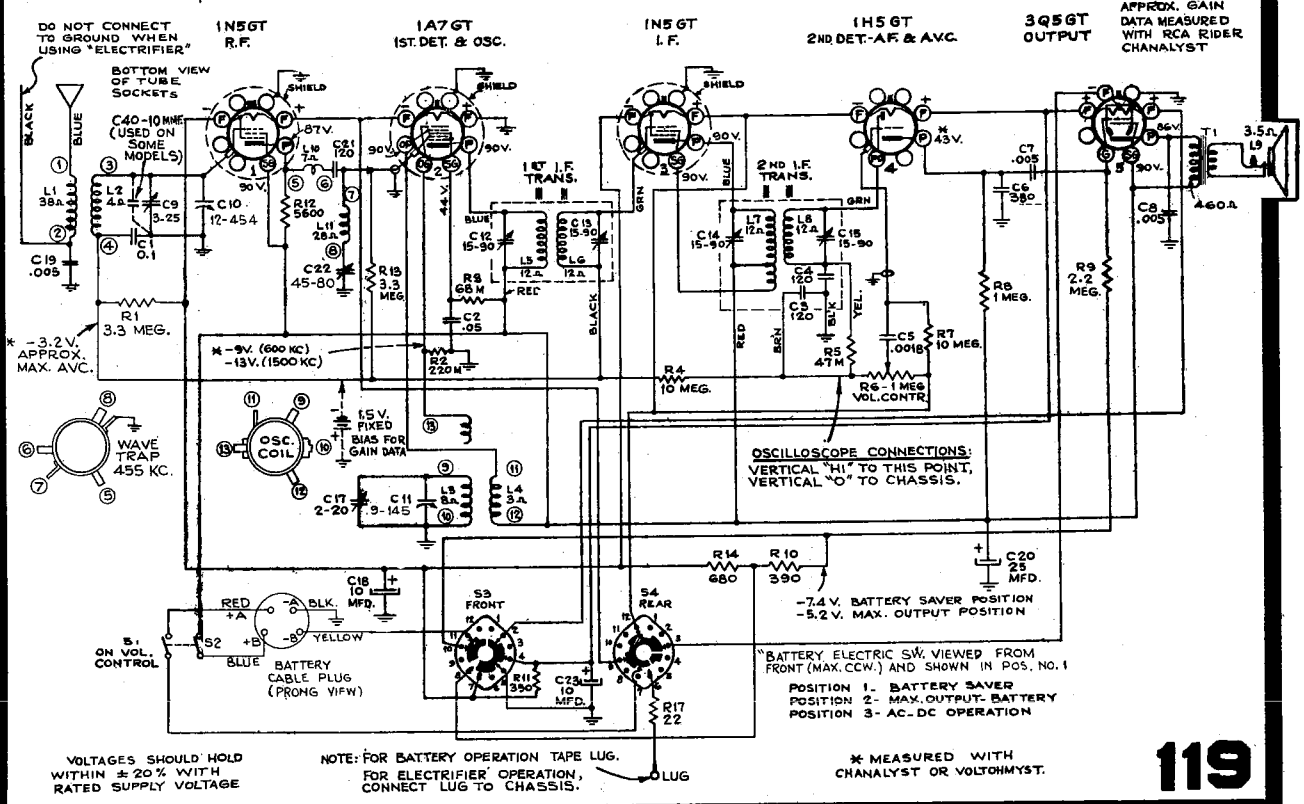
Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be set at the left-hand end dial calibration mark.

Step	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid in series with .01 mfd.	455 kc	Quiet point between 550 and 750 kc	C14, C15 (2nd I-F Trans.)
2	1A7GT grid in series with .01 mfd.			C12, C13 (1st I-F Trans.)
3	Antenna terminal in series with 200 mmfd.	1,720 kc	Tuning condenser rotor plates all out	C17 (osc.)
4		1,300 kc	1,300 kc signal	C9 (ant.)
5		455 kc	Quiet point between 550 and 750 kc	Adjust C22 for minimum output on strong 455 kc signal

Precautionary Lead Dress.—

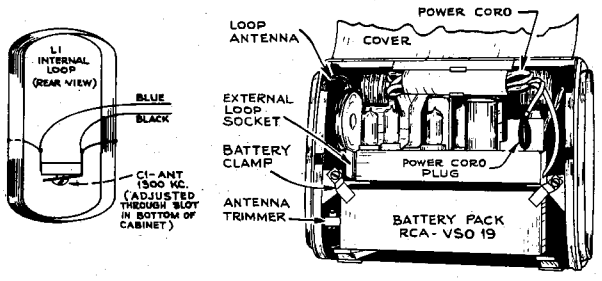
1. The lead from the 3Q5 plate to output transformer should be dressed under clip and away from audio input leads.
2. All filament wires should be dressed close to chassis.
3. Keep AVC lead connecting C1 (0.1 mfd. filter) to antenna coil away from the 1A7GT plate.
4. Keep blue plate leads coming from I.F. transformers short and close to chassis.
5. Keep yellow leads connected to oscillator coil away from trap coil.
6. Keep grid lead of 1N5GT RF tube away from 1A7GT grid.
7. Keep green lead from second I.F. transformer short and close to ground.

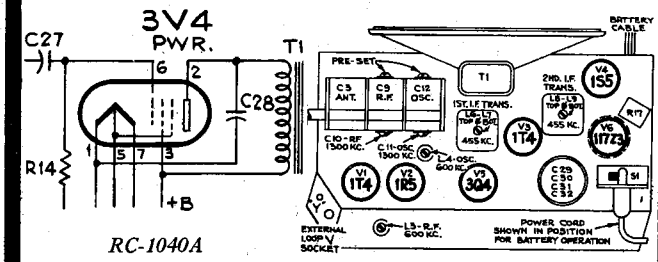




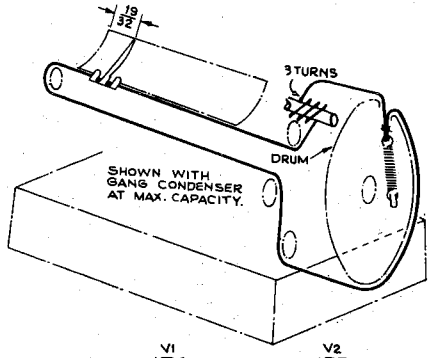
66BX PORTABLE

Chassis No. RC-1040; RC-1040A





RC-1040A



Alignment Procedure

Cathode Ray Alignment is the preferable method. Connections for the oscilloscope are shown on the schematic diagram.

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

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

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

With the gang at full mesh set the dial pointer so that the left hand edge of the pointer is 19/32 inches to the right of the point indicated in the dial cord drawing.

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	High side of loop (Blue lead) in series with 0.1 mfd.	455 kc	Gang at max. cap.	L8, L9 (2nd I.F. Trans.)* L6, L7 (1st I.F. Trans.)
2	High side of loop (Blue lead) in series with 0.1 mfd. (Bottom shield cover in place and chassis out of cabinet)	1300 kc	1300 kc	C11—(osc.) C10—(R.F.)
3		600 kc	600 kc	L4 (osc.) L3 (R.F.)
** 4	220 mmf. in series with a single turn loop 4x8 in., approx. 3 in. from receiver loop. (Chassis in cabinet C-1 connected and rear lid of cabinet closed)	1300 kc	1300 kc	C1 (loop)

*If two peaks are found with top slugs use the one with stud in the outer position.

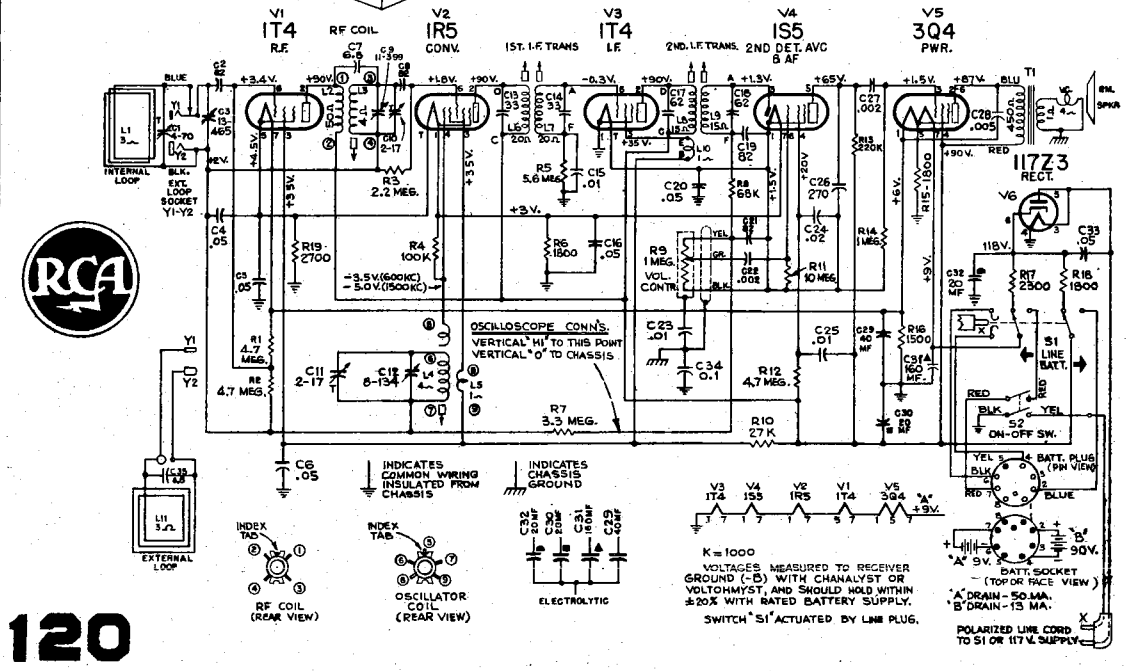
**Adjust C-1 loop cap with back cover of case closed. Access to trimmer is made through small slot in case provided for cable of external loop.

AC-DC Operation.—

This receiver will operate on 105 to 125 volts, AC 50 or 60 cycles, or DC.

A power cord is stored in the fiber tube which is clamped above the chassis inside the cabinet. To open the cabinet, slide the two plastic feet in the rear of the cabinet toward each other, and raise the back cover upward on its hinges. Then pull the power cord plug out of the socket on the top of the chassis as shown, and take out and unroll the power cord. A slot in the bottom of the cabinet allows the closing of the cabinet with the power cord passing through. Close the cabinet with the cord extending through the slot and insert the plug into a convenient electrical outlet.

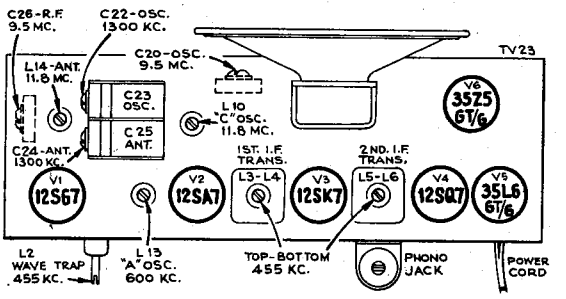
When returning to battery operation, be sure to replace the power plug in its socket inside the case with the cord stored in the fiber tube.

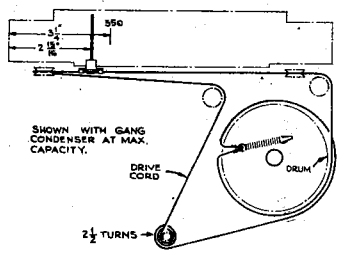


RCA VICTOR

MODELS 66X1, 66X2, 66X3, 66X4, 66X9

Chassis No. RC-1038





CATHODE CURRENTS—
12S67 - - - - 8.7 MA.
12SA7 - - - - 7.1 "
12SK7 - - - - 11.5 "
12SQ7 - - - - 1.2 "
35L6 GT/G - - 30.9 "
35Z5 GT/G - - 57.5 "

Alignment Procedure

Test Oscillator.—Connect high side of test oscillator as shown in chart Connect low side through a 0.1 mf. capacitor to common "–B." Keep the output signal as low as possible to avoid A.V.C. action.

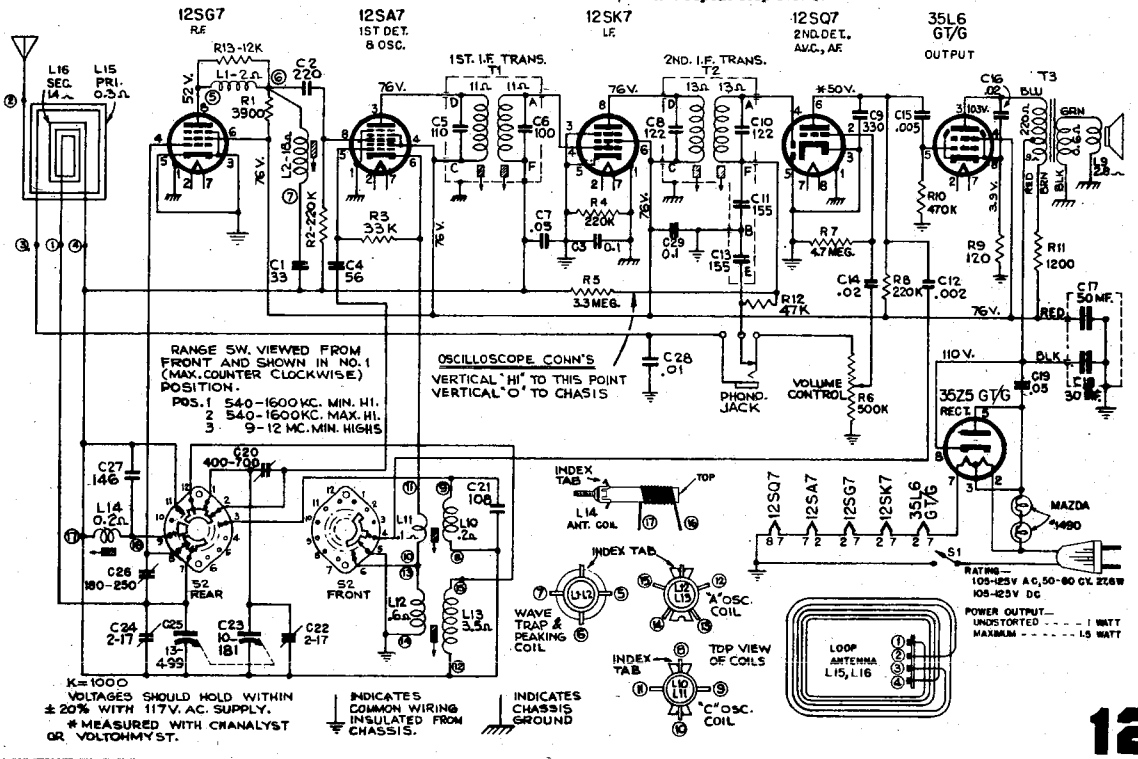
Output Meter.—Connect meter across speaker voice coil. Turn volume control to maximum clockwise position, station selector switch to broadcast maximum high position (pos. 2), for broadcast alignment and to position 3 for high frequency band.

Dial Pointer Adjustment.—Rotate tuning condenser fully counter-clockwise (plates fully meshed). Adjust indicator to $2^{15}/_{16}$ in. from end of backplate as indicated in drawing.

On models 66X1 and 2 the dial indicator is accessible for adjustment by removing the metal strip below the dial glass. (Lift and swing the top forward).

Steps	Connect high side of the rest oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Pin #4 (signal grid) 12SK7 IF tube in series with 0.1 mfd.	455 kc	Quiet point at 1600 kc end of the dial	T2† 2nd I-F trans.
2	Pin #8 (signal grid) 12SA7 1st det. in series with 0.1 mfd.			T1 1st I-F trans.
3	Antenna in series with 200 mmf.			L2 for minimum output (Wave trap)
4		1300 kc	1300 kc	C22 (osc.) C24 (ant.)
5		600 kc	600 kc	L13 While rocking gang
6	Repeat steps 4 and 5.			
7	Antenna in series with 50 mmf.	9.5 mc.	9.5 mc.	C20 (Osc.)*
8		9.5 mc.	9.5 mc.	C26 Ant. while rocking gang
9		11.8 mc.	11.8 mc.	L10 (Osc.)**
10				L14 while rocking gang
11	Repeat steps 9 and 10.			

*If two peaks are obtained use minimum cap peak.
**If two peaks are obtained use minimum inductance peak.
†Do not repeat step No. 1.



RCA VICTOR

MODEL 66E

Victrola

Chassis No. RS-126

VIBRATION OF LID HOLD

A small piece of spring material is fastened on the inside of the cabinet in such a position as to apply force against the lid hold and keep it from vibrating when the lid is closed.

When servicing the instrument, make certain this spring is in position and serving its purpose.

Removal of Speaker and Jewel Pilot Light

The bottom front and the inside sloped panels are removable, making it convenient for removal of speaker and jewel pilot light.

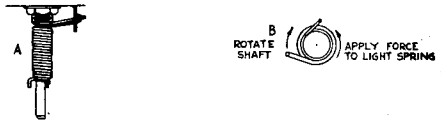
CRITICAL LEAD DRESS

1. All leads and parts connected to the 6J5 socket should have sufficient slack to insure flexibility of socket.
2. The green lead from the center terminal of R10 volume control to terminal #2 of the 6SQ7 socket should be dressed up and away from all other leads and parts.

ADJUSTMENT OF VOLUME CONTROL LOCK

This instrument is provided with a Volume Control Lock, which can be adjusted in such a manner that will permit the control to be operated from zero to some pre-determined "Maximum" level to which it has been locked.

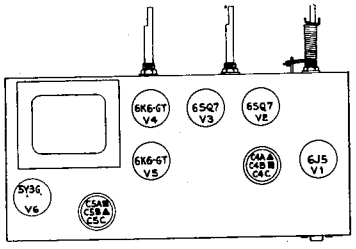
1. While instrument is in operation, remove Volume control knob.
2. The ends of two different weight springs can be seen in the Volume control shaft opening in the cabinet.
3. Turn Control "Maximum" clockwise until it is against stop.
4. To INCREASE desired maximum Volume level—
   (a) Apply just enough force (to unlock volume control shaft) with the eraser end of a pencil, on the end of the light weight spring, in direction indicated in sketch "B"

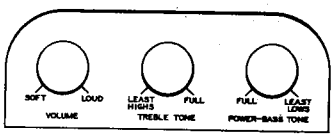


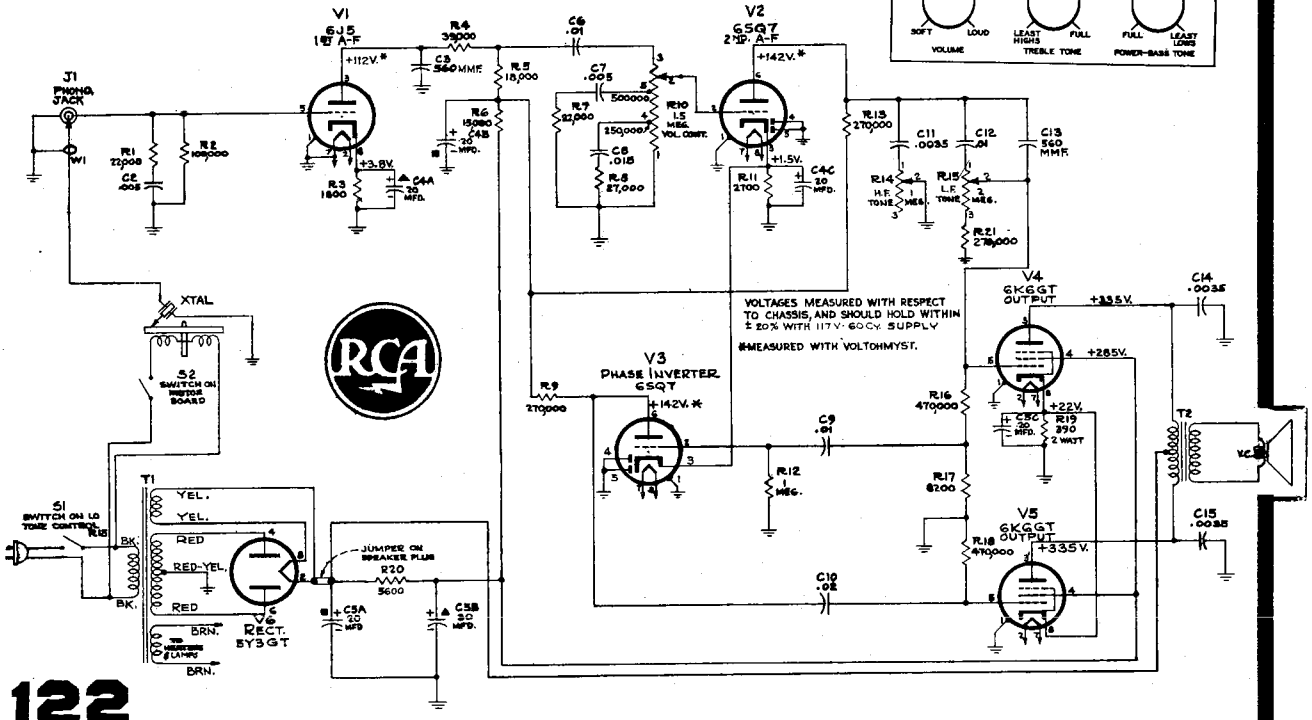
   (b) Rotate volume control shaft in direction indicated until desired level is reached.
   (c) Releasing force on spring automatically locks control so it can be operated from zero to the level where it has been locked.
5. To DECREASE desired maximum Volume level—
   (a) Apply force with the eraser end of a pencil on the heavy weight spring as indicated in sketch (c).

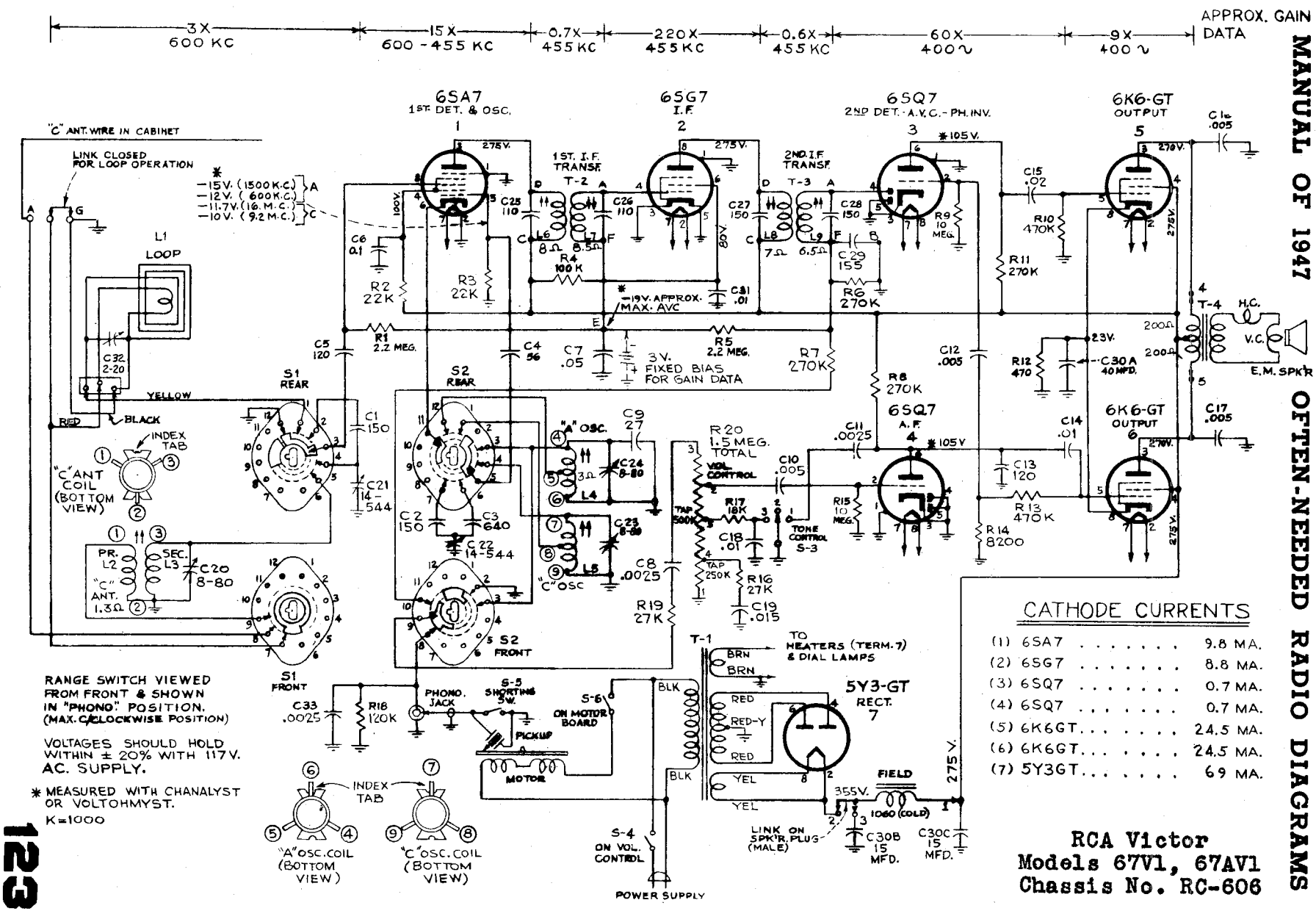
   (b) Rotate to a very low level, then proceed as in step 4.

NOTE: The procedure in step (5b) is necessary to prevent possible error that may be introduced due to backlash.









RANGE SWITCH VIEWED FROM FRONT & SHOWN IN "PHONO" POSITION. (MAX. C/CLOCKWISE POSITION)

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC. SUPPLY.

* MEASURED WITH CHANALYST OR VOLTOHMYST.

K=1000

CATHODE CURRENTS

(1)	6SA7	9.8 MA.
(2)	6SG7	8.8 MA.
(3)	6SQ7	0.7 MA.
(4)	6SQ7	0.7 MA.
(5)	6K6GT.	24.5 MA.
(6)	6K6GT.	24.5 MA.
(7)	5Y3GT.	69 MA.

RCA Victor
Models 67V1, 67AV1
Chassis No. RC-606

RCA VICTOR

VICTROLA 67VI, 67AVI

Radio-Phonograph Combination

Chassis No. RC-606,

FOR AUTOMATIC CHANGER INFORMATION REFER TO SERVICE DATA FOR MODEL 960260-1

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

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

Calibration Scale.—The dial scale printed in this service note may be temporarily attached to the chassis for quick reference during alignment.

Using Printed Dial Scale.—

1. Cut out the printed dial scale, or, better still, make a tracing of the scale.
2. With gang at full mesh the pointer should be set to the second reference mark from the left hand end of the dial backing plate.
3. Place the printed dial scale or the tracing under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the dial scale in place.

Note.—It is not recommended that the glass dial scale in the cabinet be removed as an alignment reference. This glass dial scale is fastened to the bezel with sheet metal lugs bent over the scale to hold it in place. Removing the glass dial scale will necessitate bending the lugs, resulting in their weakening and subsequent breakage.

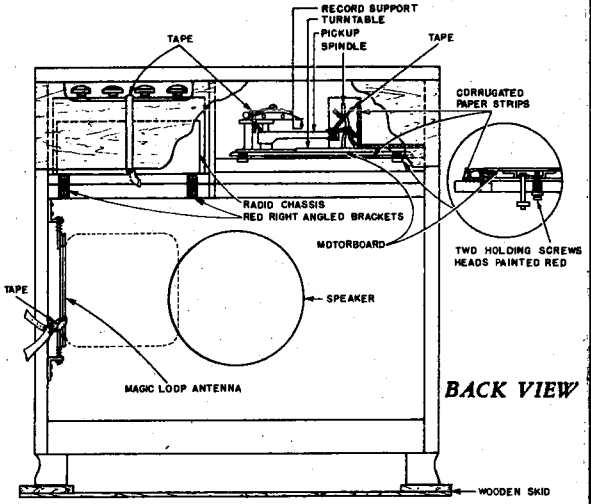
"C" Band Reception.—For best reception on "C" band with an outside antenna, adjust the trimmer screw of C20 on the antenna coil. Turn screw carefully with an insulated screwdriver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band. If returning to internal antenna at any time, close the link on the center terminal and readjust "C" band antenna trimmer C20 for best reception on 31-meter band.

For additional information, refer to booklet, "RCA Victor Receiver Alignment."

Steps	Connect high side of test oscillator to—	Tune test oscillator to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SG7 grid in series with .01 mfd.	455 kc.	Broadcast Quiet Point at 550 kc. end of dial	L8, L9 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L6, L7 (1st I-F Trans.)
3	Yellow lead on loop in series with 200 mmfd. (link closed)	1,400 kc.	Broadcast 1400 kc.	C24 (osc.)
4		600 kc.	Broadcast 600 kc.	L4 (osc.) Rock gang
5		Repeat steps 3 and 4.		
6	Antenna terminal in series with 47 mmfd.	15.2 mc.	Short Wave 15.2 mc.	C23 (osc.)* C20 (ant.)
7		9.5 mc.	Short Wave 9.5 mc.	L5 (osc.) L3 (ant.)
8		Repeat steps 6 and 7		
9	Install and connect chassis in cabinet with link closed. Tune in a radiated signal of 1400 kc. on broadcast band and peak C32 on loop.			

* Use minimum capacity peak if two can be obtained. Check for selection of correct peak by tuning the receiver to approximately 14.3 mc., where a weaker signal should be received.

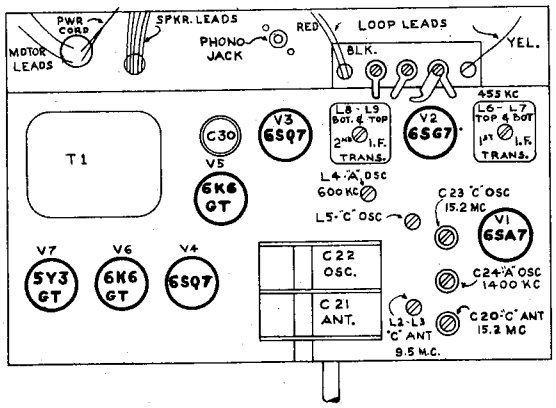
Oscillator tracks 455 kc. above signal on both bands.

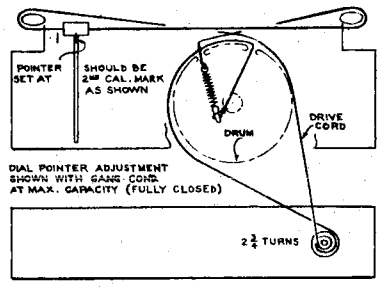


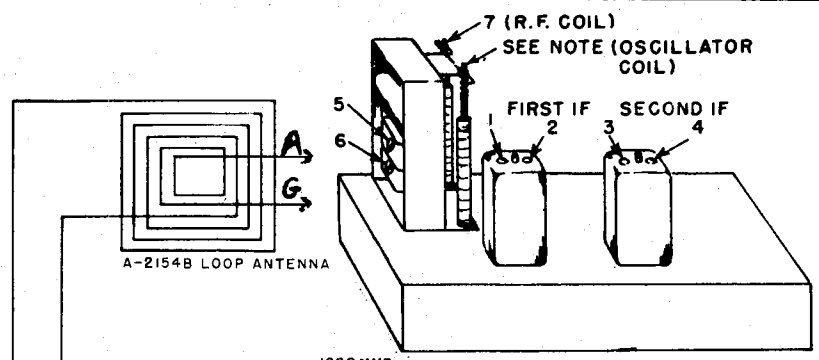
Critical Lead Dress:

1. Dress speaker cable leads down next to chassis.
2. Dress output plate capacitors next to chassis.
3. Dress plate lead of output tube away from grid of audio amplifier.
4. Dress all a-c leads away from volume control down next to chassis.
5. Dress R16 away from a-c leads at on-off switch.
6. Dress R2 away from side of chassis.

Note.—In order to remove the chassis from the cabinet, remove the knobs and the connecting cables, then unscrew the four slotted hex head screws from the two "L" brackets bolted to the rear of the chassis. The chassis may then be slid out toward the bottom rear of the cabinet. Do not remove the hinge screws or the two large nuts in the rear of the chassis. When replacing the chassis, make sure that the tapered pins on the front of the chassis fit into the holes on the metal runners screwed to the cabinet door.

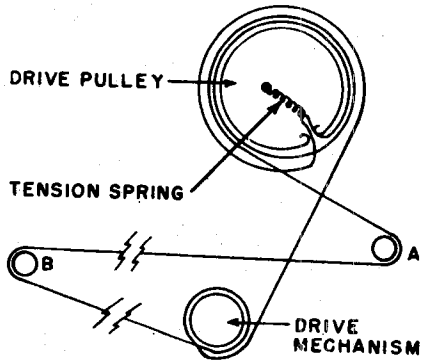


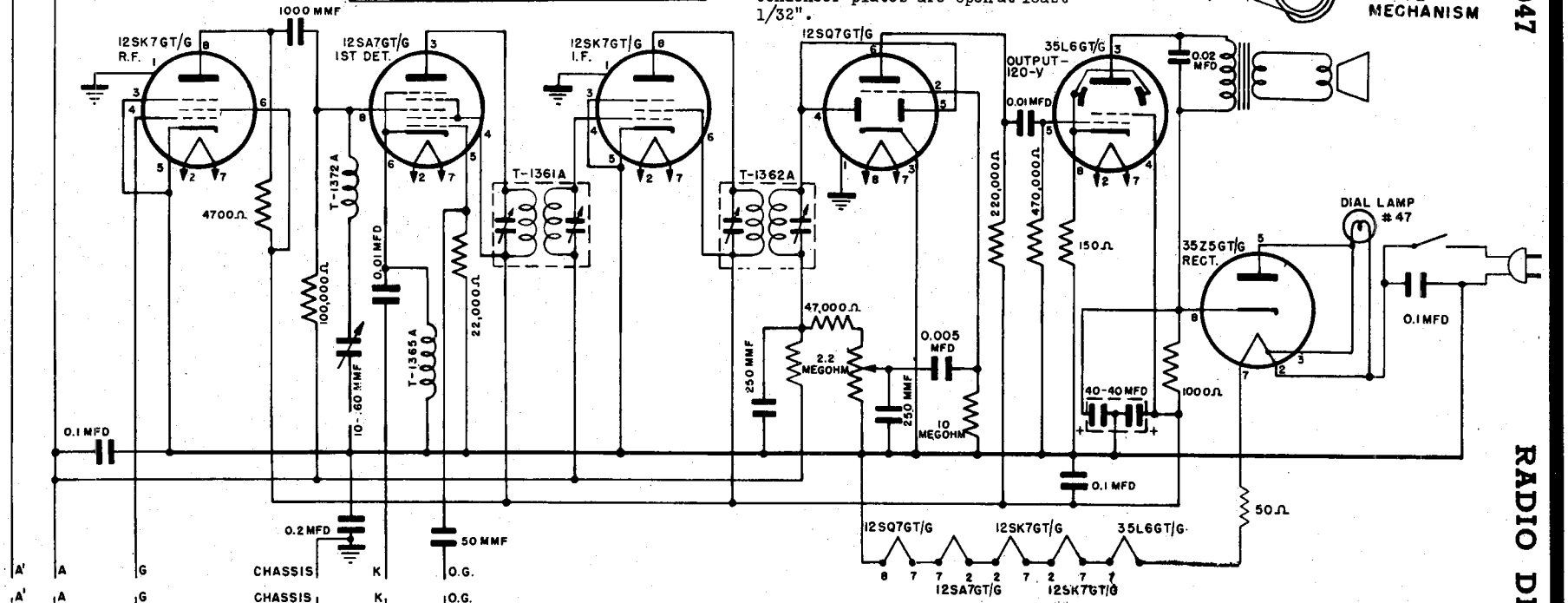


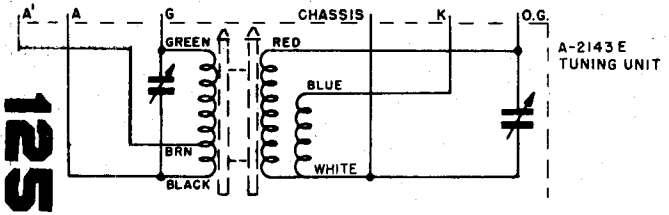


MECHANICAL ALIGNMENT:-

1. Rotate shaft of tuning unit until carriage is against top stop position.
2. Space oscillator coil slug 1-5/32" out from top of oscillator coil form.
3. Space R.F. coil slug 1-29/64" out from top end of R.F.coil winding. (Note:-The distance 1 and 2 should be measured from mounted end of the slug)
4. Adjust screw on trimmer of wave trap towards open position so that condenser plates are open at least 1/32".







Chancellor Model No. 6W

Radionic Equipment Co.

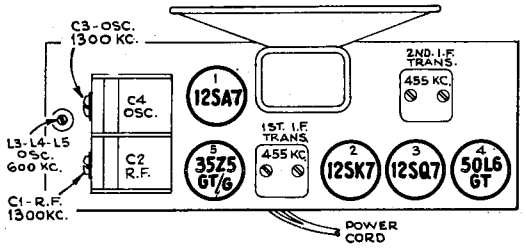
RCA VICTOR

65X1, 65X2

Chassis No. RC-1034

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	12SK7 I-F grid through 0.1 mfd. capacitor	455 kc	Quiet-point 1,600 kc end of dial	C8 and C9 2nd I-F transformer
2	Stator of C2 through 0.1 mfd.			*C6 and C7 1st I-F transformer
3	Ant. lead in series with 200 mmfd.	1,300 kc	1,300 kc	C3 (osc.) C1 (ant.)
4		600 kc	600 kc "A" Band	L5 (osc.) Rock gang
5	Repeat steps 3 and 4			

* Do not readjust C8 or C9 when test oscillator is connected to C2.



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

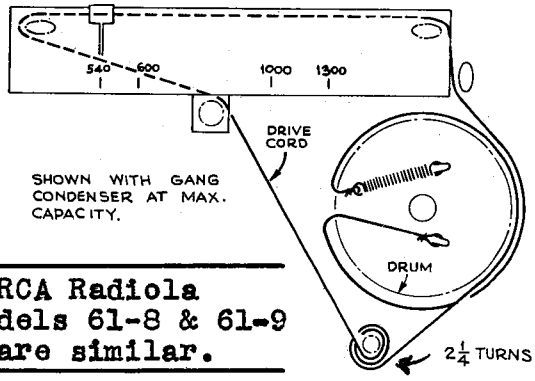
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Scale.—The glass tuning dial may be removed from the cabinet and mounted above the pointer for reference during alignment. The extreme left hand mark of the Standard Broadcast scale must be in line with the left hand mark on the dial backing plate.

Dial Backing Plate.—In the event that only the chassis is returned for service, the marks on the dial backing plate may be used during alignment; refer to the Dial Indicator and Drive Mechanism drawing for corresponding frequencies.

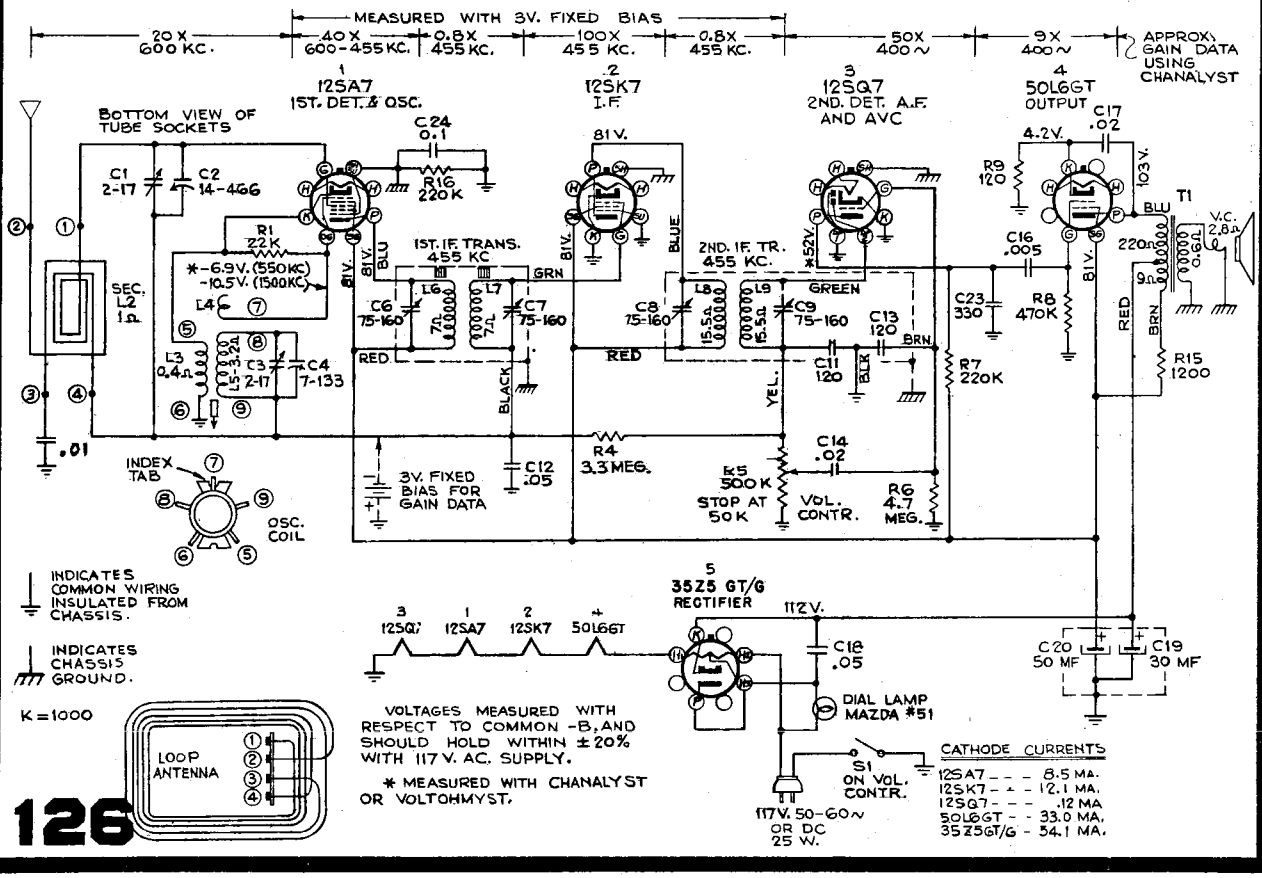
Dial Pointer.—With the gang condenser in full mesh the dial pointer should be set to the left hand reference mark on the dial backing plate.

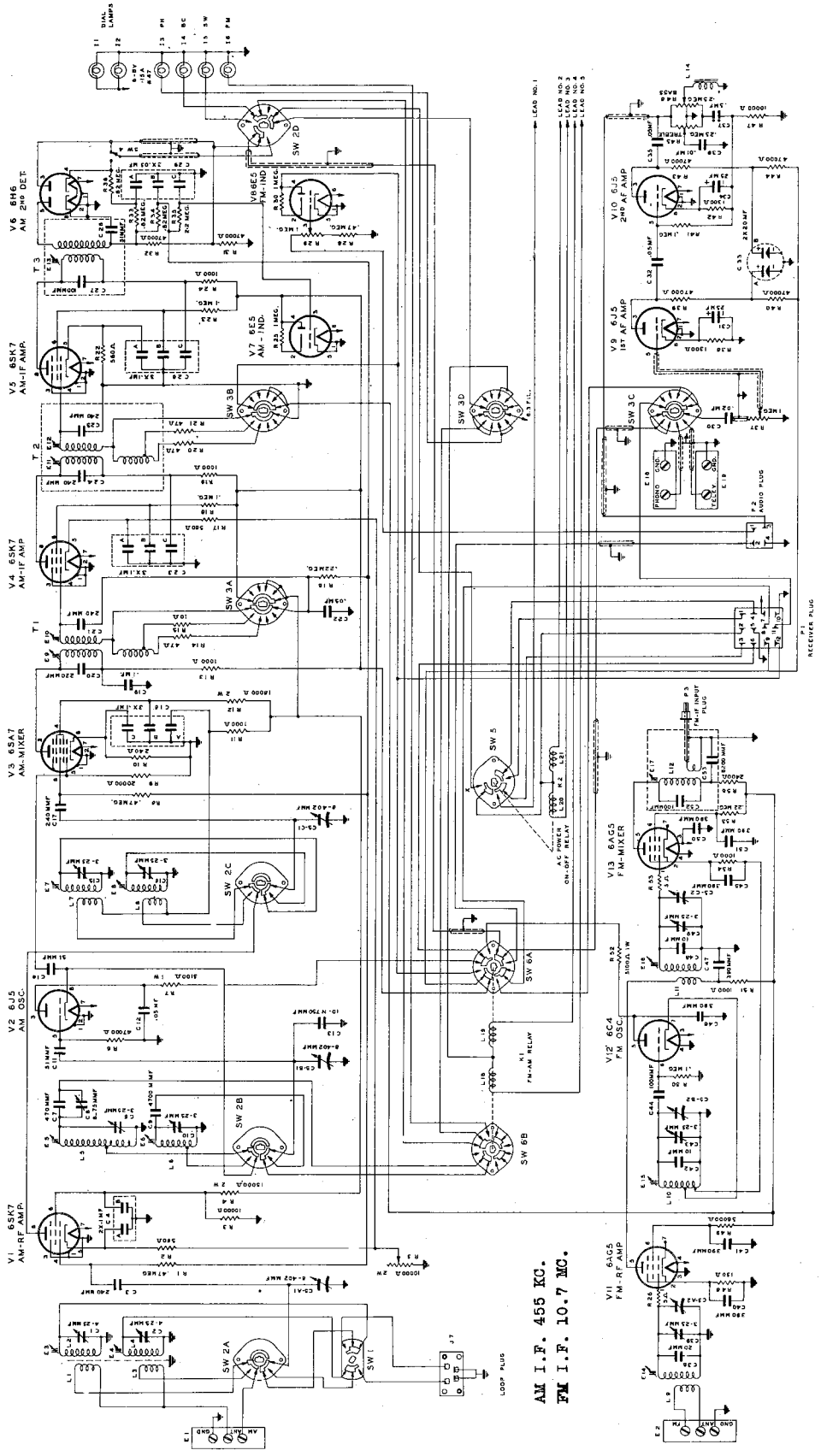
For additional information refer to booklet "RCA Victor Receiver Alignment."



Dial-Indicator and Drive Mechanism

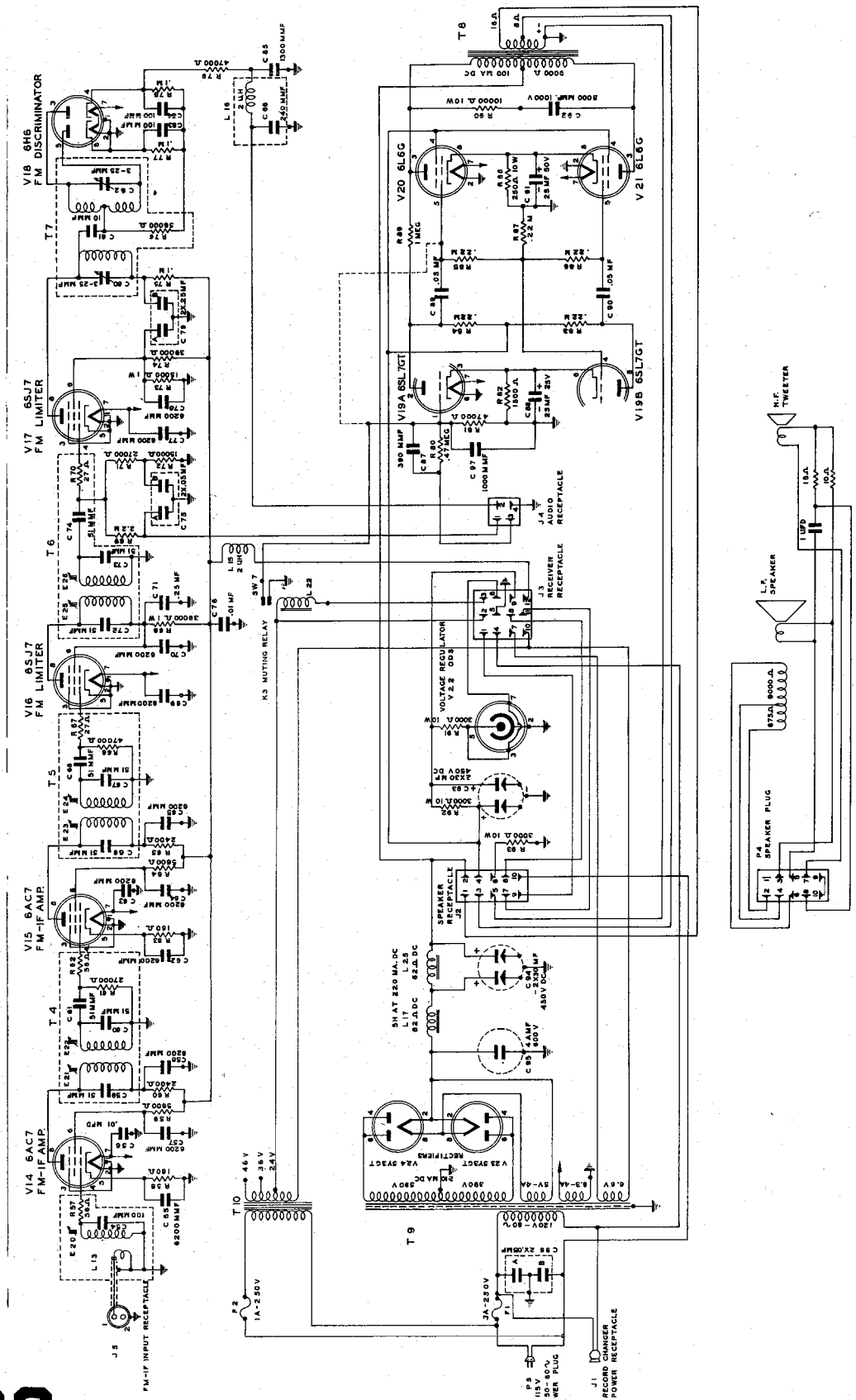
RCA Radiola Models 61-8 & 61-9 are similar.





SCOTT RADIO LABORATORIES INC.
CHICAGO 40 ILLINOIS

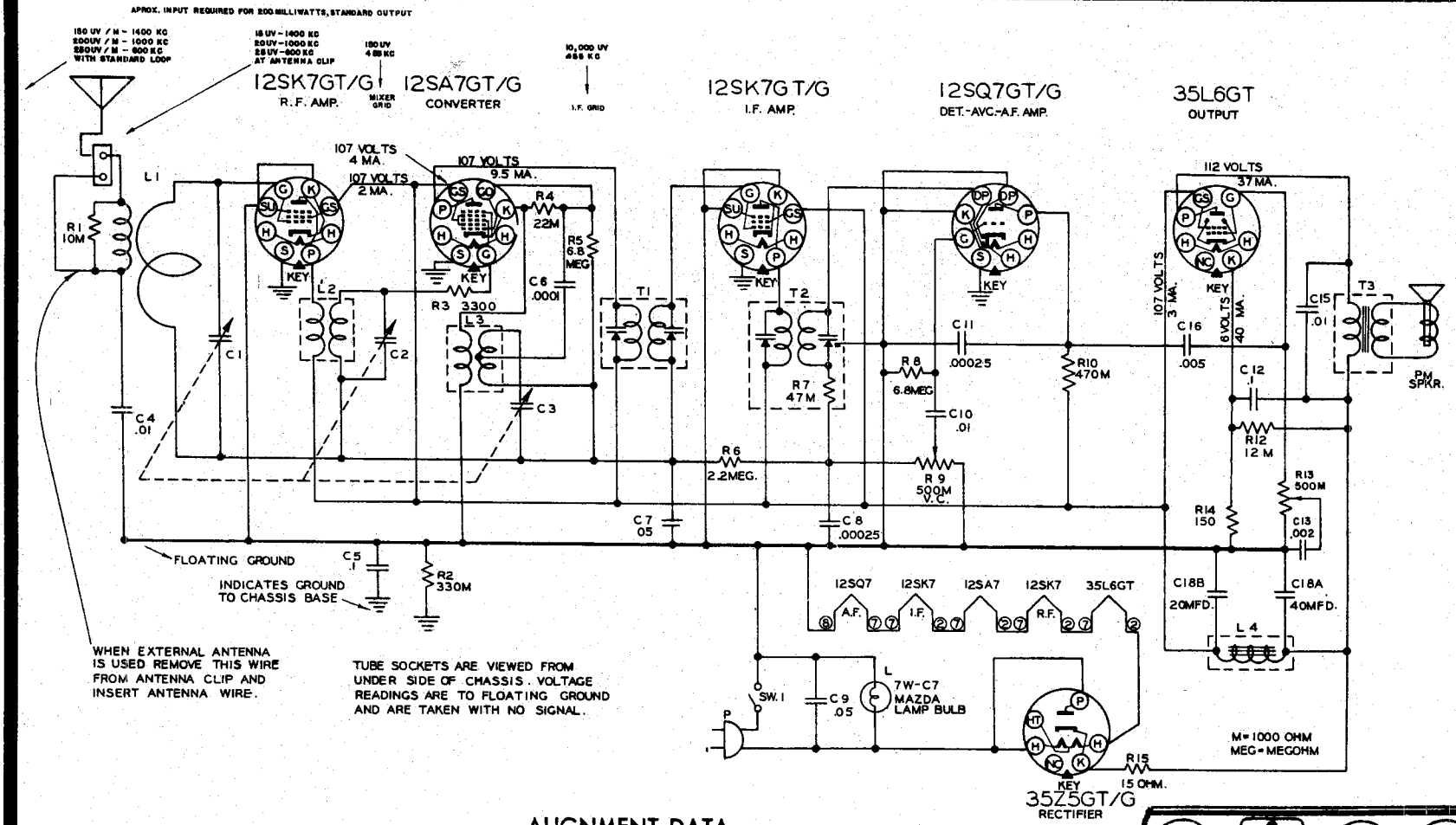
Revised Schematic Diagram Model 800-B Receiver Chassis



Revised Schematic Diagram Model 800-B Power Supply

SCOTT RADIO LABORATORIES INC.
CHICAGO 40 ILLINOIS

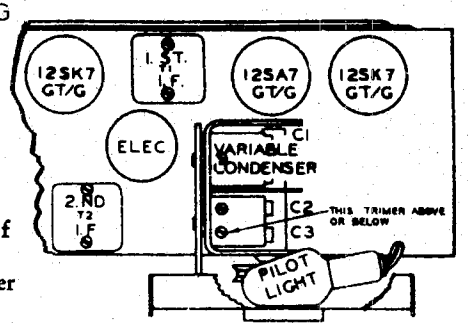
Sears, Roebuck & Co. Models 6050, 132.825-4
Models 6071, 132.826-1, similar but with phono.



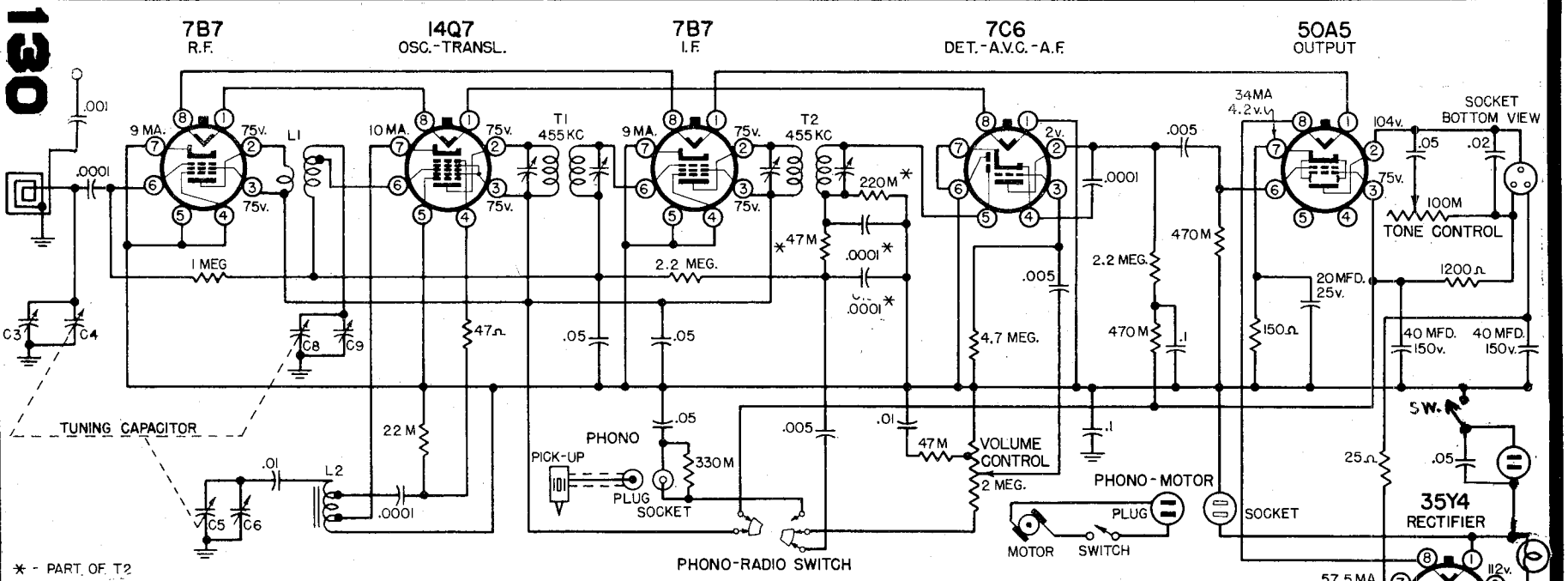
ALIGNMENT DATA

With variable condenser closed set pointer horizontal.

Position of Variable	Generator Frequency	Dummy Ant.	Generator Connection (high)	Generator Connection (low)	Adjust Trimmers (In order shown)	Trimmer Function
Open	455 Kc	.05 mfd	Mixer grid	Float. Gnd.	T2-T1	I-F
1400	1400	50 mmfd	Ant. clip	Chassis	C3-C2-C1	Osc.-Mixer R-f



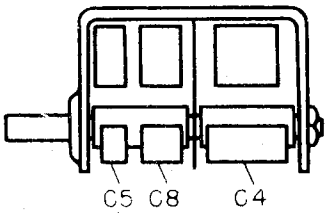
NOTE: Trimmer C3 (oscillator) is located either above or below, depending upon the type of variable condenser used in any particular receiver.



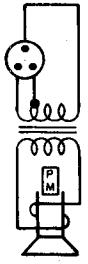
ALIGNMENT PROCEDURE

Output meter connection.....Across loud speaker voice coil
Generator ground lead connection.....I.F. alignment-negative 'B' lead
.....R.F. alignment-receiver chassis
Dummy antenna value to be in series with generator output.....See chart below
Connection of generator output lead.....See chart below
Generator Modulation.....30%, 400 cycles
Position of Volume Control.....Fully on
Position of Tone Control.....Treble
Position of pointer with tuner fully closed.....Last line below 540 calibration mark

POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS (ADJ. IN ORDER SHOWN)
Closed	455 Kc.	0.1 mfd.	Transl.-Grid	T2 - T1
1500 Kc.	1500 Kc.	200 mmfd.	Ant.	C5
1500 Kc.	1500 Kc.	200 mmfd.	Ant.	C8
1500 Kc.	1500 Kc.	200 mmfd.	Ant.	C4



PLUG
PRONG VIEW



Sears, Roebuck & Co.
Models 7080, 7100, 101.811,
Phono & Switch omitted on
Models 7054, 101.808,
and 7090, 101.810.

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO NEG. "B", AND ARE TAKEN WITH NO SIGNAL, WITH PHONO-RADIO SWITCH IN RADIO POSITION, AND WITH LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN THE VOLTAGE IS ZERO OR TOO LOW TO READ.

Sears, Roebuck & Co. Models 7115, 7116, 7117, 101.825

Preliminary

APPROXIMATE F.M. I.F. ALIGNMENT

Indicating meter connection.....DC voltmeter connected across R24
Generator ground lead connection.....Chassis
Generator output lead connection.....See Chart Below
Generator modulation.....Off
Position of volume control.....Fully on
Position of tone control.....Treble (fully clockwise)
Position of pointer with tuner fully closed.....Last line below 88 Mc.

Wave Band Switch Position	Position of Tuner	Generator Frequency	Dummy Antenna	Generator Connection	Trimmer Adjustments (in order shown)	Trimmer Function
F.M. (Counter-clockwise)	Closed	10.7 Mc.	0.1 mfd.	Transl.Grid	C41, C40, C32 C29, C25, C22	I.F.

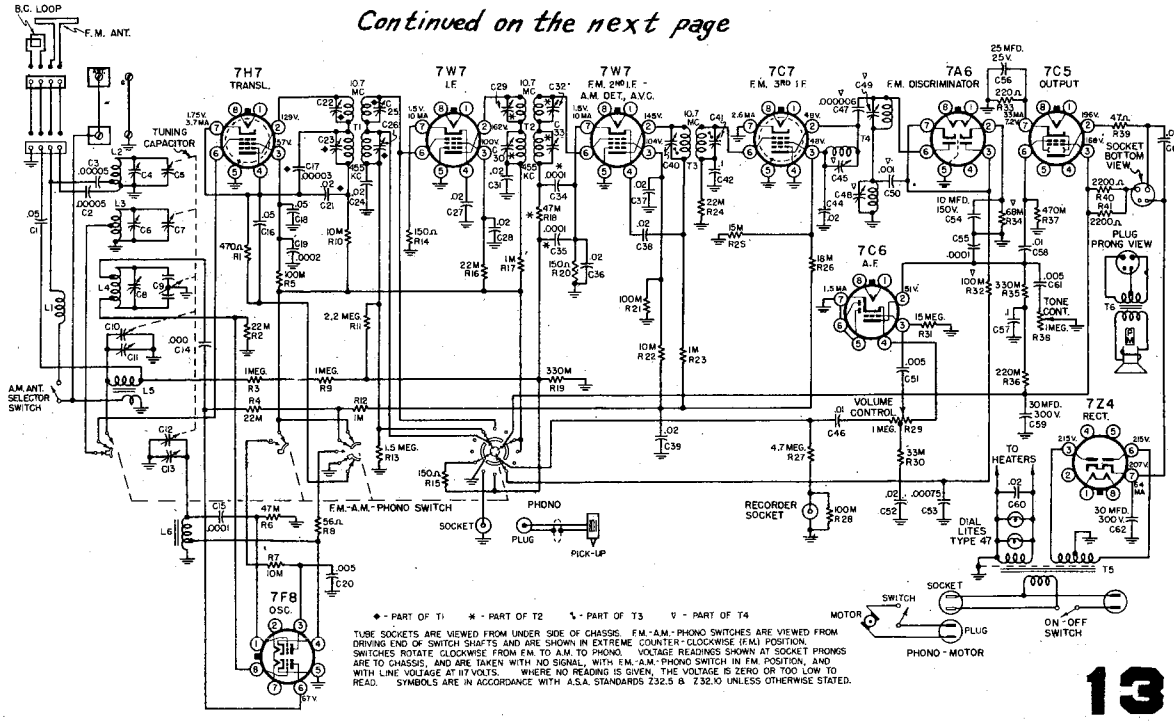
Adjust for a maximum reading on DC voltmeter. As trimmers are adjusted, decrease the output of the generator to maintain approximately 2 volts.

FINAL A.M. ALIGNMENT

Output meter connection.....Across loudspeaker voice coil
Generator ground lead connection.....Chassis
Dummy antenna value to be in series with generator output.....See Chart
Connection of generator output lead.....See Chart
Generator modulation.....30%, 400 cycles
Position of volume control.....Fully on
Position of tone control.....Treble (Fully clockwise)
Position of pointer with tuner fully closed.....Last line below 540 calibration mark
AM ant. selector switch in "up" position.....

Wave Band Switch Position	Position of Tuner	Generator Frequency	Dummy Antenna	Generator Connection	Trimmer Adjustments (in order shown)	Trimmer Function
BC (center)	Closed	455 Kc.	0.1 mfd.	Transl. Grid	C33, C30, C26, C23	I.F.
BC	1500 Kc.	1500 Kc.	200 mmfd.	Ant.	C13	Osc.
BC	1500 Kc.	1500 Kc.	200 mmfd.	Ant.	C11	R.F.

Continued on the next page



Sears, Roebuck & Co. Models 7115, 7116, 7117, 101.825

FINAL F.M. ALIGNMENT

A. If a 10.7 Mc. frequency modulated generator is available, connect to translator grid through a 270 to 500 ohm resistor and proceed to Section C.

B. If no 10.7 Mc. frequency modulated generator is available, connect an R.F. - F.M. generator to the F.M. antenna terminals.

C. Connect 5000 ohms (if generator sweep frequency is 60 cycles) to ground in parallel with R24. For lower frequency sweep increase the 5000 ohm resistor proportionately. Connect the Y-axis (vertical) amplifier of an oscilloscope across R24 to ground. Put a 10,000 to 100,000 ohm resistor in series with oscilloscope lead (at receiver end) to provide R.F. filterings.

D. Connect the sweep output of the generator to the X-axis (horizontal) amplifier of the oscilloscope.

E. Adjust modulation for a 300 Kc. deviation and touch up alignment of C41,C40,C32,C29,C25 and C22 for a symmetrical pattern on oscilloscope. Use full gain of the oscilloscope Y-axis amplifier and only as much output from the generator as is necessary. See FIG. 1A, (PAGE 11) for approximate pattern.

F. Remove the oscilloscope and the two resistors that were added in Section C above. (Restore receiver to normal operating condition).

G. Connect the Y-axis (vertical) amplifier of the oscilloscope to the ungrounded side of C53 through 10,000 to 100,000 ohms at receiver end of lead.

H. Adjust C45 for maximum output, vertically.
Adjust C48 and C49 until the center of the pattern becomes a straight line diagonally across the oscilloscope screen. Re-peak these three trimmers to obtain a symmetrical pattern of maximum vertical amplitude. See oscilloscope pattern, FIG. 1B, (PAGE 11).

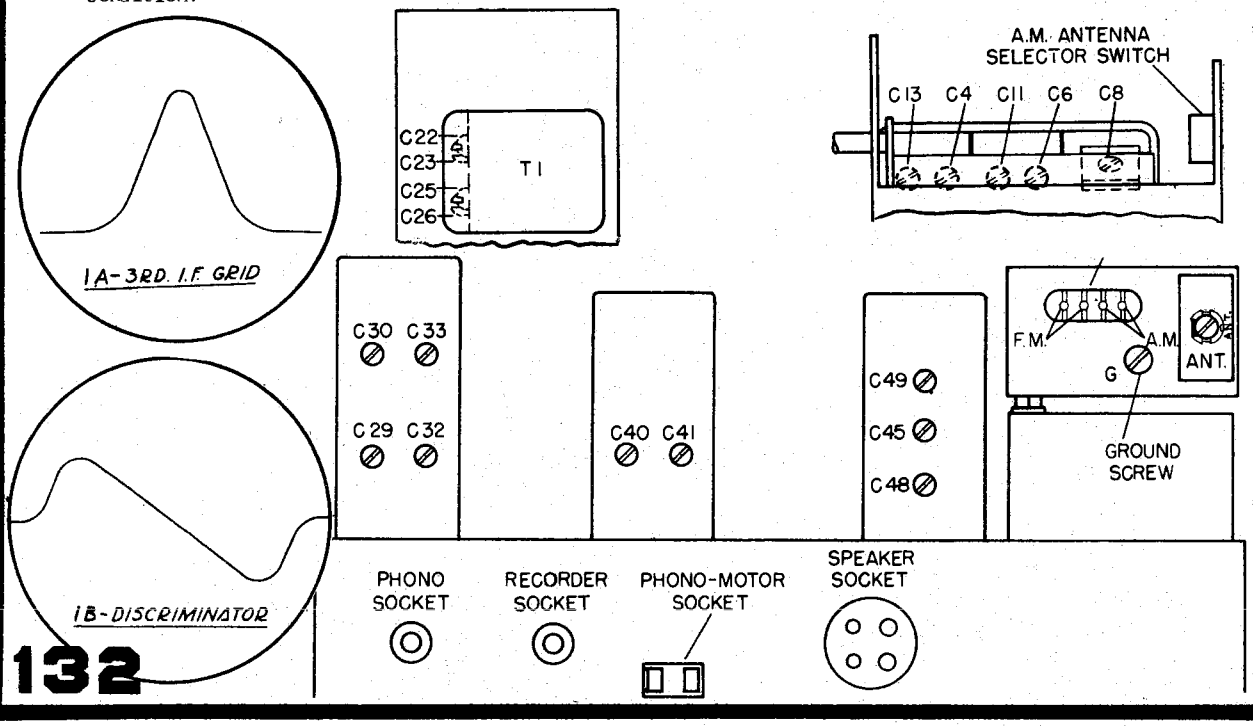
I. Remove the generator. Remove the oscilloscope and resistor from C53, and replace across R24 as described in Section C above.

J. Connect an R.F. F.M. generator to the terminals marked F.M. antenna through two 120-ohm resistors, one in series with each terminal of the generator. Adjust the generator for 300 Kc. deviation.

K. Tune the generator to 109 Mc. Set pointer to 109 Mc. Adjust C8 to obtain 3rd. I.F. oscilloscope pattern. See FIG 1A (PAGE 11). (If two such points are found by tuning C8, use the higher frequency.) (Lowest capacity setting of C8).

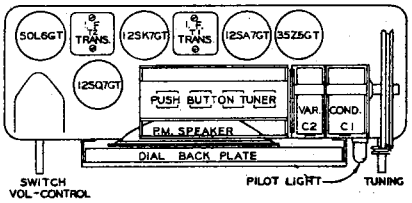
L. Tune the generator and receiver to 106 Mc. and peak C6 and C4 for maximum vertical amplitude on the oscilloscope. (See FIG. 1A below).

M. Remove the signal generator, oscilloscope and resistors, restoring the receiver to normal operating condition.



SEARS, ROEBUCK AND CO.

Models 6011, 6012, 132.816, 132.816A.



Tuning range 540 Kc to 1600 Kc. Intermediate frequency—455 Kc. RF and IF measurements made at 50 milliwatts output—approximately .38 volt on a rectifier type voltmeter connected across the voice coil.

Approximate inputs for 50 MW output: IF—75 uv. RF with standard loop: at 600 Kc—400 uv/m; at 1000 Kc—350 uv/m; at 1400 Kc—350 uv/m. RF at antenna clip: at 600 Kc—50 uv; at 1000 Kc—40 uv; at 1400 Kc—40 uv.

ALIGNMENT DATA

Position of Voriable	Generator Frequency	Dummy Ant.	Generator Connection (high side)	Generator Connection (low side)	Adjust Trimmers (In order shown)	Trimmer Function
Open	455 Kc	.05 mfd.	Mixer grid	Float. Gnd.	T2-T1	IF
Open	1620 Kc	50 mmfd.	Ant. clip	Chassis	C2	Osc.
1400	1400 Kc	50 mmfd.	Ant. clip	Chassis	C1	Ant.

TO RESET POINTER: With the receiver tuned to a 1400 Kc signal, attach pointer to dial cord so as to align with inverted "V" notch on lower ledge of dial backing plate.

This radio receiver is equipped with a built-in antenna which will be satisfactory for local reception. If you are located some distance from a station, or local noise from electrical equipment is bothersome, reception will be greatly improved by the installation of an outside antenna. Provision is made for connection of an external antenna at the rear of the chassis. Figure 2 indicates the location of the clip to which connection should be made. Be sure to remove the black wire from the clip before attaching the external antenna.

This receiver is designed to operate without a ground connection and no attempt should be made to use one.

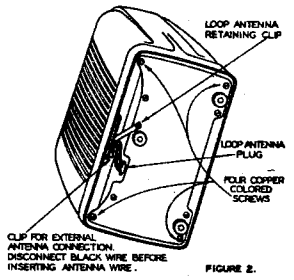
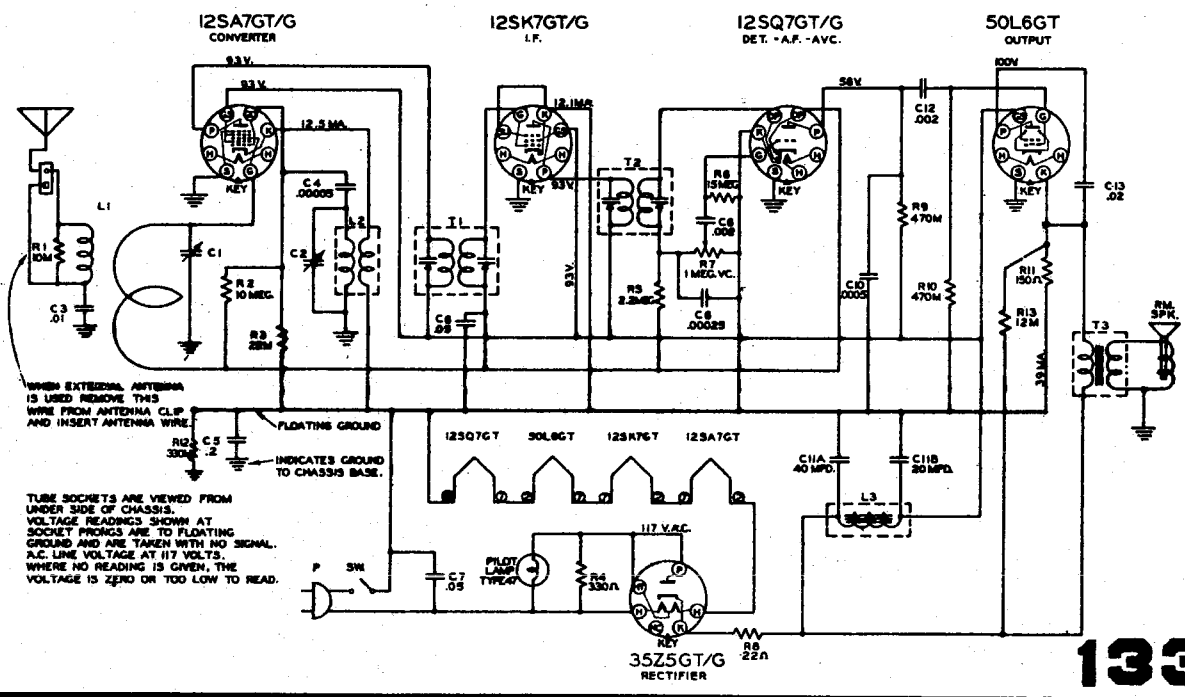
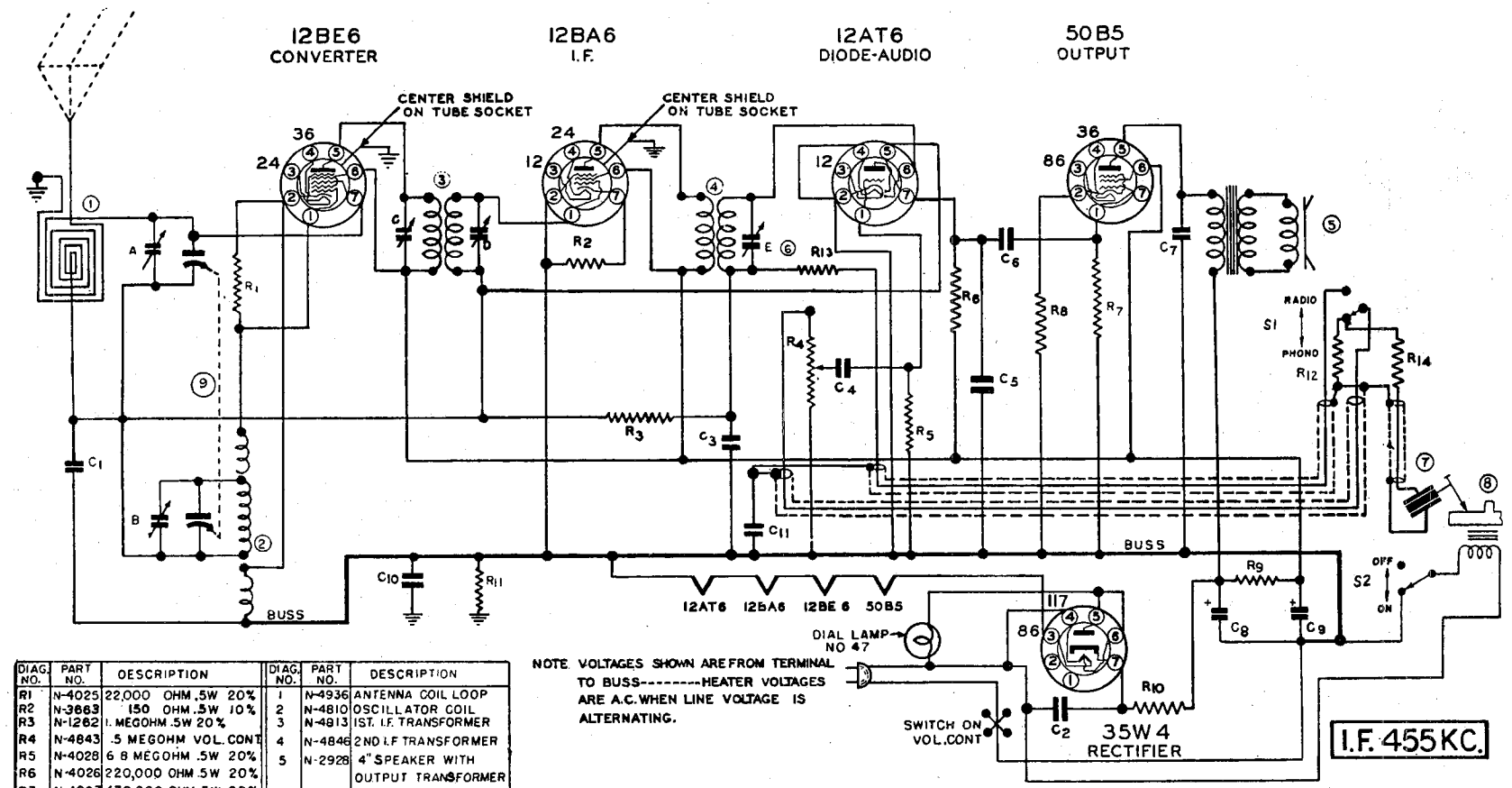


FIGURE 2.

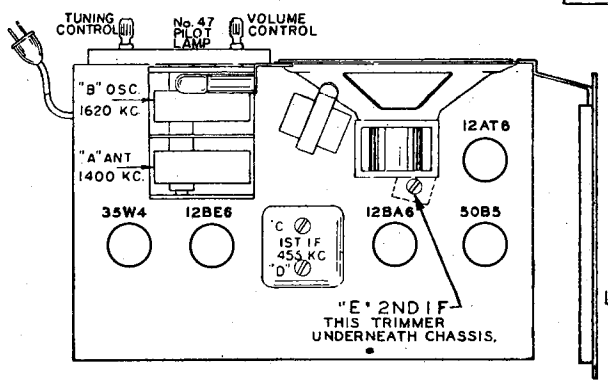




DIAG. NO.	PART NO.	DESCRIPTION
R1	N-4025	22,000 OHM .5W 20%
R2	N-3663	150 OHM .5W 10%
R3	N-1262	1. MEGOHM .5W 20%
R4	N-4843	.5 MEGOHM VOL. CONT
R5	N-4028	6 8 MEGOHM .5W 20%
R6	N-4026	220,000 OHM .5W 20%
R7	N-4027	470,000 OHM .5W 20%
R8	N 4024	220 OHM .5W 10% INSUL
R9	N-5359	1000 OHM 1. W 10% INSUL
R10	N-5403	33 OHM .5W 20% INSUL
R11	N-4026	220,000 OHM .5W 20%
R12	N-4988	220,000 OHM .5W 20% INS
R13	N-4087	47000 OHM .5W 20% INS
R14	N-5405	470,000 OHM .5W 20% INS
C1	N-1345	.05 MFD 200V
C2	N-1346	.05 MFD. 400V
C3	N-1374	.0001 MFD 500V
C4	N-4894	.005 MFD. 600V
C5	N-2306	.0002 MFD. 500V
C6	N-1344	.01 MFD. 400V
C7	N-1376	.02 MFD. 400V
C8	N-4986	40 MFD. 150V ELECT.
C9		40 MFD. 150V
C10	N-1345	.05 MFD 200V
C11	N-1345	.05 MFD. 200V

DIAG. NO.	PART NO.	DESCRIPTION
1	N-4936	ANTENNA COIL LOOP
2	N-4810	OSCILLATOR COIL
3	N-4813	IST. I.F. TRANSFORMER
4	N-4846	2ND I.F TRANSFORMER
5	N-2928	4" SPEAKER WITH OUTPUT TRANSFORMER
6	N-4985	TRIMMER CAPACITOR
7	N-4967	PHONO PICKUP
8	N-3848	MOTOR
9	N-4972	2 GANG CONDENSER
S1	N-2409	RADIO PHONO SW.
S2	N-3140	MOTOR SW.

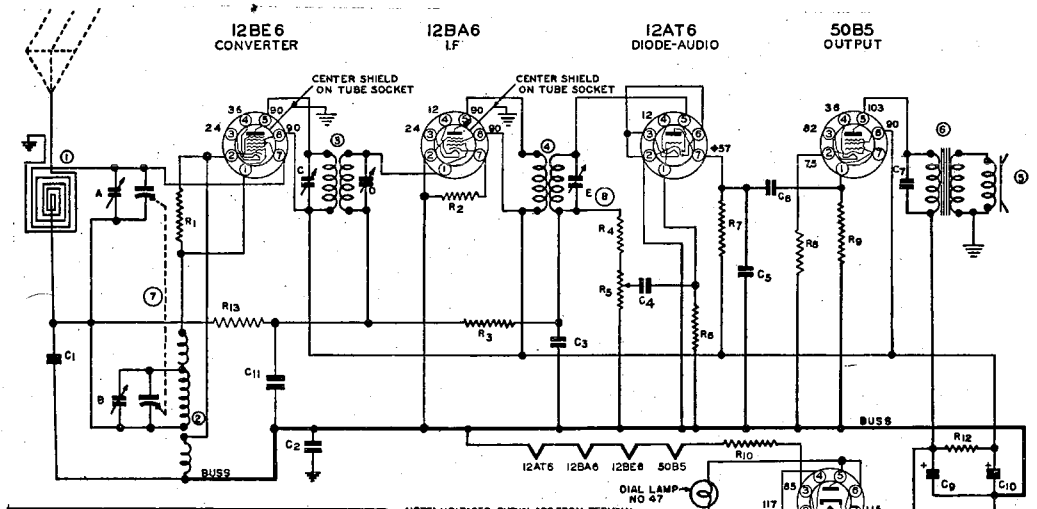
NOTE. VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS--------HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.



Sonora
Clear as a Bell

Models

RGMF/RGMFU (212 & 230)

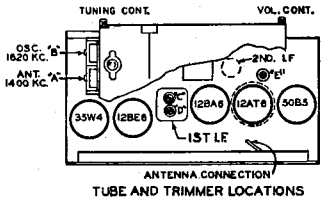


DIAG. NO.	PART NO.	DESCRIPTION
R1	N-4025	22,000 OHM .5W. 20%
R2	N-3863	150 OHM .5 W. 10%
R3	N-1262	1 MEGOHM .5 W. 20%
R4	N-4063	47,000 OHM .5W. 20%
R5	N-4843 N-4998	.5 MEGOHM VOL. CON.
R6	N-4028	6.8 MEGOHM .5W. 20%
R7	N-4026	220,000 OHM .5W. 20%
R8	N-5632	220 OHM .5W. 10%
R9	N-4027	470,000 OHM .5W. 20%
R10	N-5631	22 OHM 1 W. 10%
R11	N-4022	33 OHM .5W. 20%
R12	N-3358	1000 OHM 1 W. 10%
R13	N-4027	470 000 OHM .5 W. 20%
C1	N-1345	.05 MFD. 200 V.
C2	N-1345	.05 MFD. 200 V.
C3	N-1374	100 MMFD. MICA
C4	N-4894	.005 MFD 600 V.
C5	N-4890	.0005 MFD. 600 V.
C6	N-1344	.01 MFD. 400 V.
C7	N-1376	.02 MFD. 400 V.
C8	N-1346	.05 MFD. 400 V.
C9	N-3302	35 MFD. 150 V. ELECT.
C10		30 MFD. 150 V.
C11	N-1344	.01 MFD. 400 V.

DIAG. NO.	PART NO.	DESCRIPTION
1	N-4815	ANTENNA COIL LOOP
2	N-4810	OSCILLATOR COIL
3	N-4813	1ST I.F. TRANSFORMER
4	N-4846	2ND I.F. TRANSFORMER
5	N-4318	4" SPEAKER
6	N-3899	OUTPUT TRANSFORMER
7	N-4812	2 GANG CONDENSER
8	N-4048	TRIMMER

NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS--------HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.
* MEASURED WITH VACUUM TUBE VOLTMETER.

I.F. 455 KC.

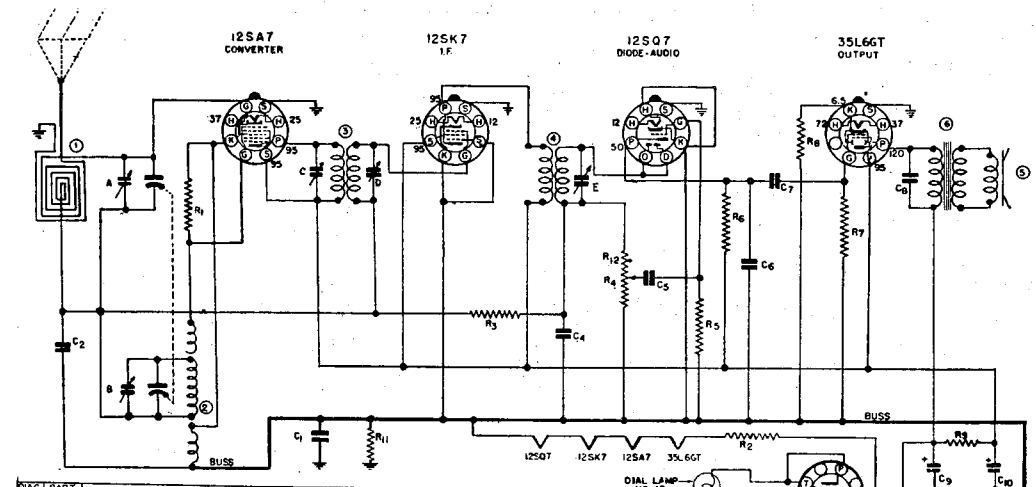


TUBE AND TRIMMER LOCATIONS

Sonora Radio & Television

Models RBM/RBMU

RBMU

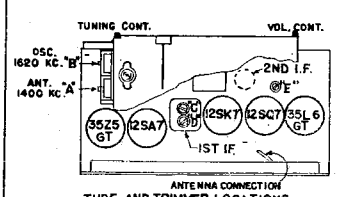


DIAG. NO.	PART NO.	DESCRIPTION
R-1	N-4025	22,000 OHM .5 W. 20%
R-2	N-4023	82 OHM 2 W. 10%
R-3	N-1262	1 MEGOHM .5 W. 20%
R-4	N-4843	.5 MEGOHM VOL. CONT.
R-5	N-4028	6.8 MEGOHM .5 W. 20%
R-6	N-4026	220,000 OHM .5 W. 20%
R-7	N-4027	470,000 OHM .5 W. 20%
R-8	N-4024	220 OHM .5 W. 10%
R-9	N-3341	1000 OHM .5 W. 10%
R-10	N-4022	33 OHM .5 W. 20%
R-11	N-4026	220,000 OHM .5 W. 20% (IN VOLUME CONTROL)
R-12		
C-1	N-1345	.05 MFD. 200 V.
C-2	N-1345	.05 MFD. 200 V.
C-3	N-1346	.05 MFD. 400 V.
C-4	N-1374	100 MMFD. MICA.
C-5	N-2712	.004 MFD. 400 V.
C-6	N-1447	.0005 MFD. 400 V.
C-7	N-1344	.01 MFD. 400 V.
C-8	N-1376	.02 MFD. 400 V.
C-9	N-3302	35 MFD. 150 V. ELECT.
C-10		30 MFD. 150 V.

DIAG. NO.	PART NO.	DESCRIPTION
1	N-4815	ANTENNA COIL LOOP
2	N-4810	OSCILLATOR COIL
3	N-4813	1ST. I.F. TRANSFORMER
4	N-4846	2ND. I.F. TRANSFORMER
5	N-4318	4" SPEAKER
6	N-3899	OUTPUT TRANSFORMER
	N-4812	2 GANG CONDENSER

NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS---------- HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.

I.F. 455 KC.

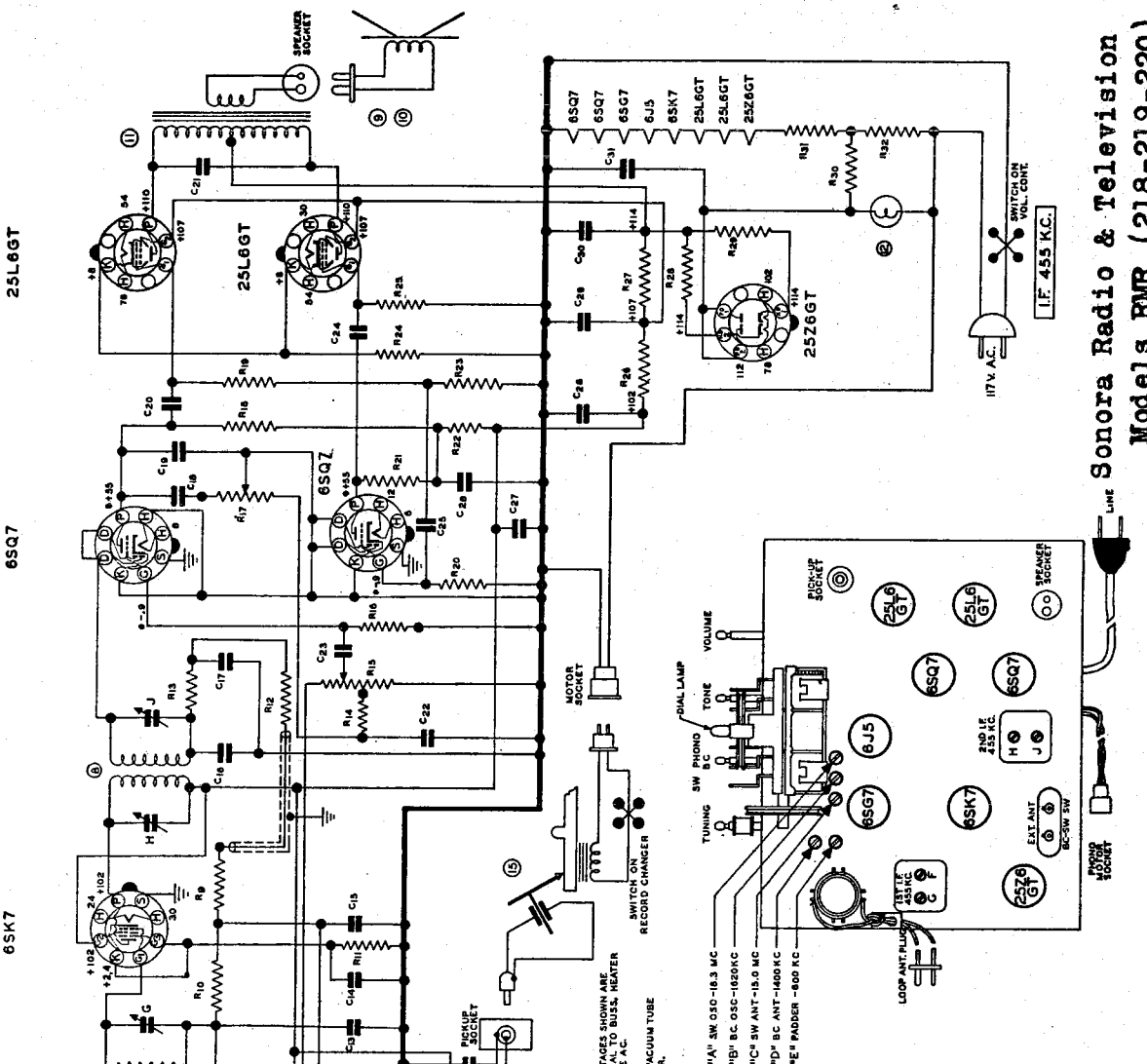


TUBE AND TRIMMER LOCATIONS

Sonora Radio & Television

Model RBU

Sonora Radio & Television
Models RMR (218-219-220)

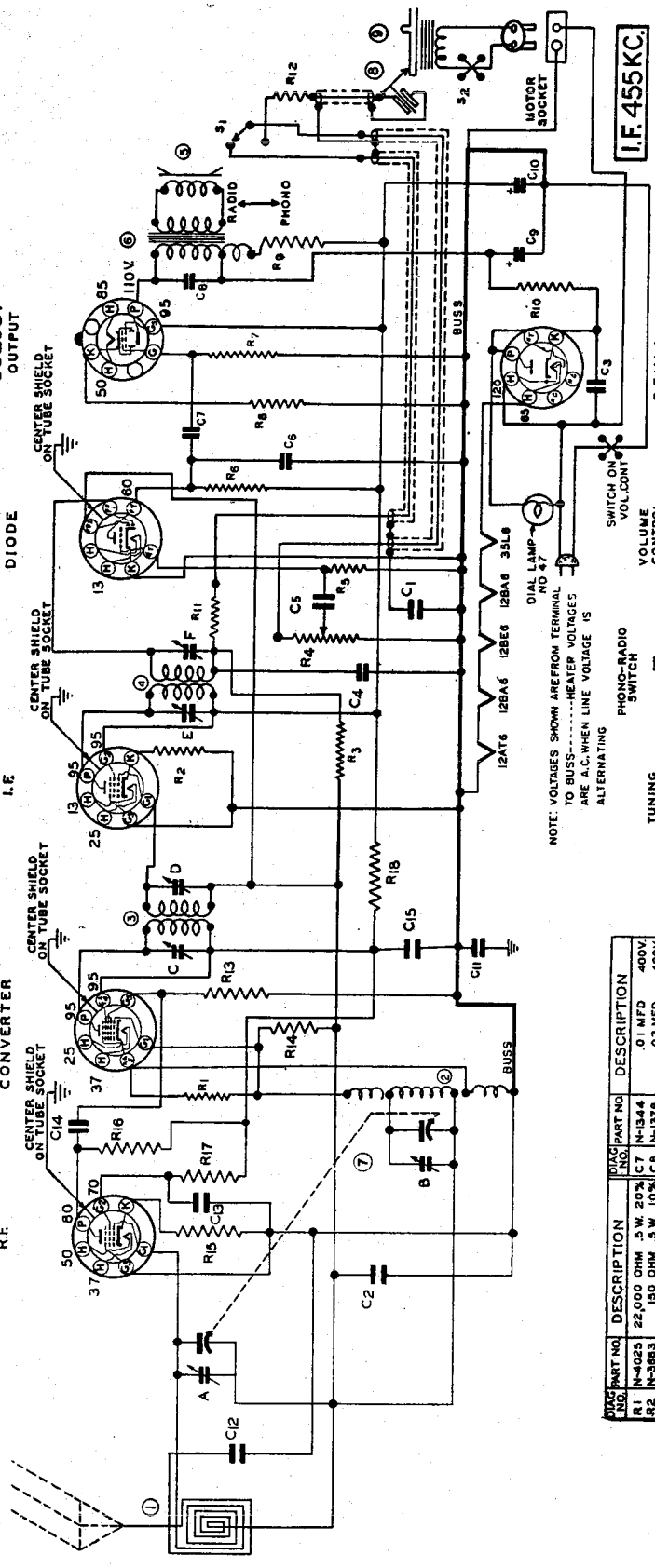


SECTION	COUNTER CW	CENTER	C.W.
FRONT	9-10 1-2	10-11 1-2	4-5
REAR	2-3	4-5	6-7
	PHONO	BROADCAST	SHORT WAVE

DIA. NO.	PART NO.	DESCRIPTION
R1	N-3888	39 OHM .5W 10%
R2	N-3889	220 OHM .5W 10%
R3	N-4915	10,000 OHM .5W 20%
R4	N-4025	22,000 OHM .5W 20%
R5	N-1282	1.0 MEGOHM .5W 20%
R6	N-4062	3.3 MEGOHM .5W 20%
R7	N-4586	2,200 OHM .5W 10%
R8	N-3882	33,000 OHM .5W 10%
R9	N-4064	3.3 MEGOHM .5W 20%
R10	N-1242	1.0 MEGOHM .5W 20%
R11	N-3832	220 OHM .5W 10%
R12	N-4064	33,000 OHM .5W 20%
R13	N-4064	33,000 OHM .5W 20%
R14	N-3891	22,000 OHM INS. .5W 10%
R15	N-3851	.5 MEG VOLUME CONTROL
R16	N-4028	6.8 MEGOHM .5W 20%
R17	N-3888	39 OHM .5W 10%
R18	N-4028	2.2 MEGOHM .5W 20%
R19	N-3894	470,000 OHM .5W 20%
R20	N-4028	6.8 MEGOHM .5W 20%
R21	N-4028	220,000 OHM .5W 20%
R22	N-3893	68,000 OHM .5W 20%
R23	N-3890	12,000 OHM .5W 10%
R24	N-1822	100 OHM .1 W 10%
R25	N-3892	470,000 OHM .5W 20%
R26	N-3887	1 MEG TONE CONTROL
R27	N-3889	330 OHM .5W 10%
R28	N-3889	330 OHM .5W 10%
R29	N-3053	12 OHM .5W 10%
R30	N-3018	12 OHM 1 W 10%
R31	N-4064	43 OHM .4 W 10%
R32	N-4064	19 OHM .5 W 5%

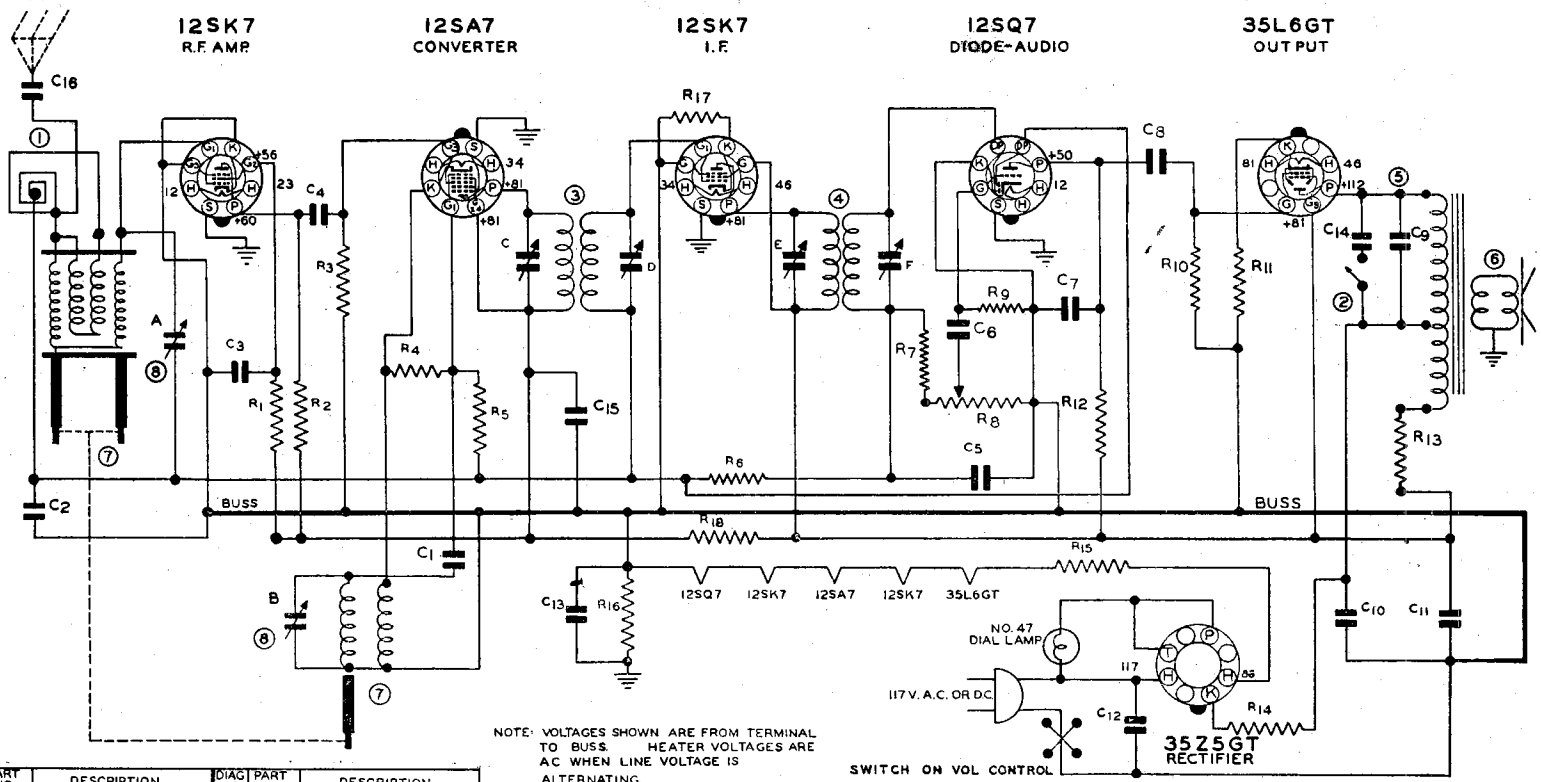
DIA. NO.	PART NO.	DESCRIPTION
C1	N-3174	100 MMFD MICA 20%
C2	N-1880	.004 MFD 500 V 5%
C3	N-1345	.05 MFD 200 V 20%
C4	N-3160	2 MFD 200 V -10 +100%
C5	N-2306	200 MMFD MICA 20%
C6	N-1345	.05 MFD 200 V 20%
C7	N-1344	.01 MFD 400 V 20%
C8	N-1344	.01 MFD 400 V 20%
C9	N-1342	50 MMFD MICA 20%
C10	N-2303	150 MMFD MICA 20%
C11	N-2302	100 MMFD MICA 20%
C12	N-1351	.1 MFD 200 V -10 +20%
C13	N-1345	.05 MFD 200 V 20%
C14	N-1345	.05 MFD 200 V 20%
C15	N-1342	50 MMFD MICA 20%
C16	N-1342	50 MMFD MICA 20%
C17	N-1897	.25 MMFD 600 V -15 +40%
C18	N-4064	.005 MFD 600 V -15 +40%
C19	N-1342	50 MMFD MICA 20%
C20	N-1342	50 MMFD MICA 20%
C21	N-1478	.01 MFD 600 V 20%
C22	N-1376	.02 MFD 400 V 20%
C23	N-4894	.005 MFD 600 V -15 +40%
C24	N-1344	.01 MFD 400 V 20%
C25	N-1344	.01 MFD 400 V 20%
C26	N-1351	.1 MFD 200 V -10 +20%
C27	N-1351	.1 MFD 200 V -10 +20%
C28		
C29	N-3884	30 MFD 150 V ELECTRO-LYTIC
C30		100 MFD 150 V
C31	N-1346	.05 MFD 400 V 20%
C32	N-3174	4.25 MMFD COPOLENE

DIA. NO.	PART NO.	DESCRIPTION
1	N-3185	BC ANT. COIL
2	N-3188	SW ANT. COIL
3	N-3184	SW OSC. COIL
4	N-3183	BC OSC. COIL
5	N-3182	2 SECTION TRIMMER
6	N-3183	3 SECTION TRIMMER
7	N-3173	1ST I.F. TRANSFORMER
8	N-3174	2ND I.F. TRANSFORMER
9	N-3882	10" P.M. SPEAKER
10	N-3172	12" P.M. SPEAKER
11	N-4064	OUTPUT TRANSFORMER
12	N-1571	NO. 44 PILOT LAMP
13	N-3182	2 GANG CAPACITOR
14	N-3187	BAND-PHONO SWITCH
15		RECORD CHANGER



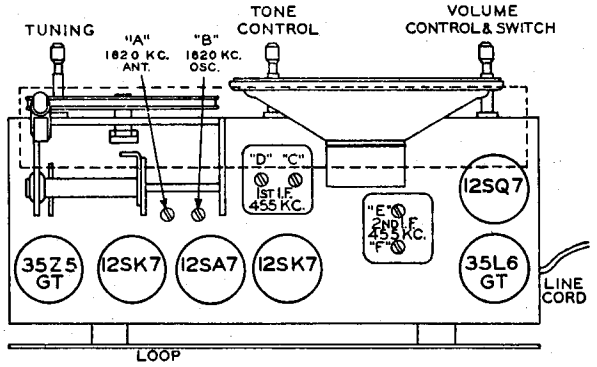
DIAG. NO.	PART NO.	DESCRIPTION
R1	N-4025	22,000 OHM .5 W. 20%
R2	N-3883	150 OHM .5 W. 10%
R3	N-4062	33 MEGOHM .5 W. 20%
R4	N-4074	.5 MEGOHM VOL. CONT.
R5	N-4026	68 MEGOHM .5 W. 20%
R6	N-4028	220,000 OHM .5 W. 20%
R7	N-4027	470,000 OHM .5 W. 20%
R8	N-4067	180 OHM .5 W. 10%
R9	N-5356	1000 OHM 1 W. 10%
R10	N-4022	33 OHM .5 W. 20%
R11	N-4083	47,000 OHM .5 W. 20%
R12	N-1262	1 MEGOHM .5 W. 20%
R13	N-4083	47,000 OHM .5 W. 20%
R14	N-1263	10.0 MEGOHM .5 W. 20%
R15	N-1815	100 OHM .5 W. 10%
R16	N-4278	4700 OHM .5 W. 10%
R17	N-4025	22,000 OHM .5 W. 20%
R18	N-3348	220 OHM .5 W. 20%
C1	N-4957	.09 MFD 200V.
C2	N-1345	.05 MFD 200V.
C3	N-1346	.05 MFD 400V.
C4	N-1374	.0001 MFD MICA
C5	N-4894	.005 MFD 600V.
C6	N-4890	.0005 MFD. 600 V.

DIAG. NO.	PART NO.	DESCRIPTION
C7	N-1344	.01 MFD 400V.
C8	N-1378	.02 MFD 400V.
C9	N-5051	40 MFD 150 V. ELECT.
C10		40 MFD 150 V.
C11	N-5160	2 MFD 200V.
C12	N-1344	.01 MFD 400V.
C13	N-1345	.05 MFD 200V.
C14	N-2383	.0015 MFD MICA
C15	N-1351	.1 MFD 200V.
1	N-5133	LOOP COIL
2	N-4810	OSCILLATOR COIL
3	N-4813	1ST I.F. COIL
4	N-5779	2ND I.F. COIL
5	N-4867	4" P.M. SPEAKER
6	N-4975	OUTPUT TRANSFORMER
7	N-4812	2 GANG CAPACITOR
8	N-4965	RECORD CHANGER
S1	N-2409	RADIO-PHONO SWITCH
S2		MOTOR SW. ON CHANGER



NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS. HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.

DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	N-1342	50 MMFD MICA 20%	R6	N-4062	3.3 MEGOHM .5W. 20%
C2	N-1345	.05 MFD 200 V. 20%	R7	N-4063	47,000 OHM .5W. 20%
C3	N-1345	.05 MFD 200 V. 20%	R8	N-5026	0.5 MEGOHM VOL. CONT.
C4	N-2383	150 MMFD MICA 20%	R9	N-4061	4.7 MEGOHM .5W. 20%
C5	N-1374	100 MMFD MICA 20%	R10	N-4027	470,000 OHM .5W. 20%
C6	N-4894	.005 MFD 600 V. -15+40%	R11	N-4067	180 OHM .5W. 10%
C7	N-4890	.0005 MFD 600 V. -25+60%	R12	N-4988	220,000 OHM .5W. INS. 20%
C8	N-1344	.01 MFD 400 V. 20%	R13	N-5623	1500 OHM I.W. 10%
C9	N-1344	.01 MFD 400 V. 20%	R14	N-4022	33 OHM .5W. 20%
C10, C11	N-3658	40 MFD 150 W.V. ELECTRO-LYTIC	R15	N-4628	33 OHM I.W. 10%
			R16	N-4026	220,000 OHM .5W. 20%
C12	N-1346	.05 MFD 400 V. 20%	R17	N-4022	33 OHM .5W. 20%
C13	N-5160	.2 MFD 200 V. -10+10%	R18	N-4066	470 OHM .5 W. 10%
C14	N-1346	.05 MFD 400 V. 20%			
C15	N-1351	.1 MFD 200 V. -10+20%	1	N-5374	LOOP COIL
C16	N-1342	50 MMFD MICA 20%	2	N-4942	TONE SWITCH
			3	N-4872	1ST I.F. TRANSFORMER
			4	N-5571	2ND I.F. TRANSFORMER
R1	N-5351	22,000 OHM .5W. INS. 20%	5	N-4875	OUTPUT TRANSFORMER
R2	N-4278	4,700 OHM .5W. 10%	6	N-4868	5" SPEAKER
R3	N-4087	47,000 OHM .5W. INS. 20%	7	N-5640	PERMEABILITY TUNER
R4	N-5351	22,000 OHM .5W. INS. 20%	8	N-5552	2 SECTION TRIMMER
R5	N-5624	15 MEGOHM .5W. INS. 20%			



TUBE & TRIMMER LOCATIONS

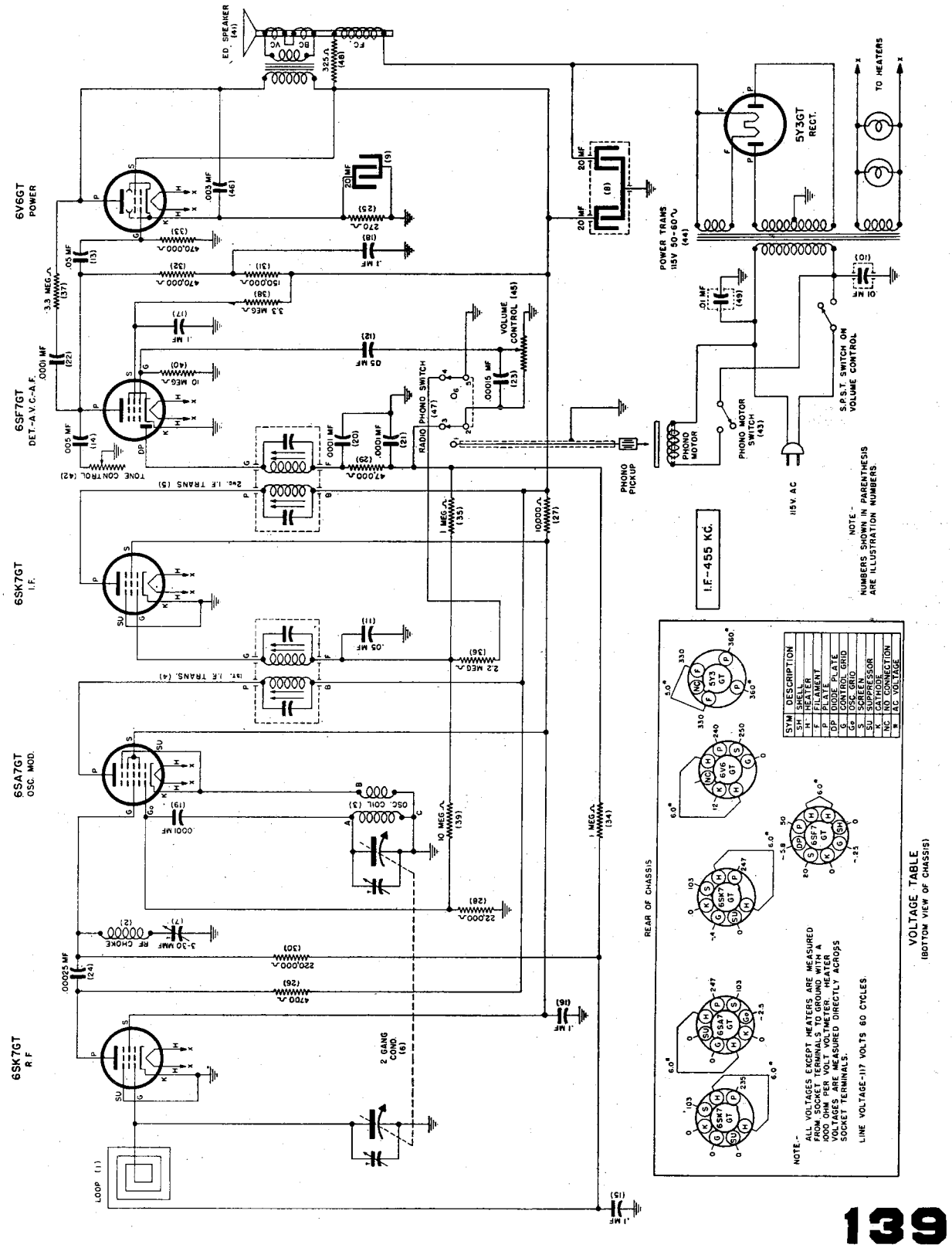
I.F. 455 KC.

Sonora
Clear as a Bell

Models
RQ/RQU (222)

Sentinel Radio

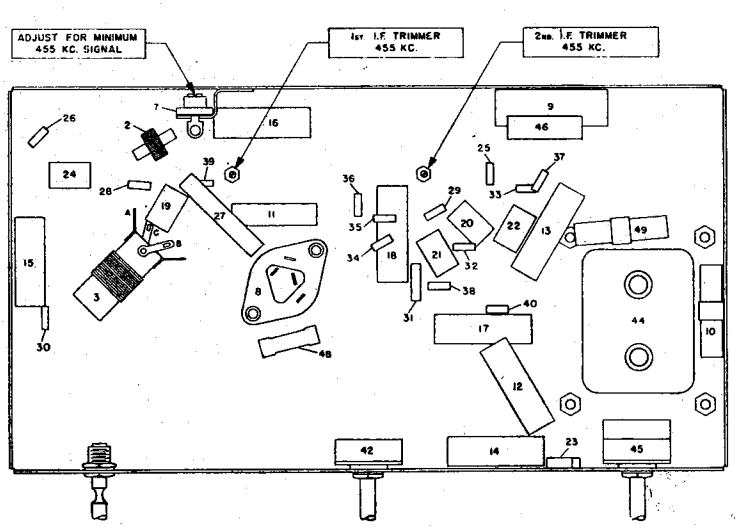
MODEL 292K

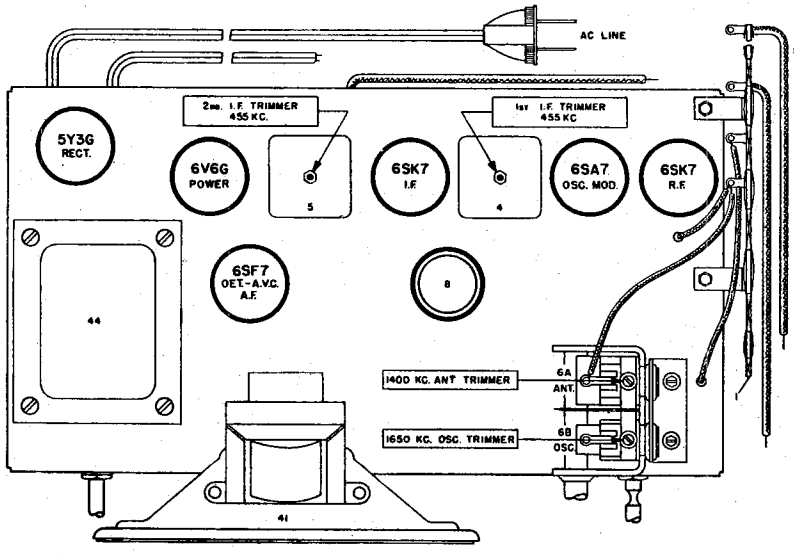


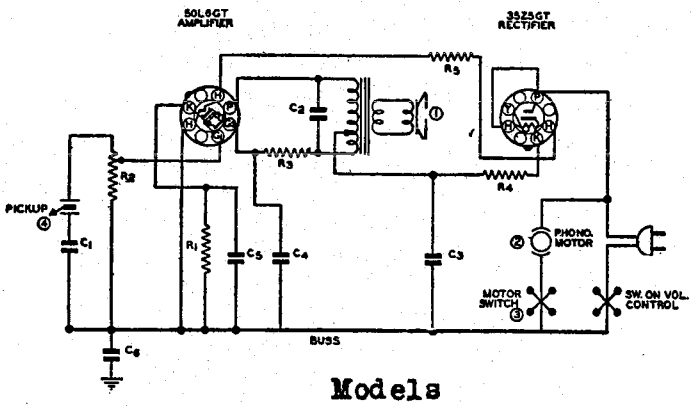
For Alignment procedure read tabulations from left to right, and make the adjustment marked (1) first, (2) next, (3) third.
IMPORTANT: BEFORE ALIGNING, HAVE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET. BE SURE THAT IT DOES NOT MOVE WHILE ALIGNING.

When adjusting 1650 kilocycle oscillator trimmer, 455 K.C. R.F. trimmer and 1400 kilocycle antenna trimmer, connect test oscillator to loop external antenna and ground connections with a .0002 Mfd. capacitor in series with antenna lead.

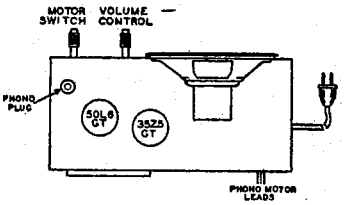
Steps	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to	Refer to parts layout diagram for location of trimmers mentioned below:
	Any point where no interfering signal is received	Exactly 455 K. C.	0.2 Mfd. Condenser	High side to grid of 6SA7 Tube. Low side to chassis.	Adjust each of the 2nd I.F. transformer trimmer adjustment screws for maximum output, then adjust each of the 1st I.F. transformer trimmer adjustment screws for maximum output.
1	Rotate gang condenser to maximum capacity	Exactly 455 K. C.	.0002 Mfd. Condenser	To loop external antenna and ground connections	Adjust R.F. coil trimmer for <u>minimum</u> 455 K. C. signal.
2	Rotate gang condenser to minimum capacity	Exactly 1650 K. C.	.0002 Mfd. Condenser	To loop external antenna and ground connections	Adjust 1650 K. C. oscillator trimmer for maximum output.
3	Approximately 1400 K. C.	Approx. 1400 K. C.	.0002 Mfd. Condenser	To loop external antenna and ground connections	Adjust 1400 K. C. antenna trimmer for maximum output.







DIAG. NO.	PART NO.	DESCRIPTION			DIAG. NO.	PART NO.	DESCRIPTION
R1	N-3663	150 OHM	0.5W.	10%	①	N-4857	4" PM DYNAMIC SPKR.
R2	N-3355	0.5Ω VOLUME CONTROL			②	N-4575	OUTPUT TRANS'R.
R3	N-4066	470 OHM	0.5W.	10%	③	N-3848	PHONO MOTOR
R4	N-5441	150 OHM	2W.	10%		N-3850	ALTER.
R5	N-3480	220 OHM	5W.	10%	③	N-3814	MOTOR SWITCH
					④	N-5442	PHONO PICKUP
						N-5443	ALTER.
C1	N-1343	.05 MFD.		200V.			
C2	N-1349	.05 MFD.		400V.			
C3		40 MFD.	ELECT.	150V.			
C4	N-3438	40 MFD.		150V.			
C5		20 MFD.		25V.			
C6	N-1345	.05 MFD.		200V.			



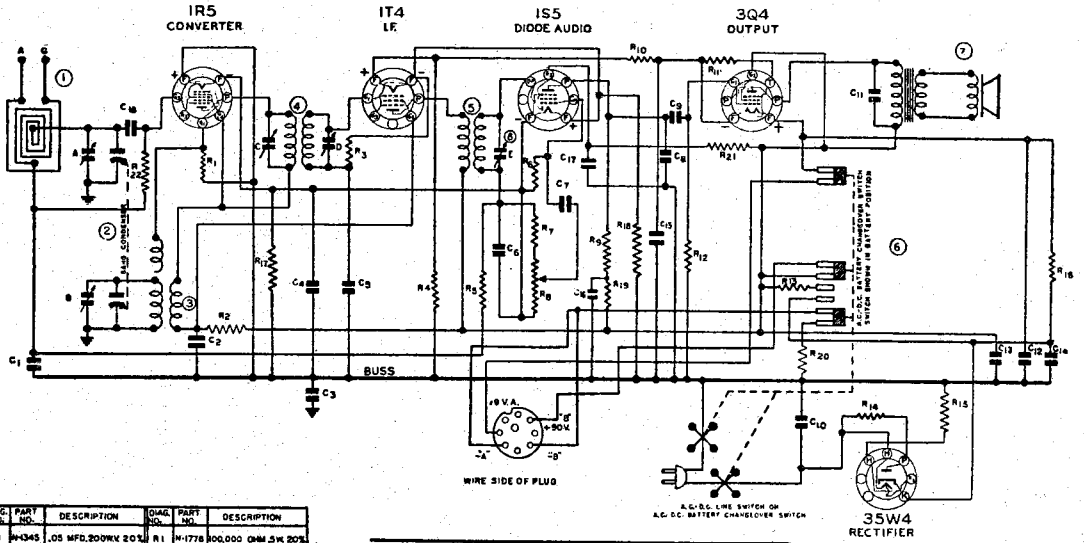
Models
RWF/RWFU (78 & 238)

Sonora
Clear as a Bell

Models
RYM/RYMU (224)

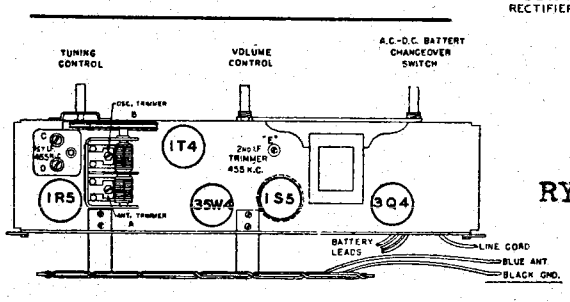
ALIGNMENT

Operation	Connect Oscillator To:	Dummy Ant.	Set Osc. To:	Set Dial To:	Adjust Trimmers	Purpose
1	Converter Grid	.05 MFD.	455 KC	Min. Cap.	C, D, E	Align IF
2	Antenna	100 MMF.	1620 KC	Min. Cap.	B	Set Oscillator
3	Antenna	100 MMF.	1400 KC	1400 KC	A	Adjust Ant.
4	Antenna	100 MMF.	600 KC	600 KC	....	Check Calibration



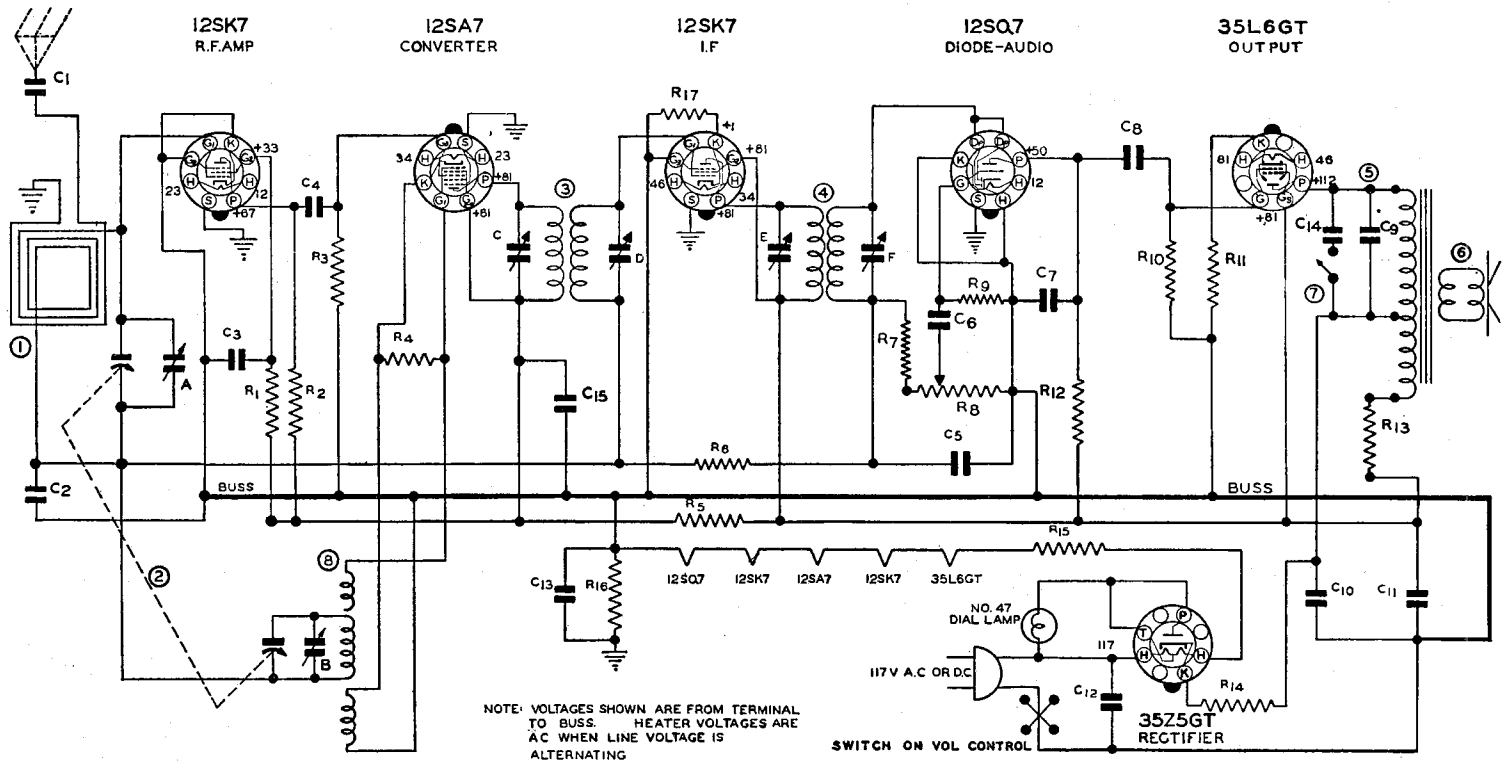
DIAG. NO.	PART NO.	DESCRIPTION
C1	N-1345	.05 MFD. 200 W.V. 20%
C2	N-1345	.05 MFD. 200 W.V. 20%
C3	N-5460	.2 MFD. 200 W.V. 10%
C4	N-1351	.1 MFD. 200 W.V. 20%
C5	N-1376	.02 MFD. 400 W.V. 20%
C6	N-1374	.0001 MFD. MICA 20%
C7	N-4694	.005 MFD. 600 W.V. 15%
C8	N-1374	.0001 MFD. MICA 20%
C9	N-1344	.01 MFD. 400 W.V. 20%
C10	N-1346	.05 MFD. 400 W.V. 20%
C11	N-2063	.003 MFD. 600 W.V.
C12	N-2748	-15 +40% 60 MFD. 7.5 V. ELECTR.
C13		40 MFD. 150 V. OLYTIC
C14		40 MFD. 150 V. COND.
C15	N-5232	200 MFD. 7.5 V. ELECT.
C16	N-1351	.1 MFD. 200 W.V. 20%
C17	N-1344	.01 MFD. 400 W.V. 20%
C18	N-2306	.0002 MFD. MICA 20%
1	N-5373	LOOP ANT. COIL
2	N-4812	TWO GANG COND.
3	N-5122	OSCILLATOR COIL
4	N-5474	1ST I.F. TRANSF.
5	N-5062	2ND. I.F. TRANSF.
6	N-4149 N-5233	CHANGEOVER SWCH.
7	N-4168	5" PM. SPKR. & TRANS.
8	N-2648	ADJUSTABLE TRIMMER

DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1778	100,000 OHM .5W. 20%
R2	N-4895	10,000 OHM .5W. 10%
R3	N-1263	10 MEGOHM .5W. 20%
R4	N-4260	560 OHM .5W. 10%
R5	N-4277	2.2 MEGOHM .5W. 20%
R6	N-1433	10 MEGOHM .5W. 20%
R7	N-4063	47,000 OHM .5W. 20%
R8	N-3940	1 MEG. VOLUME CONT.
R9	N-2976	1 MEGOHM .5W. 10%
R10	N-5486	15 OHM .5W. 10%
R11	N-4420	330 OHM .5W. 10%
R12	N-4277	2.2 MEGOHM .5W. 20%
R13	N-1776	1,500 OHM .5W. 20%
R14	N-5489	82 OHM 1W. 10%
R15	N-3342	550 OHM 12.5W. 10%
R16	N-5054	2,150 OHM 5.5W. 5%
R17	N-1776	1,500 OHM .5 20%
R18	N-5052	2,200 OHM .5 20%
R19	N-2973	100,000 OHM .5 10%
R20	N-5053	12 OHM 5 10%
R21	N-5473	.38 MEGOHM .5 10%
R22	N-4277	2.2 MEGOHM .5 20%



I.F. 455 K.C.

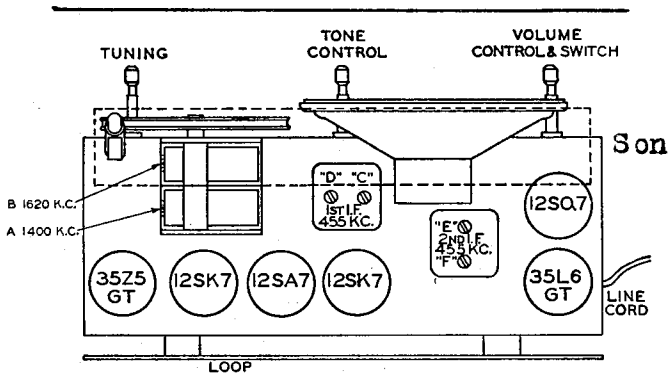
Models
RYM/RYMU (224)



NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS. HEATER VOLTAGES ARE AC WHEN LINE VOLTAGE IS ALTERNATING

DIAG NO.	PART NO.	DESCRIPTION
C1	N-1344	.01 MFD 400 V. 20%
C2	N-1345	.05 MFD 200 V. 20%
C3	N-1345	05 MFD 200 V. 20%
C4	N-2363	150 MMFD MICA 20%
C5	N-1374	100 MMFD MICA 20%
C6	N-4894	.005 MFD 600 V -15+40%
C7	N-4890	.0005 MFD 600 V -25+60%
C8	N-1344	.01 MFD 400 V. 20%
C9	N-1344	.01 MFD 400 V. 20%
C10	N-3658	40 MFD 150 W.V. ELECTRO
C11		40 MFD 150 W.V. LYTIC
C12	N-1346	.05 MFD 400 V. 20%
C13	N-5160	.2 MFD 200 V. -10+10%
C14	N-1346	.05 MFD 400 V. 20%
C15	N-1351	.1 MFD 200 V. -10+20%
R1	N-4063	47,000 OHM .5W. 20%
R2	N-4896	2200 OHM .5W. 10%
R3	N-4087	47,000 OHM .5W INS. 20%
R4	N-5351	22,000 OHM .5W INS. 20%
R5	N-4066	470 OHM .5W 10%

DIAG NO.	PART NO	DESCRIPTION
R6	N-1262	1 MEGOHM .5W. 20%
R7	N-4083	47,000 OHM .5W. 20%
R8	N-5026	0.5 MEGOHM VOL CONT.
R9	N-4061	4.7 MEGOHM .5W 20%
R10	N-4027	470,000 OHM .5W. 20%
R11	N-4067	180 OHM .5W. 10%
R12	N-4988	220,000 OHM .5W INS. 20%
R13	N-4900	1200 OHM 1W. 10%
R14	N-4022	33 OHM .5W. 20%
R15	N-4628	33 OHM 1W 10%
R16	N-4026	220,000 OHM .5W. 20%
R17	N-5857	82 OHM .5W. 10%
1	N-5937	LOOP COIL
2	N-5286 OR	2 GANG CONDENSER
1	N-5765	LOOP COIL
2	N-5936	2 GANG CONDENSER
3	N-4872	IST I.F. TRANSFORMER
4	N-5571	2ND I.F. TRANSFORMER
5	N-4875	OUTPUT TRANSFORMER
6	N-4868	5" SPEAKER
7	N-4942	TONE SWITCH
8	N-4810	OSCILLATOR COIL



TUBE & TRIMMER LOCATIONS

I.F. 455 K.C.

Sonora Radio & Television

Model RZ/RZU (222)

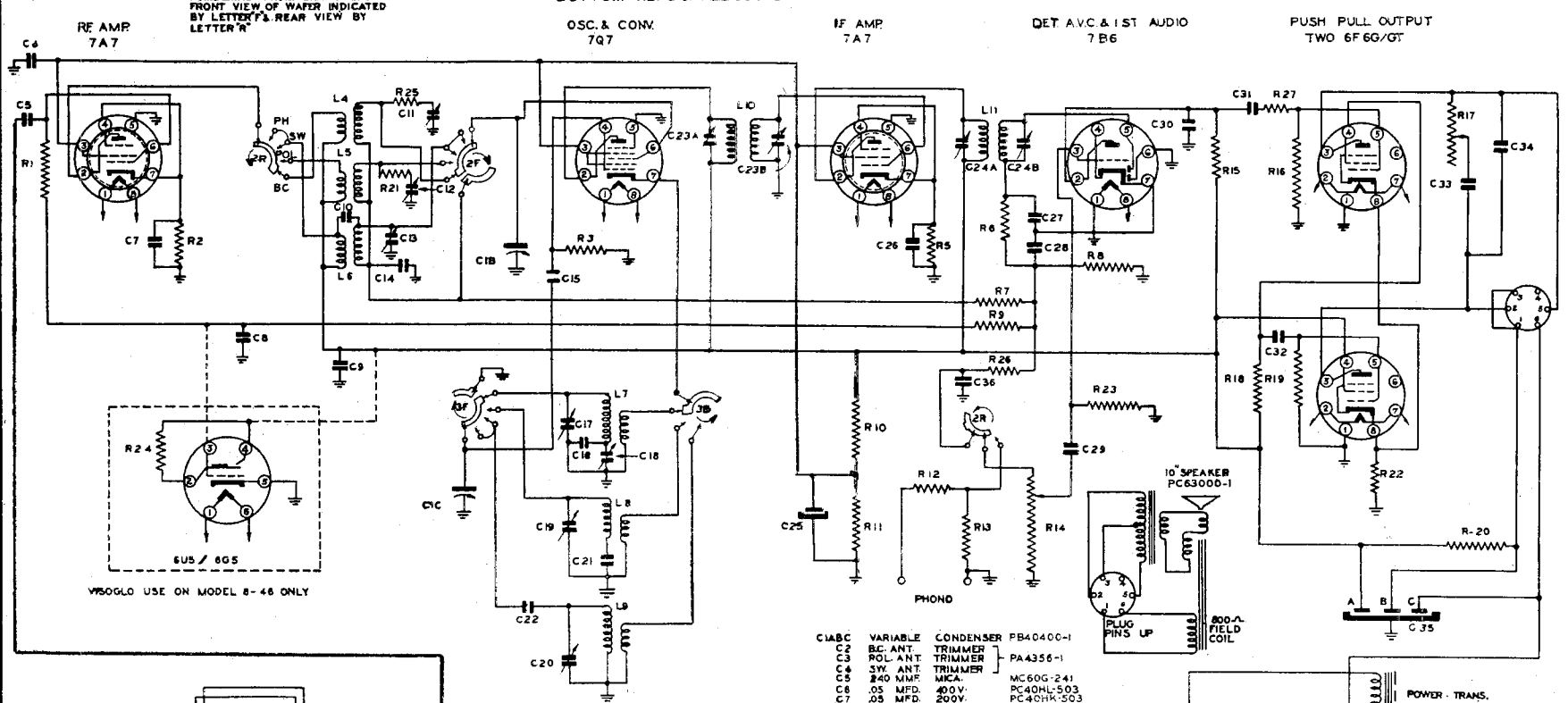
SPARTON SUPERHETERODYNE MODEL 7-46 & 7-46 PA. & 846 & 846PA

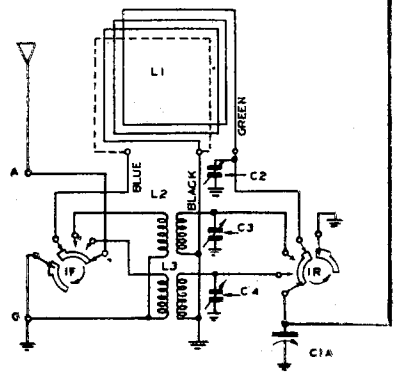
INTERMEDIATE FREQUENCY 456K.C.

BOTTOM VIEWS OF ALL SOCKET CONNECTIONS

WAVE BAND SWITCH-PB42002 SHOWN IN B.C. POSITION

SWITCH WAFERS IDENTIFIED BY NUMBERING FROM SHAFT END FRONT VIEW OF WAFER INDICATED BY LETTER 'F' & REAR VIEW BY LETTER 'R'





R1	1 MEGOHM	5W	BR12S-105
R2	820 Ω	5W	BR12S-821
R3	20000 Ω	5W	BR12S-203
	DELETE		
R5	560 Ω	5W	BR12S-561
R6	18000 Ω	5W	BR12S-183
R7	3.3 MEGOHM	5W	BR12S-335
R8	180000 Ω	5W	BR12S-184
R9	3.3 MEGOHM	5W	BR12S-335
R10	15000 Ω	2W	DR12G-163
R11	22000 Ω	1W	CR12G-223
R12	270000 Ω	5W	BR12S-274
R13	270000 Ω	5W	BR12S-274
R14	2 MEGOHM VOL. CONT.		PA4401-2
R15	270000 Ω	5W	BR12S-274
R16	470000 Ω	5W	BR12S-474
R17	25 MEG. TONE	CONT. & SW.	PA4404-1
R18	2000 Ω	5W	BR12G-202
R19	470000 Ω	5W	BR12S-474
R20	1000 Ω	5W	DR12S-102
R21	150 Ω	5W	BR12S-151
R22	240 Ω	2W	DR12G-241
R23	10 MEGOHM	5W	BR12S-106
R25	330 Ω	5W	BR12S-331
R26	18000 Ω	5W	
R27	1000 Ω	5W	BR12S-102
FOR	8-46 ADD		
R24	1 MEGOHM	5W	BR12S-105

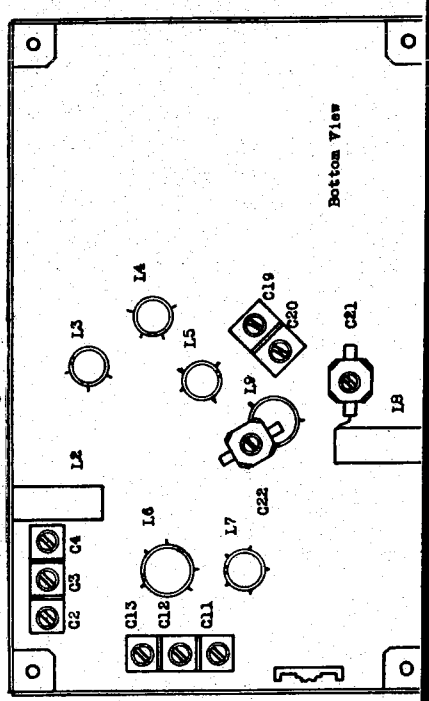
C1ABC	VARIABLE	CONDENSER	PB40400-1
C2	BC. ANT.	TRIMMER	PA4356-1
C3	POL. ANT.	TRIMMER	
C4	SW. ANT.	TRIMMER	
C5	240 MMF.	MICA.	MC60G-241
C6	.05 MFD.	400V.	PC40HL-503
C7	.05 MFD.	200V.	PC40HK-503
C8	.05 MFD.	200V.	PC40HK-503
C9	.05 MFD.	400V.	PC40HL-503
C10	5 MMF.	MICA.	MC60G-050
C11	BC. DET.	TRIMMER	PA4356-2
C12	POL DET.	TRIMMER	
C13	SW. DET.	TRIMMER	
C14	.05 MFD.	200V.	PC40HK503
C15	51 MMF.	MICA.	MC60F-510
C16	240 MMF.	MICA.	MC60G-241
C17	BC. OSC.	TRIMMER	AB43503-36
C18	BC. OSC.	PADDER	
C19	POL. OSC.	TRIMMER	PA4357-1
C20	SW. OSC.	TRIMMER	
C21	1680 MMF.	MICA.	PA4354-2
C22	3330 MMF.	MICA.	PA4354-1
C23AB	NO.1 I.F.	TRIMMER	AB43500-44
C24AB	NO.2 I.F.	TRIMMER	AB43500-55
C25	4 MFD.	400V. ELECT.	PA4303-1
C26	.05 MFD.	200V.	PC40HK-503
C27	100 MMF.	MICA.	MC60F-101
C28	100 MMF.	MICA.	MC60F-101
C29	.02 MFD.	200V.	PC40GK-203
C30	100 MMF.	MICA.	MC60F-101
C31	.05 MFD.	400V.	PC40GL-503
C32	.05 MFD.	400V.	PC40GL-503
C33	.02 MFD.	600V.	PC40GM-203
C34	.002 MFD.	600V.	PC40GM-202
A	15 MFD.	450V.	
C35B	10 MFD.	450V.	PA4300-1
C	15 MFD.	450V.	
C36	100 MFD.	MICA	MC60F-101

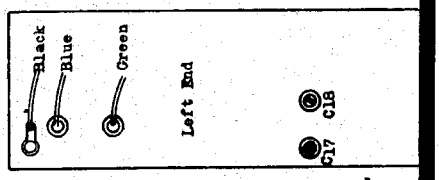
Sparton Superheterodyne Model

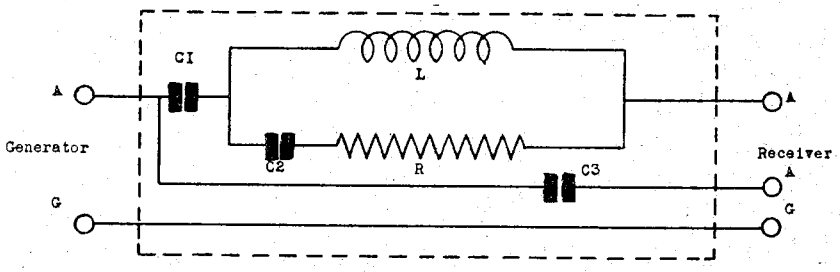
7-46 & 7-46-PA & 846 & 846-PA

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING CONDENSER SETTING	TRIMMERS	REMARKS
1	Set dial pointer even with stop line when condenser gang is fully meshed.							
2	I.F.	*	1 mf cond.	456KC	BC	Open	C24 A&B	Peak Accurately
							C23 A&B	" "
3	Broadcast Band	Ant.	See note	1500KC	BC	1500KC	C17 Osc.Trim	" "
							C11 Det.Trim	" "
							C2 Ant.Trim	" "
4				600KC	BC	600KC	C18 Osc. Pad.	Rock **
5	(Repeat operation 3).							
6	Check Calibration at 600 KC, 1000 KC and 1500 KC.							
7	Police Band	Ant.	See note	5 MC	Police Band	5 MC	C19 Osc.Trim	Peak Accurately
							C12 Det.Trim	Rock **
							C3 Ant.Trim	Rock **
							C21 Osc.Pad	See operation #8
8	Oscillator Padder C21 is precision set at the factory and should not be readjusted in the field.							
9	(Repeat operation 7).							
10	Check Calibration at 1.8 MC and 5 MC.							
11	SW Band	Ant.	See note	18 MC	SW Band	18 MC	C20 Osc.Trim	Peak Accurately
							C13 Det.Trim	Rock **
							C4 Ant.Trim	Rock **
							C22 Osc.Pad	See operation #12
12	Oscillator Padder C22 is precision set at the factory and should not be readjusted in the field.							
13	(Repeat operation 11).							
14	Check Calibration and at 6 MC and 18 MC.							
15	Check operations 1 to 11 inclusive.							

NOTES: Use Dummy Antenna as described.
* Connect generator to pin #6 on 7Q7 Osc-conv. tube.
** Rock dial while adjusting for maximum output.







DUMMY ANTENNA

CI - 200 mmf. Condenser 400 V.D.C.
C2 - 400 mmf. Condenser 400 V.D.C.
C3 - .02 mmf. Condenser 400 V.D.C.
R - 100 Ohms Resistor 1/4 Watt
L - 20 Microhenryies Choke
---- Case Shield

Choke Coil Specifications
Tubing - 3/8" diameter bakelite
Wire - No. 38 Enameled
Turns - 59 closely wound (Impregnated)

Line Voltage: 117 Volts A.C.

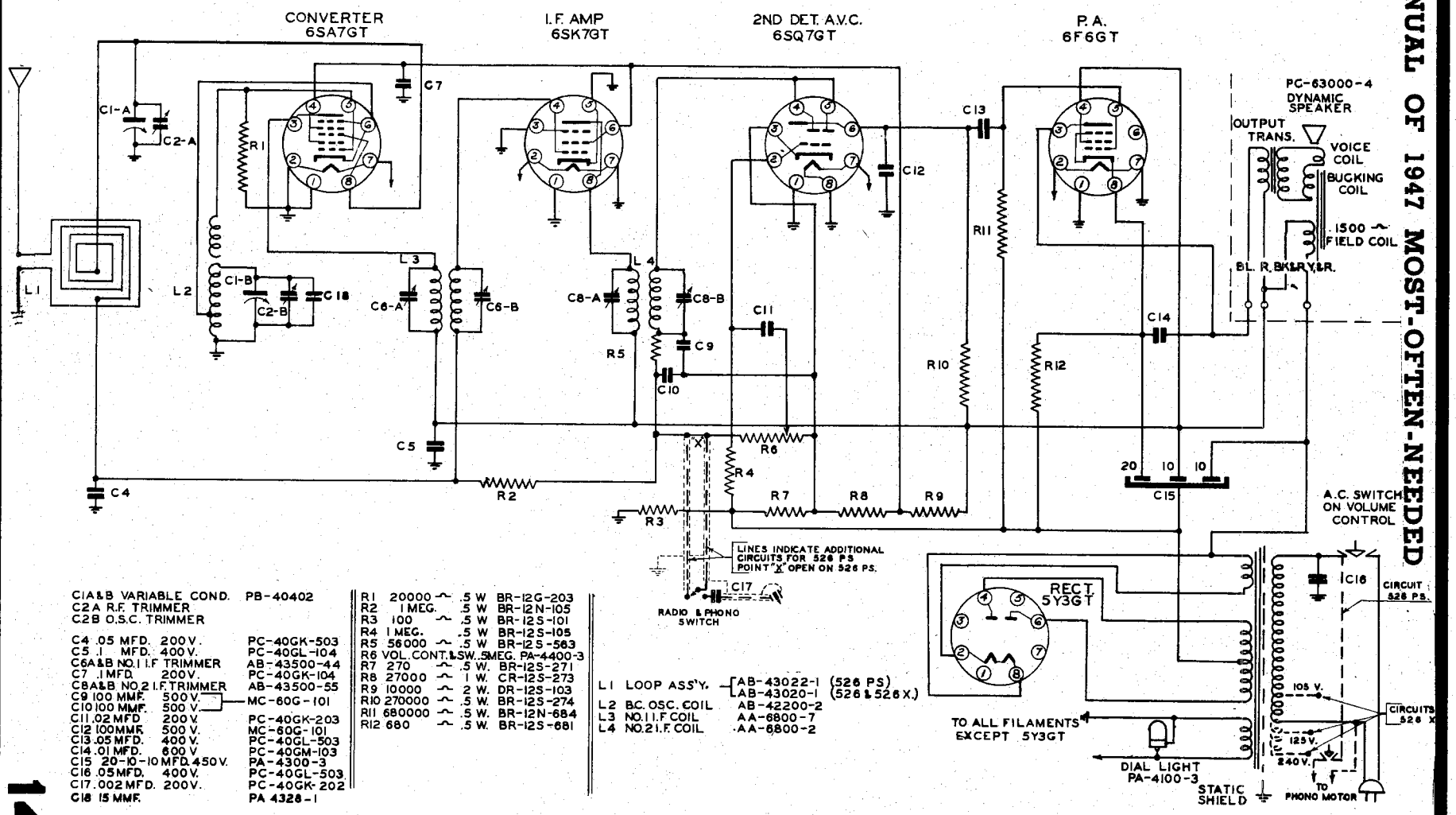
Position of Volume Control: Full with dial tuned to Quiet Channel
Position of Band Switch: Broadcast

TUBE	FUNCTION	Voltage of socket prongs to Gnd, See prong on schematic dia.							
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
7A7	R. F. Amp.	0	230	63	2.8	0	**	2.8	6*
7Q7	Osc-Conv.	0	230	63	-6	0	-.6	*	6*
7A7	I. F. Amp.	0	230	63	2.3	0	**	2.3	6*
7B6	Det-AVC-1st Audio	0	100	**	0	**	0	0	6*
6F6	Push Pull Output	0	0	247	220	**	**	6*	14
6F6	Push Pull Output	0	0	247	227	**	0	6*	14
5Y3	Rectifier	0	325	0	320*	0	320*	0	325

NOTES: Voltage readings are for schematic diagram in this bulletin. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 20,000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
* AC Volts.
** Cannot be measured with 20,000 Ohms per volt voltmeter.

SPARTON SUPERHETERODYNE MODEL 526 526X & 526PS.
INTERMEDIATE FREQUENCY 456 KC.

BOTTOM VIEW OF ALL SOCKET CONNECTIONS



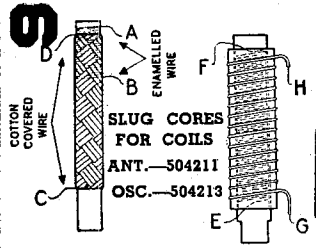
C1A&B VARIABLE COND.		PB-40402
C2A R.F. TRIMMER		
C2B O.S.C. TRIMMER		
C4 .05 MFD.	200 V.	PC-40GK-503
C5 .1 MFD.	400 V.	PC-40GL-104
C6A&B NO.1 I.F TRIMMER		AB-43500-44
C7 .1 MFD.	200 V.	PC-40GK-104
C8A&B NO.2 I.F. TRIMMER		AB-43500-55
C9 100 MMF.	500 V.	MC-60G-101
C10 100 MMF.	500 V.	
C11 .02 MFD.	200 V.	PC-40GK-203
C12 100 MMF.	500 V.	MC-60G-101
C13 .05 MFD.	400 V.	PC-40GL-503
C14 .01 MFD.	600 V.	PC-40GM-103
C15 20-10-10 MFD.	450 V.	PA-4300-3
C16 .05 MFD.	400 V.	PC-40GL-503
C17 .002 MFD.	200 V.	PC-40GK-202
C18 15 MMF.		PA 4328-1

R1	20000 ~ .5 W	BR-12G-203
R2	1 MEG. .5 W	BR-12N-105
R3	100 ~ .5 W	BR-12S-101
R4	1 MEG. .5 W	BR-12S-105
R5	56000 ~ .5 W	BR-12S-563
R6	VOL. CONT. & SW. .5 MEG.	PA-4400-3
R7	270 ~ .5 W	BR-12S-271
R8	27000 ~ 1 W.	CR-12S-273
R9	10000 ~ 2 W.	DR-12S-103
R10	270000 ~ .5 W.	BR-12S-274
R11	680000 ~ .5 W.	BR-12N-684
R12	680 ~ .5 W.	BR-12S-681

L1	LOOP ASS'Y.	AB-43022-1 (526 PS) / AB-43020-1 (526 & 526X.)
L2	B.C. OSC. COIL	AB-42200-2
L3	NO.1 I.F. COIL	AA-6800-7
L4	NO.2 I.F. COIL	AA-6800-2

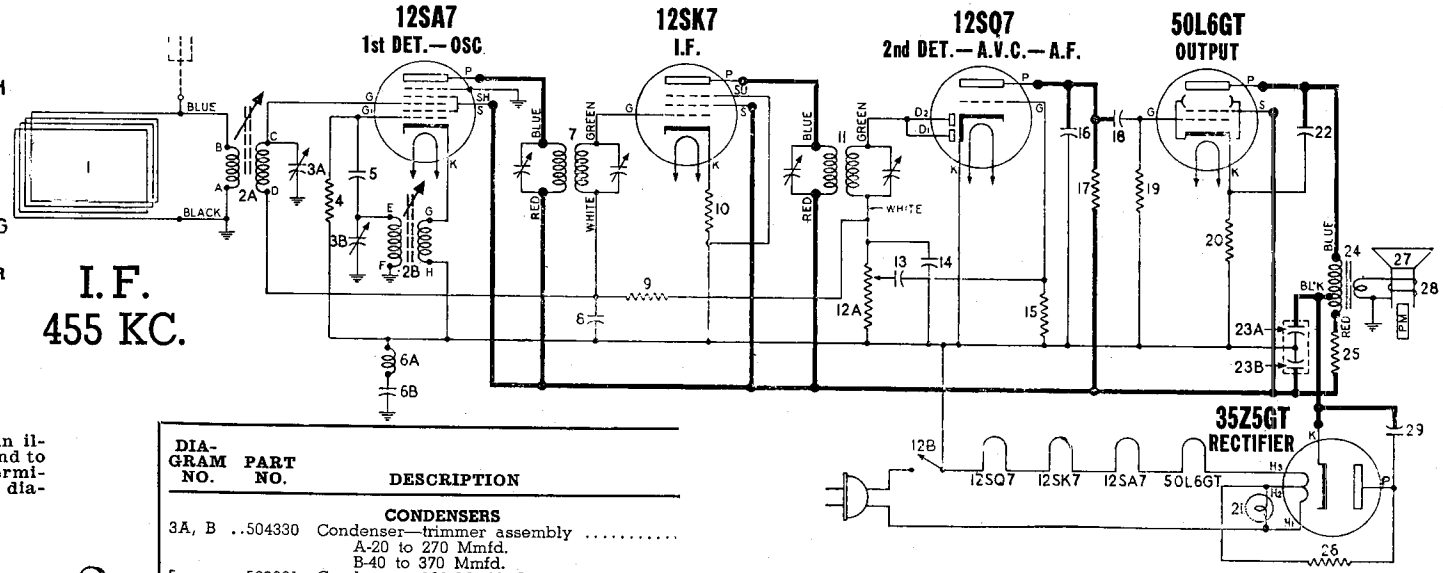
THE SPARKS-WITHINGTON COMPANY

SERVICE DATA FOR STEWART-WARNER MODELS 51T46, 51T56



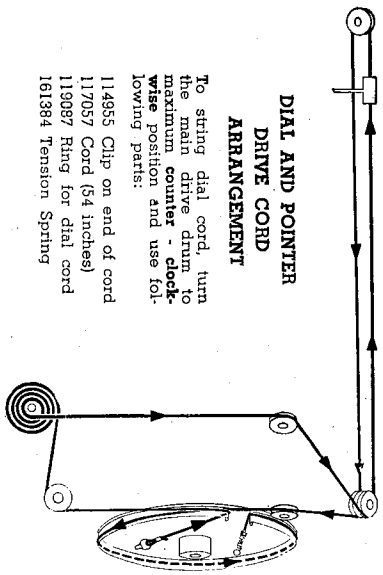
ANTENNA COUPLING COIL 504760

OSCILLATOR COIL 504212



I.F. 455 KC.

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.



DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, turn the main drive drum to maximum **counter - clockwise** position and use following parts:

114955 Clip on end of cord
117057 Cord (54 inches)
119097 Ring for dial cord
161384 Tension Spring

DIAGRAM NO.	PART NO.	DESCRIPTION
		CONDENSERS
3A, B	504330	Condenser—trimmer assembly ..... A-20 to 270 Mmfd. B-40 to 370 Mmfd.
5	502931	Condenser—100 Mmfd. 500 volt.....
6B	502158	Condenser—.2 Mfd. 400 volt.....
8	502153	Condenser—.05 Mfd. 200 volt.....
13	502156	Condenser—.004 Mfd. 400 volt.....
14	502882	Condenser—220 Mmfd. 500 volt.....
16	502470	Condenser—.0008 Mfd. 400 volt.....
18	502156	Condenser—.004 Mfd. 400 volt.....
22	502152	Condenser—.02 Mfd. 400 volt.....
23-A, B	500256	Condenser—electrolytic ..... A-40 Mfd. 150 volt B-20 Mfd. 150 volt
29	502157	Condenser—.05 Mfd. 400 volt.....
		RESISTORS
4	502130	Resistor—carbon 22,000 ohms ¼ watt.....
9	502135	Resistor—carbon 2.2 Meg. ¼ watt.....
10	502264	Resistor—carbon 47 ohms ¼ watt.....
12A, B	502928	Volume control—with switch; 1 Meg.....
15	502136	Resistor—carbon 10 Meg. ¼ watt.....
17	502134	Resistor—carbon 470,000 ohms ¼ watt....
19	502134	Resistor—carbon 470,000 ohms ¼ watt....
20	502932	Resistor—carbon 150 ohms 1 watt.....
25	502933	Resistor—carbon 1,500 ohms 1 watt.....
26	502574	Resistor—carbon 33 ohms ½ watt.....
		COILS AND TRANSFORMERS
1	504348	Loop antenna .....
2-A, B	504335	Tuning unit; complete assembly.....
2A	504760	Coil—antenna (less slug).....
2-B	504212	Coil—oscillator (less slug) .....
	504211	Slug for Ant. coil (yellow end).....
	504213	Slug for Osc. coil (white end).....
6A		Choke: three turns of #22 insulated wire closely wound on condenser 6B.
7	502926	Transformer—1st I.F. .....
11	502927	Transformer—2nd I.F. .....
24	502817	Transformer—output for C-502816 speaker.
	504583	Transformer—output for W-502816 speaker.
21	118921	Lamp—dial (Mazda 47) 6-8V. 150 Ma.....

SOCKET VOLTAGES

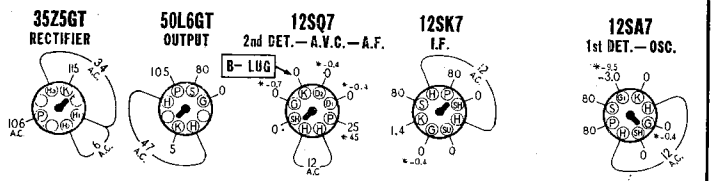
Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (*).

VOLUME ON FULL WITH NO SIGNAL — DIAL TUNED TO 540 KC.

BOTTOM VIEW OF CHASSIS

HEATER VOLTAGES MEASURED ACROSS SOCKET TERMINALS. ALL OTHER VOLTAGES MEASURED BETWEEN SOCKET TERMINALS AND B- LUG.

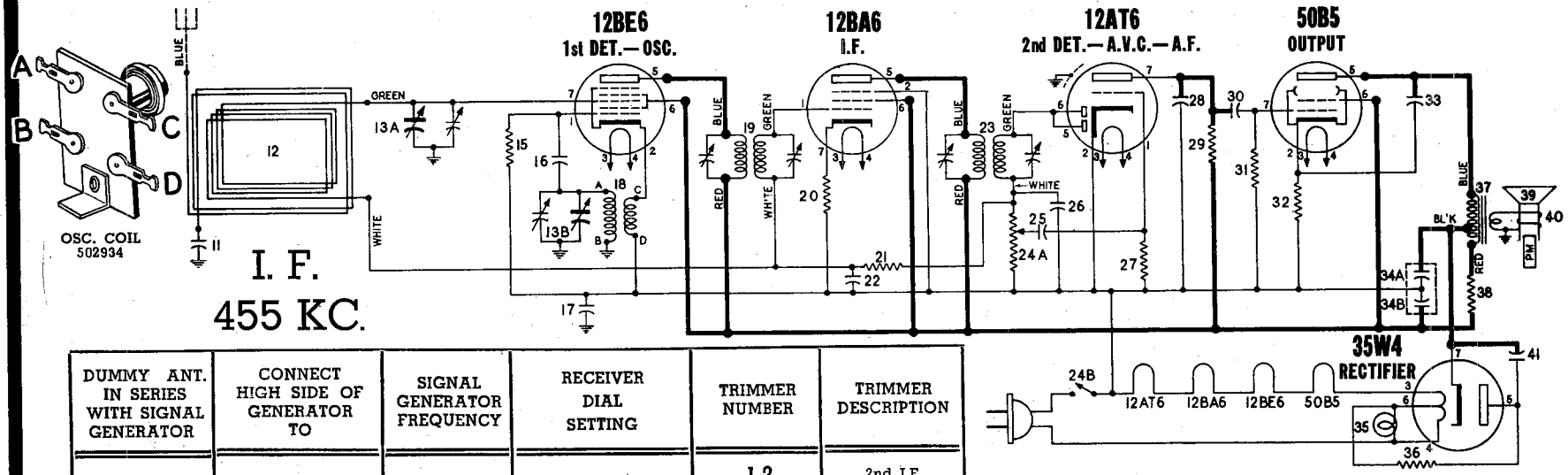
117 VOLT 60 CYCLE A.C. POWER SUPPLY USED FOR THESE MEASUREMENTS.



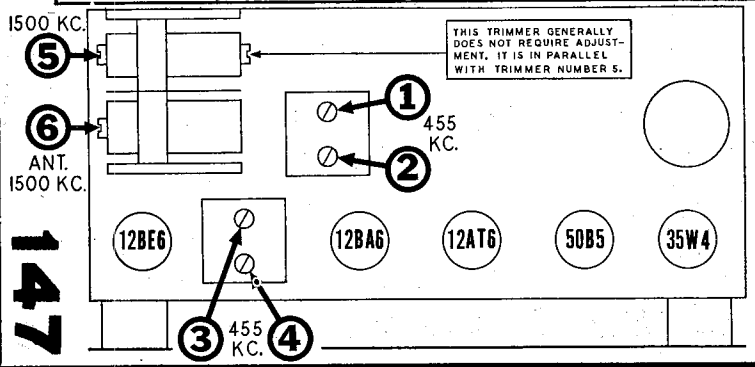
REAR OF CHASSIS

*—Measured with vacuum tube voltmeter

STEWART-WARNER MODELS 51T126, 51T136, 51T146, 51T176



DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION
200 MMFD. Mica Condenser	Trimmer on rear section of gang.	455 KC	Any point where it does not affect the signal.	1-2	2nd I.F.
				3-4	1st I.F.
200 MMFD. Mica Condenser	External antenna lead on loop.	1500 KC	1500 KC	5	Broadcast Oscillator
200 MMFD. Mica Condenser	External antenna lead on loop.	1500 KC	Tune to 1500 KC generator signal.	6	Broadcast Antenna



DIAL AND POINTER DRIVE CORD ARRANGEMENT

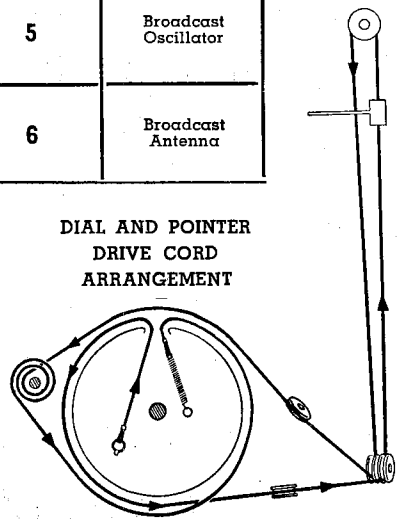
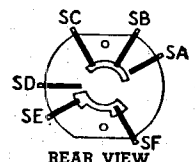
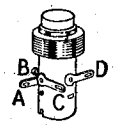


DIAGRAM NO.	PART NO.	DESCRIPTION
		CONDENSERS
11	502151	Condenser—.01 Mfd. 400 volt
13-A, B	502925	Condenser—variable gang (with drum)
16	502929	Condenser—mica 47 Mmfd. 500 volt
17	502158	Condenser—.2 Mfd. 400 volt
22	502153	Condenser—.05 Mfd. 200 volt
25	502156	Condenser—.004 Mfd. 400 volt
26	502882	Condenser—220 Mmfd. 500 volt
28	502470	Condenser—.0008 Mfd. 400 volt
30	502156	Condenser—.004 Mfd. 400 volt
33	502152	Condenser—.02 Mfd. 400 volt
34-A, B	500256	Condenser—electrolytic A-40 Mfd. 150 volt / B-20 Mfd. 150 volt
41	502157	Condenser—.05 Mfd. 400 volt
		RESISTORS
15	502130	Resistor—carbon 22,000 ohms ¼ watt
20	502456	Resistor—carbon 220 ohms ¼ watt
21	502135	Resistor—carbon 2.2 Meg. ¼ watt
24-A, B	502928	Volume control—with switch; 1 Meg.
27	502136	Resistor—carbon 10 Meg. ¼ watt
29	502134	Resistor—carbon 470,000 ohms ¼ watt
31	502134	Resistor—carbon 470,000 ohms ¼ watt
32	502932	Resistor—carbon 150 ohms 1 watt
36	502574	Resistor—carbon 33 ohms ½ watt
38	502933	Resistor—carbon 1500 ohms 1 watt
		OTHER ELECTRICAL PARTS
35	118921	Lamp—dial (Mazda 47) 6-8V. 150 Ma.
39	504584	Cone & voice coil for W-502816 speaker
	502818	Cone & voice coil for C-502816 speaker
40	502816	Speaker—P.M. dynamic (4 inch)

DATA FOR STEWART-WARNER MODELS 61TR36, 61TR46

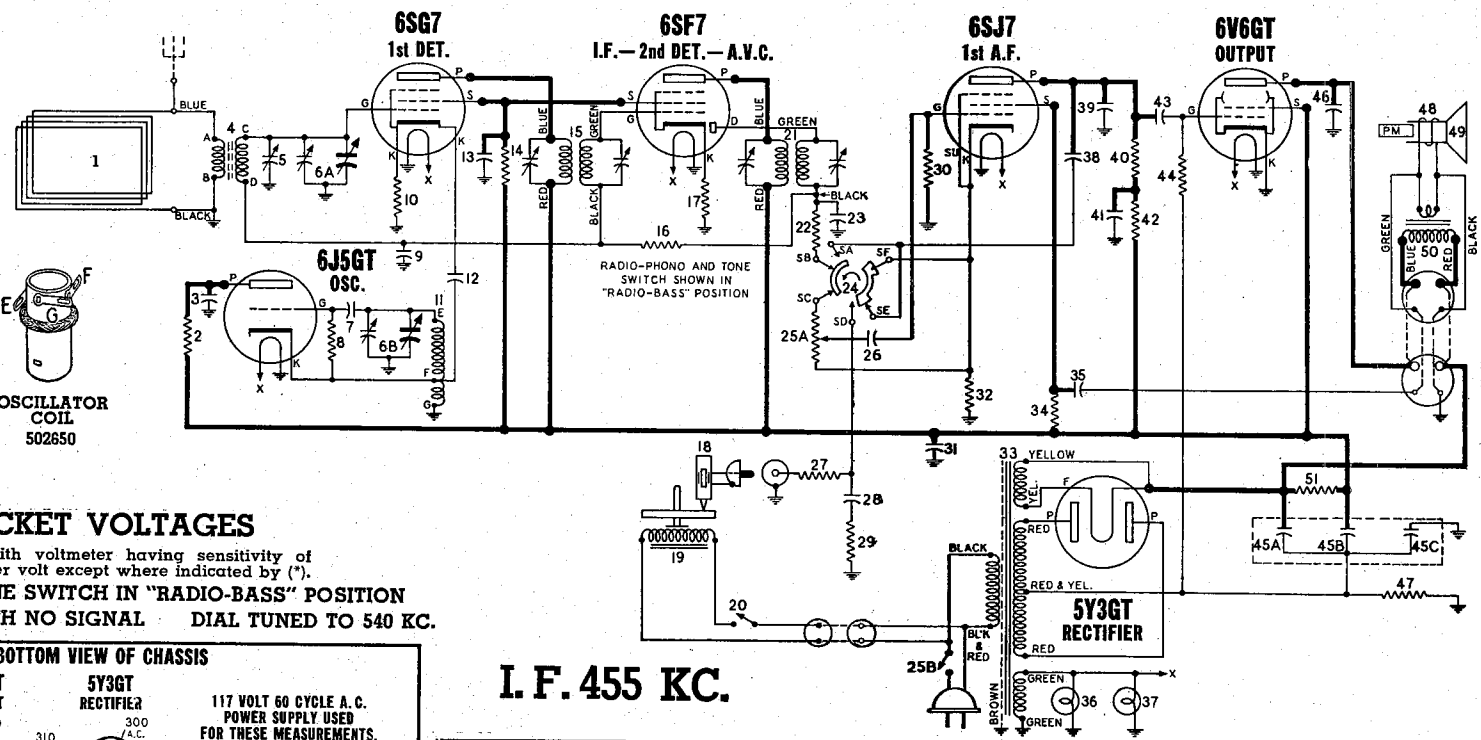


REAR VIEW
RADIO-PHONO & TONE SWITCH
502653



ANTENNA COIL
502649

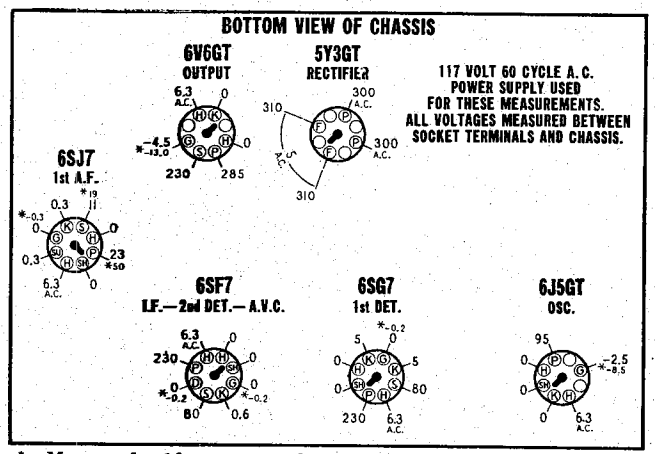
OSCILLATOR COIL
502650



SOCKET VOLTAGES

Measured with voltmeter having sensitivity of **1000 ohms** per volt except where indicated by (*).

RADIO-PHONO-TONE SWITCH IN "RADIO-BASS" POSITION
VOLUME ON FULL WITH NO SIGNAL DIAL TUNED TO 540 KC.



*—Measured **with** vacuum tube voltmeter.

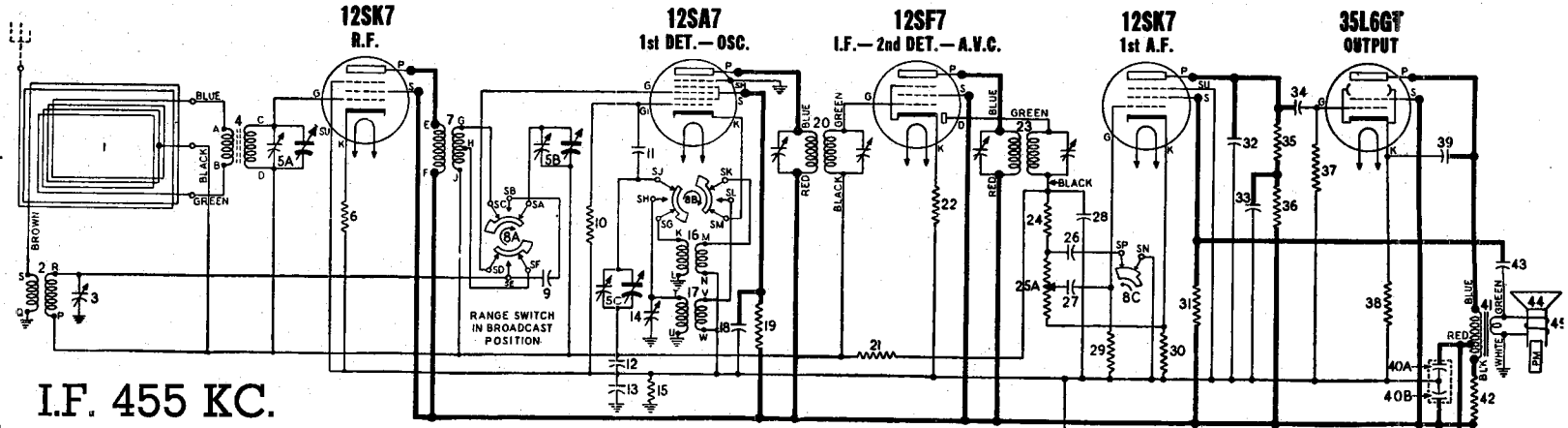
NOTE:—The **6V6GT** grid bias of—13 volts can be measured across **resistor No. 47.**

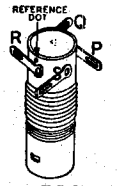
I. F. 455 KC.

DIAGRAM NO.	PART NO.	DESCRIPTION
		CONDENSERS
3	502151	Condenser—.01 Mfd. 400 volt
5	502651	Condenser—trimmer 12 to 18 Mmfd.
6A, B	502652	Condenser—variable gang and drum
7	502160	Condenser—mica—110 Mmfd. 500 volt
9	502153	Condenser—.05 Mfd. 200 volt
12	502151	Condenser—.01 Mfd. 400 volt
13	502157	Condenser—.05 Mfd. 400 volt
23	502160	Condenser—mica 110 Mmfd. 500 volt
26	502156	Condenser—.004 Mfd. 400 volt
28	502479	Condenser—.006 Mfd. 600 volt
31	502157	Condenser—.05 Mfd. 400 volt
35	502405	Condenser—.25 Mfd. 400 volt
38	502150	Condenser—.004 Mfd. 600 volt
39	502271	Condenser—mica—260 Mmfd. 500 volt
41	502410	Condenser—.1 Mfd. 400 volt
43	502152	Condenser—.02 Mfd. 400 volt
45A, B, C	502207	Condenser—electrolytic A — 20 Mfd. 400 volt B — 10 Mfd. 400 volt C — 20 Mfd. 25 volt
46	502156	Condenser—.004 Mfd. 400 volt

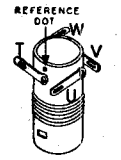
		RESISTORS
2	502466	Resistor—carbon—33,000 ohms 1 watt
8	502131	Resistor—carbon—47,000 ohms ¼ watt
10	502514	Resistor—carbon—3,300 ohms ¼ watt
14	502288	Resistor—carbon—47,000 ohms 1 watt
16	502269	Resistor—carbon—3.3 Meg. ¼ watt
17	502264	Resistor—carbon—47 ohms ¼ watt
22	502131	Resistor—carbon—47,000 ohms ¼ watt
25A, B	502654	Volume control—with switch; 1 Meg.
27	502133	Resistor—carbon—220,000 ohms ¼ watt
29	502408	Resistor—carbon—68,000 ohms ¼ watt
30	502468	Resistor—carbon—4.7 Meg. ¼ watt
32	502406	Resistor—carbon—1,500 ohms ¼ watt
34	502135	Resistor—carbon—2.2 Meg. ¼ watt
40	502133	Resistor—carbon—220,000 ohms ¼ watt
42	502133	Resistor—carbon—220,000 ohms ¼ watt
44	502134	Resistor—carbon—470,000 ohms ¼ watt
47	502293	Resistor—wire wound—200 ohms 2 watt
51	504771	Resistor—carbon—3,300 ohms 2 watt
		COILS AND TRANSFORMERS
1	502697	Loop antenna and cabinet back
4	502649	Coil—antenna
11	502650	Coil—oscillator
15	502657	Transformer—1st I.F.
21	502658	Transformer—2nd I.F.
33	502174	Transformer—power

SERVICE DATA FOR STEWART-WARNER MODEL 62T36

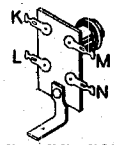




S.W. ANTENNA COIL 502740

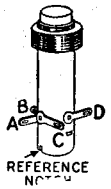


S.W. OSC. COIL 502197

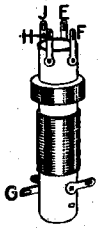


BC. OSC. COIL 502198

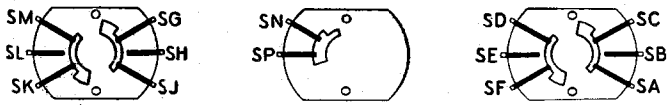
Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.



BC. ANTENNA COUPLING COIL 502121



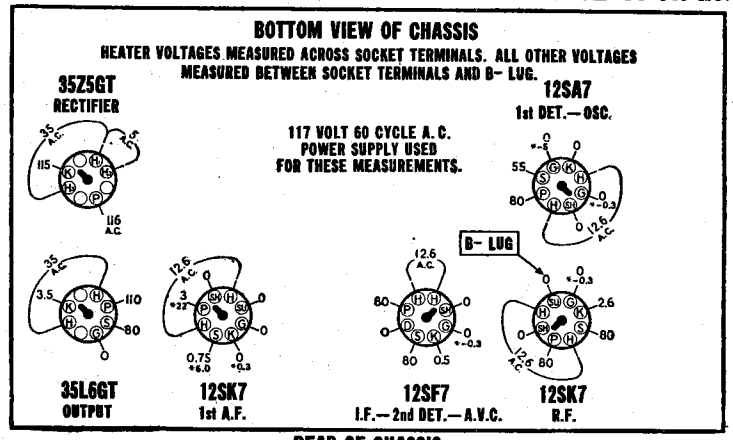
R.F. COIL 502142



SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (*).

VOLUME ON FULL WITH NO SIGNAL — DIAL TUNED TO 540 KC.



REAR OF CHASSIS

*—Measured with vacuum tube voltmeter

CONDENSERS

3	502172	Condenser—trimmer; 25 to 100 Mmfd.
5A-5B-5C	502123	Condenser—variable gang (with drum).
9	502162	Condenser—315 Mmfd. 500 volt.
11	502159	Condenser—mica—50 Mmfd. 500 volt.
12	502155	Condenser—.1 Mfd. 200 volt.
13	502158	Condenser—.2 Mfd. 400 volt.
14	502172	Condenser—trimmer; 25 to 100 Mmfd.
18	502262	Condenser—.25 Mfd. 200 volt.
26	502470	Condenser—.0008 Mfd. 400 volt.
27	502453	Condenser—.002 Mfd. 400 volt.
28	502160	Condenser—mica—110 Mmfd. 500 volt.
32	502160	Condenser—mica—110 Mmfd. 500 volt.
33	502153	Condenser—.05 Mfd. 200 volt.
34	502156	Condenser—.004 Mfd. 400 volt.
39	502151	Condenser—.01 Mfd. 400 volt.
40A-40B	500256	Condenser—electrolytic { A-40 Mfd. 150 v. / B-20 Mfd. 150 v. }
43	502152	Condenser—.02 Mfd. 400 volt.
46	502157	Condenser—.05 Mfd. 400 volt.

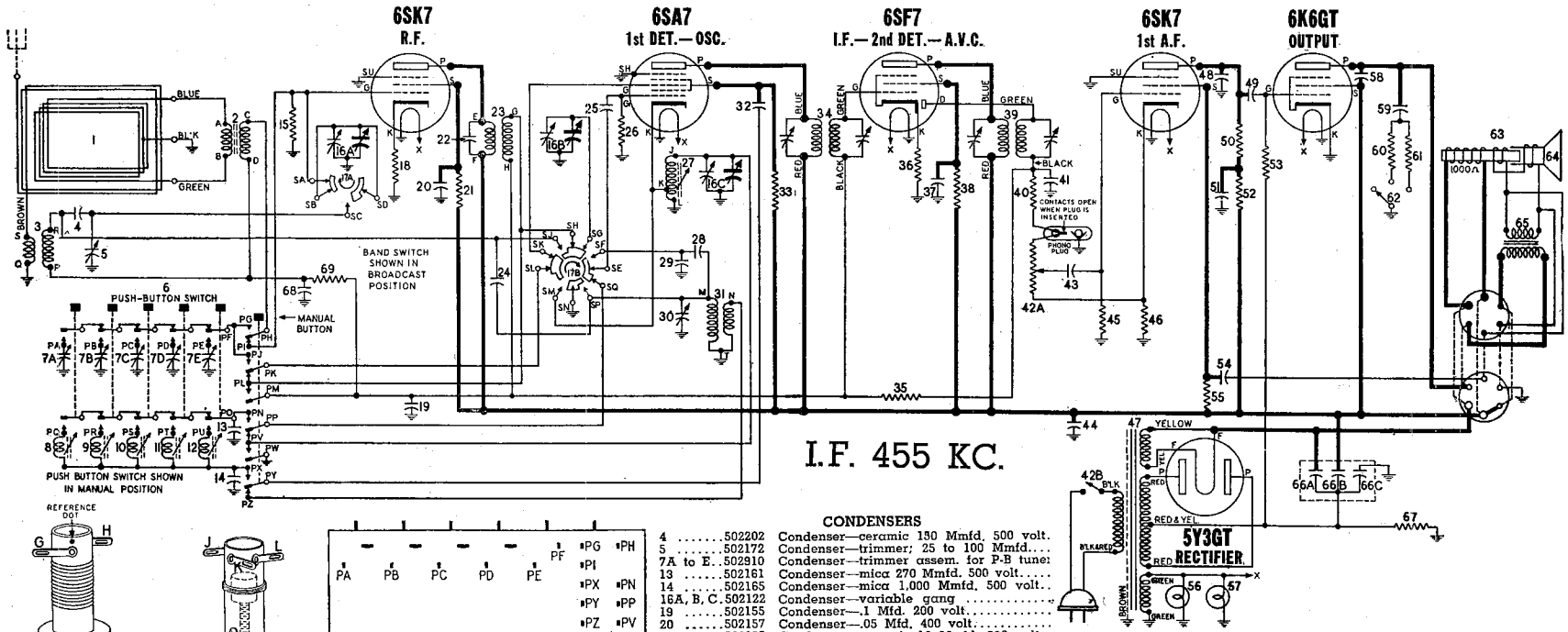
RESISTORS

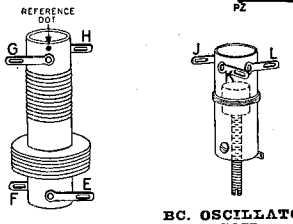
6	502140	Resistor—carbon 390 ohms ¼ watt.
10	502130	Resistor—carbon 22,000 ohms ¼ watt.
15	502133	Resistor—carbon 220,000 ohms ¼ watt.
19	502291	Resistor—carbon 4700 ohms ¼ watt.
21	502269	Resistor—carbon 3.3 Meg. ¼ watt.
22	502264	Resistor—carbon 47 ohms ¼ watt.
24	502131	Resistor—carbon 47,000 ohms ¼ watt.
25A-25B	502145	Volume control 500,000 ohms (with switch)
29	502136	Resistor—carbon 10 Meg. ¼ watt.
30	502128	Resistor—carbon 2200 ohms ¼ watt.
31	502135	Resistor—carbon 2.2 Meg. ¼ watt.
35-36	502133	Resistor—carbon 220,000 ohms ¼ watt.
37	502134	Resistor—carbon 470,000 ohms ¼ watt.
38	502138	Resistor—carbon 130 ohms ¼ watt.
42	502469	Resistor—carbon 1500 ohms 1 watt.
48	502574	Resistor—carbon 33 ohms ½ watt.

DATA FOR STEWART-WARNER MODELS 9001-C, D, E, F

NOTE: A very small quantity of early production chassis utilized a circuit which differs from the one shown here. These differences may be summarized as follows:
1. Terminal "D" of BC Antenna Coil No. 2 and terminal "P" of S.W. Antenna Coil No. 3 were connected to ground and not to A.V.C. as shown below.
2. Condenser No. 68 and resistor 69 were omitted.
3. Resistor No. 18 was rated at 560 ohms ¼ watt.

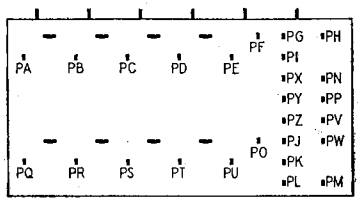
Improved sensitivity on Push-Button tuning and Short Wave operation may be obtained on these early production chassis by connecting coils No. 2 and No. 3 as shown in the circuit on this page and adding parts No. 68 and No. 69. Changing resistor No. 18 from 560 ohms to 220 ohms, will improve sensitivity for Manual tuning on the Broadcast Band.



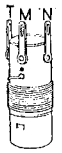


R.F. COIL
502113

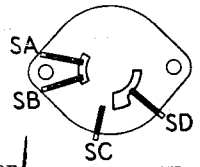
BC. OSCILLATOR COIL
502114



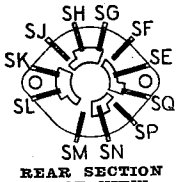
PUSH-BUTTON SWITCH



S.W. OSCILLATOR COIL
502111



FRONT SECTION REAR VIEW



REAR SECTION REAR VIEW

CONDENSERS

4	502202	Condenser—ceramic 150 Mmfd. 500 volt.
5	502172	Condenser—trimmer; 25 to 100 Mmfd.
7A to E.	502910	Condenser—trimmer assem. for P-B tuner
13	502161	Condenser—mica 270 Mmfd. 500 volt.
14	502165	Condenser—mica 1,000 Mmfd. 500 volt.
16A, B, C.	502122	Condenser—variable gang
19	502155	Condenser—.1 Mfd. 200 volt.
20	502157	Condenser—.05 Mfd. 400 volt.
22	502295	Condenser—ceramic 10 Mmfd. 500 volt.
24	502411	Condenser—2 Mmfd. 500 volt.
25	502159	Condenser—mica 50 Mmfd. 500 volt.
28	502201	Condenser—ceramic 130 Mmfd. 500 volt.
29	502182	Condenser—ceramic 39 Mmfd. 500 volt.
30	502171	Condenser—trimmer; 5 to 35 Mmfd.
32	502151	Condenser—.01 Mfd. 400 volt.
37	502157	Condenser—.05 Mfd. 400 volt.
41	502271	Condenser—mica 260 Mmfd. 500 volt.
43	502150	Condenser—.004 Mfd. 600 volt.
44	502157	Condenser—.05 Mfd. 400 volt.
48	502160	Condenser—mica 110 Mmfd. 500 volt.
49	502152	Condenser—.02 Mfd. 400 volt.
51	502410	Condenser—.1 Mfd. 400 volt.
54	502405	Condenser—.25 Mfd. 400 volt.
58	502150	Condenser—.004 Mfd. 600 volt.
59	502154	Condenser—.05 Mfd. 600 volt.
66A, B, C.	502207	Condenser—electrolytic A—20 Mfd. 400 volt B—10 Mfd. 400 volt C—20 Mfd 25 volt
68	502153	Condenser—.05 Mfd. 200 volt.

RESISTORS

15	502468	Resistor—carbon 4.7 Meg. ¼ watt.
18	502125	Resistor—carbon 220 ohms ¼ watt.
21	502132	Resistor—carbon 100,000 ohms ¼ watt.
26	502130	Resistor—carbon 22,000 ohms ¼ watt.
33	502466	Resistor—carbon 33,000 ohms 1 watt.
35	502135	Resistor—carbon 2.2 Meg. ¼ watt.
36	502264	Resistor—carbon 47 ohms ¼ watt.
38	502467	Resistor—carbon 68,000 ohms ½ watt.
40	502131	Resistor—carbon 47,000 ohms ½ watt.
42A, B	502149	Volume control 500,000 ohms (with switch)
45	502468	Resistor—carbon 4.7 Meg. ¼ watt.
46	502128	Resistor—carbon 2,200 ohms ¼ watt.
50	502133	Resistor—carbon 220,000 ohms ¼ watt.
52	502132	Resistor—carbon 100,000 ohms ¼ watt.
53	502134	Resistor—carbon 470,000 ohms ¼ watt.
55	502135	Resistor—carbon 2.2 Meg. ¼ watt.
60	502291	Resistor—carbon 4,700 ohms ¼ watt.
61	502127	Resistor—carbon 560 ohms ¼ watt.
67	502137	Resistor—wire wound 330 ohms 2 watt.
69	502134	Resistor—carbon 470,000 ohms ¼ watt.

STEWART-WARNER 9001-C, D, E, F

ALIGNMENT PROCEDURE

Remove chassis and loop antenna from cabinet (do not remove loop of wire stapled to cabinet). After chassis has been removed, replace loop antenna in cabinet. Stand the chassis on one end and space it approximately same distance from loop as when installed in cabinet. Then reconnect all leads to loop antenna and to loop of wire stapled on cabinet.

With the gang condenser fully meshed, dial pointer should be in the position indicated by the last division below 55 on the dial. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

Connect output meter across speaker voice coil or from plate of 6K6GT tube to chassis through a .1 Mfd. condenser.

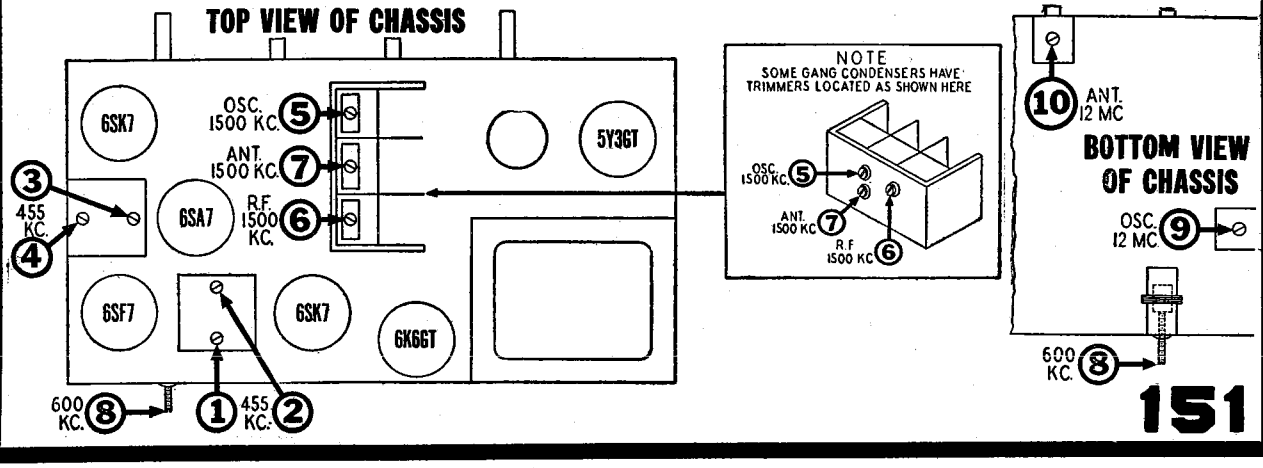
Connect the ground lead of the signal generator to the receiver chassis.

Set volume control at maximum volume position and use a weak signal from the signal generator.

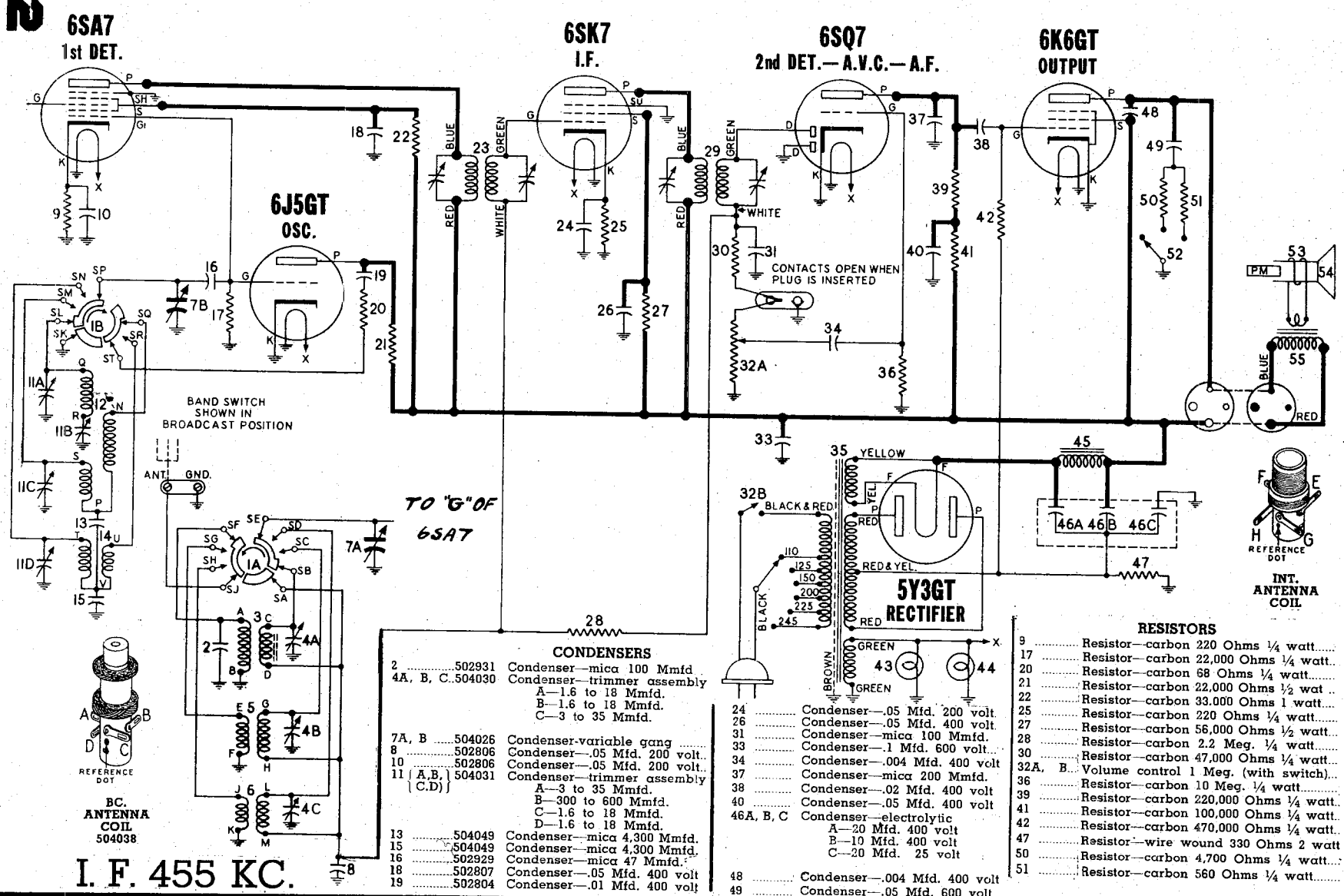
Push in the manual button and leave it in that position throughout the alignment procedure.

Align this receiver in exactly the order shown below. Broadcast band must be aligned before short wave band.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
.1 MFD. Condenser	Trimmer on rear section of gang	455 KC	Broadcast (Clockwise)	Any point where it does not affect the signal.	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
500 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast (Clockwise)	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
500 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast (Clockwise)	Tune to 1500 Kc. generator signal.	6	Broadcast R.F.	Adjust for maximum output.
500 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast (Clockwise)	Tune to 1500 Kc. generator signal.	7	Broadcast Antenna	Adjust for maximum output.
500 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	600 KC	Broadcast (Clockwise)	Tune to 600 Kc. generator signal.	8	Adjustable core of Broadcast Oscillator Coil.	Adjust for maximum output. Try to increase output by rotating core in and out and retuning receiver dial until maximum output is obtained.
500 MFD. Mica Condenser	External Antenna Clip on Loop Frame	Repeat adjustment of trimmers 5, 6 and 7 at 1500 Kc. Then re-check adjustment of trimmer 8 at 600 Kc.					
400 OHM Carbon Resistor	External Antenna Clip on Loop Frame	12 MC	Short wave (Counter-Clockwise)	12 MC	9	S.W. Oscillator	Adjust for maximum output. Check to see if proper peak was obtained by tuning in image at approx. 11.1 MC. If image does not appear, realign at 12 MC, with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	External Antenna Clip on Loop Frame	12 MC	Short wave (Counter-Clockwise)	Tune to 12 MC. generator signal.	10	S.W. Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.



STEWART-WARNER MODEL 9013-A



CONDENSERS

2	502931	Condenser—mica 100 Mmfd
4A, B, C	504030	Condenser—trimmer assembly A—1.6 to 18 Mmfd. B—1.6 to 18 Mmfd. C—3 to 35 Mmfd.
7A, B	504026	Condenser-variable gang
8	502806	Condenser—.05 Mfd. 200 volt
10	502806	Condenser—.05 Mfd. 200 volt
11 (A,B, C,D)	504031	Condenser—trimmer assembly A—3 to 35 Mmfd. B—300 to 600 Mmfd. C—1.6 to 18 Mmfd. D—1.6 to 18 Mmfd.
13	504049	Condenser—mica 4,300 Mmfd.
15	504049	Condenser—mica 4,300 Mmfd.
16	502929	Condenser—mica 47 Mmfd.
18	502807	Condenser—.05 Mfd. 400 volt
19	502804	Condenser—.01 Mfd. 400 volt
24		Condenser—.05 Mfd. 200 volt
26		Condenser—.05 Mfd. 400 volt
31		Condenser—mica 100 Mmfd.
33		Condenser—.1 Mfd. 600 volt
34		Condenser—.004 Mfd. 400 volt
37		Condenser—mica 200 Mmfd.
38		Condenser—.02 Mfd. 400 volt
40		Condenser—.05 Mfd. 400 volt
46A, B, C		Condenser—electrolytic A—20 Mfd. 400 volt B—10 Mfd. 400 volt C—20 Mfd. 25 volt
48		Condenser—.004 Mfd. 400 volt
49		Condenser—.05 Mfd. 600 volt

RESISTORS

9	Resistor—carbon 220 Ohms ¼ watt
17	Resistor—carbon 22,000 Ohms ¼ watt
20	Resistor—carbon 68 Ohms ¼ watt
21	Resistor—carbon 22,000 Ohms ½ watt
22	Resistor—carbon 33,000 Ohms 1 watt
25	Resistor—carbon 220 Ohms ¼ watt
27	Resistor—carbon 56,000 Ohms ½ watt
28	Resistor—carbon 2.2 Meg. ¼ watt
30	Resistor—carbon 47,000 Ohms ¼ watt
32A, B	Volume control 1 Meg. (with switch)
36	Resistor—carbon 10 Meg. ¼ watt
39	Resistor—carbon 220,000 Ohms ¼ watt
41	Resistor—carbon 100,000 Ohms ¼ watt
42	Resistor—carbon 470,000 Ohms ¼ watt
47	Resistor—wire wound 330 Ohms 2 watt
50	Resistor—carbon 4,700 Ohms ¼ watt
51	Resistor—carbon 560 Ohms ¼ watt

SERVICE DATA FOR MODEL 9013-A

ALIGNMENT PROCEDURE

When gang condenser is fully meshed, dial pointer should be in the position indicated by the last division below 55 on the dial. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

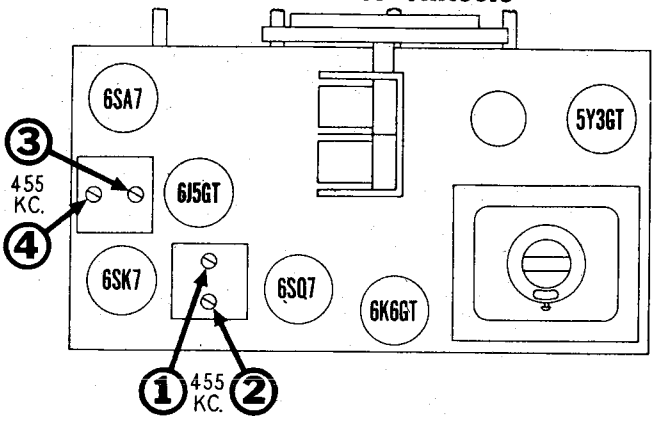
Connect on output meter across the speaker voice coil or from the plate of the 6K6GT tube to chassis through a 0.1 Mfd. condenser.

Connect the ground lead of the signal generator to the receiver chassis.

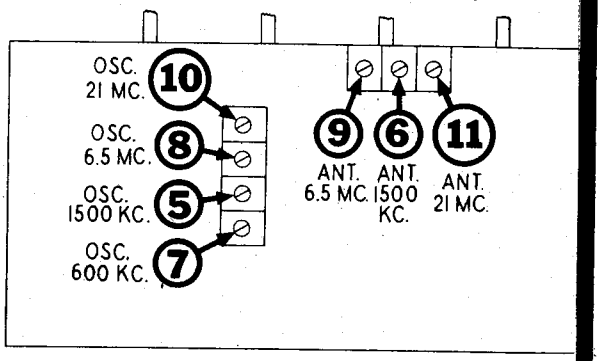
Set volume control to maximum volume position and use a weak signal from the signal generator.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
1 MFD. Condenser	Lug on front section of gang.	455 KC	Broadcast (counter-clockwise)	Any point where it does not affect the signal.	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
200 MMFD. Mica Condenser	"ANT" terminal at rear of chassis.	1500 KC	Broadcast (counter-clockwise)	1500 Kc.	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	"ANT" terminal at rear of chassis.	1500 KC	Broadcast (counter-clockwise)	Tune to 1500 Kc. generator signal.	6	Broadcast Antenna	Adjust for maximum output.
200 MMFD. Mica Condenser	"ANT" terminal at rear of chassis.	600 KC	Broadcast (counter-clockwise)	Tune to 600 Kc. generator signal.	7	Broadcast Oscillator (Series Pad)	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	"ANT" terminal at rear of chassis.	6.5 MC	Intermediate (middle)	6.5 Mc.	8	Intermediate Oscillator	Adjust to bring in signal. Check to see if proper peak was obtained by tuning in image at approx. 5.6 Mc. If image does not appear, realign at 6.5 Mc. with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	"ANT" terminal at rear of chassis.	6.5 MC	Intermediate (middle)	Tune to 6.5 Mc. generator signal.	9	Intermediate Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	"ANT" terminal at rear of chassis.	21 MC	Short wave (clockwise)	21 Mc.	10	S.W. Oscillator	Adjust for maximum output. Check to see if proper peak was obtained by tuning in image at approx. 20.1 Mc. If image does not appear, realign at 21 Mc. with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	"ANT" terminal at rear of chassis.	21 MC	Short wave (clockwise)	Tune to 21 Mc. generator signal.	11	S.W. Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

TOP VIEW OF CHASSIS



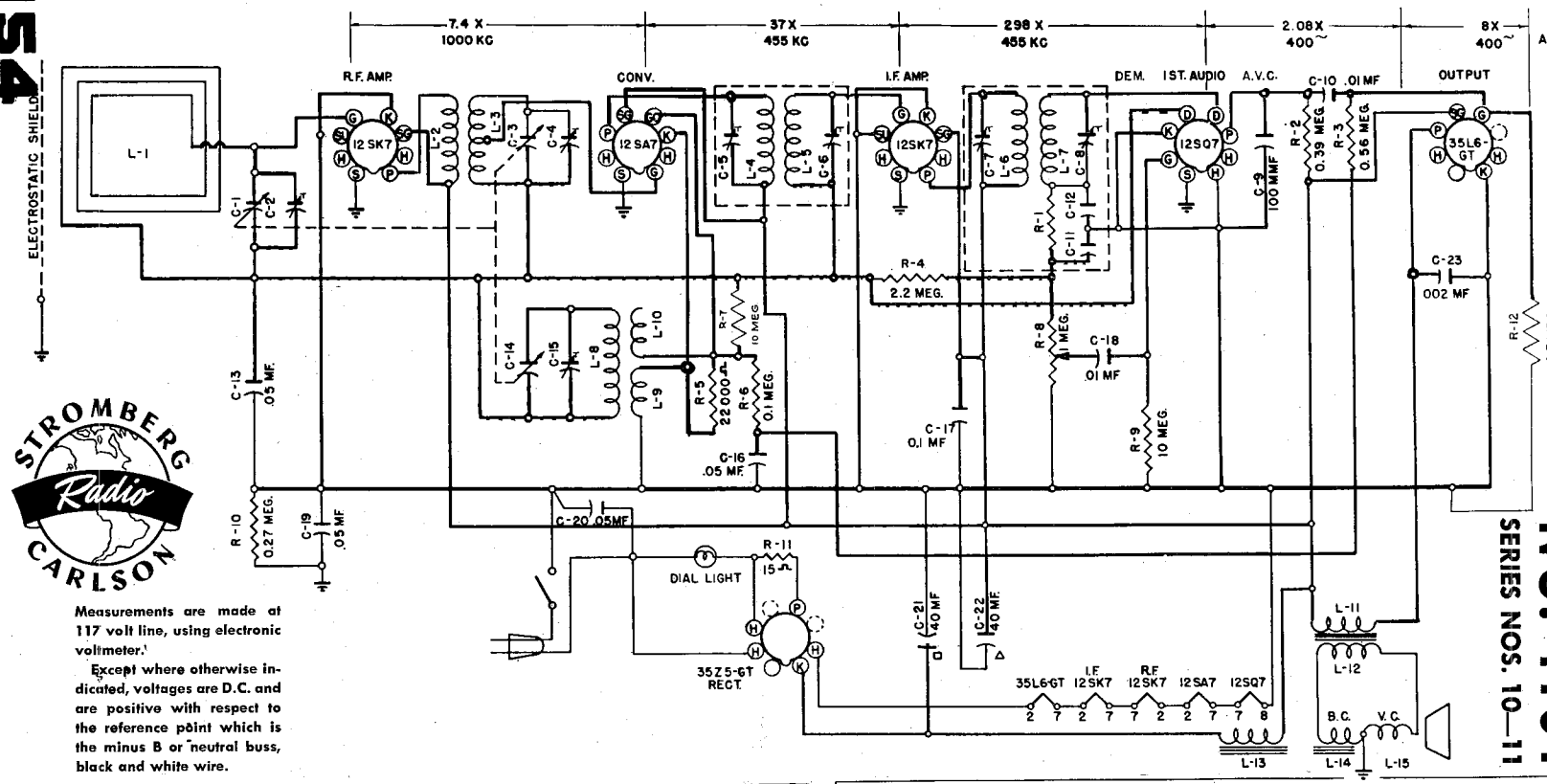
BOTTOM VIEW OF CHASSIS



MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

STROMBERG-CARLSON RECEIVER NO. 1101

SERIES NOS. 10—11

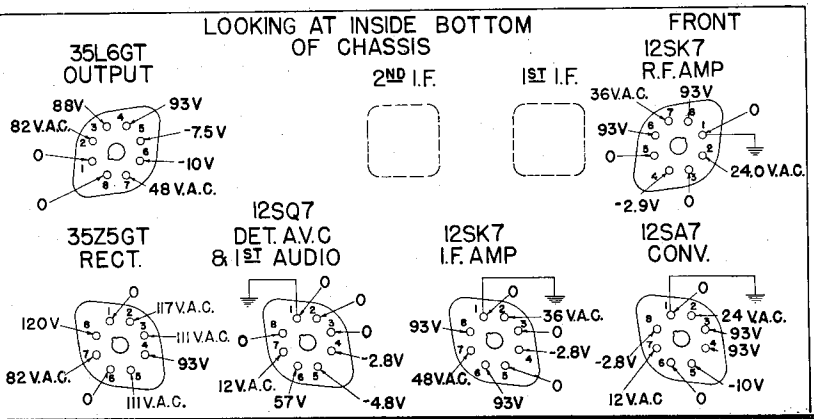


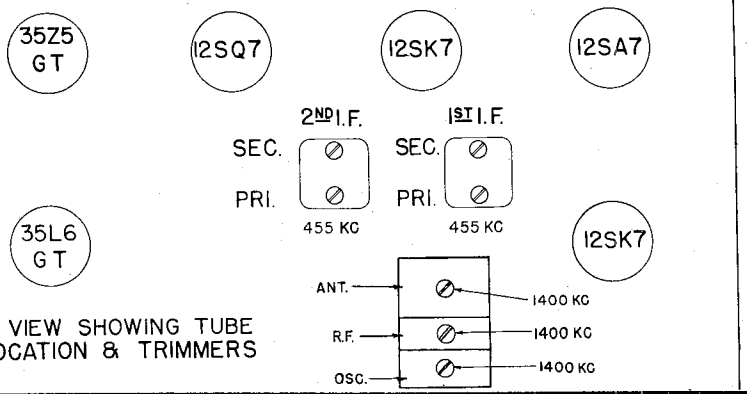
STROMBERG Radio CARLSON

Measurements are made at 117 volt line, using electronic voltmeter.

Except where otherwise indicated, voltages are D.C. and are positive with respect to the reference point which is the minus B or neutral buss, black and white wire.

LOOKING AT INSIDE BOTTOM OF CHASSIS

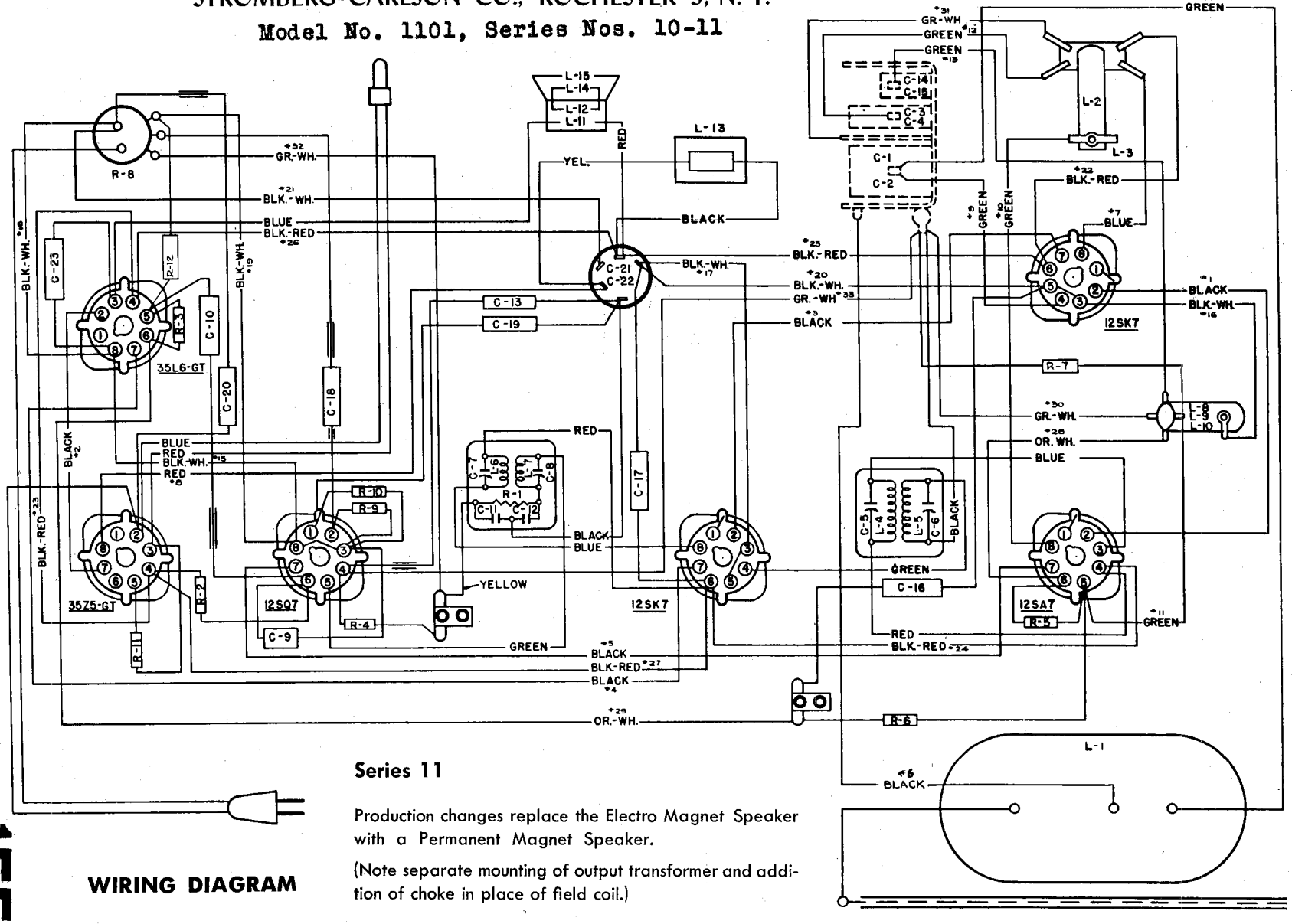




TOP VIEW SHOWING TUBE LOCATION & TRIMMERS

STROMBERG-CARLSON CO., ROCHESTER 3, N. Y.

Model No. 1101, Series Nos. 10-11

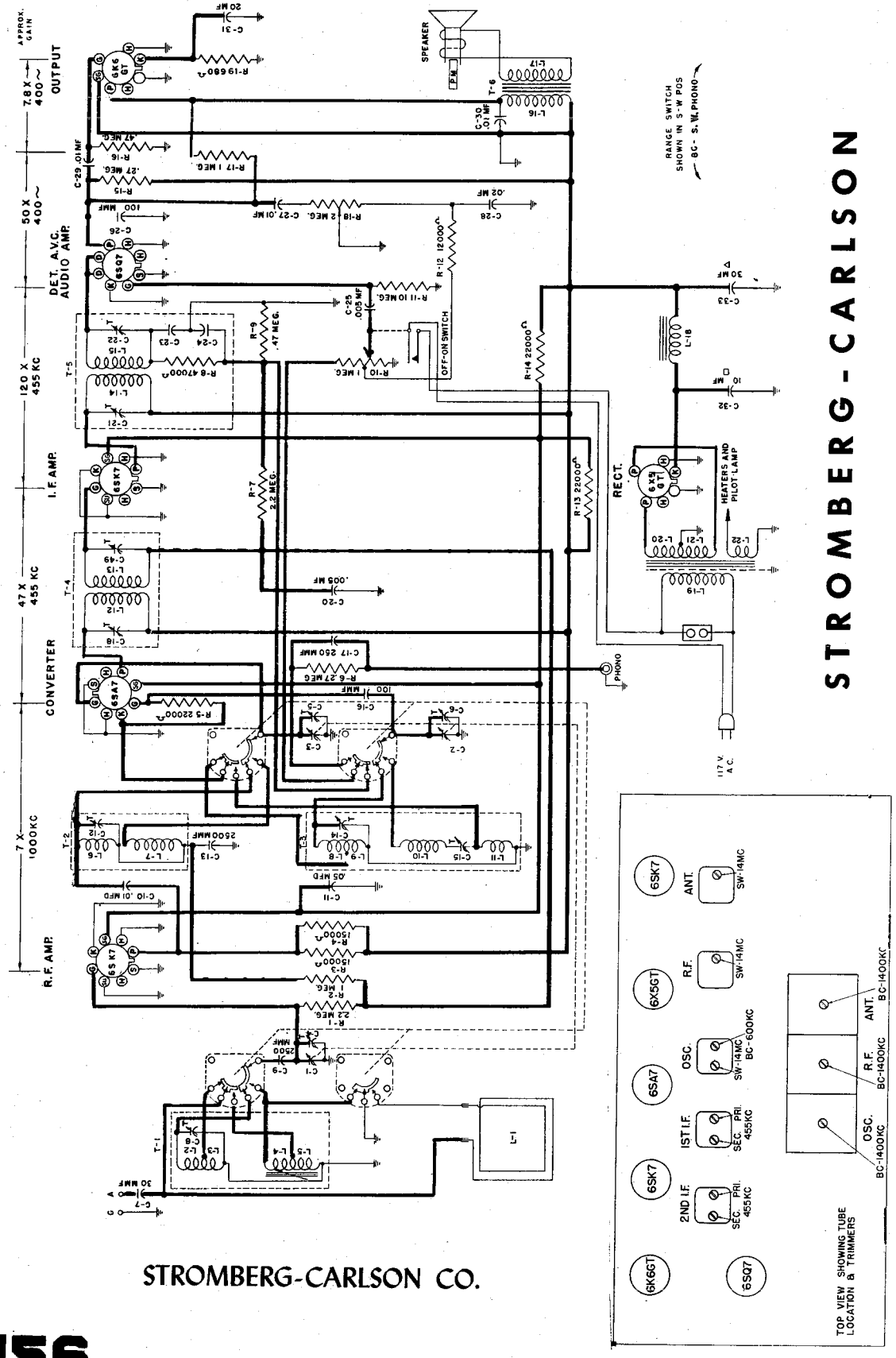


Series 11

Production changes replace the Electro Magnet Speaker with a Permanent Magnet Speaker.

(Note separate mounting of output transformer and addition of choke in place of field coil.)

WIRING DIAGRAM


STROMBERG-CARLSON
RADIO RECEIVER NO. 1110
SERIES NO. 10
STROMBERG-CARLSON CO.
TOP VIEW SHOWING TUBE LOCATION & TRIMMERS
RANGE SWITCH SHOWN IN S-W POS
BC- S.W.PHONO
SPEAKER
PHONO
117 V. A.C.
RECT.
HEATERS AND PILOT LAMP
OFF-ON SWITCH
CONVERTER
I.F. AMP.
DET. A.V.C. AUDIO AMP.
R.F. AMP.
OUTPUT
6SK7
6X5GT
6SA7
6K6GT
6SQ7
ANT.
R.F.
OSC.
1ST I.F.
2ND I.F.
SW-14MC
BC-600KC
455KC
BC-1400KC

STROMBERG-CARLSON CO. Model 1110 * Series 10

ALIGNING

Never realign unless absolutely necessary.

Use a good signal generator modulated at 400 or 1,000 cycles, with variable output voltage and a sensitive output meter across the voice coil of the speaker.

Always align using the lowest possible input from the signal generator. A strong signal makes adjustments approximate.

Always have the volume control "full on."

Aligning Procedure *(follow this order exactly)*

Intermediate Frequency Adjustments.

1. Set range switch to Standard Broadcast Position.
2. Tune set to extreme high frequency end of dial.
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce a modulated signal of 455 KC. to the grid of the 6SA7 Converter tube (middle section of gang condenser) using a 0.1 mfd. capacitor in series with the output lead of the signal generator.
5. Adjust the I.F. aligners for maximum output in the following order:
   a. Secondary of second I.F. transformer.
   b. Primary of second I.F. transformer.
   c. Secondary of first I.F. transformer.
   d. Primary of first I.F. transformer.

Dial Pointer Adjustment

With plates of the gang tuning capacitor fully engaged make certain that the dial pointer is in a horizontal position directly on the calibration marks located at the low frequency end of dial scale. Adjust the dial pointer if necessary.

Radio Frequency Adjustments

Standard Broadcast Range.

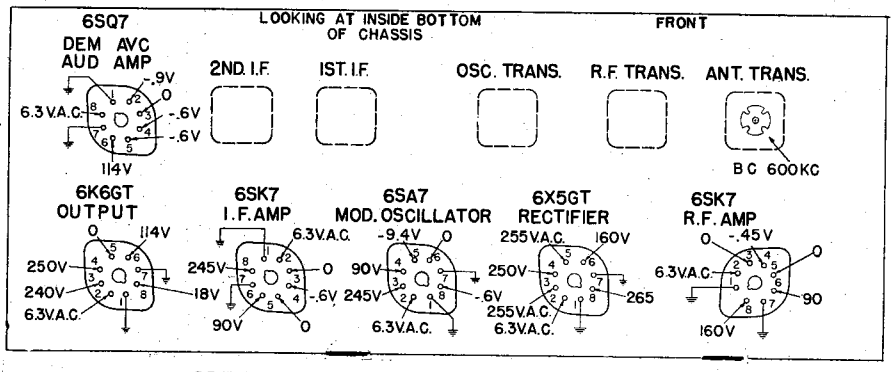
Antenna must remain connected for R.F. adjustments.

1. With the signal generator output lead connected to the Antenna and Ground terminal of the receiver, tune the signal generator frequency and receiver tuning dial to 1400 KC.
2. Adjust the oscillator, R.F. and antenna trimmers of the gang condenser for maximum signal.
3. Set the signal generator frequency and receiver tuning dial to 600 KC.
4. Adjust the 600 KC. padding condenser in oscillator coil shield for maximum signal.
5. Adjust the iron core in antenna transformer for maximum output. (Underside of chassis)
6. Repeat the above procedure until no further change is required.

Radio Frequency Adjustments

Short Wave Range

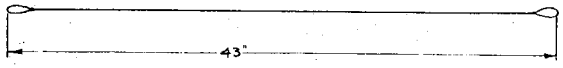
1. Set the range switch to Short Wave position.
2. Set the signal generator frequency and receiver tuning dial to 14 MC.
3. Connect the output of the signal generator to the antenna terminal on the chassis.
4. Adjust the oscillator, R.F. and antenna trimmers for maximum output.
5. Repeat the above procedure until no further change is required.



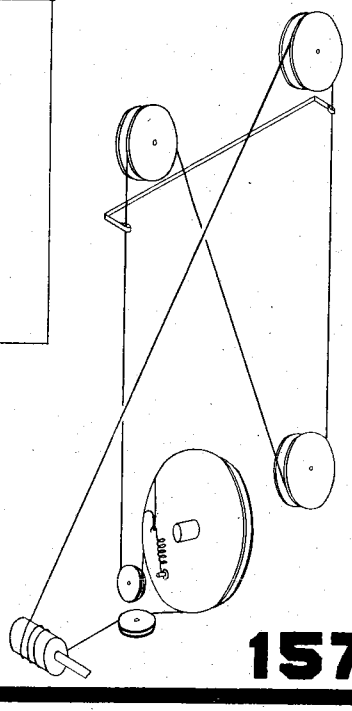
SPECIFICATIONS

Voltage Rating	105-125 Volts
Type of Circuit	Superheterodyne
Tunigg Range..S.W. 8.7—15.5 MC.	Broadcast 540 KC.—1600 KC.
Intermediate Frequency	455 KC.
Speaker Voice Coil Impedance	at 400 Cycles 3.5 Ohms
Power Output	2 Watts

DIAL CORD LENGTH



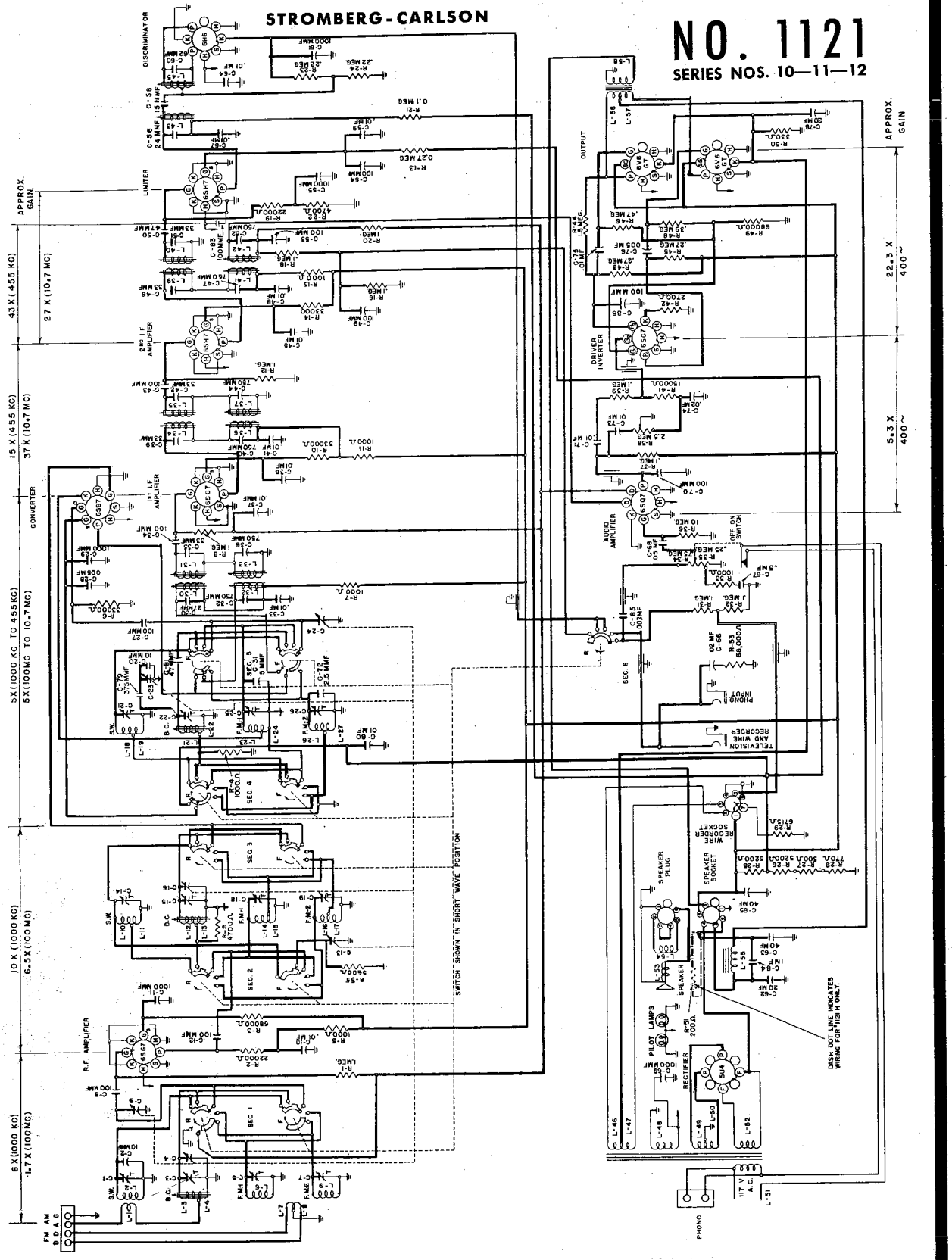
DIAL CORDING DIAGRAM



STROMBERG-CARLSON

NO. 1121

SERIES NOS. 10—11—12



STROMBERG-CARLSON Model 1121 (Continued)

Always align using the smallest possible input from the signal generator. *A strong signal makes adjustments approximate.*

Always have volume full on.

The required equipment is: 1 Electronic Voltmeter, 1 Output Meter, 1 Standard Signal Generator, 1 High Frequency Signal Generator, 1 No. 80777 Aligning Tool.

Aligning Procedure *(follow this order exactly)*

Intermediate Frequency Adjustments Amplitude Modulation

The I.F. aligners that are used to adjust the amplitude modulation (AM) channel are found on the top side of the chassis. They consist of 6 adjustable iron cores used to tune the inductance of the 1st, 2nd & 3rd I.F. transformers (161202, 161200, 161201). These cores are found inside the plastic tubes protruding from the top of the I.F. transformers and are equipped with small screwdriver slots.

1. Connect the signal generator to the modulator grid, terminal number 8 of the 6SB7 converter tube which is connected to the wave band switch, and is identified by a blue dot.
2. Connect the output meter across the voice coil of the speaker (green and black wires from cable).
3. Adjust the signal generator to 455 KC. Use 30% modulation at 400 cycles.
4. Adjust volume control full on.
5. Adjust tone control to maximum high (counter clockwise).
6. Adjust range switch to standard broadcast band, (second position clockwise.)
7. Adjust the tuning selector to approximately 600 KC.
8. Adjust I.F. cores for maximum output with a reduced signal Input.

Frequency Modulation

The I.F. Aligners may be found from the underside of the chassis. The adjusters are 6 Iron cores used to tune the inductance of the high frequency coils.

1. Connect the signal generator to the modulator grid, terminal number 8 of the 6SB7 converter tube, which is connected to the wave band switch, and is identified by a blue dot.
2. Connect the electronic voltmeter to the junction of the 22,000 and the 4,700 ohm resistors in the limiter grid circuit, identified by a green dot.
3. Adjust the voltmeter to the lowest negative voltage scale.
4. Turn the range switch to the 2nd F.M. band (fourth position clockwise).
5. Adjust the tuning selector to approximately 21 on this band.
6. Adjust the signal generator to 10.7 megacycles. No modulation is required.
7. Adjust the cores for maximum output of the voltmeter. Reduce the input signal and readjust until the maximum output is secured for minimum input.

Discriminator Alignment (FM)

1. Connect the signal generator to the grid of the second I.F. tube, terminal No. 4 of the 6SH7.
2. Connect the electronic voltmeter to the center of the diode load resistors at the point indicated by the orange dot.
3. Adjust the primary for maximum output with the signal generator set at 10.7 megacycles.
4. Switch the electronic voltmeter to the high side of the diode load resistors, identified by a red dot.
5. Adjust the secondary for zero output.
6. Swing generator to 75 KC higher and 75 KC lower in frequency and note the plus and minus voltage. If these voltage values are not approximately equal, repeat operations 3, 4 and 5.

Dial Pointer Adjustment

Check dial pointer to see that it is aligned through the center of the 2 in the number 201 of FM Band (1) when the variable capacitor plates are completely engaged.

R.F. Adjustment — Amplitude Modulation

The Broadcast band should be adjusted first.

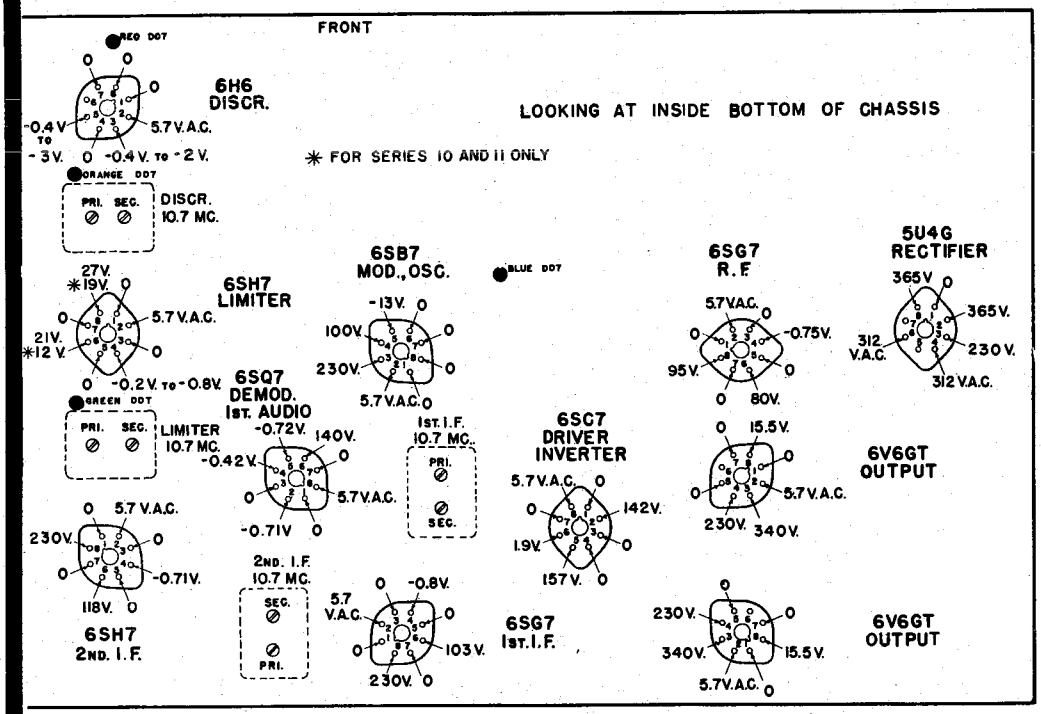
The built-in loop should remain connected to the antenna and ground terminals.

1. Connect the signal generator to the antenna terminal, using a 200 mmf. capacitor. Use 30% modulation at 400 cycles.
2. Adjust the signal generator to 1500 KC.
3. Adjust station selector to 1500 KC.
4. Adjust range switch to AM Broadcast. (Second position clockwise.)
5. Adjust the oscillator, R.F. and antenna trimmer for maximum output.
6. Reduce the input signal and readjust the trimmers until the maximum output is secured for minimum input.
7. Adjust station selector to 600 KC.
8. Set signal generator to 600 KC.
9. Adjust iron cores in oscillator, R.F. and antenna coils for maximum output.
10. Repeat 1500 KC and 600 KC alignments until no further change is required.

R.F. Adjustment — Short Wave

The built-in loop should remain connected to the antenna and ground terminals.

1. Connect the signal generator to the antenna and ground terminals of the receiver using a 400 ohm resistor.
2. Set the dial pointer to 9.5 megacycles.
3. Adjust signal generator to 9.5 megacycles.
4. Adjust range switch to Short Wave (first position clockwise).
5. Adjust oscillator, R.F., and antenna trimmer for maximum output. (No further alignment is required on this band.)

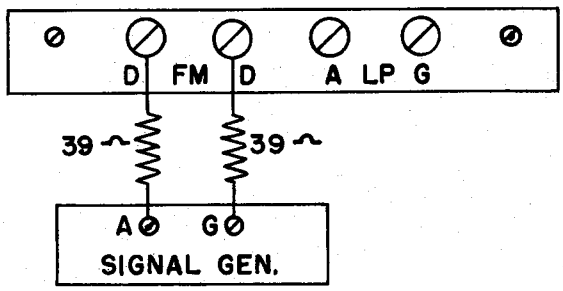


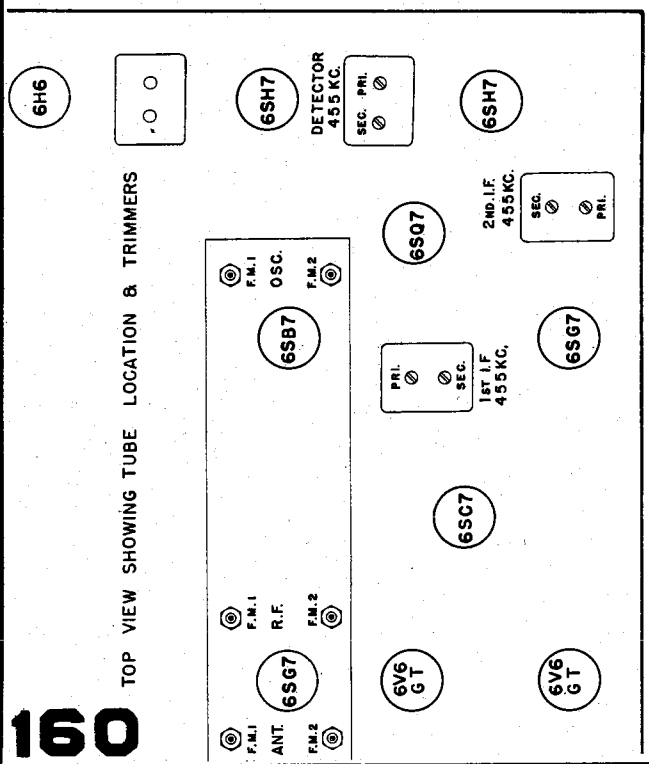
Stromberg Carlson Model 1121

R.F. Adjustments — Frequency Modulation

Align the FM (2) Band first.

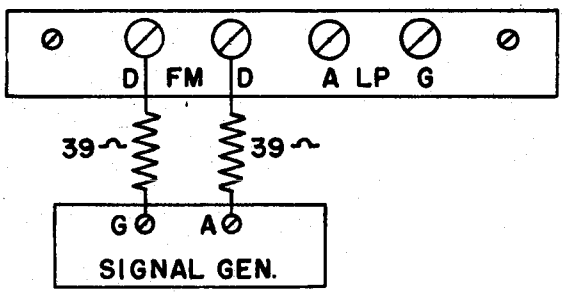
1. Set the dial pointer to 61.
2. Connect the signal generator to FM dipole terminals using 39 ohm resistors as indicated. (Disconnect dipole antenna.) *Connect Signal Generator ground to chassis ground.*
3. Set signal generator to 46.1 megacycles.
4. Adjust range switch to FM (2) (fourth position clockwise).
5. Connect the electronic voltmeter to the junction of the 22,000 and 4,700 ohm resistors in the limiter grid circuit. (Identified by green dot.)
6. Adjust oscillator R.F. and antenna trimmers for maximum output on electronic voltmeter.





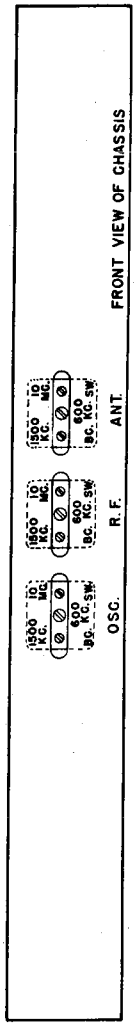
FM (1) Band

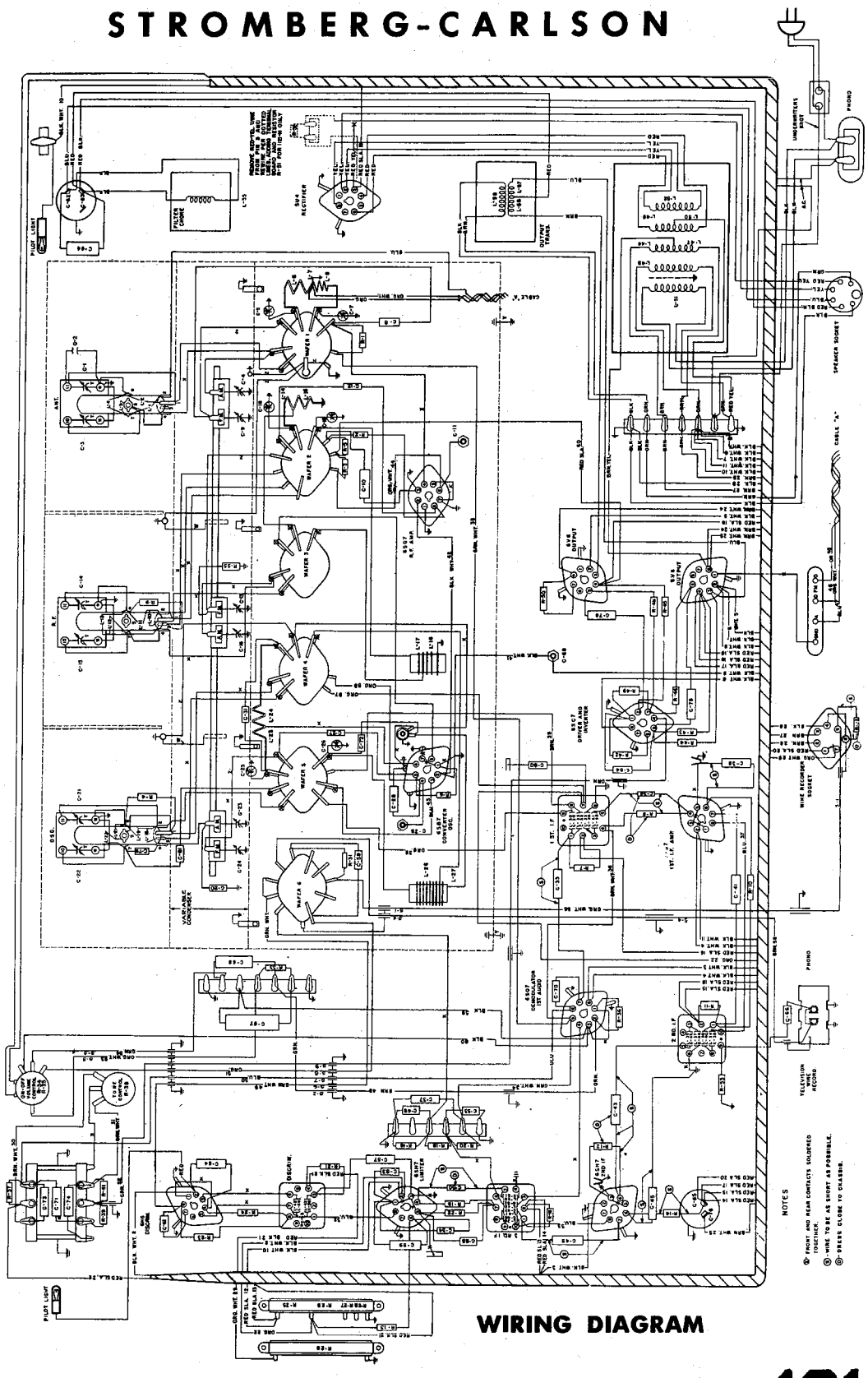
Adjust the same as the FM (2) band using 100.1 megacycles, setting the dial pointer to 261. Connect the generator to the dipole input using 39 ohm resistors as indicated. *Connect Signal Generator ground to chassis ground. Note reversed Signal Generator connection.*

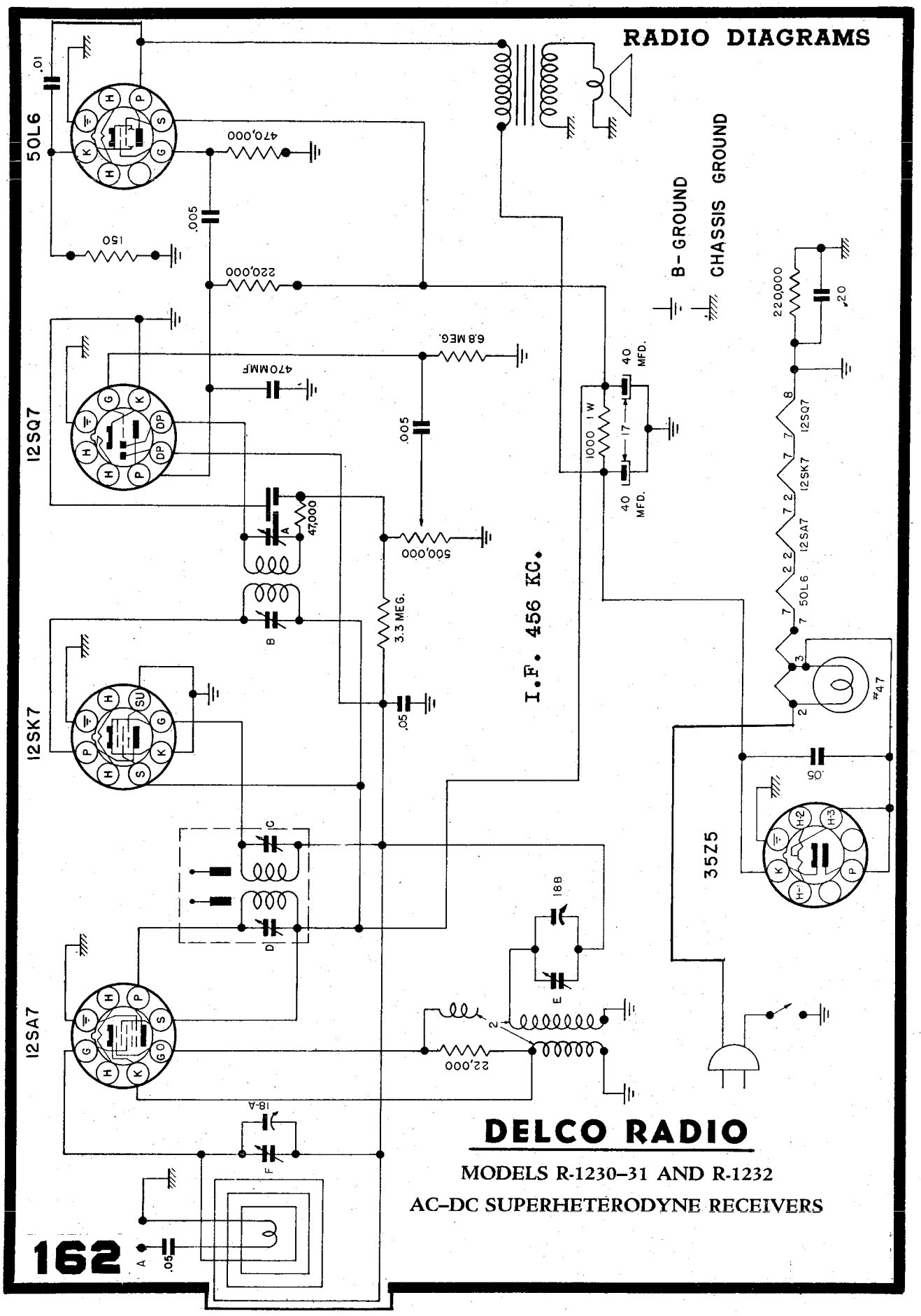


STROMBERG-CARLSON

Stromberg-Carlson
Model 1121



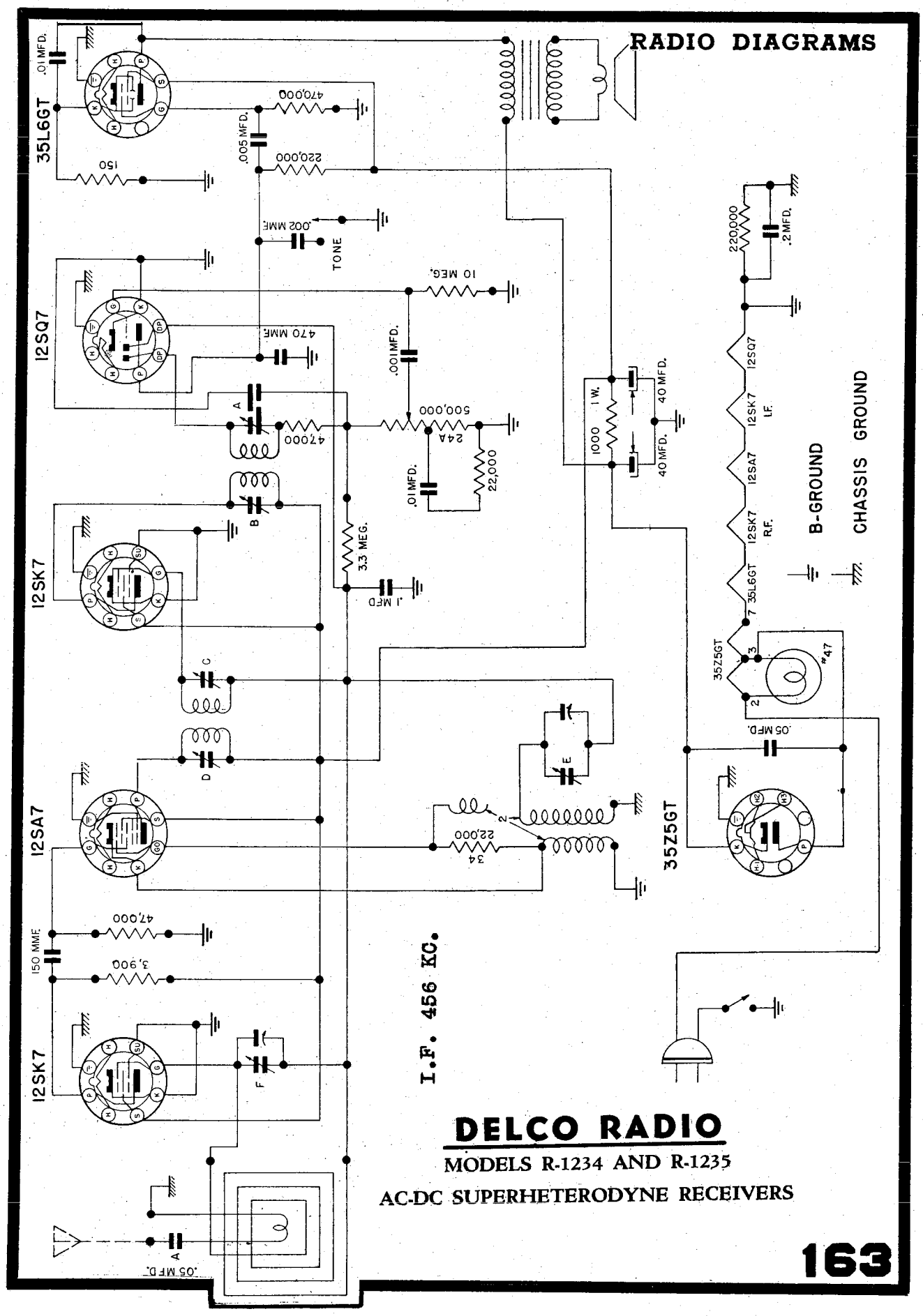




DELCO RADIO

MODELS R-1230–31 AND R-1232

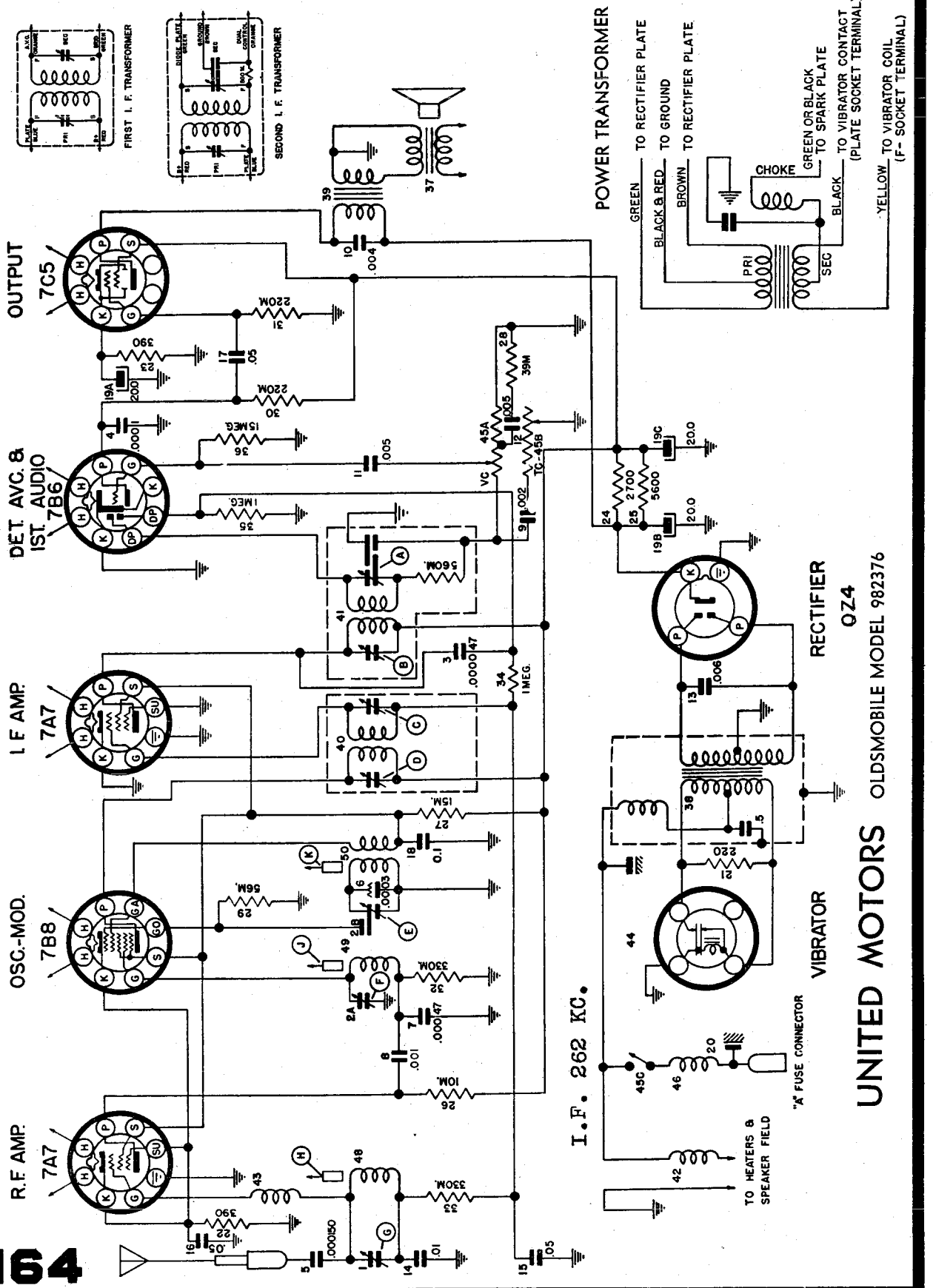
AC–DC SUPERHETERODYNE RECEIVERS



DELCO RADIO

MODELS R-1234 AND R-1235

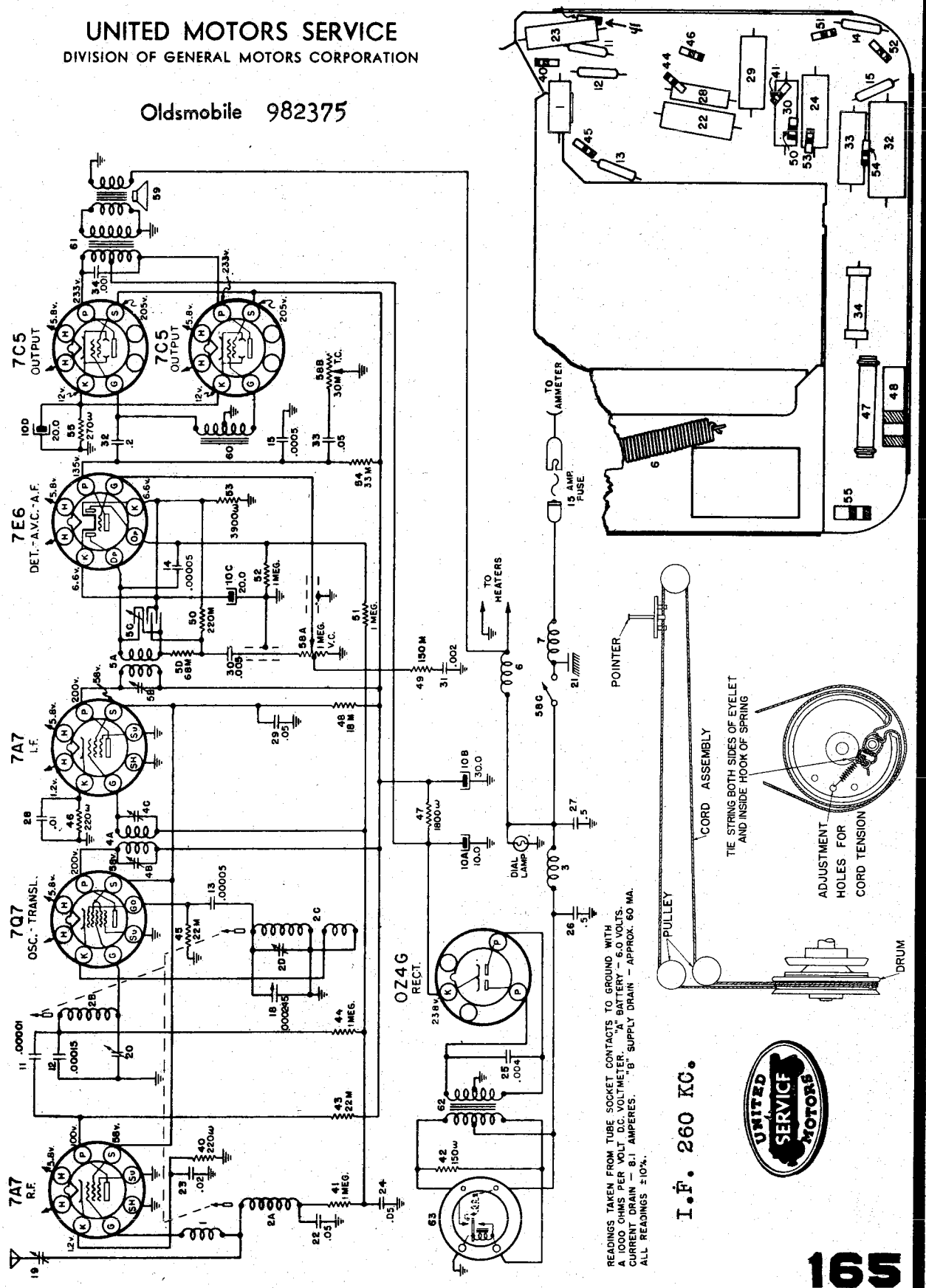
AC-DC SUPERHETERODYNE RECEIVERS

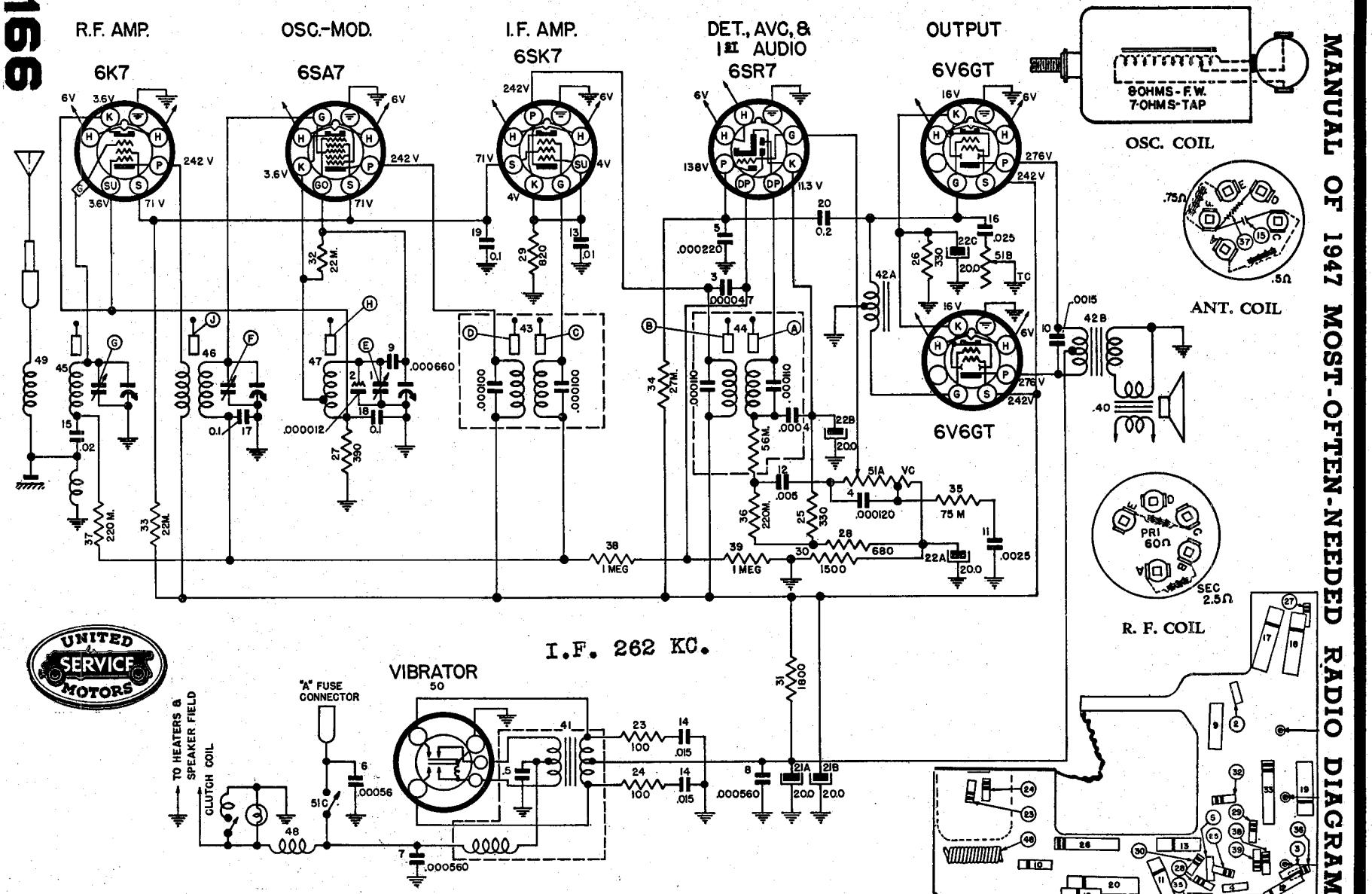

FIRST I. F. TRANSFORMER
SECOND I. F. TRANSFORMER
POWER TRANSFORMER
GREEN TO RECTIFIER PLATE
BLACK & RED TO GROUND
BROWN TO RECTIFIER PLATE
CHOKE
GREEN OR BLACK TO SPARK PLATE
BLACK TO VIBRATOR CONTACT (PLATE SOCKET TERMINAL)
YELLOW TO VIBRATOR COIL (F- SOCKET TERMINAL)
PRI
SEC
OUTPUT 7C5
DET. AVC. & IST. AUDIO 7B6
I F AMP. 7A7
OSC.-MOD. 7B8
R.F AMP. 7A7
RECTIFIER 0Z4
VIBRATOR
I.F. 262 KC.
"A" FUSE CONNECTOR
TO HEATERS & SPEAKER FIELD
UNITED MOTORS
OLDSMOBILE MODEL 982376

UNITED MOTORS SERVICE

DIVISION OF GENERAL MOTORS CORPORATION

Oldsmobile 982375





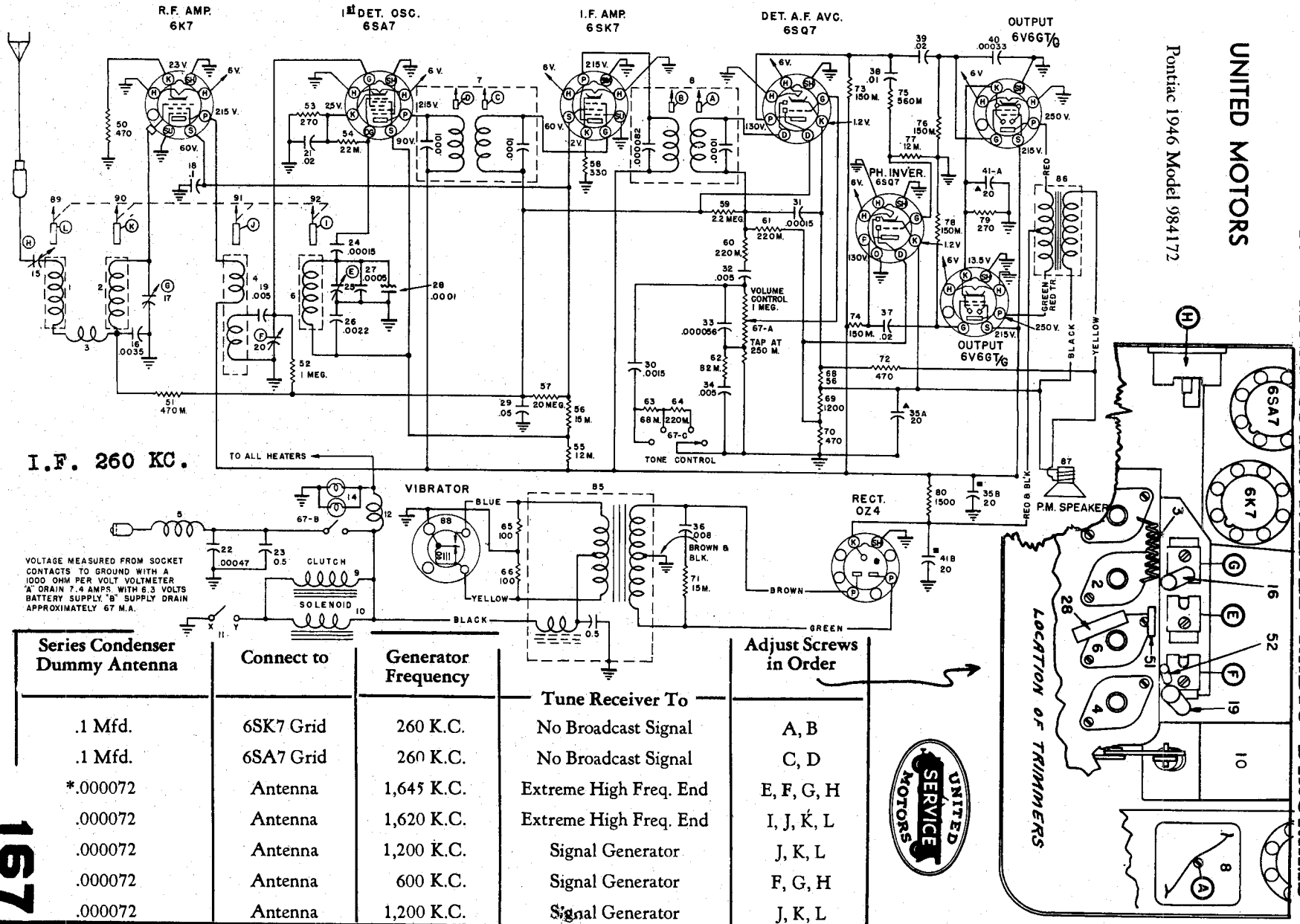
UNITED MOTORS

BUICK MODELS 980690 - 980733

PARTS LAYOUT - CHASSIS VIEW

UNITED MOTORS

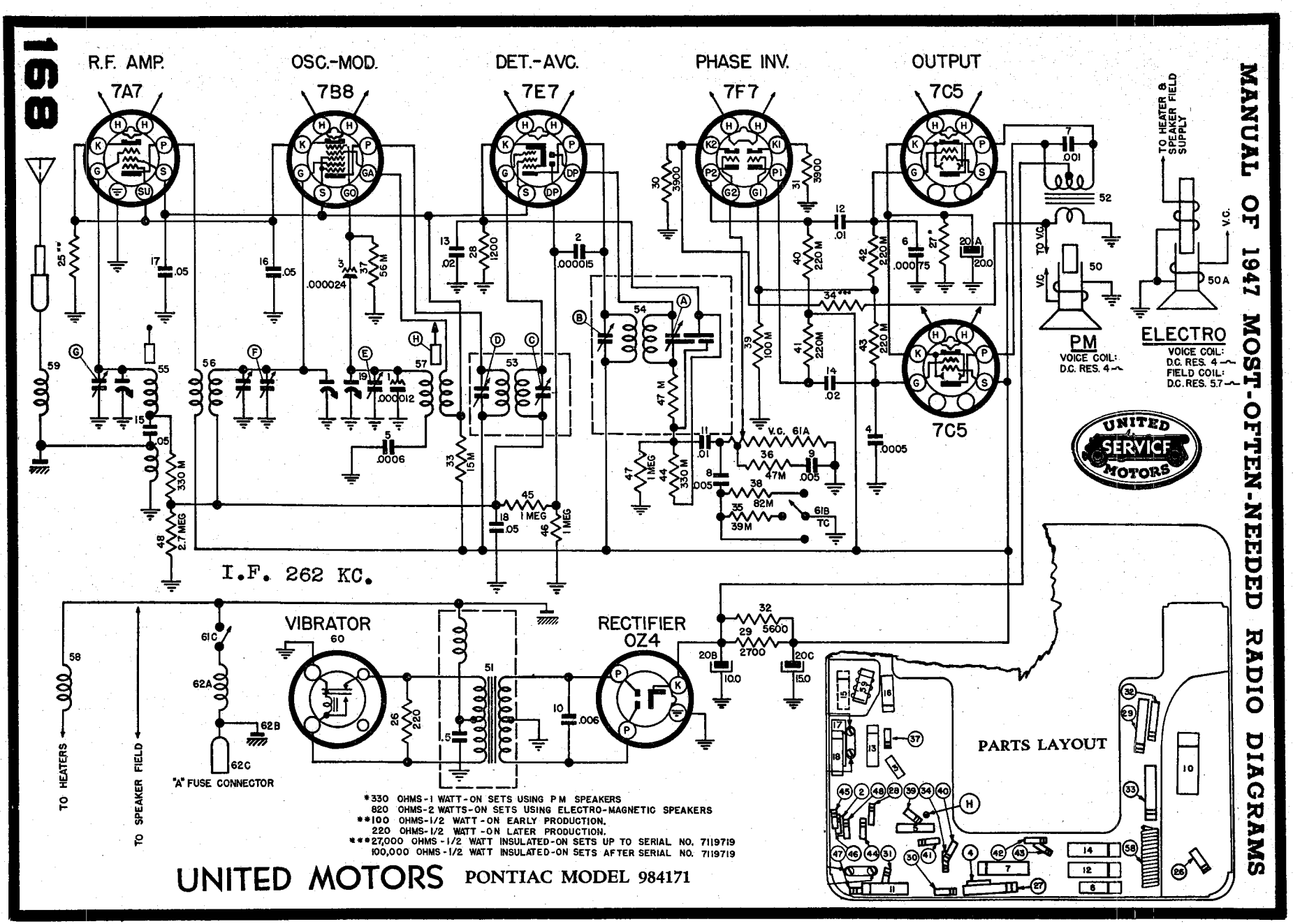
Pontiac 1946 Model 984172



Series Condenser Dummy Antenna	Connect to	Generator Frequency	Tune Receiver To	Adjust Screws in Order
.1 Mfd.	6SK7 Grid	260 K.C.	No Broadcast Signal	A, B
.1 Mfd.	6SA7 Grid	260 K.C.	No Broadcast Signal	C, D
*.000072	Antenna	1,645 K.C.	Extreme High Freq. End	E, F, G, H
.000072	Antenna	1,620 K.C.	Extreme High Freq. End	I, J, K, L
.000072	Antenna	1,200 K.C.	Signal Generator	J, K, L
.000072	Antenna	600 K.C.	Signal Generator	F, G, H
.000072	Antenna	1,200 K.C.	Signal Generator	J, K, L

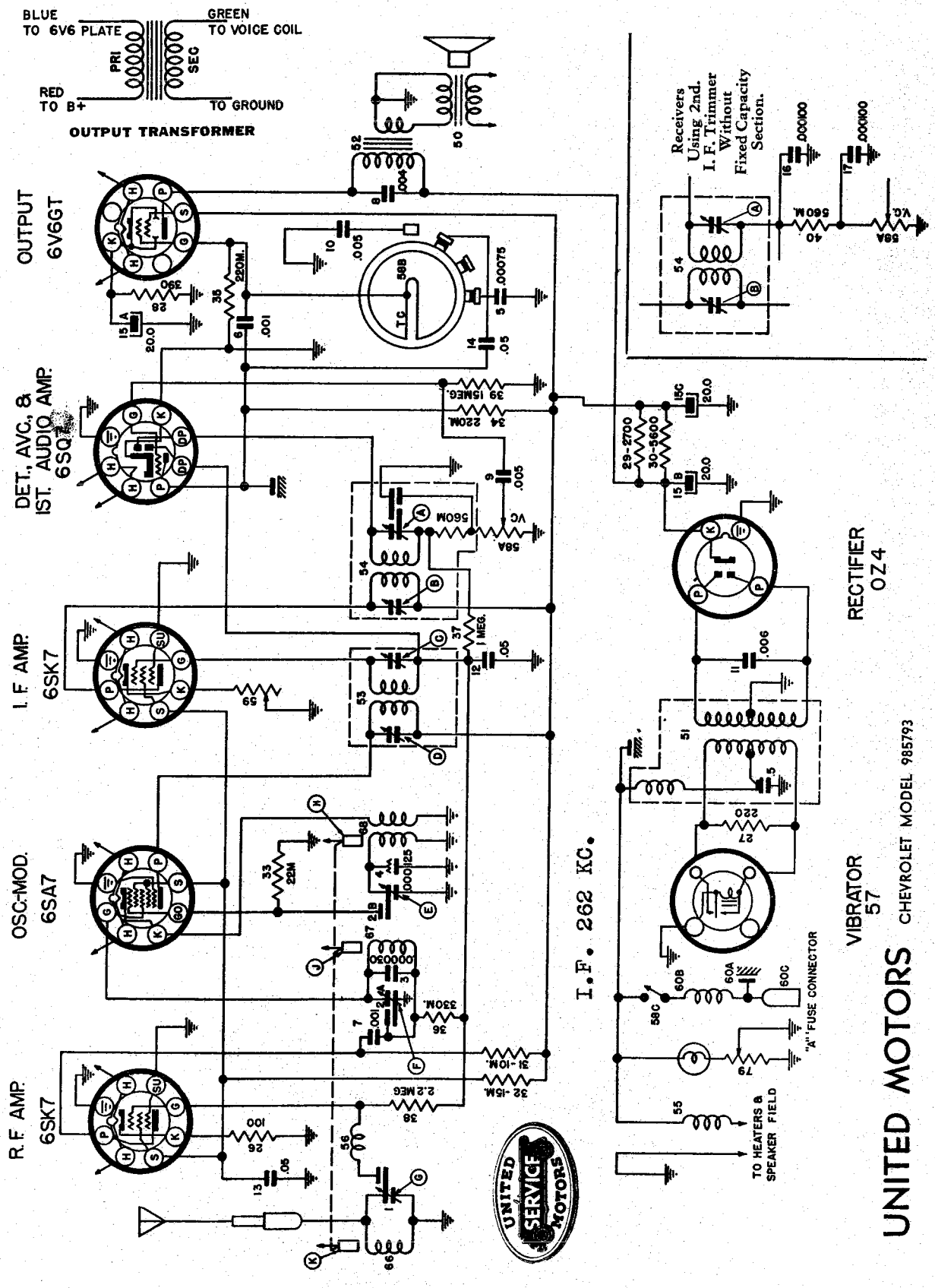
UNITED SERVICE MOTORS

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

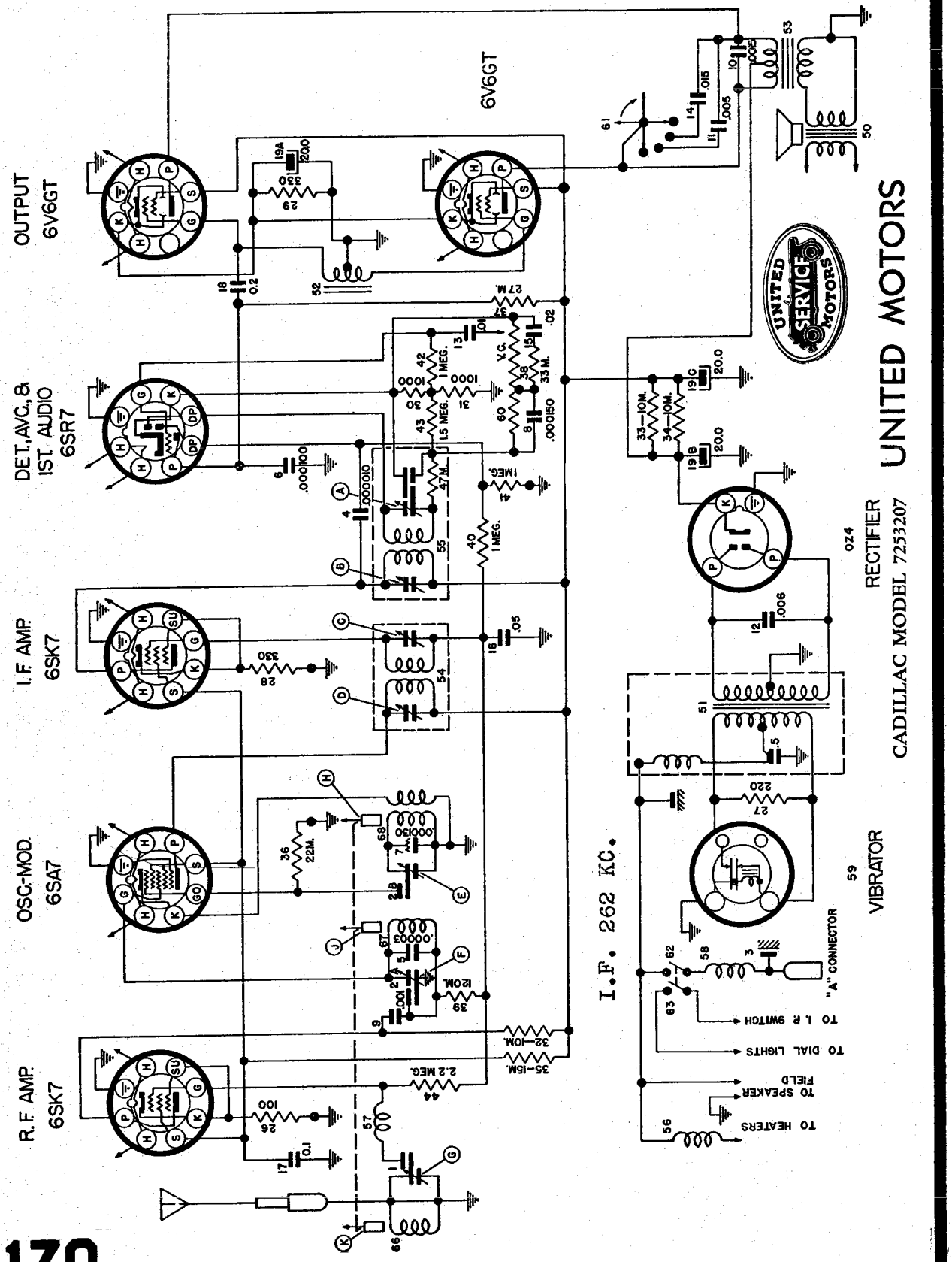


*330 OHMS-1 WATT-ON SETS USING P M SPEAKERS
820 OHMS-2 WATTS-ON SETS USING ELECTRO-MAGNETIC SPEAKERS
**100 OHMS-1/2 WATT-ON EARLY PRODUCTION.
220 OHMS-1/2 WATT-ON LATER PRODUCTION.
***27,000 OHMS-1/2 WATT INSULATED-ON SETS UP TO SERIAL NO. 7119719
100,000 OHMS-1/2 WATT INSULATED-ON SETS AFTER SERIAL NO. 7119719

UNITED MOTORS PONTIAC MODEL 984171

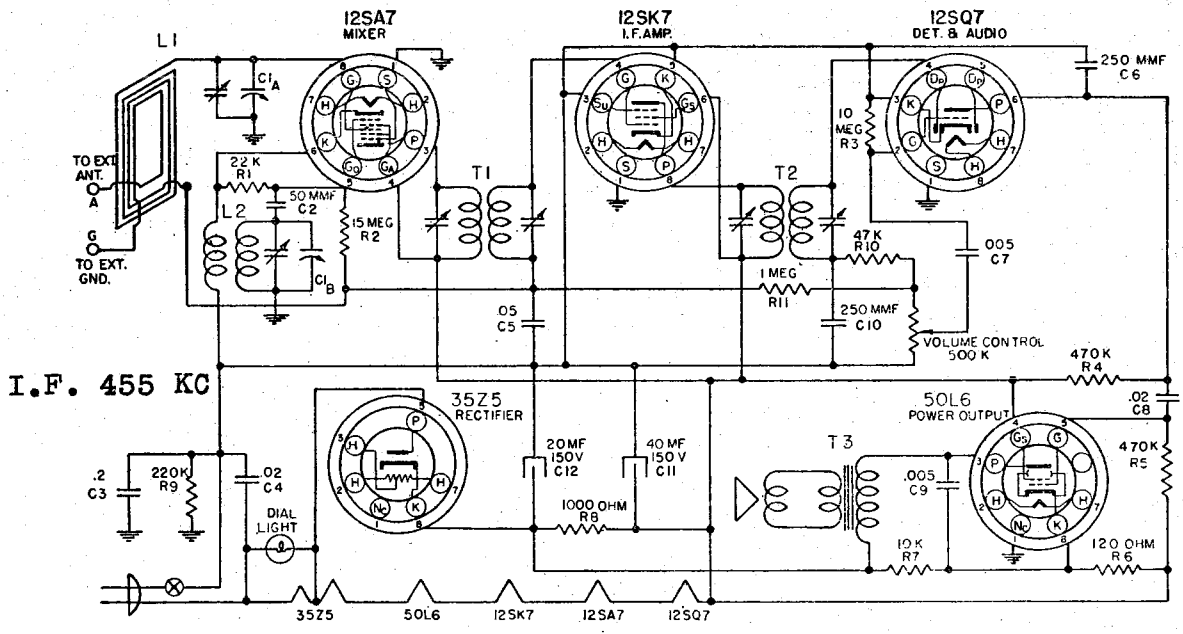


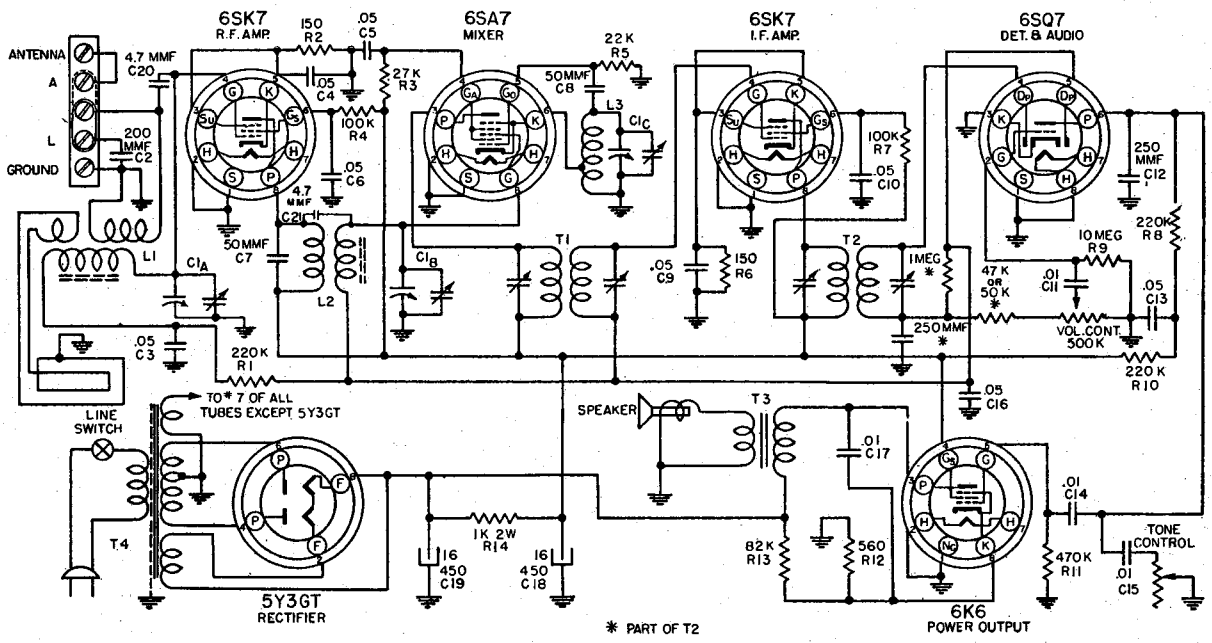
UNITED MOTORS CHEVROLET MODEL 985793


UNITED MOTORS
CADILLAC MODEL 7253207
OUTPUT 6V6GT
6V6GT
DET., AVC., & 1ST AUDIO 6SR7
I.F. AMP. 6SK7
OSC.-MOD. 6SA7
R.F. AMP. 6SK7
RECTIFIER 024
VIBRATOR 59
I.F. 262 KC.
"A" CONNECTOR
TO L.R SWITCH
TO DIAL LIGHTS
TO SPEAKER FIELD
TO HEATERS
UNITED SERVICE MOTORS

WARWICK MANUFACTURING CORPORATION

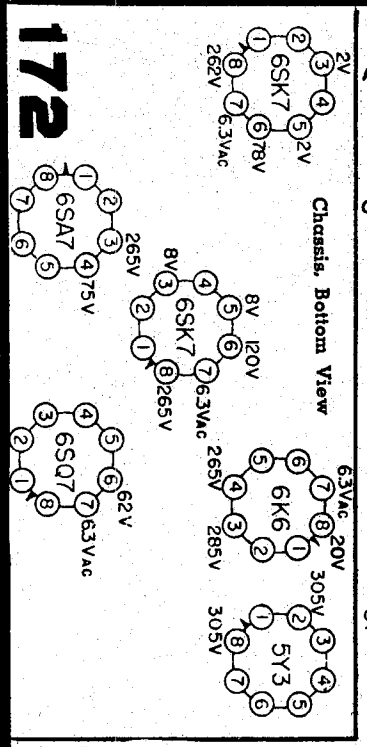
Model C102

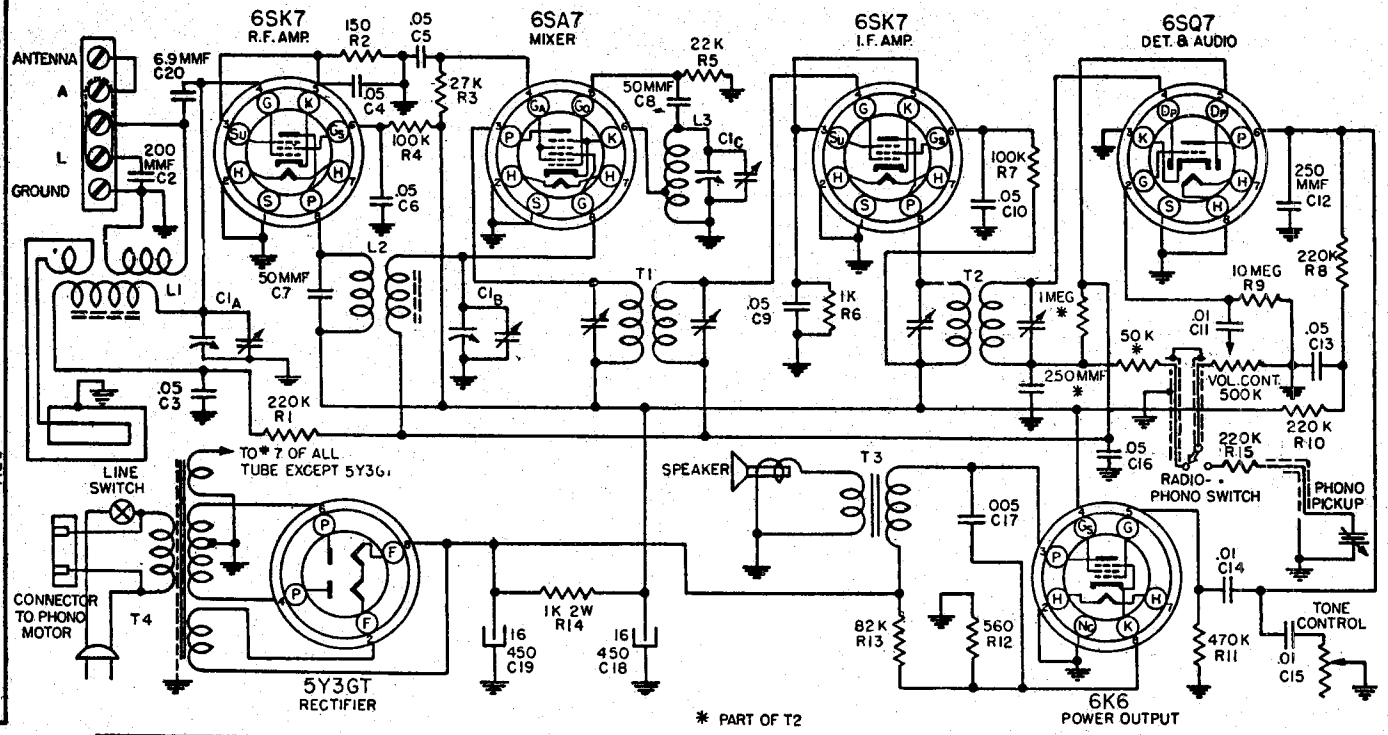


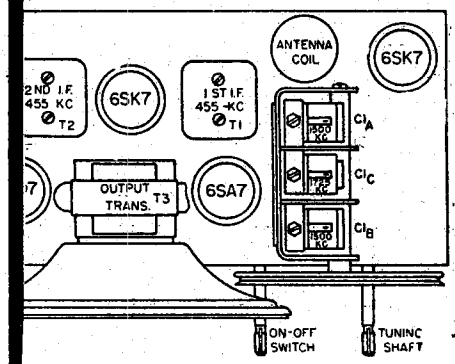


Position of Variable	Generator Freq.	Dummy Ant. mfd.	Generator Connections	Trimmer Adjustment	Trimmer Function
Fully Open	455 KC	.1	6SA7 Grid (Stator of C1B)	T1 T2	I. F.
Fully Open	1725 KC	.00025	Ant. Terminal on Loop	C1C	Osc.
Tune in signal from Generator	1500 KC	.00025	Ant. Terminal on Loop	C1B	R. F.
Tune in signal from Generator	1500 KC	.00025	Ant. Terminal on Loop	C1A	Ant.

MODEL C103

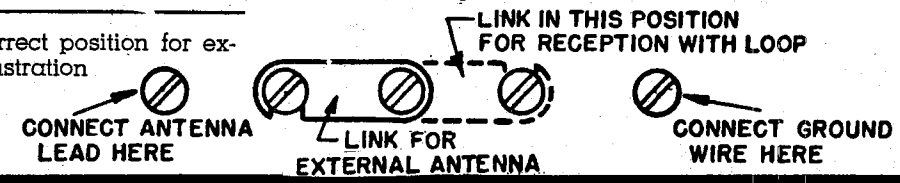






Position of Variable	Generator Frequency	Dummy Ant. mfd.	Generator Connections	Trimmer Adjustment	Trimmer Function
Minimum Capacity (Fully Opened)	455 K.C.	.1	6SA7 Grid (Stator of C1B)	T1 T2	I. F.
Minimum Capacity (Fully Opened)	1725 K.C.	.00025	*Ant. Terminal on Loop	C1C	Osc.
Tune in signal From Generator	1500 K.C.	.00025	*Ant. Terminal on Loop	C1B	R. F.
Tune in signal From Generator	1500 K.C.	.00025	*Ant. Terminal on Loop	C1A	Ant.

*Be sure coupling link is in correct position for external antenna operation. See illustration

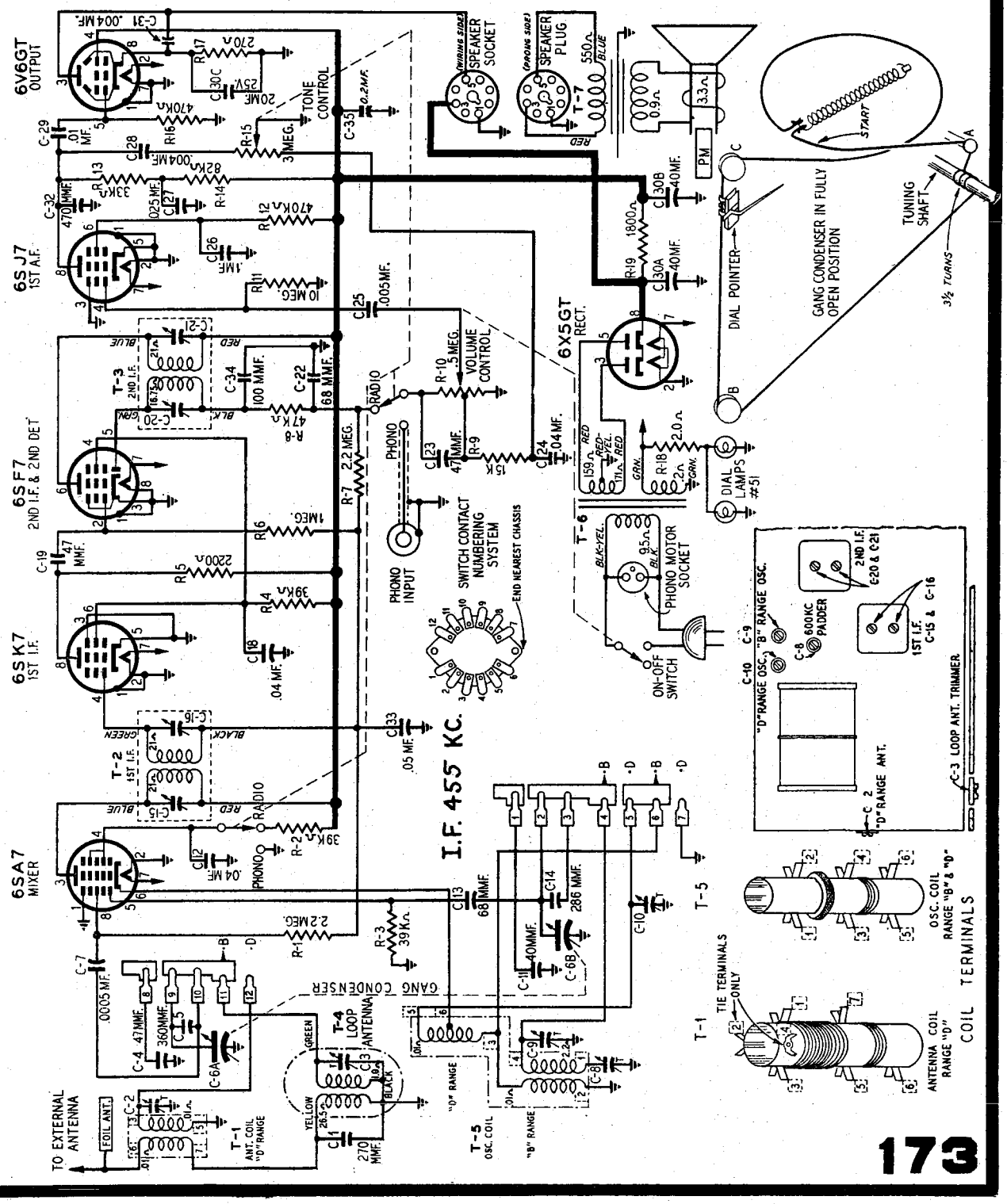


Factory Number P108D

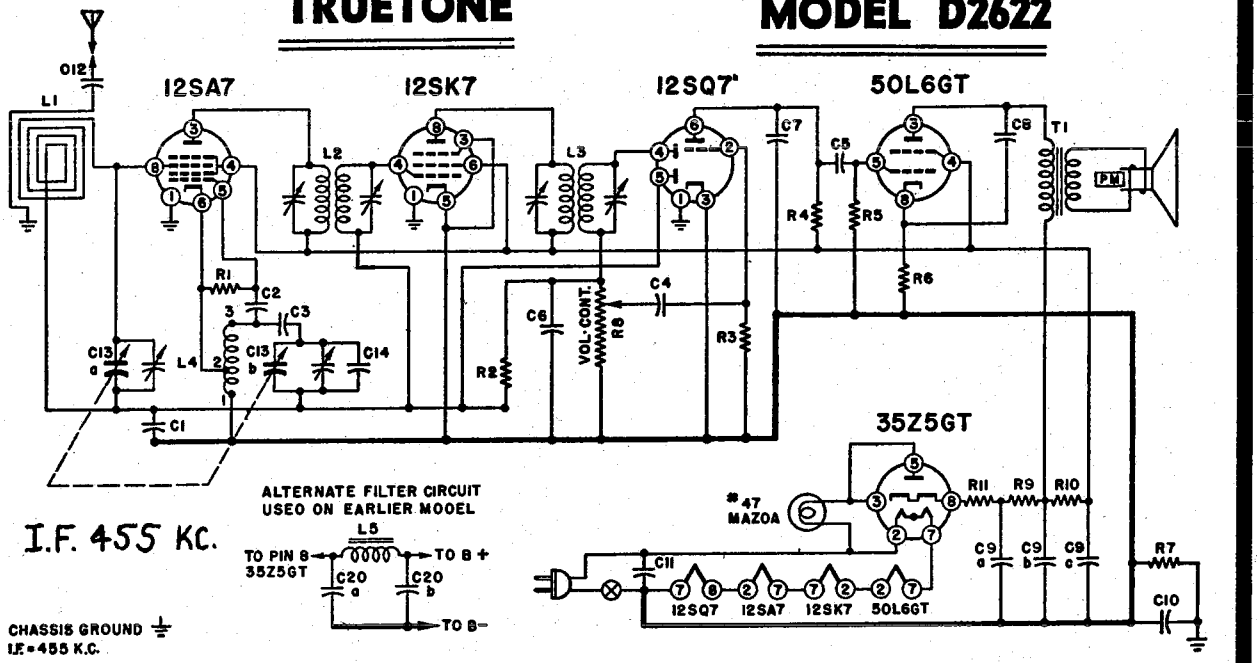
TRUETONE MODEL D-1644

Tritone Model D1645

Factory Model 26A76-650



TRUETONE MODEL D2622



CONDENSERS

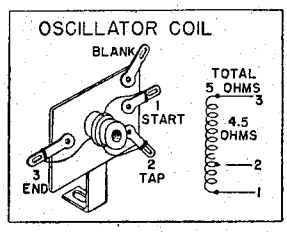
Symbol	Capacity		Type
C1	.1	mfd.	200 V.
C2	.00005	mfd.	Mica
C3	.02	mfd.	400 V.
C4	.01	mfd.	400 V.
C5	.01	mfd.	400 V.
C6	.00025	mfd.	Mica
C7	.0005	mfd.	Mica
C8	.02	mfd.	400 V.
C9a	30.	mfd.	(Elect.) 150 V.
C9b	30.	mfd.	(Elect.) 150 V.
C9c	20.	mfd.	(Elect.) 150 V.
C10	.2	mfd.	400 V.
C11	.05	mfd.	400 V.
C12	.005	mfd.	600 V.
C13a	.00042	mfd.	(max.) Var.
C13b	.00018	mfd.	(max.) Var.
C14	.00002	mfd.	Mica
C20a	30.	mfd.	(Elect.) 150 V.
C20b	50.	mfd.	(Elect.) 150 V.

RESISTORS

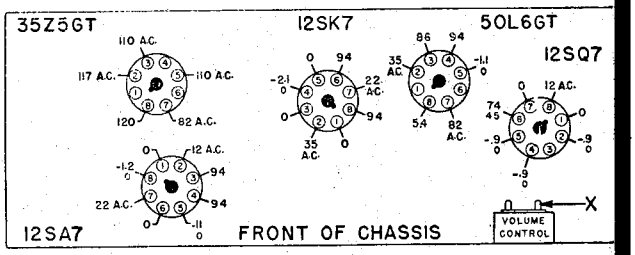
Symbol	Resistance	Type
R1	22,000 ohms	C½W
R2	470,000 ohms	C½W
R3	10 megohms	C½W
R4	220,000 ohms	C½W
R5	470,000 ohms	C½W
R6	150 ohms	C½W
R7	150,000 ohms	C½W
R8	1 megohm	Volume Control
R9	150 ohms	C1W
R10	1,000 ohms	C1W
R11	33 ohms	C1W

COILS

Symbol	Description
L1	Loop
L2	1st I. F. Trans.
L3	2nd I. F. Trans.
L4	Osc. Coil
L5	Choke, Filter



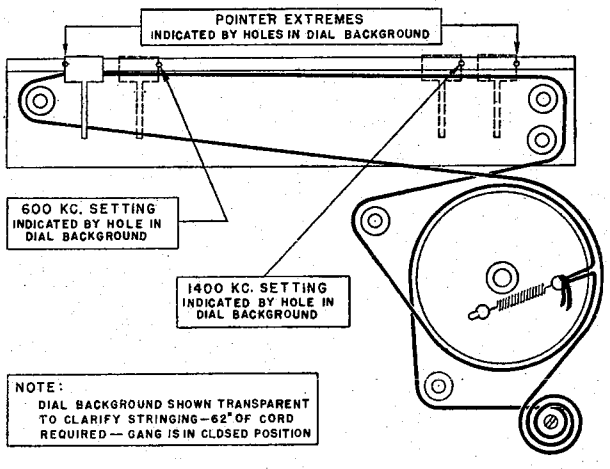
VOLTAGE DATA:—



Bottom View of Chassis, Showing Voltages

All readings made between Tube Socket Terminals and Switch Lug on volume control (Point "X" on drawing).
Measured on a 117 Volt A.C. line.
Volume control full on.
Dial tuned to low frequency end, no signal.
Voltages indicated obtained on Vacuum Tube voltmeter.
A second voltage reading is shown made with a 1000 ohm-per-volt meter when use of this instrument would result in appreciably lower readings.

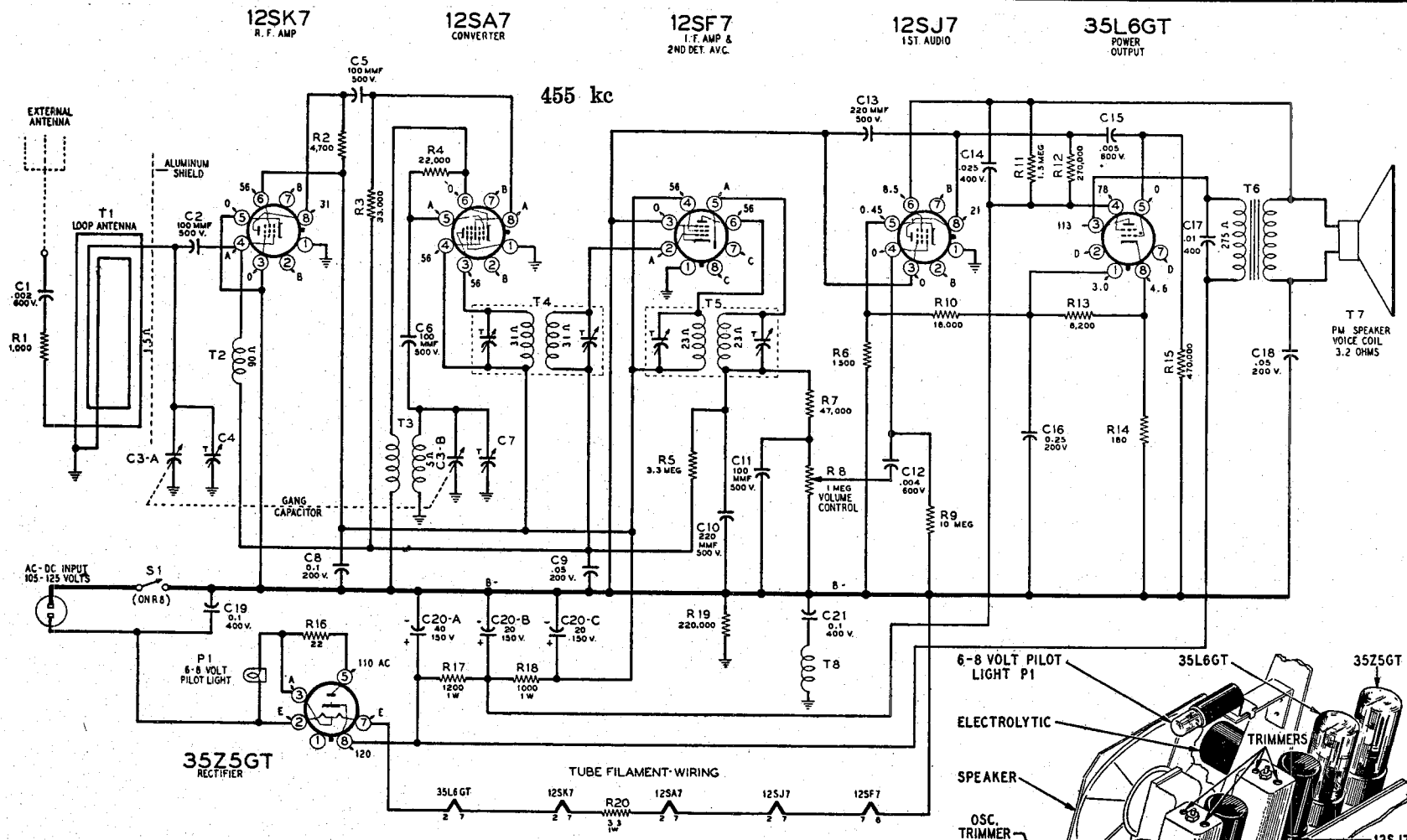
DIAL STRINGING AND POINTER SETTINGS:—

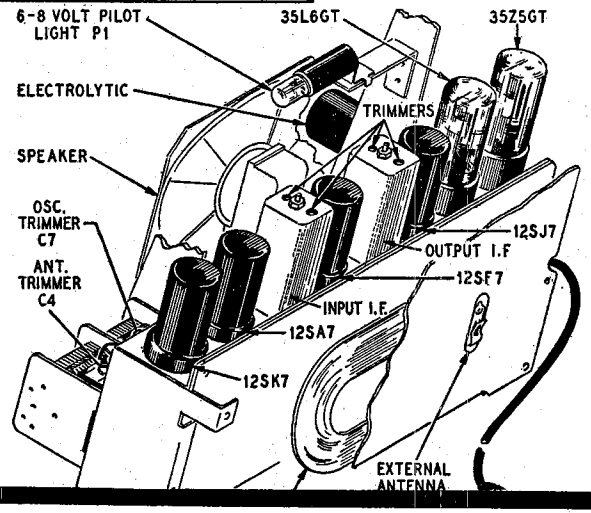


VOLUME CONTROL AND ON-OFF SWITCH

STATION SELECTOR CONTROL

MODEL D2622





WESTERN AUTO SUPPLY COMPANY

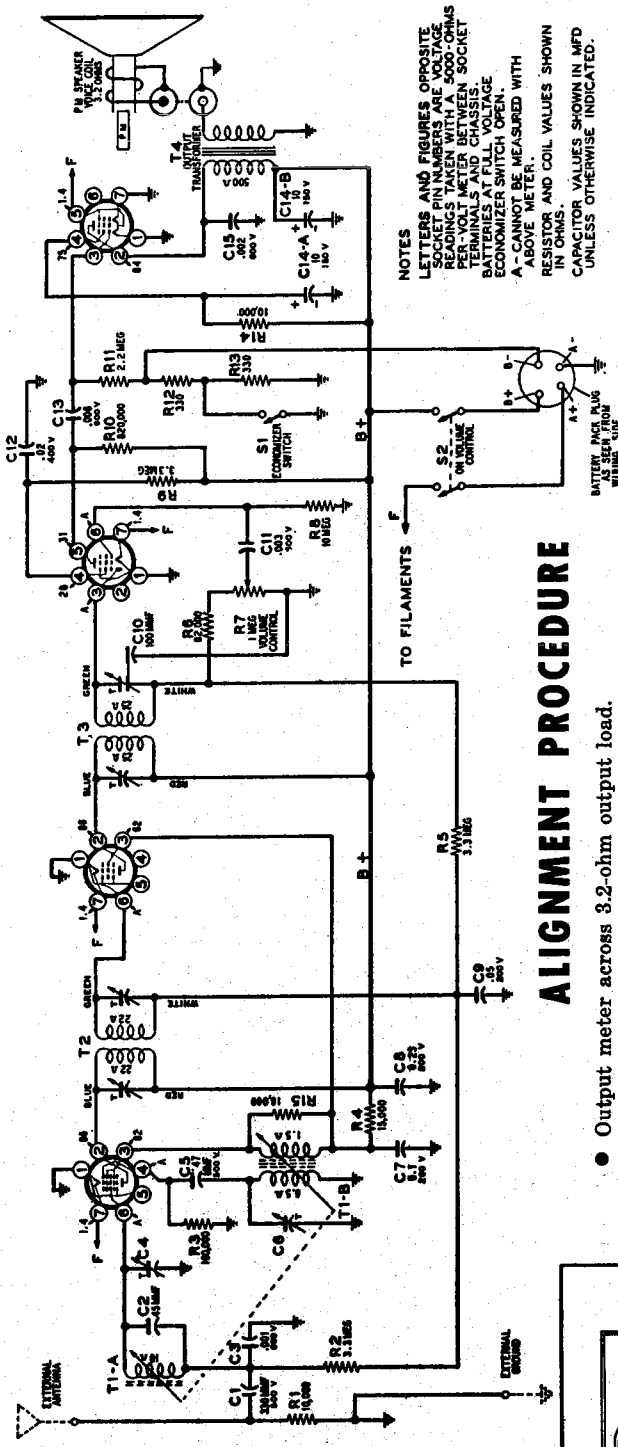
MODEL D2616

Factory Model 6D117

NOTES
- TUBE SOCKET VOLTAGES MEASURED WITH 5000-OHMS-PER-VOLT DC VOLTMETER BETWEEN B- AND DESIGNATED PINS.

A CANNOT BE MEASURED WITH 5000-OHMS PER-VOLT DC VOLTMETER.
B 12 VOLTS AC BETWEEN PINS 2 AND 7.
C 12 VOLTS AC BETWEEN PINS 7 AND 8.
D 35 VOLTS AC BETWEEN PINS 2 AND 7.
E 34 VOLTS AC BETWEEN PINS 2 AND 7.

RESISTOR VALUES ARE ½ WATT UNLESS OTHERWISE SHOWN
CAPACITOR VALUES SHOWN IN "MF" UNLESS OTHERWISE INDICATED.



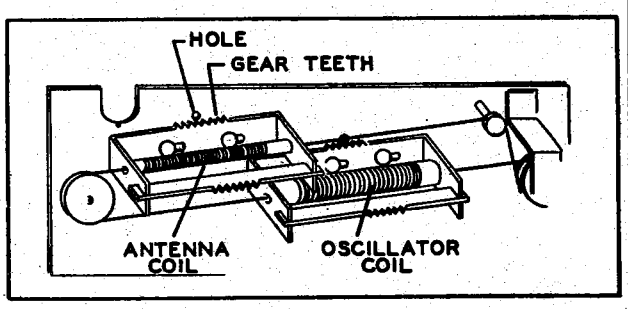
ALIGNMENT PROCEDURE

- Output meter across 3.2-ohm output load.
- Align for maximum output. Reduce input as needed to keep output near 0.4 volts.
- Connect ground post of signal generator to radio chassis.

SIGNAL GENERATOR			Tuner Setting	Adjust for Maximum Output (in order shown)
Frequency	Coupling Capacitor	Connection to Radio		
455 kc	.1 mf	Grid (pin 6) of 1R5	Iron cores all the way out	Trimmers on output and input I.F. cans
1700 kc	.1 mf	Grid (pin 6) of 1R5	Iron cores all the way out	Oscillator trimmer C6
1700 kc	200 mmf	Antenna lead	Iron cores all the way out	Antenna trimmer C4
1400 kc	200 mmf	Antenna lead	Turn dial to 1400 kc	Adjust position of ant. coil (see coil view)*

*This adjustment and the previous adjustment are interlocking; therefore repeat the two adjustments alternately for best results.

COIL VIEW



The antenna coil assembly is movable left or right. When making the adjustment as required in the alignment procedure, move the coil assembly very slowly, either by hand or by pivoting one edge of a screwdriver blade in the hole and engaging the blade in the gear teeth of the coil form.

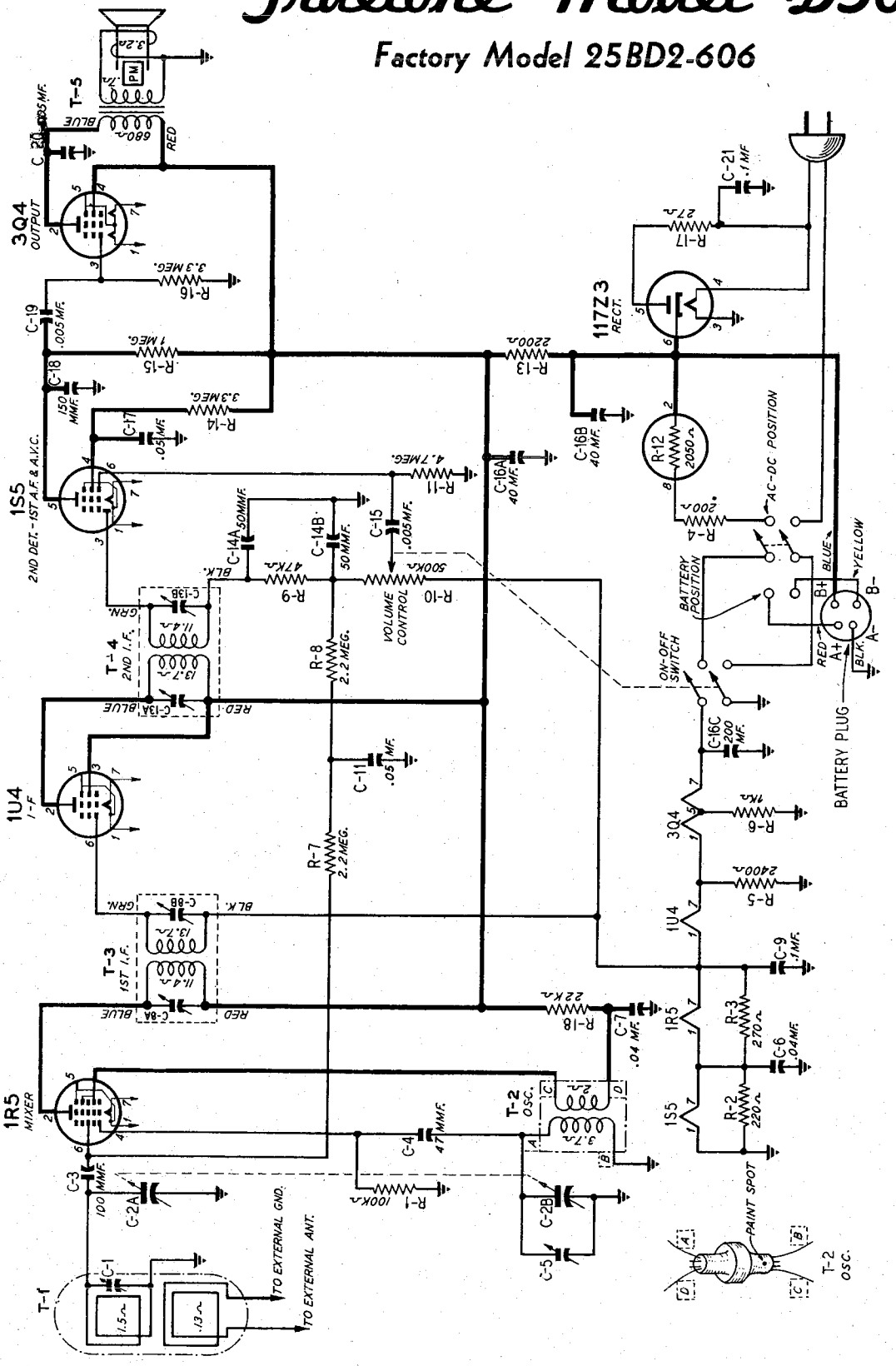
WESTERN AUTO SUPPLY

MODEL D2665

Factory Model 4B114 - Series A

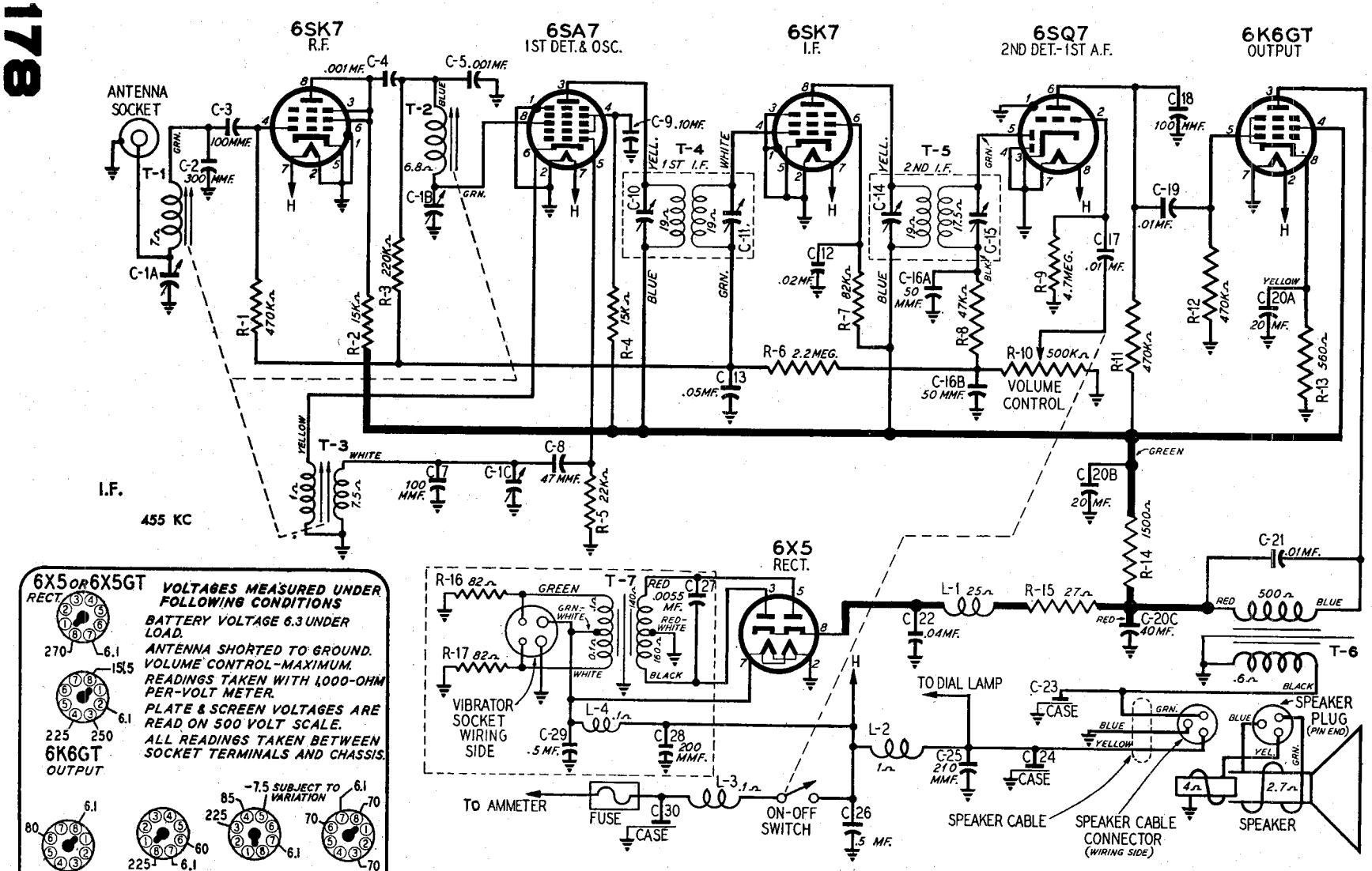
Truetone Model D3615

Factory Model 25BD2-606



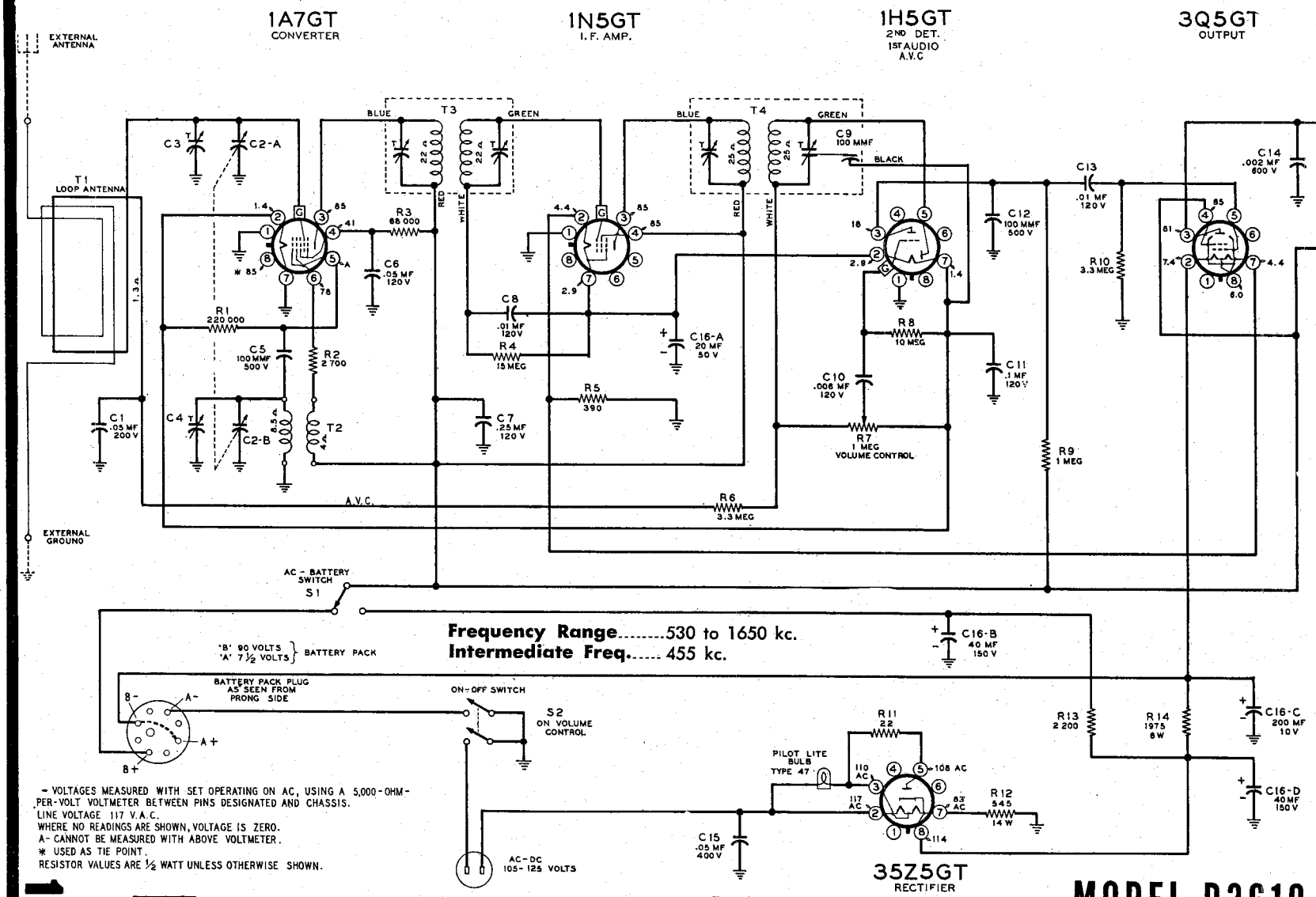
"A" Battery Supply—7½ volts 50 Ma.
"B" Battery Supply—90 volts 13 Ma.

Intermediate Frequency.....455 KC
Selectivity.....at 1000 KC, 41 KC wide at 1000 times signal



Truetone Model D4630

Factory Model 26C19-61



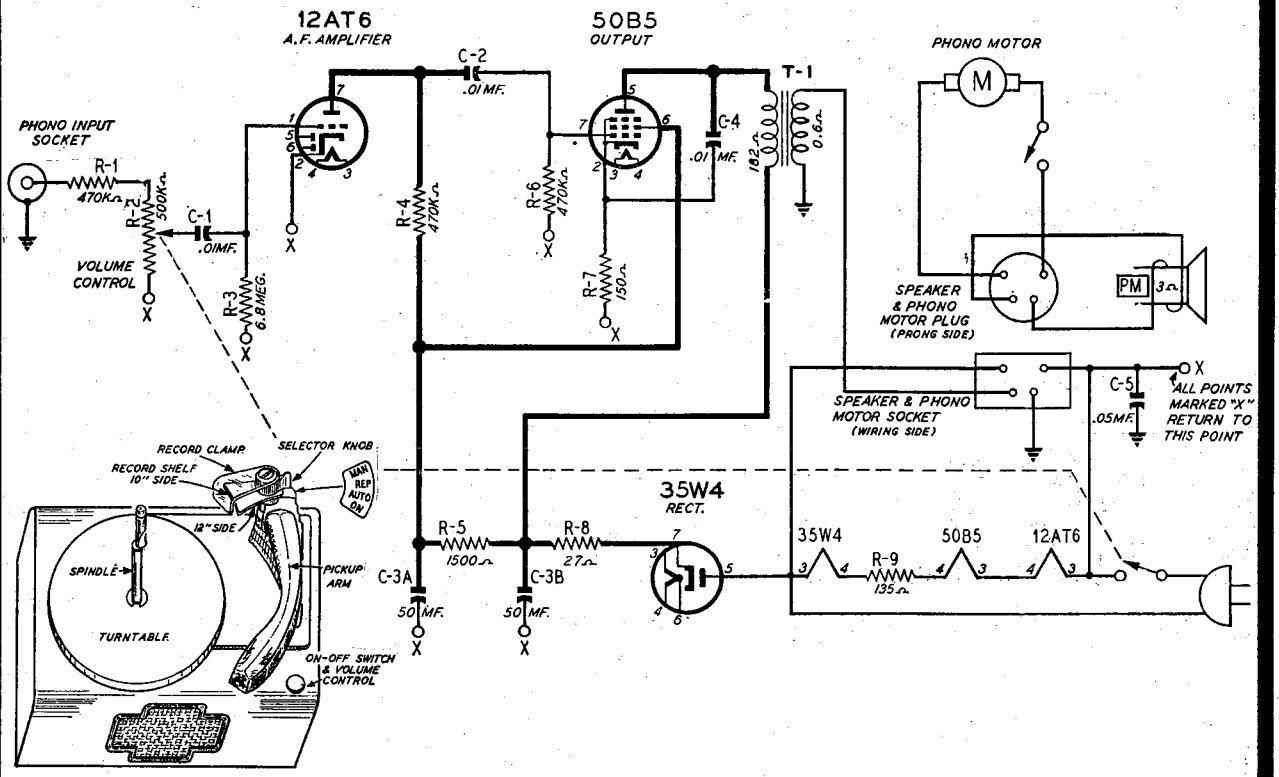
TRUETONE RADIO

MODEL D3619

Factory Model 5P110

Truetone Model D2607

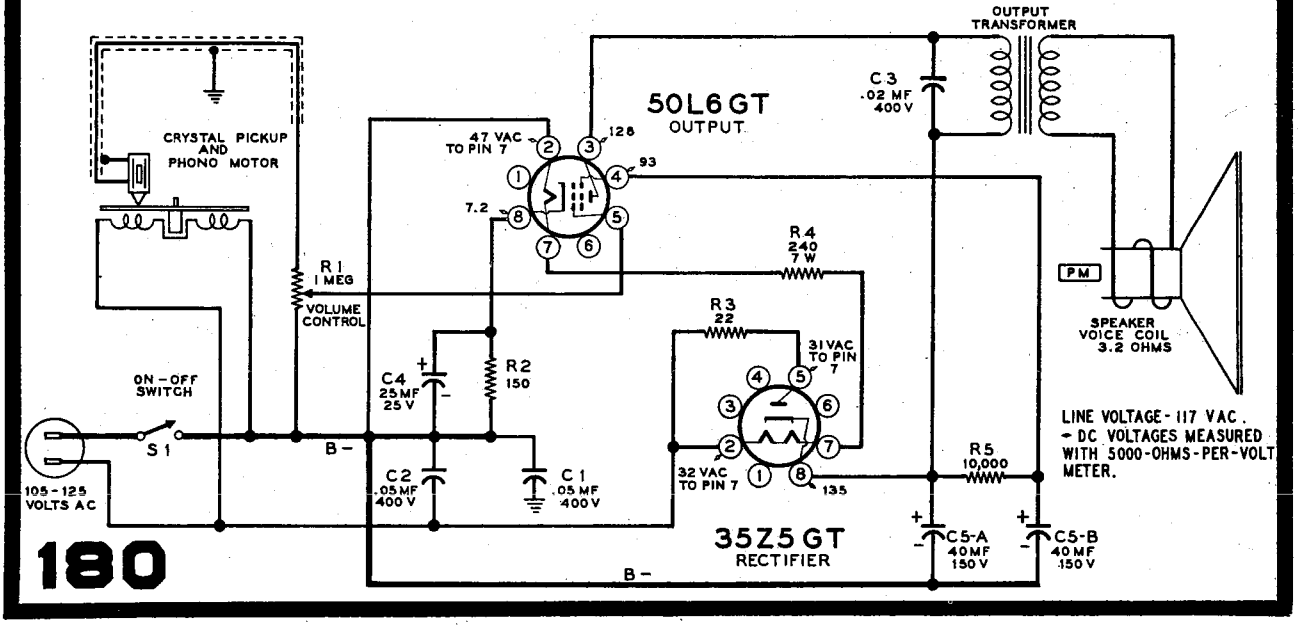
Factory Model 23P1-634



TRUETONE

MODEL D2605

Factory Model 2AW2



Westinghouse Electric

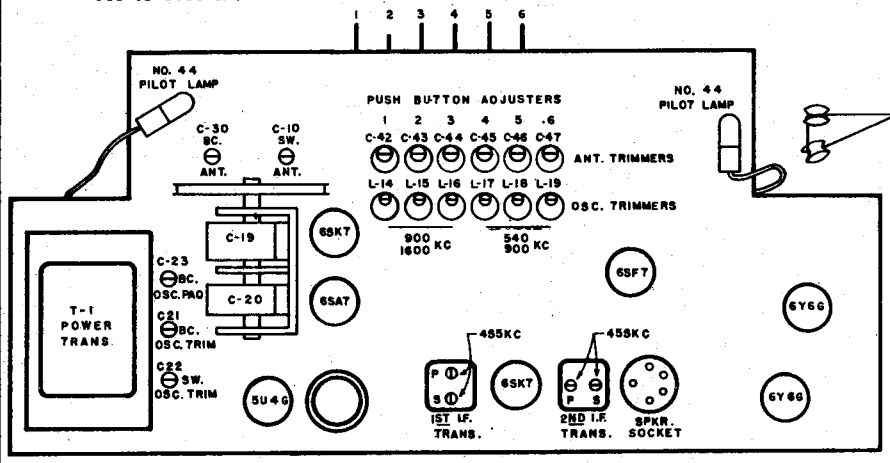
H-104 MAHOGANY **H-105** WALNUT **H-107** MAHOGANY **H-108** WALNUT

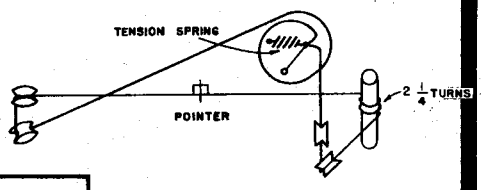
Steps	Connect Signal Generator to—	Adjust Signal Generator to—	Tune Radio Dial to —	Adjust
1	6SK7, i-f amplifier, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	secondary trimmer of 2nd i-f transformer for maximum output
2	6SK7, i-f amplifier, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	primary trimmer of 2nd i-f transformer for maximum output
3	6SA7, converter, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	secondary trimmer of 1st i-f transformer for maximum output
4	6SA7, converter, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	primary trimmer of 1st i-f transformer for maximum output
5	6SA7, converter, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	"peak" all i-f trimmers for maximum output
6	6SK7, r-f amplifier, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	i-f rejection trap trimmer for minimum output
7	"B.C." antenna terminal through a 200 mmfd. capacitor	600 kc	600 kc	broadcast band "oscillator padder" for maximum output
8	"B.C." antenna terminal through a 200 mmfd. capacitor	1620 kc	minimum capacity stop	broadcast band "oscillator trimmer" for maximum output
9	recheck steps 7 and 8 in order given			
10	radiated signal (no actual connection)	1400 kc	1400 kc	broadcast band "antenna trimmer" for maximum output
11	set phono-band switch on position "4"			
12	"S.W." antenna terminal through 400 ohm resistor	18.5 mc	minimum capacity stop	short wave "oscillator trimmer" for maximum output
13	radiated signal (no actual connection)	16 mc	16 mc	short wave "antenna trimmer" for maximum output

PUSH BUTTONS

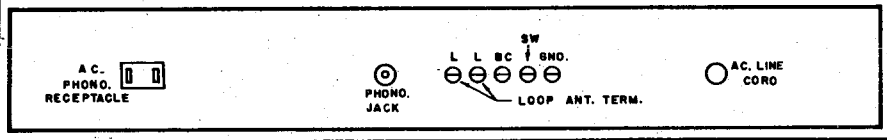
Push buttons 1 to 3 are designed to receive stations from 900 to 1600 kc; push buttons 4 to 6 are designed to receive stations from 540 to 900 kc.

1. Turn on radio and allow it to warm up for five minutes.
2. Set the phono-band switch on "BROADCAST." Tune in the desired station in the frequency range 900 to 1600 kc.
3. Reset the phono-band switch on "PUSH BUTTON" and depress the first push button (right button, viewed from the front). Adjust L14, using a small long-handled screwdriver, to receive the station. Adjust C42 for maximum volume on the station.
4. Return the band switch to "BROADCAST" to make sure that the push button has been set to the desired station.
5. Adjust remaining push buttons in the same manner.





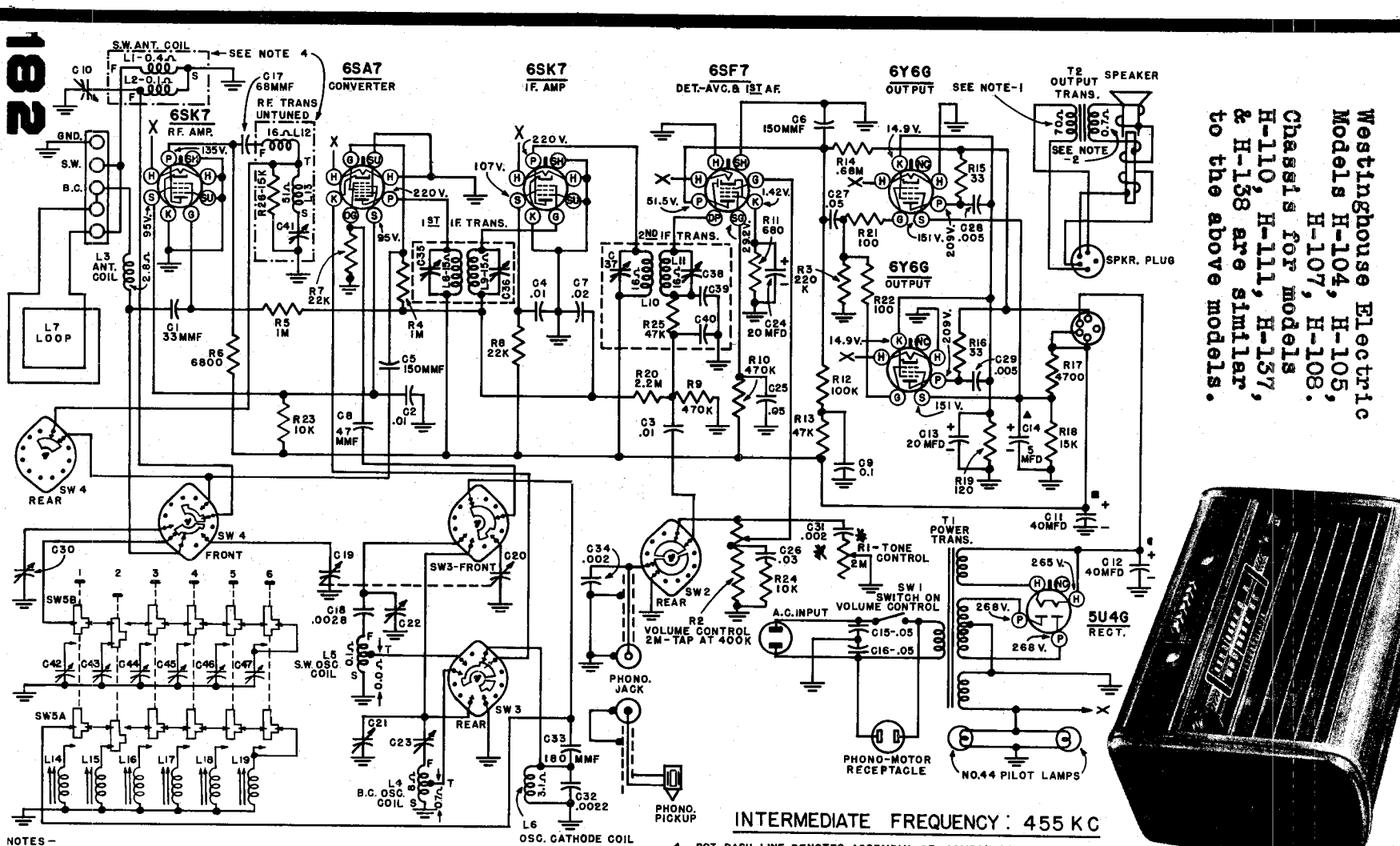
DIAL DRIVE MECHANISM



CHASSIS LAYOUT

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Westinghouse Electric
Models H-104, H-105,
H-107, H-108.
Chassis for models
H-110, H-111, H-137,
& H-138 are similar
to the above models.



NOTES—
1. SPEAKER PLUG REMOVED.
2. VOICE COIL DISCONNECTED.
3. SWITCH SW2-3 & 4 SHOWN AS VIEWED FROM FRONT OF SET IN P.B.-B.C. POSITION.
   EXTREME COUNTER CLOCKWISE POSITION IS PHONO.
   SECOND POSITION CLOCKWISE IS P.B.-B.C. BAND.
   THIRD POSITION CLOCKWISE IS MANUAL B.C. BAND.
   FOURTH POSITION CLOCKWISE IS S.W. BAND.
4. DOT-DASH LINE DENOTES ASSEMBLY OF COMPONENT PARTS UNSHIELDED
5. ALL VOLTAGES MEASURED FROM CHASSIS (GND.) USING 20,000 OHMS/VOLT METER. LINE VOLTAGE 117 V.A.C. MAX. VOLUME CONTROL SETTING AT NO SIGNAL CONDITIONS FOR THE BROADCAST BAND.
   READINGS SHOULD APPROXIMATE THE VALUES SHOWN WITHIN 20 PERCENT.

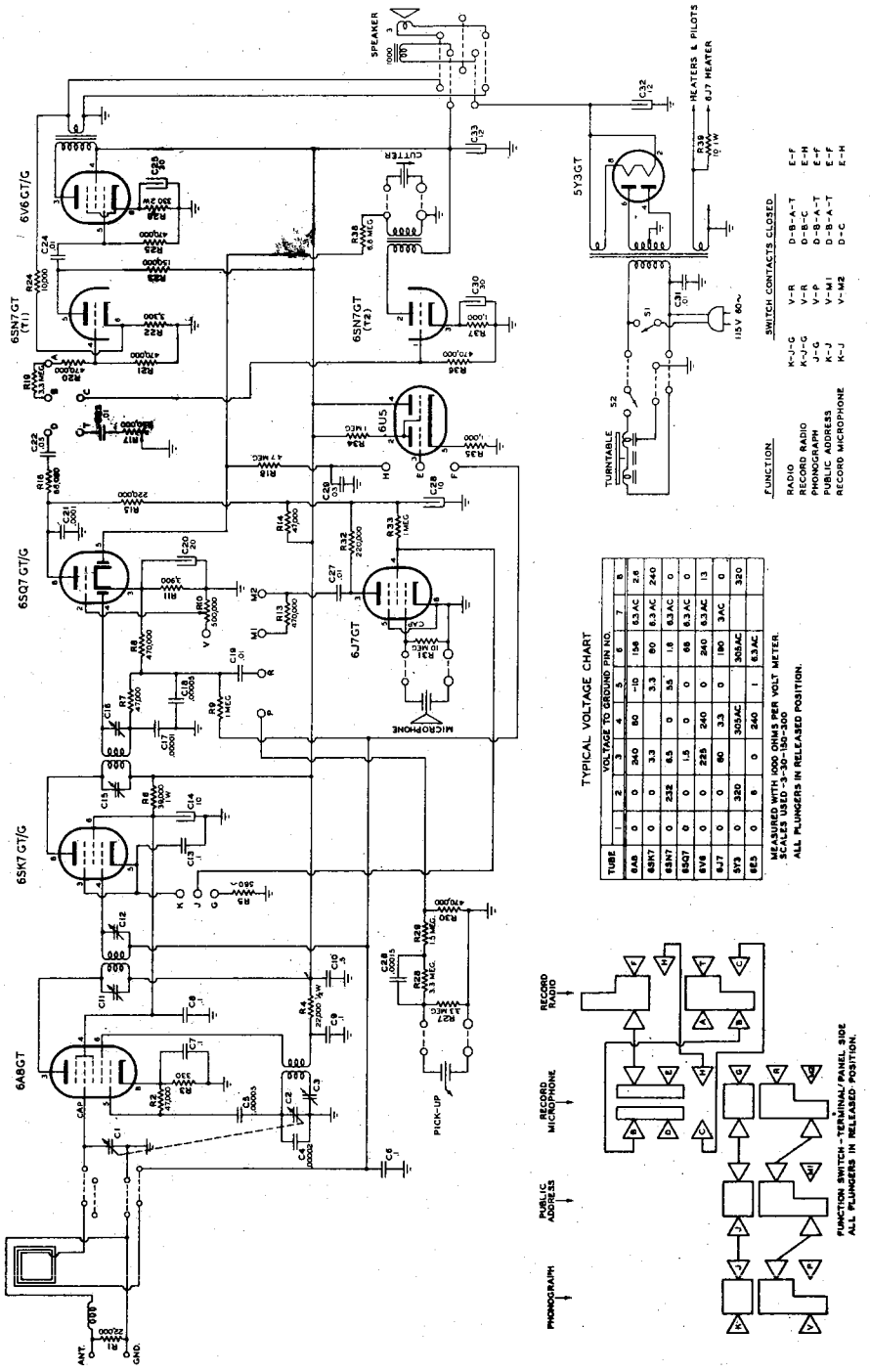
*R1-C31 in some later models were wired across R14 for tone control action.

H-104 MAHOGANY **H-105** WALNUT **H-107** MAHOGANY **H-108** WALNUT

WILCOX-GAY CORPORATION — CHARLOTTE, MICHIGAN

Models 6B10-6B20-6B30-6B32

Schematic Diagram—Serial Numbers 701, 752 to 703, 631

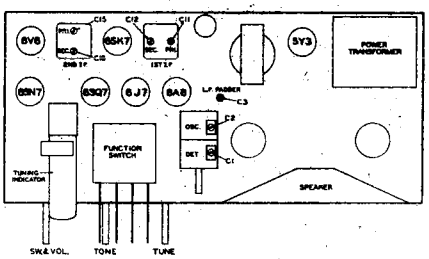


An OUTPUT METER or other indication device should be used for accuracy in making ganging adjustments. If an output meter is not available, the tuning indicator may be used as an output indicator. Resonance of the circuits will be indicated by the maximum closing of the tuning eye.

Alignment data continued on the next page.

Alignment Data — Models 6B10, 6B20, 6B30, 6B32, 6B40

1. Connect signal generator to control grid of 6A8 tube
2. Set volume control to near maximum.
3. Set tuning dial at 1500 K.C.
4. Set signal generator at 456 K.C.
5. Align trimmers in the following order:



1. Secondary 2nd I.F. (C16)
2. Primary 2nd I.F. (C15)
3. Secondary 1st I.F. (C12)
4. Primary 1st I.F. (C11)

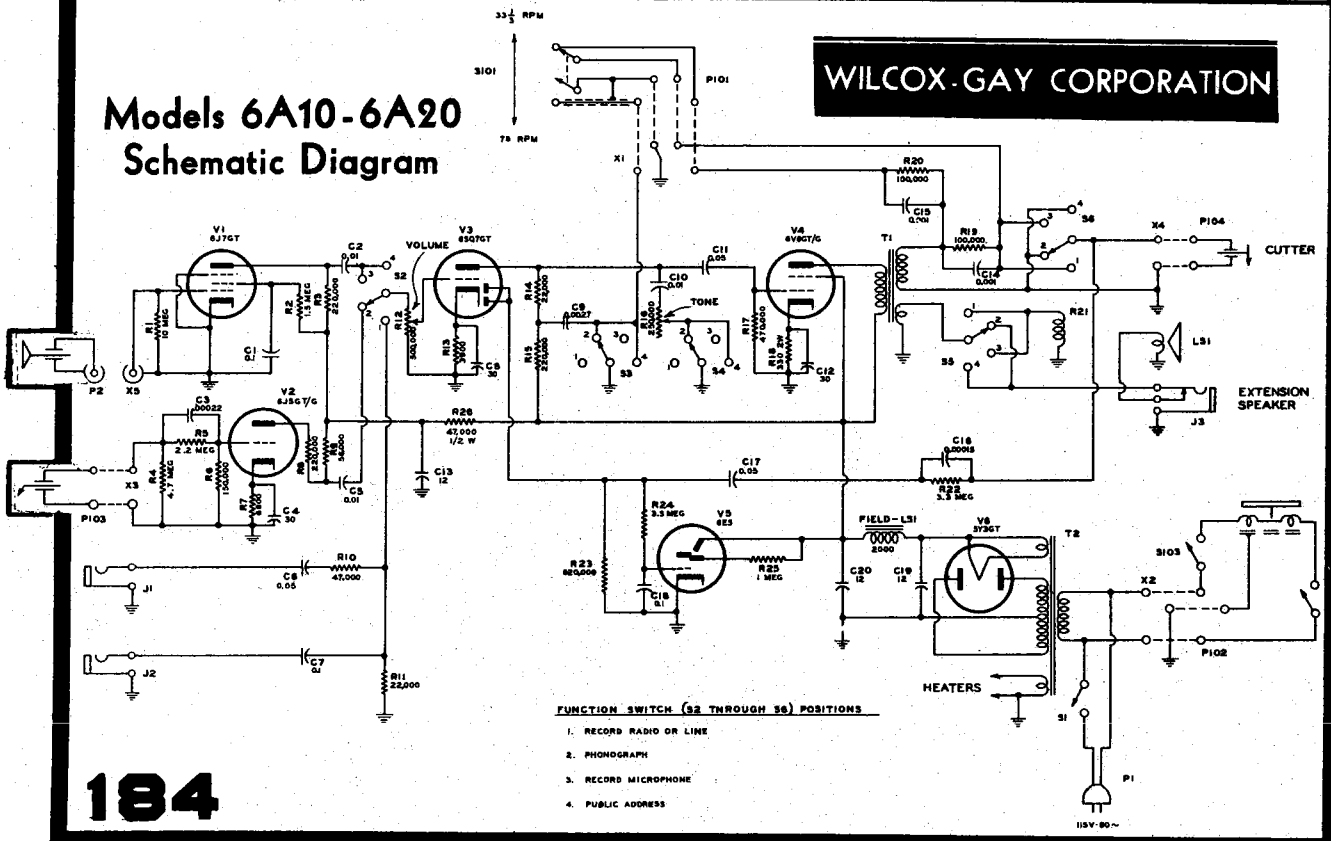
Repeat procedure to obtain greatest accuracy in the adjustment of the trimmer condensers.

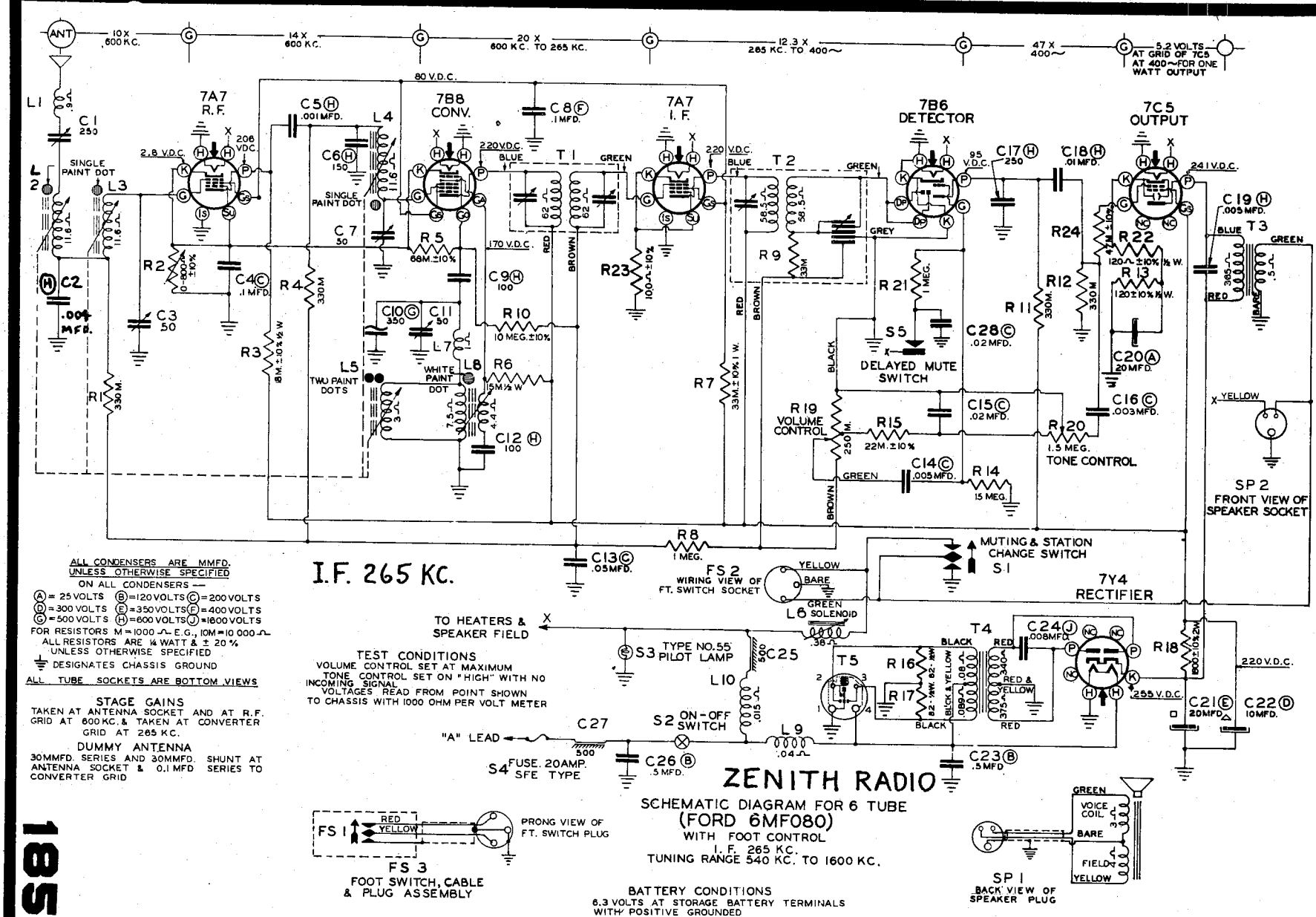
6. Connect signal generator to the ANT and GND leads.
7. Turn condenser gang to full maximum capacity and check position of dial pointer with reference line on the scale which is the last graduation below the 550 K.C. calibration.

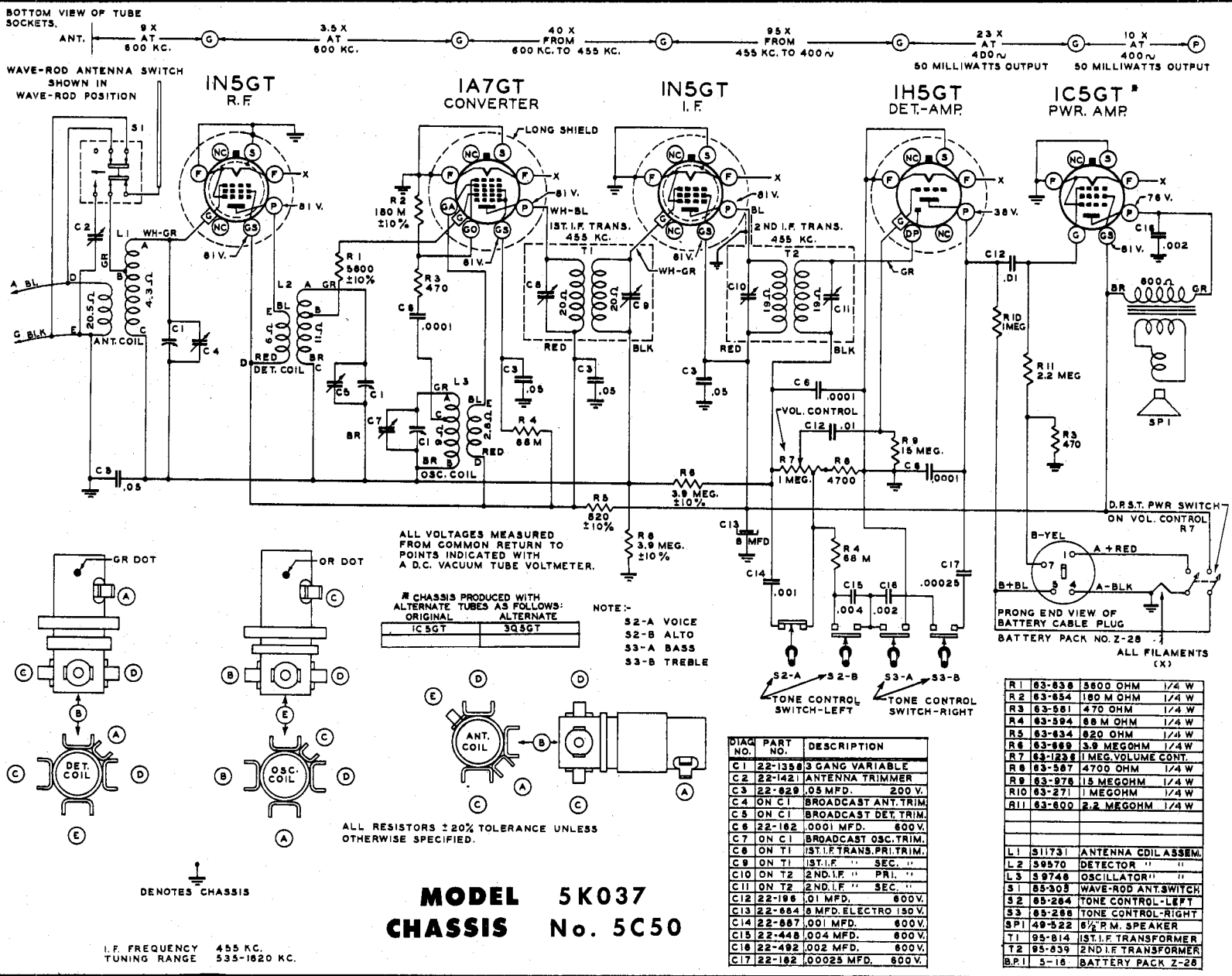
SIGNAL GENERATOR FREQUENCY	DIAL SETTING	TRIMMER
600 K.C.	600 K.C.	L.F. Pad (C3)
1400 K.C.	1400 K.C.	Osc. (C2)
1400 K.C.	1400 K.C.	Det. (C1)

WILCOX-GAY CORPORATION

Models 6A10-6A20
Schematic Diagram




ANT
10 X 600 KC.
14 X 600 KC.
20 X 600 KC. TO 265 KC.
12.3 X 265 KC. TO 400~
47 X 400~
5.2 VOLTS AT GRID OF 7C5 AT 400~ FOR ONE WATT OUTPUT
7A7 R.F.
7B8 CONV.
7A7 I.F.
7B6 DETECTOR
7C5 OUTPUT
80 V.D.C.
220 V.D.C.
170 V.D.C.
95 V.D.C.
241 V.D.C.
255 V.D.C.
2.8 V.D.C.
206 VDC.
SINGLE PAINT DOT
TWO PAINT DOTS
WHITE PAINT DOT
DELAYED MUTE SWITCH
VOLUME CONTROL
TONE CONTROL
MUTING & STATION CHANGE SWITCH
7Y4 RECTIFIER
SP 2
FRONT VIEW OF SPEAKER SOCKET
I.F. 265 KC.
FS 2
WIRING VIEW OF FT. SWITCH SOCKET
L6 SOLENOID
TO HEATERS & SPEAKER FIELD
S3 TYPE NO.55 PILOT LAMP
S2 ON-OFF SWITCH
S4 FUSE. 20AMP. SFE TYPE
"A" LEAD
TEST CONDITIONS
VOLUME CONTROL SET AT MAXIMUM
TONE CONTROL SET ON "HIGH" WITH NO INCOMING SIGNAL
VOLTAGES READ FROM POINT SHOWN TO CHASSIS WITH 1000 OHM PER VOLT METER
ALL CONDENSERS ARE MMFD. UNLESS OTHERWISE SPECIFIED
ON ALL CONDENSERS —
(A) = 25 VOLTS (B) = 120 VOLTS (C) = 200 VOLTS
(D) = 300 VOLTS (E) = 350 VOLTS (F) = 400 VOLTS
(G) = 500 VOLTS (H) = 600 VOLTS (J) = 1600 VOLTS
FOR RESISTORS M = 1000 Ω E.G., 10M = 10 000 Ω
ALL RESISTORS ARE ½ WATT & ± 20 % UNLESS OTHERWISE SPECIFIED
DESIGNATES CHASSIS GROUND
ALL TUBE SOCKETS ARE BOTTOM VIEWS
STAGE GAINS
TAKEN AT ANTENNA SOCKET AND AT R.F. GRID AT 600 KC. & TAKEN AT CONVERTER GRID AT 265 KC.
DUMMY ANTENNA
30MMFD. SERIES AND 30MMFD. SHUNT AT ANTENNA SOCKET & 0.1 MFD SERIES TO CONVERTER GRID
FS 1
PRONG VIEW OF FT. SWITCH PLUG
FS 3
FOOT SWITCH, CABLE & PLUG ASSEMBLY
SP 1
BACK VIEW OF SPEAKER PLUG
ZENITH RADIO
SCHEMATIC DIAGRAM FOR 6 TUBE (FORD 6MF080)
WITH FOOT CONTROL
I. F. 265 KC.
TUNING RANGE 540 KC. TO 1600 KC.
BATTERY CONDITIONS
6.3 VOLTS AT STORAGE BATTERY TERMINALS WITH POSITIVE GROUNDED

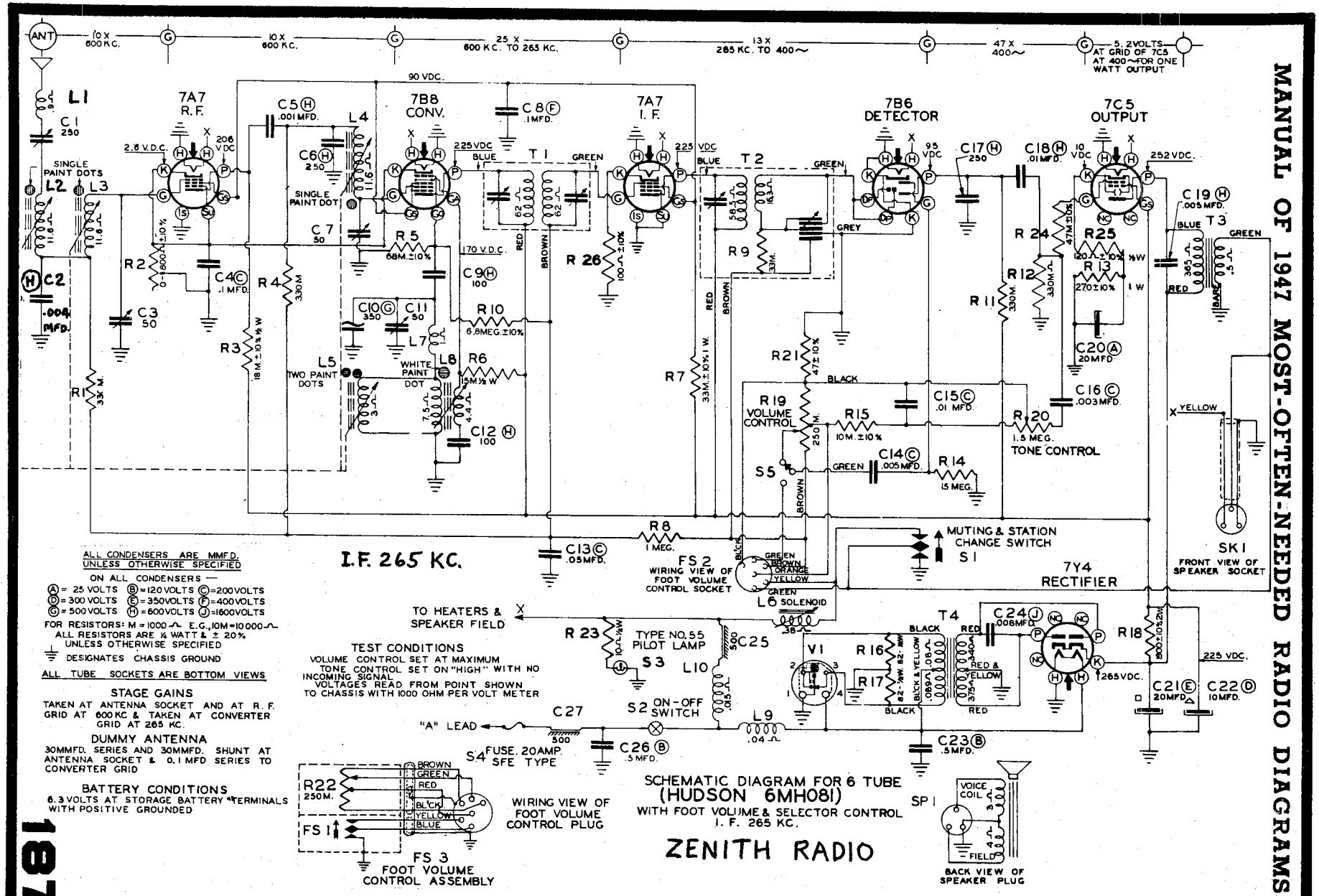


DIAG NO.	PART NO.	DESCRIPTION
C1	22-1358	3 GANG VARIABLE
C2	22-1421	ANTENNA TRIMMER
C3	22-629	.05 MFD. 200 V.
C4	ON C1	BROADCAST ANT. TRIM.
C5	ON C1	BROADCAST DET. TRIM.
C6	22-162	.0001 MFD. 600 V.
C7	ON C1	BROADCAST OSC. TRIM.
C8	ON T1	1ST. I.F. TRANS. PRI. TRIM.
C9	ON T1	1ST. I.F. " SEC. "
C10	ON T2	2ND. I.F. " PRI. "
C11	ON T2	2ND. I.F. " SEC. "
C12	22-196	.01 MFD. 600 V.
C13	22-664	8 MFD. ELECTRO 150 V.
C14	22-887	.001 MFD. 600 V.
C15	22-448	.004 MFD. 600 V.
C16	22-492	.002 MFD. 600 V.
C17	22-182	.00025 MFD. 600 V.

R1	63-638	5600 OHM	1/4 W
R2	63-654	180 M OHM	1/4 W
R3	63-581	470 OHM	1/4 W
R4	63-594	68 M OHM	1/4 W
R5	63-634	820 OHM	1/4 W
R6	63-669	3.9 MEGOHM	1/4 W
R7	63-1238	1 MEG. VOLUME CONT.	
R8	63-587	4700 OHM	1/4 W
R9	63-976	15 MEGOHM	1/4 W
R10	63-271	1 MEGOHM	1/4 W
R11	63-600	2.2 MEGOHM	1/4 W
L1	511731	ANTENNA COIL ASSEM.	
L2	59570	DETECTOR " "	
L3	59746	OSCILLATOR " "	
S1	85-303	WAVE-ROD ANT. SWITCH	
S2	85-264	TONE CONTROL-LEFT	
S3	85-266	TONE CONTROL-RIGHT	
SP1	49-522	6½" P.M. SPEAKER	
T1	95-814	1ST. I.F. TRANSFORMER	
T2	95-839	2ND I.F. TRANSFORMER	
B.P.1	5-16	BATTERY PACK Z-28	

MODEL 5K037
CHASSIS No. 5C50

I.F. FREQUENCY 455 KC.
TUNING RANGE 535-1620 KC.

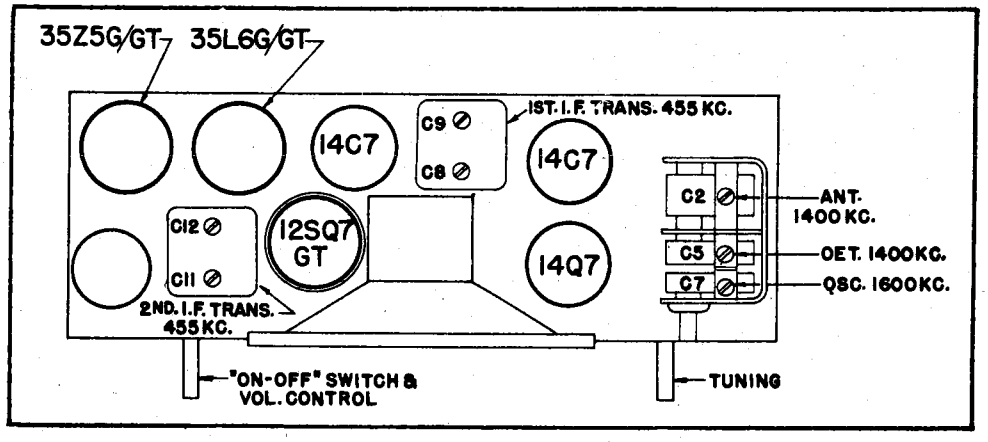

ANT
10 X 600 KC.
10 X 600 KC.
25 X 600 KC. TO 265 KC.
13 X 265 KC. TO 400~
47 X 400~
5.2 VOLTS AT GRID OF 7C5 AT 400~ FOR ONE WATT OUTPUT
90 VDC.
7A7 R.F.
7B8 CONV.
7A7 I.F.
7B6 DETECTOR
7C5 OUTPUT
L1
C1 250
SINGLE PAINT DOTS
L2
L3
C2 .004 MFD.
C3 50
R1 33K M.
R2 0-1600Ω ±10%
C4 .1 MFD.
R3 18 M. ±10% ½ W
R4 330M
C5 .001 MFD.
C6 250
SINGLE PAINT DOT
C7 50
L4
L5 TWO PAINT DOTS
L6 WHITE PAINT DOT
L7
L8
C10 350
C11 50
R5 68M. ±10%
R6 15M ½ W
C9 100
R10 6.8MEG. ±10%
C12 100
T1
R26 100K Ω ±10%
C8 .1MFD.
T2
R9 3.3M.
R7 33M. ±10% 1 W.
R21 47K ±10%
R19 VOLUME CONTROL 250 M.
R15 10M. ±10%
C14 .005 MFD.
R14 .15 MEG.
S5
C15 .01 MFD.
R20 1.5 MEG. TONE CONTROL
C17 250
R11 330M.
R12 330M.
C18 .01 MFD.
R24 47M ±10%
R25 20K ±10% ½W
R13 270 ±10% 1 W
C20 20 MFD
C16 .003 MFD.
C19 .005 MFD.
T3
SK1 FRONT VIEW OF SPEAKER SOCKET
R8 1 MEG.
C13 .05 MFD.
FS2 WIRING VIEW OF FOOT VOLUME CONTROL SOCKET
MUTING & STATION CHANGE SWITCH S1
7Y4 RECTIFIER
L6 SOLENOID
TO HEATERS & SPEAKER FIELD
R23 10Ω ½W
TYPE NO. 55 PILOT LAMP
S3
C25 50
L10 .05
V1
R16 82 Ω 4W
R17 82 Ω 4W
T4
C24 .008MFD
R18 1800 ±10% 2W
C21 20MFD
C22 10MFD.
C23 .5 MFD.
S2 ON-OFF SWITCH
C27 500
"A" LEAD
L9 .04
C26 .5 MFD.
S4 FUSE. 20AMP. SFE TYPE
R22 250M.
FS1
FS3 FOOT VOLUME CONTROL ASSEMBLY
WIRING VIEW OF FOOT VOLUME CONTROL PLUG
SP1
VOICE COIL
FIELD
BACK VIEW OF SPEAKER PLUG
I.F. 265 KC.
ALL CONDENSERS ARE MMFD. UNLESS OTHERWISE SPECIFIED
ON ALL CONDENSERS —
(A) = 25 VOLTS (B) = 120 VOLTS (C) = 200 VOLTS
(D) = 300 VOLTS (E) = 350 VOLTS (F) = 400 VOLTS
(G) = 500 VOLTS (H) = 600 VOLTS (J) = 1600 VOLTS
FOR RESISTORS: M = 1000Ω E.G., 10M = 10000Ω
ALL RESISTORS ARE ½ WATT & ± 20% UNLESS OTHERWISE SPECIFIED
DESIGNATES CHASSIS GROUND
ALL TUBE SOCKETS ARE BOTTOM VIEWS
STAGE GAINS
TAKEN AT ANTENNA SOCKET AND AT R. F. GRID AT 600 KC & TAKEN AT CONVERTER GRID AT 265 KC.
DUMMY ANTENNA
30MMFD. SERIES AND 30MMFD. SHUNT AT ANTENNA SOCKET & 0.1 MFD SERIES TO CONVERTER GRID
BATTERY CONDITIONS
6.3 VOLTS AT STORAGE BATTERY TERMINALS WITH POSITIVE GROUNDED
TEST CONDITIONS
VOLUME CONTROL SET AT MAXIMUM
TONE CONTROL SET ON "HIGH" WITH NO INCOMING SIGNAL
VOLTAGES READ FROM POINT SHOWN TO CHASSIS WITH 1000 OHM PER VOLT METER
SCHEMATIC DIAGRAM FOR 6 TUBE (HUDSON 6MH081)
WITH FOOT VOLUME & SELECTOR CONTROL
I. F. 265 KC.
ZENITH RADIO

Zenith Radio Corp.

MODELS 6D014—6D029
CHASSIS No. 6C01

ALIGNMENT PROCEDURE

CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	C-8,C-9, C-11,C-12	Align I. F.
One Turn Loop Coupled Loosely to Wave Magnet	--	1600 Kc.	1600 Kc.	C-7	Set Oscillator to Dial Scale.
	--	1400 Kc.	1400 Kc.	C-5	Align detector
	--	1400 Kc.	1400 Kc.	C-2	Align antenna stage



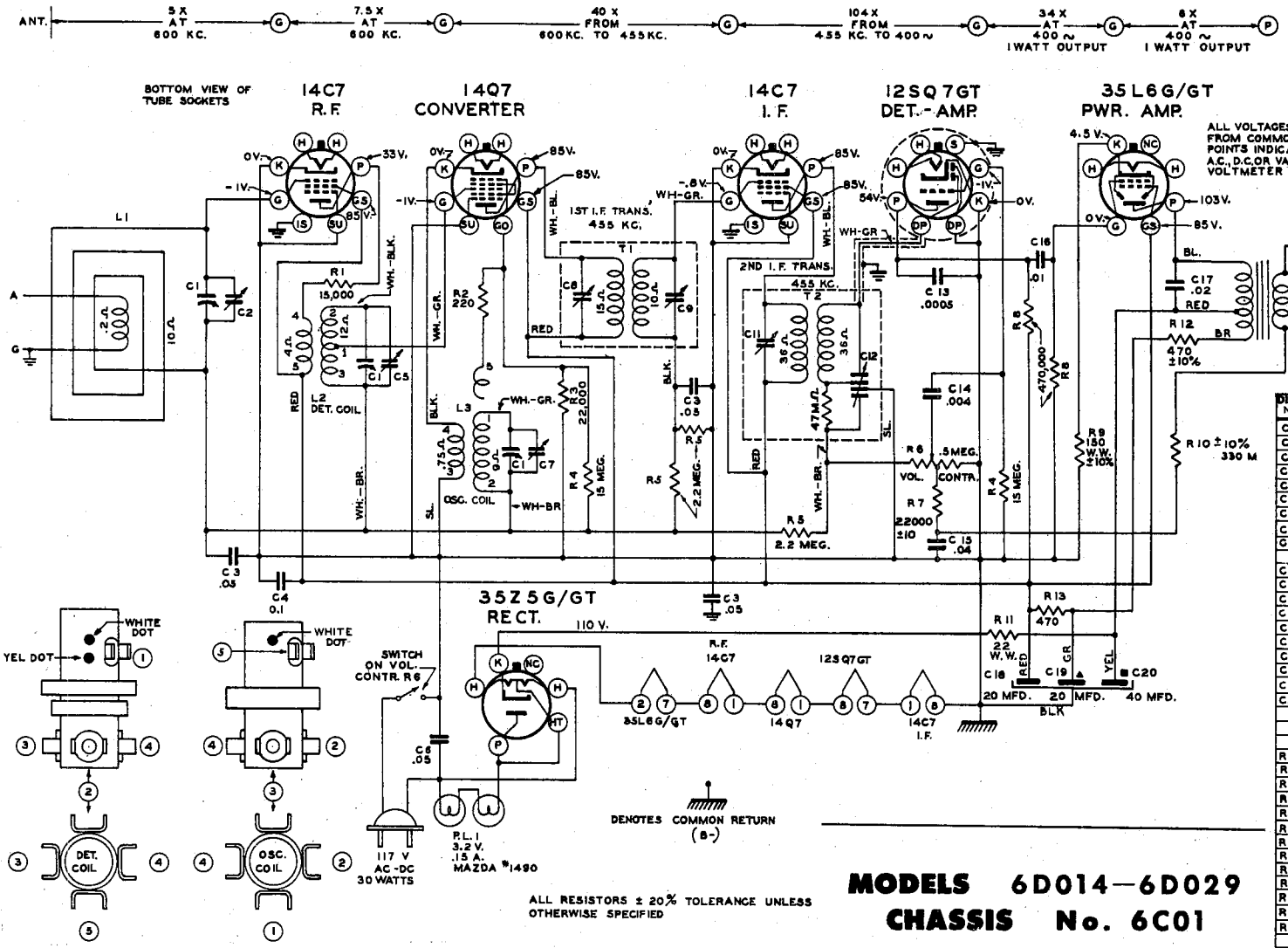
TUBE AND TRIMMER LOCATION

Chassis 6C01 features a high gain tuned R.F. circuit ahead of a conventional superheterodyne circuit, with feedback in the audio circuit, and a new filter circuit to reduce hum to a minimum.

Part of the audio voltage from the voice coil is fed back to the first audio grid(12SQ7) in phase through resistor R10 and R7 to a tap on the volume control R6. Capacitor C15 bypasses highs to ground. One side of the output transformer secondary is grounded. The side grounded determines the phase relationship of the feedback voltage, therefore, when replacing the output transformer be certain the proper end of the secondary is grounded or degeneration will result. The overall result of this arrangement is to boost the bass tones.

The filter circuits of chassis 6C01 incorporate new features that should be well understood by the service man. An examination of the schematic drawing will show the output transformer tapped slightly off center. This tap is the B+ connection from filter resistor R11 and capacitor C20 off the cathode of the rectifier 35Z5 to the 35L6 plate. The lower connection of the output transformer feeds B+ to the rest of the tubes in the receiver. Current flowing through the upper windings of the output transformer to the 35L6 produces a magnetic field which is 180° out of phase with the magnetic field produced by current flowing in the opposite direction through the output transformer to the rest of the receiver, therefore, most of the AC hum is cancelled. Further reduction of hum is accomplished by filtering through resistors R12 and R13 and capacitors C18 and C19.

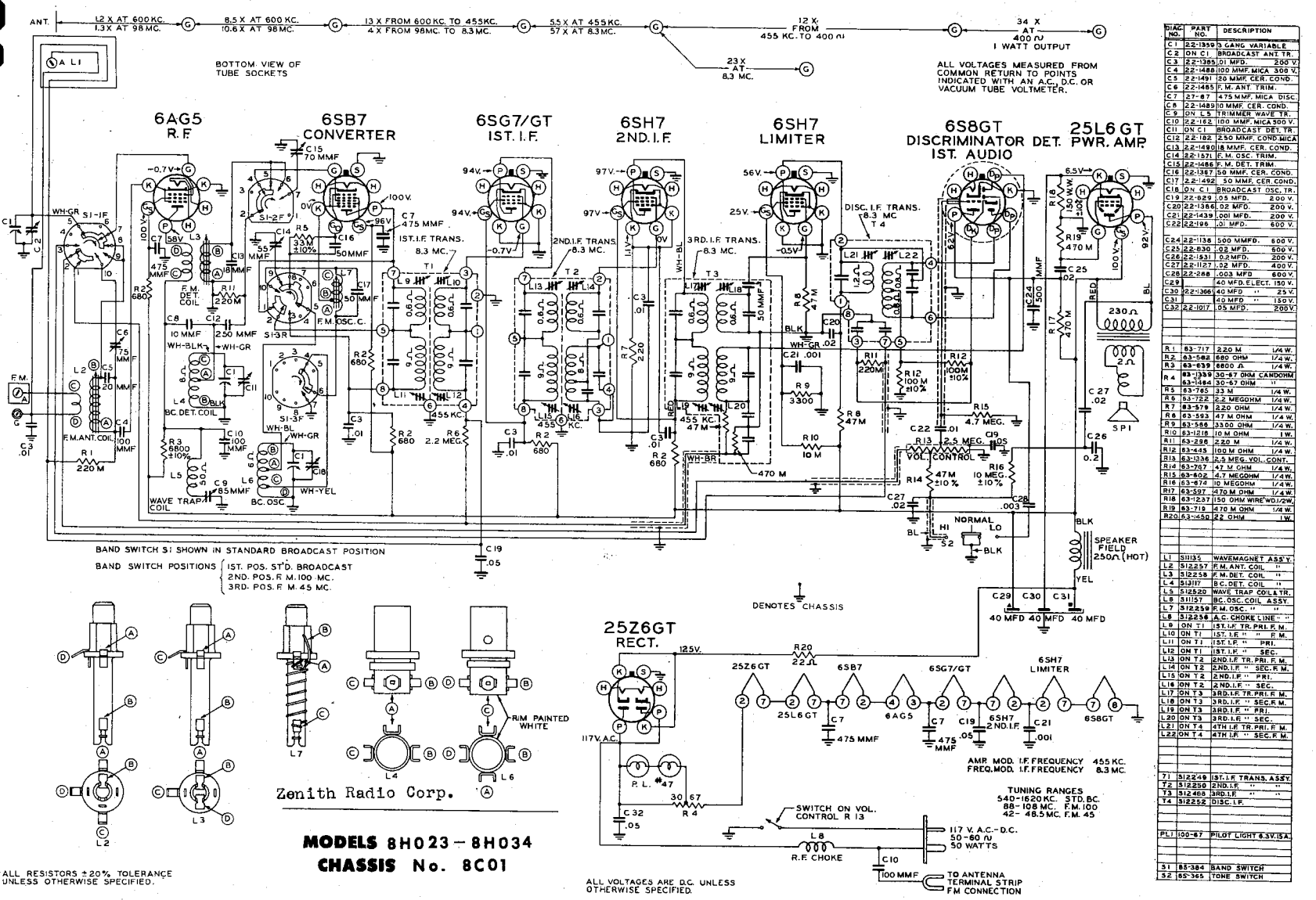
This development in filtering systems allows a higher effective plate voltage on the 35L6 for increased power output.



DIAG NO.	PART NO.	DESCRIPTION
C1	22-1358	3-GANG VARIABLE
C2	ON C1	BROADCAST ANT. TRIM.
C3	22-629	.05 MFD. 200 V.
C4	22-627	.1 MFD. 200 V.
C5	ON C1	BROADCAST DET. TRIM.
C6	22-1017	.05 MFD. 200 V.
C7	ON C1	BROADCAST OSC. TRIM.
C8	ON T1	1ST I.F. TRANS. PRIM. TRIM.
C9	ON T1	1ST I.F. " SEC. "
C11	ON T2	2ND. I.F. TRANS. PRI. TRIM.
C12	ON T2	2 ND I.F. " SEC. "
C13	22-654	.0005 MFD. 600 V.
C14	22-1362	.004 MFD. 600 V.
C15	22-1381	.04 MFD. 400 V.
C16	22-196	.01 MFD. 600 V.
C17	22-1379	.02 MFD. 400 V.
C18	22-1519	20 MFD. ELECTRO 150 V.
C19	OR	20 MFD. ELECTRO 150 V.
C20	22-1551	40 MFD. " "
R1	63-590	15 M OHM ¼ W.
R2	63-579	220 OHM ¼ W.
R3	63-591	22 M OHM ¼ W.
R4	63-976	15 MEGOHM ¼ W.
R5	63-600	2.2 MEGOHM ¼ W.
R6	63-1335	.5 MEG. VOL. CONTROL
R7	63-644	22 M OHM ¼ W.
R8	63-597	470 M OHM. ¼ W.
R9	63-1237	150 OHM. WIREW'D. ½ W.
R10	63-778	330 M ¼ W.
R11	63-1450	22 OHM W.W. 1 W.
R12	63-1222	470 OHM 1 W.
R13	63-1449	470 OHM 1 W.
L1	5-11124	WAVEMAGNET ASSY.
L2	5-12877	DET. COIL "
L3	5-9578	OSC. COIL "
T1	95-960	1ST I.F. TRANS. "
T2	95-958	2ND I.F. "
PL1	100-90	PILOTLIGHT 3.2V. .15A.
SP1	49-549	5" P. M. SPEAKER

MODELS 6D014—6D029
CHASSIS No. 6C01

Zenith Radio Corp.



DIAG. NO.	PART NO.	DESCRIPTION
C1	22-1359	3 GANG VARIABLE
C2	ON C1	BROADCAST ANT. TR.
C3	22-1365	.01 MFD. 200 V.
C4	22-1488	100 MMF. MICA 300 V.
C5	22-1491	20 MMF. CER. COND.
C6	22-1485	F.M. ANT. TRIM.
C7	27-87	475 MMF. MICA DISC.
C8	22-1489	10 MMF. CER. COND.
C9	ON L5	TRIMMER WAVE TR.
C10	22-162	100 MMF. MICA 300 V.
C11	ON C1	BROADCAST DET. TR.
C12	22-182	250 MMF. COND. MICA
C13	22-1490	18 MMF. CER. COND.
C14	22-1571	F.M. OSC. TRIM.
C15	22-1486	F.M. DET. TRIM.
C16	22-1367	50 MMF. CER. COND.
C17	22-1492	50 MMF. CER. COND.
C18	ON C1	BROADCAST OSC. TR.
C19	22-829	.05 MFD. 200 V.
C20	22-1366	.02 MFD. 200 V.
C21	22-1439	.001 MFD. 200 V.
C22	22-196	.01 MFD. 600 V.
C24	22-1138	500 MMFD. 600 V.
C25	22-830	.02 MFD. 600 V.
C26	22-1431	0.2 MFD. 200 V.
C27	22-1127	.02 MFD. 400 V.
C28	22-288	.003 MFD 600 V.
C29		40 MFD. ELECT. 150 V.
C30	22-1366	40 MFD " 25 V.
C31		40 MFD " 150 V.
C32	22-1017	.05 MFD. 200 V.
R1	83-717	220 M 1/4 W.
R2	83-582	680 OHM 1/4 W.
R3	83-639	6800 Ω 1/4 W.
R4	83-1339	30-67 OHM CANDOHM
	83-1484	30-67 OHM "
R5	83-765	33 M 1/4 W.
R6	83-722	2.2 MEGOHM 1/4 W.
R7	83-579	220 OHM 1/4 W.
R8	83-593	47 M OHM 1/4 W.
R9	83-588	3300 OHM 1/4 W.
R10	83-1218	10 M OHM 1 W.
R11	83-296	220 M 1/4 W.
R12	83-445	100 M OHM 1/4 W.
R13	83-1336	2.5 MEG. VOL. CONT.
R14	83-767	47 M OHM 1/4 W.
R15	83-802	4.7 MEGOHM 1/4 W.
R16	83-674	10 MEGOHM 1/4 W.
R17	83-597	470 M OHM 1/4 W.
R18	83-1237	150 OHM WIRE WD. 1/2 W.
R19	83-719	470 M OHM 1/4 W.
R20	83-1459	22 OHM 1 W.
L1	511135	WAVEMAGNET ASS'Y.
L2	512257	F.M. ANT. COIL "
L3	512258	F.M. DET. COIL "
L4	513117	B.C. DET. COIL "
L5	512520	WAVE TRAP COIL & TR.
L6	511157	B.C. OSC. COIL ASS'Y.
L7	512259	F.M. OSC. " "
L8	512258	A.C. CHOKE LINE "
L9	ON T1	1ST. I.F. TR. PRI. F.M.
L10	ON T1	1ST. I.F. " " F.M.
L11	ON T1	1ST. I.F. " PRI.
L12	ON T1	1ST. I.F. " SEC.
L13	ON T2	2ND. I.F. TR. PRI. F.M.
L14	ON T2	2ND. I.F. " SEC. F.M.
L15	ON T2	2ND. I.F. " PRI.
L16	ON T2	2ND. I.F. " SEC.
L17	ON T3	3RD. I.F. TR. PRI. F.M.
L18	ON T3	3RD. I.F. " SEC. F.M.
L19	ON T3	3RD. I.F. " PRI.
L20	ON T3	3RD. I.F. " SEC.
L21	ON T4	4TH I.F. TR. PRI. F.M.
L22	ON T4	4TH I.F. " SEC. F.M.
T1	512249	1ST. I.F. TRANS. ASS'Y.
T2	512250	2ND. I.F. " "
T3	512466	3RD. I.F. " "
T4	512252	DISC. I.F.
PL1	100-67	PILOT LIGHT 6.3V. 15A.
S1	85-384	BAND SWITCH
S2	65-365	TONE SWITCH

ALL RESISTORS ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

Zenith Radio Corp.

MODELS 8H023 – 8H034
CHASSIS No. 8C01

Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial To	Adj. Trimmers	Purpose
1	Pin 8 on Converter Tube 6SB7 Socket	.05 Mfd.	455 Kc. Modulated	BC	600 Kc.	L-11,12,15,16, 19 and 20	Align I.F. channel for maximum output
2	Pin 1 on R.F. tube 6AG5 socket	.05 Mfd.	455 Kc. Modulated	BC	600 Kc.	C9	Adjust wavetrap for minimum output
3	2 turns loosely cpld. to wavemagnet		1600 Kc. Modulated	BC	1600 Kc.	C18	Set oscillator to dial scale
4	2 turns loosely cpld. to wavemagnet	.05 Mfd.	1400 Kc. Modulated	BC	1400 Kc.	C11 & C2	Align det. and ant. stages.
5 (a)	Pin 4(grid)on 6SH7 limiter socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L21 coil slug Primary discr.	Align primary of discrimator for maximum reading
6 (b)	Pin 4(grid)on 6SH7 limiter socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L22 coil slug sec. of disc.	Adjust secondary of discriminator for zero reading
7 (c)	Pin 4 (grid) on 6SH7 2nd IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L17 & L18 Prim.&Sec.of 3rd IF trans.	Align 3rd IF transformer for maximum reading
8(c)(d)	Pin 4 (grid) on 6SG7 1st IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L13 & L14 primary and sec. of 2nd IF transformer	Align 2nd IF transformer for maximum reading
9(c)(d)	Pin 8(grid) on 6SB7 converter tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L9 & L10 Primary & Sec. of 1st IF transformer	Align 1st IF transformer for maximum reading
10 (c)	Antenna Post (Remove line ant.)	270 ohms	98 Mc. Unmodulated	FM 100	98 Mc.	L7 Osc. Coil slug	Set oscillator to dial scale
11 (c)	Antenna Post (Remove line ant.)	270 ohms	98 Mc. Unmodulated	FM 100	98 Mc.	L3 & L2 Det. and RF coil slugs	Align det. and ant. stages to maximum reading
12 (c)	Antenna Post (Remove line ant.)	270 ohms	45 Mc. Unmodulated	FM 45	45Mc.	C14	Set oscillator to dial scale
13 (c)	Antenna Post (Remove line ant.)	270 ohms	45 Mc. Unmodulated	FM 45	45 Mc.	C15 & C6	Align detector & ant. stages for maximum reading

A vacuum tube voltmeter with an isolation resistor of 200,000 ohms in series with the hot lead will serve for FM adjustments. This lead should be shielded.

An AC output meter connected across the primary or secondary of the output transformer will be satisfactory for all AM adjustments.

The signal generator output should be kept just high enough to get an indication on the meter.

(a) Vacuum Tube Voltmeter pin 5 on discriminator transformer to chassis (half discriminator load.)
(b) Vacuum Tube Voltmeter pin 7 on discriminator transformer to chassis (full discriminator load.)
(c) Vacuum Tube Voltmeter 6SH7 limiter grid (pin 4) to chassis.
(d) 300 ohm $\frac{1}{2}$ watt carbon resistor soldered across the secondary L14 (pin 2 and 3 of 2nd, IF trans.). The leads to the resistor must be as short as possible and the resistor removed before operation 10 is started.

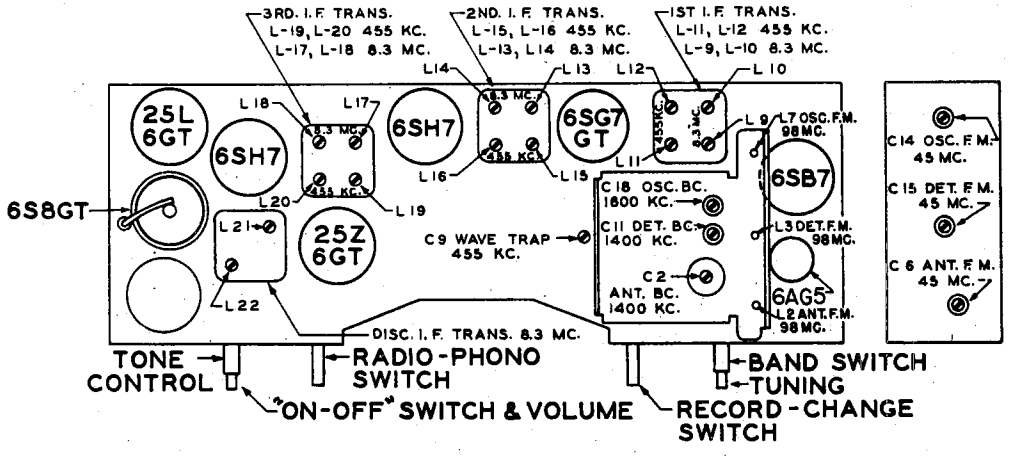
Zenith Radio Corp.

MODELS 8H023 – 8H034
CHASSIS No. 8C01

The 8C01 chassis incorporates a superheterodyne circuit with two stages of IF, and one stage of RF amplification on all bands.

When adjustments are made on the 8C01 or any AC-DC chassis, a line isolation transformer (110 V input to 110 V output) is recommended in order to avoid a "hot" chassis. If an isolation transformer is not available, check the AC voltage between chassis and bench ground, and if there is any indication of voltage, reverse the plug before handling the set.

AM Alignment: The alignment of this chassis on the standard broadcast band is conventional. The alignment slugs in the IF transformers are threaded and screw into the coil forms. The slugs are slotted for a small size fiber screw driver. Do not press hard on the aligning tool(fiber screw driver) or the threads in the coil forms will strip and adjustment will be impossible.



TUBE AND TRIMMER LOCATION

FM RF Alignment: The same coil slug arrangement which tunes the 100 MC FM band also tunes the 45 MC band. However, on 45 MC the band switch connects trimmer condensers in parallel and padding wires in series with the 100 MC coils. The tuning slugs are attached to threaded shafts and the slugs are varied in the field of the coils by turning the shafts clockwise or counter-clockwise. After adjustments the shafts must be secured with a drop of speaker cement.

FM IF Alignment: The same type of tuning slugs for aligning the AM IF Amplifier are used for the FM I.F.'s. Observe the same precautions when making adjustments. The second 8.3 Mc If stage is overcoupled. Overcoupling gives a wide band pass with good sensitivity. When an overcoupled stage is aligned with an unmodulated signal, the stage must be loaded. A 300 ohm carbon resistor soldered across the secondary of the second IF transformer provides a satisfactory load for this circuit. The resistor leads must be kept short to reduce the distributed capacity of the circuit.

When aligning a loaded stage, it will be found that considerable signal from the generator will be required, and that it will tune broadly. THE LOAD RESISTOR MUST BE REMOVED AFTER ALIGNMENT.

If the signal generator used does not have sufficient output to overcome the temporary loss caused by the load resistor, the load resistance may be increased or the signal fed into the preceding stage.

FM Discriminator Alignment: When the secondary of the discriminator is aligned (operation 6) use sufficient signal input to get a good positive and negative indication before setting the slug for zero reading. A center zero indicating meter is recommended for this adjustment, but is not absolutely necessary. Reversing the leads of a non-zero center meter, or observing closely when this meter starts to go to the left (negative) of zero will give the same results.

Another

Supreme Publications

Service Manual

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