

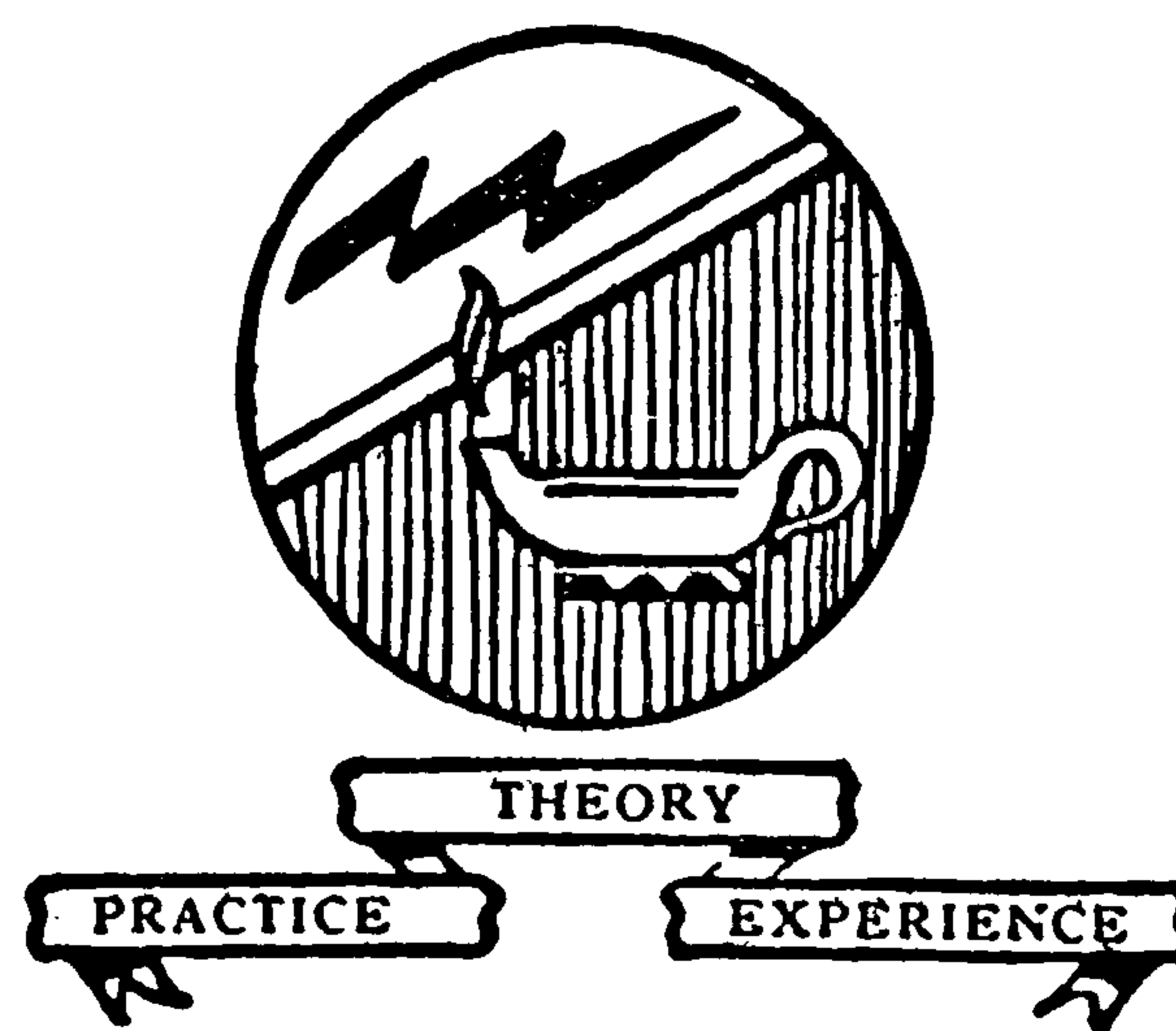
*Most - Often - Needed*

1947

VOLUME SEVEN

RADIO  
DIAGRAMS

*and Servicing Information*



Compiled by

M. N. BEITMAN

VOLUME 7

PRICE **\$2**

SUPREME PUBLICATIONS

*Most - Often - Needed*

1947

**RADIO  
DIAGRAMS**

*and Servicing Information*

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**M. N. BEITMAN**

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**SUPREME PUBLICATIONS**

**CHICAGO**

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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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# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

\* \* \*

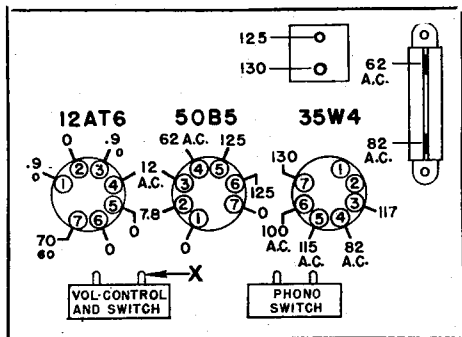
#### POWER SUPPLY

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.

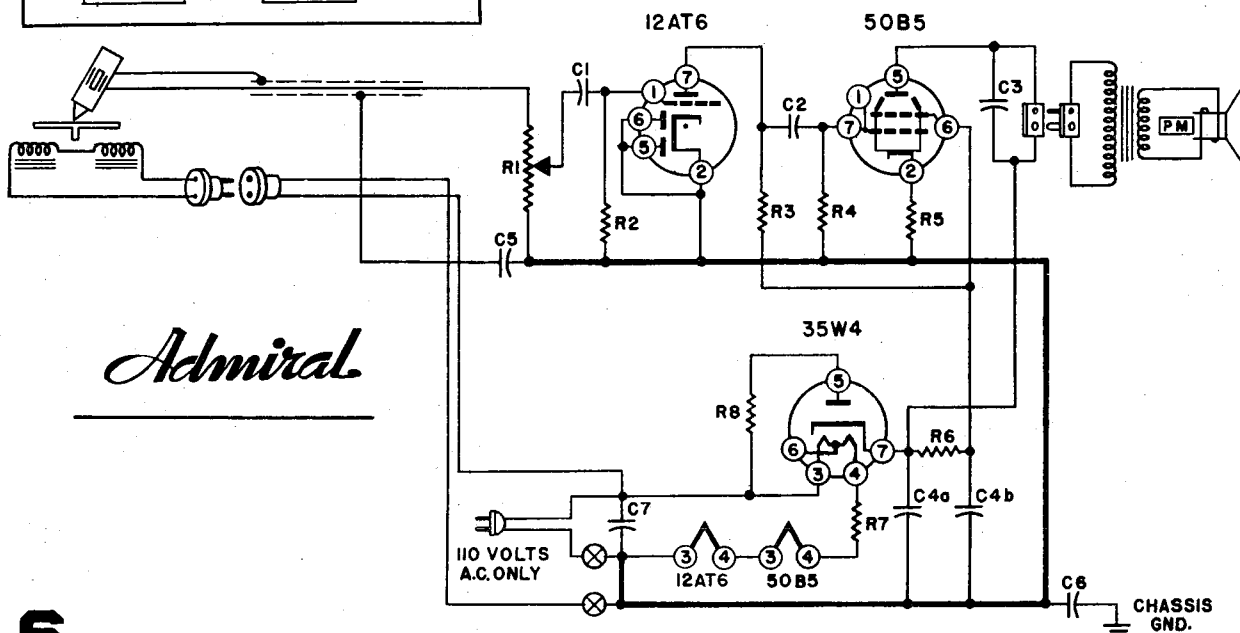
#### VOLTAGE CHART



RESISTORS			CONDENSERS		
SYMBOL	OHMS	WATTS	SYMBOL	CAPACITY	VOLTS
R1	1,000,000	V. C.	C1	.005 Mfd.	600
R2	10,000,000	1/2	C2	.01 Mfd.	400
R3	270,000	1/2	C3	.02 Mfd.	400
R4	470,000	1/2	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*





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

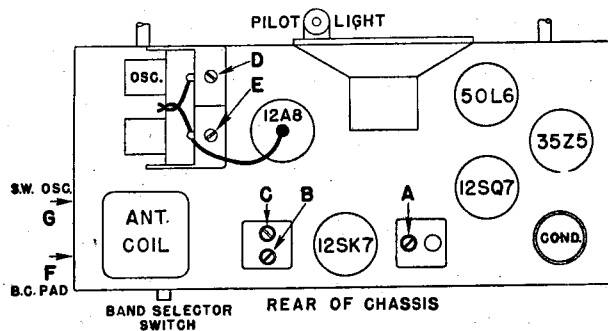
Dummy Antenna in Series with Signal Generator	Signal Generator Frequency	Connect Signal Generator to	Band Switch Position	Receiver Dial Pointer Setting	Adjust Following Trimmers	Type of Adjustment
.00025 Mica	455 K.C.	Grid Cap 12A8 Tube	B.C.	Gang-Condenser Wide open	(A) 2nd I.F. (B) 1st I.F. (C) 1st 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)

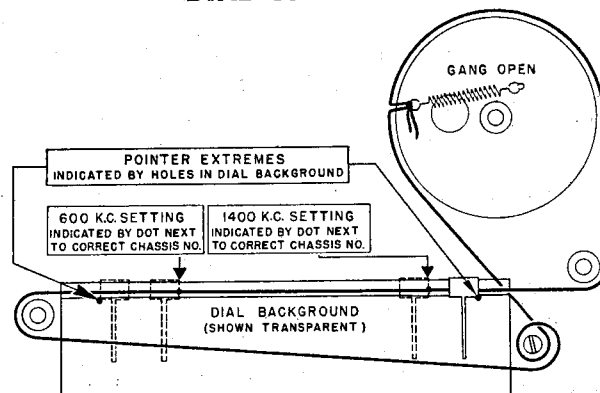
400 ohm Carbon	15 Mc.	End of Ant. Wire	S.W.	Tune in Generator Signal	(G) S.W. Antenna	Maximum Deflection Output Meter
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### TUBE and TRIMMER LAYOUT

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			CONDENSERS (Cont'd)			MISCELLANEOUS	
Symbol	Description	Part No.	Symbol	Description	Part No.	Description	Part No.
R1	12,000 Ohms 5 Watt	61A1-1	C18	.01 Mfd., 400 Volts, Condenser	64B1-25	Background, Dial.....	22B7-1
R2	150,000 Ohms 1/2 Watt	60B8-154	C19	.01 Mfd., 600 Volts, Condenser	64B1-10	Bulb, Pilot Light No. 47.....	81A1-8
R3	470,000 Ohms 1/2 Watt	60B8-474	C20a	30 Mfd., 350 Volts	67C6-25	Button (For Phono switch button).....	33A8-1
R4	10,000 Ohms 2 Watt	60B20-103	C20b	30 Mfd., 350 Volts		Cable and Plug, Shielded.....	89A5-1
R6	22,000 Ohms 1/2 Watt	60B8-223	C20c	20 Mfd., 25 Volts		Cord, Dial (64" approx.).....	50A1-3
R7	10 Megohms 1/2 Watt	60B8-106	C21a	3-40 Mmfd. } Trimmer	Drum, Dial.....	17A3	
R8	1 Megohm 1/2 Watt	60B8-105	C21b	3-40 Mmfd. } Trimmer	Escutcheon, Dial.....	21C7-1	
R9	2 Megohms, Tone Control	75B1-5	C22a	3-40 Mmfd. } Trimmer	Escutcheon, Switch.....	26A7-1	
R10	27,000 Ohms 1/2 Watt	60B8-273	C22b	3-40 Mmfd. } Trimmer	Knob, Tuning.....	33B9-1	
R11	1 Megohm, Volume Control Tapped at Approx. 500,000 ohms	75B2-1	C23a	3-40 Mmfd. } Trimmer	Knob, SW, B.C., Phono.....	33B9-2	
R12	270,000 Ohms 1/2 Watt	60B8-274	C23b	3-40 Mmfd. } Trimmer	Knob, Tone.....	33B9-3	
R13	470,000 Ohms 1/2 Watt	60B8-474	C24	100 Mmfd., Mica	Knob, Volume.....	33B9-4	
R14	1 Megohm 1/2 Watt	60B8-105	C26	1,200 Mmfd., Mica	Pin Tip, Antenna (Large).....	86A2-1	
R15	390 Ohms 1 Watt	60B14-391	C27	100 Mmfd., Mica	Pin Tip, Antenna (Small).....	86A2-2	
R16	10 Megohms 1/2 Watt	60B8-106	<b>TRANSFORMERS and COILS</b>			Plug, Speaker.....	88A4-4
R17	100 Ohms 1/2 Watt	60B8-101	Symbol	Description	Part No.	Plug, Phono Output.....	88A2-1
R18	47,000 Ohms 1/2 Watt	60B8-473	L1	Antenna, Loop	AC104	Pointer, Dial.....	25A3
R19	100,000 Ohms 1/2 Watt	60B8-104	L2	Coil, S.W. Antenna	AD116-1	Slug, B.C. Tuning—Specify color code when ordering.....	71B1-3
R20	270,000 Ohms 1/2 Watt	60B8-274	L3	Coil, B.C. Antenna	AB100-2	Slug, S.W. Tuning—Specify color code when ordering.....	71B1-9
R22	100 Ohms 1/2 Watt	60B8-101	L4	Coil, B.C. R.F.	AB100-1	Socket, Dial Light.....	82A2-1
<b>CONDENSERS</b>			L5	Coil, S.W. R.F.	AD116-2	Socket, Speaker.....	87A6-1
Symbol	Description	Part No.	L6	Coil, S.W. Oscillator	AD116-3	Speaker.....	78B7
C1	1,000 Mmfd., Mica	65B7-33	L7	Coil, B.C. Oscillator	AC101-1	Spring, Drum Tension.....	19B1-7
C2	140 Mmfd., Silver Mica 3%	65B1-26	T1	Transformer, 1st I.F.	72B7	Stud, Slug adjusting.....	27A4
C3	25 Mmfd., Silver Mica 3%	65B1-28	T2	Transformer, 2nd I.F.	72B8	<b>PHONOGRAPH PARTS</b>	
C4	100 Mmfd., Mica	65B7-17	T3	Transformer, Power	80B1	See Record Changer Service Manual for Detailed Parts List.	
C5	50 Mmfd., Mica	65B5-11	T4	Transformer, Output	98B6-1	<b>Description</b>	
C6	.05 Mfd., 400 Volts	64B1-22	CH1	Choke, Filter	74A3	<b>Part No.</b>	
C7	65 Mmfd., Silver Mica 3%	65B1-27	CH2	Choke, Oscillator Cathode	AB103-1	Centerpost.....	G400A12
C8	420 Mmfd., Silver Mica 2%	65B1-13	<b>SWITCHES, PLUGS and SOCKETS</b>			Crystal Cartridge.....	409A1
C10	20 Mmfd., Mica	65B7-5	Symbol	Description	Part No.	Idler Wheel (407B3 Motor).....	G400A23
C11	65 Mmfd., Silver Mica 3%	65B1-27	S1	Socket, Phono	88A1	Idler Wheel (407B2 Motor).....	G400A59
C12	200 Mmfd., Silver Mica 2%	65B1-14	S2	Socket, Speaker	87A6-1	Idler Wheel (407B1 Motor).....	G400A57
C13	.1 Mfd., 400 Volts	64B1-20	S3	Socket and Cord, Phono Motor	89A6-3	Motor, 60 cycle 115 volt, A.C. (Types 407B1 & 407B2 also used)....	407B3
C14	250 Mmfd., Mica	65B7-22	SW1	Switch, Antenna	76B1-3		
C15	1,000 Mmfd., Mica	65B7-33	SW2	Switch, Oscillator	76B1-2		
C16	.02 Mfd., 400 Volts	64B1-24	SW3	Switch, R.F.	76B1-1		
C17	.01 Mfd., 400 Volts, Condenser	64B1-25	SW4	Switch (on-off) S.P.S.T.	77B1-44		

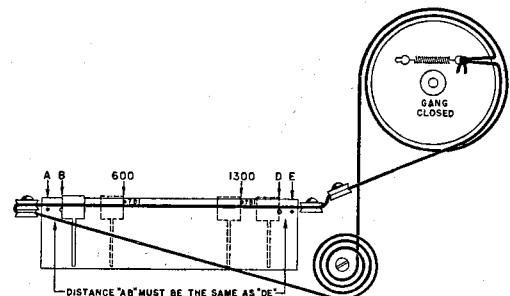
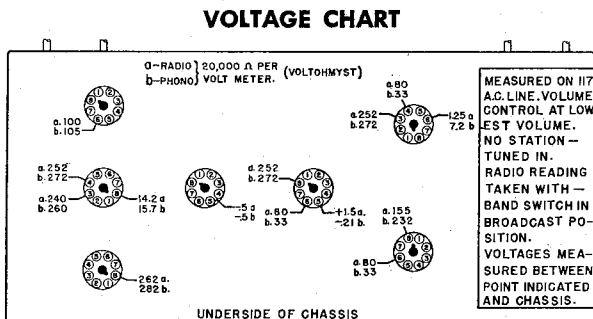
## POINTER ADJUSTMENT

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 1 3/8 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.

## STRINGING DIAGRAM



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

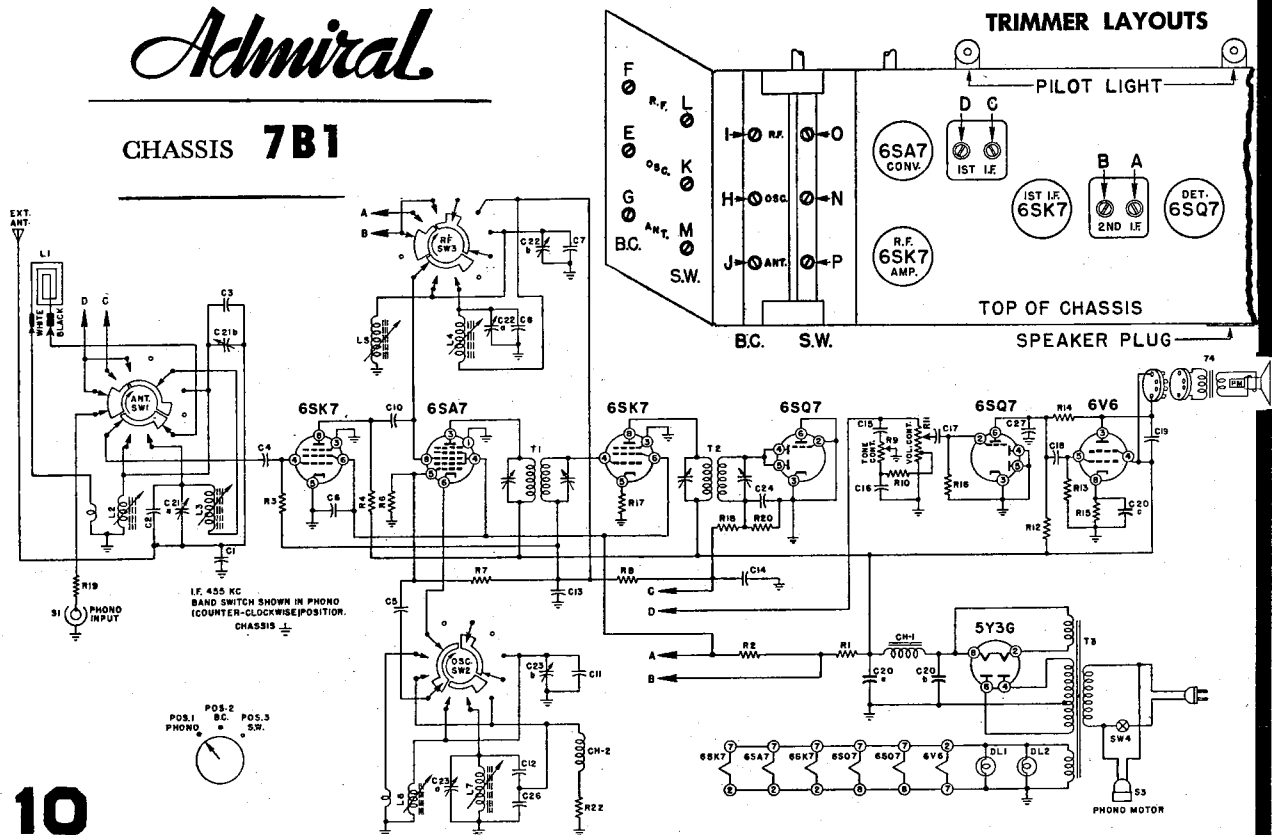
## ALIGNMENT PROCEDURE

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  $1\frac{3}{8}$  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



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## *Admiral* ALIGNMENT PROCEDURE CHASSIS 10A1

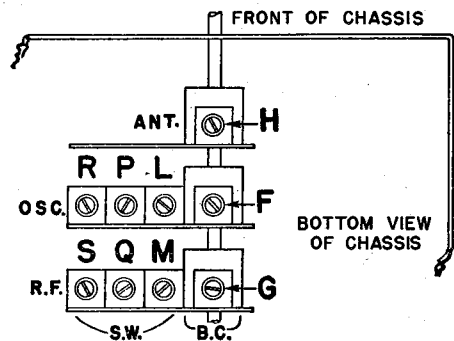
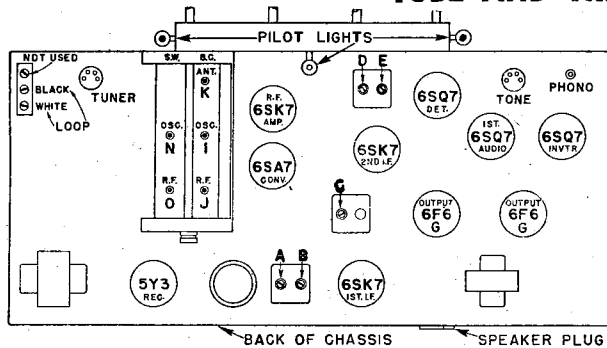
1. Loop must be connected during alignment.  
Check the set screws that hold the tuning drum to the shaft to see that they are tight and that the drum has not slipped on the shaft. The correct position of the drum can be seen on stringing diagram (A).
2. In the wide open position the stop on the rear of the dial drum must be against the stop post.
3. With the gang wide open, all slugs should be  $1\frac{3}{8}$  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





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## Admiral

### CHASSIS 10A1

#### CONDENSERS

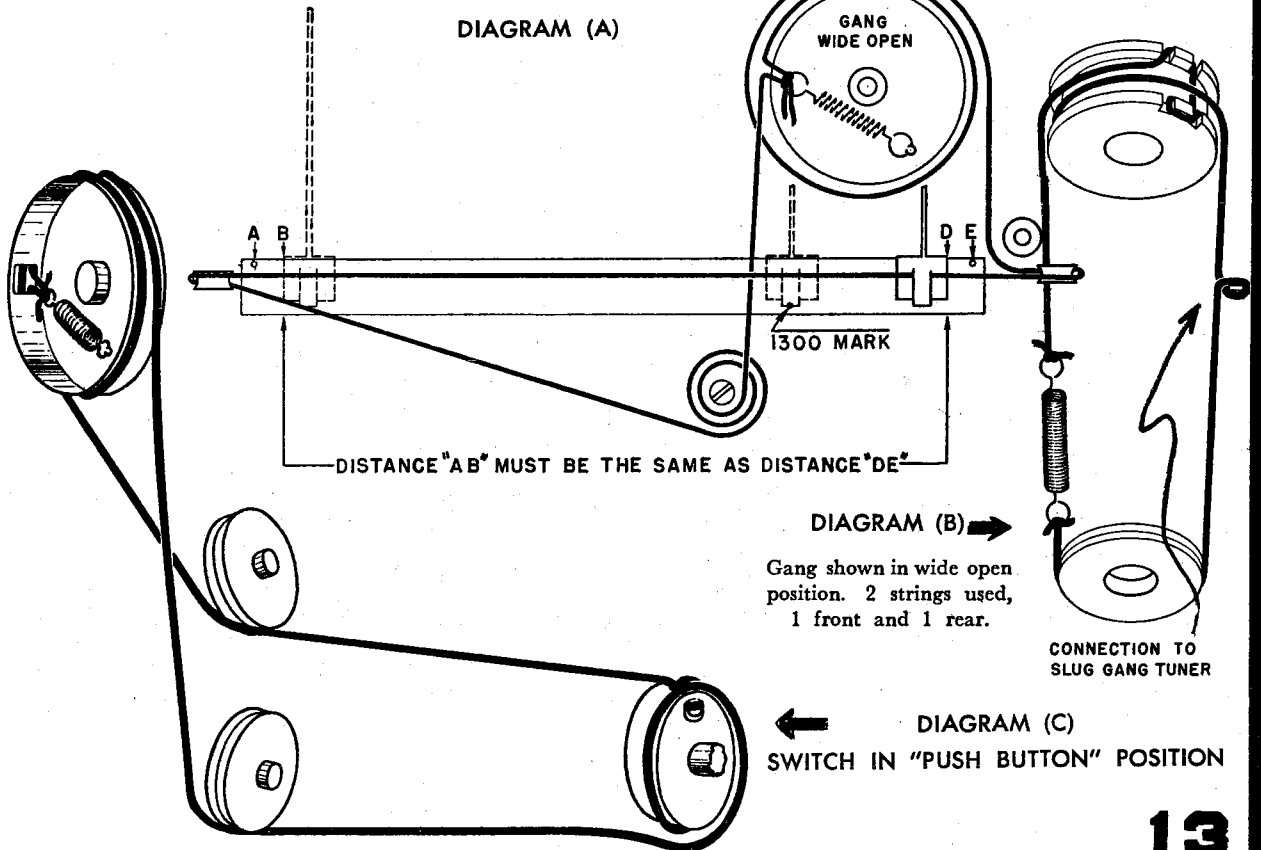
Symbol	Description	Part
C1	20 mmfd. Mica	65B7-5
C2	200 mmfd. Mica	65B7-21
C3	35 mmfd. Silver Mica	65B1-30
C4	390 mmfd. Silver Mica	65B1-34
C5	250 mmfd. Silver Mica	65B1-35
C6	65 mmfd. Silver Mica	65B1-27
C7	40 mmfd. Silver Mica	65B1-36
C8	140 mmfd. Silver Mica	65B1-26
C9	1000 mmfd. Mica	65B7-33
C10	200 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	Electrolytic.....67C6-25
C30b	30 mfd. 350 Volts	
C30c	20 mfd. 25 Volts	
C31	3-40 mmfd.	Trimmer.....66A12-5
C32	3-40 mmfd.	
C33	3-40 mmfd.	
C34a	3-40 mmfd.	Trimmer.....66B8-3
C34b	3-40 mmfd.	
C34c	3-40 mmfd.	
C35a	3-40 mmfd.	Trimmer.....66B8-3
C35b	3-40 mmfd.	
C35c	3-40 mmfd.	

#### RESISTORS

Symbol	Description	Part Number
R1	10,000 Ohms, 1 Watt	60B14-103
R2	470,000 Ohms, 1/2 Watt	60B8-474
R3	47,000 Ohms, 1/2 Watt	60B8-473
R4	470,000 Ohms, 1/2 Watt	60B8-474
R5	8,200 Ohms, 1/2 Watt	60B14-822
R6	10,000 Ohms, 1/2 Watt	61A1-3
R7	22,000 Ohms, 1/2 Watt	60B8-223
R8	100 Ohms, 1/2 Watt	60B8-101
R9	100 Ohms, 1/2 Watt	60B8-152
R10	1,500 Ohms, 1/2 Watt	60B8-152
R11	1,500 Ohms, 1/2 Watt	60B8-152
R12	470 Ohms, 1/2 Watt	60B8-471
R13	1,000 Ohms, 1/2 Watt	60B8-102
R14	470,000 Ohms, 1/2 Watt	60B8-474
R15	47,000 Ohms, 1/2 Watt	60B8-473
R16	270,000 Ohms, 1/2 Watt	60B8-274
R17	1.0 Megohm, 1/2 Watt	60B8-105
R18	270,000 Ohms, 1/2 Watt	60B8-274
R19	1,000 Ohms, 1/2 Watt	60B8-102
R20	270,000 Ohms, 1/2 Watt	60B8-274
R21	470,000 Ohms, 1/2 Watt	60B8-474
R22	470,000 Ohms, 1/2 Watt	60B8-474
R23	470,000 Ohms, 1/2 Watt	60B8-474
R24	270 Ohms, 2 Watt	60B20-271
R25	47,000 Ohms, 1/2 Watt	60B8-473
R26	100,000 Ohms, 1/2 Watt	60B8-104
R27	150,000 Ohms, 1/2 Watt	60B8-154
R28	1 Megohm Volume Control	75B3-3
R29	1 Megohm, 1/2 Watt	60B8-105
R30	1 Megohm, 1/2 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	25-290 mmfd. Trimmer	66A12-2
C43		
C44		
C45	40-400 mmfd. Trimmer	66A12-3
C46	.002-600 volts	64B1-14

#### STRINGING DIAGRAMS

DIAGRAM (A)



**AIR KING PRODUCTS CO., Inc.**

**Radio Model 4604-A**

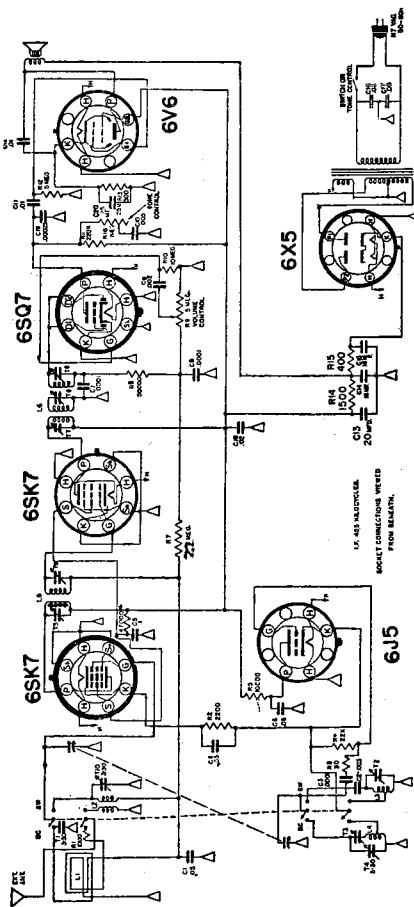
Model 4604 is similar but uses tube type 7H7 instead of the first 6SK7, a 7B6 instead 6SQ7, and a 7A4 instead 6J5 oscillator.

**PARTS LIST**

Schematic Location	Part No.	Description
L1	457	Cabinet - back
L2	62172	Cover loop
L3	28135	Coil, SW - Ant.
L4	28137	Coil, BC osc with trimmer
L5	28138	Coil, BC osc with trimmer
L6	28138	Coil, BC osc with trimmer
C1		Condenser, .05 mfd, 400 volts
C2		Condenser, .02 mfd, 400 volts
C3		Condenser, .005 mfd, 400 volts
C4		Condenser, .01 mfd, 400 volts
C5		Condenser, .01 mfd, 400 volts
C6		Condenser, .02 mfd, 400 volts
C7		Condenser, .02 mfd, 400 volts
C8		Condenser, Mica, .00025 - 400 volts
C9		Condenser, Mica, .003 - 400 volts
C10		Variable condenser
C11		Condensers, electrolytic, 20 mfd, 16 mfd, 16 mfd, 350 volts
C12		Condensers, electrolytic, 25 mf, 25 volts
C13		Condensers, trimmers on bracket (3)
C14		3-30 mmfd
C15		Control, volume, .5 megohm
C16		Control, tone, .25 megohm with switch
R1	2470	Cord, power
R2	2521	Dial cord
R3	8581	Dial scale
R4	4579	Dial pointer
R5	4140	Dial spring
R6	4633	Knob, tone, off-on
R7	37138	Knob, SW - BC
R8	37139	Knob, tuning
R9	39140	Knob, volume
R10	39141	Lamp, dial #47 (2)
R11	4911	1000 ohm, 1/2 watt
R12		2200 ohm, 1/2 watt
R13		47 ohm, 1/2 watt
R14		22,000 ohm, 1/2 watt
R15		10,000 ohm, 1/2 watt
R16		2.2 megohm, 1/2 watt
R17		47,000 ohm, 1/2 watt
R18		220,000 ohm, 1/2 watt
R19		300 ohm, 1 watt, wire wound
R20		1500 ohm, 1 watt, wire wound
R21		400 ohm, 1 watt, wire wound
R22		10 megohm, 1/2 watt
R23		.5 megohm, 1/2 watt
R24		Socket, pilot lamp (2)
R25	8107	Switch, band, BC - SW
R26	3784	Speaker, 5" output transformer
R27	5866	Transformer, power**
R28	1089	Transformer, I.F. Input
R29	3323	Transformer, I.F. Output
R30	3523	Transformer, I.F. Output

**MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS**  
**AIR-KING PRODUCTS CO., Inc.**

**MODEL #4604-A**



**ALIGNMENT PROCEDURE**

- Output meter connection.....Across voice coil
- Output meter reading to indicate 1/2 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
S. W.	1500 kc	1500 kc	* note		Readjust T4	Osc.
	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:**

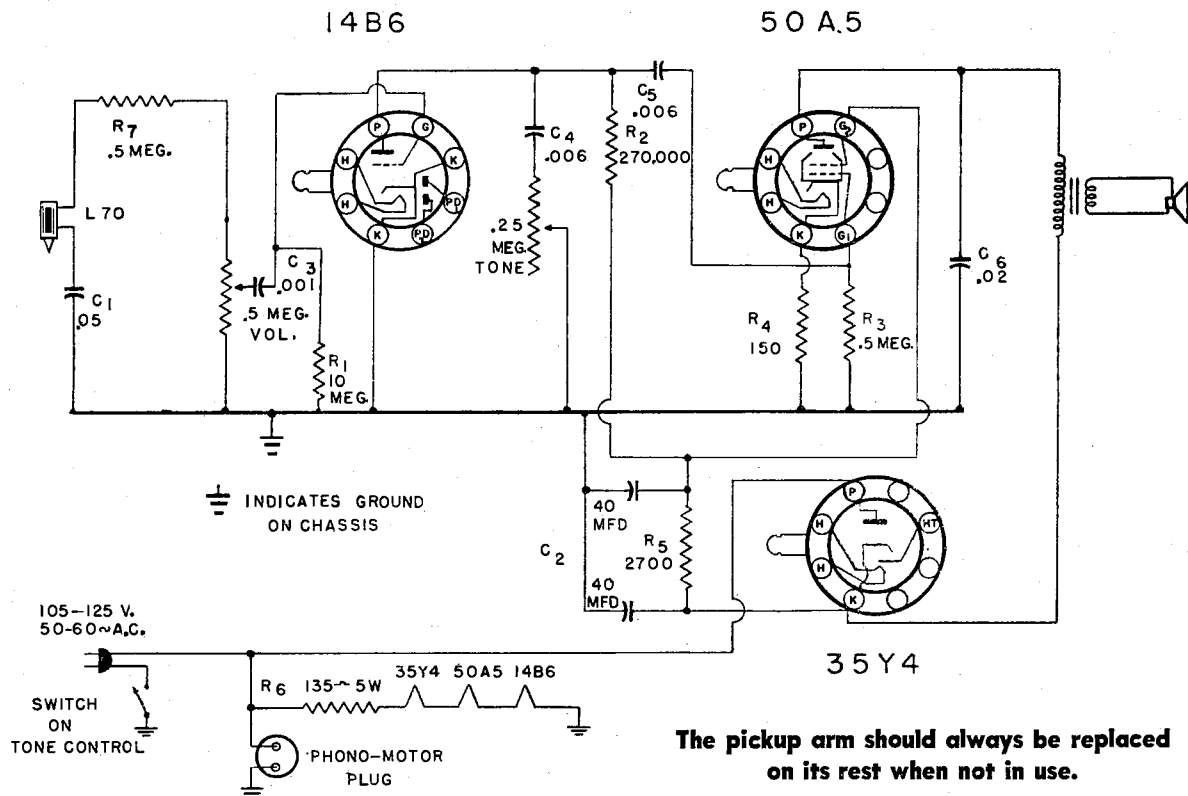
\*\* If two peaks can be had the correct one is with the trimmer screw further out, the other peak is the image.  
 \* Connect a piece of insulated wire to the generator output terminal and place the wire near the loop. Do not make a direct connection.





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## AIR KING Model 4625 3-Tube Amplified Phonograph



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



# MODEL 5P19

# Belmont Radio

1A7GT  
CONVERTER

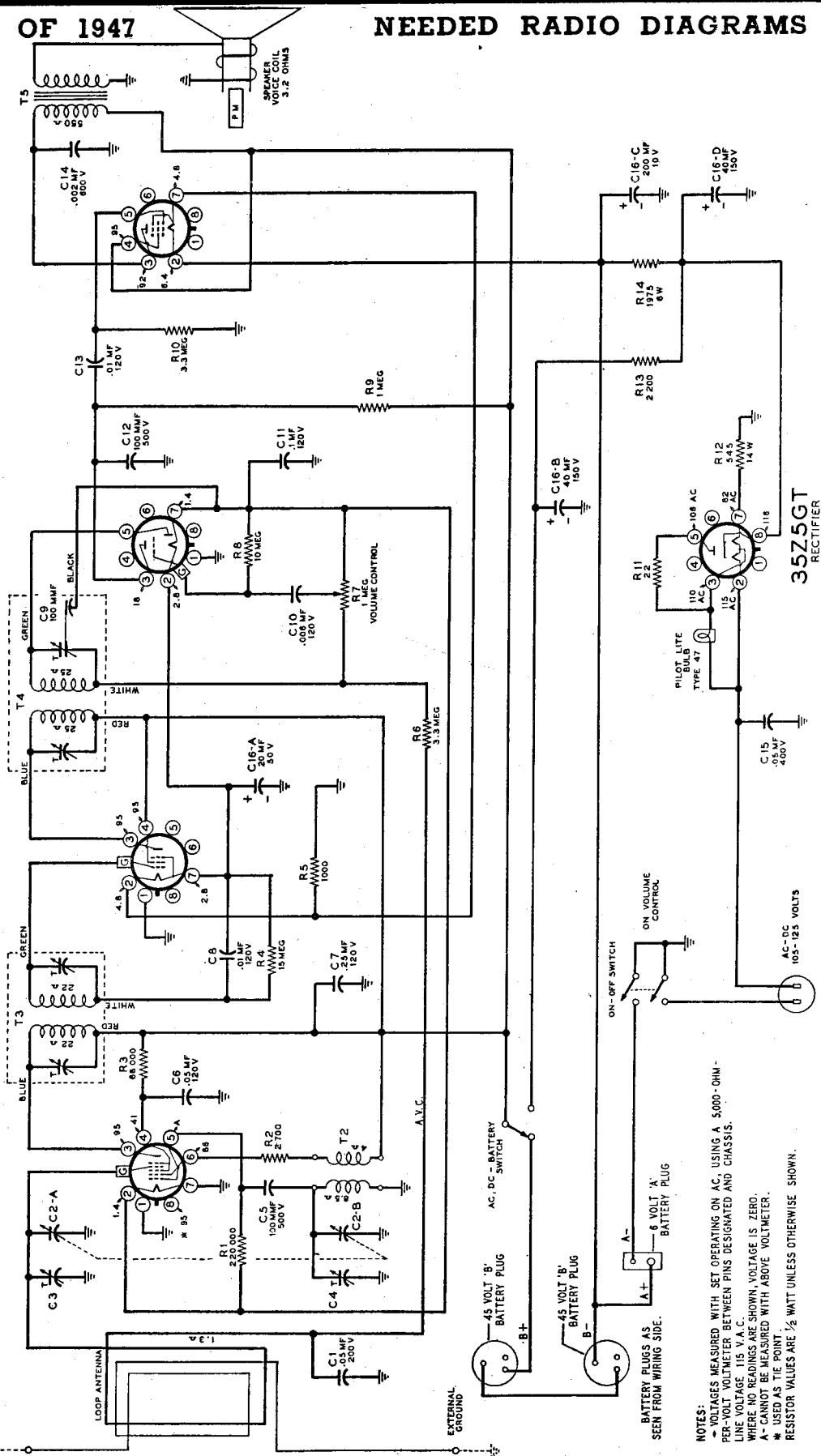
1N5GT  
I.F. AMP.

1H5GT  
2ND DET.  
1ST AUDIO  
A.V.C.

1A5GT  
OUTPUT

Intermediate Freq. 455 kc.

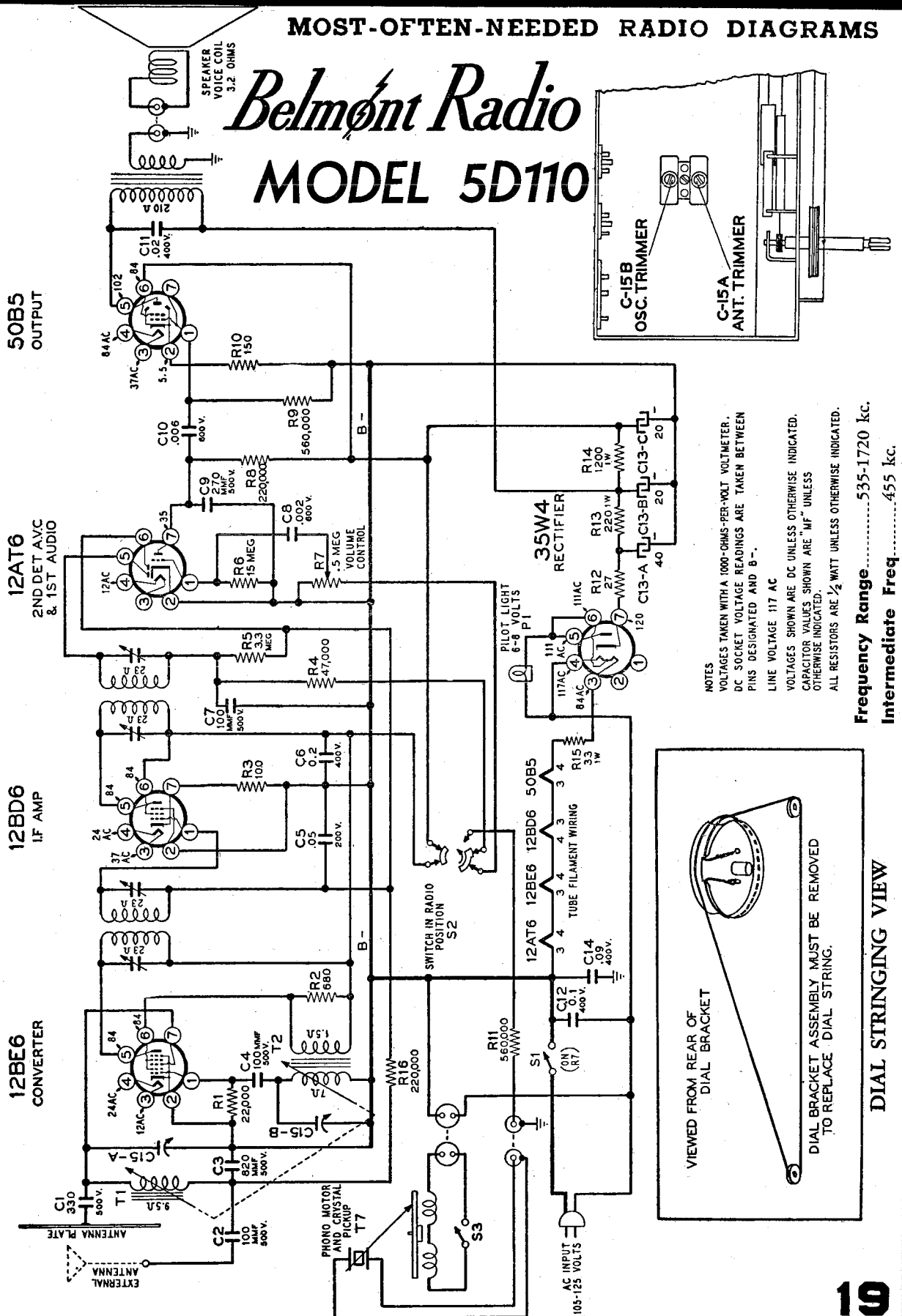
EXTERNAL  
ANTENNA



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.  
 - A - CANNOT BE MEASURED WITH ABOVE VOLTMETER.  
 - \* USED AS TIE POINT.  
 - RESISTOR VALUES ARE 1/2 WATT UNLESS OTHERWISE SHOWN.

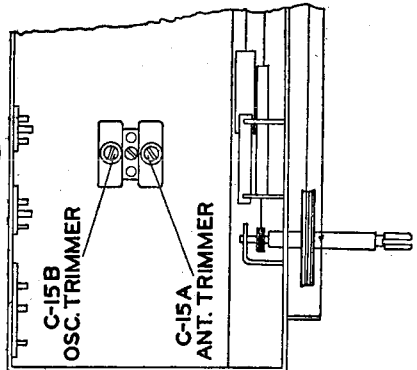
**MOST-OFTEN-NEEDED RADIO DIAGRAMS**

*Belmont Radio*  
**MODEL 5D110**



**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 1/2 WATT UNLESS OTHERWISE INDICATED.

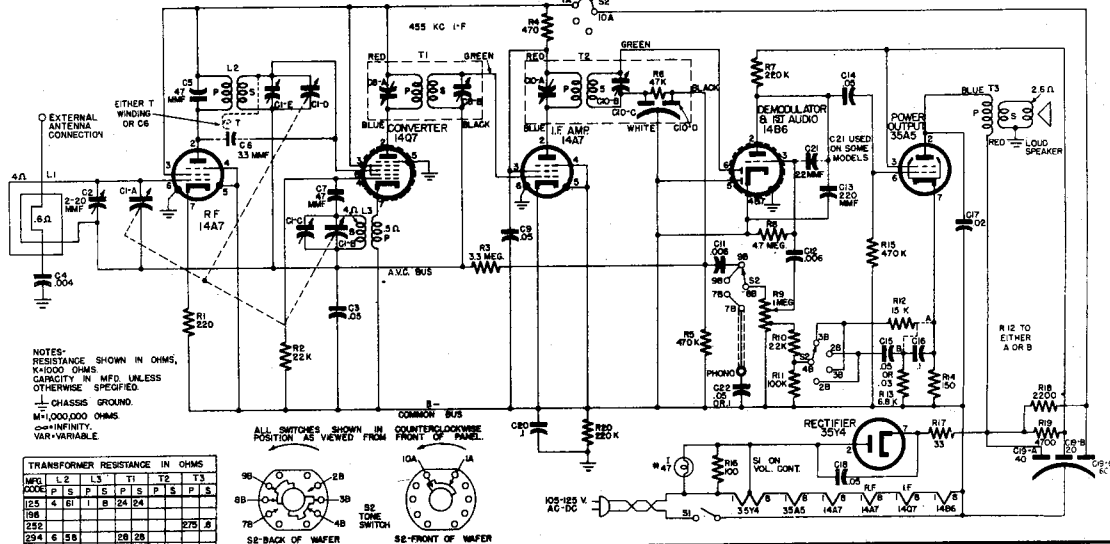
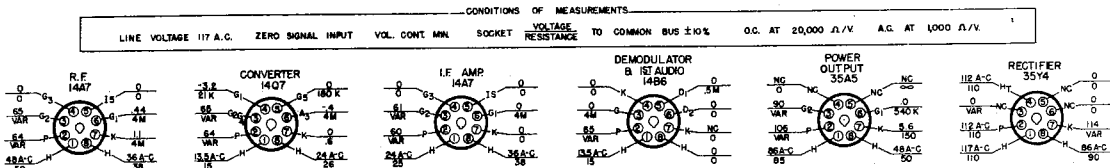
**Frequency Range**.....535-1720 kc.  
**Intermediate Freq**.....455 kc.



MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# Bendix Radio

## MODELS 636A 636C, & 636D



### Alignment Procedure

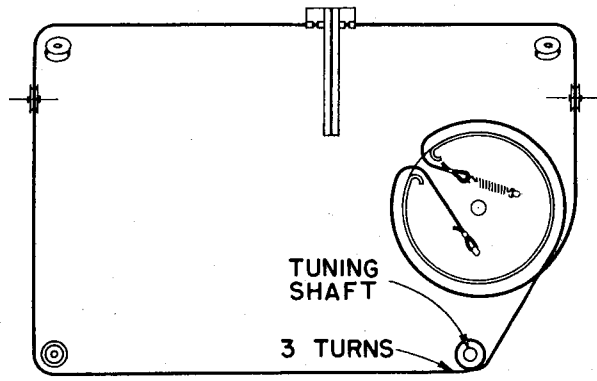
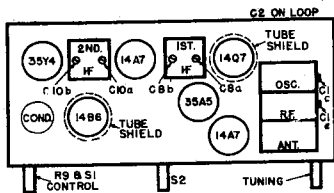
Connect line cord plug to 117 volt, 60 cycles AC power source. Set volume control at maximum clockwise position and tone control (S2) in counterclockwise position. Connect output meter across voice coil. Adjust dial pointer by turning tuning control fully counterclockwise and sliding dial pointer on 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 **965 KC **580 KC	6 3/4" 5 2-23/32"	C1e, C2 Check Calib.

\* Applied to Antenna input .1 mfd. or less.  
 \*\* Applied to Antenna input through 50 mmf. or less.



# Belmont Radio

## MODEL 6D120

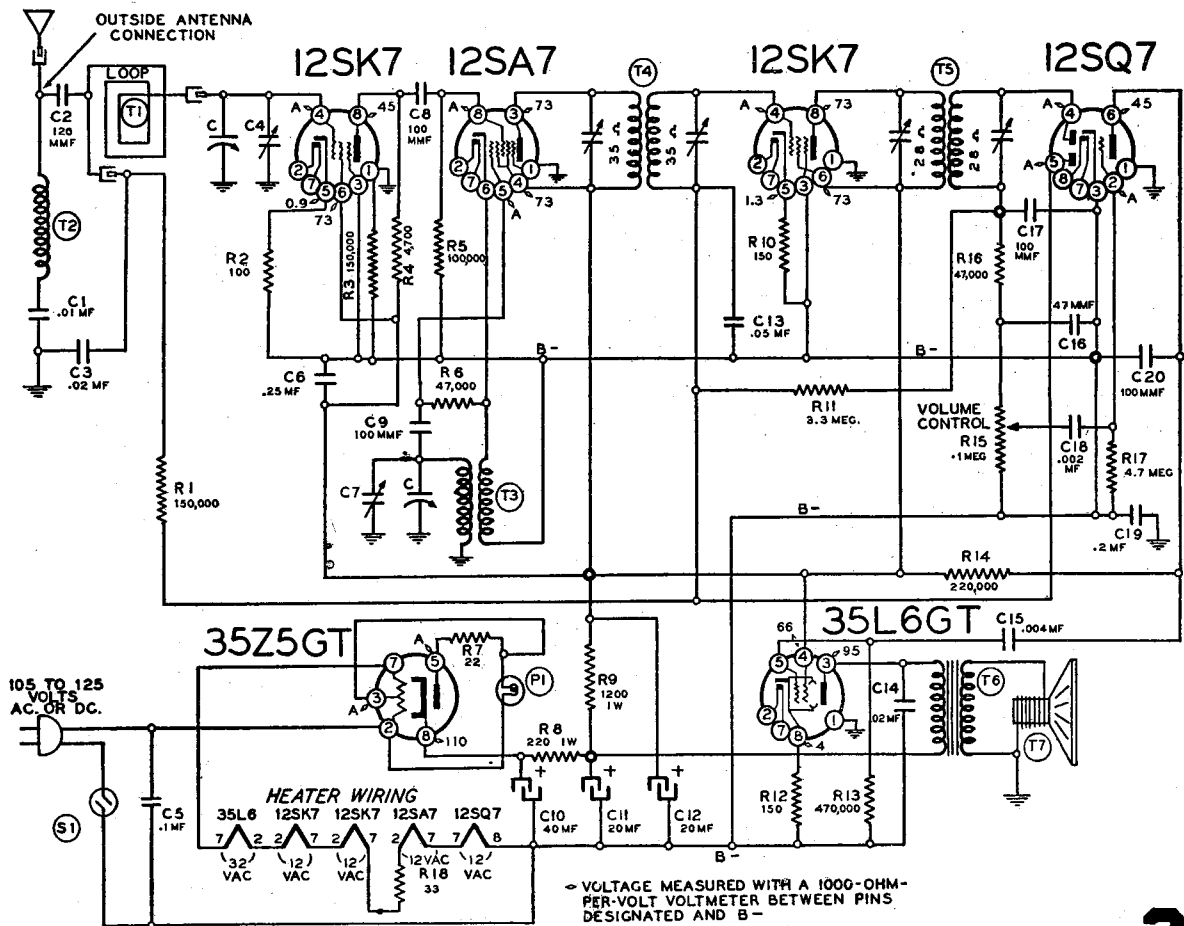
### ALIGNMENT PROCEDURE

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.

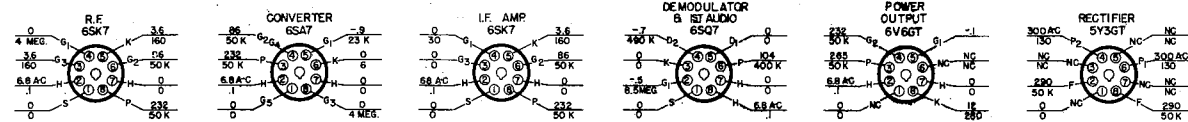


~ VOLTAGE MEASURED WITH A 1000-OHM-PER-VOLT VOLTMETER BETWEEN PINS DESIGNATED AND B-  
• A - CANNOT BE MEASURED.  
• LINE VOLTAGE 117 V.A.C

# Bendix Radio

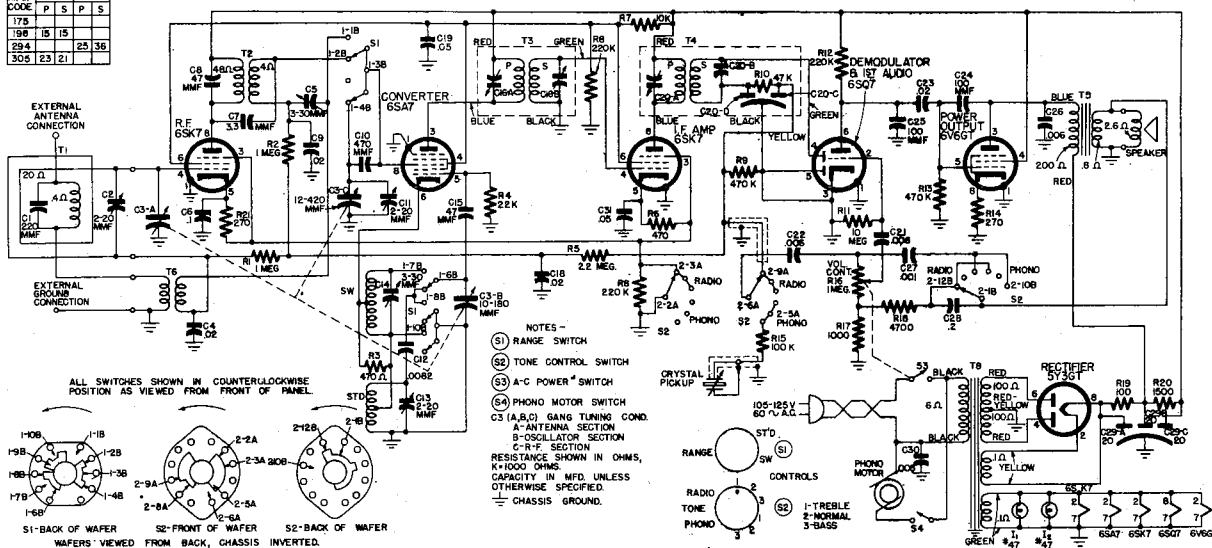
## MODELS 676B, 676C, & 676D

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 A./V. A.C. AT 1000 A./V.



TRANSFORMER RESISTANCE IN OHMS

MFG. CODE	T3	T4
175	P	S
198	15	15
294	23	36
305	23	21



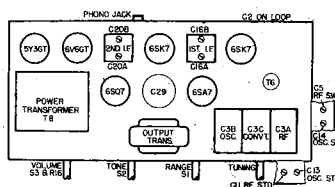
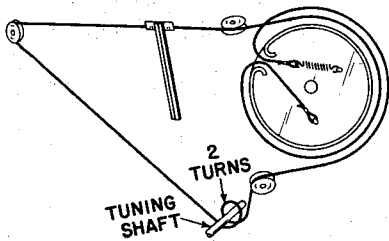
### Alignment Procedure

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.

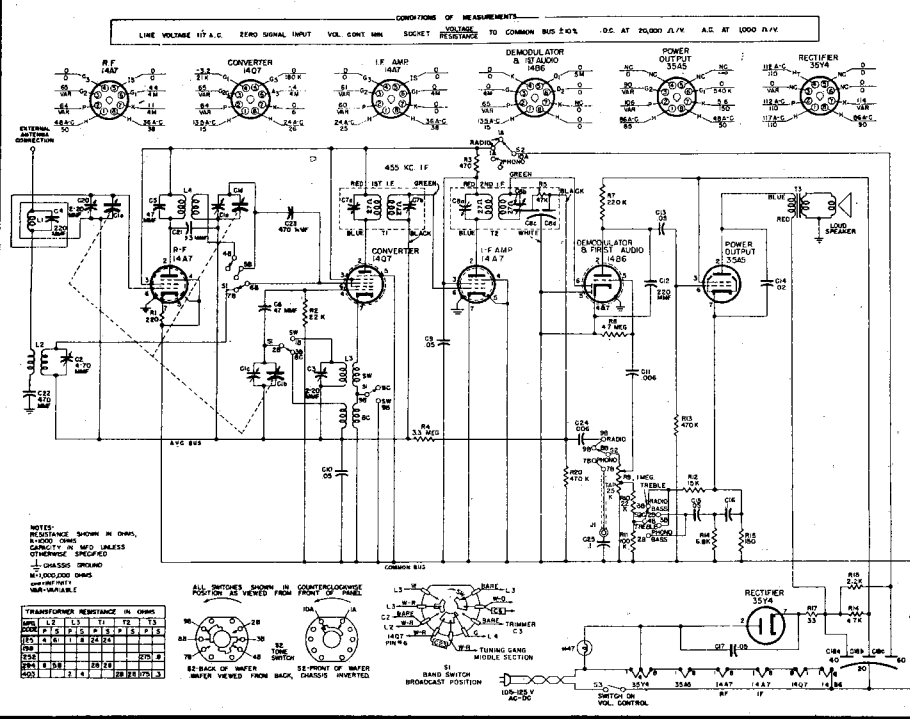
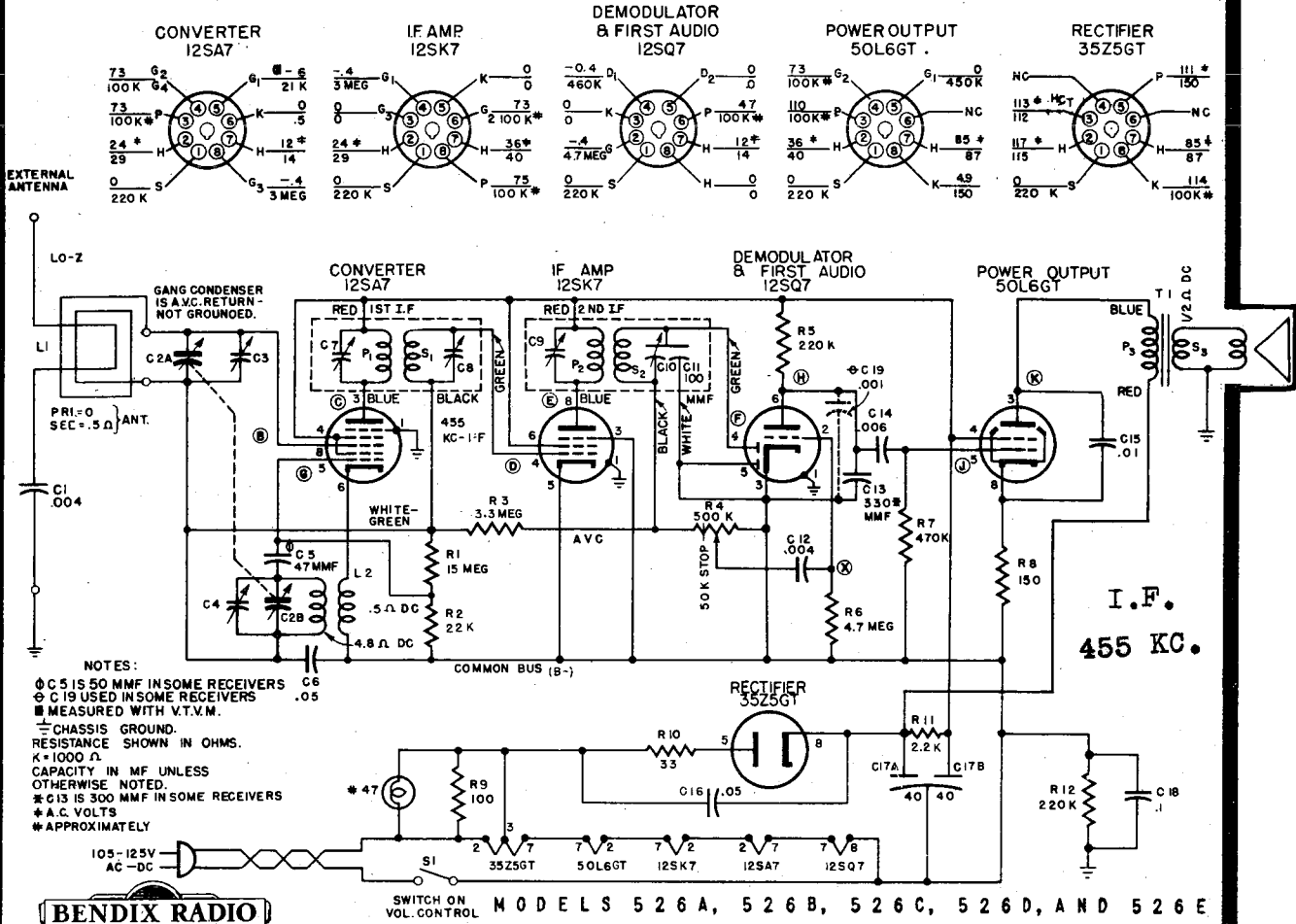
\*Applied to antenna through .1 mfd. or less.

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

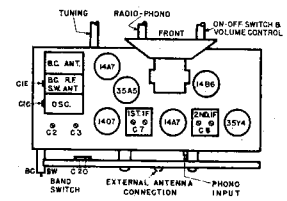


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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



**Bendix**  
**Radio**  
**MODEL 626-A**





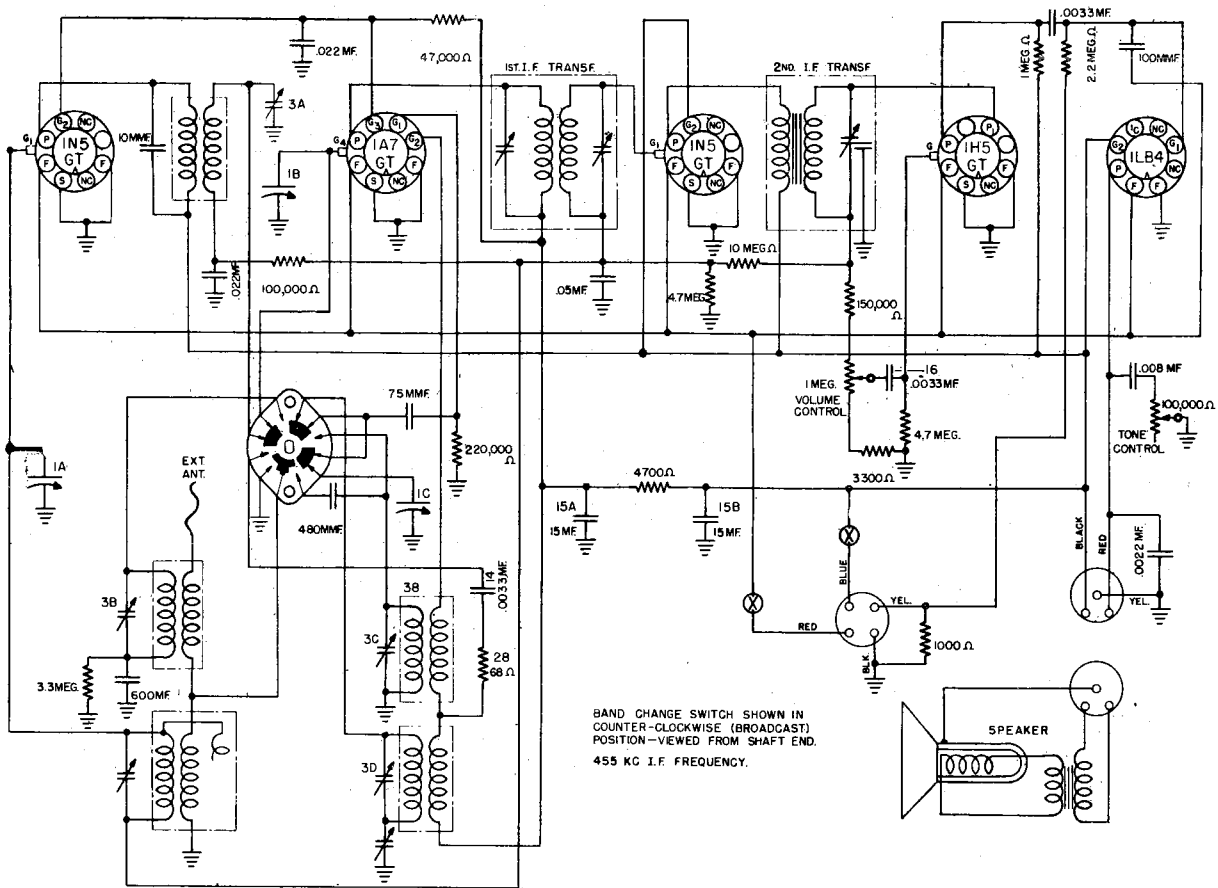




# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## CROSLEY

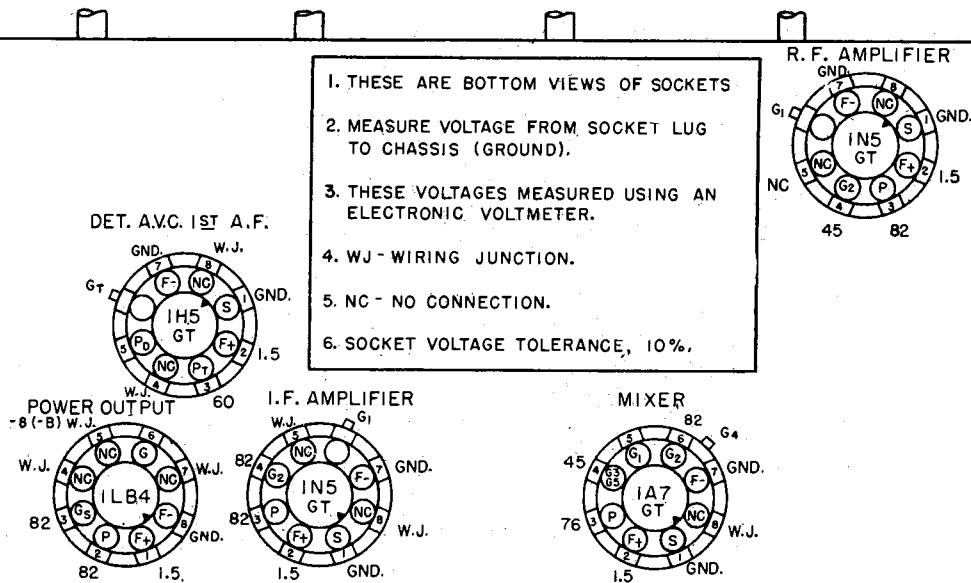
## MODEL 56FC



BAND CHANGE SWITCH SHOWN IN COUNTER-CLOCKWISE (BROADCAST) POSITION—VIEWED FROM SHAFT END.  
455 KC I.F. FREQUENCY.

**SCHEMATIC DIAGRAM—MODEL 56FC**

### SOCKET VOLTAGE CHART





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# 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.

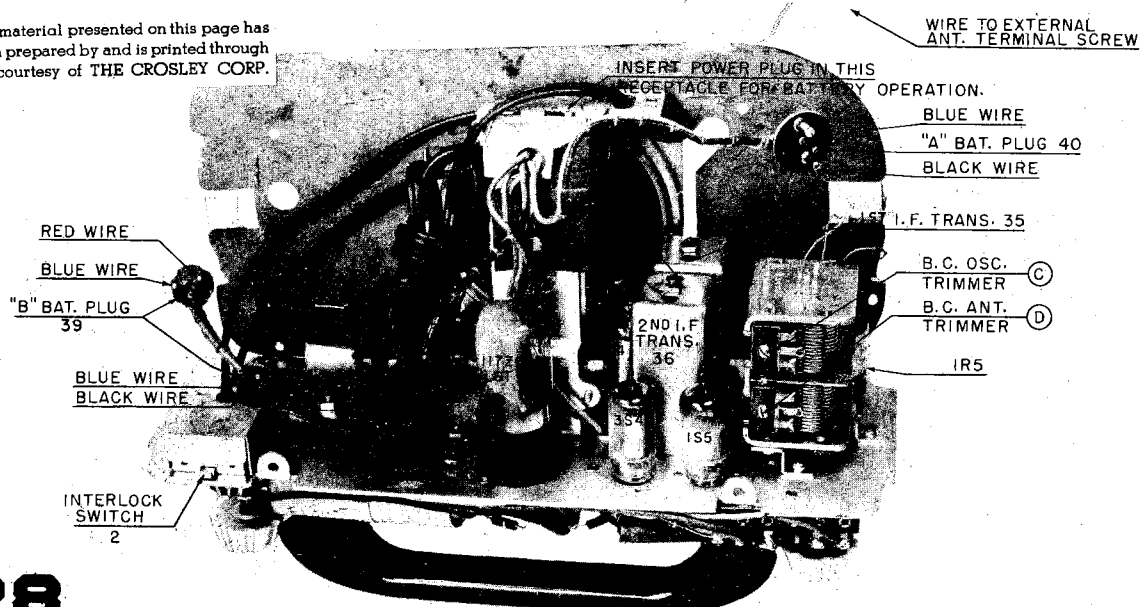
Connect the high side of the signal generator to the external antenna wire of the loop, that connects to the terminal screw on the bottom of the cabinet, as indicated in the alignment chart. Connect signal generator ground through a 0.1 mt. condenser to B— (No. 1 pin on 1R5 tube).

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.

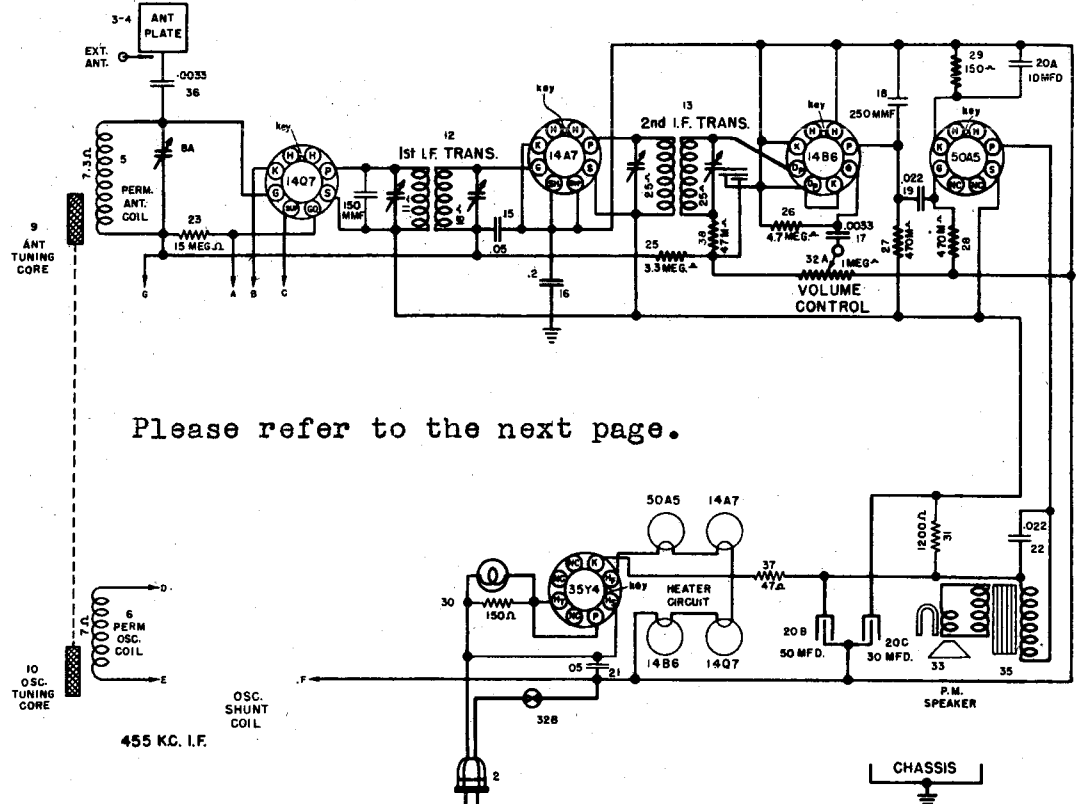
Alignment Sequence	Signal Generator Output			Position of Tuning Dial KC	Adjust for Maximum Outout
	Frequency in KC	In Series with	To		
1	455	200 mmf.	Ant.	1620	A & B
2	1620	200 mmf.	Ant.	1620	C
3	1400	200 mmf.	Ant.	1400	*D

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

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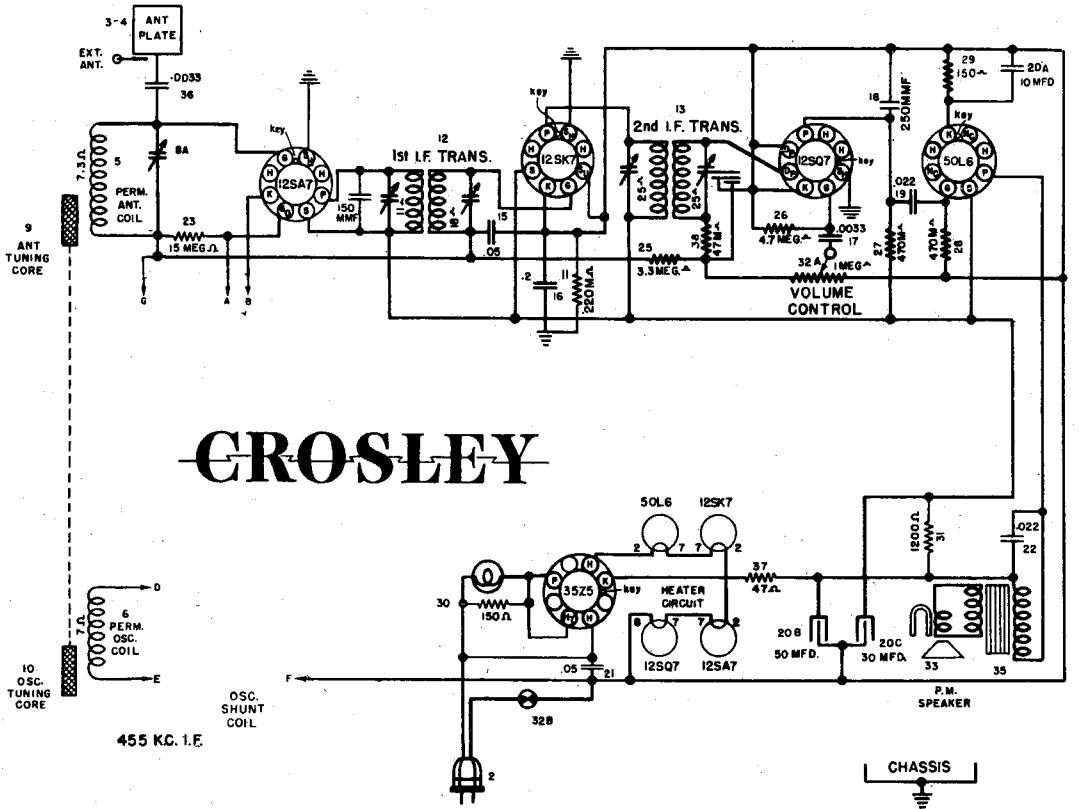


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



Please refer to the next page.

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

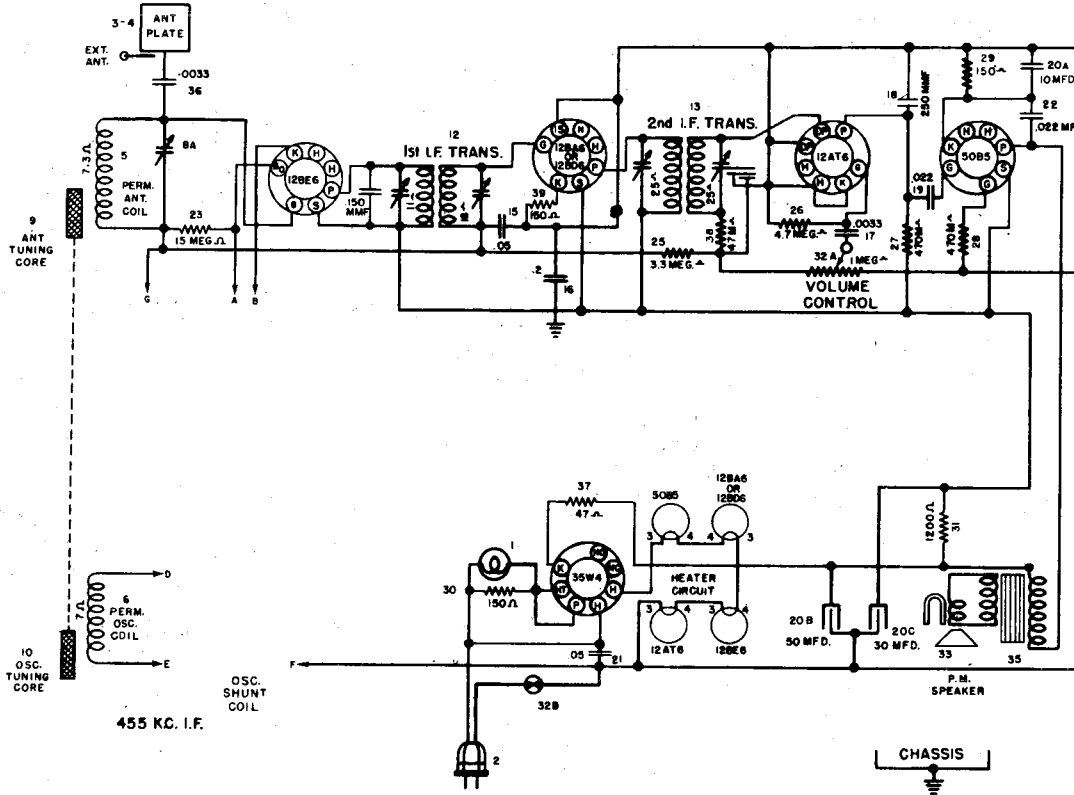


# CROSLEY

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

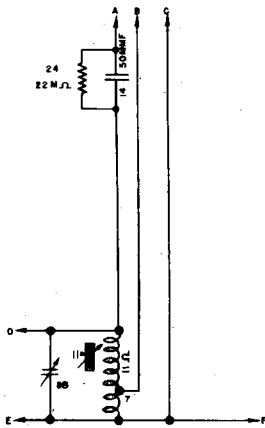
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## CROSLY

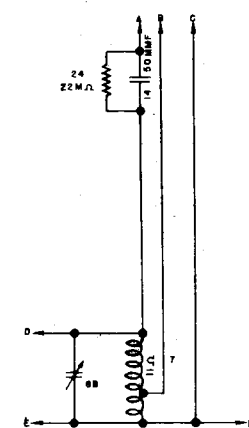


SCHMATIC DIAGRAM—MODEL 56TG-M, 56TH-M, 56TJ-M (MINIATURE)

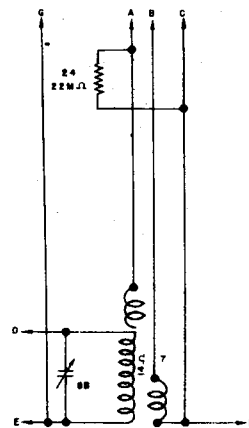
Select oscillator shunt coil circuit which corresponds to the model radio you are servicing. Connection G is used in the 3rd production sets.



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.









# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## ALIGNMENT PROCEDURE

MODEL 106CP

Turn the tuning capacitor to the completely closed position against the stop, and 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.

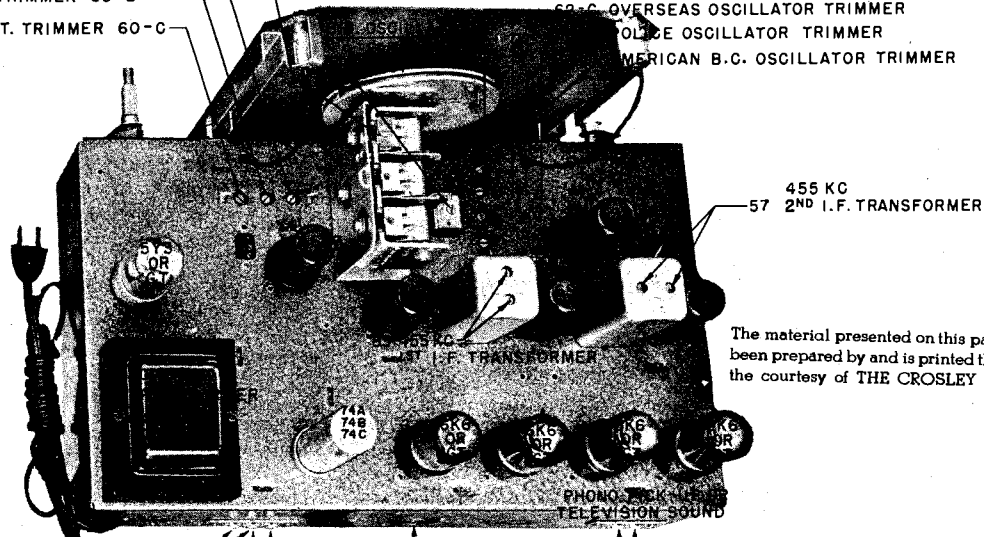
Alignment adjustment locations are shown in Chassis Top View, at bottom of page.

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.

B.C.R.F TRIMMER 60-A  
 POLICE ANT. TRIMMER 60-B  
 OVERSEAS ANT. TRIMMER 60-C  
 64 AMERICAN B.C. ANTENNA TRIMMER  
 62-C OVERSEAS OSCILLATOR TRIMMER  
 POLICE OSCILLATOR TRIMMER  
 AMERICAN B.C. OSCILLATOR TRIMMER



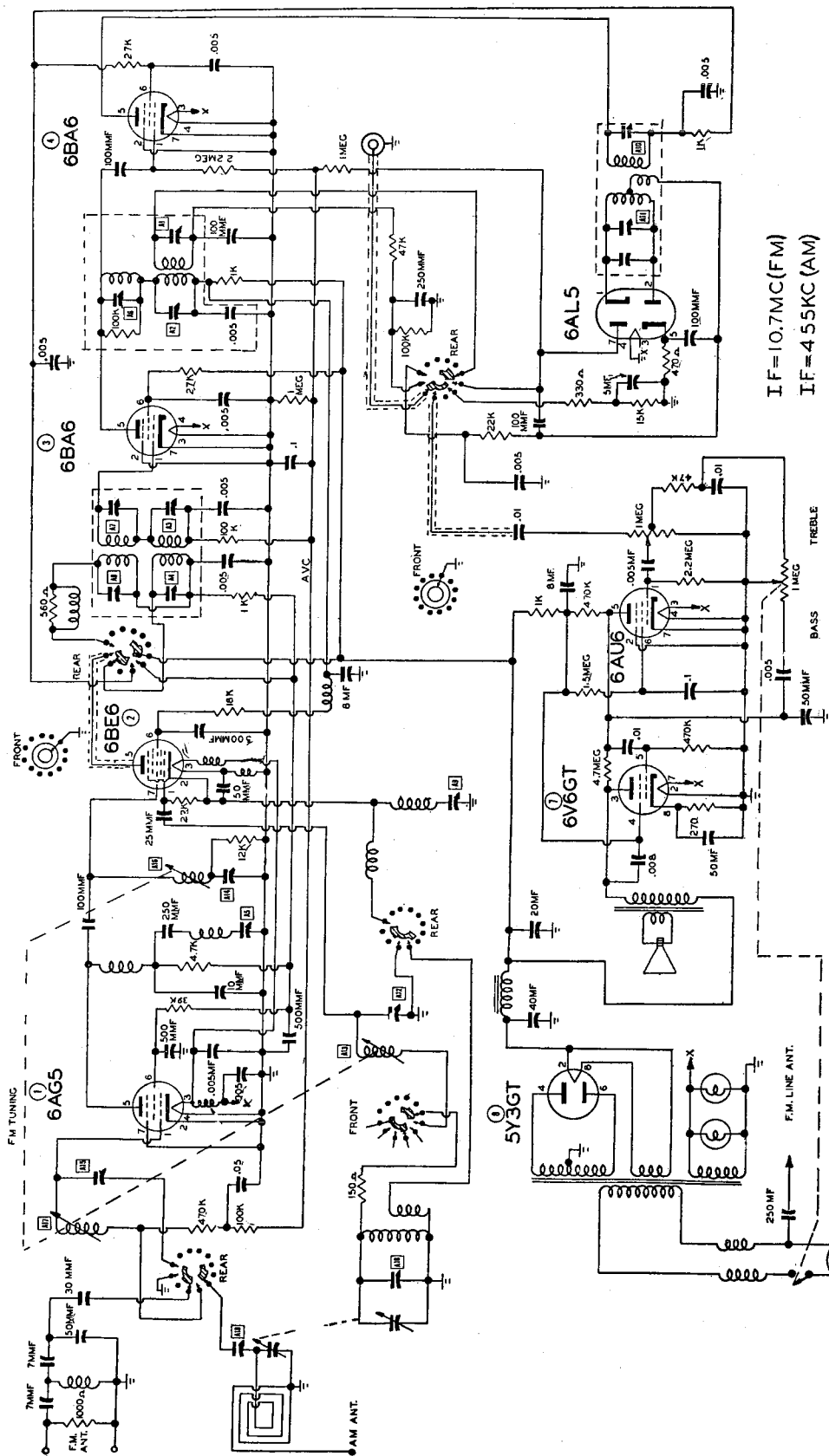
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SIGNAL WEB LOOP  
 EXT. GROUND  
 EXT. ANTENNA

SPEAKER SOCKET

HIGH SIDE  
 GROUND

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



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

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	0	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	2.60 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

Emerson Radio  
Model 528  
Chassis 120038





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Fada Radio Model 1001 \*\*\*\*\* Alignment Procedure

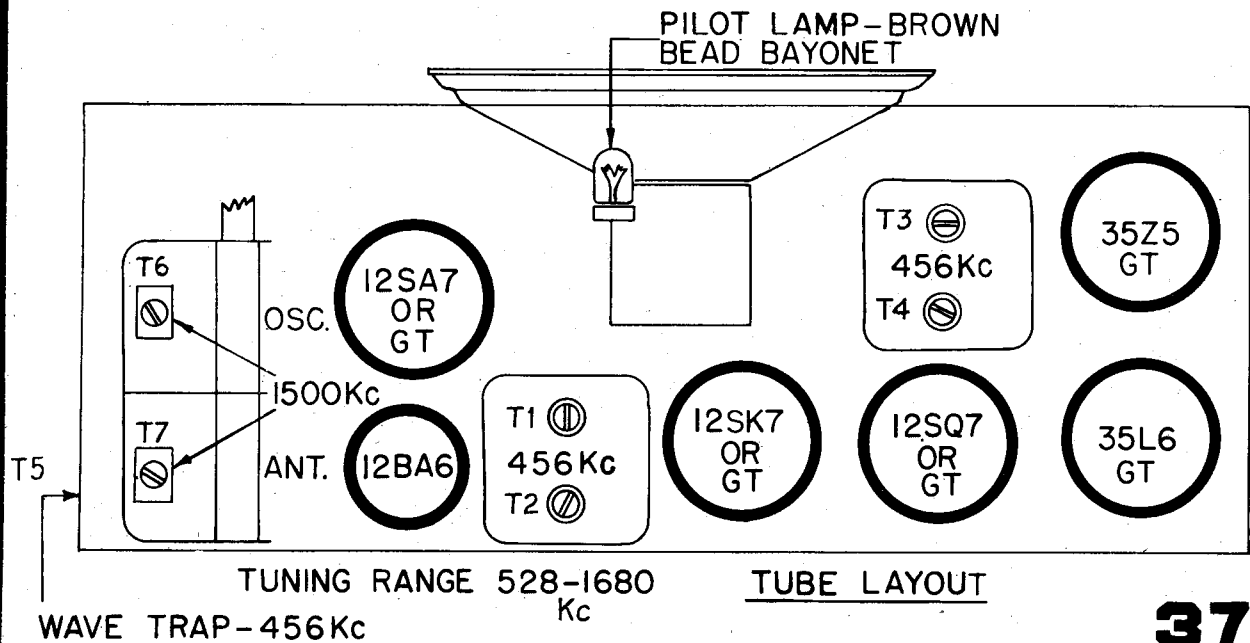
Volume Control full on.

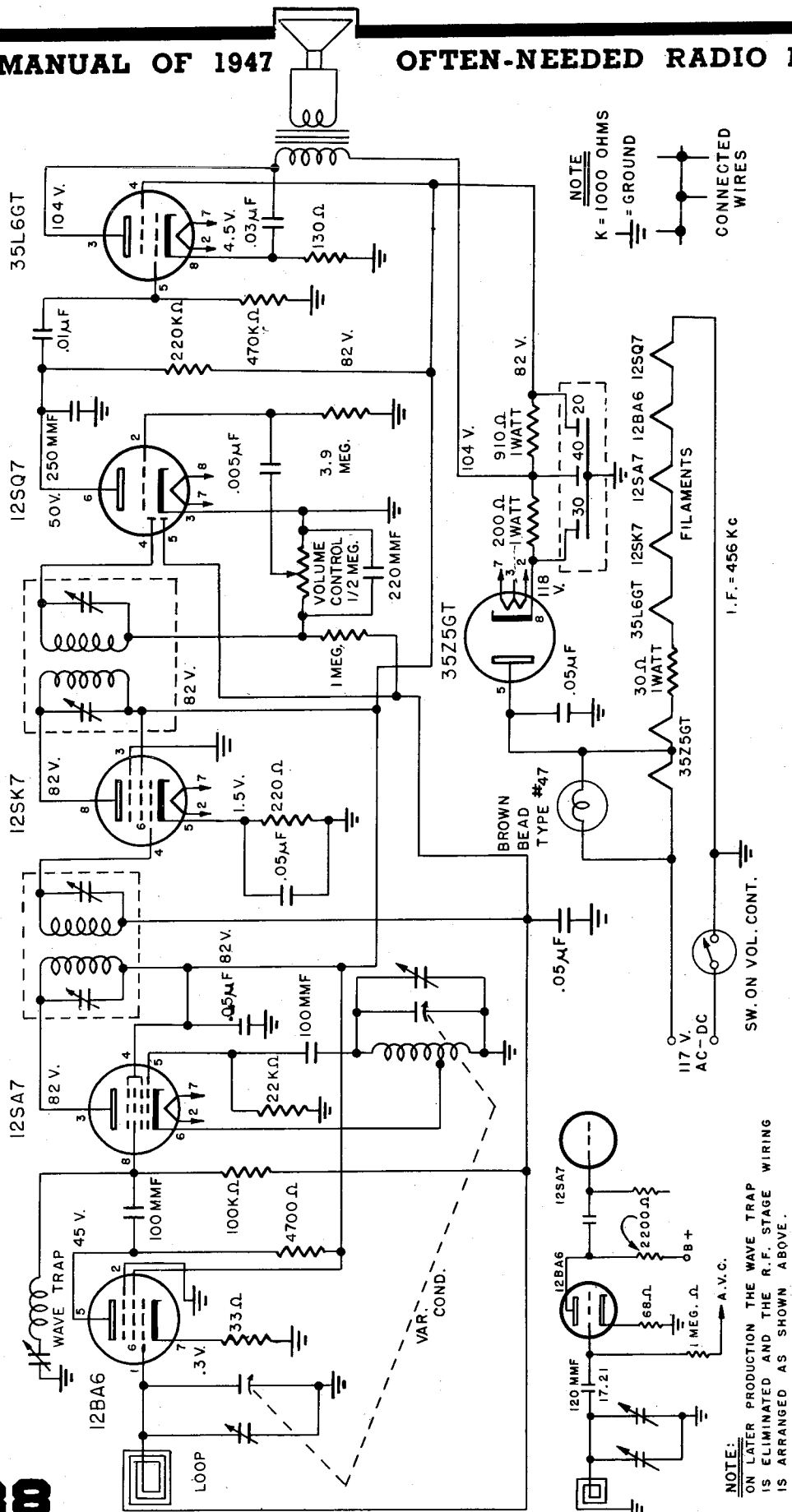
Low range A.C. meter connected across voice coil to indicate output.

Keep signal generator attenuated so as to maintain 1/2 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	Exactly 456 KC	.1 MF	Control Grid 12SA7 Tube Pin No. 8 on 12SA7 Socket	Adjust for Maximum Output T1, T2, T3 & T4
2	Full Open	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.
3	Full Open	Exactly 1680 KC		Radiating Loop (1/2 meter) 20" from Receiver	Adjust for Maximum Output T6
4	Approx. 1500 KC	Approx. 1500 KC		Radiating Loop (1/2 meter) 20" from Receiver	Adjust for Maximum Output T7
5	Approx. 600 KC	Approx. 600 KC		Radiating Loop (1/2 meter) 20" from Receiver	Check tracking and bend slotted end plate (rear section) of variable if necessary.
6					





NOTE  
K = 1000 OHMS  
= GROUND  
CONNECTED WIRES

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

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

**Power supply (40-60 cycles AC) 105-125V AC-DC**  
**Power consumption 30 Watts**  
**Frequency Range 1680-528 KC**  
**I.F. Circuits 456 KC**

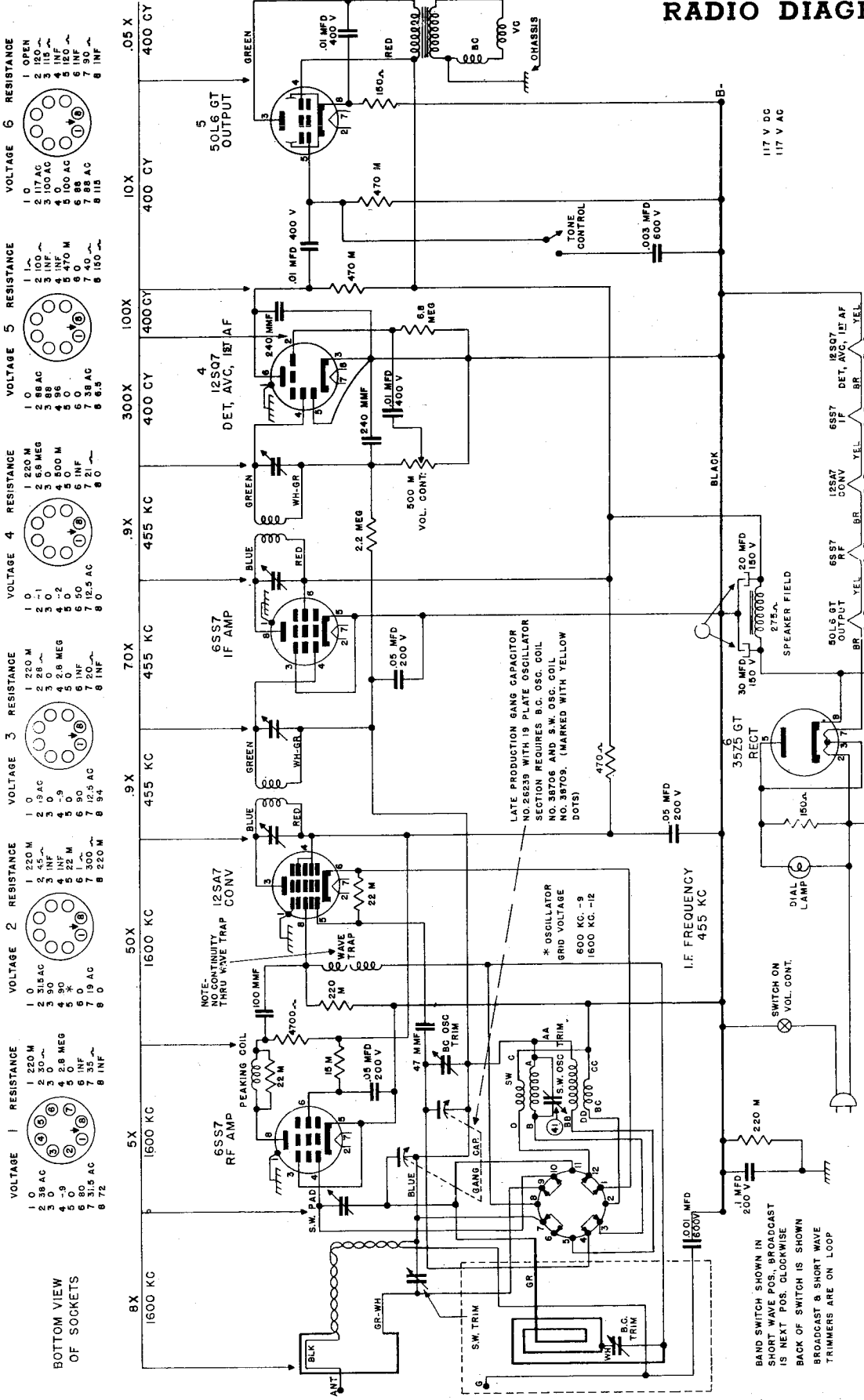
NOTE:  
ON LATER PRODUCTION THE WAVE TRAP  
IS ELIMINATED AND THE R.F. STAGE WIRING  
IS ARRANGED AS SHOWN ABOVE.



# RADIO DIAGRAMS

FARNSWORTH  
Television & Radio  
Chassis C-150

SCHEMATIC ET-060, ET-061, AND ET-063



VOLTAGE	RESISTANCE	VOLTAGE	RESISTANCE	VOLTAGE	RESISTANCE	VOLTAGE	RESISTANCE	VOLTAGE	RESISTANCE
1 0	1 220 M	1 0	1 220 M	1 0	1 220 M	1 0	1 220 M	1 0	1 220 M
2 30 AC	2 0	2 0	2 0	2 0	2 0	2 0	2 0	2 0	2 0
3 30 AC	3 0	3 0	3 0	3 0	3 0	3 0	3 0	3 0	3 0
4 9	4 2.8 MEG	4 -9	4 2.8 MEG	4 -2	4 500 M	4 -2	4 500 M	4 -2	4 500 M
5 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0
6 80	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0	6 0
7 25 AC	7 300	7 20	7 20	7 12.5 AC	7 20	7 20	7 20	7 20	7 20
8 72	8 220 M	8 0	8 0	8 0	8 0	8 0	8 0	8 0	8 0

BOTTOM VIEW OF SOCKETS

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



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

## EQUIPMENT AND PROCEDURE FOR ALIGNMENT

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.

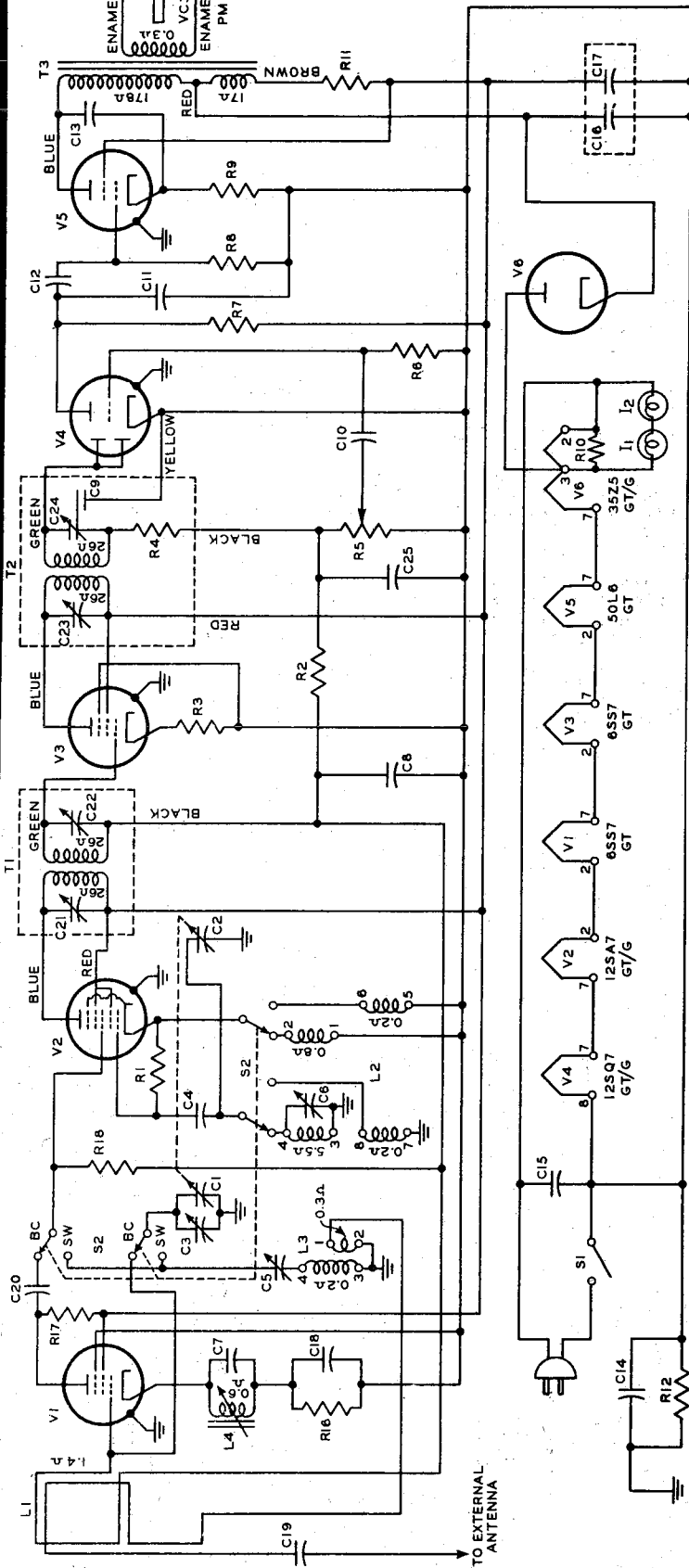
When aligning the Shortwave Oscillator, use the peak found farthest out from maximum capacity on the oscillator trimmer. Use the peak nearest maximum capacity on the loop trimmer.

### 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		

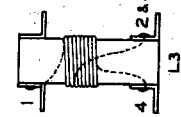
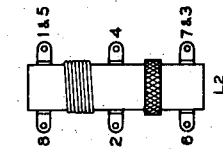
# 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Federal Telephone & Radio  
 Models 1030T & 1540T  
 See next page for  
 alignment information.



- L1, L2 3-2 v, 160 ma. miniature bayonet base
- L3 200.5 uH ± 1 uH; dist. cap. 1.2 mF max.
- L4 2-band osc coil assy.
- LS1 5" P.M., 3.2 ohm V.C.
- R1 22000 ohms ± 20%
- R2 1.0 megohm ± 20%
- R3 220 ohms ± 20%
- R4 47000 ohms ± 20%
- R5 500,000 ohms taper 50,000 ohms at 1/2 rotation, with "on-off" switch
- R6 10.0 megohm ± 20%
- R7 0.22 megohm ± 20%
- R8 0.47 megohm ± 20%
- R9 120 ohms ± 10%
- R10 270 ohms ± 10%
- R11 1500 ohms ± 5%
- R12 220,000 ohms ± 20%
- R13 470 ohms ± 20%
- R14 4700 ohms ± 20%
- R15 0.1 megohm ± 20%
- S1 Part of R5
- S2 4 pole, 2 position
- T1 Double tuned, 455 kc.
- T2 Primary impedance 2500 ohms, secondary 3.2 ohms,

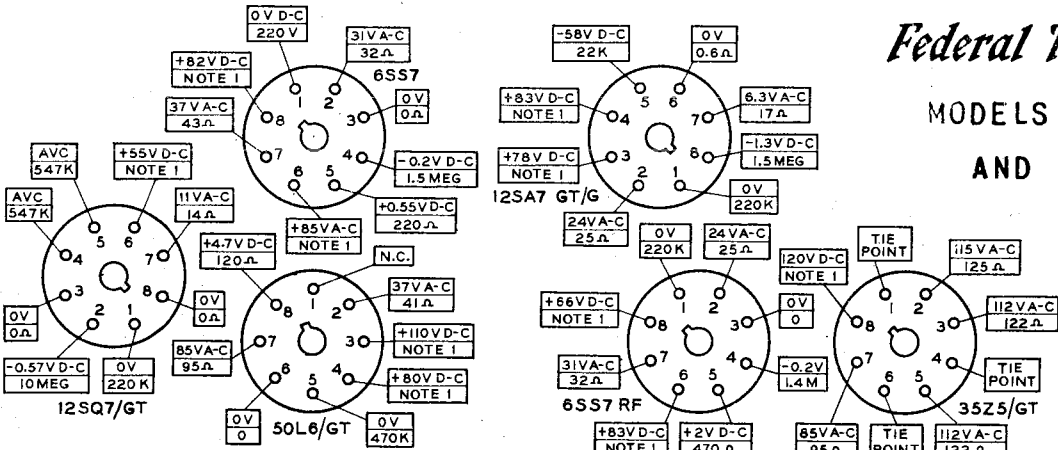
- C1 2 Gang variable
- C2 Part of C1
- C3 100 mmf mica ± 10%
- C4 500 v D.C. working
- C5 Compression trimmer 70-470 mmf
- C6 1.6-18 mmf (part of C5)
- C7 3000 mmf mica ± 10%
- C8 500 v D.C. working
- C9 .05 mfd, tubular, paper, 400 v D.C. working
- C10 125 mmf mica, ± 25%
- C11 .01 mfd, paper, tubular, 400 v D.C. working
- C12 .0015 mfd, mica, 20% 500 V.C. working
- C13 .01 mfd, paper tubular 400 v D.C. working
- C14 .01 mfd, paper tubular 400 v D.C. working
- C15 .2 mfd paper dielectric 400 v D.C. working
- C16 Electrolytic, 2 section Common cathode
- C17 40 mfd 150 DCWV Sect. 1
- C18 40 mfd 150 DCWV Sect. 2
- C19 Part of C16
- C20 1 mfd, paper, tubular 400 v D.C. working
- C21 .002 mfd, paper, tubular, 600 v D.C. working
- C22 470 mmf. mica ± 20% 500 v D.C. working
- C23 Part of T1
- C24 Part of T2
- C25 100 mmf. mica ± 10% 500 v D.C. working



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

*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  $\pm 20\%$  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.

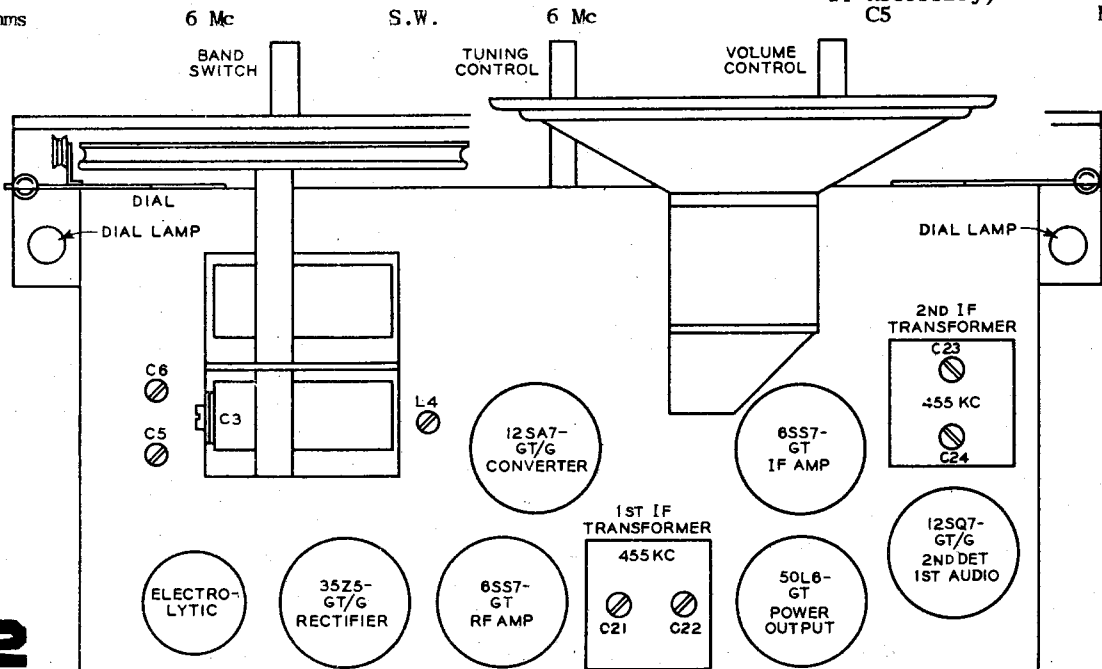
Connect output meter across voice coil terminals on speaker frame.

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.

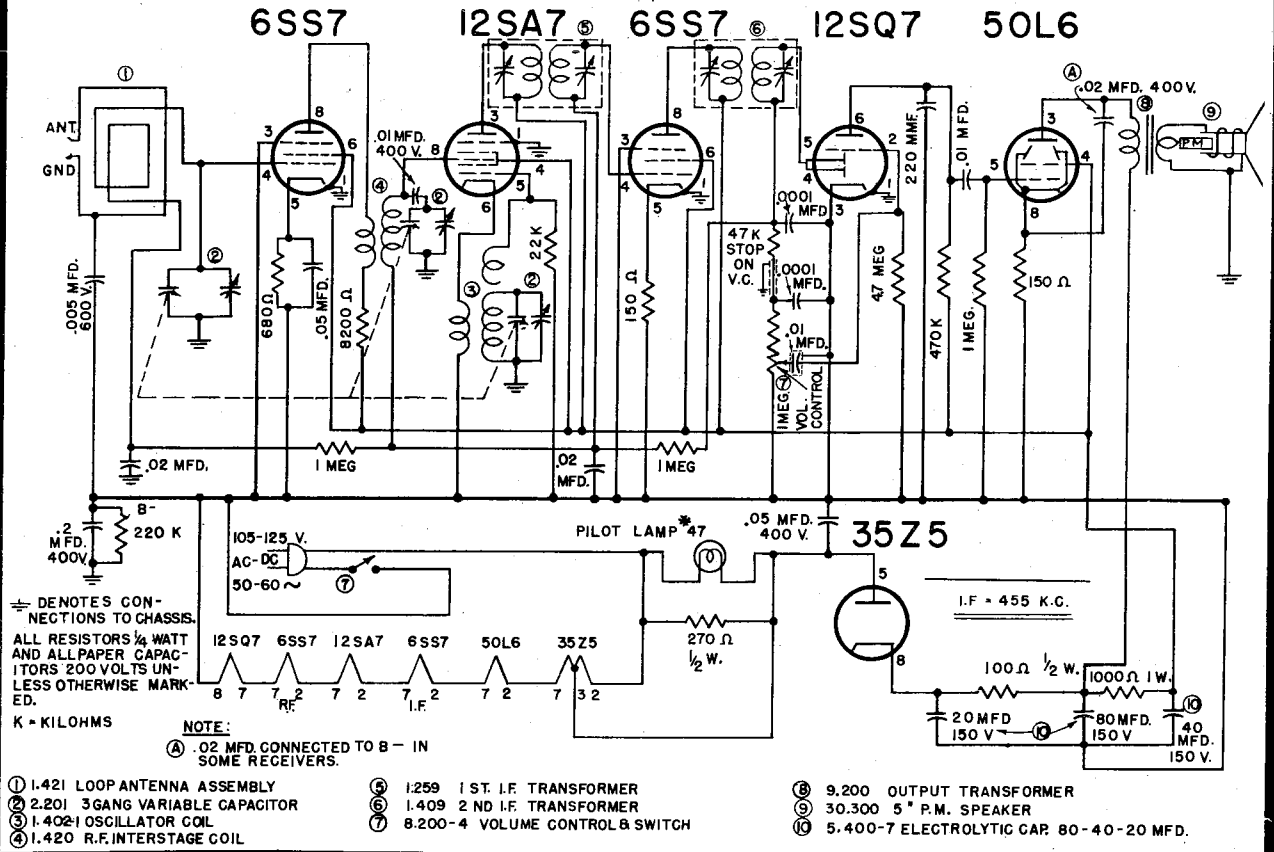
## ALIGNMENT CHART

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	Max.
				(Check, adjust if necessary)	
400 ohms	6 Mc	S.W.	6 Mc	C5	Max.



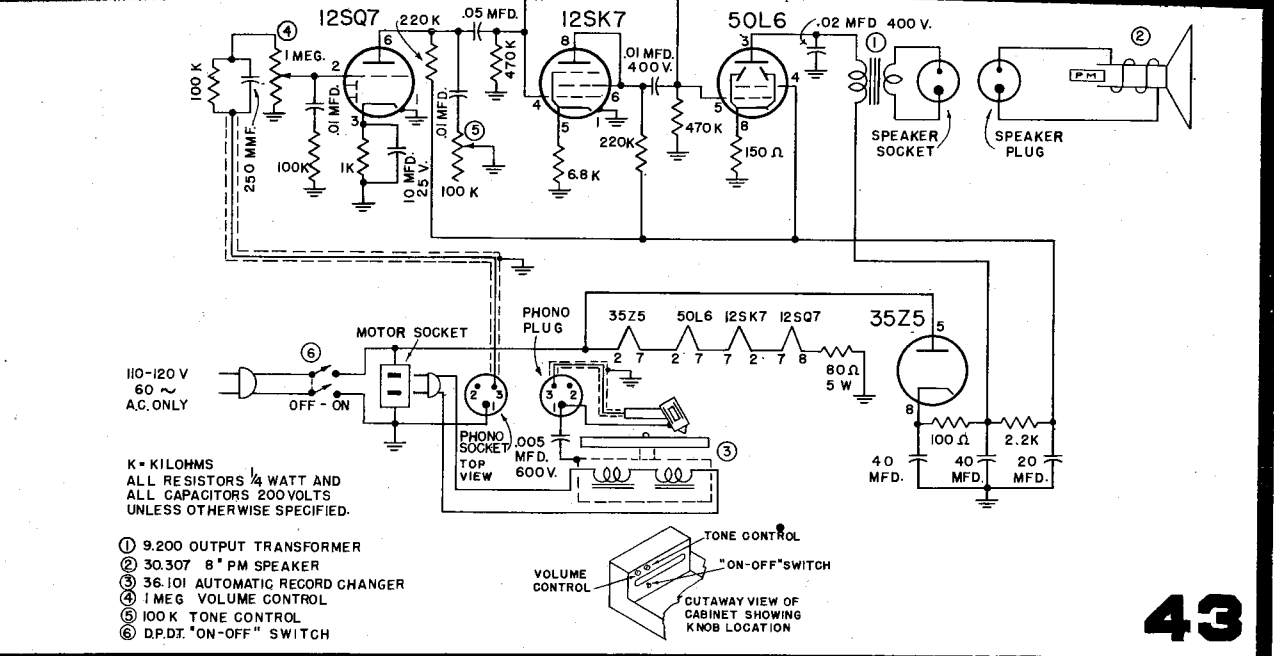
MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# GAROD RADIO



## MODEL 6BU-1A

## MODEL 45APA



# GAROD RADIO



*The Sheraton*

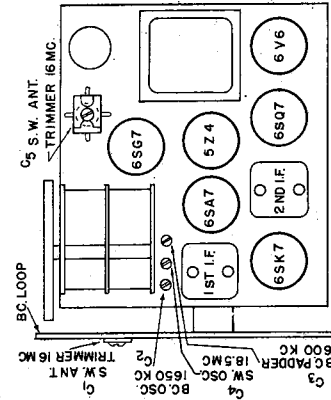
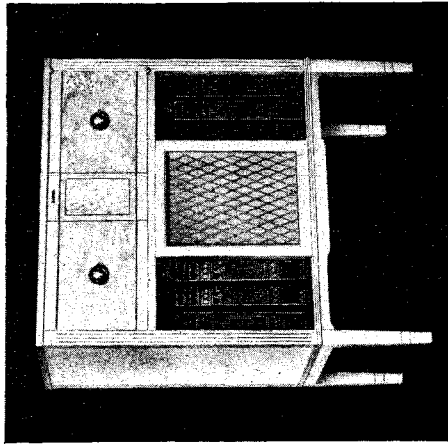
MODEL **6DPS**

**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**

**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.

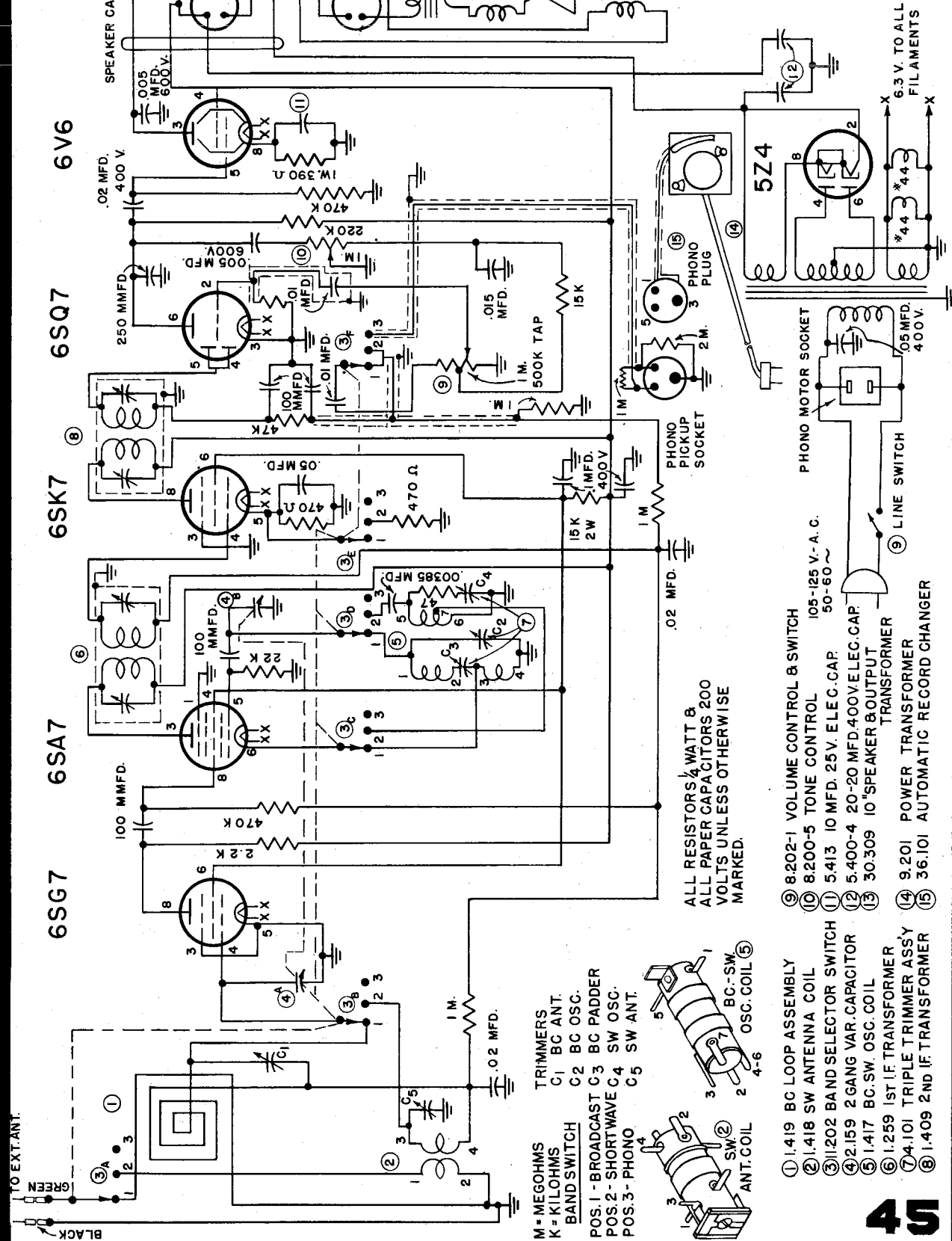
- (1) Couple the signal generator to the receiver loop by means of a two or three turn loop.
- (2) With the Variable Capacitor set at the extreme clockwise position (minimum capacity), tune in the 1650 KC signal by means of the broadcast oscillator trimmer (C1).
- (3) Set the signal generator to 1500 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)**

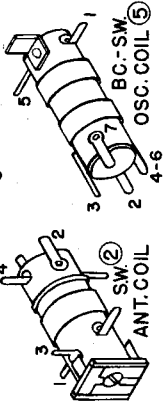
- (1) Connect the signal generator through a standard short wave dummy antenna to the antenna (green wire) and the ground lead to the chassis of the receiver. Set the signal generator to 18.5 MC.
- (2) With the Variable Capacitor set at the extreme clockwise position (minimum capacity), tune in the 18.5 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.

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## GAROD RADIO MODEL 6DPS



- M** - MEGOHMS  
**K** - KILOHMS  
**BAND SWITCH**  
 POS. 1 - BROADCAST C3 BC PADDER  
 POS. 2 - SHORTWAVE C4 SW OSC.  
 POS. 3 - PHONO C5 SW ANT.

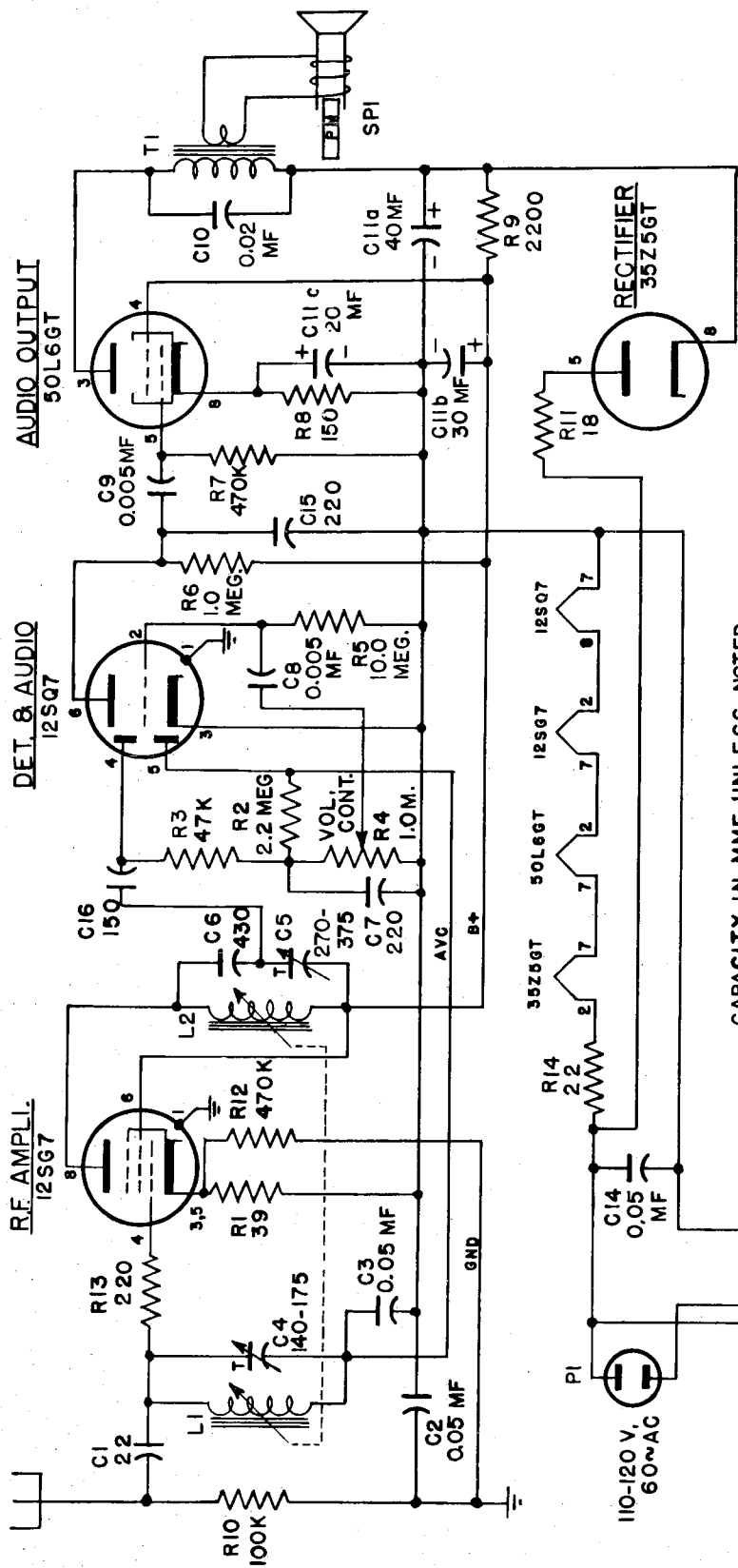


- ① 1.419 BC LOOP ASSEMBLY
- ② 1.418 SW ANTENNA COIL
- ③ 11202 BAND SELECTOR SWITCH
- ④ 2.159 2 GANG VAR. CAPACITOR
- ⑤ 1.417 BC. SW. OSC. COIL
- ⑥ 1.259 1st IF TRANSFORMER
- ⑦ 4.101 TRIPLE TRIMMER ASSY
- ⑧ 1.409 2nd IF TRANSFORMER

ALL RESISTORS 1/4 WATT &  
 ALL PAPER CAPACITORS 200  
 VOLTS UNLESS OTHERWISE  
 MARKED.

- 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

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

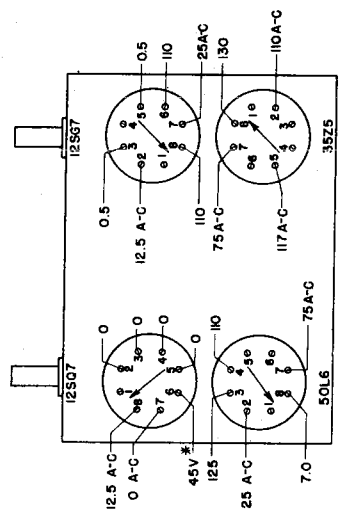
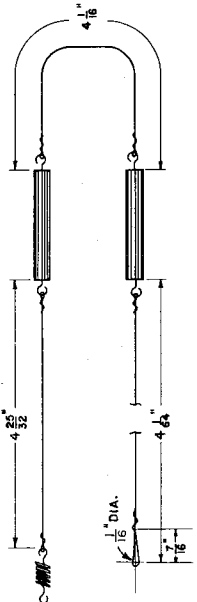
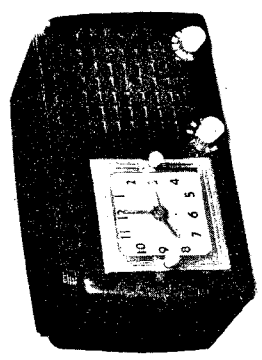


CAPACITY IN MMF UNLESS NOTED

**GENERAL ELECTRIC**

**RADIO & CLOCK**  
SERVICE DATA

FOR  
**MODEL 50**

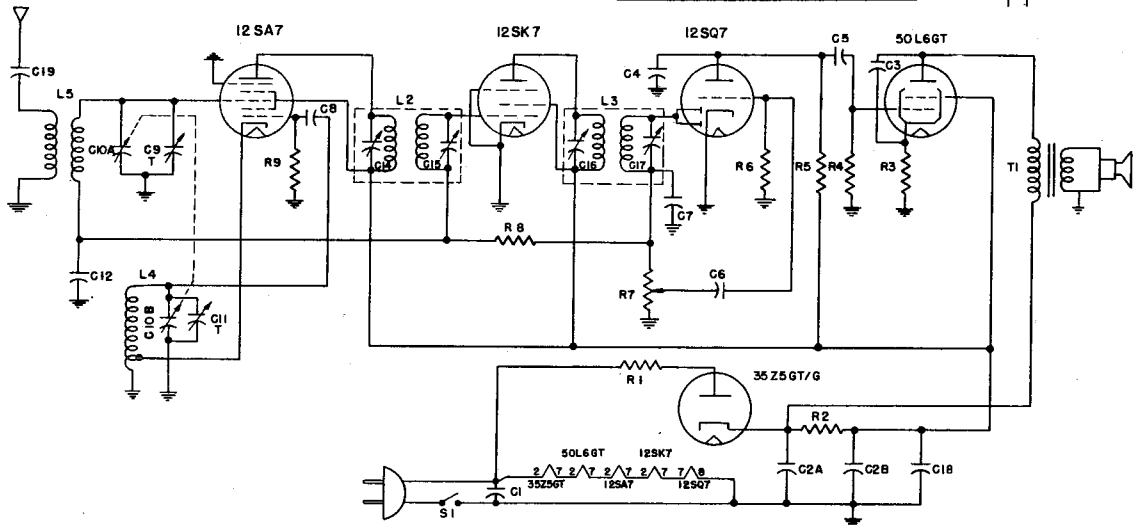
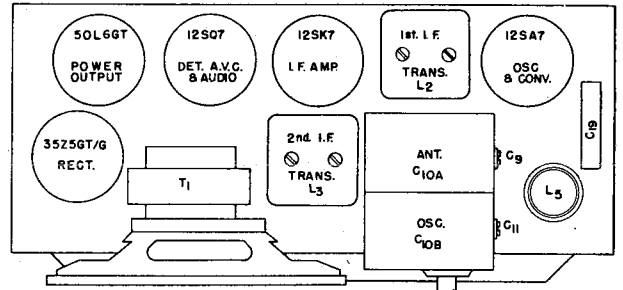


\* Measured with 20,000 ohm/volt meter

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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 1/2 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 1/2 watt carbon resistor
C3	.02 mfd paper capacitor	C12	.05 mfd paper capacitor	R4	470,000 ohm 1/4 watt carbon resistor
C4	.330 mmfd mica capacitor	C18	.05 mfd paper capacitor	R5	220,000 ohm 1/4 watt carbon resistor
C5	.01 mfd paper capacitor	C19	.005 mfd paper capacitor	R6	10 megohm 1/2 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 1/4 watt carbon resistor
C8	47 mmfd mica capacitor	L4	Oscillator coil	R9	22,000 ohm 1/4 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.

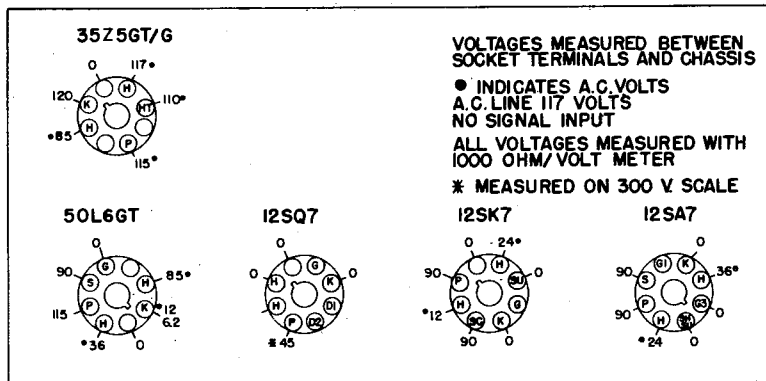
#### I.F. ALIGNMENT

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 receiver antenna grid through a .05 mfd capacitor and align progressively the trimmers in the 2nd and 1st I.F. transformer cans.

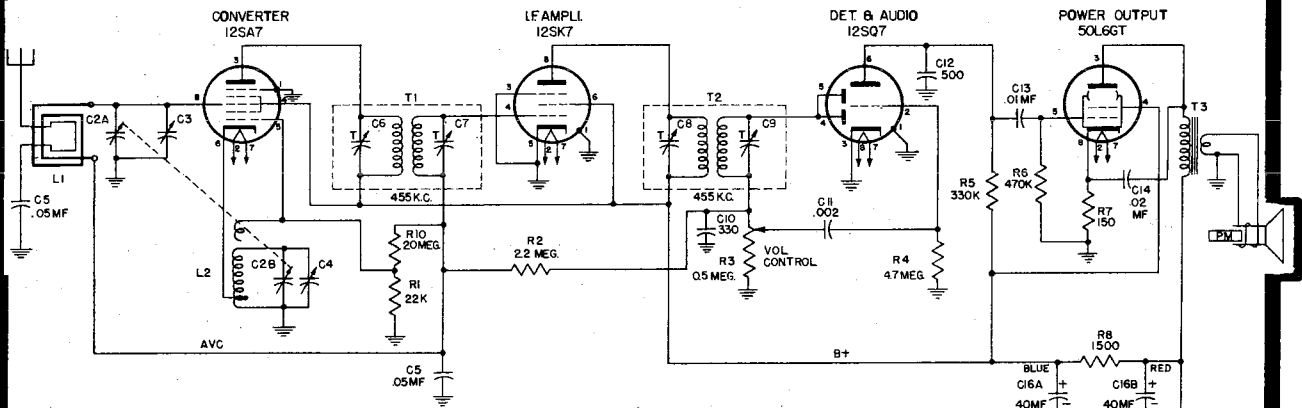
#### R.F. ALIGNMENT

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.





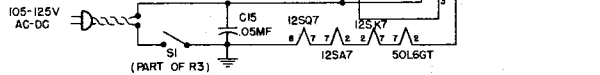
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



**GENERAL ELECTRIC**

**RADIO SERVICE DATA**  
FOR  
**MODELS 110 & 111**  
**ELECTRICAL CIRCUIT ALIGNMENT**

⏚ INDICATES CONNECTION TO CHASSIS  
CAPACITY VALUES ARE MMF UNLESS OTHERWISE NOTED



**ALIGNMENT FREQUENCIES:**

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

**EQUIPMENT REQUIRED:**

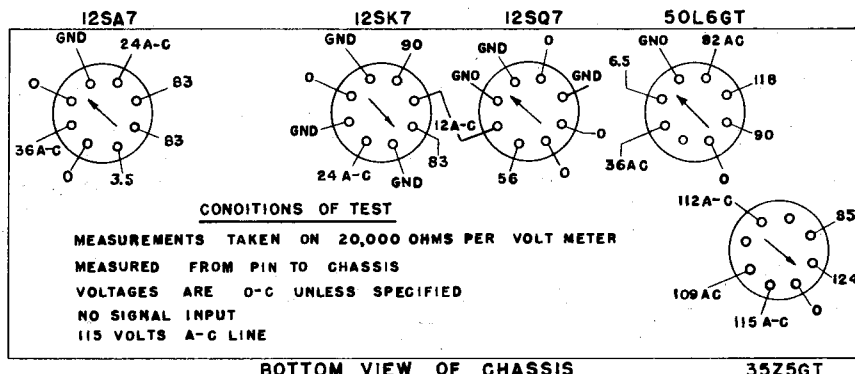
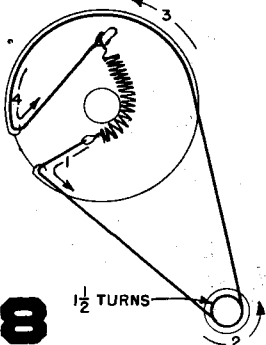
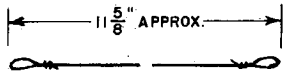
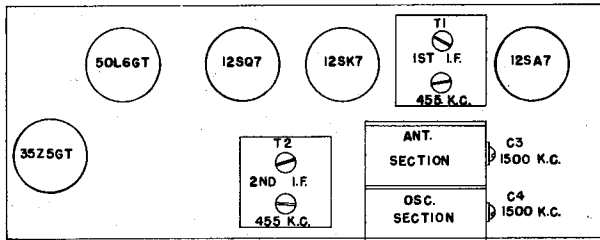
1. Line isolation transformer.
2. A-c output meter, 1½ volts full scale.
3. Test oscillator with tone modulation.
4. 0.05 mf. paper capacitor.
5. 50 mmf. mica capacitor.
6. Insulated screwdriver.

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.

**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.

**ALIGNMENT CHART**

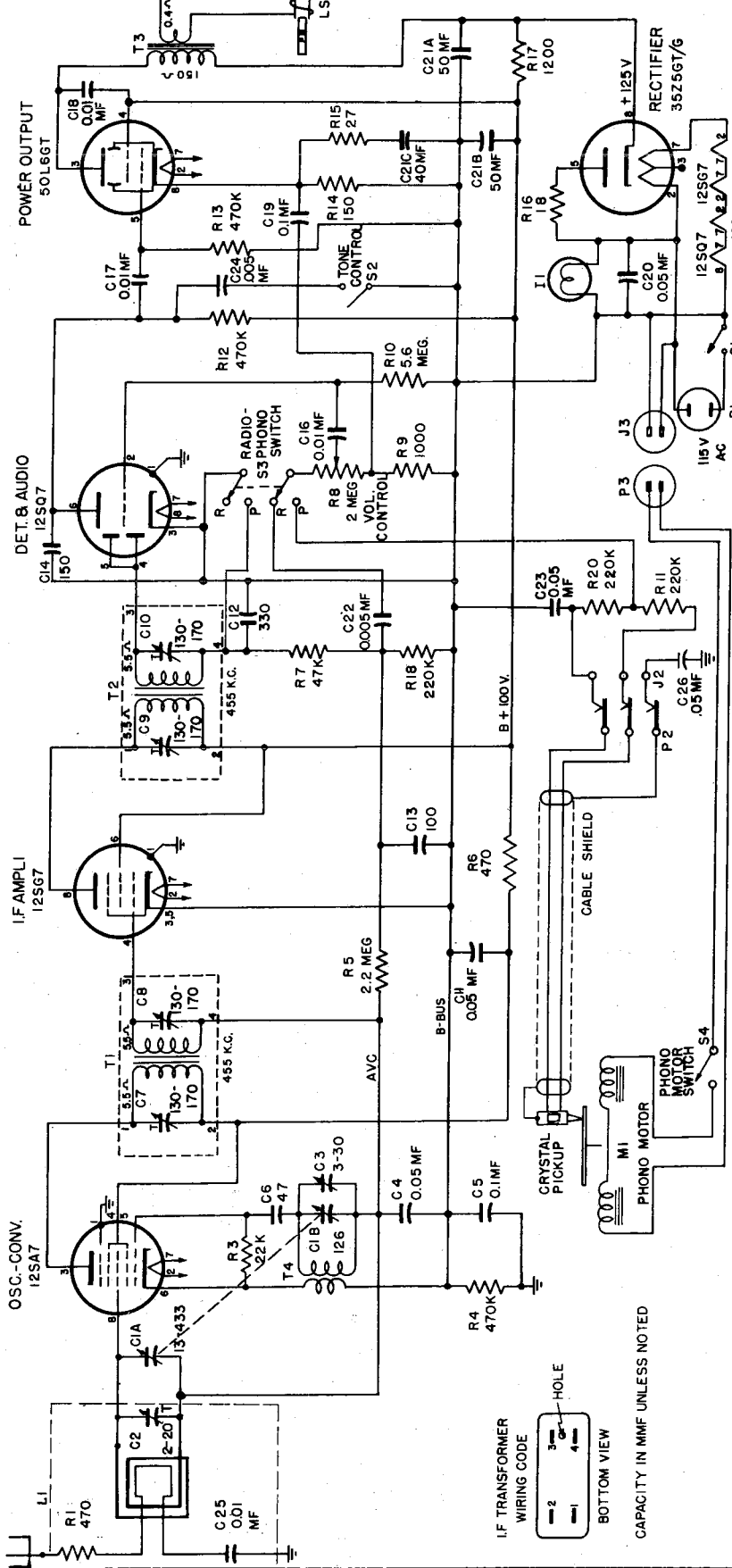
Step	Connect Test Oscillator to	Test Oscillator Setting	Pointer Setting on Radio	Adjustment for Maximum Output
1	12SG7 grid in series with 0.05 mf. cap.	455 kc	1500 kc	2nd I-F trans. trimmers
2	12SA7 grid in series with 0.05 mf. cap.	455 kc	1500 kc	1st and 2nd I-F trans. trimmers
3	Ant. post in series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



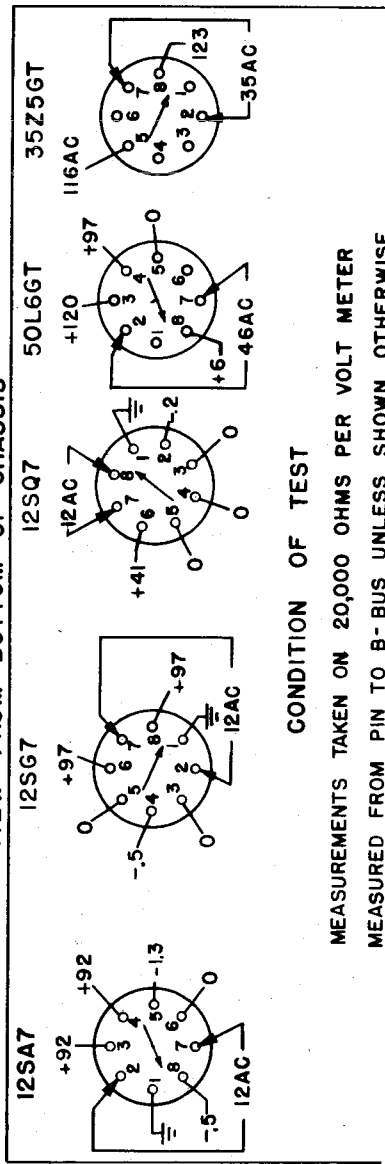
**CONDITIONS OF TEST**  
MEASUREMENTS TAKEN ON 20,000 OHMS PER VOLT METER  
MEASURED FROM PIN TO CHASSIS  
VOLTAGES ARE 0°C UNLESS SPECIFIED  
NO SIGNAL INPUT  
115 VOLTS A-C LINE

**BOTTOM VIEW OF CHASSIS**

# MANUAL OF MOST-OFTEN-NEEDED RADIO DIAGRAMS

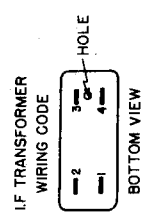


VIEW FROM BOTTOM OF CHASSIS



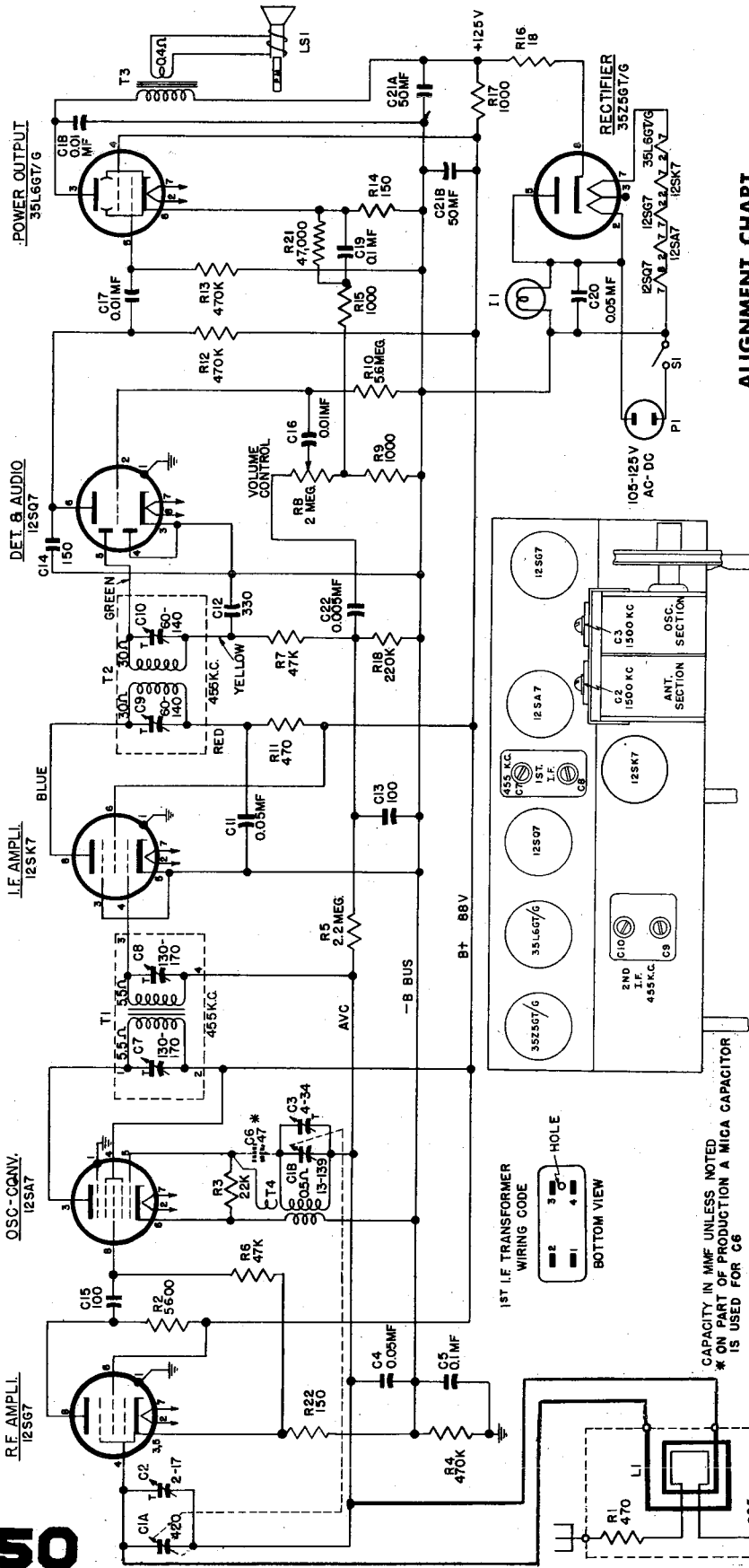
CONDITION OF TEST  
 MEASUREMENTS TAKEN ON 20,000 OHMS PER VOLT METER  
 MEASURED FROM PIN TO B-BUS UNLESS SHOWN OTHERWISE

**GENERAL ELECTRIC**  
**RADIO-PHONOGRAPH**  
 SERVICE DATA  
 FOR  
**MODEL 106**



CAPACITY IN MMF UNLESS NOTED

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



## 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 Trimers
2	12SA7 grid in series with 0.05 mf. cap.	455 kc	1500 kc	1st and 2nd I-F Trimers
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.)

- 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.
- For i-f and r-f alignments, the output meter is connected across the loudspeaker voice coil terminals.
- Keep radio volume control at maximum and attenuate test oscillator signal output so that the output meter reading never exceeds 1 1/4 volts.
- The chassis must be removed from the cabinet during I-F alignment. For R-F alignment bolt the chassis in the cabinet securely.
- Connect the capacitor as listed in column 2, between the output "High Side" of test oscillator and the point of input specified.

**GENERAL ELECTRIC**

**MODELS 200, 203 & 205**



# 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 1 1/4 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 1 1/4 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

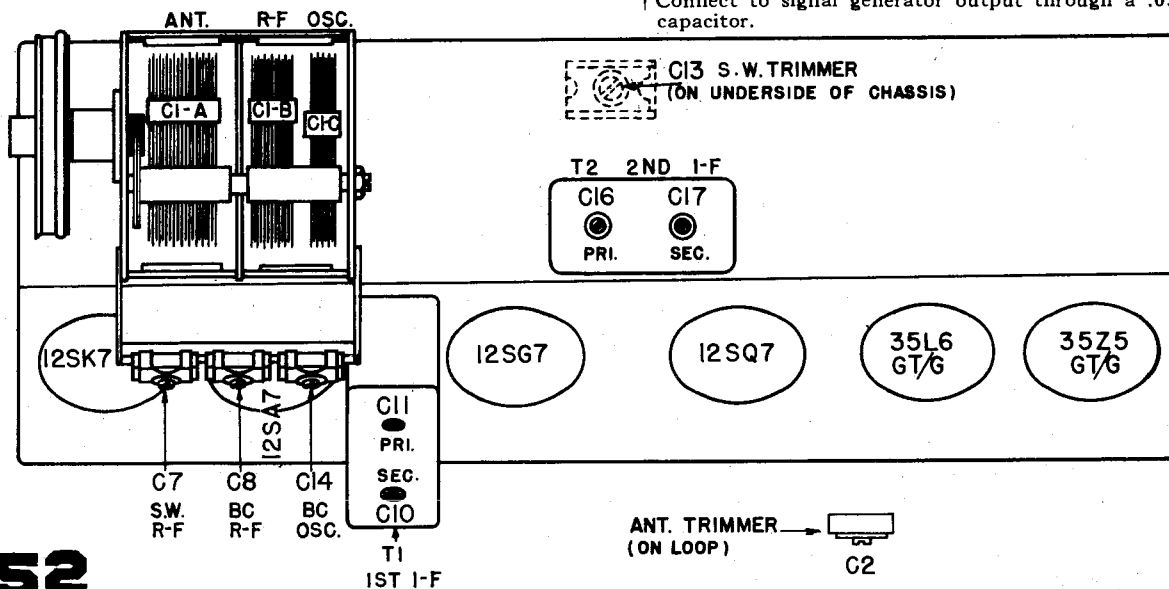
The following information will be useful to servicemen equipped with vacuum tube voltmeters or similar voltage measuring instruments. The stage gain values listed may have a tolerance of 20%.

##### Stage Gains.

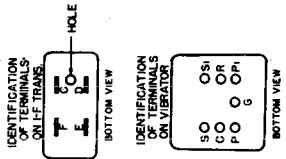
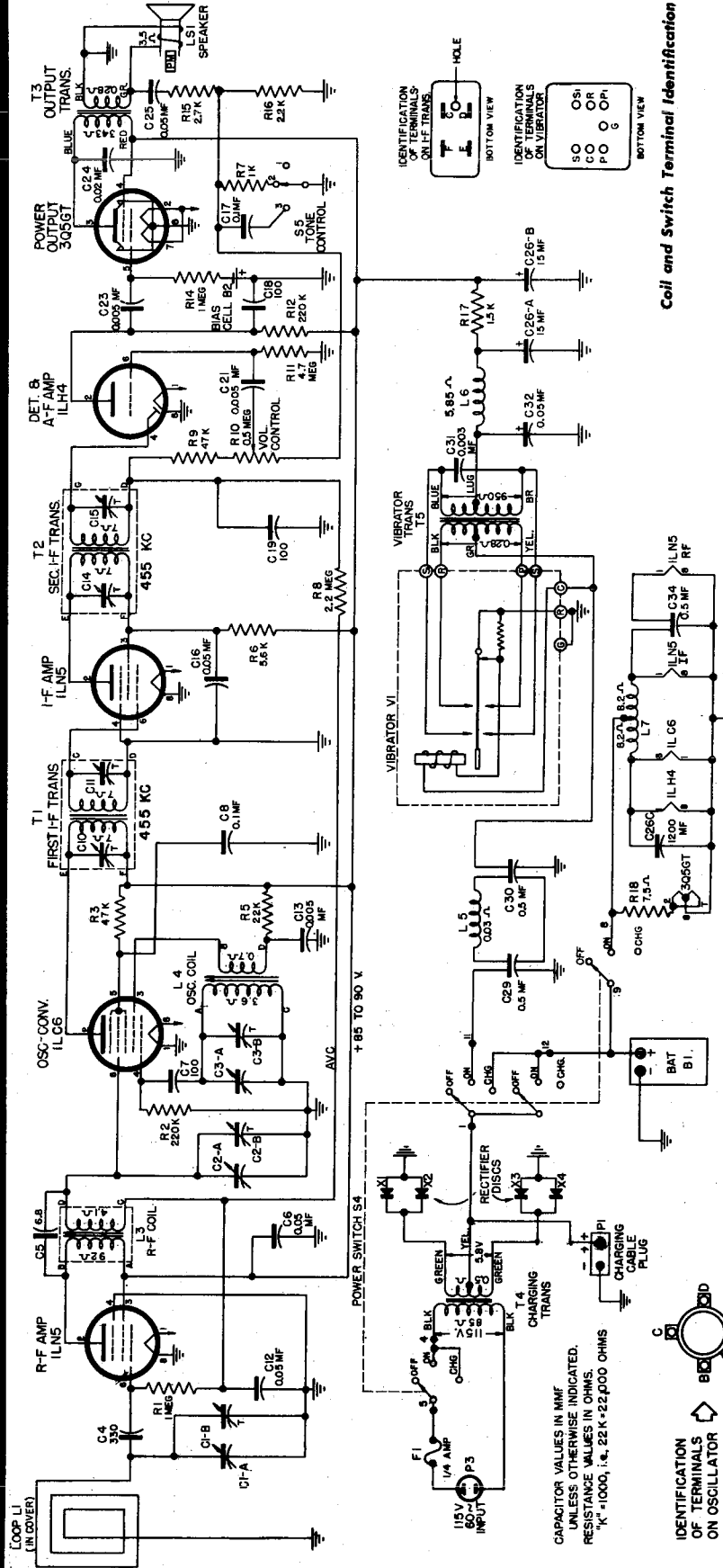
- (1) Antenna terminal\* to pin 4 of 12SK7... 4 @ 1000 kc
- (2) Pin 4 of 12SK7† to pin 8 of 12SA7... 10 @ 1000 kc
- (3) Pin 8 of 12SA7† to pin 4 of 12SG7... 35 @ 455 kc
- (4) Pin 4 of 12SG7† to pins 4 or 5 of 12SQ7... 100 @ 455 kc

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

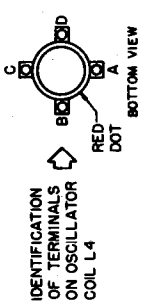
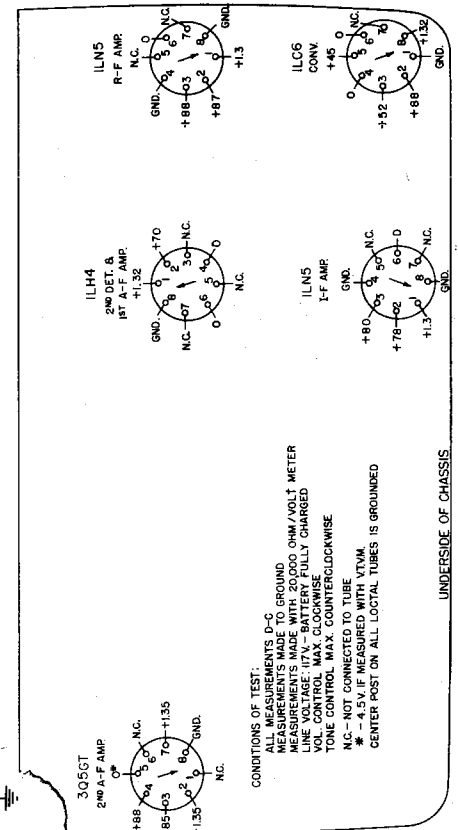
† Connect to signal generator output through a .05 mf. capacitor.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



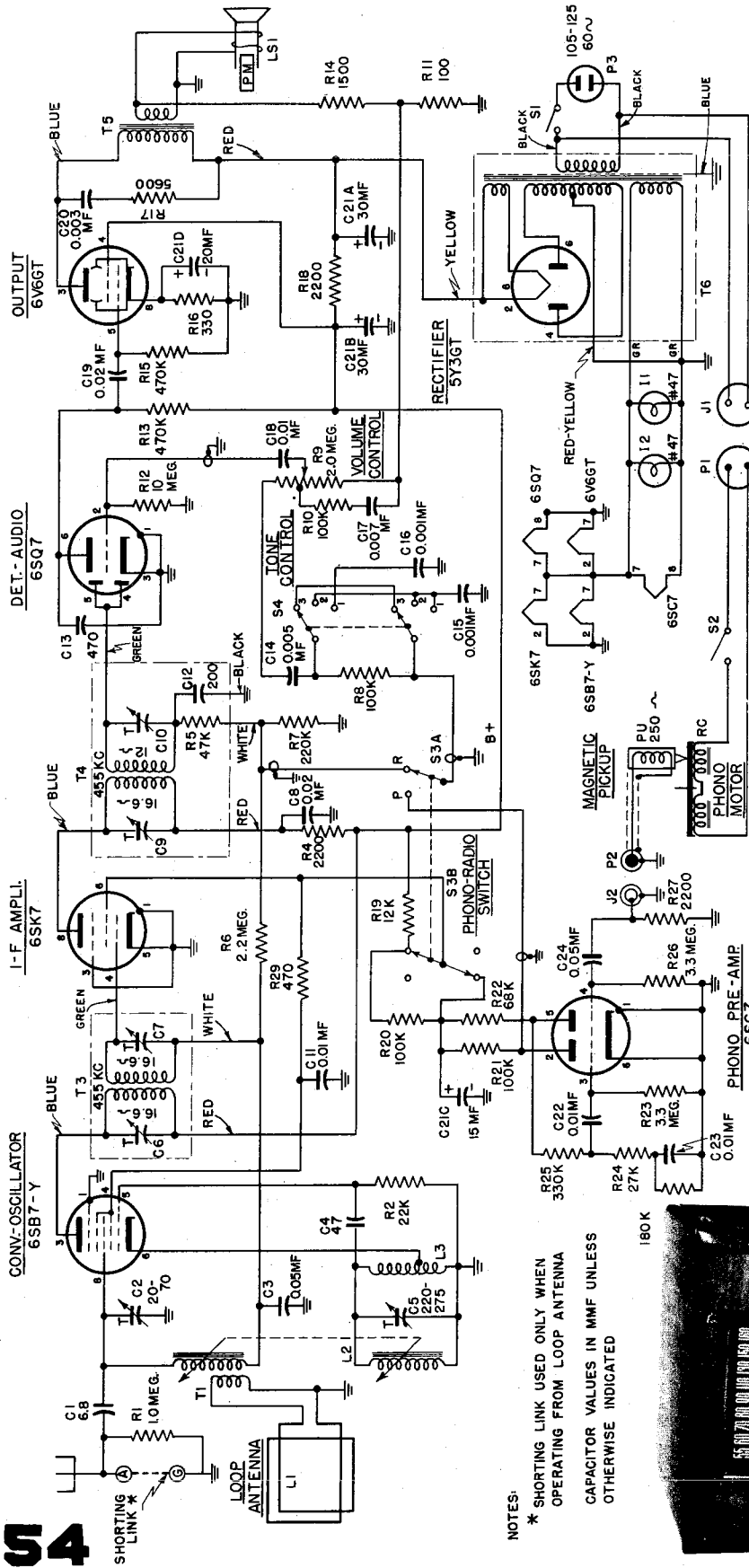
## Coil and Switch Terminal Identification



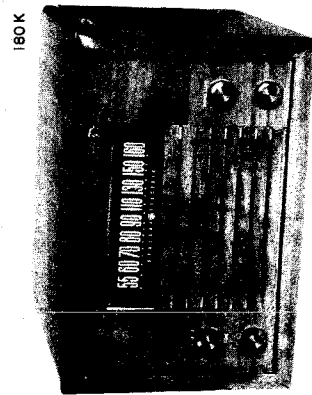
CAPACITOR VALUES IN MMF UNLESS OTHERWISE INDICATED.  
 RESISTANCE VALUES IN OHMS.  
 "K" 1000, "M" 22K-22,000 OHMS

**GENERAL ELECTRIC**  
**MODEL 250**

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



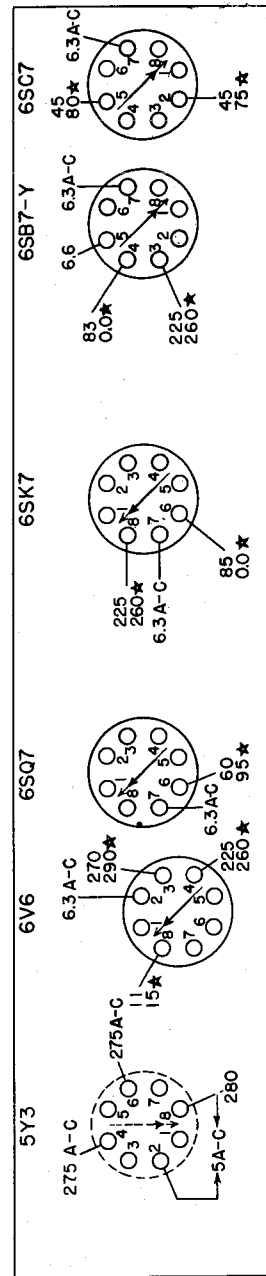
NOTES:  
 \* SHORTING LINK USED ONLY WHEN OPERATING FROM LOOP ANTENNA  
 CAPACITOR VALUES IN MMF UNLESS OTHERWISE INDICATED



**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



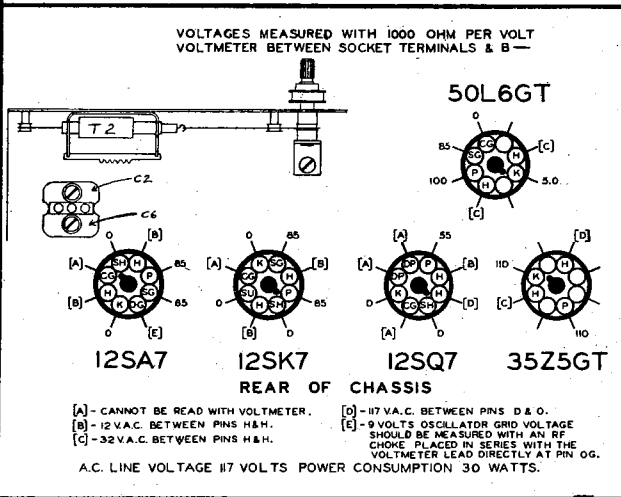


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

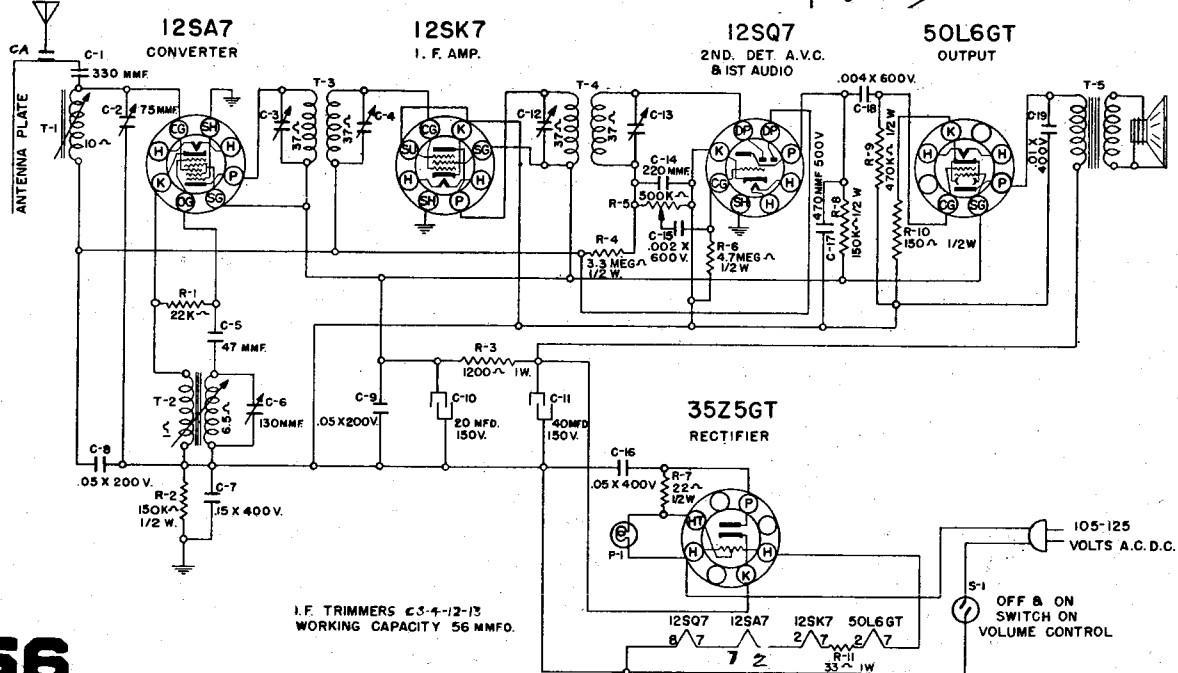
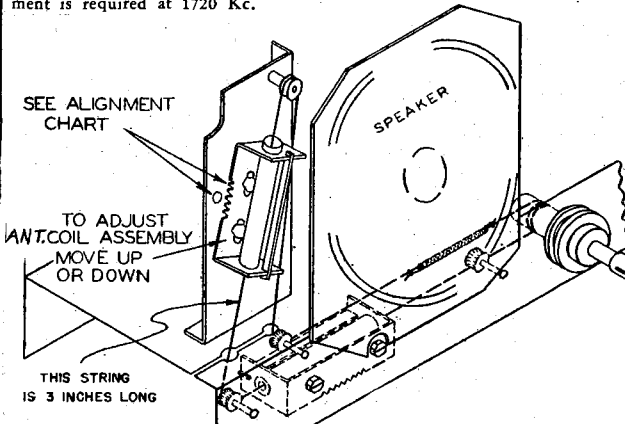
## W. T. GRANT COMPANY

## 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



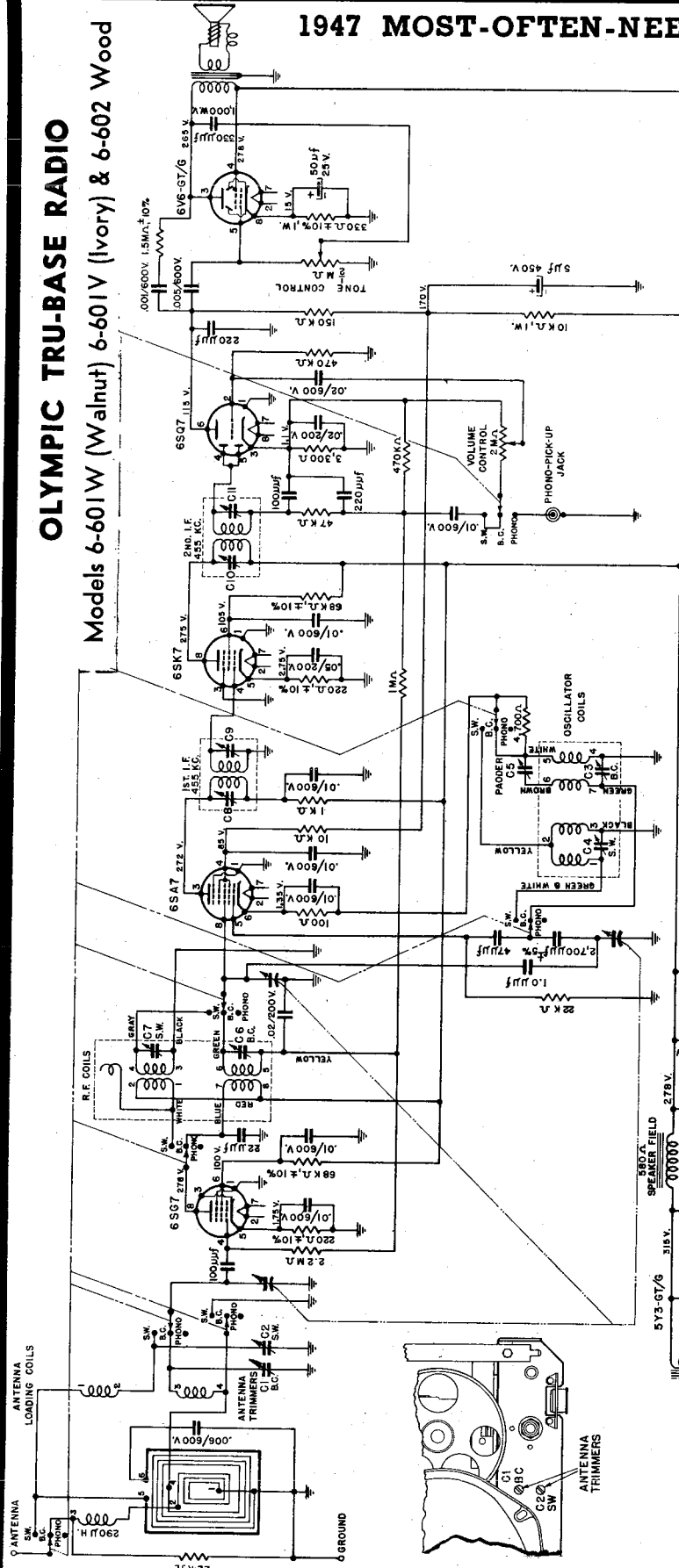
After the antenna coil has been tracked at 1400 Kc. it is necessary to check the antenna trimmer (C2) adjustment again at 1720 Kc. If no appreciable change in trimmer adjustment is made the coil is in track, if the trimmer requires considerable change it will be necessary to again adjust the position 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.



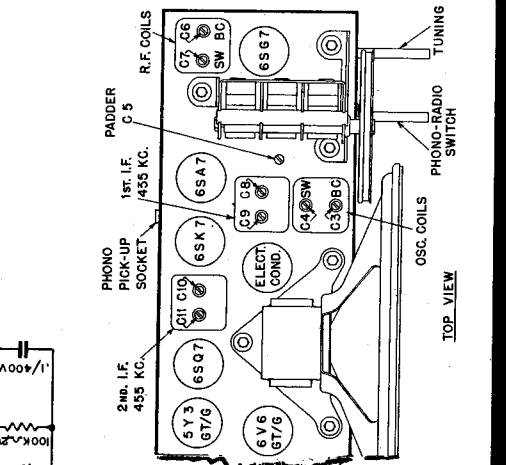
# 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## OLYMPIC TRU-BASE RADIO

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



SET BAND SWITCH POSITION	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO	SET SIGNAL TO	TUNE POINTER	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE).
1	B.C.	R.F. SECTION OF VARIABLE CONDENSER WITH A .1MFD, 400 VOLT CONDENSER.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN).	C11 AND C10 (2nd. I.F. TRANSFORMER)
2	B.C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 8 OF THE 6SQ7 TUBE IN SERIES WITH .1MFD, 400 VOLT CONDENSER.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN).	C9 AND C8 (1st. I.F. TRANSFORMER)
3	B.C.	USE RADIATED SIGNAL (CONNECT BOTH SIGNAL GENERATOR TO RADIATION LOOP).	REPEAT STEPS 1 AND 2	
4	B.C.	1700 KC. CALIBRATION POINT	REPEAT STEPS 1 AND 2	C3 (OSCILLATOR TRIMMER)
5	B.C.	1400 KC. CALIBRATION POINT	REPEAT STEPS 1 AND 2	C6 AND C1 (R.F. AND ANTENNA TRIMMERS)
6	B.C.	600 KC. CALIBRATION POINT	REPEAT STEPS 1 AND 2	C5 (PADDER) ROCK VARIABLE FOR MAXIMUM SIGNAL
7	B.C.	REPEAT STEPS 1 AND 2	REPEAT STEPS 1, 3 AND 6	
8	S.W.	18 MC. CALIBRATION POINT	18 MC. CALIBRATION POINT ON DIFFUSER PLATE	C4 (OSCILLATOR TRIMMER) SECOND PEAK FROM TIGHT POSITION.
9	S.W.	6 MC. RESONANCE	RESONANCE	C2 (ANTENNA TRIMMER) SECOND PEAK FROM TIGHT POSITION.
10	S.W.	REPEAT STEPS 1 AND 2	REPEAT STEPS 1 AND 2	CHECK THAT POINTER AT RESONANCE CORRESPONDS WITH 6 MC. CALIBRATION POINT. IF NOT REPEAT STEP 8.

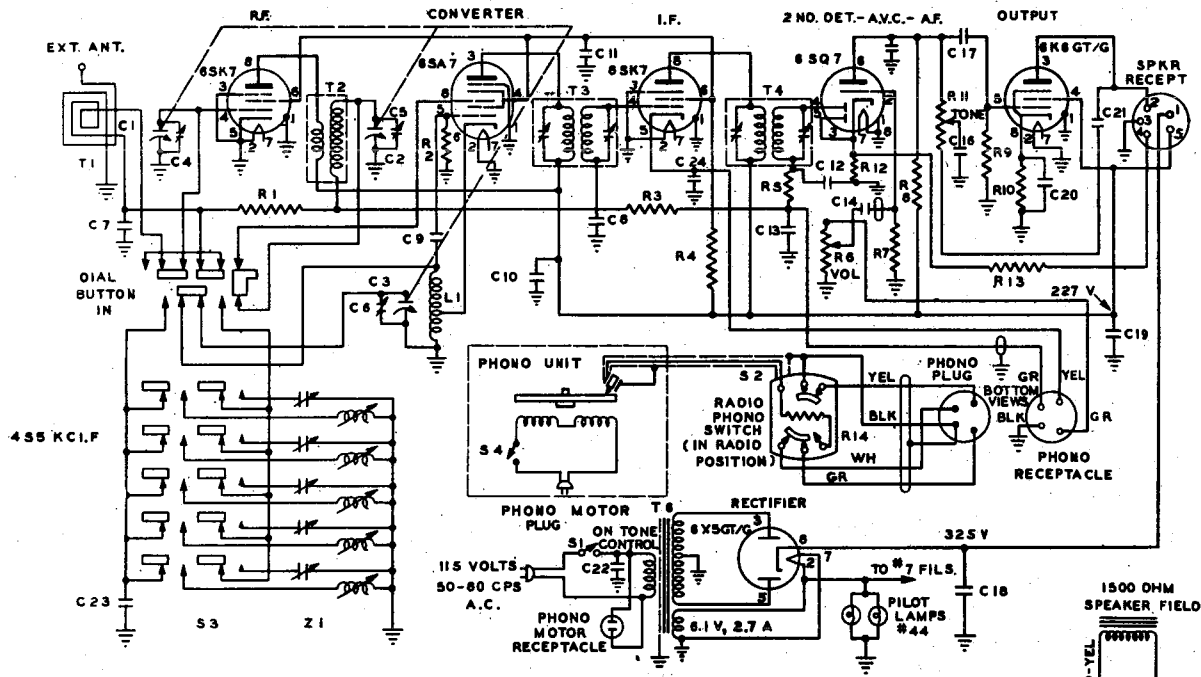


- NOTES:
1. ALL RESISTORS  $\pm 20\%$  TOLERANCE,  $\frac{1}{2}$  WATT, UNLESS OTHERWISE SPECIFIED.
  2. ALL MICA CONDENSERS  $\pm 20\%$  TOLERANCE, UNLESS OTHERWISE SPECIFIED.
  3. BAND SELECTOR SWITCH SHOWN IN BROADCAST POSITION.
  4. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND GROUND, WITH VOLUME CONTROL FULL ON AND WITH BAND SWITCH SET IN "B.C." POSITION USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS  $\pm 10\%$ , 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.



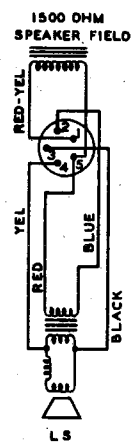


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



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
L5	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



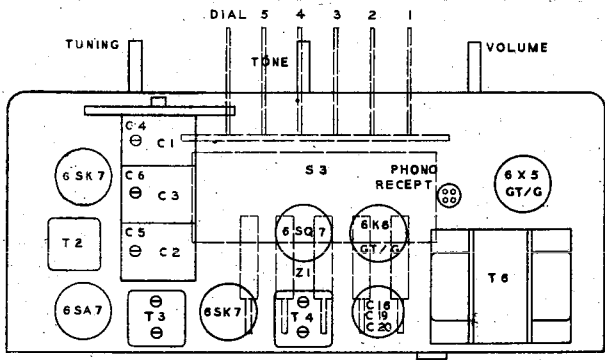
PIN NO.	1	2	3	4	5	6	7	8
6SK7 (R.F.)	0	0	0	-.5	0	+85	6.1A.C.	+227
6SA7	0	0	+227	+85	-7	0	6.1A.C.	-.7
6SK7 (I.F.)	0	0	0	-.7	0	+85	6.1A.C.	+227
6SQ7	0	-.5	0	-.25	0	+95	6.1A.C.	0
6K6GT/G	0	0	+217	+227	0	+325 *	6.1A.C.	+15
6X5GT/G	0	6.1A.C.	290A.C.	-	290A.C.	-	0	+325

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-phonograph switch in the RADIO position.

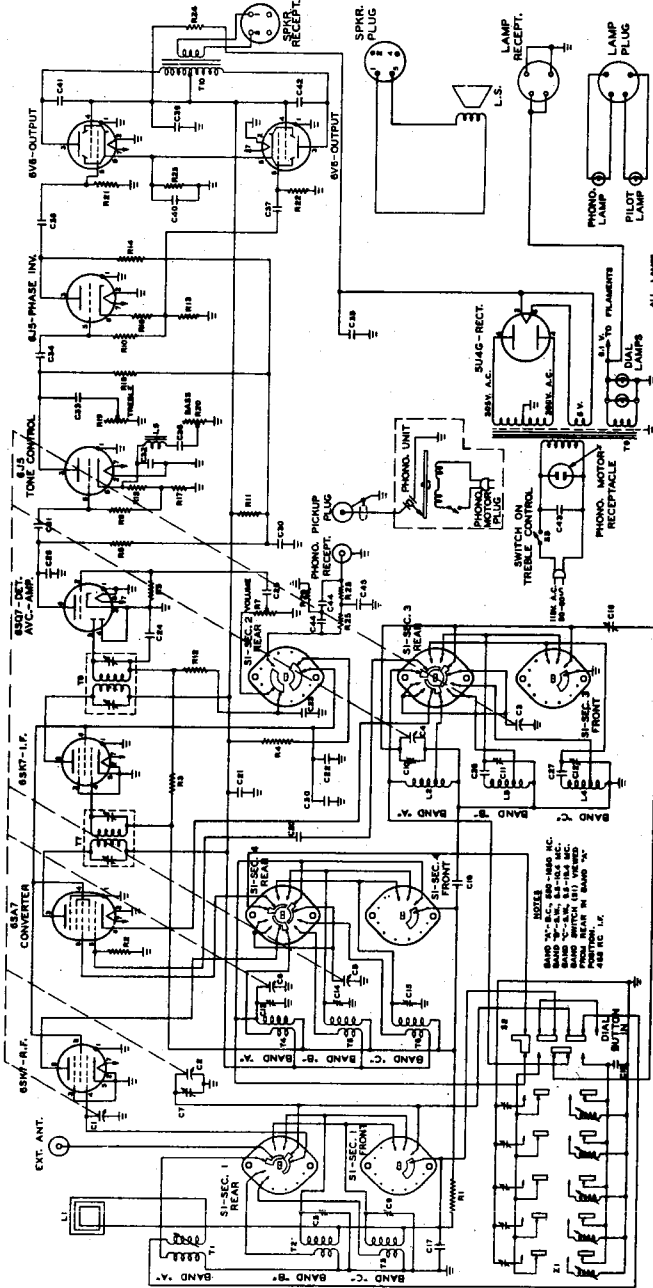
- Hoffman Model A500 with Chassis 107S is electrically identical with Chassis 107 except for the following:
- Ten-inch P.M. speaker, part number 9010, has been substituted for ten-inch electrodynamic speaker, part number 9012.
  - A 1500-ohm resistor, part number 4701, has been connected in the filter circuit in place of the 1500-ohm speaker field.

Hoffman Radio Corp.  
 Model A500, Chassis 107



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

SYMBOL	DESCRIPTION
C1, C2, C3, C4, C5, C6	Three-Section Variable with Split Stator, (150-260, 160-260, 160-260 Mmf.)
C7, C8, C9	Three-Section Trimmer Assembly
C10, C11, C12	Three-Section Trimmer Assembly
C13, C14, C15	110-560 Mmf. Padder, Band "A"
C16	500 Mmf. $\pm 5\%$ , Silver Mica
C17, C18	47 Mmf. $\pm 10\%$ , Mica
C19	105 Mmf., 400 Volt, Tubular Paper
C20	100 Mmf. $\pm 20\%$ , Mica
C21, C22	2300 Mmf. $\pm 5\%$ , Mica
C23, C24, C25	1050 Mmf. $\pm 5\%$ , Mica
C26	3300 Mmf. $\pm 5\%$ , Mica
C27	10 Mfd., 450 Volt, Tubular Electrolytic
C28	10 Mfd., 450 Volt, Tubular Electrolytic
C29	.01 Mfd., 400 Volt, Tubular Paper
C31, C32, C33, C34	.5 Mfd., 200 Volt, Tubular Paper
C35	.02 Mfd., 400 Volt, Tubular Paper
C36, C37	20-20.20 Mfd./450-450-25 V. Electrolytic
C38-C39-C40	.01 Mfd., 600 Volt, Tubular Paper
C41, C42	.01 Mfd., 600 Volt, Tubular Paper (Metal Can)
C43	330 Mmf. $\pm 5\%$ , Mica
C44	650 Mmf. $\pm 5\%$ , Mica
L1	Loop Antenna
L2	Oscillator Coil (Band "A")
L3-L4	Oscillator Coil (Bands "B" and "C")
L5	5 HY Choke (Bass Boost)
L6	12-inch Loudspeaker, Permanent Magnet
R1	.1 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R2	22,000 Ohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R3	2.2 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R4	10,000 Ohm $\pm 20\%$ , 3 Watt
R5	10 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R7	.5 Megohm Potentiometer (Volume Control)
R8	22 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R9, R10	1 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R11	47,000 Ohm $\pm 20\%$ , 1 Watt
R12	47,000 Ohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R15, R16	2200 Ohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R17, R18	10,000 Ohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R19	.25 Meg. Pot. with Switch (Treble Control)
R20	50,000 Ohm Potentiometer (Bass Control)
R21, R22	.47 Megohm $\pm 20\%$ , $\frac{1}{2}$ Watt
R23	220 Ohm $\pm 20\%$ , 3 Watt
R24	500 Ohm $\pm 10\%$ , 20 Watt
R13, R14, R25	47,000 Ohm $\pm 5\%$ , $\frac{1}{2}$ Watt
R26	22,000 Ohm $\pm 5\%$ , $\frac{1}{2}$ 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



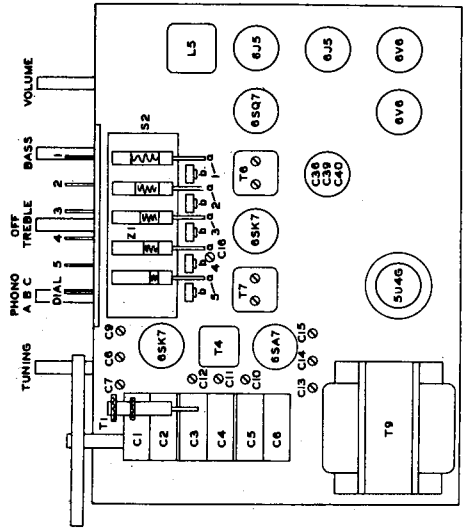
MODEL A 501 CHASSIS No. 108S

**Hoffman**  
RADIO CORP.

LOS ANGELES, CALIFORNIA

TUNING RANGES:

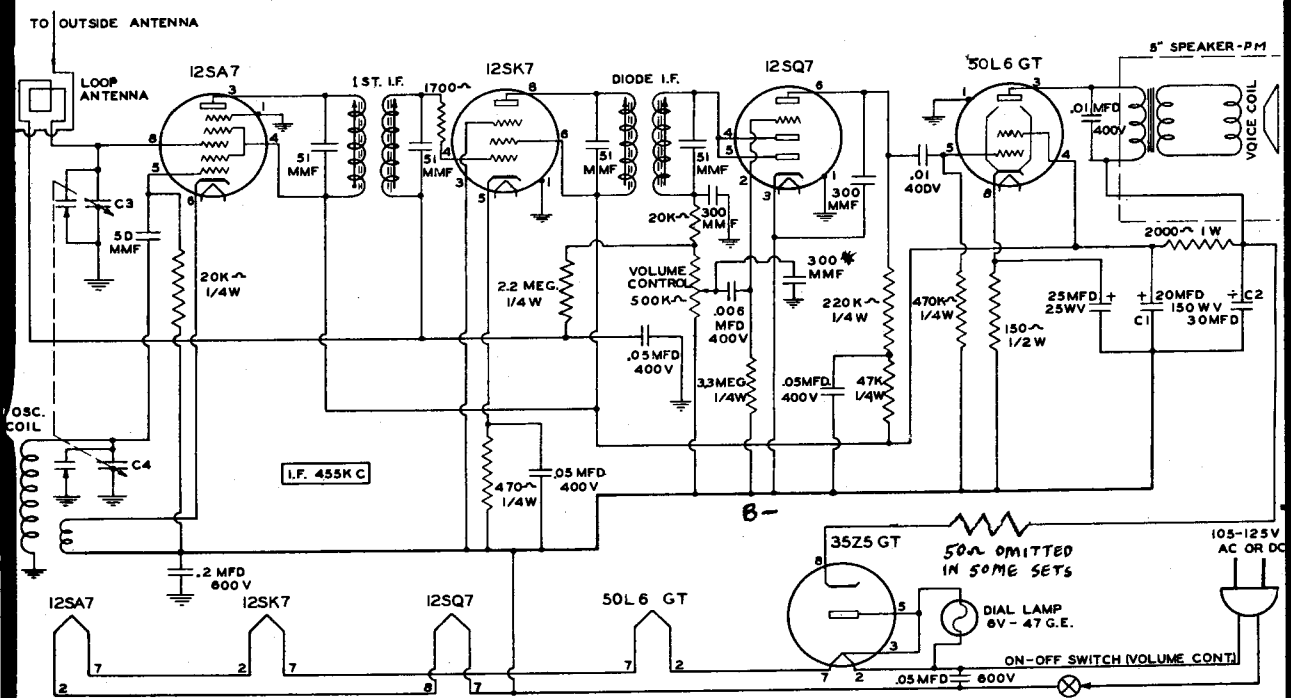
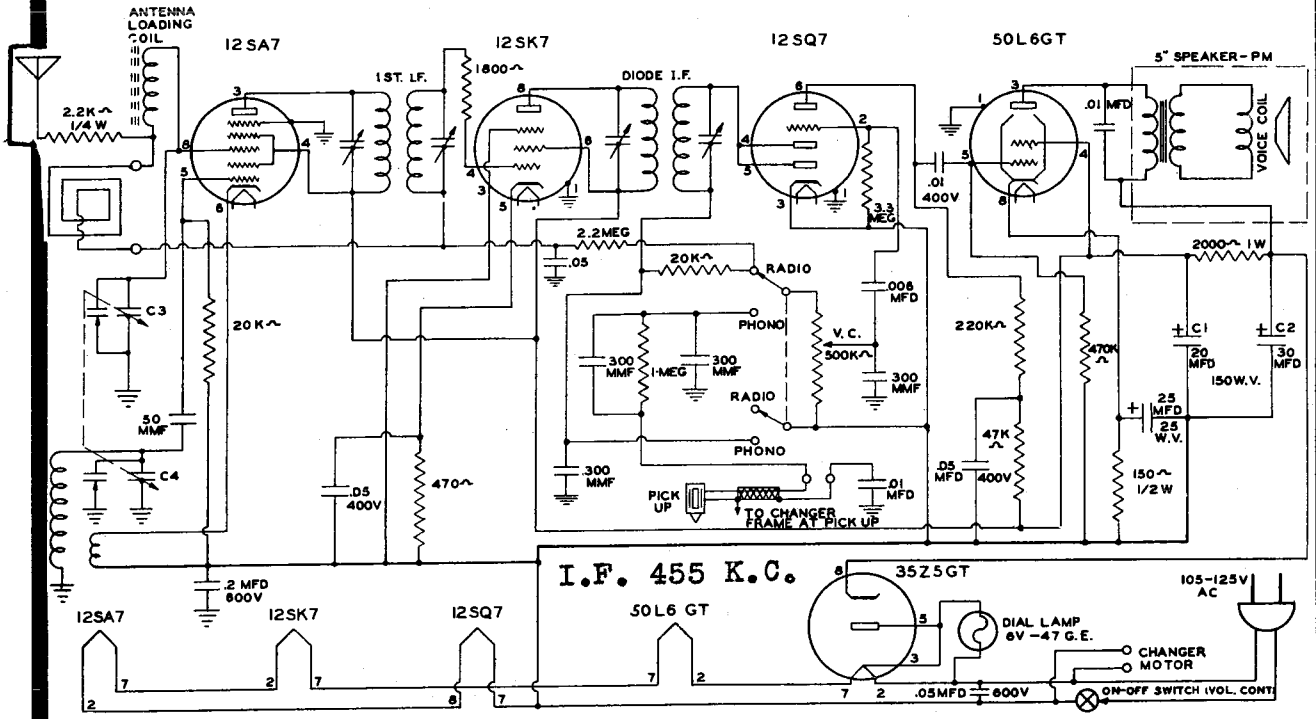
- Band "A" ..... 540 Kc to 1600 Kc.
- Band "B" ..... 5.6 Mc to 10.4 Mc
- Band "C" ..... 9.4 Mc to 19.4 Mc
- Intermediate Frequency ..... 455 Kc



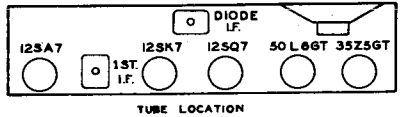
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## HOWARD RADIO COMPANY

Model 901-AP



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



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





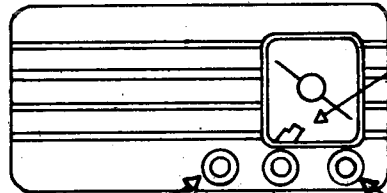
MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# 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 CONSERVATION

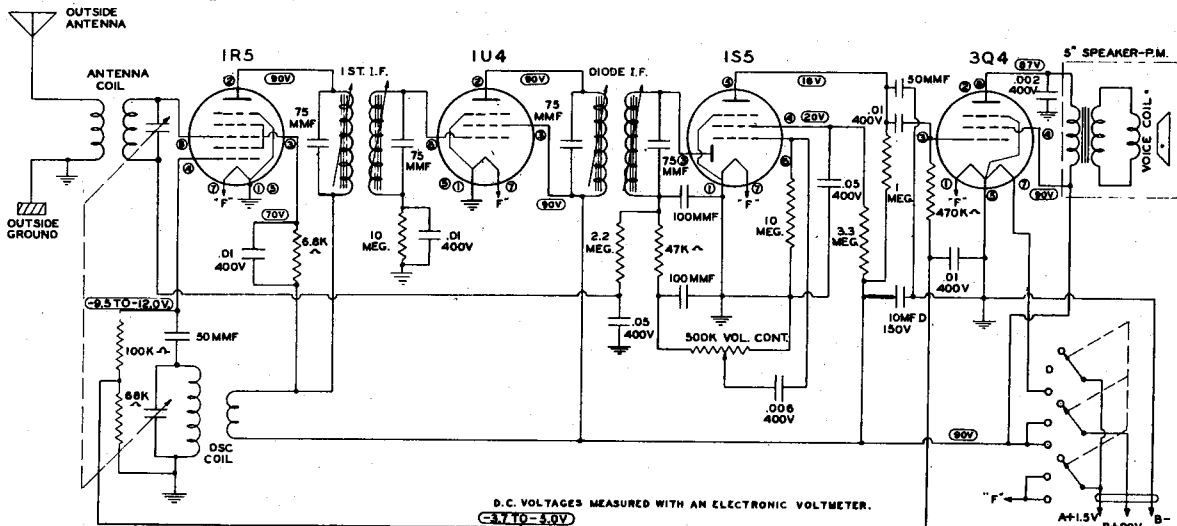
1. Turn Battery Switch "Off" when set is not in use.
2. Use "Battery Saver" on all strong stations.
3. Use heavy duty pack or batteries.
4. The following batteries are some well known makes that can be used with this instrument;  
Burgess No.17GD60  
Eveready No.758

BATTERY SWITCH

"OFF POSITION": Switch turned counter-clockwise

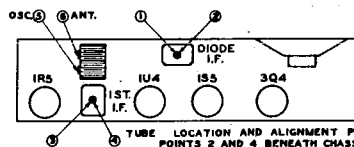
"BATTERY SAVER": Switch turned clockwise - one step.

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



D.C. VOLTAGES MEASURED WITH AN ELECTRONIC VOLTMETER.  
C-3.7 TO -4.0V

REAR VIEW OF SWITCH SHOWN IN EXTREME COUNTER CLOCKWISE POSITION.



L.F. 455 KC



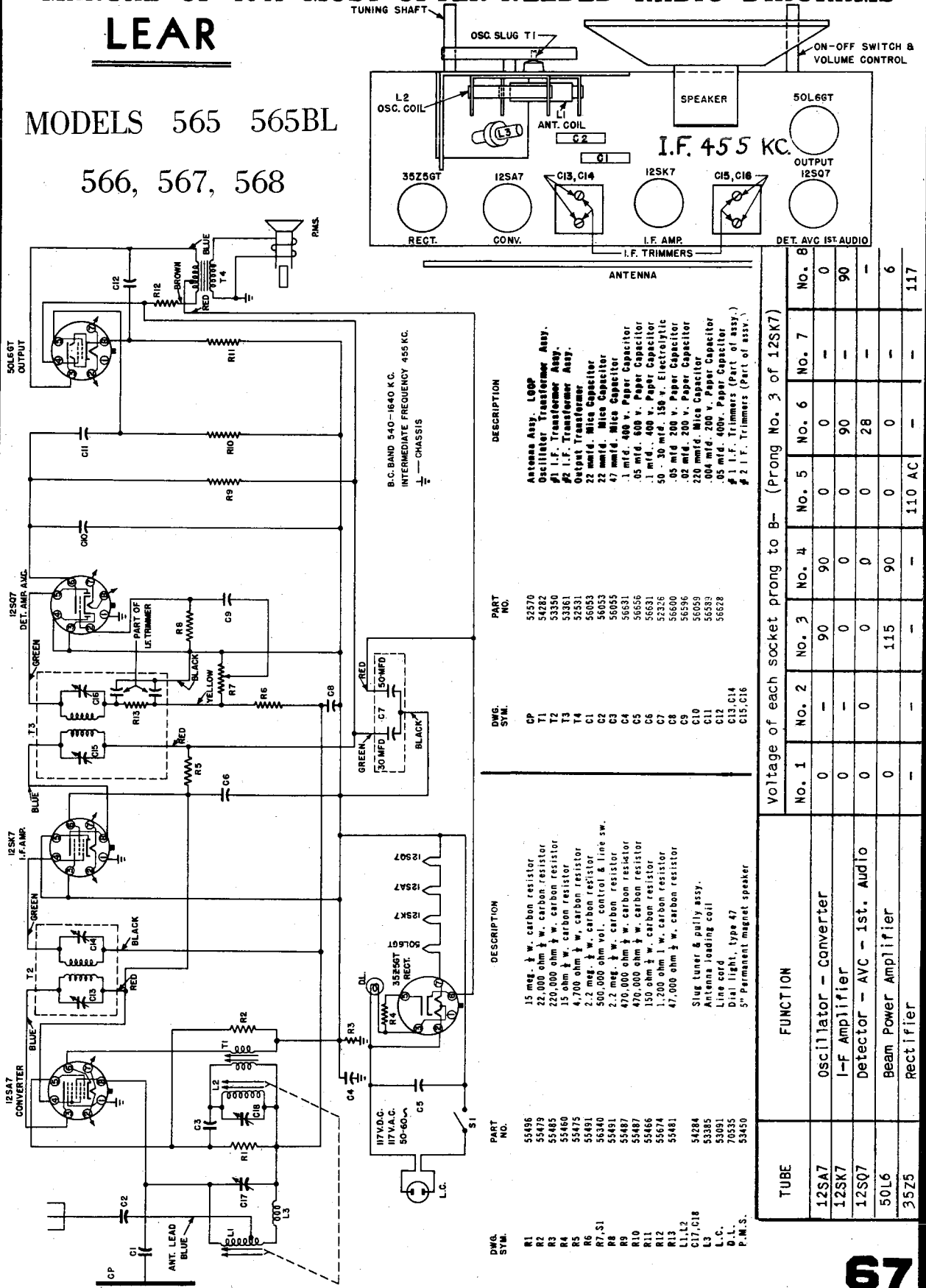


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## LEAR

MODELS 565 565BL

566, 567, 568



TUNING SHAFT

OSC. SLUG T1

ON-OFF SWITCH & VOLUME CONTROL

L2 OSC. COIL

SPEAKER

50L6GT

I.F. 455 KC.

OUTPUT 12SQ7

35Z5GT

12SA7

C13, C14

12SK7

C15, C16

RECT.

CONV.

I.F. AMP.

DET. AVC 1ST AUDIO

I.F. TRIMMERS

ANTENNA

B.C. BAND 540-1640 K.C.  
INTERMEDIATE FREQUENCY 455 K.C.  
— CHASSIS

- DESCRIPTION**
- Antenna Assy. Loop
  - Oscillator Transformer Assy.
  - #1 I.F. Transformer Assy.
  - #2 I.F. Transformer Assy.
  - Output Transformer
  - 22 mmfd. Mica Capacitor
  - 22 mmfd. Mica Capacitor
  - 1 mfd. 400 v. Paper Capacitor
  - .05 mfd. 800 v. Paper Capacitor
  - .1 mfd. 400 v. Electrolytic
  - 50 - 30 mfd. 150 v. Electrolytic
  - .05 mfd. 200 v. Paper Capacitor
  - .02 mfd. 200 v. Paper Capacitor
  - 220 mmfd. Mica Capacitor
  - .004 mfd. 200 v. Paper Capacitor
  - .05 mfd. 400v. Paper Capacitor
  - #1 I.F. Trimmers (Part of assy.)
  - #2 I.F. Trimmers (Part of assy.)

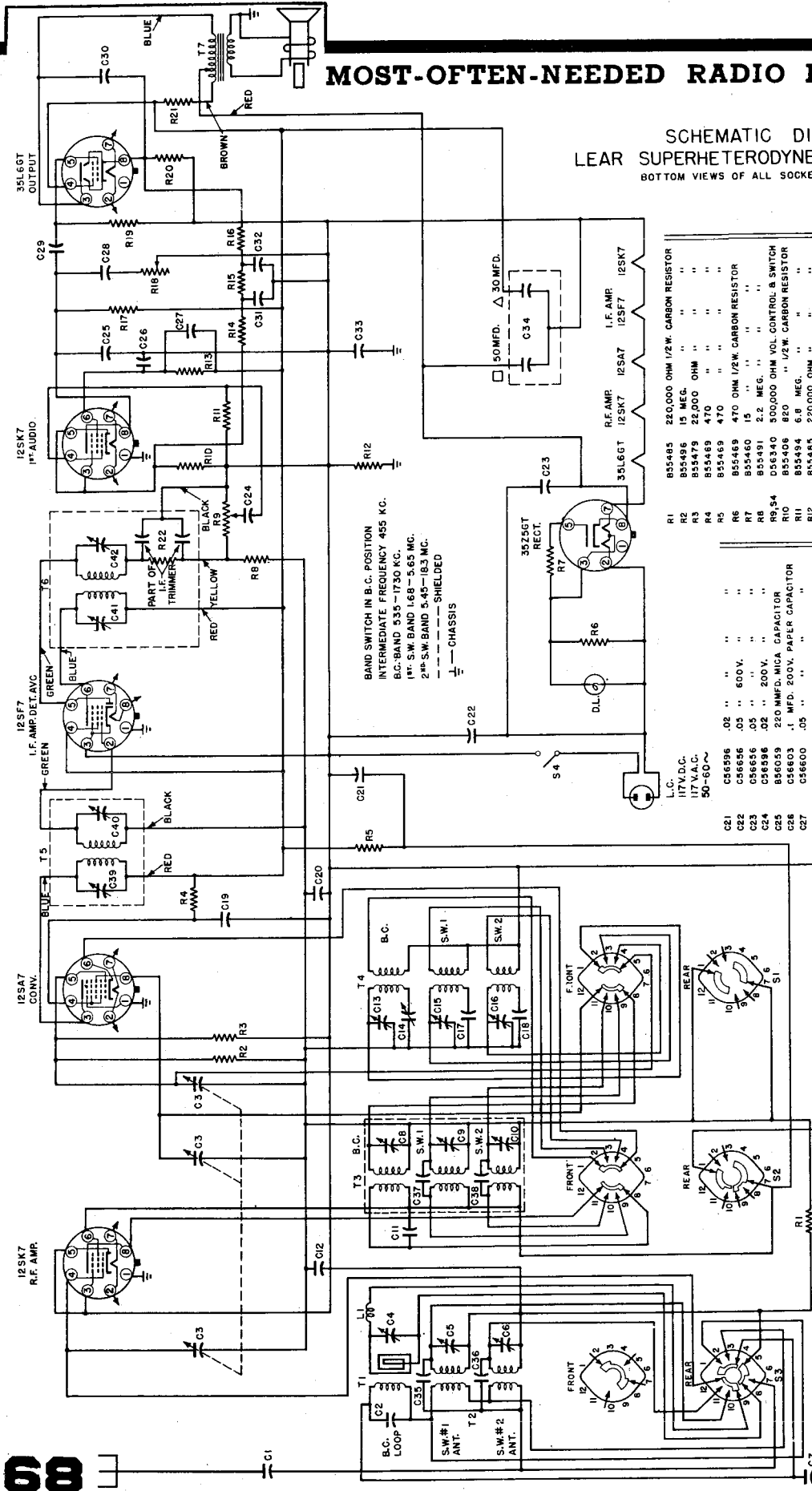
PART NO.	DWG. SYM.	DESCRIPTION
52570	CP	15 meg. ± w. carbon resistor
52822	T1	22,000 ohm ± w. carbon resistor
53350	T2	220,000 ohm ± w. carbon resistor
53361	T3	15 ohm ± w. carbon resistor
52331	T4	4,700 ohm ± w. carbon resistor
50053	C1	2.2 meg. ± w. carbon resistor
50053	C2	500,000 ohm vol. control & line sw.
50055	C3	2.2 meg. ± w. carbon resistor
50531	C4	470,000 ohm ± w. carbon resistor
50556	C5	470,000 ohm ± w. carbon resistor
56531	C6	150 ohm ± w. carbon resistor
52326	C7	1,200 ohm ± w. carbon resistor
56500	C8	47,000 ohm ± w. carbon resistor
56536	C9	Slug tuner & gully assy.
56039	C10	Antenna loading coil
56533	C11	Line cord
56528	C12	Dial light, type 47
	C13, C14	5" Permanent magnet speaker
	C15, C16	

PART NO.	DESCRIPTION
55496	15 meg. ± w. carbon resistor
55479	22,000 ohm ± w. carbon resistor
55485	220,000 ohm ± w. carbon resistor
55460	15 ohm ± w. carbon resistor
55475	4,700 ohm ± w. carbon resistor
55491	2.2 meg. ± w. carbon resistor
55490	500,000 ohm vol. control & line sw.
55491	2.2 meg. ± w. carbon resistor
55487	470,000 ohm ± w. carbon resistor
55466	150 ohm ± w. carbon resistor
55074	1,200 ohm ± w. carbon resistor
55481	47,000 ohm ± w. carbon resistor
54284	Slug tuner & gully assy.
55385	Antenna loading coil
55091	Line cord
70535	Dial light, type 47
53450	5" Permanent magnet speaker

TUBE	Voltage of each socket prong to B- (Prong No. 3 of 12SK7)								FUNCTION
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	
12SA7	0	-	90	90	0	0	-	0	Oscillator - Converter
12SK7	0	-	0	0	0	90	-	90	I-F Amplifier
12SQ7	0	0	0	0	0	28	-	-	Detector - AVC - 1st. Audio
50L6	0	1.15	90	90	0	0	-	6	Beam Power Amplifier
35Z5	-	-	-	-	110 AC	-	-	117	Rectifier

# MOST-OFTEN-NEEDED RADIO DIAGRAMS

## SCHEMATIC DIAGRAM LEAR SUPERHETERODYNE MODEL 661 BOTTOM VIEWS OF ALL SOCKET CONNECTIONS



BAND SWITCH IN B.C. POSITION  
INTERMEDIATE FREQUENCY 455 KC.  
B.C. BAND 535-1730 KC.  
1<sup>st</sup> S.W. BAND 1.68-5.65 MC.  
2<sup>nd</sup> S.W. BAND 5.45-18.3 MC.  
--- SHIELDED  
--- CHASSIS

R1	220,000 OHM 1/2W. CARBON RESISTOR
R2	15 MEG.
R3	22,000 OHM
R4	"
R5	470 OHM 1/2W. CARBON RESISTOR
R6	470 OHM 1/2W. CARBON RESISTOR
R7	15 MEG.
R8	2.2 MEG.
R9	500,000 OHM VOL. CONTROL & SWITCH
R10	820 OHM 1/2W. CARBON RESISTOR
R11	6.8 MEG.
R12	250,000 OHM
R13	470,000 OHM
R14	2700 OHM
R15	4700 OHM
R16	6800 OHM
R17	100,000 OHM
R18	500,000 OHM TONE CONTROL
R19	470,000 OHM 1/2W. CARBON RESISTOR
R20	150 OHM
R21	1200 OHM 2W.
R22	47,000 OHM 1/2W.
L1	353383 LOADING COIL
L2	352648 BAND SWITCH ASSEMBLY
DL	470535 DIAL LIGHT, TYPE 47
L.C.	453091 LINE CORD

PART NO.	DESCRIPTION
T1	B.C. LOOP ASSEMBLY
T2	S.W. BAND 1&2 ANT. COIL ASSEMBLY
T3	B.C. S.W. 1&2 S.W. 2 REF.
T4	B.C. OSC. TRIMMER ASSEMBLY
T5	NO. 1 I.F. TRANSFORMER
T6	NO. 2 I.F. TRANSFORMER
T7	OUTPUT
C1	220 MFD. MICA CAPACITOR
C2	3 GANG VARIABLE " WITH PULLEY
C3	352648 B.C. ANT. TRIMMER ASSEMBLY
C4	452666 " S.W. 1 " "
C5	452664 " S.W. 2 " "
C6	452664 " S.W. 1 " "
C7	452644 " S.W. 1 " "
C8	452644 " S.W. 2 " "
C9	452644 " S.W. 1 " "
C10	452644 " S.W. 2 " "
C11	452644 " S.W. 1 " "
C12	452644 " S.W. 2 " "
C13	452644 " S.W. 1 " "
C14	452644 " S.W. 2 " "
C15	452644 " S.W. 1 " "
C16	452644 " S.W. 2 " "
C17	452644 " S.W. 1 " "
C18	452644 " S.W. 2 " "
C19	452644 " S.W. 1 " "
C20	452644 " S.W. 2 " "
C21	452644 " S.W. 1 " "
C22	452644 " S.W. 2 " "
C23	452644 " S.W. 1 " "
C24	452644 " S.W. 2 " "
C25	452644 " S.W. 1 " "
C26	452644 " S.W. 2 " "
C27	452644 " S.W. 1 " "
C28	452644 " S.W. 2 " "
C29	452644 " S.W. 1 " "
C30	452644 " S.W. 2 " "
C31	452644 " S.W. 1 " "
C32	452644 " S.W. 2 " "
C33	452644 " S.W. 1 " "
C34	452644 " S.W. 2 " "
C35	452644 " S.W. 1 " "
C36	452644 " S.W. 2 " "
C37	452644 " S.W. 1 " "
C38	452644 " S.W. 2 " "
C39	452644 " S.W. 1 " "
C40	452644 " S.W. 2 " "
C41	452644 " S.W. 1 " "
C42	452644 " S.W. 2 " "

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## LEAR Model 661

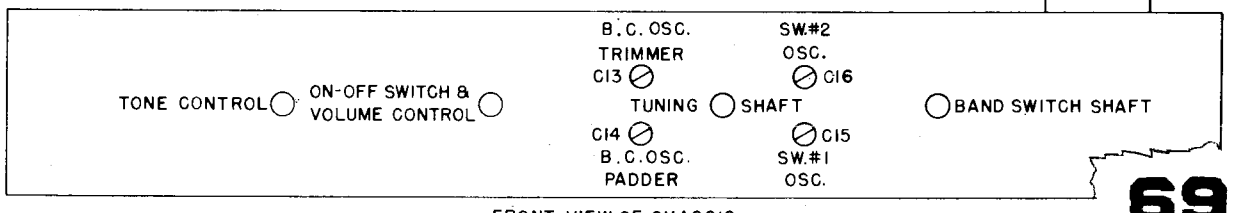
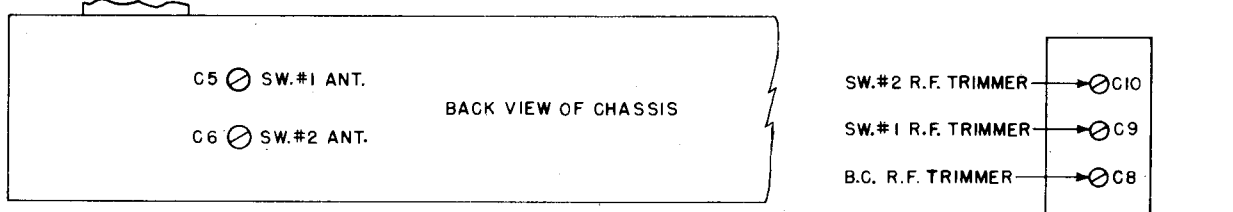
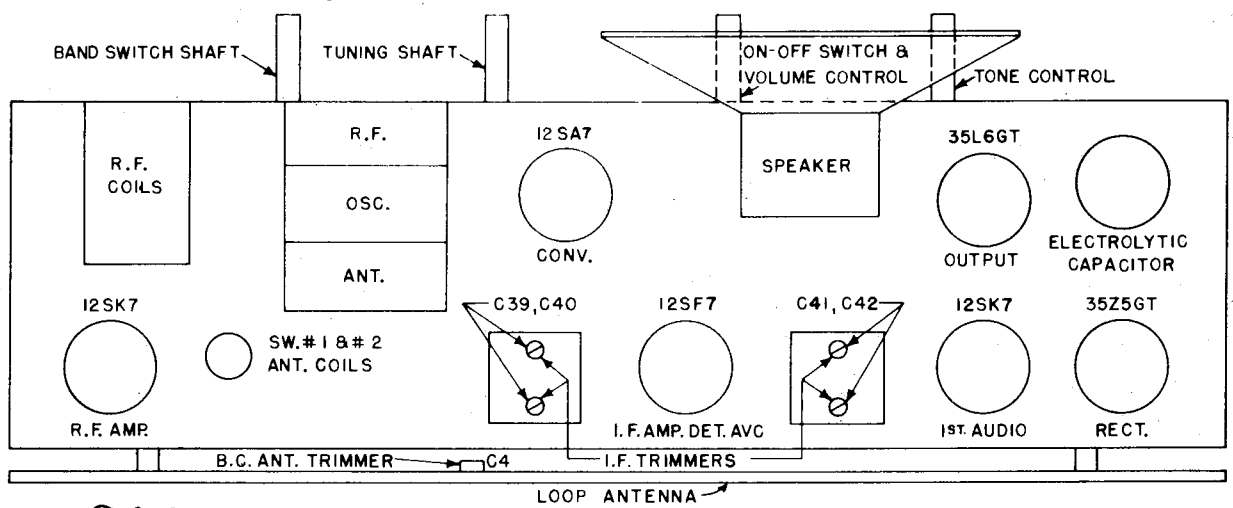
ALL VOLTAGES SHOWN ARE D.C. MEASUREMENTS TAKEN FROM B- WITH A 1000 OHM PER VOLT VOLT-METER. SET OPERATING ON 117 V, 60~ WITH VOLUME CONTROL ON FULL AND BAND SWITCH IN BC. POSITION. ALLOW  $\pm 10\%$  ON ALL MEASUREMENTS.

### 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		455 KC	BC	open	C41 & C42	Max. Output
1st. IF	Grid & B-	.05 mf				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

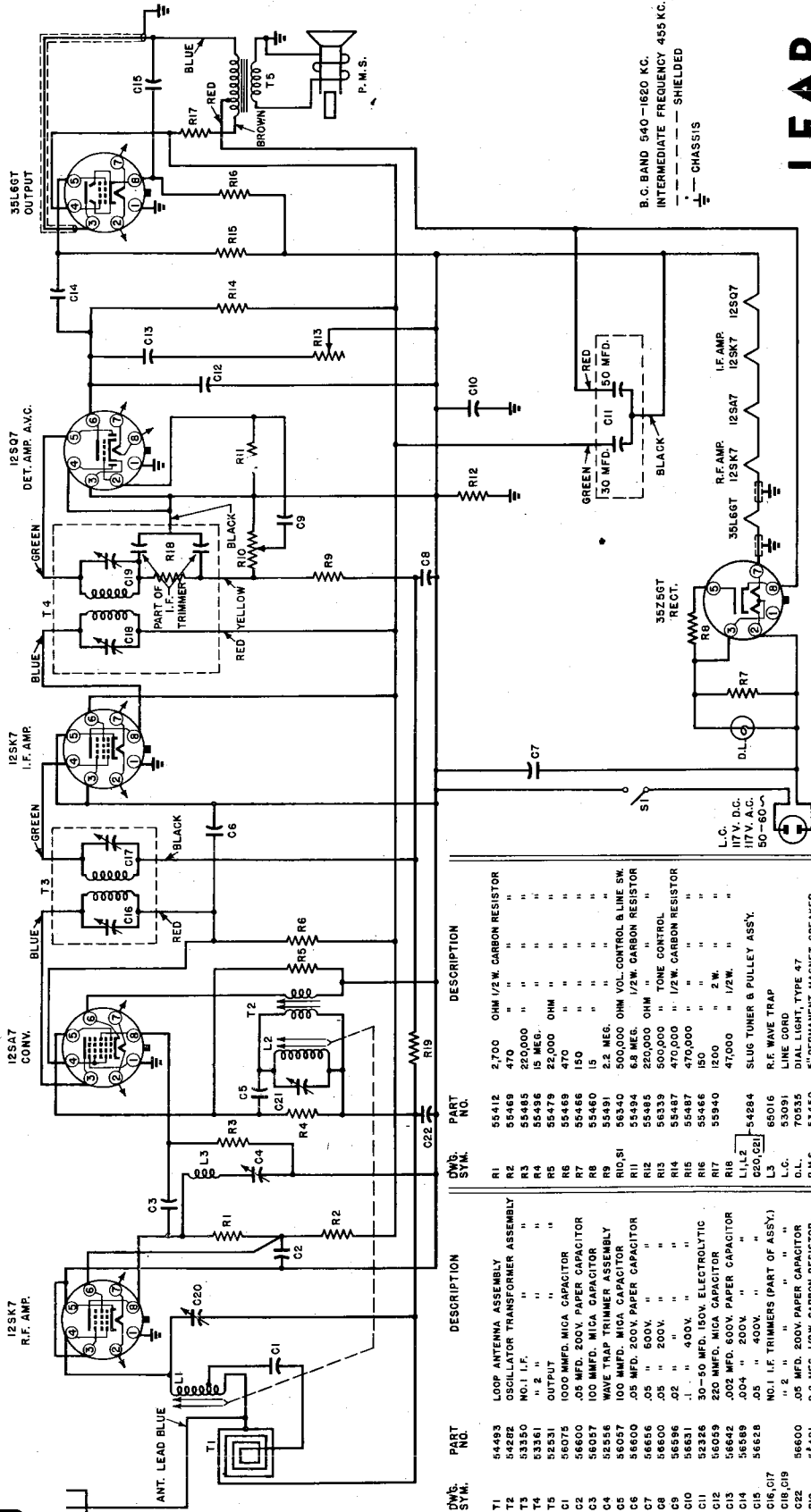


FRONT VIEW OF CHASSIS

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## LEAR SUPERHETERODYNE MODELS 6614, 6615, 6616, 6619

BOTTOM VIEWS OF ALL SOCKET CONNECTIONS



B.C. BAND 540-1620 KC.  
INTERMEDIATE FREQUENCY 455 KC.

**LEAR**

I.F. 455 KC.

TUBE	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	0	83	0	0	0	81	0	53
12SA7	0	0	0	82	7	0	0	0
12SK7	0	0	0	0	0	84	0	84
12SQ7	0	6	0	0	0	0	38	0
35L6GT	0	0	110	84	0	0	0	4
35Z5GT	0	0	0	0	108AC	0	0	117





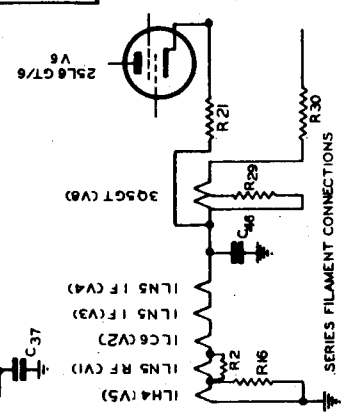
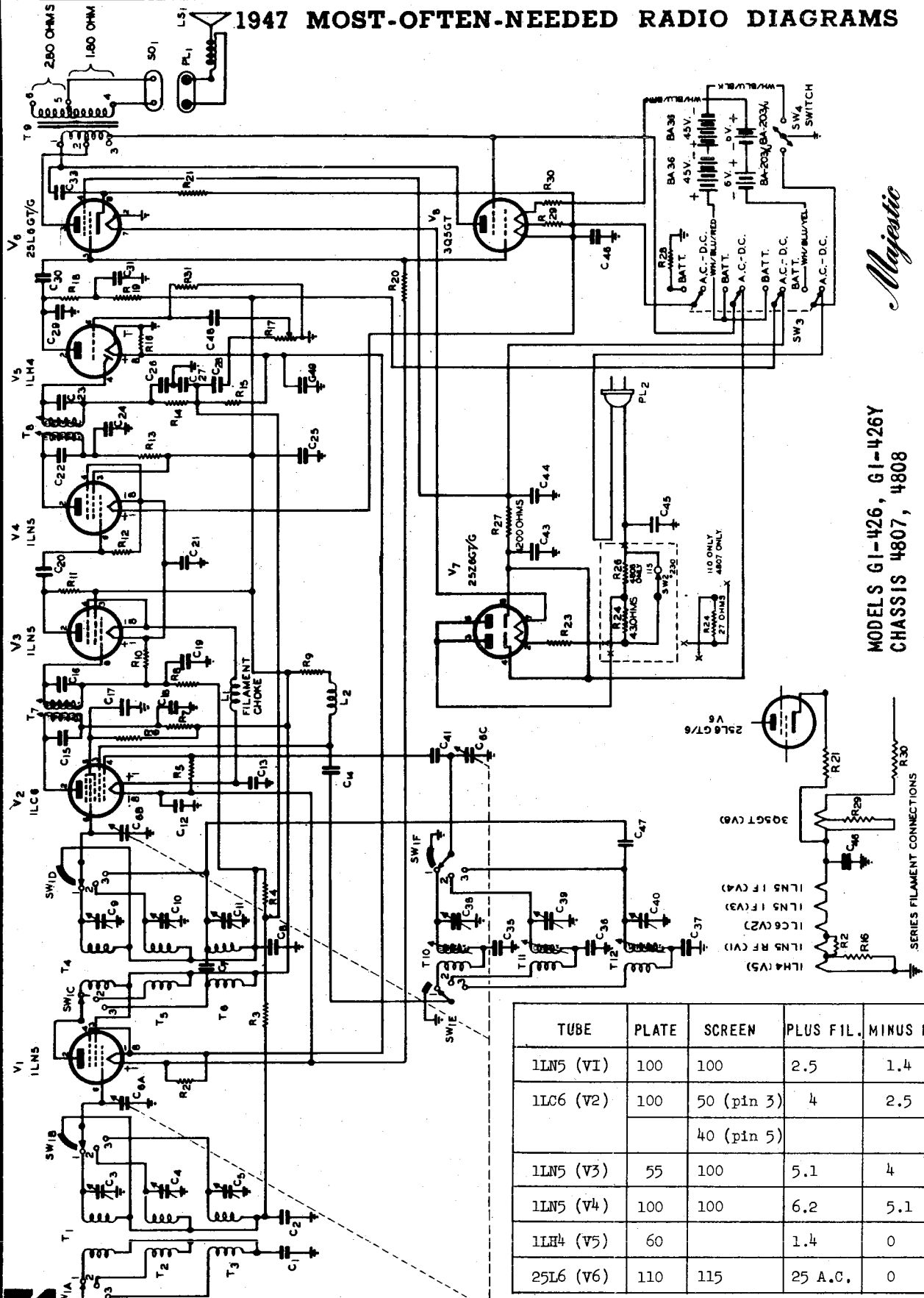




# 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

*Majestic*

MODELS G1-426, G1-426Y  
CHASSIS 4807, 4808

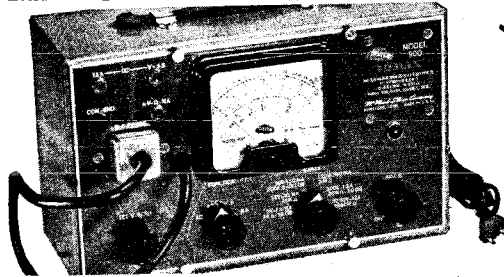


TUBE	PLATE	SCREEN	PLUS FIL.	MINUS F
1LN5 (V1)	100	100	2.5	1.4
1LC6 (V2)	100	50 (pin 3)	4	2.5
		40 (pin 5)		
1LN5 (V3)	55	100	5.1	4
1LN5 (V4)	100	100	6.2	5.1
1LH4 (V5)	60		1.4	0
25L6 (V6)	110	115	25 A.C.	0



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

*McMurdo Silver Co., Inc.*

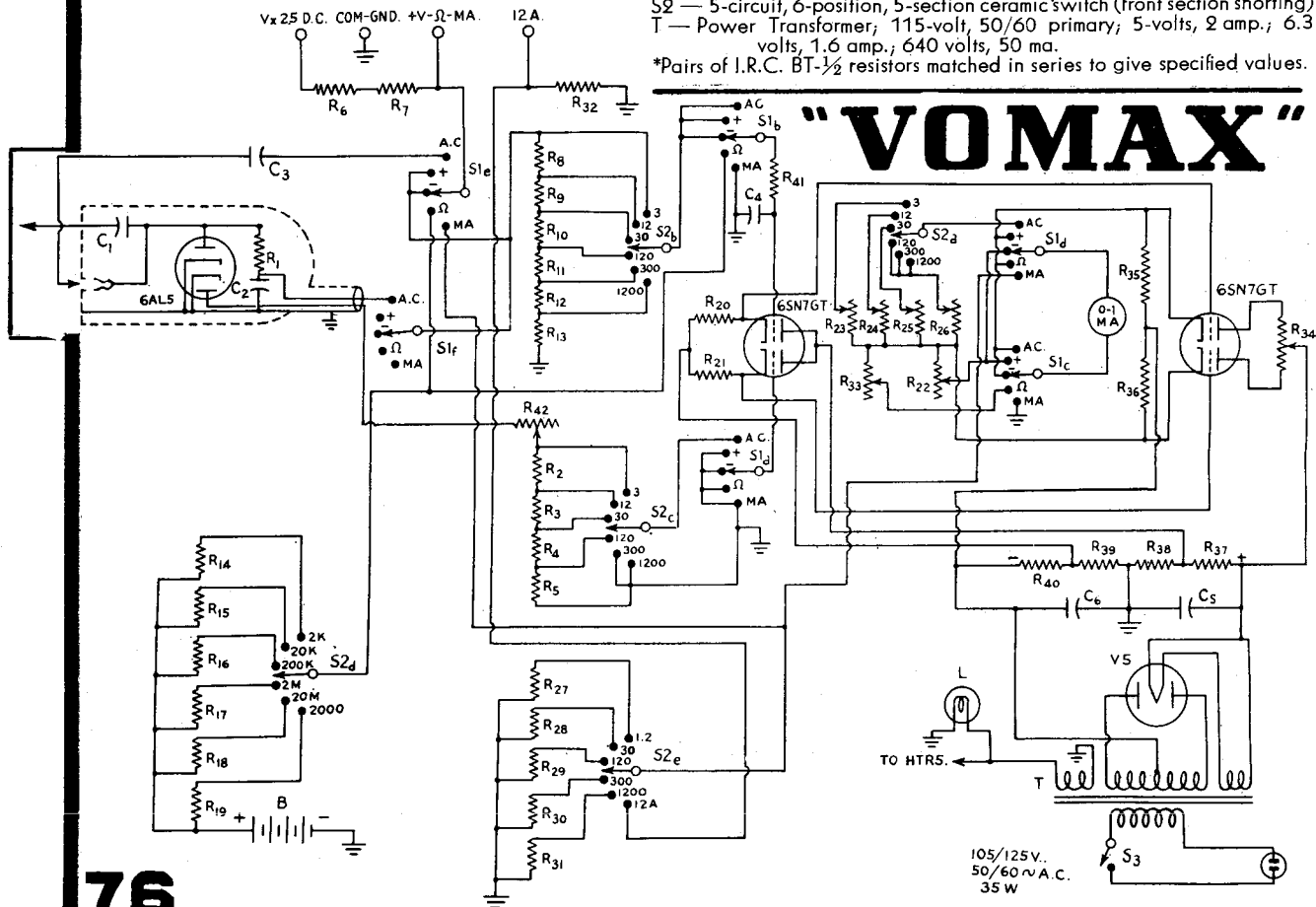


## PARTS LIST

- 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  $\pm 3\%$ .
- D.C. volts 7.5, 30, 75, 300, 750 and 3000 at 126 megohms constant input resistance (obtained at  $\sqrt{x2.5}$  and COM-GND jacks). Same six ranges in reverse polarity by shift of FUNCTION knob. Accuracy  $\pm 3\%$ .
- 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  $\pm 5\%$ .
- 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  $\pm 5\%$ .
- OHMS: Six resistance ranges, all zero-left, of 2,000, 20,000, 200,000 ohms and 2, 20 and 2,000 megohms. Accuracy  $\pm 2\%$  of full scale,  $\pm 1\%$  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.

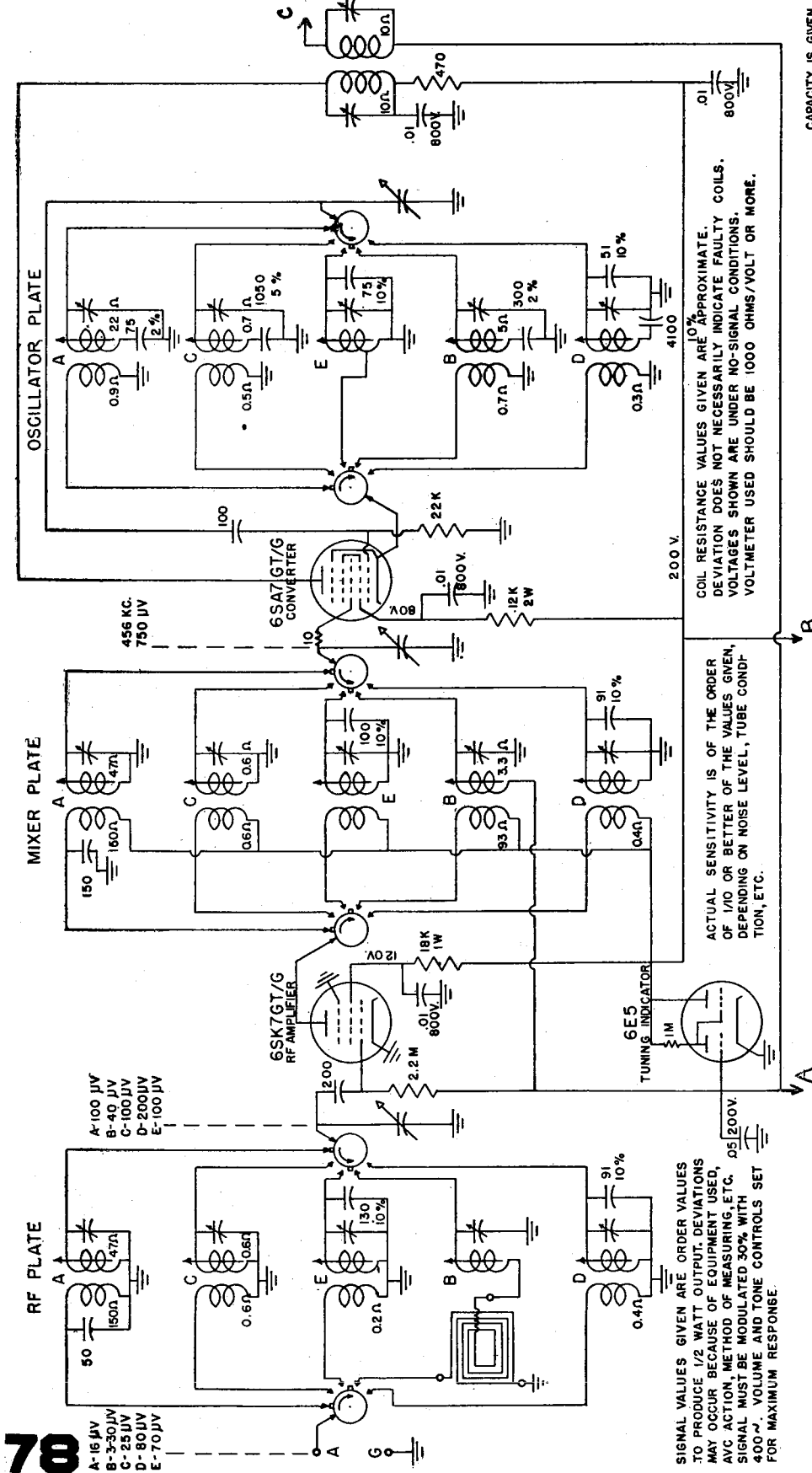
- C1 — 0.0005-ufd. silver-mica  
 C2 — 0.001-ufd. mica  
 C3 — 0.03-ufd. 3000-volt tubular oil  
 C4 — 0.005-ufd. mica  
 C5, C6 — 8-ufd. 350-volt electrolytic  
 R1 — 20-megohm,  $\pm 5$  per cent,  $\frac{1}{4}$ -watt carbon resistor  
 R2, R9 — 7.5 megohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R3 — 1.5 megohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R4, R11 — 750,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R5 — 250,000 ohms  $\frac{1}{2}$  watt metalized resistors\*  
 R6, R7, R8 — 37.5 megohms, — watt metalized resistors\*  
 R10 — 3.75 megohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R12 — 375,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R13 — 125,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R14 — 10-ohm, 1 per cent  $\frac{1}{2}$  watt wire-wound  
 R15 — 100 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R16 — 1,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R17 — 10,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R18 — 100,000 ohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R19 — 10 megohms,  $\frac{1}{2}$  watt metalized resistors\*  
 R20, R21, R41 — 5.1 megohm,  $\pm 5$  per cent,  $\frac{1}{2}$  watt metalized  
 R22, R23, R24, R25, R26 — 3000 ohm wire-wound potentiometer  
 R27 — 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,  $\pm 5$  per cent, 2 watt  
 R38, R39 — 4,300 ohm,  $\pm 5$  per cent,  $\frac{1}{2}$  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- $\frac{1}{2}$  resistors matched in series to give specified values.





MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



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

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

WATTAGE IS 1/2 EXCEPT WHERE INDICATED

TOLERANCE IS ± 20% UNLESS INDICATED

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.

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.

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

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 CPS. VOLUME AND TONE CONTROLS SET FOR MAXIMUM RESPONSE.

MIDWEST SERIES 8 SUPER AM RADIO RECEIVER

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

- A-15 μV
- B-30 μV
- C-25 μV
- D-80 μV
- E-70 μV









# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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

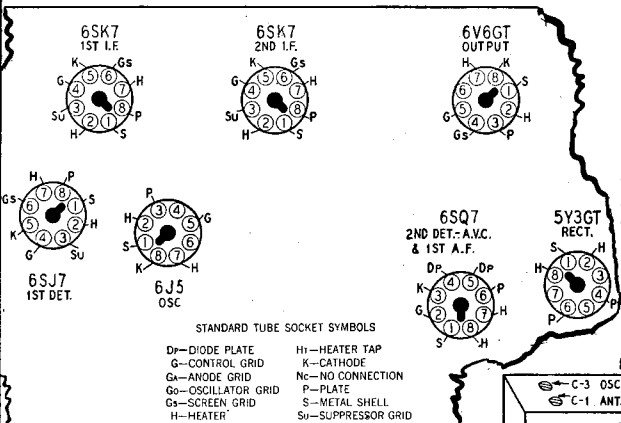
Repeat above oscillator adjustments at 1600 and 600 kc until readjusting the oscillator Range B Trimmer (C10) causes no further improvement in output.

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)

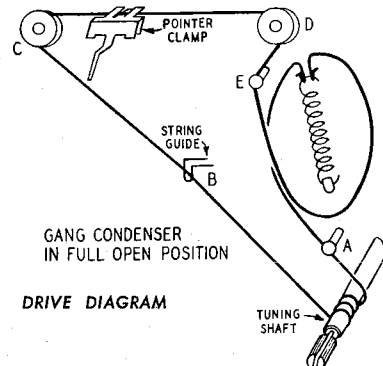
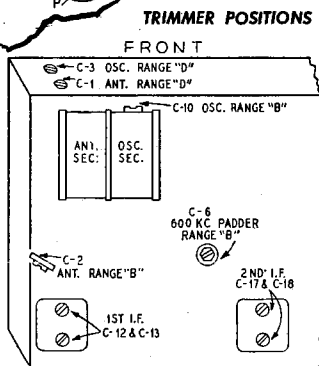
After each range is completed, repeat the procedure as a final check.

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 3/4 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.

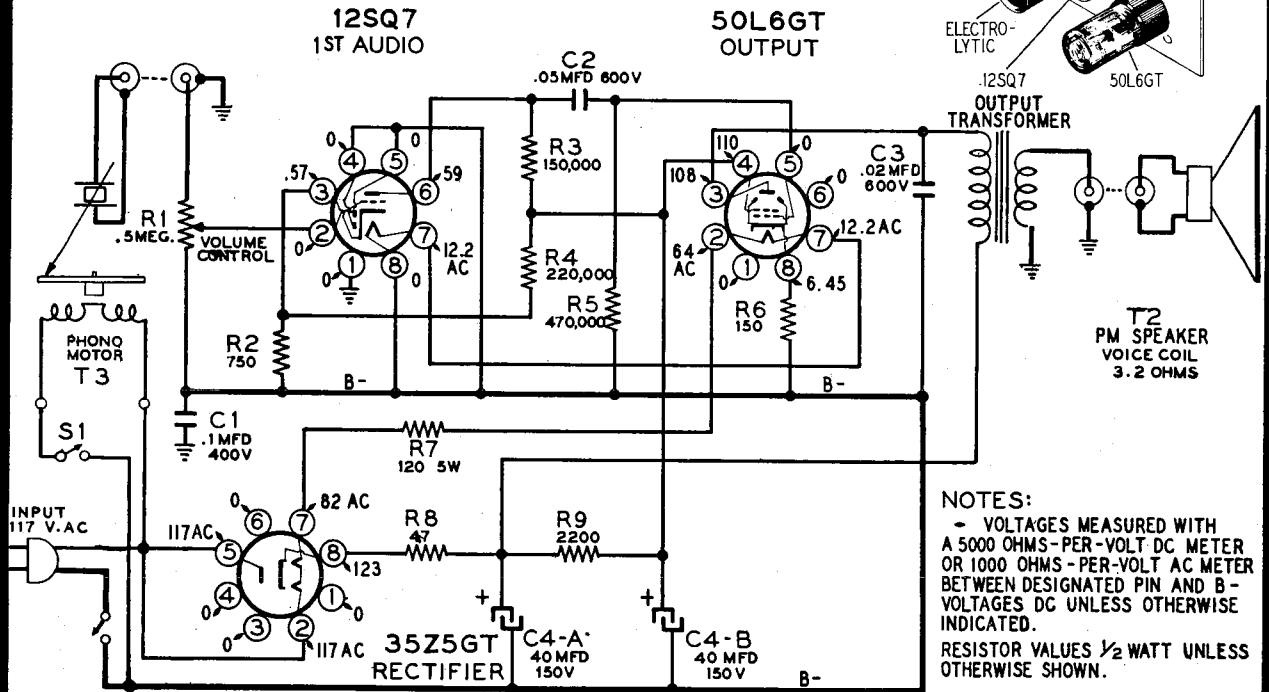
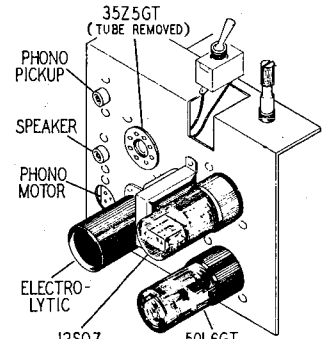
Models 54 WG-2700A,  
 64 WG-2700A, & -B

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# WARDS

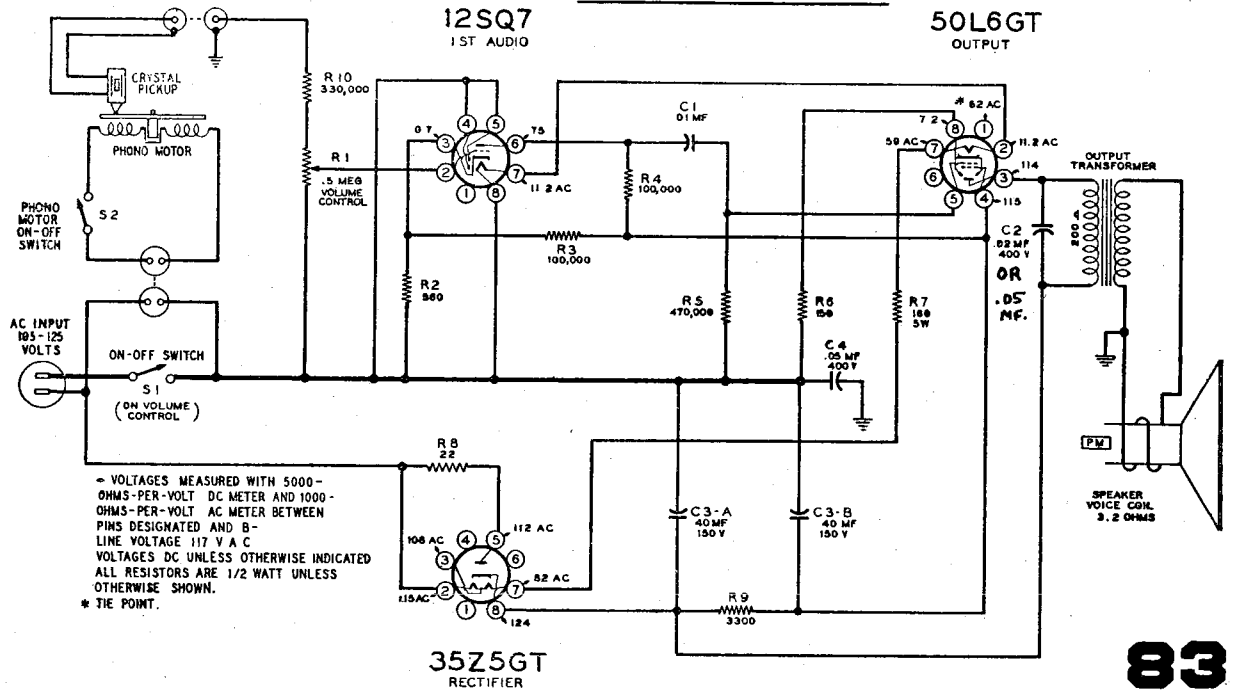
## MODEL 64BR-916A

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 1/2 WATT UNLESS OTHERWISE SHOWN.

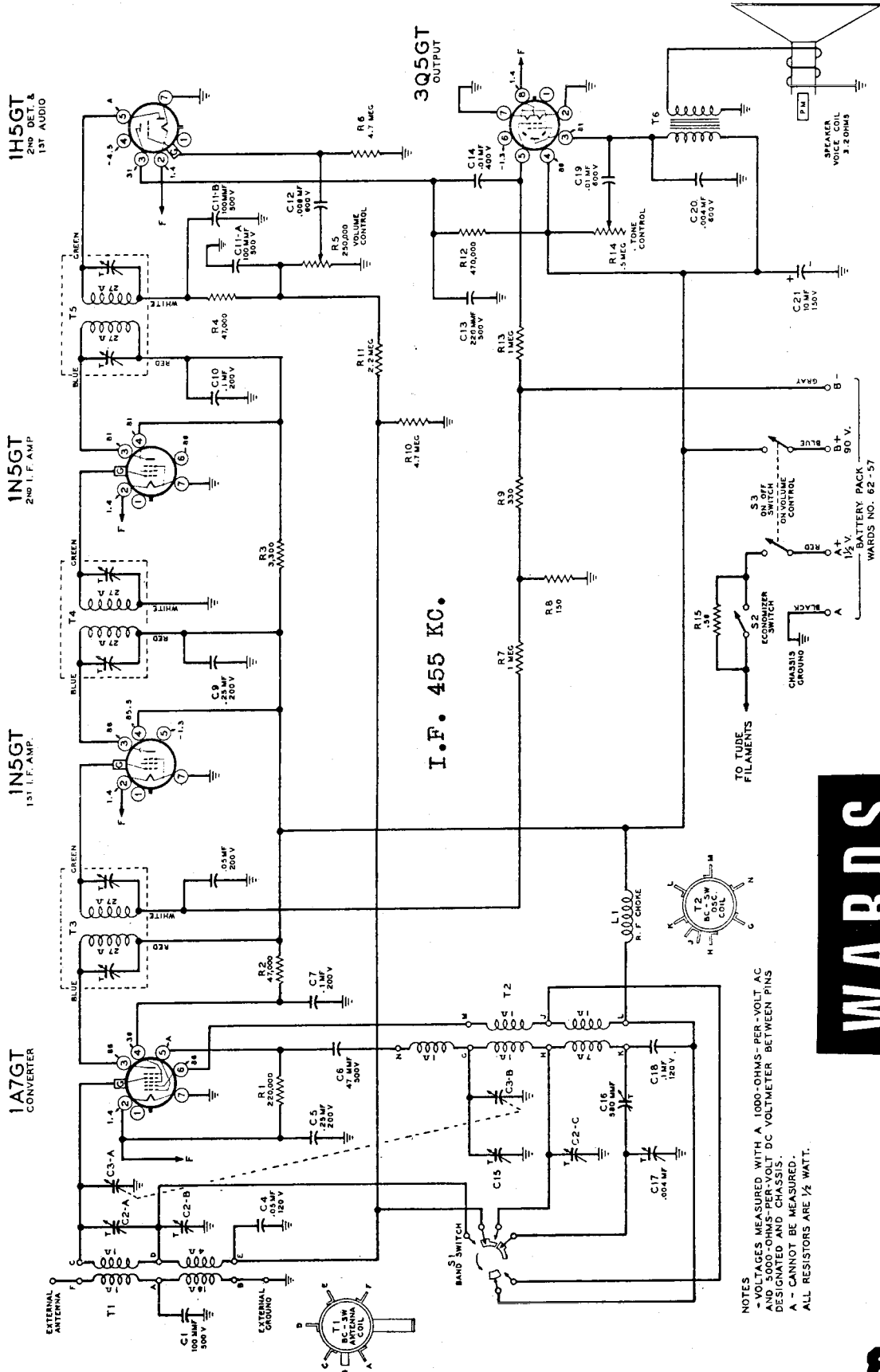
## MODEL 64BR-917B



- 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.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



I.F. 455 KC.

NOTES  
 - VOLTAGES MEASURED WITH A 1000-OHMS PER-VOLT AC  
 METER. ALL VOLTAGES MEASURED BETWEEN PINS  
 DESIGNATED UNLESS OTHERWISE INDICATED.  
 A - CANNOT BE MEASURED.  
 ALL RESISTORS ARE 1/2 WATT.

# WARDS

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

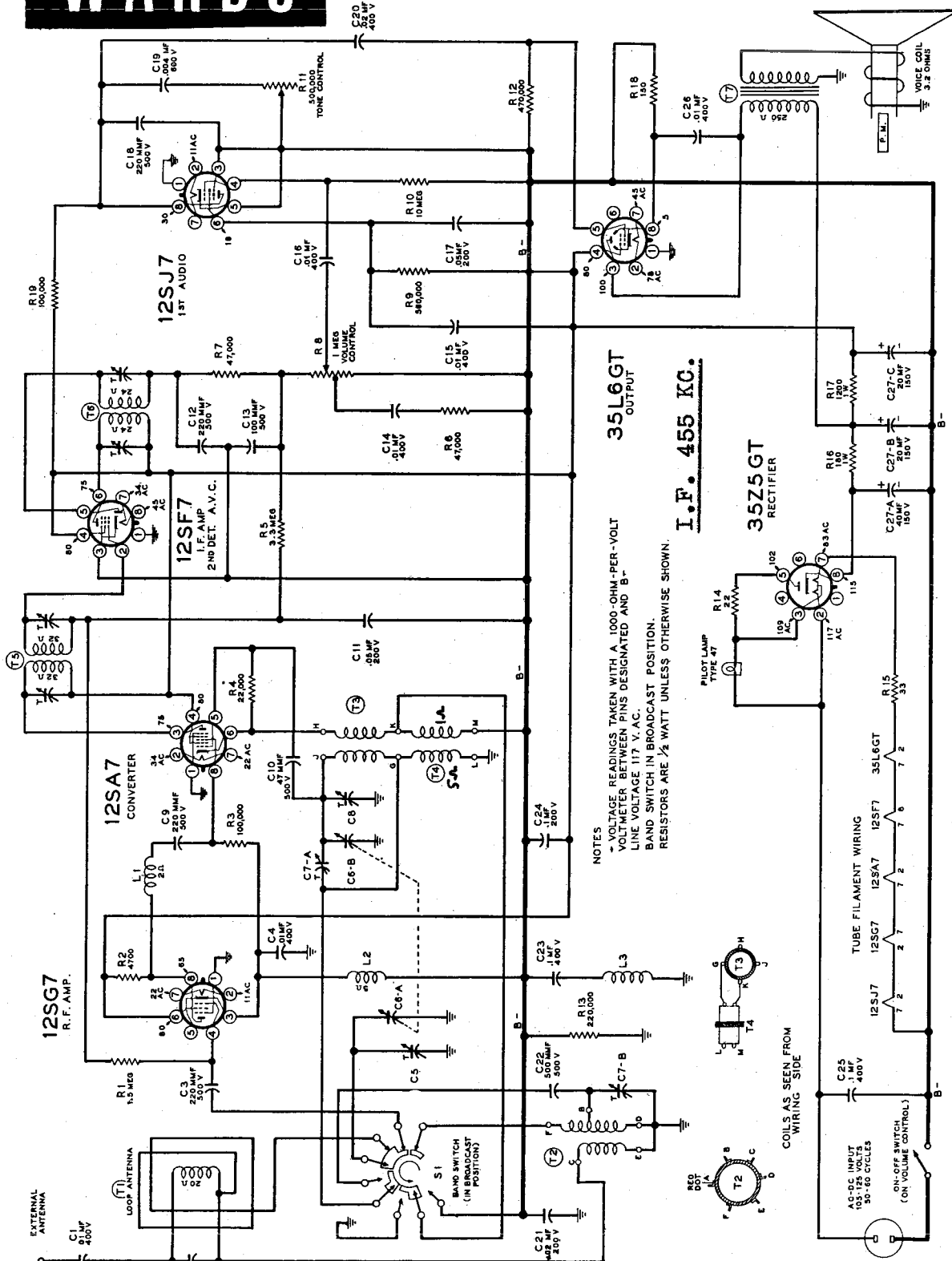
WARDS NO. 62-57

85

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

**WARDS**

MODELS 64BR-1513A, 1514A



**35L6GT**  
OUTPUT

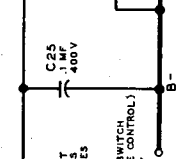
**I.F. 455 KC.**

**35Z5GT**  
RECTIFIER

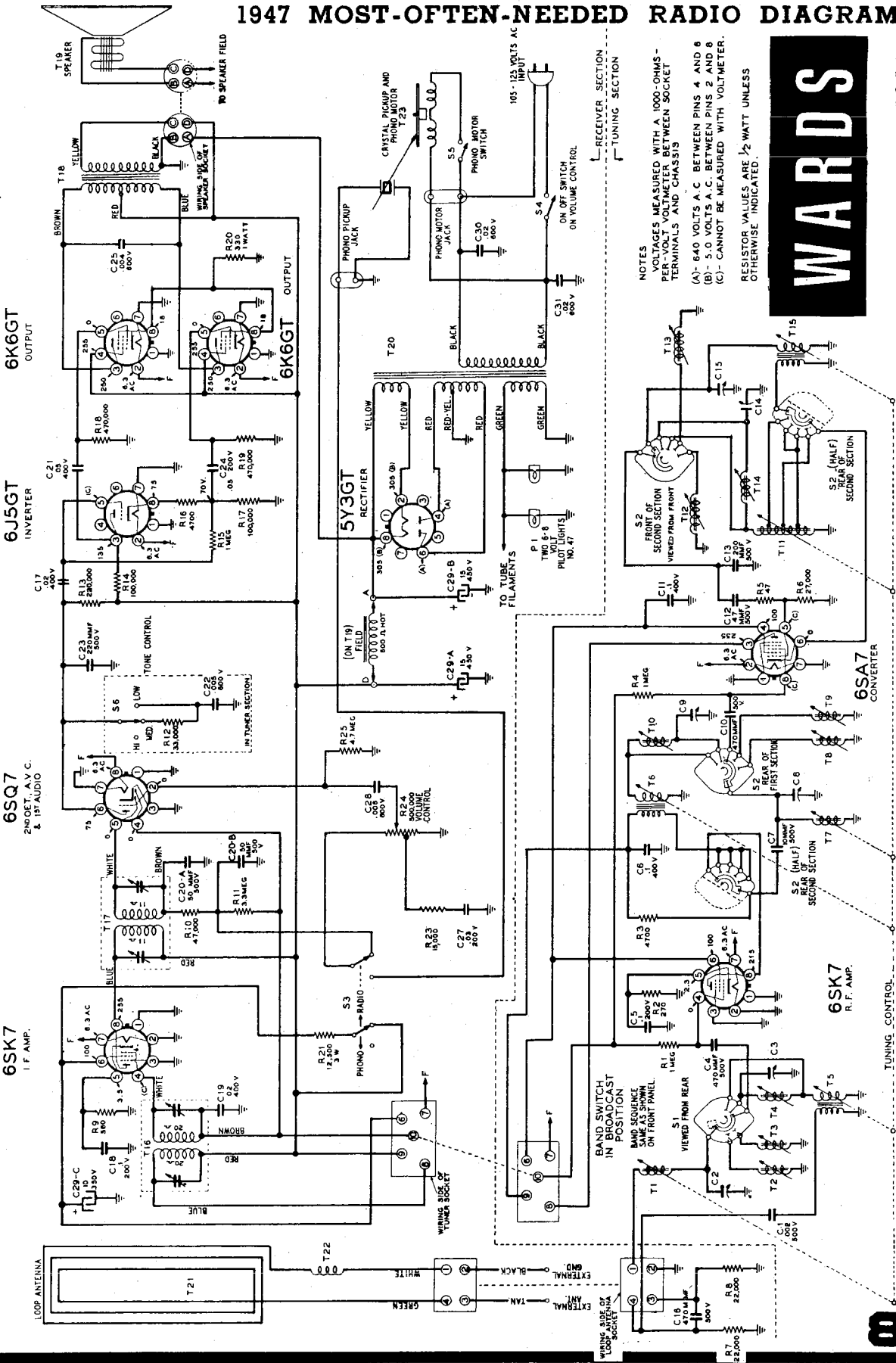
**NOTES**  
VOLTAGE READINGS TAKEN WITH A 1000-OHM-PER-VOLT  
VOLTMETER BETWEEN PINS DESIGNATED AND B-  
LINE VOLTAGE 117 V.A.C.  
BAND SWITCH IN BROADCAST POSITION.  
RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SHOWN.



COILS AS SEEN FROM  
WIRING SIDE



# 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



NOTES  
 VOLTAGES MEASURED WITH A 1000-OHMS-  
 PER-VOLT VOLTMETER BETWEEN SOCKET  
 TERMINALS AND CHASSIS  
 (A)- 640 VOLTS A.C. BETWEEN PINS 4 AND 6  
 (B)- 5.0 VOLTS A.C. BETWEEN PINS 2 AND 8  
 (C)- CANNOT BE MEASURED WITH VOLTMETER.  
 RESISTOR VALUES ARE 1/2 WATT UNLESS  
 OTHERWISE INDICATED.

# WARDS

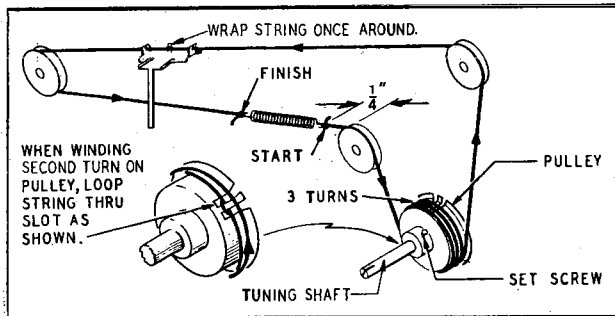
MODEL 64BR-2701A



# 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



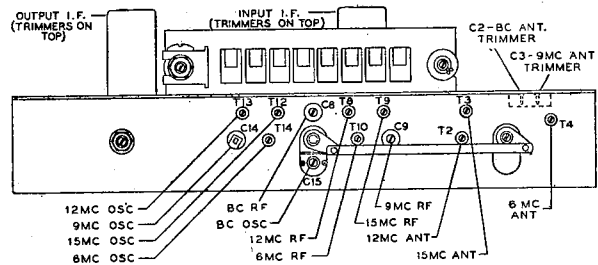
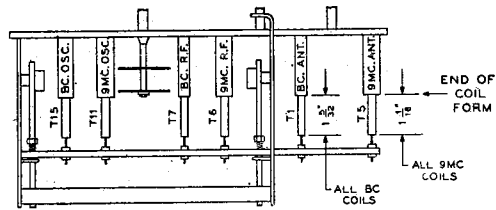
Replacing Dial Pointer Drive Cord

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.

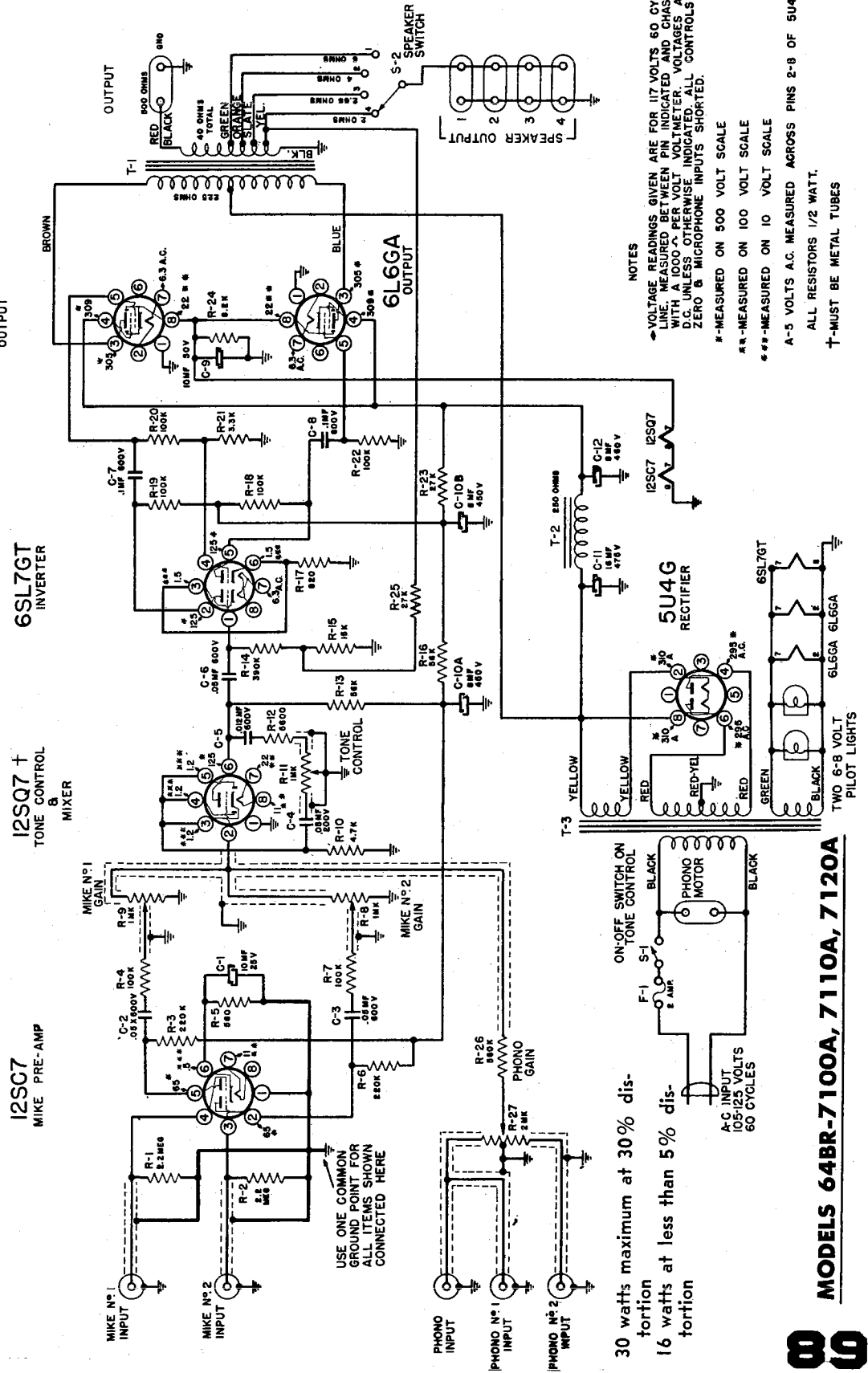


**ELECTRICAL ADJUSTMENT**—To align the set make the following preliminary adjustments: Set the tone pushbutton for treble tone; set the volume control at maximum; connect the ground post of the signal generator to the radio chassis; connect the output meter across a 3.2-ohm output load; and allow the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

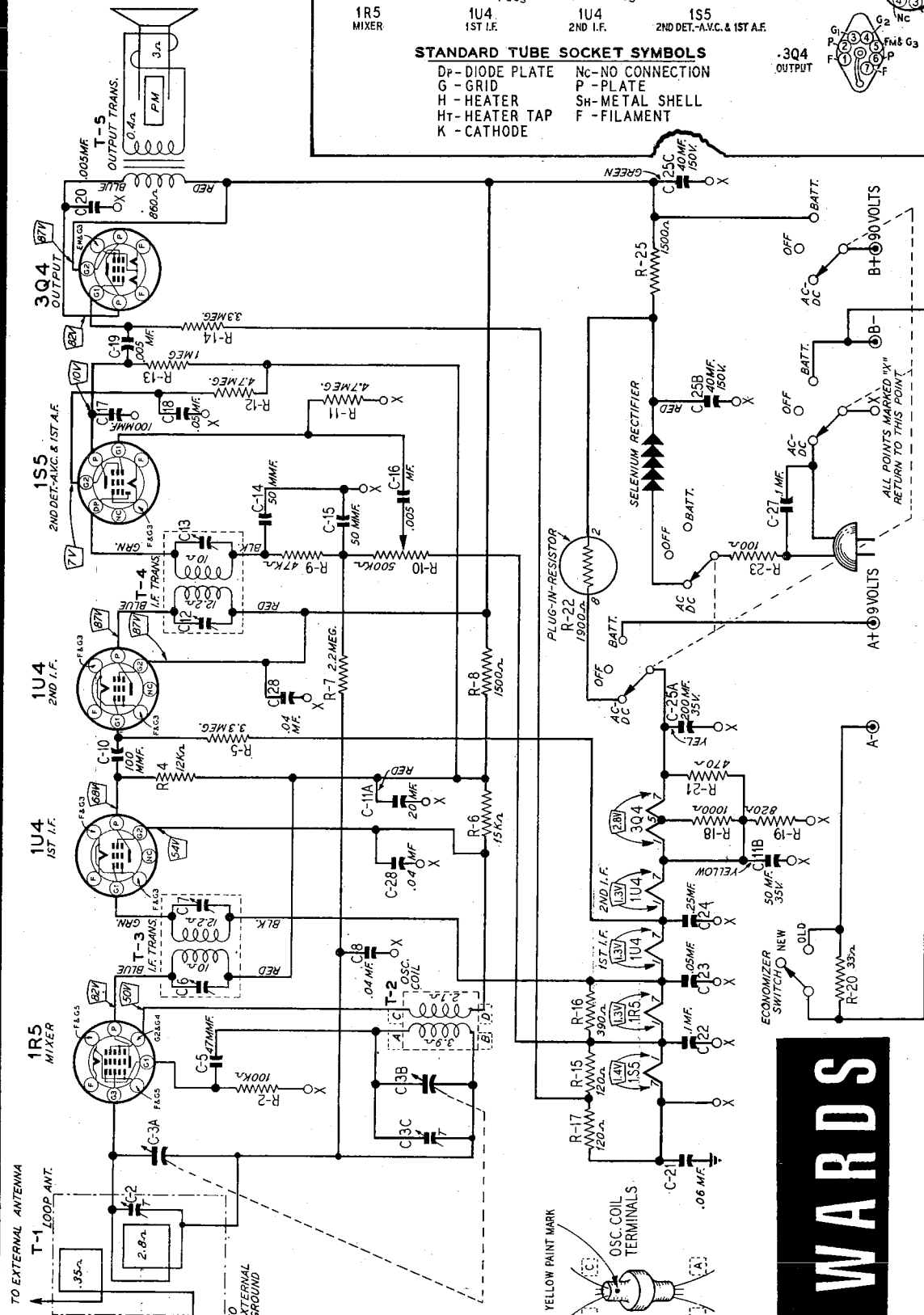
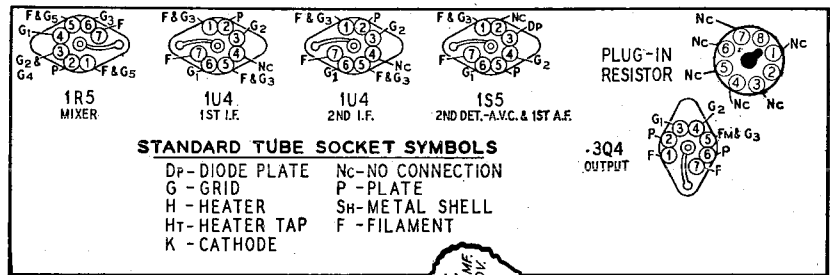
BAND SWITCH SETTING	SIGNAL GENERATOR			DIAL POINTER SETTING	ADJUST TO MAXIMUM OUTPUT IN ORDER SHOWN
	Frequency	Coupling Capacitor	Connection to Receiver		
Broadcast (for I. F.)	455 kc	.1 mf	Grid (pin 8) of converter (6SA7)	1600 kc	Trimmers on output and input I. F. cans
Broadcast	1600 kc	200 mmf	Antenna 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





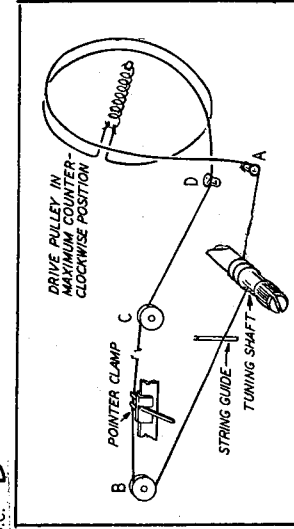
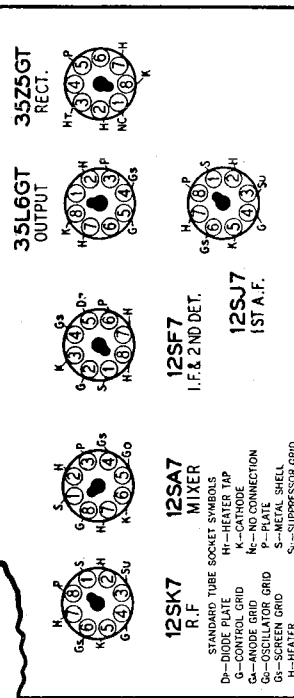
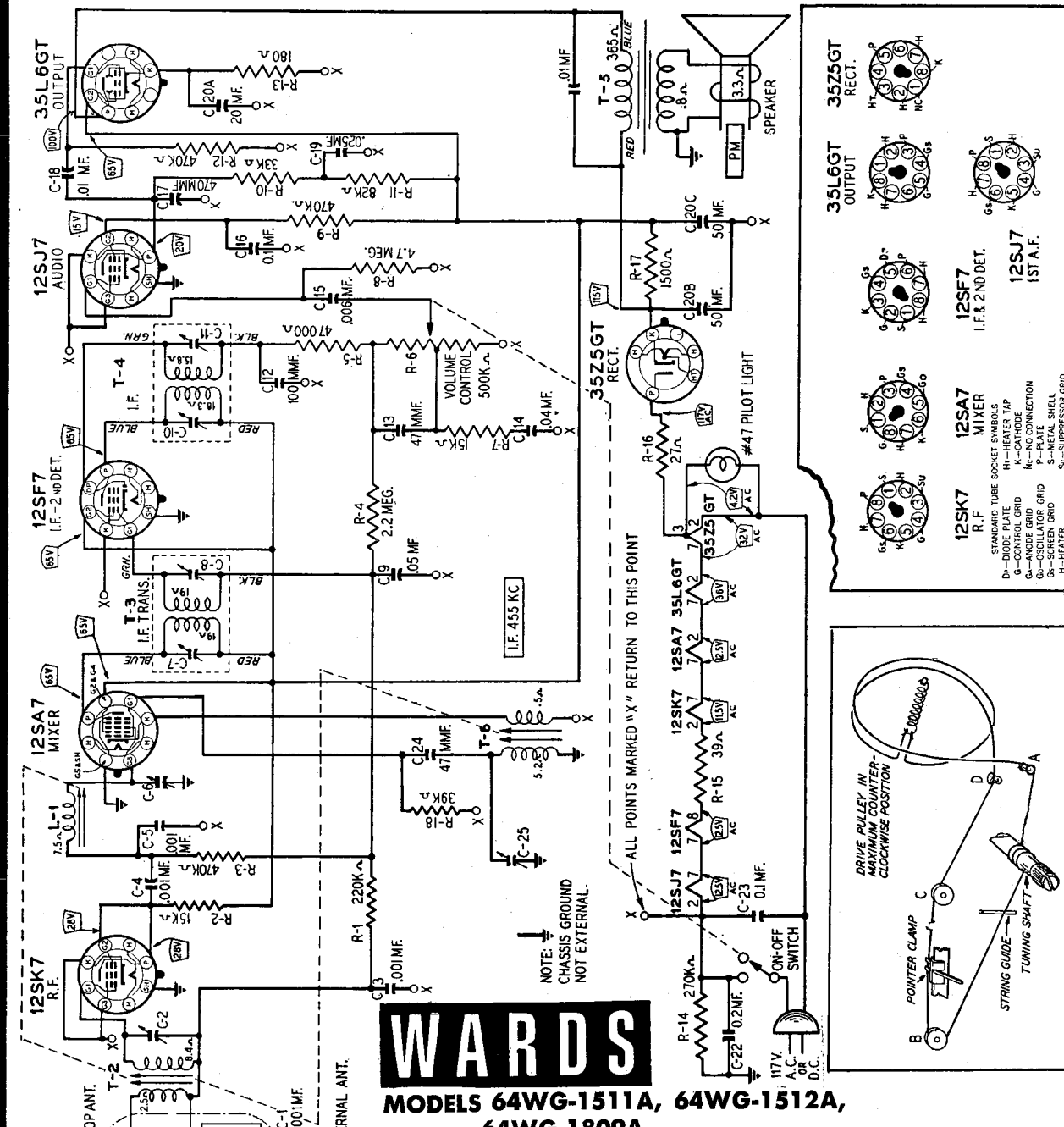
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



# WARDS

MODEL 64 WG-1052A

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

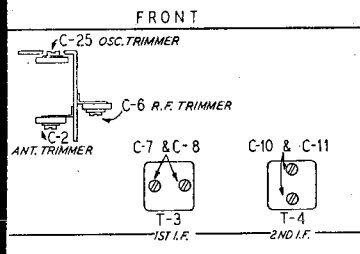


## WARDS

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

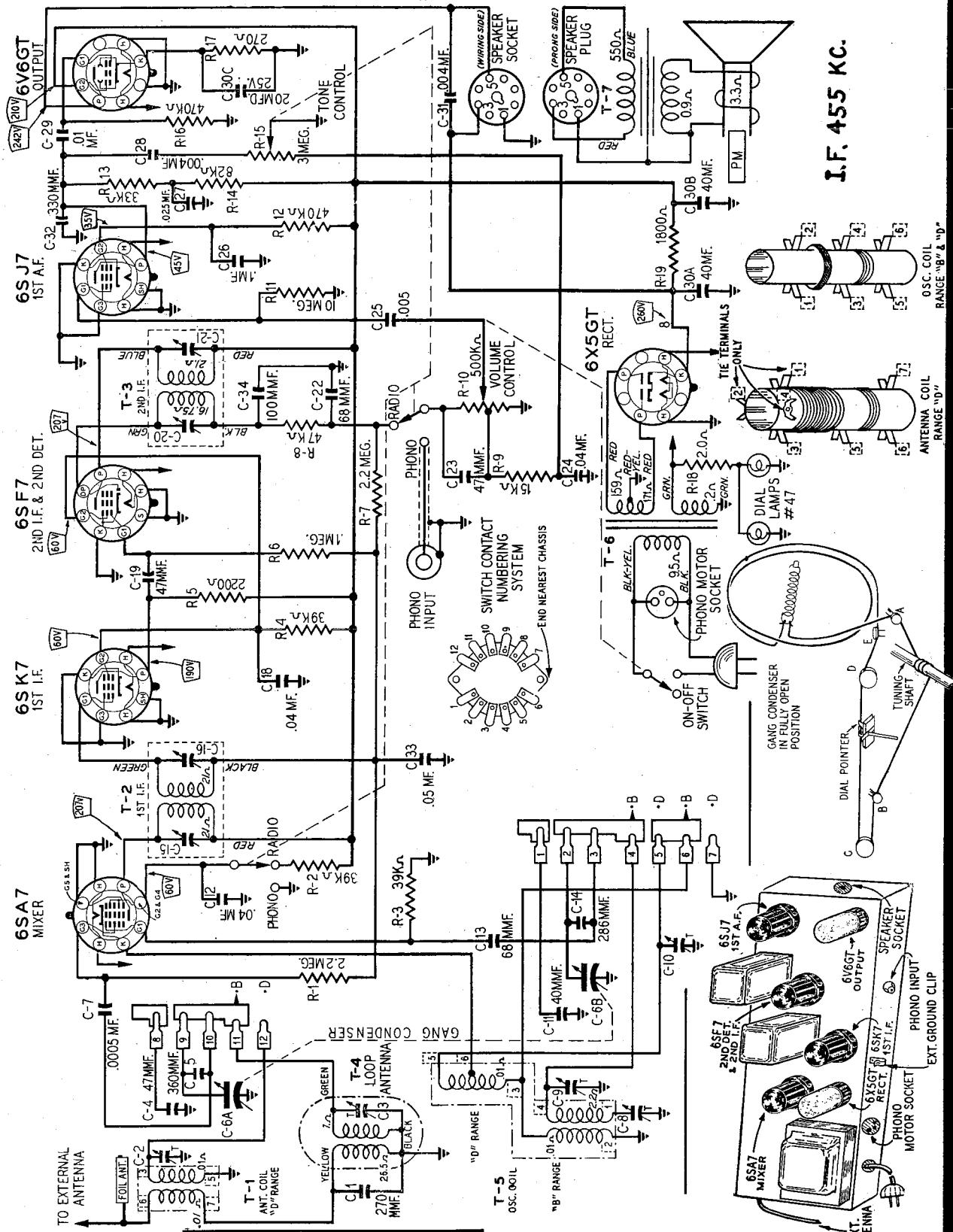
### SIGNAL GENERATOR

Frequency Setting	Connection to Receiver	Ground Connection	Coupling Capacitor	DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM OUTPUT IN ORDER SHOWN (See Trimmer Illustration)
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)





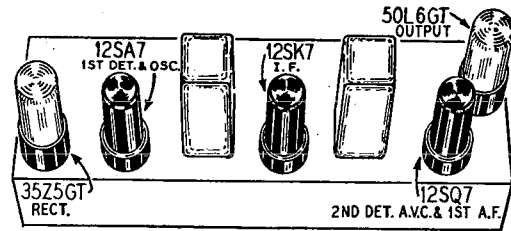
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



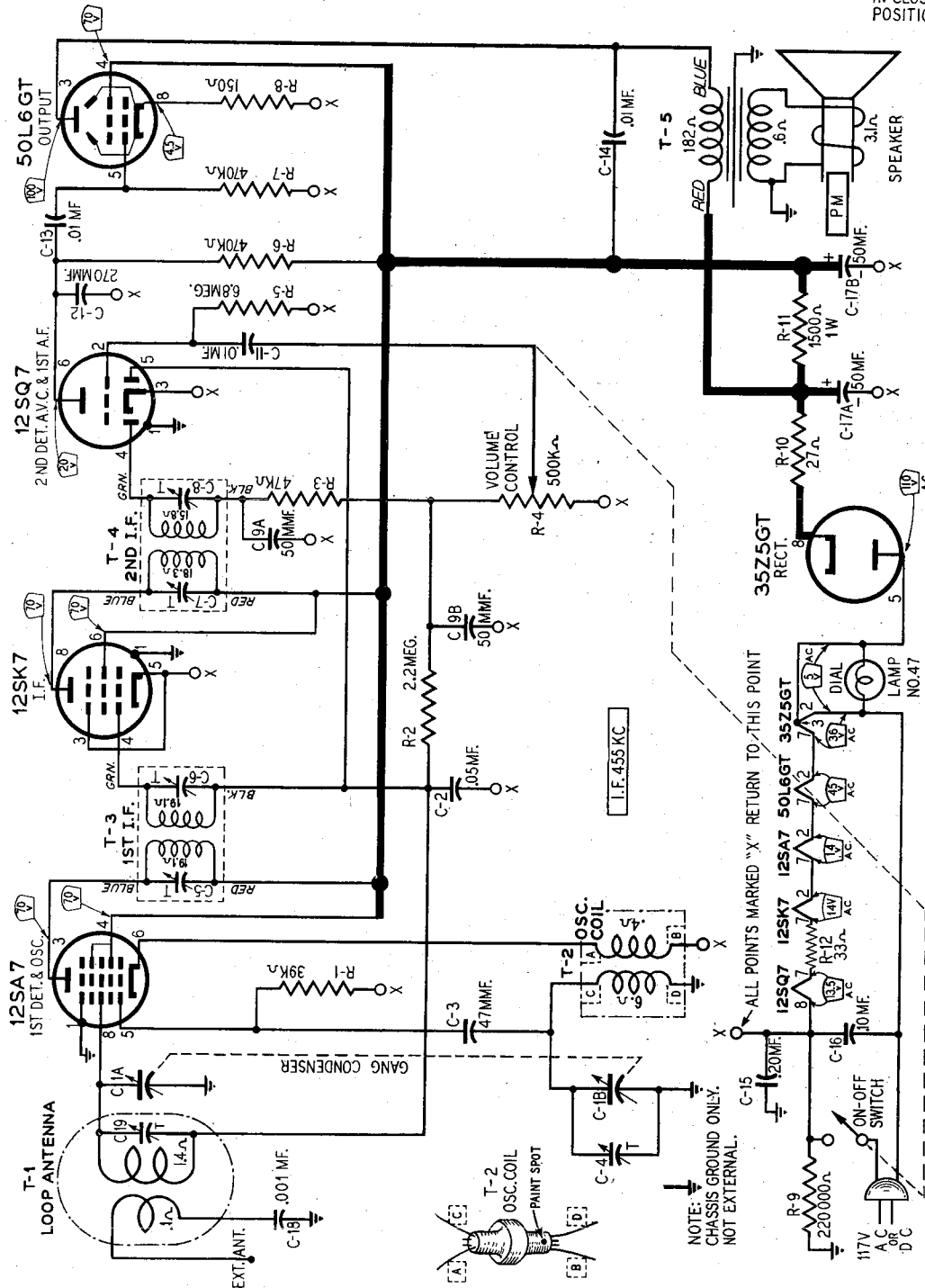
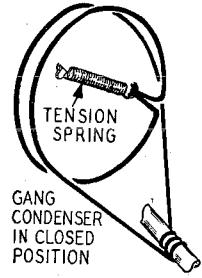
**WARDS**

**MODEL 64 WG-1807A**

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



DRIVE  
CORD  
DIAGRAM



MODELS 64 WG-1801C

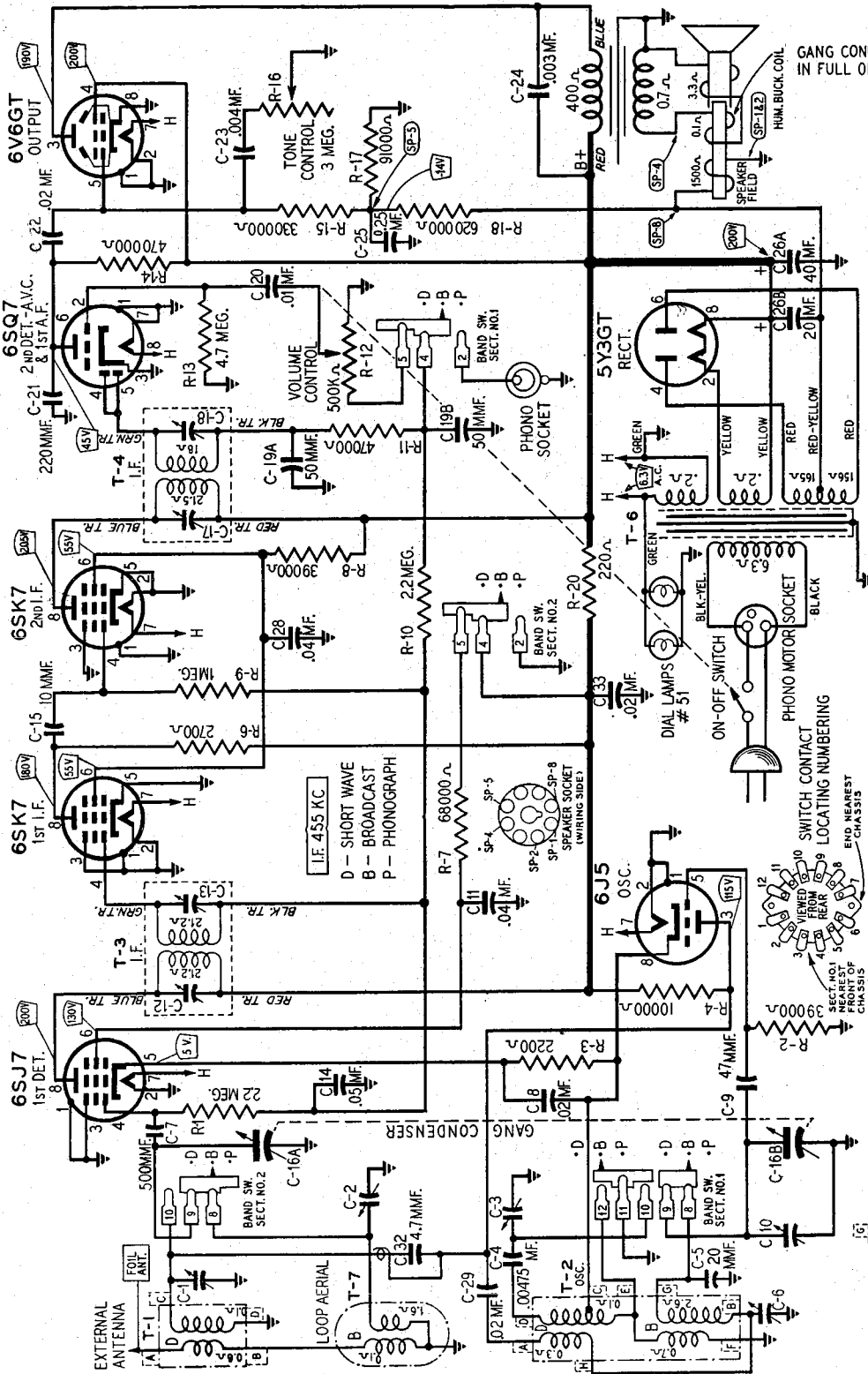
**WARDS**





# WARDS

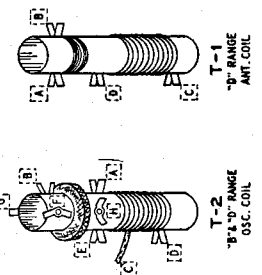
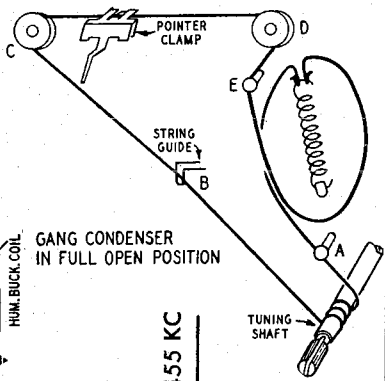
## MODEL 64 WG-2500B



Intermediate Frequency .455 KC

### TUBE SOCKET VOLTAGES

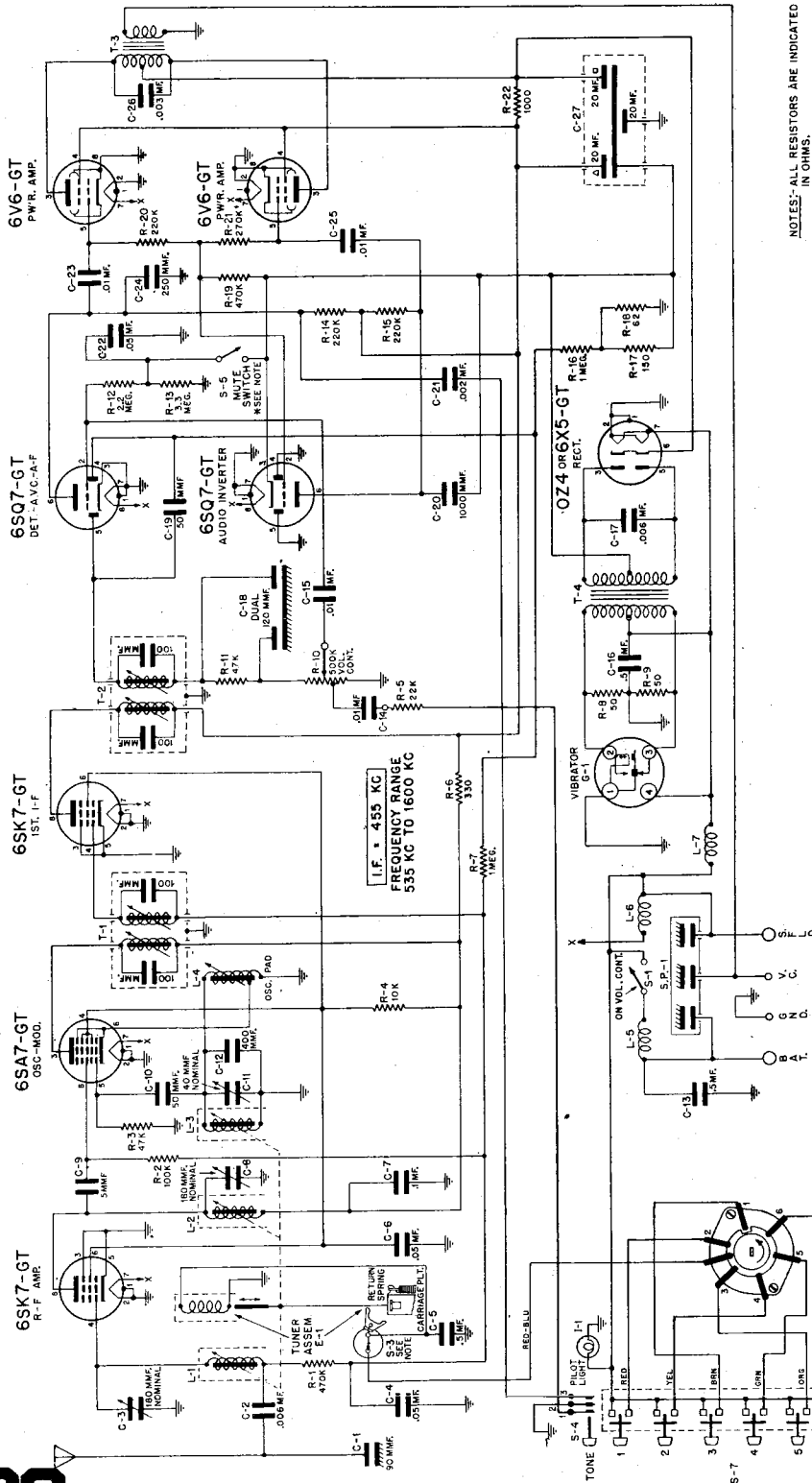
Socket voltages are shown on the schematic diagram at the tube socket terminals. All voltages are between the socket terminal and chassis ground. The readings were taken with a 1000 ohm per volt meter and all plate and screen voltages read on a 500 volt scale.



MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# Motorola **AUTO** Radio

## MODEL CR6



NOTES: ALL RESISTORS ARE INDICATED IN OHMS.  
 K=ONE THOUSAND (1000) OHMS.  
 \* MUTE SWITCH, ACTUATED BY CARRIAGE.  
 † MUTE SWITCH (ON TUNER) IS ACTUATED BY CARRIAGE PLATE WHEN ELECTRICALLY TUNED.  
 S-4 TONE SWITCH  
 VOICE POSITION-OPEN  
 BASS POSITION #1-2-3 CONTACTS CLOSED.  
 IN '47 MODELS  
 IN '48 MODELS TO 96 OHMS  
 IN '49 MODELS TO 1 MF  
 IN LATE MODELS



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

Alignment information on Model CR6 is on the next page.

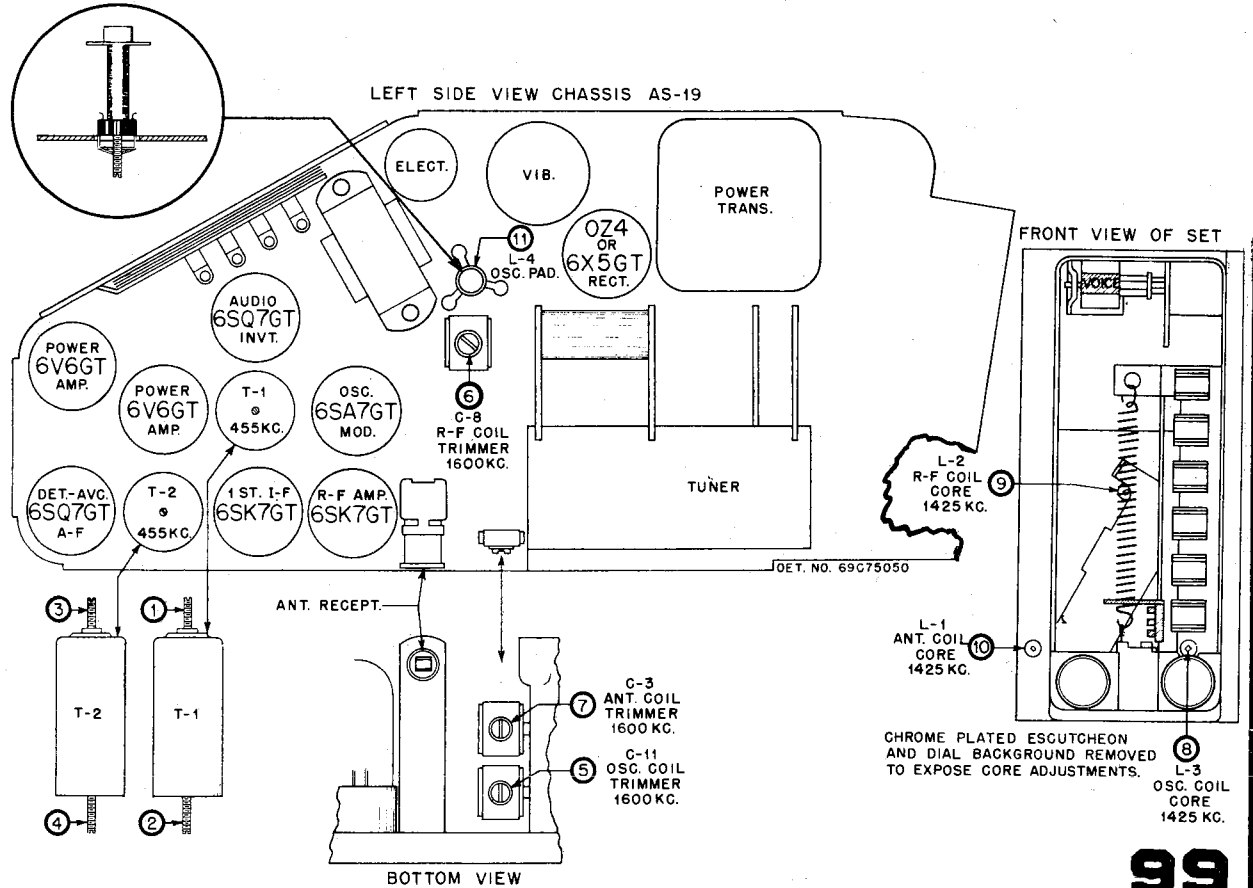
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## Motorola **AUTO** Radio

### MODEL CR6

#### ALIGNMENT TABLE

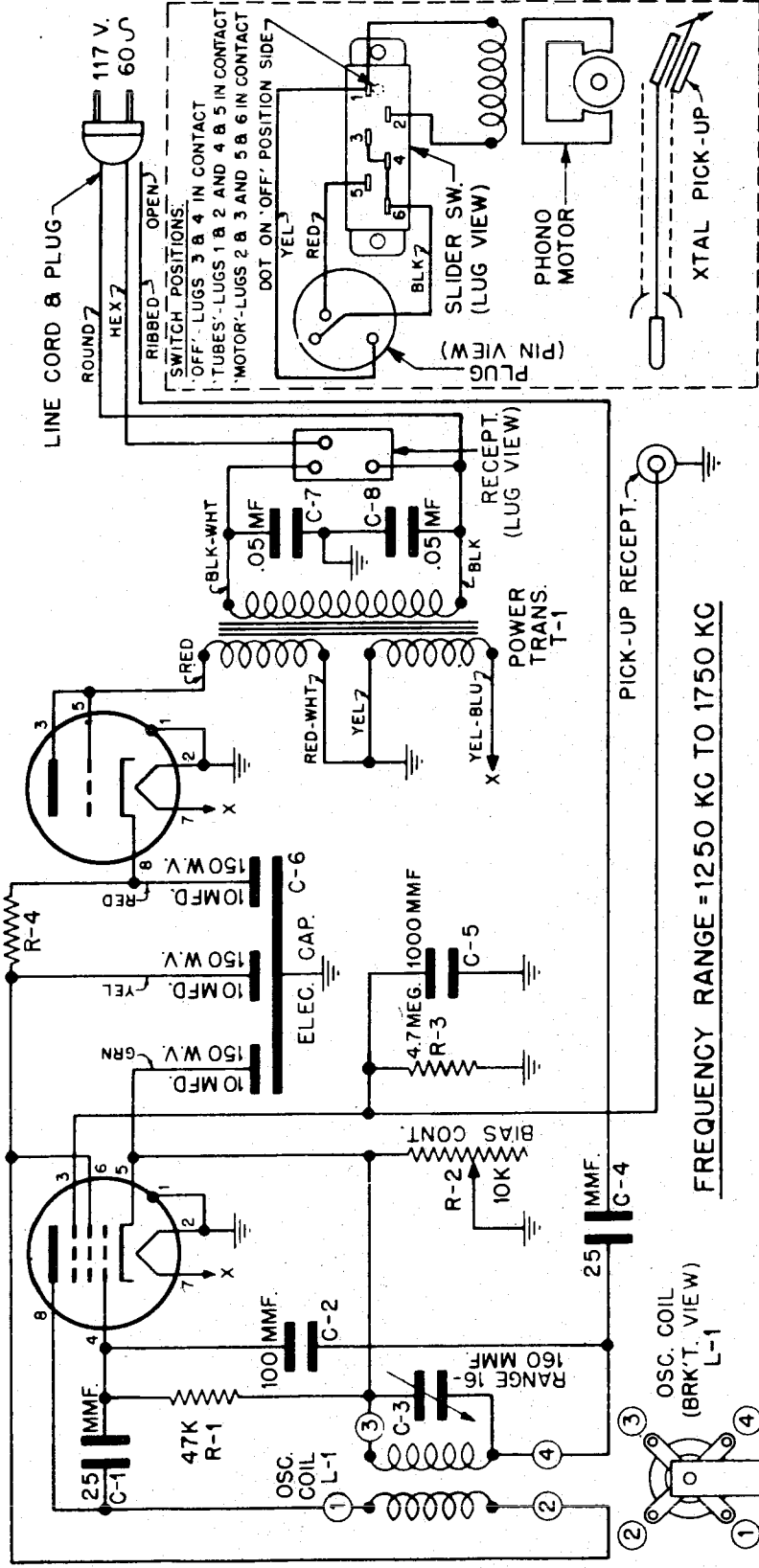
STEP	TUNER POSITION SET TO	DUMMY ANTENNA	SIGNAL GENERATOR LEAD CONNECTED TO	SIG. GEN. SET AT	ADJUST FOR PEAK ON OUTPUT METER
1.	High frequency end (cores out)	.1 mfd. at Sig. Gen.	Osc.-Mod. grid (#5 pin)	455 Kc	#1 and 2 P & S in T-1 #3 and 4 P & S in T-2
2.	High frequency end, tuning shaft against stop. 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.				



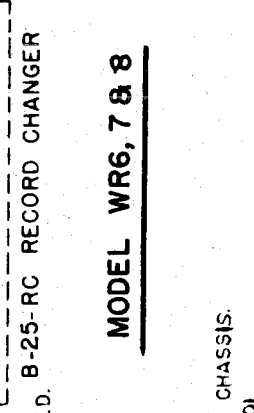
# Motorola HOME Radio

6J5GT  
RECT.

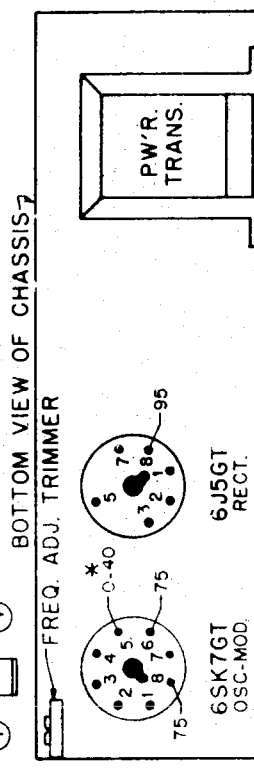
6SK7GT  
OSC.-MOD.



FREQUENCY RANGE = 1250 KC TO 1750 KC



NOTE: ALL RESISTORS ARE MEASURED IN OHMS UNLESS OTHERWISE SPECIFIED.  
B-25-RC RECORD CHANGER  
XTAL PICK-UP



MODEL WR6, 7 & 8

CHASSIS HS-18

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

## GALVIN MANUFACTURING CORPORATION

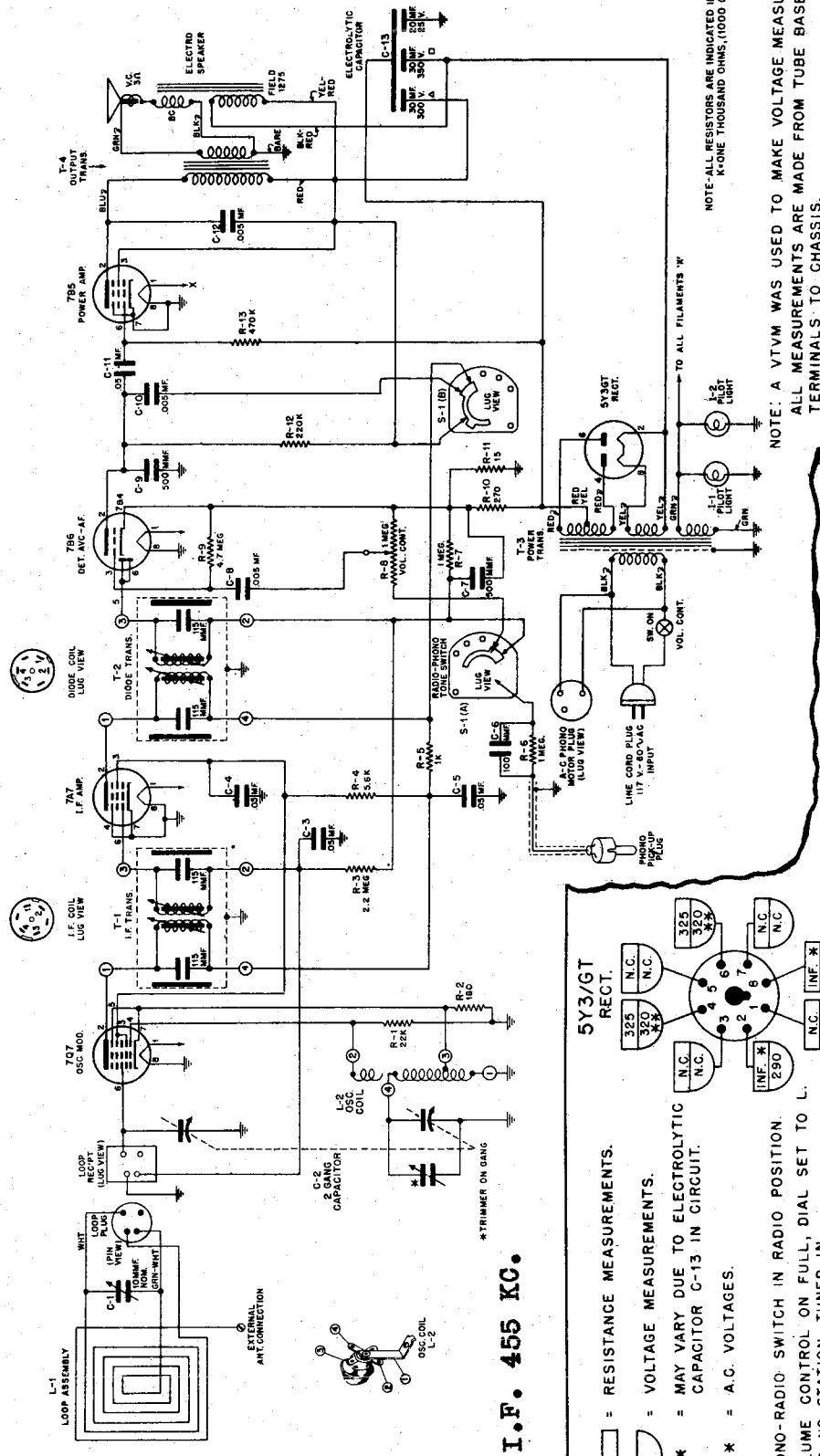
MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# Motorola HOME Radio

Motorola

Model 55F11

Chassis HS-30



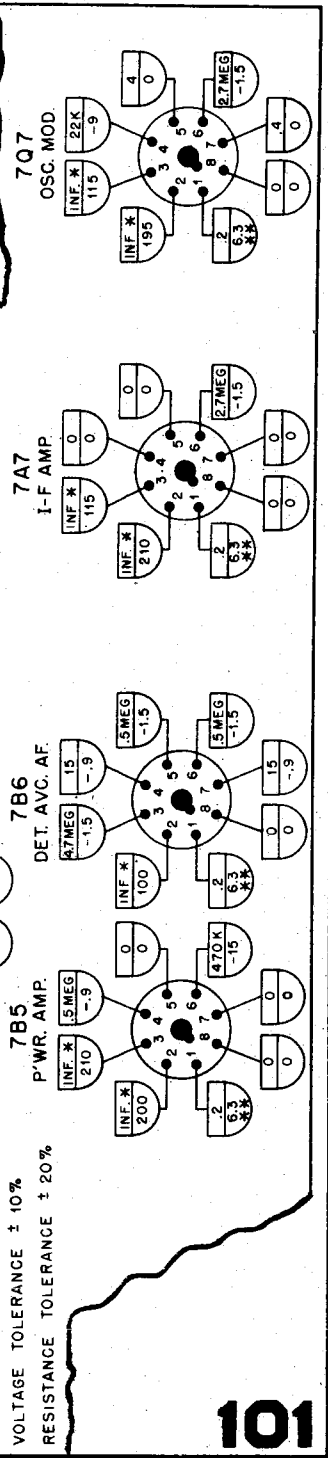
NOTE: ALL RESISTORS ARE INDICATED IN OHMS  
K-ONE THOUSAND OHMS (1000 OHMS).

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

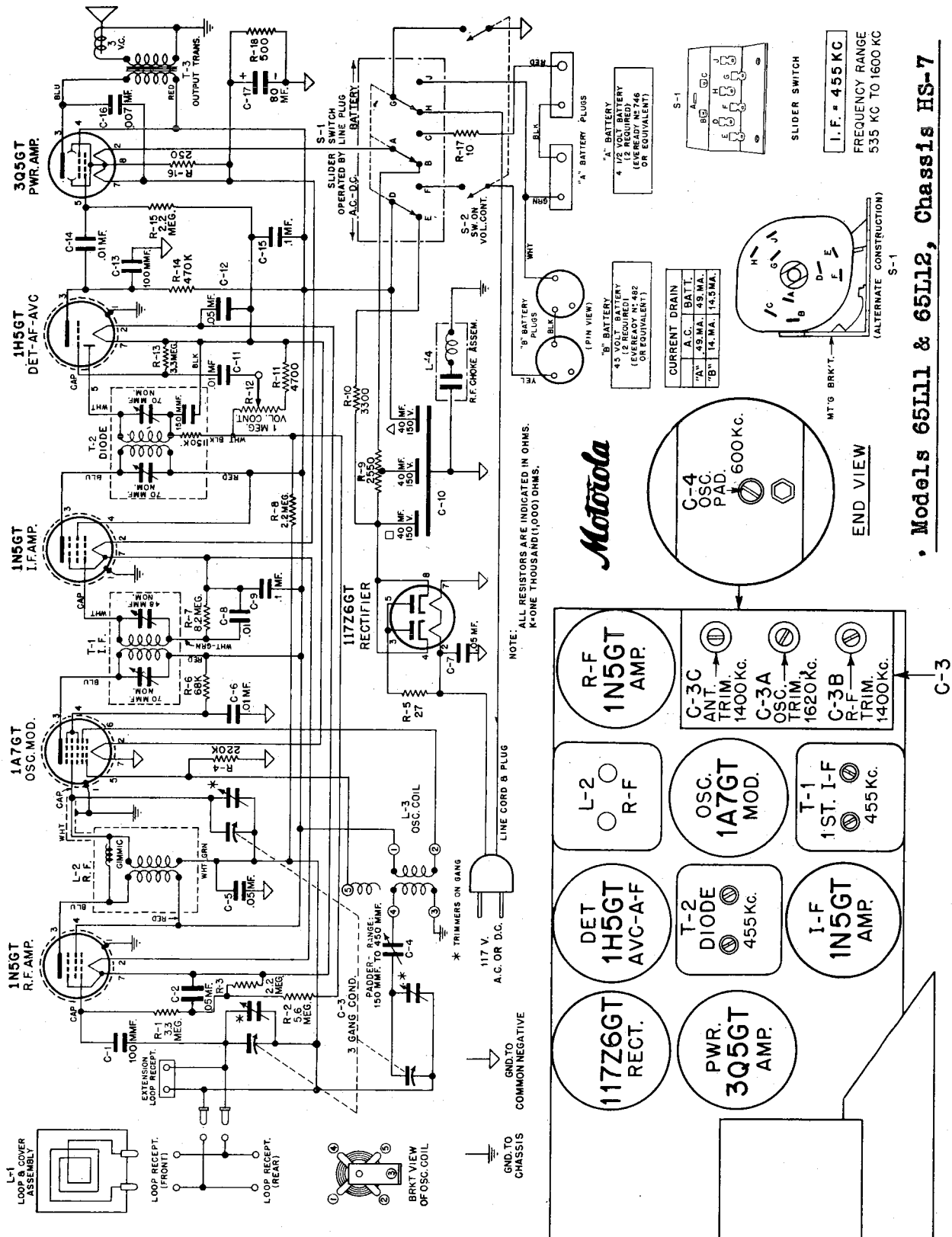
I.F. 455 KC.

- = 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%



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

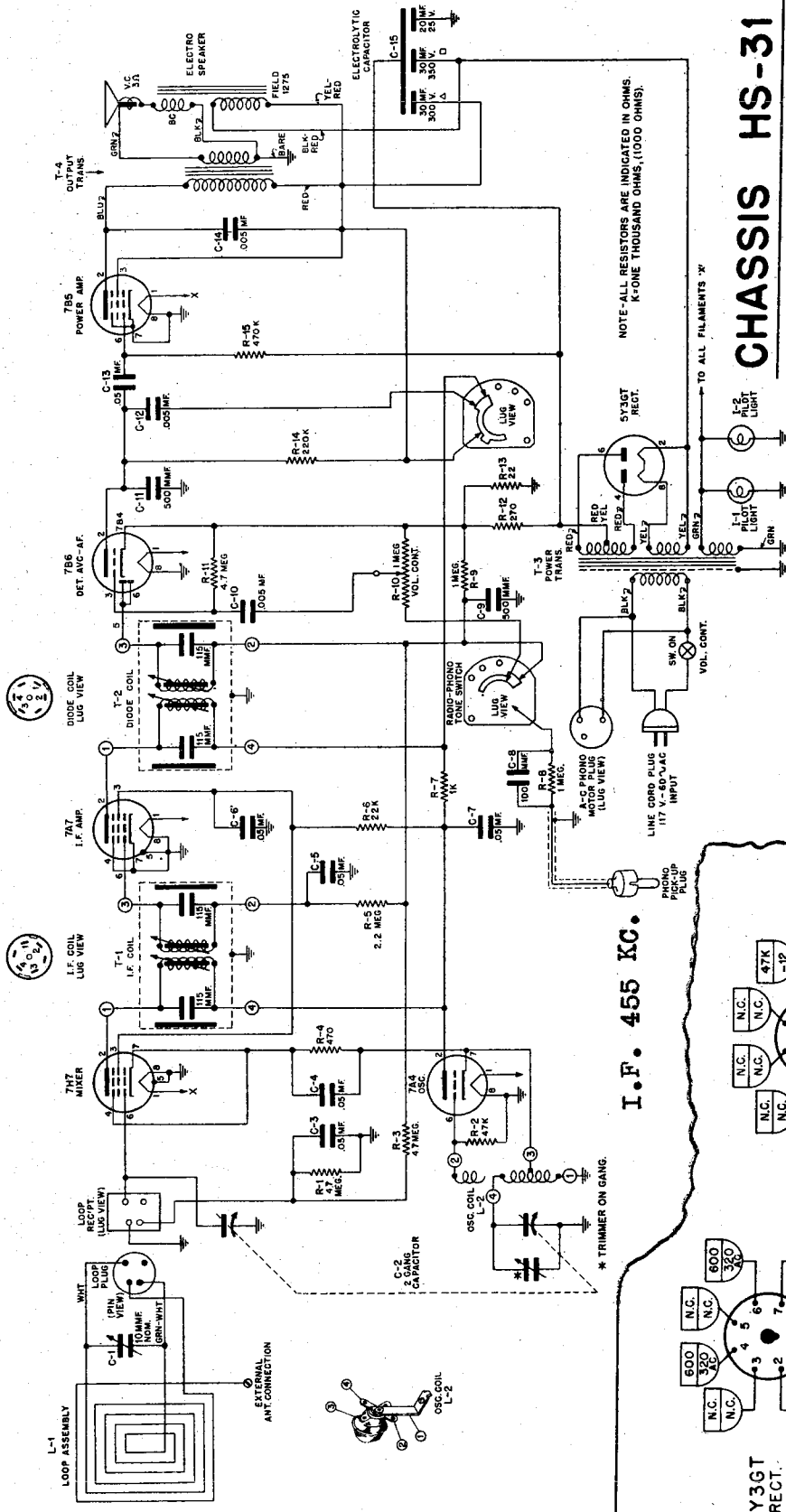


• Models 65L11 & 65L12, Chassis HS-7





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO



I.F. 455 KC.

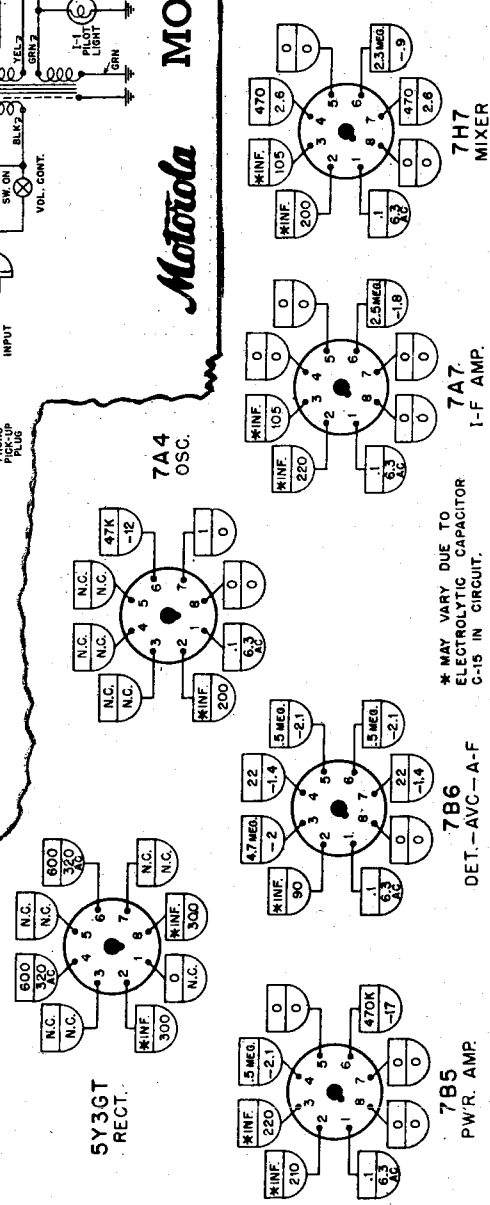
NOTE-ALL RESISTORS ARE INDICATED IN OHMS.  
(K=ONE THOUSAND OHMS, (1000 OHMS).

## CHASSIS HS-31

## MODELS 65F11 and 65F12

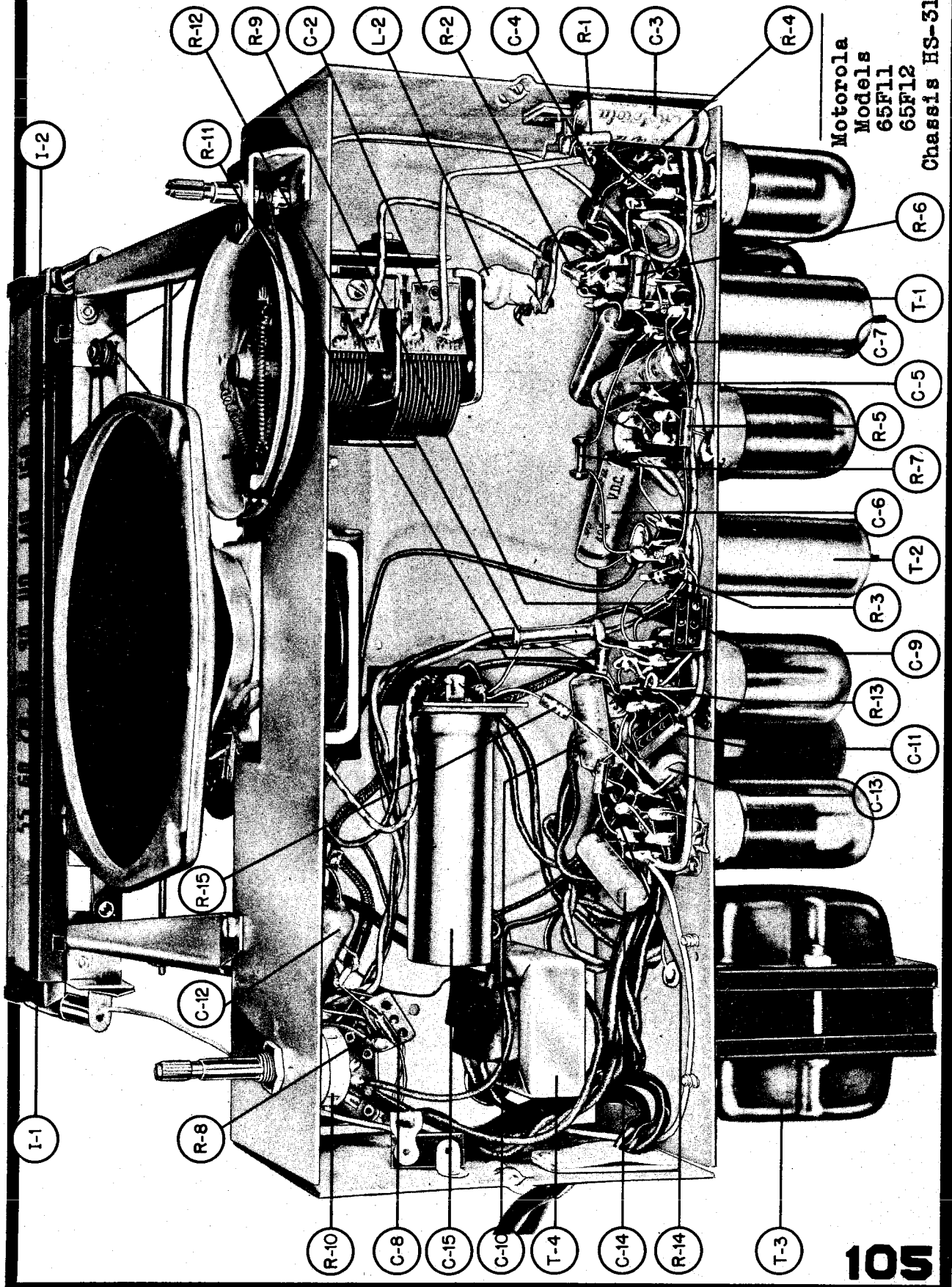


NOTE: A VTVM WAS USED TO MAKE MEASUREMENTS. IF A 20,000 OHM PER VOLT METER IS USED ALL GRID & AVC VOLTAGES WILL READ LOWER. MEASUREMENTS ARE MADE FROM TUBE BASE PIN TERMINALS TO CHASSIS. PHONO-RADIO SWITCH IN RADIO POSITION. VOLUME CONTROL ON FULL, DIAL SET TO L.F. END AND NO STATION TUNED IN. RESISTANCE TOLERANCE ± 10%. RESISTANCE MEASUREMENTS. = VOLTAGE MEASUREMENTS.



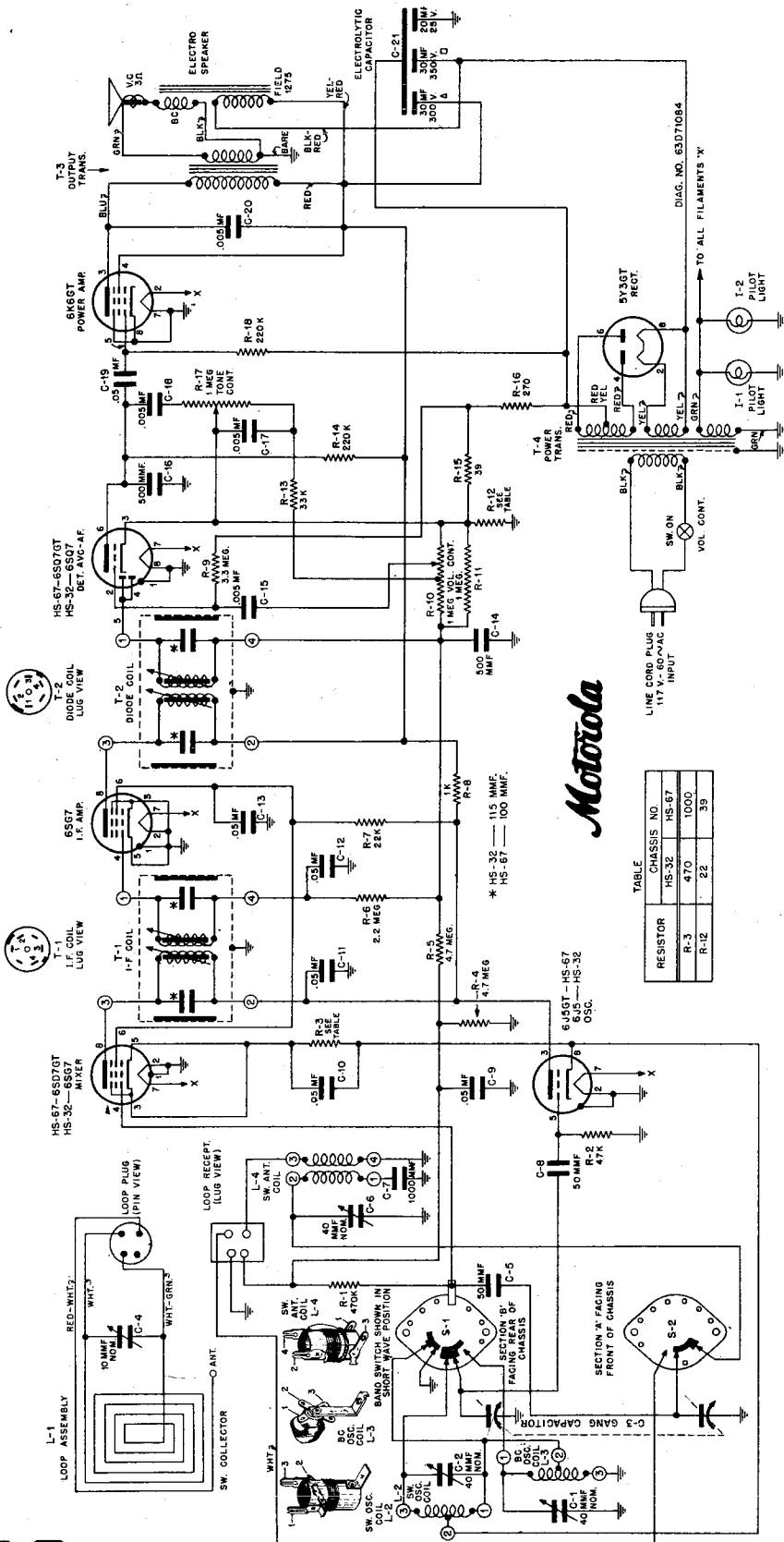
\* MAY VARY DUE TO ELECTROLYTIC CAPACITOR C-15 IN CIRCUIT.

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



Motorola  
Models  
65F11  
65F12  
Chassis HS-31

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



## GALVIN MANUFACTURING CORPORATION

CHASSIS  
 HS-32  
 HS-67

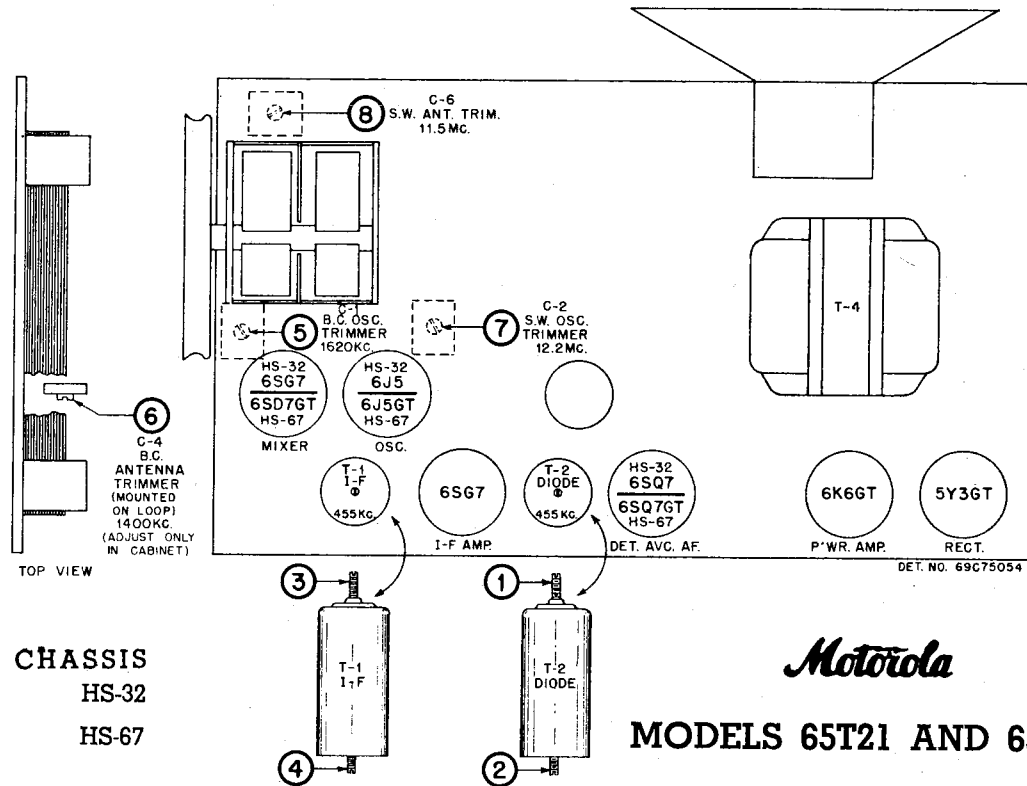
MODELS 65T21 AND 65T21B



NOTE - ALL RESISTORS ARE INDICATED IN OHMS.  
 K = ONE THOUSAND OHMS, (1,000 OHMS)

I-F-455 KC  
 BC-1620-535 KC  
 SW-12.2-5.6 MC

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



## ALIGNMENT AND SENSITIVITY CHART

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

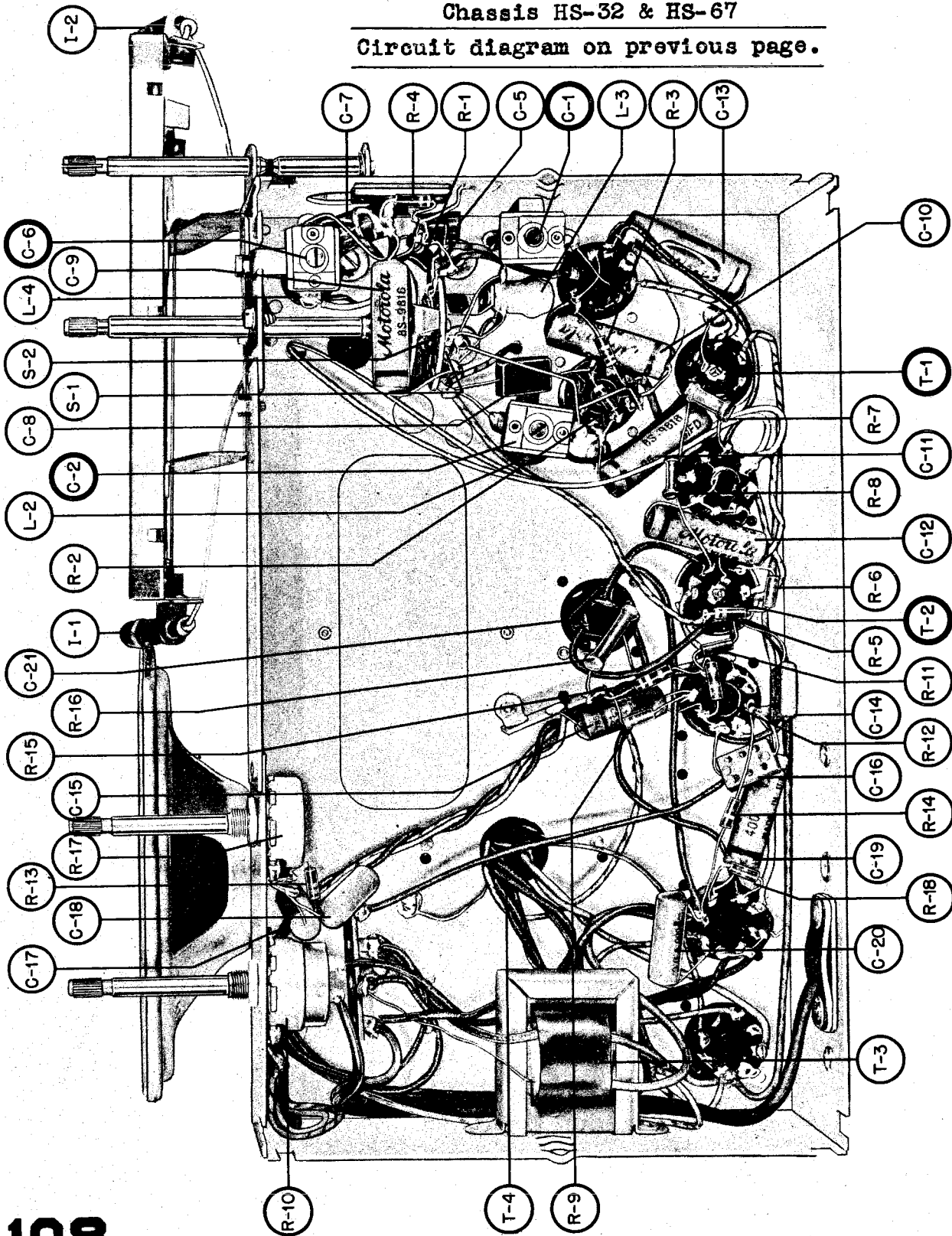
OPERATION IN ORDER	GANG CAPACITOR SET AT	BAND SWITCH SET AT	DUMMY ANTENNA	GENERATOR CONNECTED TO	ADJUST TRIMMER OR IRON CORE	GENERATOR SET AT (400 <sup>u</sup> 30% MODULATED)	AVERAGE INPUT FOR .38V OUTPUT
1. Adjust I.F.'s Minimum for maximum		B.C.	.1 mf	Osc. - Mod. grid	1-2-3-4	455 Kc	900 microvolts 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 <sup>u</sup> cycle audio)

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

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

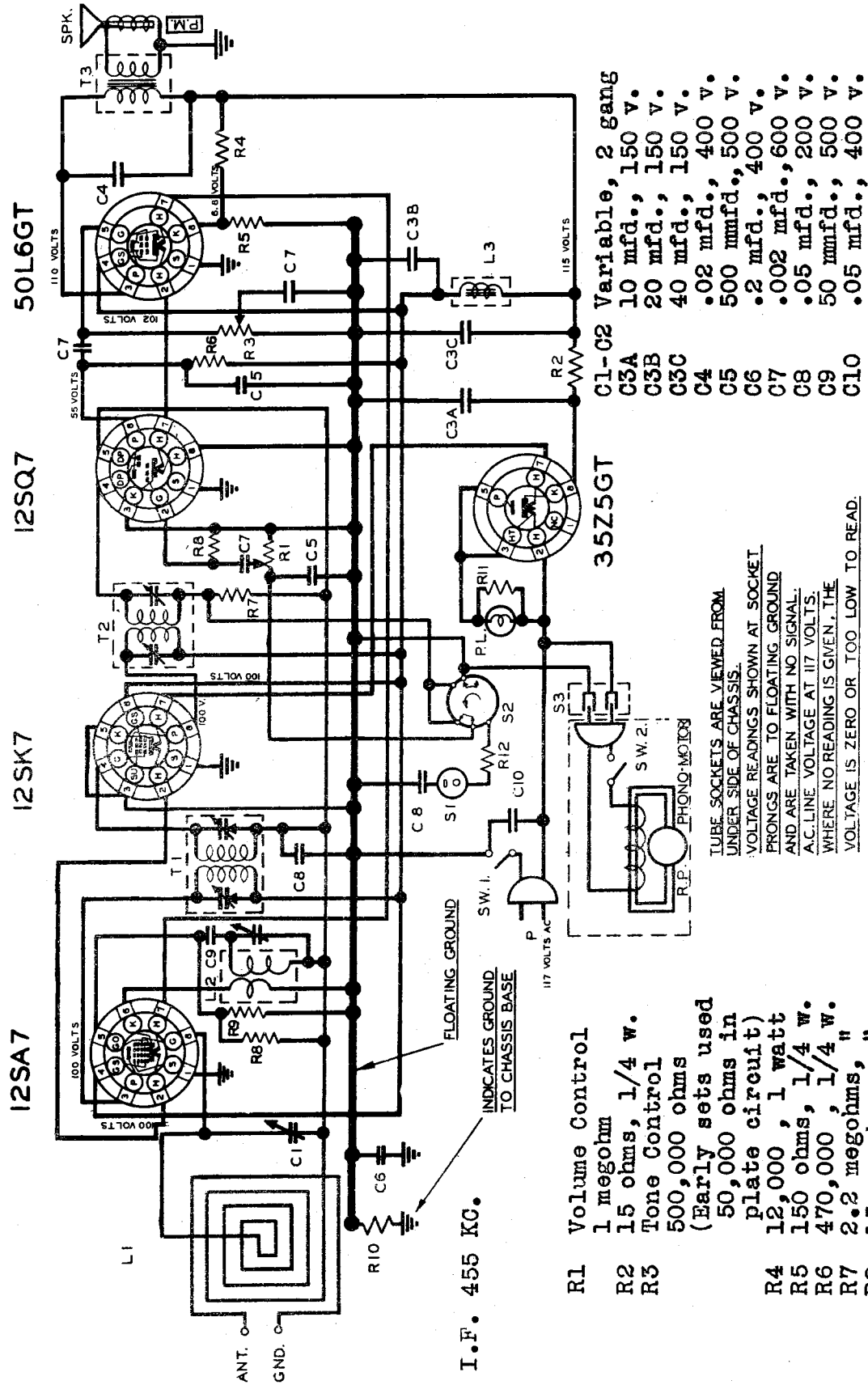
Circuit diagram on previous page.







MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



ARVIN RADIO - MODEL 558 CHASSIS RE - 204  
 5 TUBE AC-DC RADIO-PHONO COMBINATION  
 MANUFACTURED BY NOBLITT - SPARKS INDUSTRIES, INC. COLUMBUS IND.

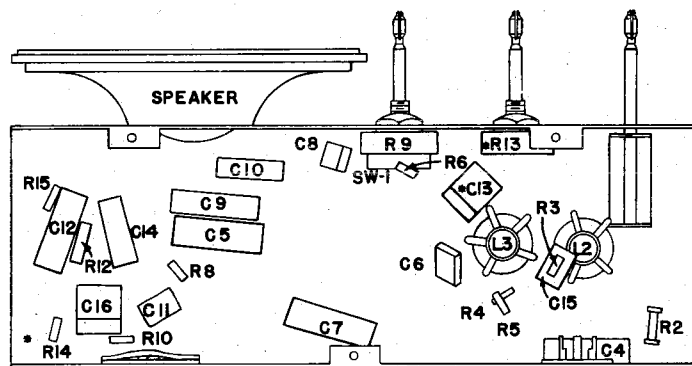
- R1 Volume Control 1 megohm
- R2 15 ohms, 1/4 w.
- R3 Tone Control 500,000 ohms (Early sets used 50,000 ohms in plate circuit)
- R4 12,000, 1 watt
- R5 150 ohms, 1/4 w.
- R6 470,000, 1/4 w.
- R7 2.2 megohms, "
- R8 15 megohms, "
- R9 22,000 ohms, "
- R10 330,000 ohms
- R11 680 ohms, 1/4 w.
- R12 1 megohm, 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.





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

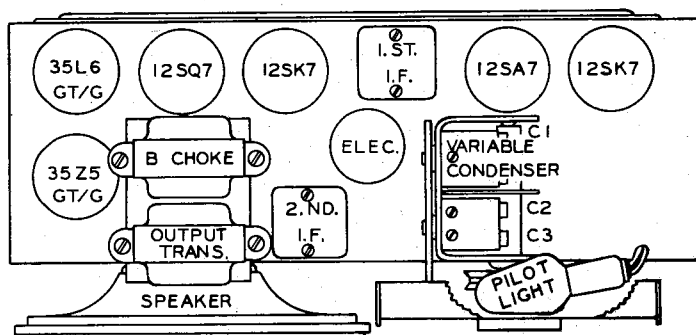


LOCATION OF PARTS UNDER CHASSIS

## ARVIN RADIO

Noblitt-Sparks Industries

Models 664 & 664-A  
RE-206-1

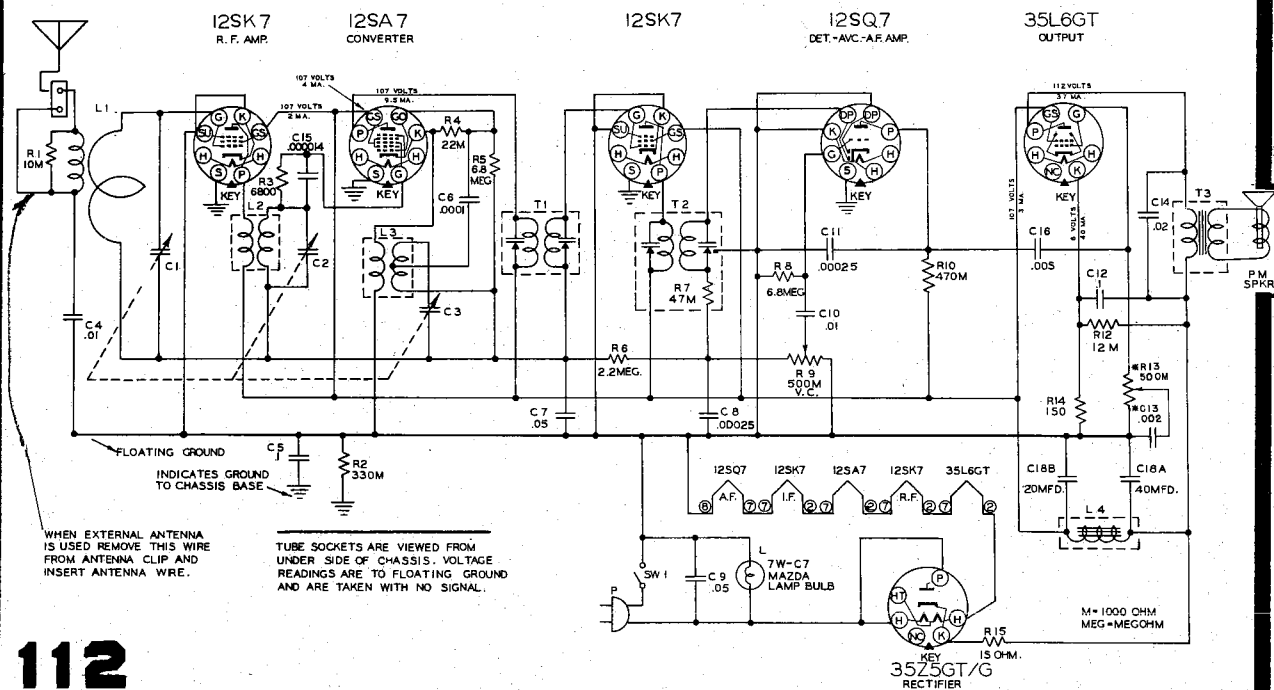


TUBE LAYOUT

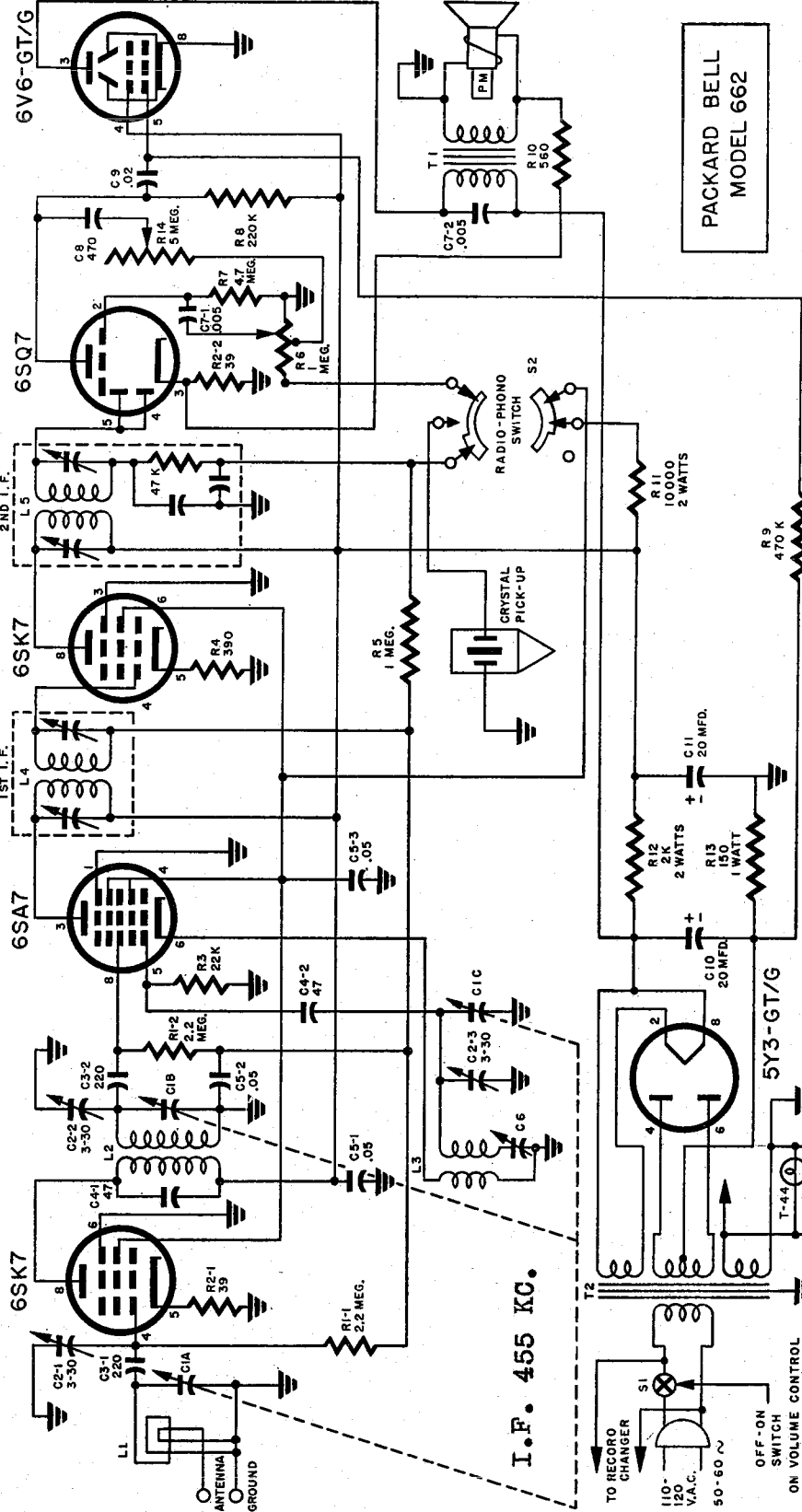
Intermediate frequency—455 Kc. I-f and r-f measurements made at 200 milliwatts output—approximately .8 volt on a rectifier type voltmeter connected across the voice coil. Dummy load for r-f—50 ufd condenser in series with generator lead, or standard alignment loop. Dummy load for i-f—.05 ufd condenser in

series with generator lead. To calibrate, set pointer vertical with gang closed. Trim osc. mixer and antenna circuits only at 1400 Kc.

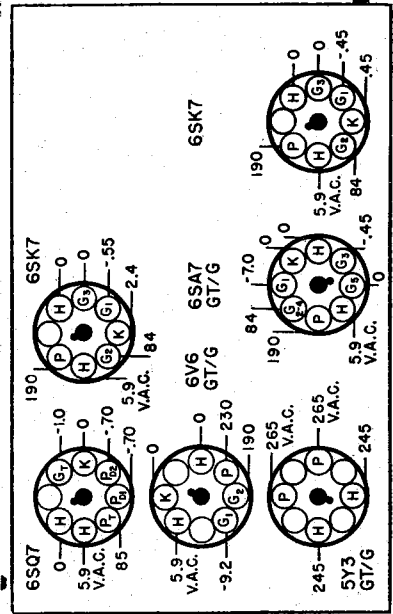
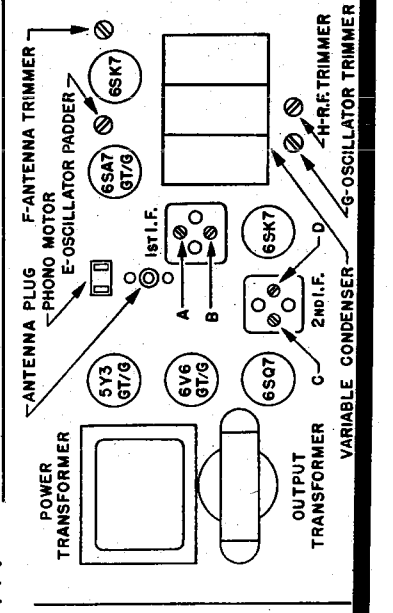
Approximate max. sensitivities for standard output: I-f—125 uv. R-f with standard loop: at 600 Kc—150 uv/m; at 1000 Kc—125 uv/m; at 1400 Kc—75 uv/m. R-f at antenna clip: at 600 Kc—25 uv; at 1000 Kc—15 uv; at 1400 Kc 15 uv.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

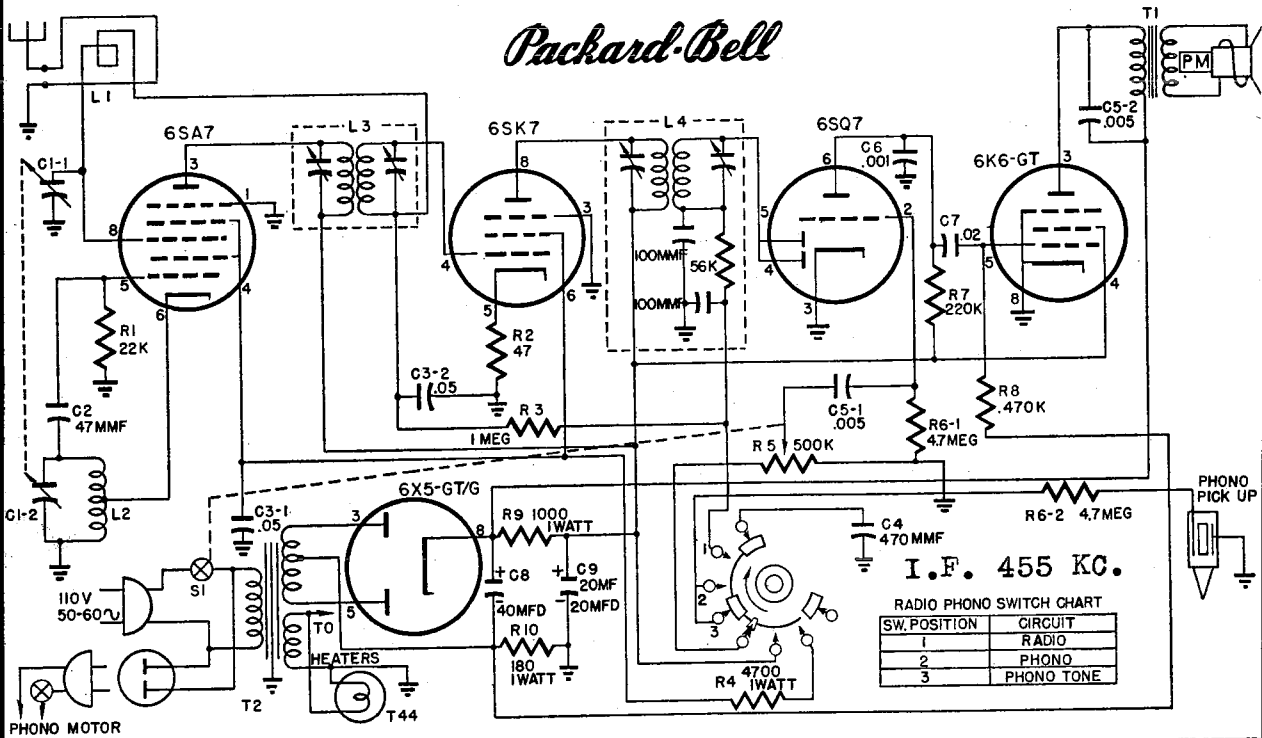


PACKARD BELL  
MODEL 662



*Packard-Bell*  
SERVICE DATA  
MODEL 662

**MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS**  
**MODEL 563 COMBINATION RADIO-PHONOGRAPH**

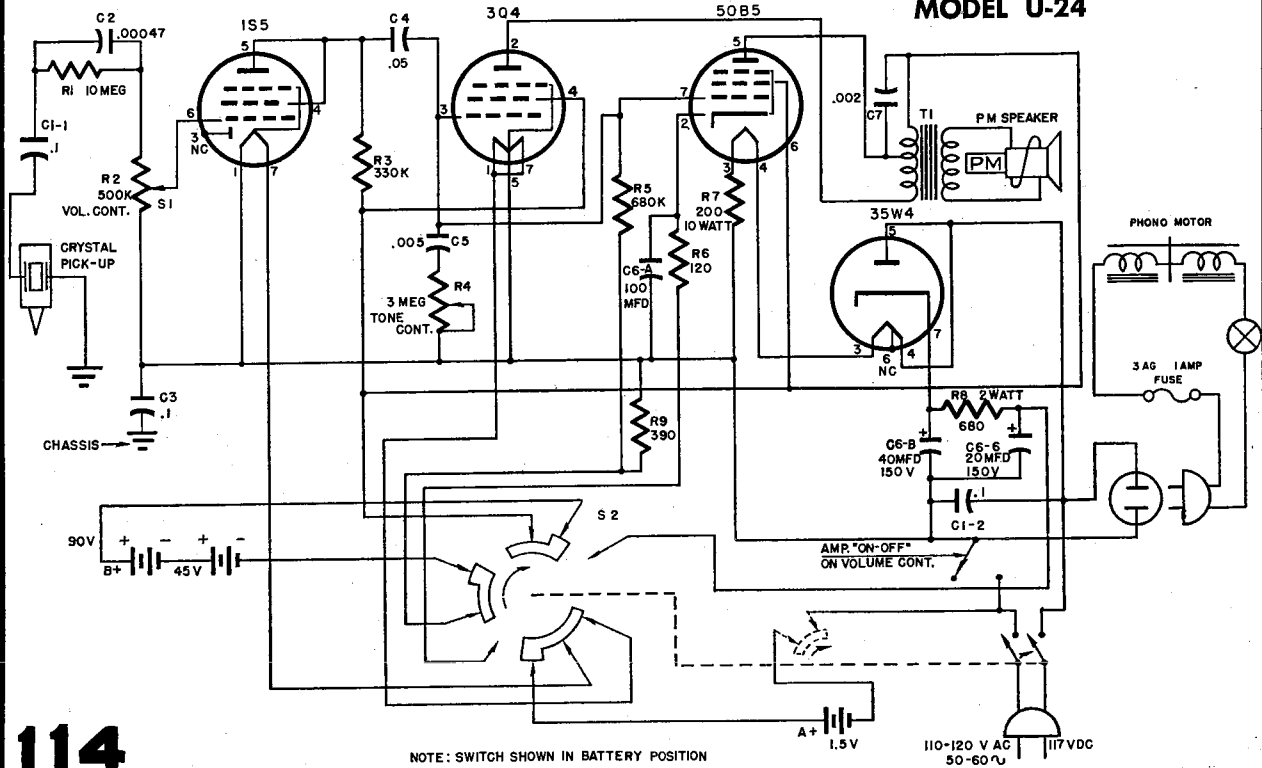


*Packard-Bell*

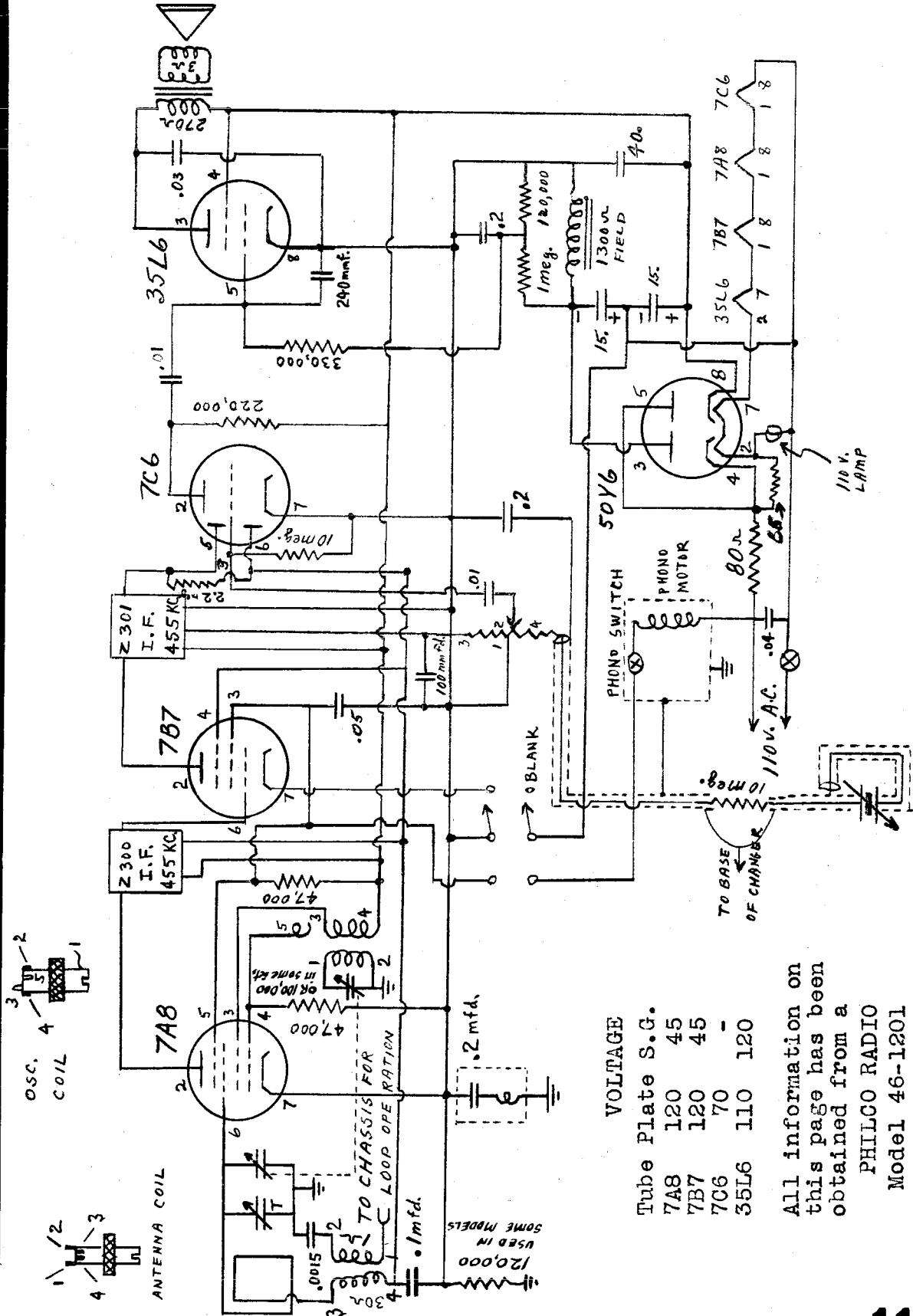
**PHONOGRAPH MODEL C-1461**

*Capitol*  
**PHONOGRAPH**  
 HOLLYWOOD

**MODEL U-24**



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



All information on this page has been obtained from a

PHILCO RADIO  
Model 46-1201



MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

# 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.

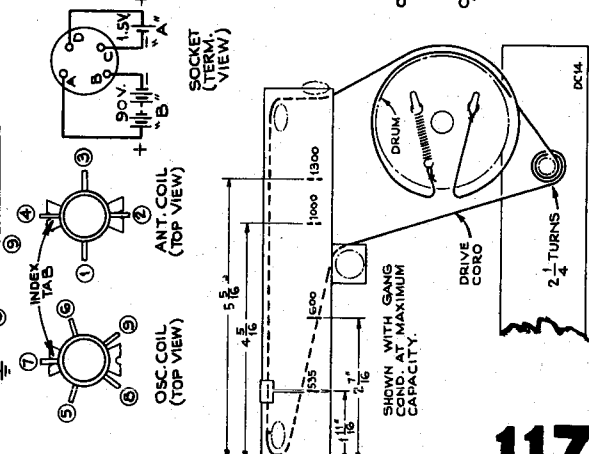
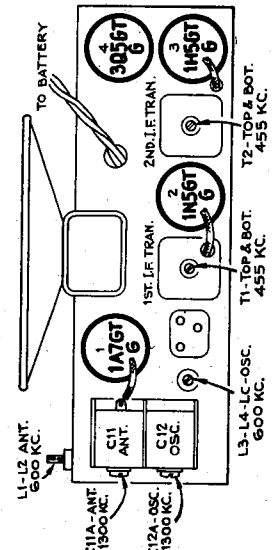
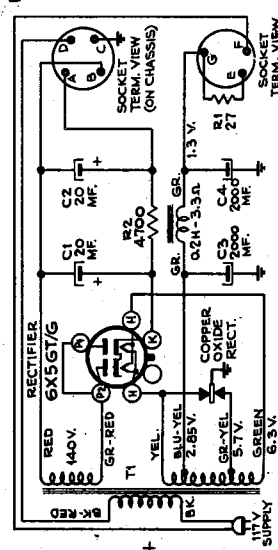
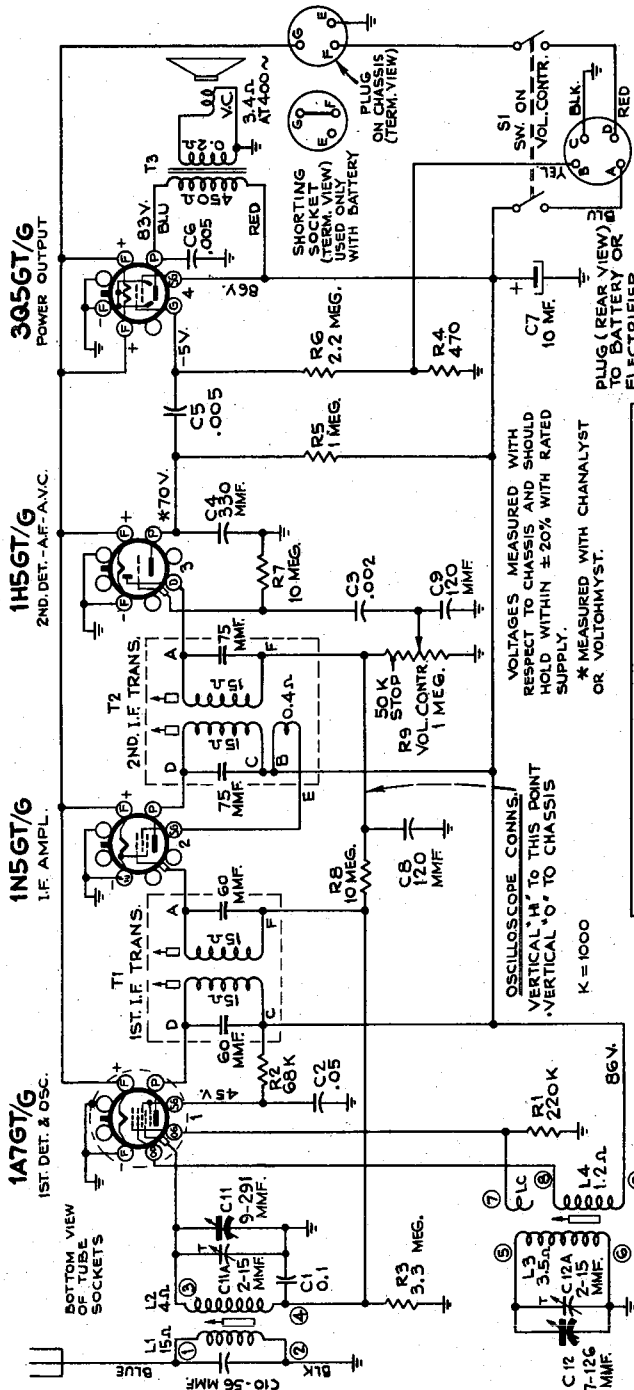
Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

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. (IN5) 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.

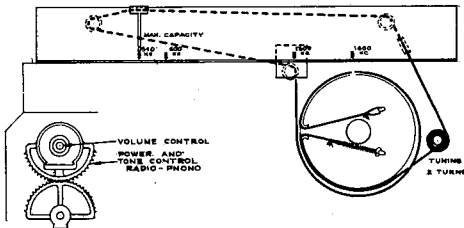


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

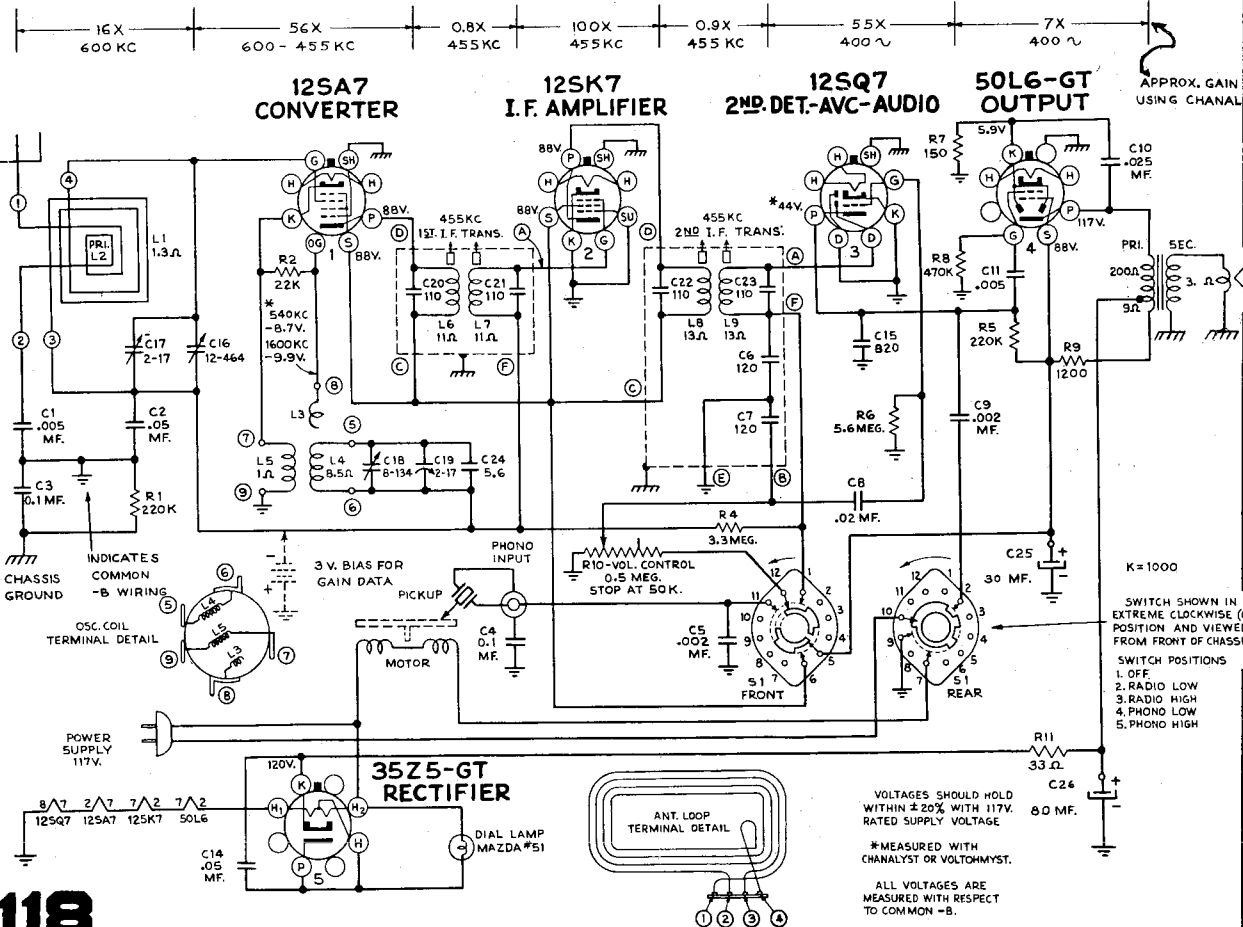
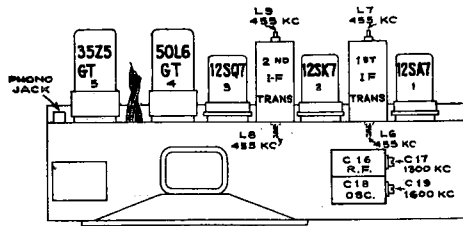
**CAUTION.**—CLOSE TUNING CONDENSER PLATES COMPLETELY (C-C-W) BEFORE REMOVING CHASSIS FROM CABINET. Take off both wooden strips on bottom of cabinet by removing wood-screws before loosening chassis bolts.

**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 *
<b>NOTE.—ANTENNA LOOP AND RECORD CHANGER MUST BE IN CABINET</b>				
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.			

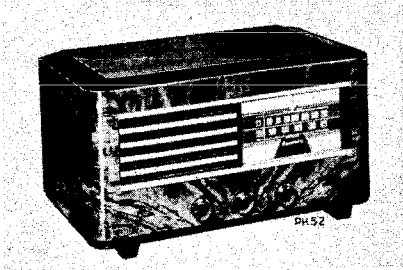
\*Do not readjust L8 or L9 when test oscillator is connected to 1st Det.



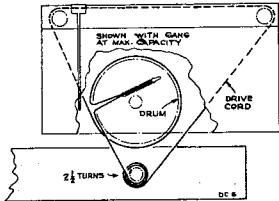
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## Radiola Model 66-1 (RC-1004E)

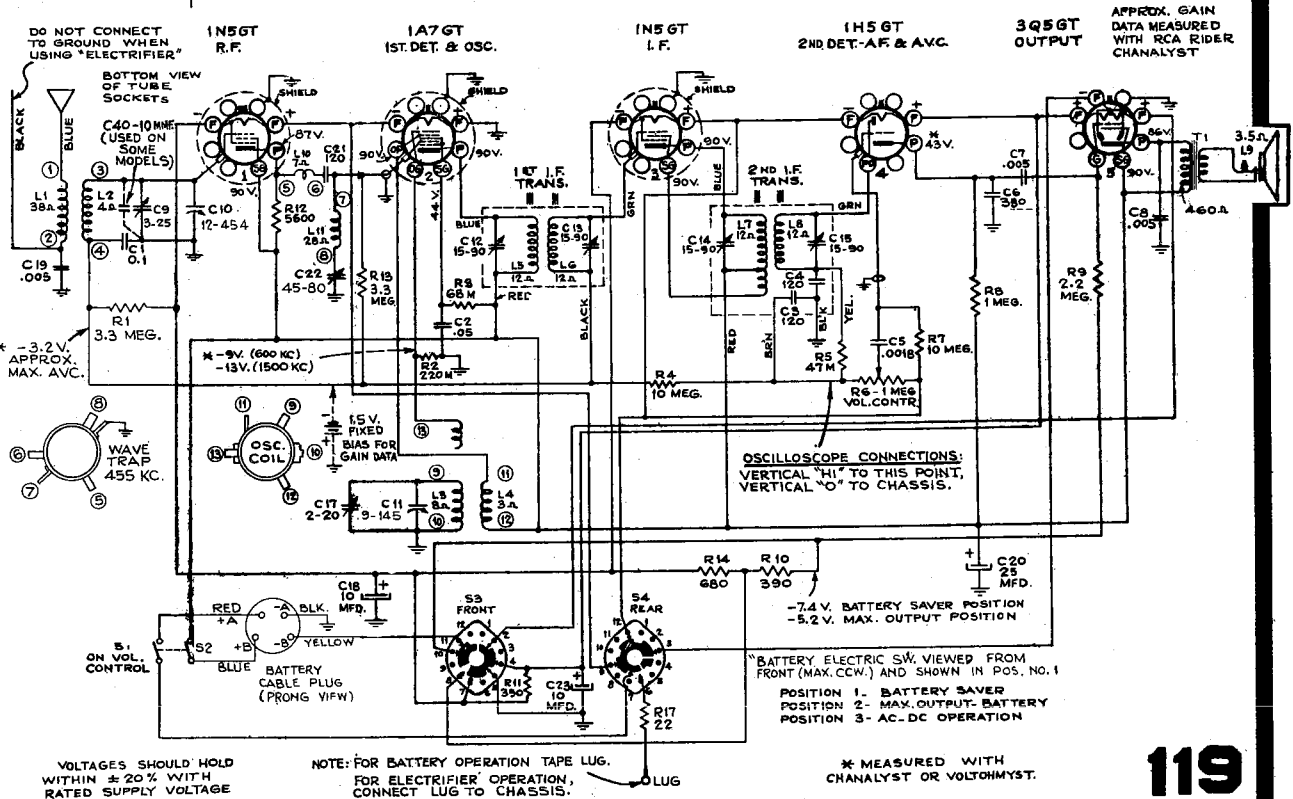
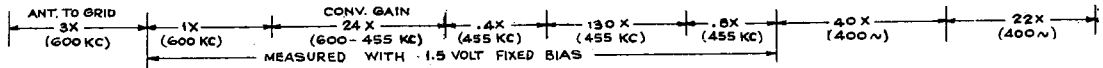
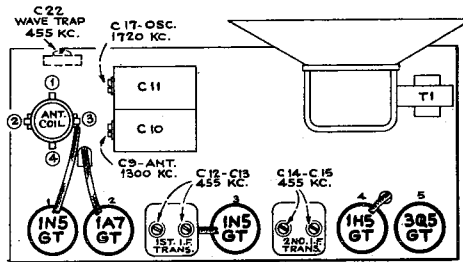
## Alignment Procedure



Model 66-1



Dial Cord Assembly



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		1,720 kc	Tuning condenser rotor plates all out	C17 (osc.)
4	Antenna terminal in series with 200 mmfd.	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 tube away from 1A7GT grid.
7. Keep green lead from second I.F. transformer short and close to ground.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 66BX PORTABLE

Chassis No. RC-1040; RC-1040A

### Alignment Procedure

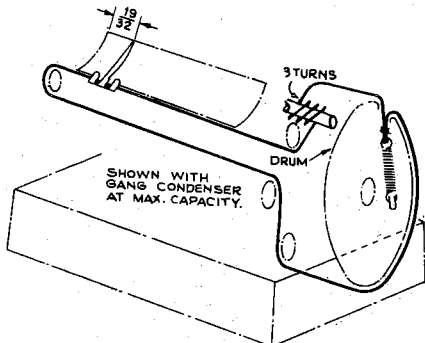
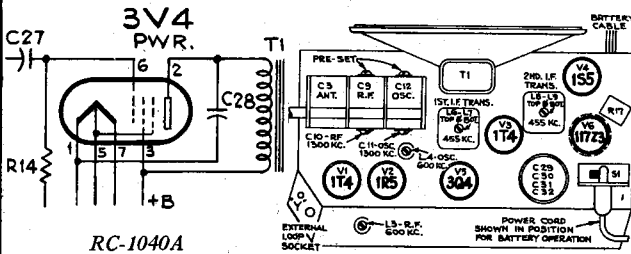
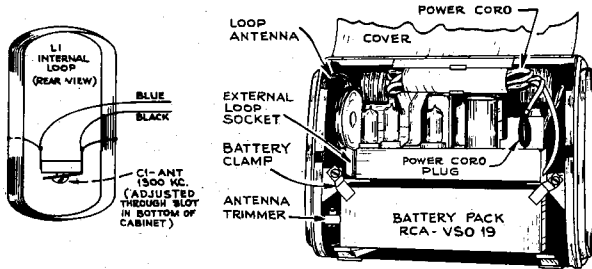
**Cathode Ray Alignment** is the preferable method. Connections for the oscilloscope are shown on the schematic diagram.

**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  $\frac{1}{4}$  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.)
**	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)

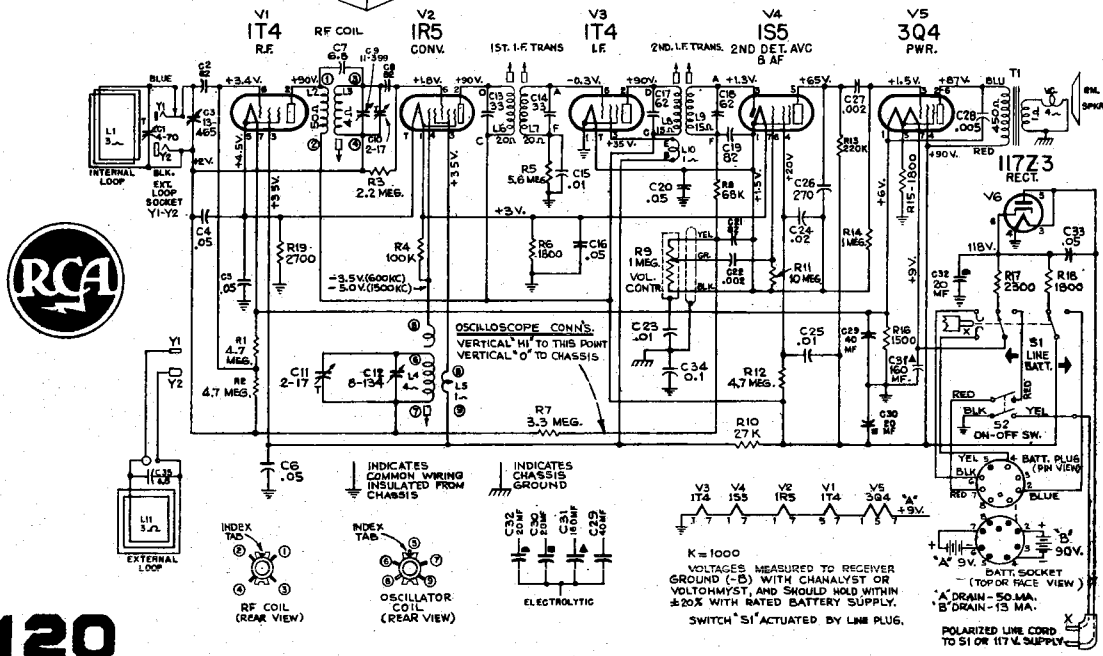
\*If two peaks are found with top slugs use the one with stud in the outer position.  
\*\*Adjust C-1 loop cap with back cover of case closed. Access to trimmer is made through small slot in case provided for cable of external loop.

### 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.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## Alignment Procedure

# RCA VICTOR

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

Chassis No. RC-1038

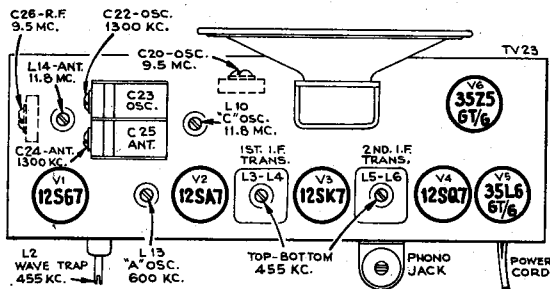
**Test Oscillator.**—Connect high side of test oscillator as shown in chart. Connect low side through a 0.1 mf. capacitor to common "B." Keep the output signal as low as possible to avoid A.V.C. action.

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

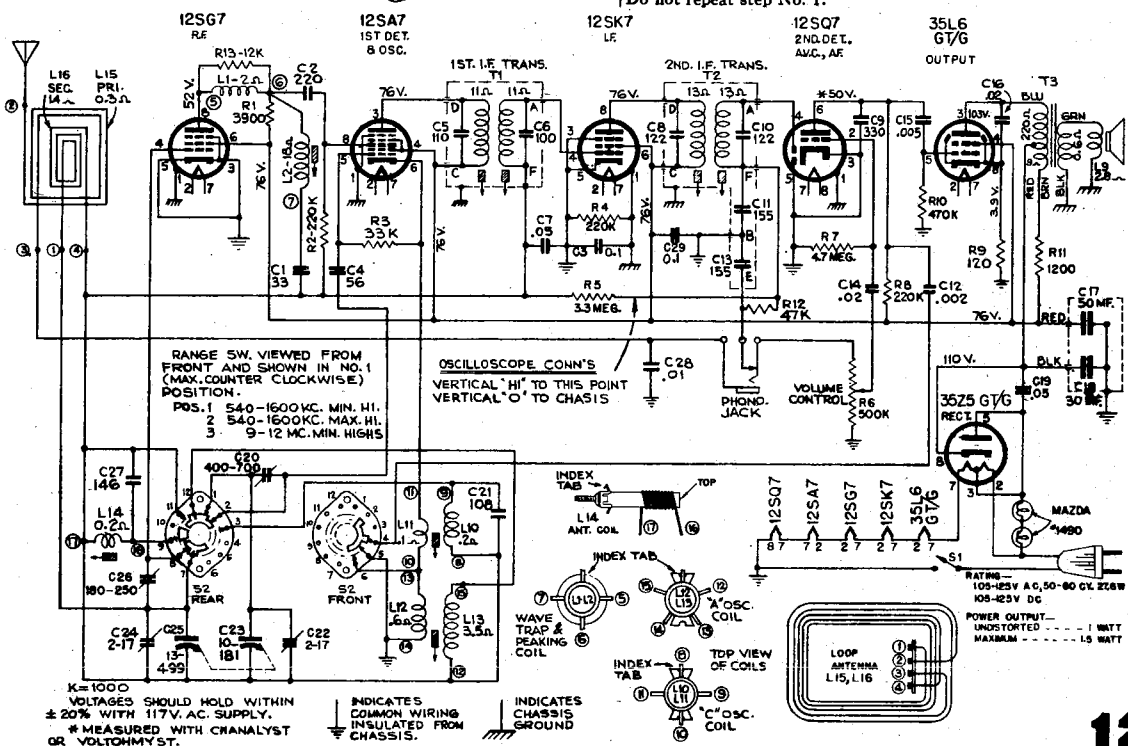


**CATHODE CURRENTS—**  
 12S67 --- 8.7 MA.  
 12SA7 --- 7.1 "  
 12SK7 --- 11.5 "  
 12SQ7 --- 15. "  
 35L6 6T/6 --- 30.9 "  
 35L6 6T/6 --- 57.5 "

SHOWN WITH GANG CONDENSER AT MAX. CAPACITY.

DRIVE CORD

2 1/2 TURNS



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

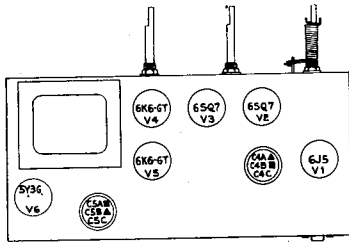
When servicing the instrument, make certain this spring is in position and serving its purpose.

### 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

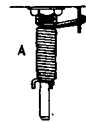
1. All leads and parts connected to the 6J5 socket should have sufficient slack to insure flexibility of socket.
2. The green lead from the center terminal of R10 volume control to terminal #2 of the 6SQ7 socket should be dressed up and away from all other leads and parts.



### 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"



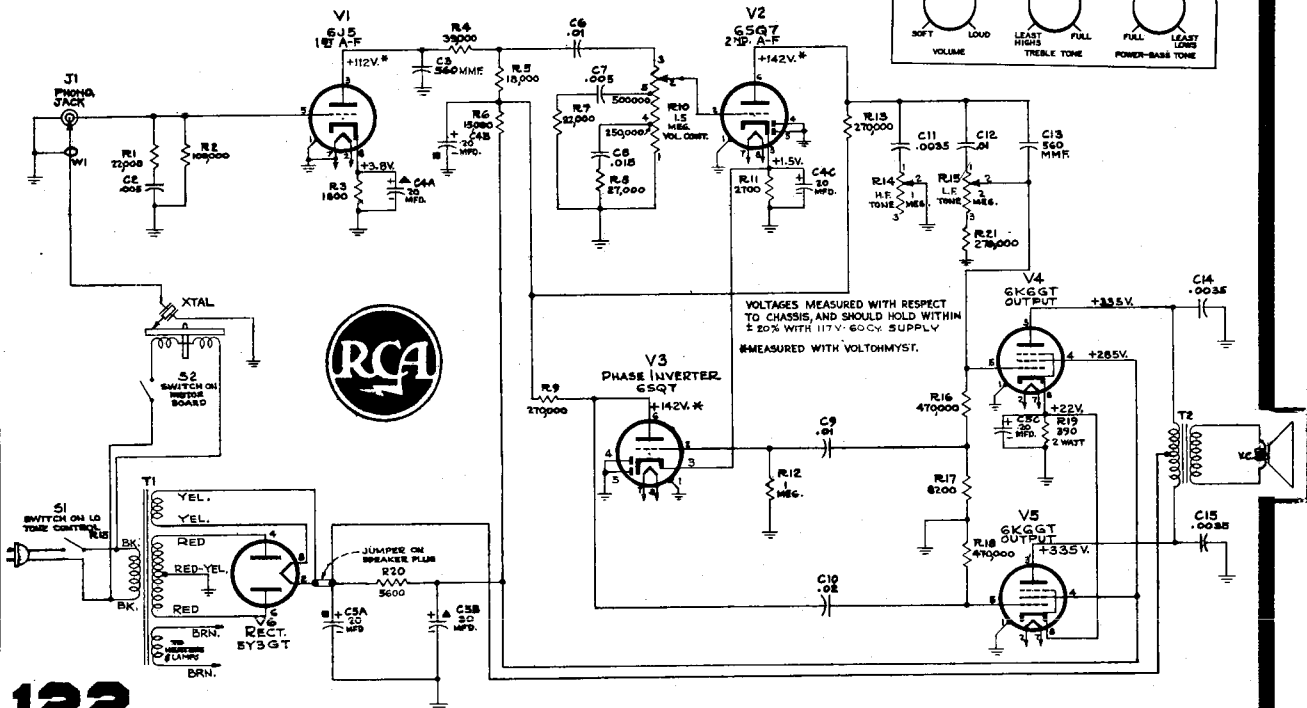
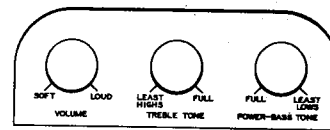
B  
ROTATE SHAFT  
APPLY FORCE TO LIGHT SPRING

- (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).

C  
APPLY FORCE TO HEAVY SPRING  
ROTATE SHAFT

- (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.



APPROX. GAIN DATA

3X 600 KC

15X 455 KC

600 - 455 KC

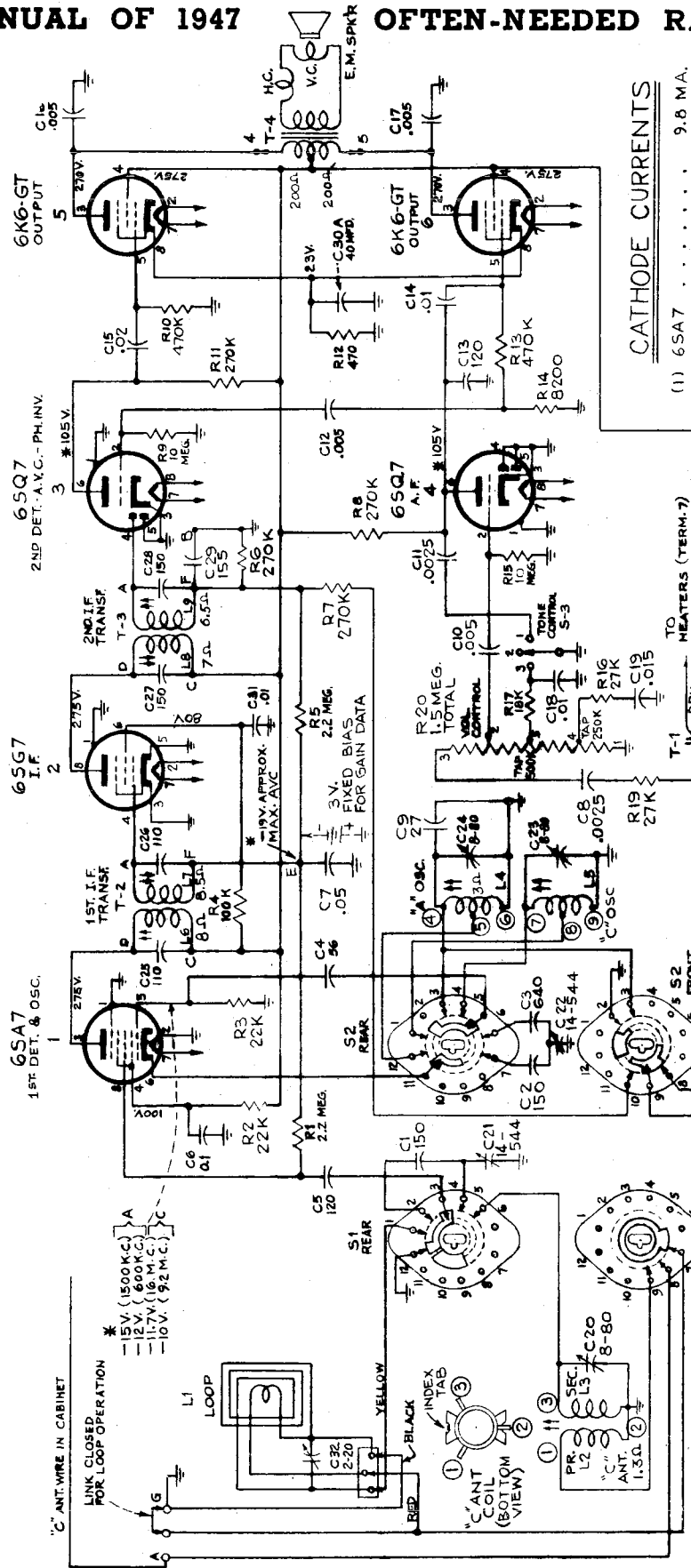
0.7X 455 KC

220X 455 KC

0.6X 455 KC

60X 400  $\sim$

9X 400  $\sim$



CATHODE CURRENTS

(1) 6SA7	9.8 MA.
(2) 65G7	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	6.9 MA.

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

RANGE SWITCH VIEWED FROM FRONT & SHOWN IN "PHONO" POSITION. (MAX. COUNTERWISE POSITION)

VOLTAGES SHOULD HOLD WITHIN  $\pm 20\%$  WITH 117V. AC. SUPPLY.

\* MEASURED WITH CHANNELYST OR VOLTOHMYST.

K=1000

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

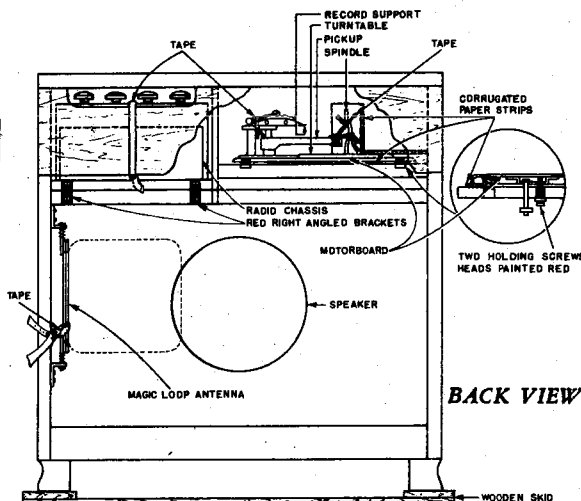
#### Using Printed Dial Scale.—

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."

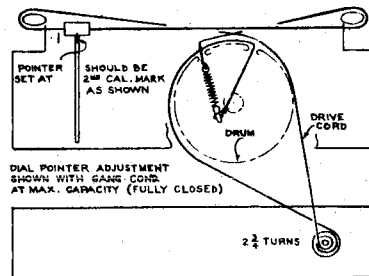
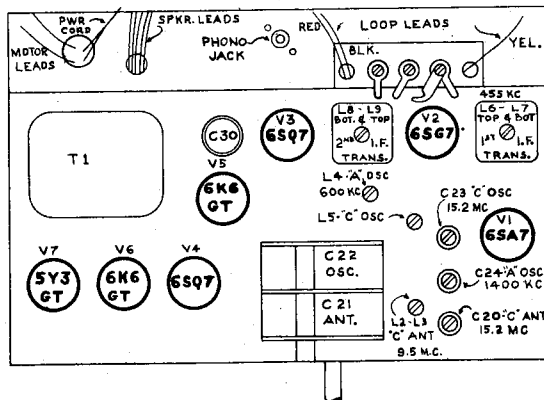


#### Critical Lead Dress:

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.

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.	600 kc.	Broadcast 600 kc.	L6, L7 (1st I-F Trans.)
3	Yellow lead on loop in series with 200 mmfd. (link closed)	1,400 kc.	Broadcast 1,400 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 1,400 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.



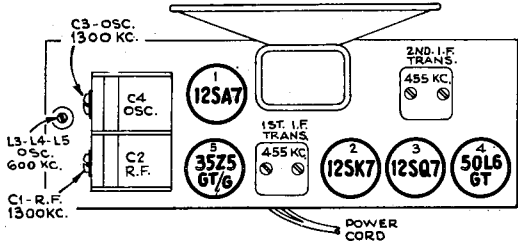
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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 volume control to maximum.

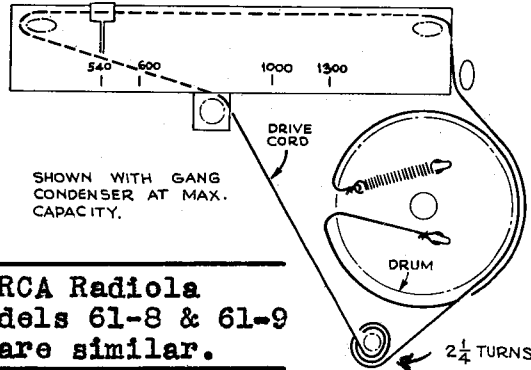
**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

**Calibration Scale.**—The 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.

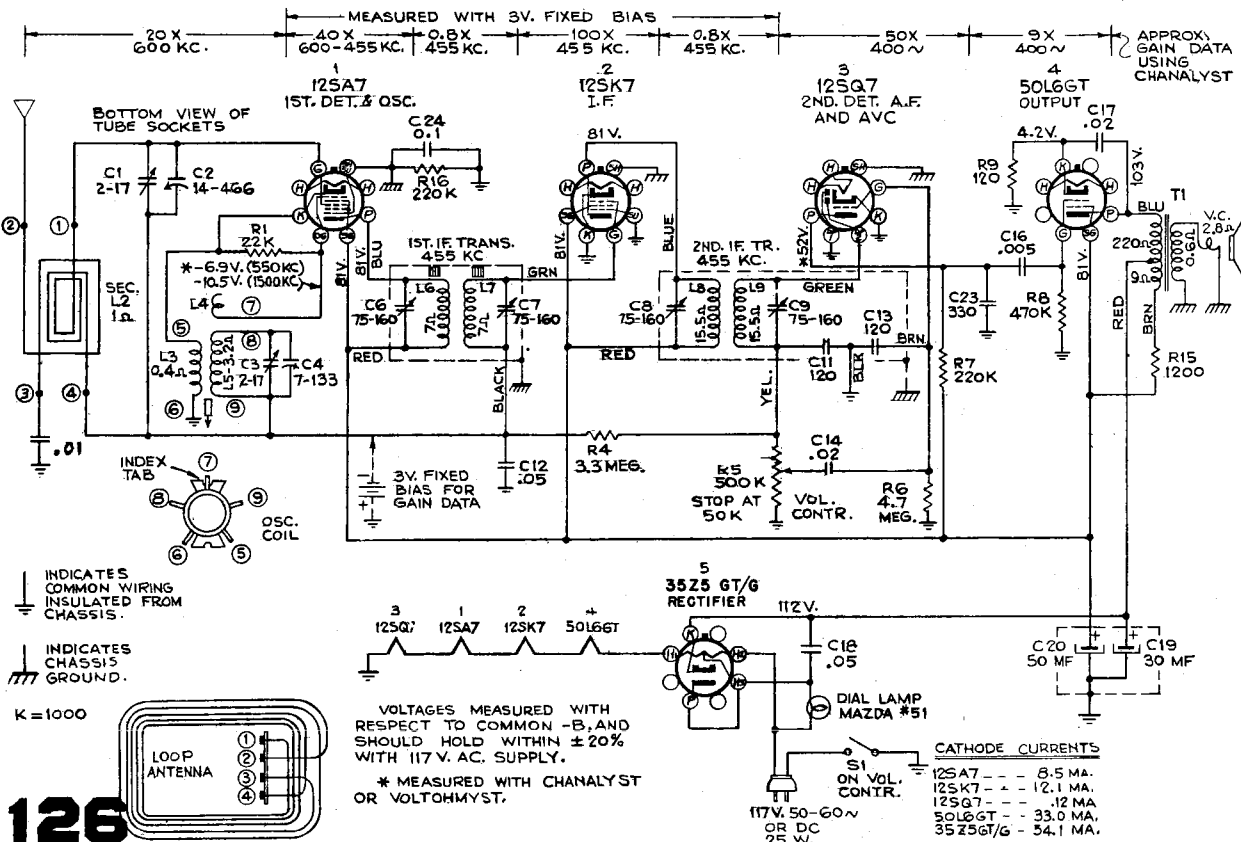
**Dial Pointer.**—With the gang condenser in full mesh the dial pointer should be set to the left hand reference mark on the dial backing plate.

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

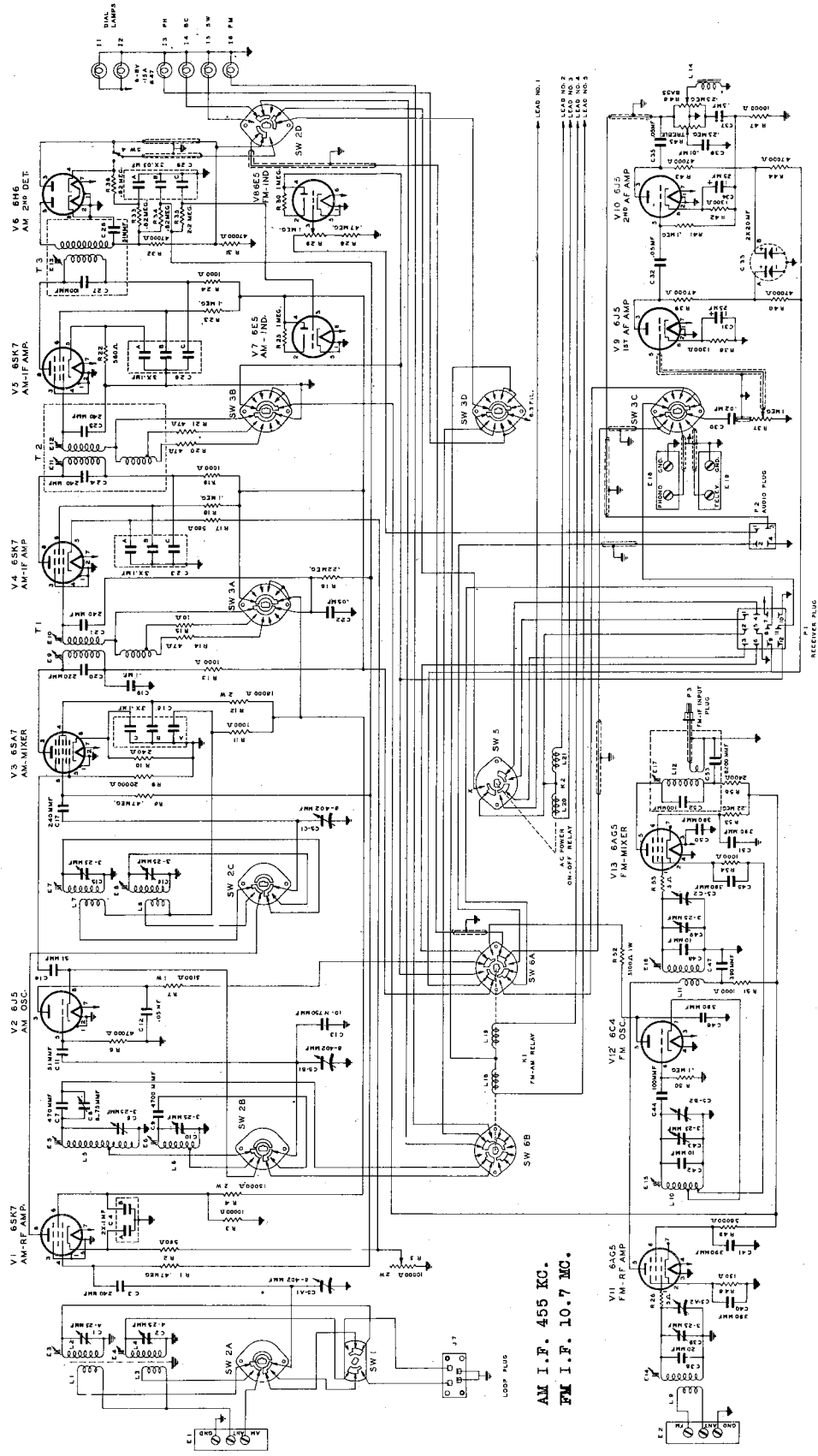


RCA Radiola  
Models 61-8 & 61-9  
are similar.

Dial-Indicator and Drive Mechanism



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



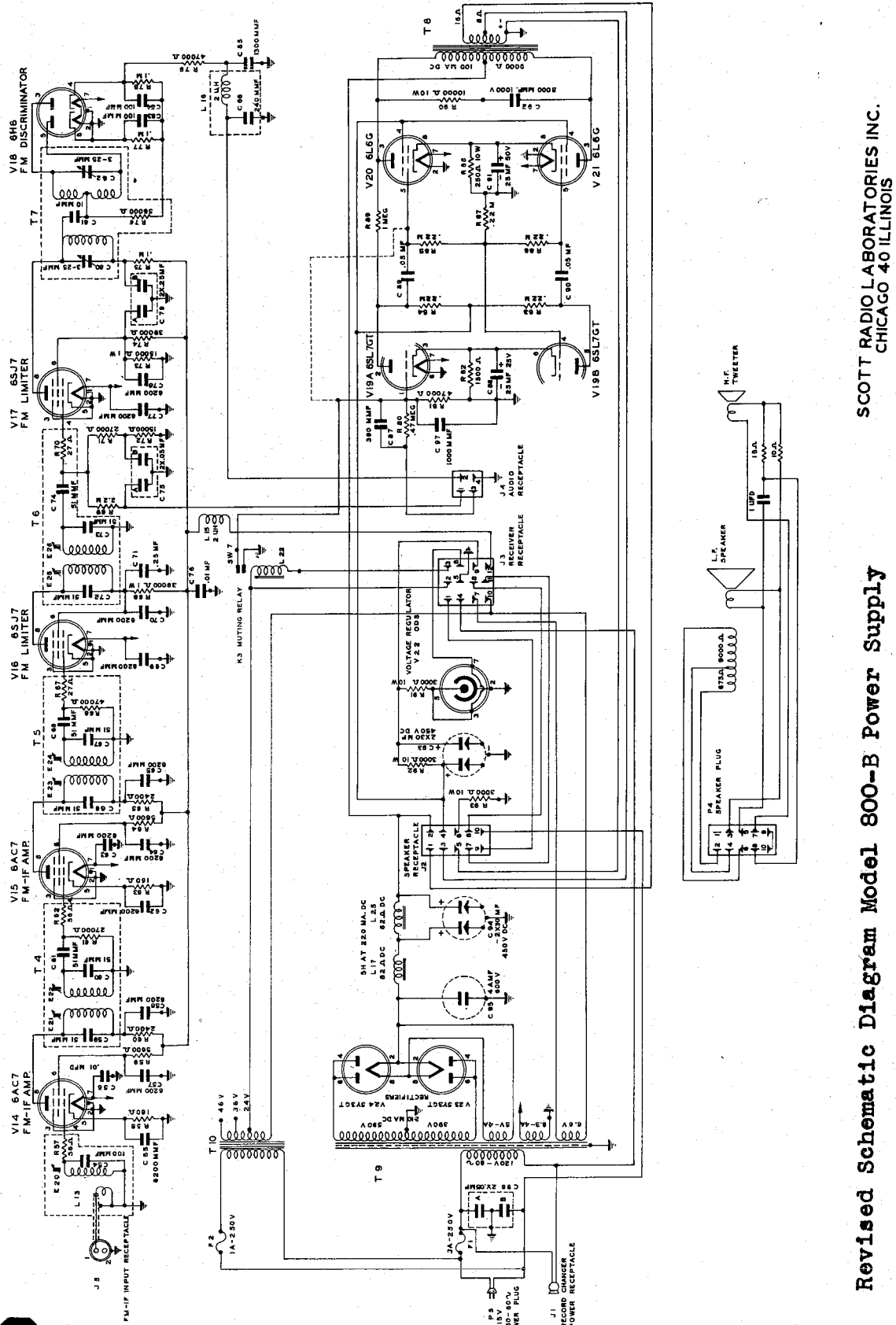
AM I.F. 455 KC.  
FM I.F. 10.7 MC.

Revised Schematic Diagram Model 800-B Receiver Chassis

SCOTT RADIO LABORATORIES INC.  
CHICAGO 40 ILLINOIS



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



SCOTT RADIO LABORATORIES INC.  
CHICAGO 40 ILLINOIS

Revised Schematic Diagram Model 800-B Power Supply





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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.

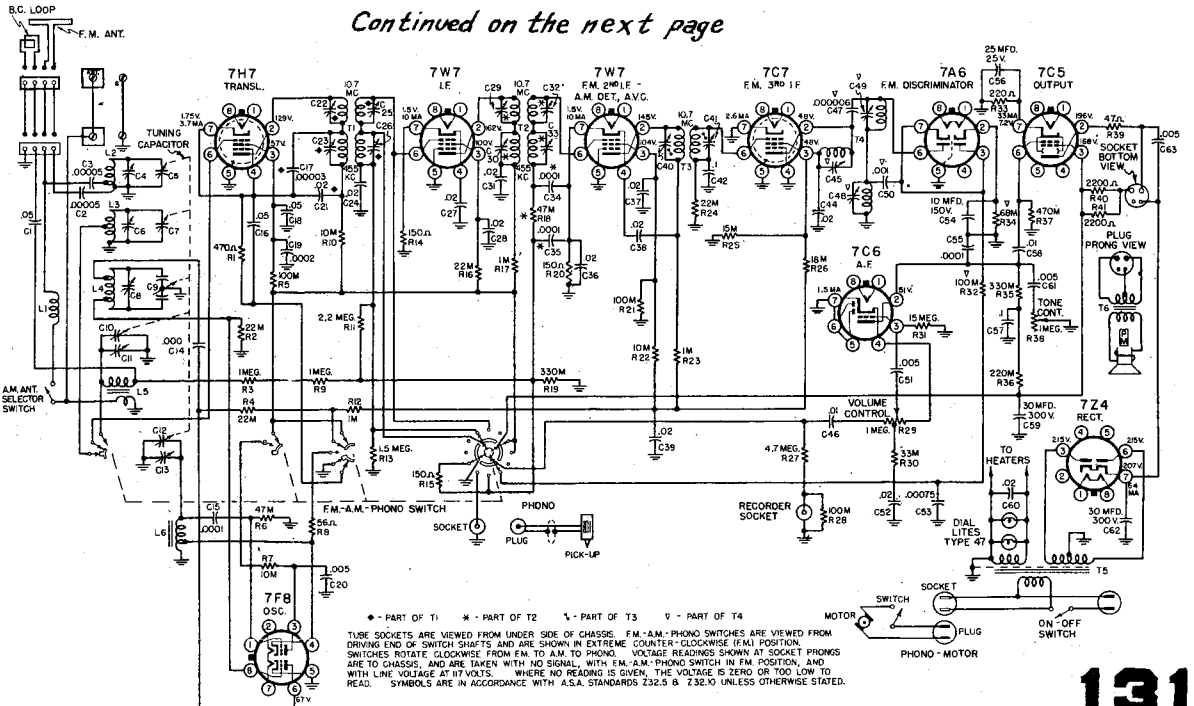
Adjust for a maximum reading on DC voltmeter. As trimmers are adjusted, decrease the output of the generator to maintain approximately 2 volts.

## 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

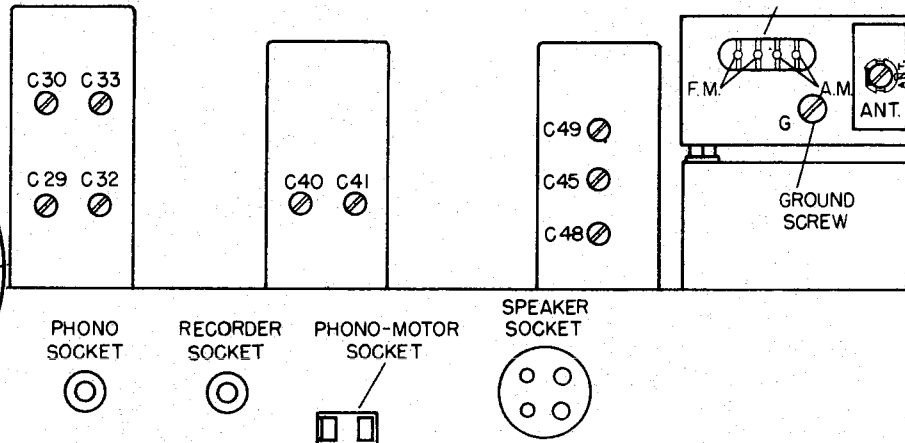
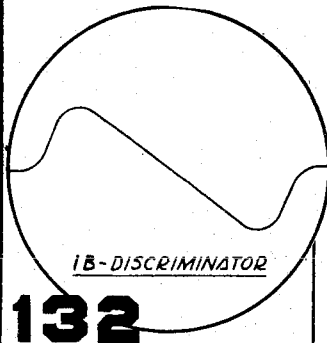
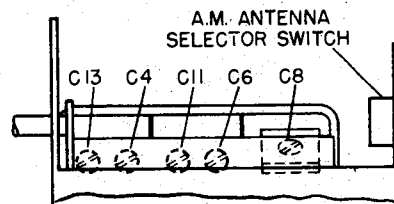
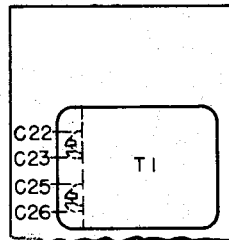
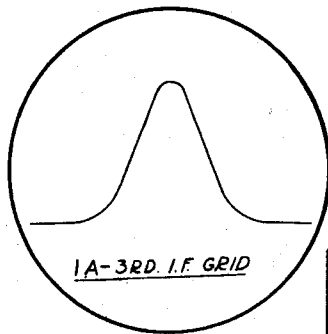


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

## FINAL F.M. ALIGNMENT

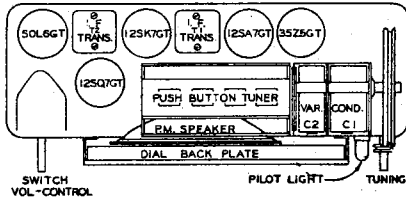
- A. If a 10.7 Mc. frequency modulated generator is available, connect to translator grid through a 270 to 500 ohm resistor and proceed to Section C.
- B. If no 10.7 Mc. frequency modulated generator is available, connect an R.F. - F.M. generator to the F.M. antenna terminals.
- C. Connect 5000 ohms (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.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

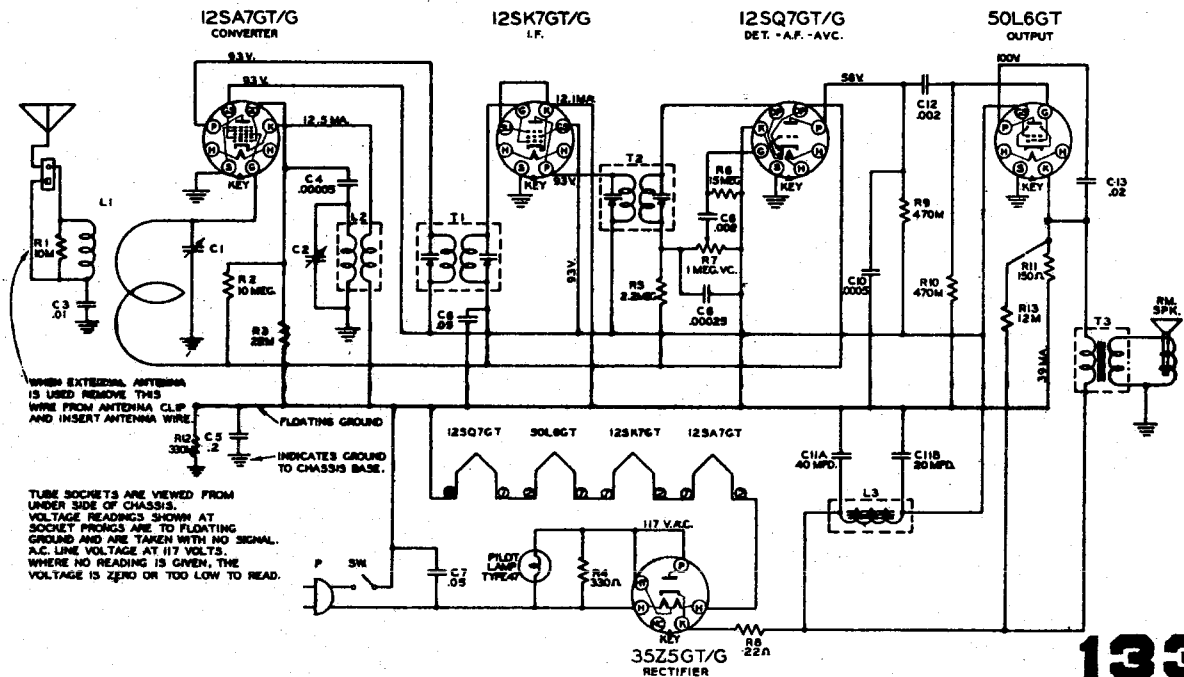
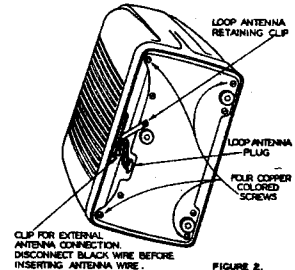
### ALIGNMENT DATA

Position of Variable	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.

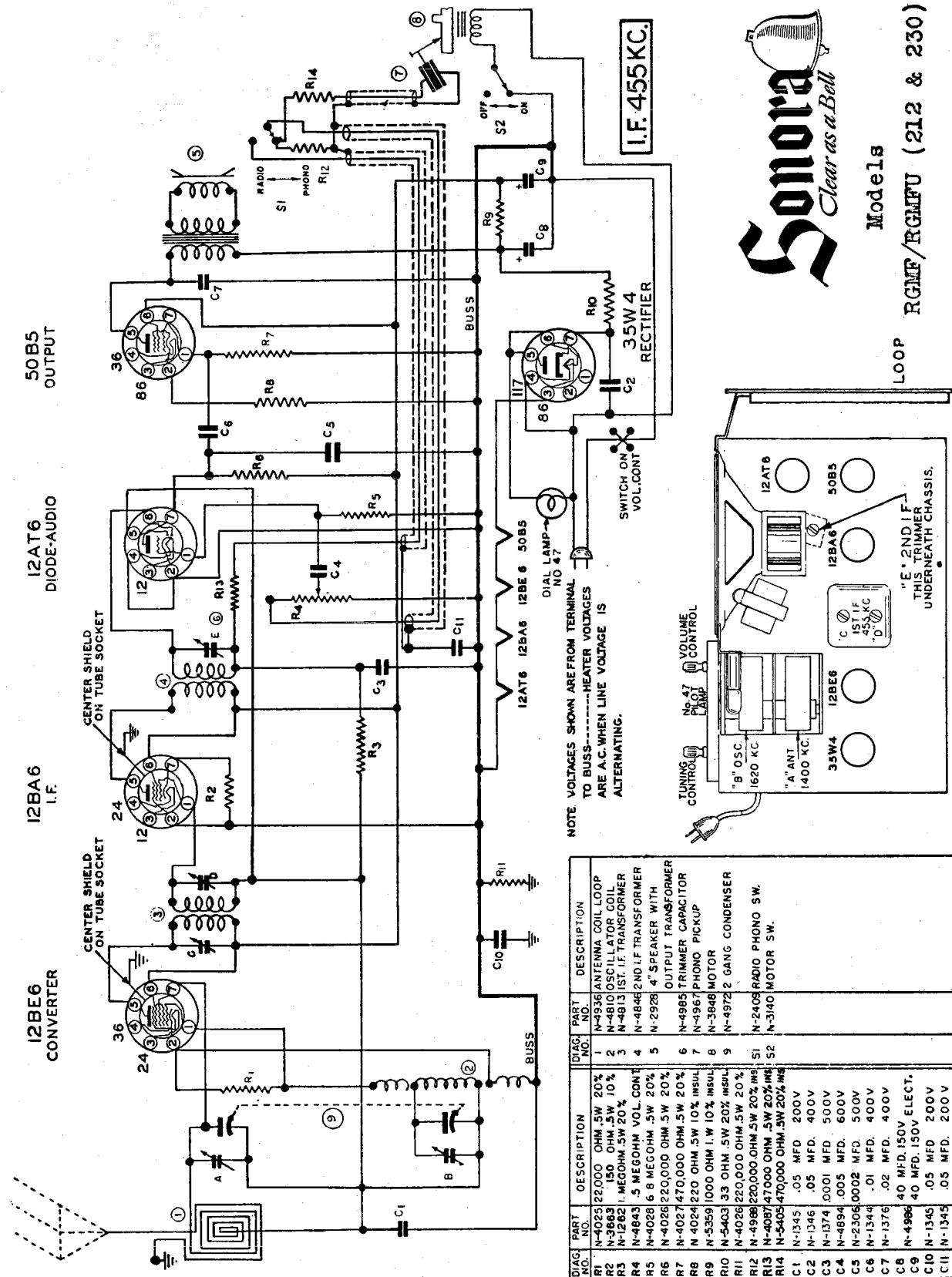
**TO RESET POINTER:** With the receiver tuned to a 1400 Kc signal, attach pointer to dial cord so as to align with inverted "V" notch on lower ledge of dial backing plate.

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.*



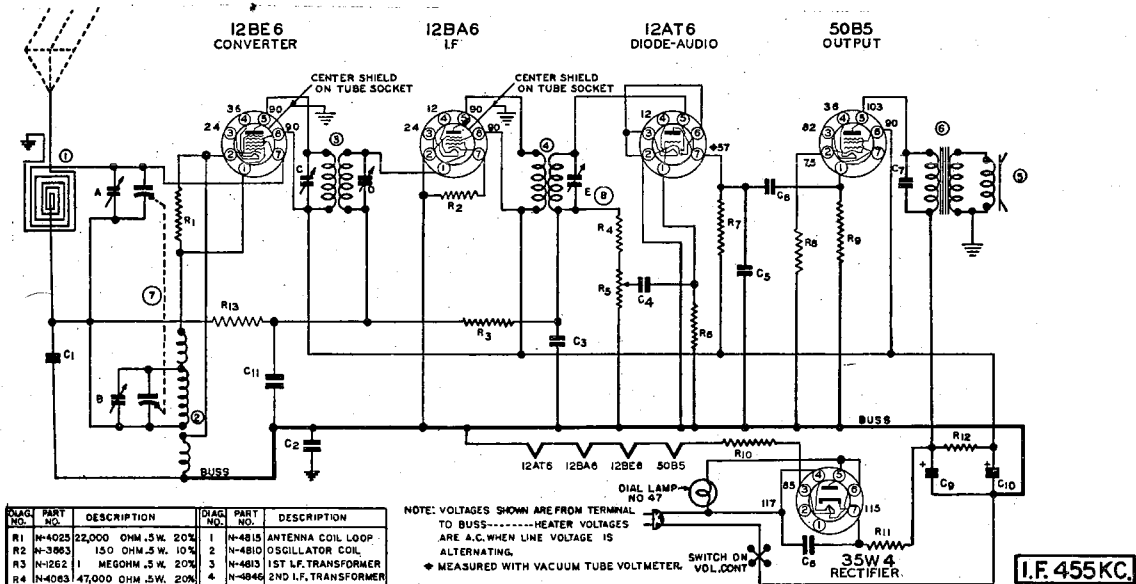
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



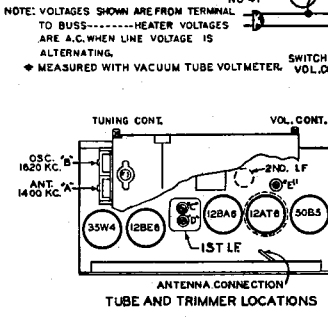
**Sonora**  
*Clear as a Bell*  
**Models**  
 RGMF/RGMFU (212 & 230)

DIAG. PART NO.	DESCRIPTION	DIAG. PART NO.	DESCRIPTION
R1	N-4025 22000 OHM .5W 20%	1	N-4936 ANTENNA COIL LOOP
R2	N-3929 100 OHM .5W 10%	2	N-4810 OSCILLATOR COIL
R3	N-1282 1 MEG OHM .5W 20%	3	N-4813 1ST I.F. TRANSFORMER
R4	N-4843 .5 MEG OHM VOL. CONT.	4	N-4846 2ND I.F. TRANSFORMER
R5	N-4028 6.8 MEG OHM .5W 20%	5	N-2928 4" SPEAKER WITH OUTPUT TRANSFORMER
R6	N-4027 470,000 OHM .5W 20%	6	N-4985 TRIMMER CAPACITOR
R7	N-4026 220,000 OHM .5W 20%	7	N-4967 PHONO PICKUP
R8	N-4024 220 OHM .5W 10% INSUL.	8	N-3848 MOTOR
R9	N-5359 1000 OHM 1/2W 10% INSUL.	9	N-4972 2 GANG CONDENSER
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 47,000 OHM .5W 20% INS.	S1	N-2408 RADIO PHONO SW.
R14	N-5405 470,000 OHM .5W 20% INS.	S2	N-3140 MOTOR SW.
C1	N-1345 .05 MFD 200V		
C2	N-1346 .05 MFD 400V		
C3	N-1374 .001 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	N-1345 .05 MFD 200V		
C10	N-1345 .05 MFD 200V		
C11	N-1345 .05 MFD 200V		

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

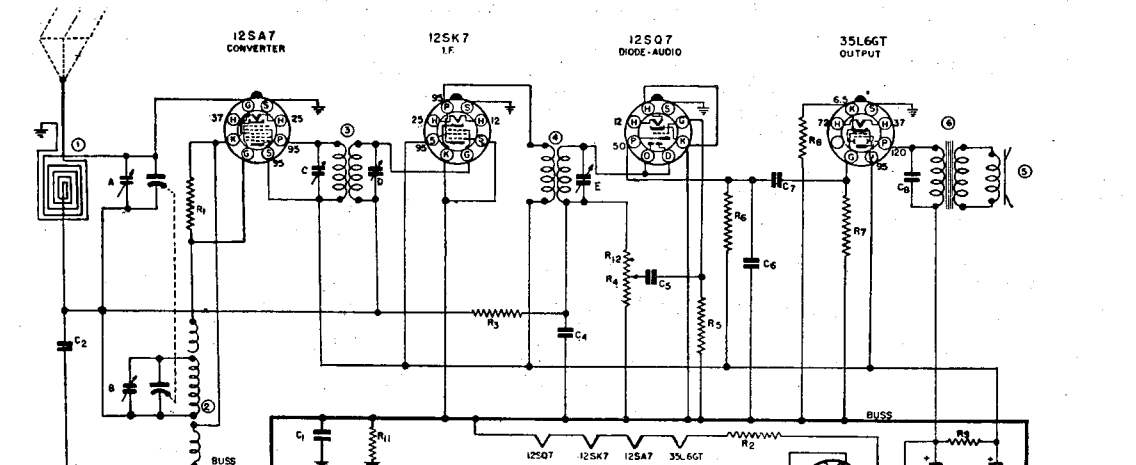


DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
R1	N-4025	22,000 OHM .5 W. 20%	1	N-4815	ANTENNA COIL LOOP
R2	N-3963	150 OHM .5 W. 10%	2	N-4810	OSCILLATOR COIL
R3	N-1262	1 MEG OHM .5 W. 20%	3	N-4813	1ST I.F. TRANSFORMER
R4	N-4063	47,000 OHM .5 W. 20%	4	N-4846	2ND I.F. TRANSFORMER
R5	N-4843	.5 MEG OHM VOL. CONT.	5	N-4316	4" SPEAKER
R6	N-4026	6.8 MEG OHM .5 W. 20%	6	N-3890	OUTPUT TRANSFORMER
R7	N-1028	220,000 OHM .5 W. 20%	7	N-4812	2 GANG CONDENSER
R8	N-1633	220 OHM .5 W. 10%	8	N-4046	TRIMMER
R9	N-4027	470,000 OHM .5 W. 20%			
R10	N-3831	22 OHM 1 W. 10%			
R11	N-4022	33 OHM .5 W. 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-4994	.005 MFD. 600 V.			
C5	N-4990	.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	N-1344	.01 MFD. 400 V.			

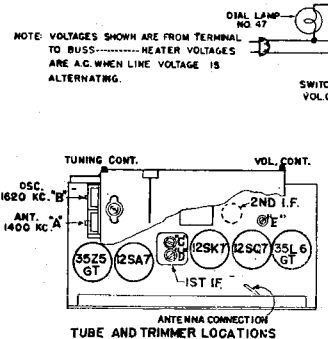


Sonora Radio & Television  
Models REM/RBMU

RBMU



DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
R-1	N-4025	22,000 OHM .5 W. 20%	1	N-4815	ANTENNA COIL LOOP
R-2	N-4023	82 OHM 2 W. 10%	2	N-4810	OSCILLATOR COIL
R-3	N-1262	1 MEG OHM .5 W. 20%	3	N-4813	1ST I.F. TRANSFORMER
R-4	N-4843	.5 MEG OHM VOL. CONT.	4	N-4846	2ND I.F. TRANSFORMER
R-5	N-4026	6.8 MEG OHM .5 W. 20%	5	N-4316	4" SPEAKER
R-6	N-4026	220,000 OHM .5 W. 20%	6	N-3899	OUTPUT TRANSFORMER
R-7	N-1028	220,000 OHM .5 W. 20%			
R-8	N-4027	470,000 OHM .5 W. 20%			
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%			
R-12		(IN VOLUME CONTROL)			
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-7212	.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	N-1344	.01 MFD. 400 V.			

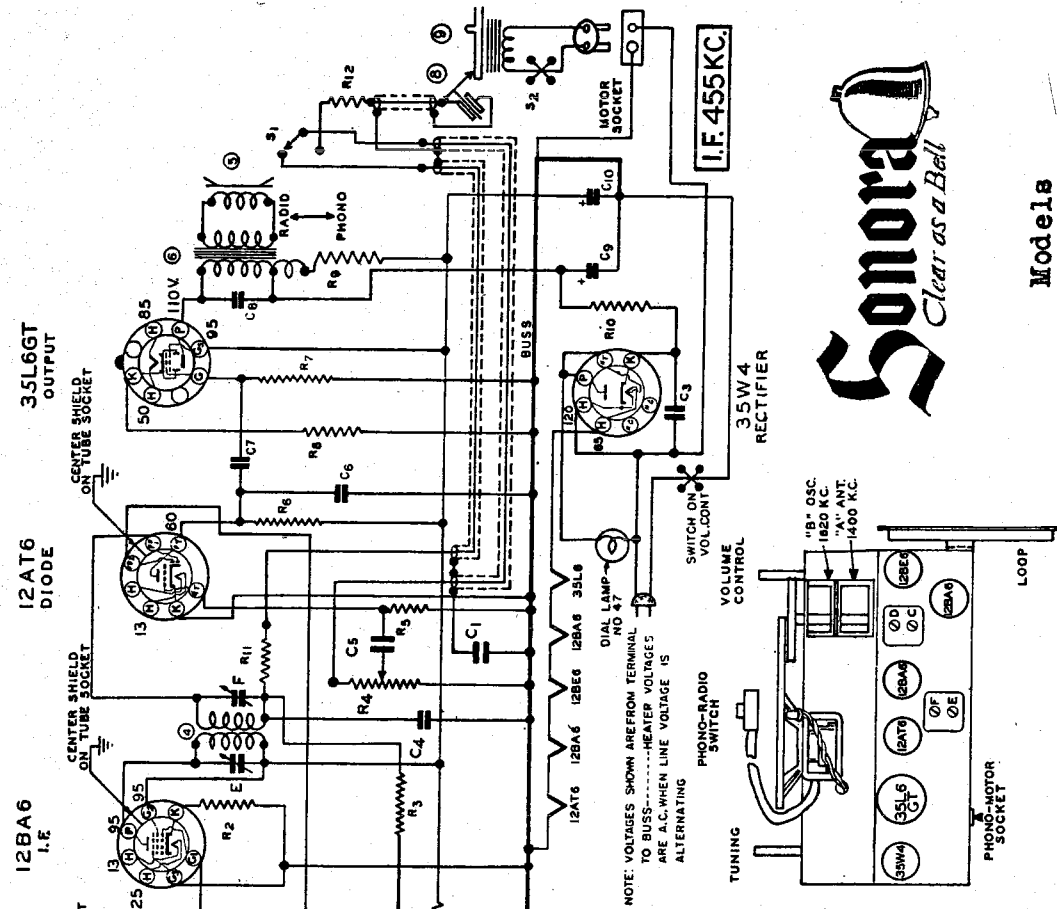


Sonora Radio & Television  
Model RBU





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



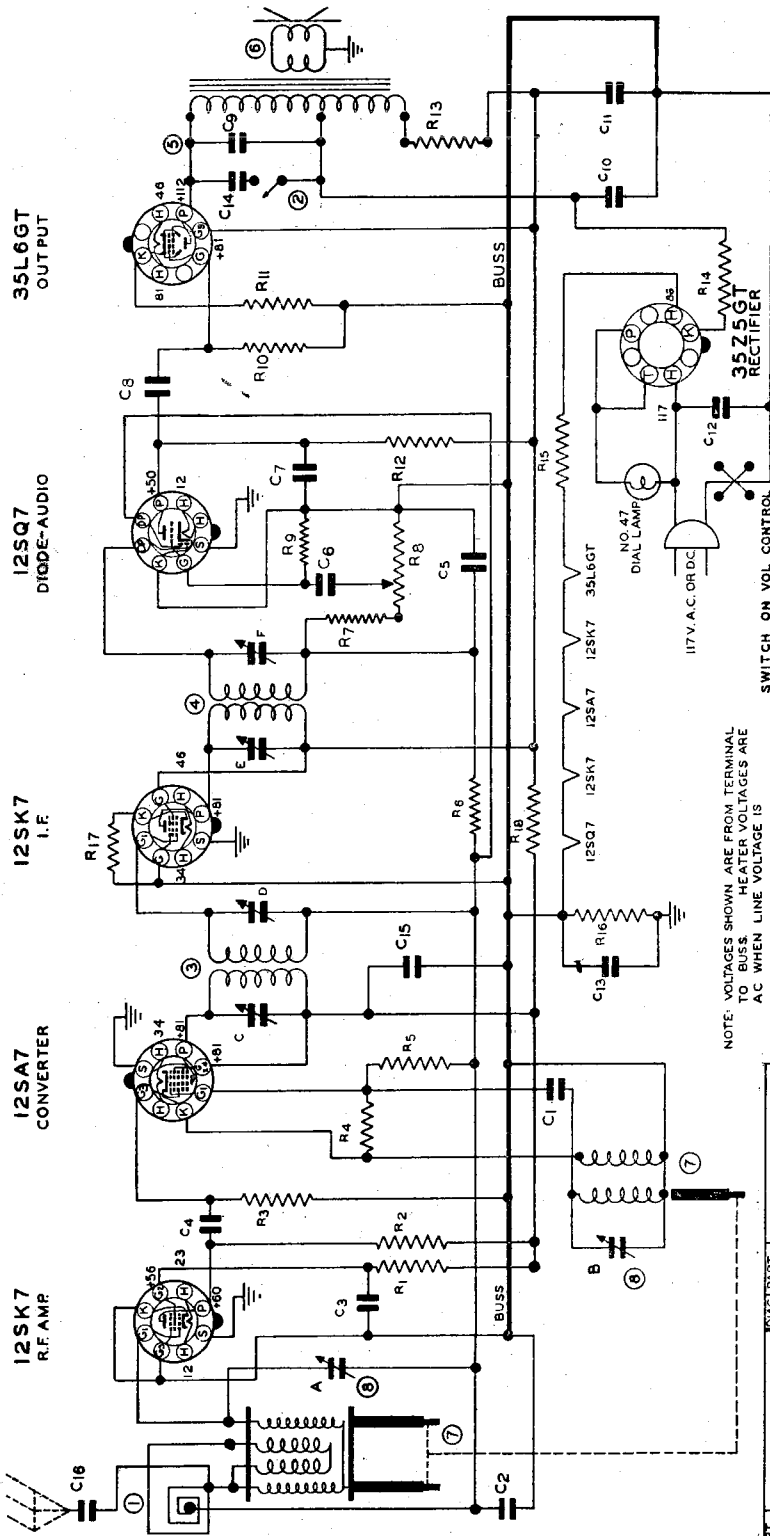
**Sonora**  
*Clear as a Bell*

Models  
RKR/RKRU (215)

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
R1 N-4023	22,000 OHM .5 W. 20%	C7 N-1344	.01 MFD 400V
R2 N-3683	150 OHM .5 W. 10%	C8 N-1378	.02 MFD 400V
R3 N-4062	.33 MEGOHM .5 W. 20%	C9 N-3031	40 MFD 150V. ELECT.
R4 N-4078	.5 MEGOHM VOL. CONT.	C10	40 MFD 150V.
R5 N-4028	68 MEGOHM .5 W. 20%	C11 N-5180	2 MFD 200V
R6 N-4029	250,000 OHM .5 W. 20%	C12 N-1344	.01 MFD 400V
R7 N-4027	470,000 OHM .5 W. 20%	C13 N-1345	.05 MFD 200V
R8 N-3356	100 OHM .5 W. 10%	C14 N-2393	00015 MFD MICA
R9 N-3356	100 OHM .5 W. 10%	C15 N-1351	.1 MFD 200V
R10 N-4022	33 OHM .5 W. 20%		
R11 N-4025	47,000 OHM .5 W. 20%		
R12 N-1262	1 MEGOHM .5 W. 20%		
R13 N-4065	47,000 OHM .5 W. 20%		
R14 N-4065	100 MEGOHM .5 W. 20%		
R15 N-1015	100 OHM .5 W. 10%		
R16 N-4079	4700 OHM .5 W. 10%		
R17 N-4025	22,000 OHM .5 W. 20%		
R18 N-3346	220 OHM .5 W. 20%		
C1 N-4087	.08 MFD 200V.		
C2 N-1345	.05 MFD 400V.		
C3 N-3346	.001 MFD MICA		
C4 N-4854	600 MFD		
C5 N-4850	.0005 MFD		

PART NO.	DESCRIPTION
C7 N-1344	.01 MFD 400V
C8 N-1378	.02 MFD 400V
C9 N-3031	40 MFD 150V. ELECT.
C10	40 MFD 150V.
C11 N-5180	2 MFD 200V
C12 N-1344	.01 MFD 400V
C13 N-1345	.05 MFD 200V
C14 N-2393	00015 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-5778	2ND I.F. COIL
5 N-4867	4" P.M. SPEAKER
6 N-4875	OUTPUT TRANSFORMER
7 N-4812	2 GANG CAPACITOR
8 N-4865	RECORD CHANGER
31 N-2408	RADIO-PHONO SWITCH
52	MOTOR SW. ON CHANGER

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

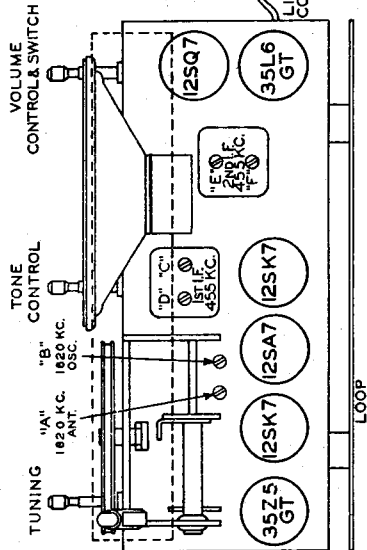


NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS. HEATER VOLTAGES ARE AC WHEN LINE VOLTAGE IS ALTERNATING.

I.F. 455 K.C.

**Sonora**  
Clear as a Bell

Model 18  
RQ/RQU (222)

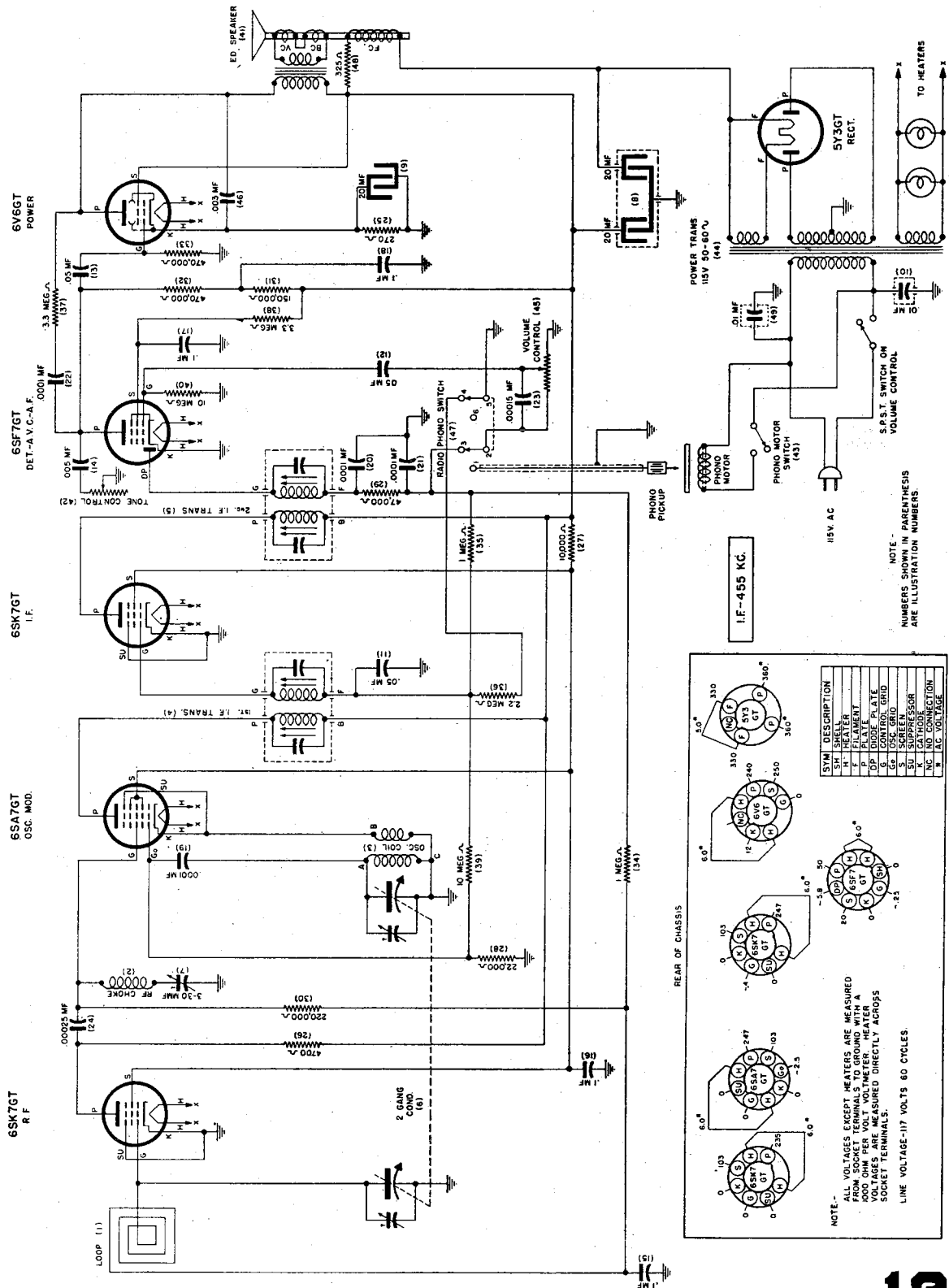


TUBE & TRIMMER LOCATIONS

DIAG. PART NO.	DESCRIPTION	DIAG. PART NO.	DESCRIPTION
C1	50 MMFD MICA	N-4082	3.3 MEGOHM .5W. 20%
C2	.05 MFD 200V	N-4083	47,000 OHM .5W. 20%
C3	.05 MFD 200V	N-5026	0.5 MEGOHM VOL. CONT.
C4	100 MMFD MICA	N-4061	47 MEGOHM .5W. 20%
C5	100 MMFD MICA	N-4027	470,000 OHM .5W. 20%
C6	N-4894	N-4067	180 OHM .5W. 10%
C7	N-4890	N-4988	220,000 OHM .5W. INS. 20%
C8	N-1344	N-5623	1500 OHM 1W. 10%
C9	N-1344	N-4022	33 OHM .5W. 20%
C10	N-3658	N-4628	33 OHM 1W. 10%
C11	N-1348	N-4026	220,000 OHM .5W. 20%
C12	N-5160	N-4022	33 OHM .5W. 20%
C13	N-1346	N-4066	470 OHM .5W. 10%
C14	N-1351		
C15	N-1351		
C16	N-1342		
R1	N-5351	N-5374	LOOP COIL
R2	N-4278	N-4942	1ST I.F. TRANSFORMER
R3	N-4087	N-3571	2ND I.F. TRANSFORMER
R4	N-5351	N-4875	OUTPUT TRANSFORMER
R5	N-5324	N-4886	"S" SPEAKER
		N-5640	PERMEABILITY TUNER
		N-5552	2 SECTION TRIMMER

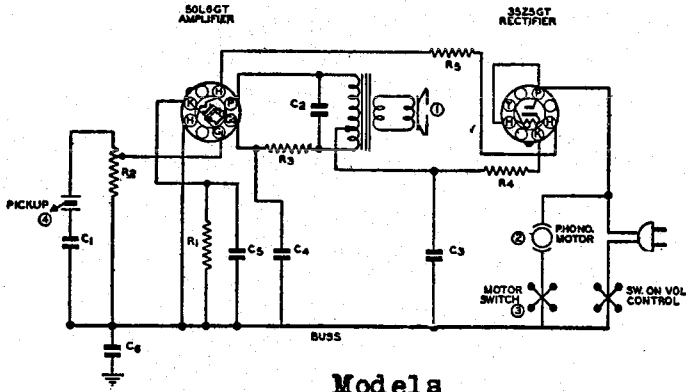
# Sentinel Radio

MODEL 292K



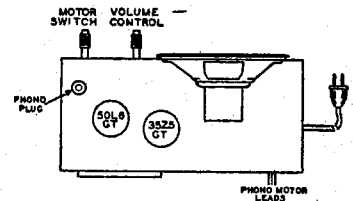


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



QUC NO.	PART NO.	DESCRIPTION	QUC NO.	PART NO.	DESCRIPTION
R1	N-3683	150 OHM 0.5W 10%	①	N-4817	4" PM DYNAMIC SPKR.
R2	N-3555	0.5Ω VOLUME CONTROL	②	N-4275	OUTPUT TRANSF.
R3	N-3086	470 OHM 0.5W 10%	③	N-3848	PHONO MOTOR
R4	N-3441	150 OHM 5W 10%	④	N-3850	MOTOR SWITCH
R5	N-3488	250 OHM 5W 10%	⑤	N-3442	PHONO PICKUP
			⑥	N-5523	ALTER.
C1	N-1345	.05 MFD. 200V.			
C2	N-1349	.02 MFD. 450V.			
C3	N-1349	.02 MFD. 450V.			
C4	N-3435	40 MFD. 150V.			
C5	N-3435	40 MFD. 150V.			
C6	N-1345	.05 MFD. 200V.			

**Models**  
RWF/RWFU (78 & 238)

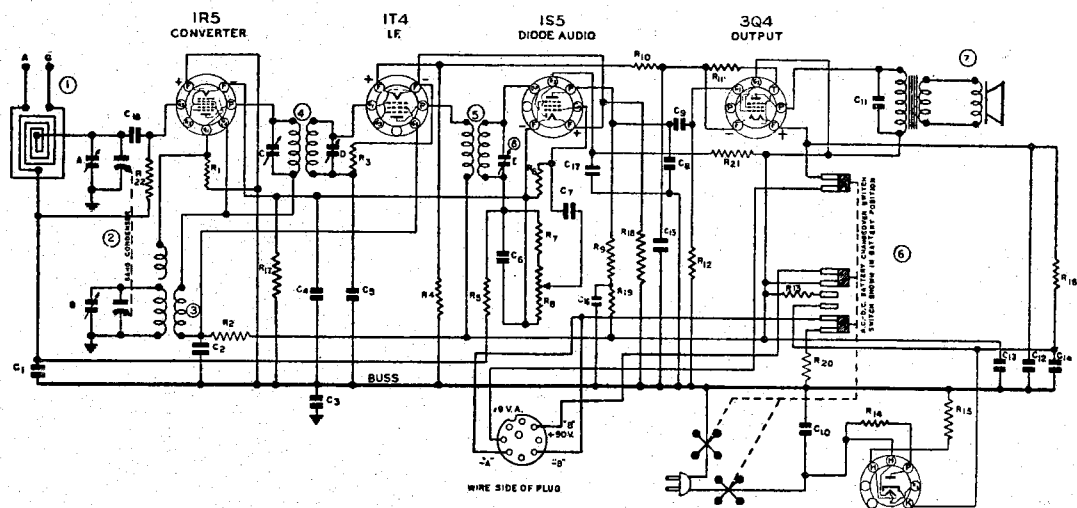


## ALIGNMENT

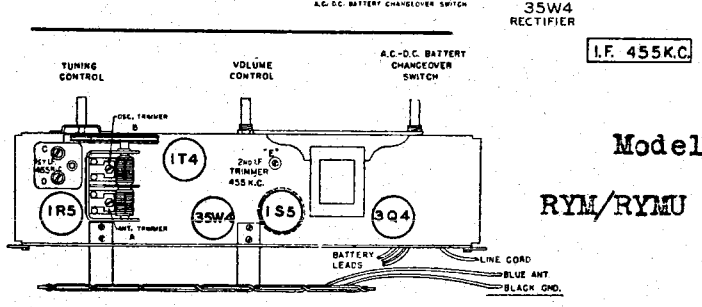
Operation	Connect Oscillator To:	Dummy Ant.	Set Osc. To:	Set Dial To:	Adjust Trimmers	Purpose
1	Converter Grid	.05 MFD.	455 KC	Min. Cap.	C, D, E	Align IF
2	Antenna	100 MMF.	1620 KC	Min. Cap.	B	Set Oscillator
3	Antenna	100 MMF.	1400 KC	1400 KC	A	Adjust Ant.
4	Antenna	100 MMF.	600 KC	600 KC	....	Check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



**Models**  
RYM/RYMU (224)

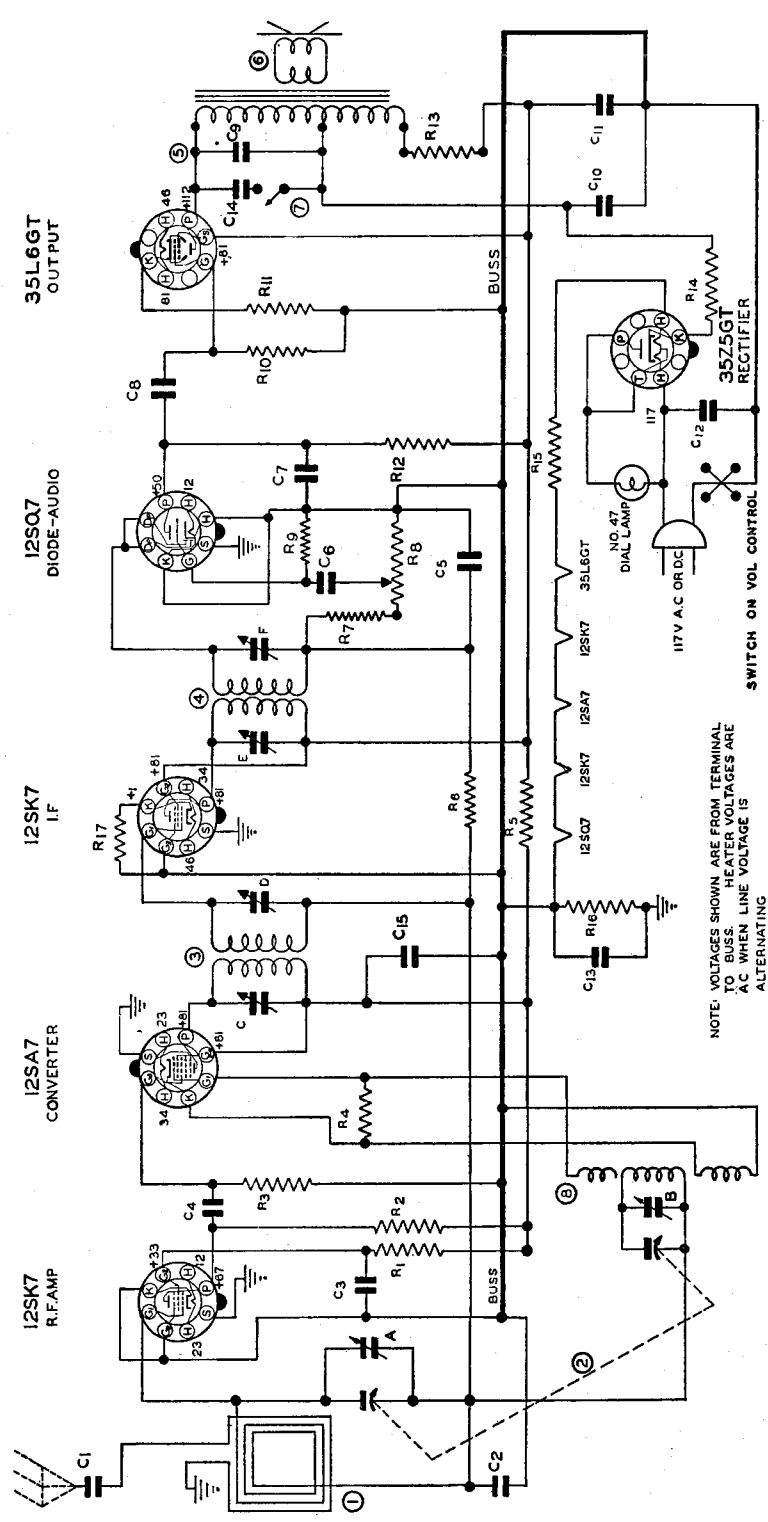


QUC PART NO.	DESCRIPTION	QUC PART NO.	DESCRIPTION
C1	N-1345 .05 MFD. 200V. 20%	R1	N-1776 100,000 OHM 5W 20%
C2	N-1345 .05 MFD. 200V. 20%	R2	N-4885 10,000 OHM 5W 10%
C3	N-3960 1.2 MFD. 200V. 10%	R3	N-283 10 MEGOHM 5W 20%
C4	N-1351 1.1 MFD. 200V. 20%	R4	N-4260 5.0 OHM 5W 10%
C5	N-1376 .02 MFD. 400V. 20%	R5	N-4277 22 MEGOHM 5W 20%
C6	N-1374 .0001 MFD. 100V. 20%	R6	N-1443 10 MEGOHM 5W 20%
C7	N-4824 .0005 MFD. 500V. 10%	R7	N-4052 17,000 OHM 5W 20%
C8	N-1374 .0001 MFD. 100V. 20%	R8	N-3943 1 MEG. VOLUME CONT.
C9	N-1344 .01 MFD. 400V. 20%	R9	N-2976 1 MEGOHM 5W 10%
C10	N-1346 .02 MFD. 400V. 20%	R10	N-5446 15 OHM 5W 10%
C11	N-2083 .003 MFD. 800V. 10%	R11	N-4202 3.0 OHM 5W 10%
C12	.005 MFD. 7.5 V ELECTRO.	R12	N-4277 22 MEGOHM 5W 20%
C13	N-2746 .005 MFD. 150V. 10%	R13	N-1776 1,000 OHM 5W 20%
C14	N-4824 .0005 MFD. 500V. 10%	R14	N-3449 82 OHM 1W 10%
C15	N-2022 .001 MFD. 50V. 20%	R15	N-3342 50 OHM 125W 10%
C16	N-1351 1.1 MFD. 200V. 20%	R16	N-5054 2.50 OHM 5W 5%
C17	N-1351 1.1 MFD. 200V. 20%	R17	N-1776 1,500 OHM 5 20%
C18	N-2309 .0002 MFD. 100V. 20%	R18	N-5052 2,200 OHM 5 20%
1	N-4873 LOOP ANT. COIL	R19	N-2973 100,000 OHM 5 10%
2	N-4812 TWO GANG COND.	R20	N-5053 12 OHM 5 10%
3	N-5522 OSCILLATOR COIL	R21	N-5670 5 MEGOHM 5 10%
4	N-5474 1ST I.F. TRANSF.	R22	N-4277 22 MEGOHM 5 20%
5	N-5082 2ND I.F. TRANSF.		
6	N-4814 CHANGEOVER SWITCH		
7	N-4814 CHANGEOVER SWITCH		
8	N-2834 ADJUSTABLE TRIMMER		



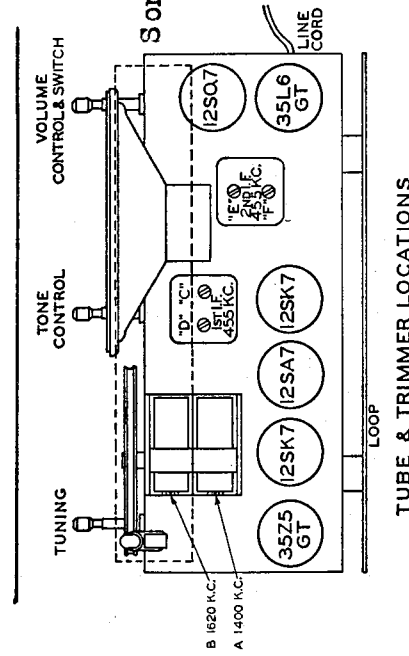
**Models**  
RYM/RYMU (224)

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



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

Sonora Radio & Television  
Model RZ/RZU (222)  
I.F. 455 K.C.



DIAG. PART NO.	DESCRIPTION	DIAG. PART NO.	DESCRIPTION
C1	.01 MFD 400V 20%	N-1282	1 MEGOHM .5W 20%
C2	.05 MFD 200V 20%	N-4063	47000 OHM .5W 20%
C3	.05 MFD 200V 20%	N-5026	0.5 MEGOHM VOL. CONT.
C4	150 MMFD MICA	N-4081	47 MEGOHM .5W 20%
C5	100 MMFD MICA	R10	470,000 OHM .5W 10%
C6	1005 MFD 600V -15+40%	R11	180 OHM .5W 10%
C7	10005 MFD 600V -25+60%	R12	220,000 OHM .5W INS. 20%
C8	.01 MFD 400V 20%	N-4900	1200 OHM 1W 10%
C9	.01 MFD 400V 20%	R14	33 OHM .5W 20%
C10	40 MFD 150 W.V. ELECTRO	R15	N-4628
C11	40 MFD 150 W.V. LYTC	R16	N-4026
C12	.05 MFD 200V 20%	R17	N-5957
C13	.2 MFD 200V-10+20%		
C14	.05 MFD 400V 20%		
C15	.1 MFD 200V -10+20%		
R1	47000 OHM .5W 20%		
R2	2200 OHM .5W 10%		
R3	47000 OHM .5W INS. 20%		
R4	22000 OHM .5W INS. 20%		
R5	470 OHM .5W 10%		

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## SPARTON SUPERHETERODYNE MODEL 7-46 & 7-46 PA. & 846 & 846 PA INTERMEDIATE FREQUENCY 456K.C.

WAVE BAND SWITCH-PB42002  
SHOWN IN BC POSITION

SWITCH WAFERS IDENTIFIED BY  
NUMBERING FROM SHAFT END  
AND LETTERS LOCATED  
BY LETTERS & REAR VIEW BY  
LETTERS

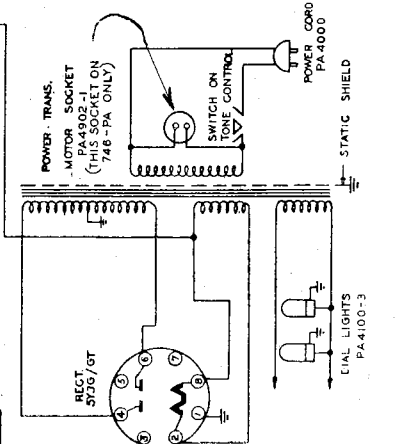
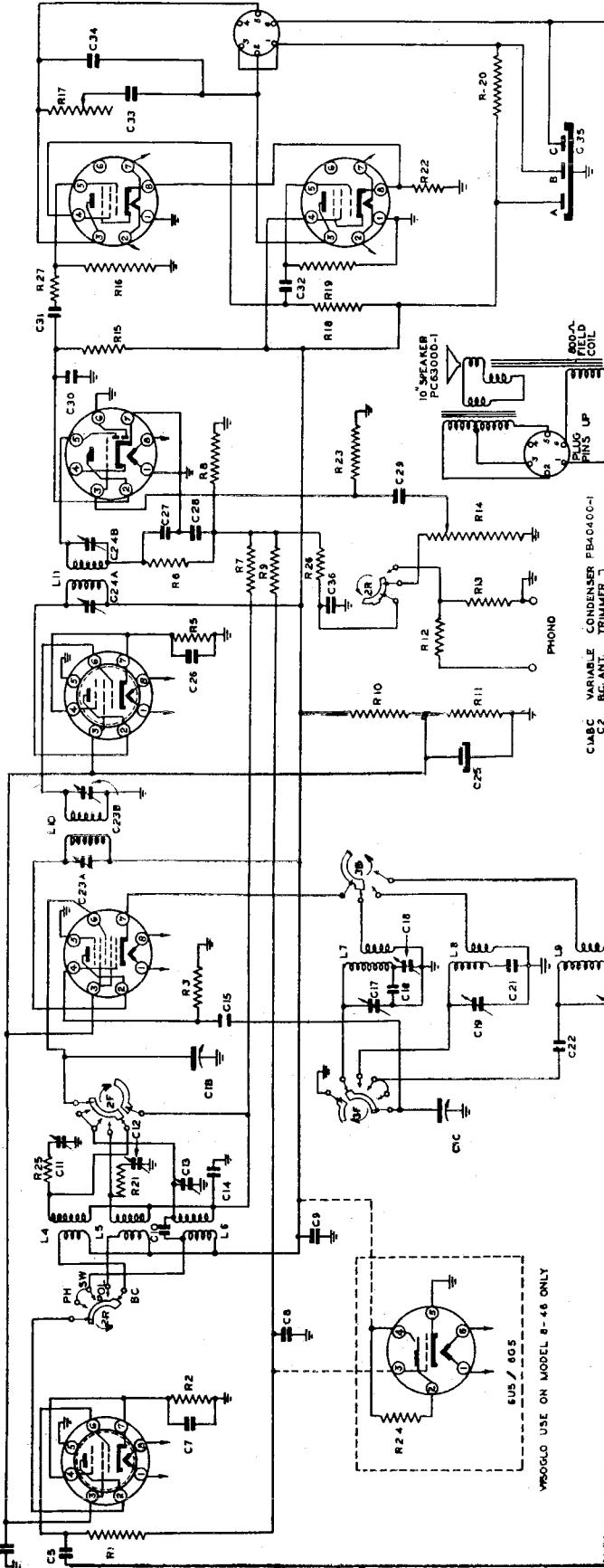
RE AMF  
7A7

DET AVC & 1ST AUDIO  
7B6

IF AMF  
7A7

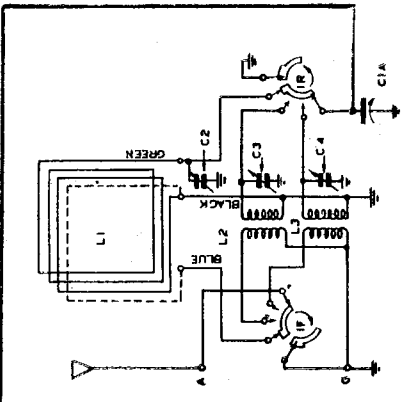
OSC. & CONV.  
7Q7

PUSH PULL OUTPUT  
TWO 6F60/UT



- |       |                    |            |
|-------|--------------------|------------|
| C1ABC | VARIABLE CONDENSER | FB4040C-1  |
| C5    | ROL-ANT            | PA4356-1   |
| C6    | 3W ANT             | MC60C-241  |
| C7    | .05 MFD            | PC40HL-503 |
| C8    | .05 MFD            | PC40HL-503 |
| C9    | .05 MFD            | PC40HL-503 |
| C10   | .05 MFD            | PC40HL-503 |
| C11   | 5 MFD              | MC60C-241  |
| C12   | 5 MFD              | MC60C-241  |
| C13   | 5 MFD              | MC60C-241  |
| C14   | 5 MFD              | MC60C-241  |
| C15   | 5 MFD              | MC60C-241  |
| C16   | 5 MFD              | MC60C-241  |
| C17   | 5 MFD              | MC60C-241  |
| C18   | 5 MFD              | MC60C-241  |
| C19   | 5 MFD              | MC60C-241  |
| C20   | 5 MFD              | MC60C-241  |
| C21   | 5 MFD              | MC60C-241  |
| C22   | 5 MFD              | MC60C-241  |
| C23   | 5 MFD              | MC60C-241  |
| C24   | 5 MFD              | MC60C-241  |
| C25   | 5 MFD              | MC60C-241  |
| C26   | 5 MFD              | MC60C-241  |
| C27   | 5 MFD              | MC60C-241  |
| C28   | 5 MFD              | MC60C-241  |
| C29   | 5 MFD              | MC60C-241  |
| C30   | 5 MFD              | MC60C-241  |
| C31   | 5 MFD              | MC60C-241  |
| C32   | 5 MFD              | MC60C-241  |
| C33   | 5 MFD              | MC60C-241  |
| C34   | 5 MFD              | MC60C-241  |
| C35   | 5 MFD              | MC60C-241  |

- |     |            |            |
|-----|------------|------------|
| R1  | 1 MEGOHM   | PC40HL-503 |
| R2  | 500 OHM    | PC40HL-503 |
| R3  | DELTA      | PC40HL-503 |
| R4  | 500 OHM    | PC40HL-503 |
| R5  | 500 OHM    | PC40HL-503 |
| R6  | 1000 OHM   | PC40HL-503 |
| R7  | 3.3 MEGOHM | PC40HL-503 |
| R8  | 1000 OHM   | PC40HL-503 |
| R9  | 1000 OHM   | PC40HL-503 |
| R10 | 1000 OHM   | PC40HL-503 |
| R11 | 1000 OHM   | PC40HL-503 |
| R12 | 1000 OHM   | PC40HL-503 |
| R13 | 1000 OHM   | PC40HL-503 |
| R14 | 1000 OHM   | PC40HL-503 |
| R15 | 1000 OHM   | PC40HL-503 |
| R16 | 1000 OHM   | PC40HL-503 |
| R17 | 1000 OHM   | PC40HL-503 |
| R18 | 1000 OHM   | PC40HL-503 |
| R19 | 1000 OHM   | PC40HL-503 |
| R20 | 1000 OHM   | PC40HL-503 |
| R21 | 1000 OHM   | PC40HL-503 |
| R22 | 1000 OHM   | PC40HL-503 |
| R23 | 10 MEGOHM  | PC40HL-503 |
| R24 | 1 MEGOHM   | PC40HL-503 |
| R25 | 330 OHM    | PC40HL-503 |
| R26 | 1000 OHM   | PC40HL-503 |
| R27 | 1000 OHM   | PC40HL-503 |
| R28 | 1000 OHM   | PC40HL-503 |
| R29 | 1000 OHM   | PC40HL-503 |
| R30 | 1000 OHM   | PC40HL-503 |
| R31 | 1000 OHM   | PC40HL-503 |
| R32 | 1000 OHM   | PC40HL-503 |
| R33 | 1000 OHM   | PC40HL-503 |
| R34 | 1000 OHM   | PC40HL-503 |
| R35 | 1000 OHM   | PC40HL-503 |



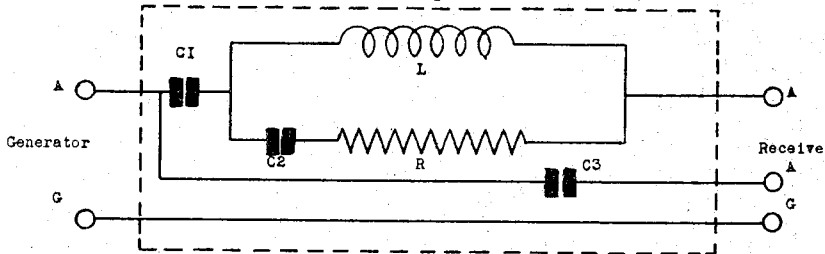
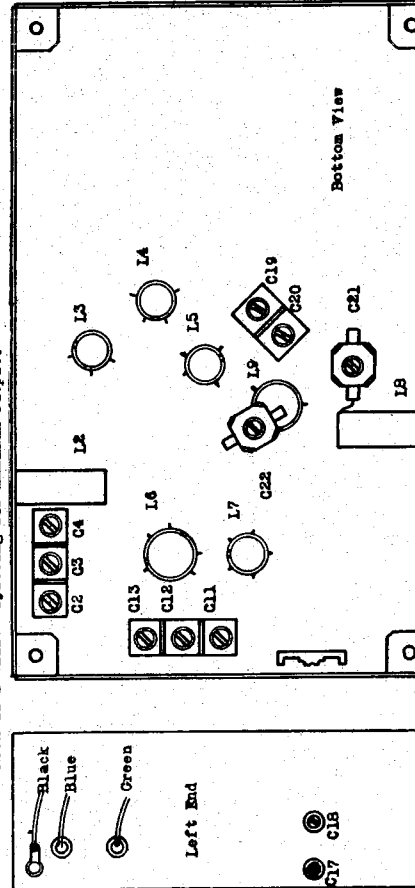


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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	TUNING MARKS	REMARKS
1	Set dial pointer even with stop line when condenser gang is fully meshed.						
2	I.F.	1. mf. cond.	450KC	BC	Open	C24 A/B C23 A/B	Peak Accurately "
3	Broadcast Band	Ant.	1500KC	BC	1500KC	C17 Osc.Trim C11 Det.Trim	" "
4			600KC	BC	600KC	C2 Ant.Trim	"
5	(Repeat operation 3).						
6	Check Calibration at 600 KC, 1000 KC and 1500 KC.						
7	Police Band	Ant.	5 MC	Police Band	5 MC	C19 Osc.Trim C12 Det.Trim C3 Ant.Trim	Peak Accurately Rock ** Rock **
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.	18 MC	SW Band	18 MC	C20 Osc.Trim C13 Det.Trim C4 Ant.Trim	Peak Accurately Rock ** Rock **
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

- C1 - 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 Microhenries Choke
- Case Shield  
Choke Coil Specifications  
Tubing - 3/8" diameter bakelite  
Wire - No. 38 Enameled  
Turns - 59 closely wound (Impregnated)

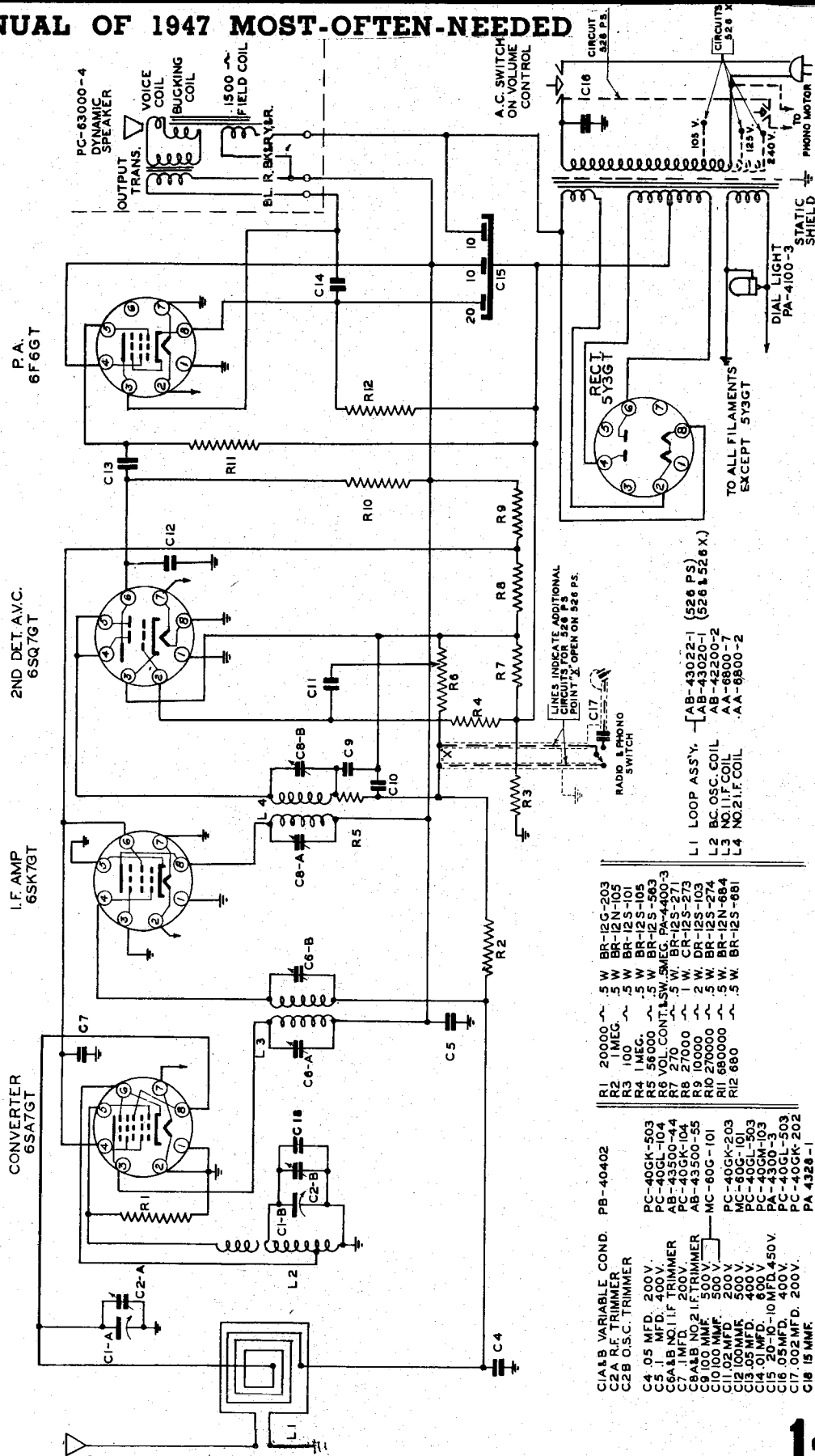
Position of Volume Control: Full with dial tuned to Quiet Channel  
Position of Band Switch: Broadcast

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-AVG-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.

# MANUAL OF 1947 MOST-OFTEN-NEEDED

## SPARTON SUPERHETERODYNE MODEL 526 526X & 526PS, INTERMEDIATE FREQUENCY 456 KC. BOTTOM VIEW OF ALL SOCKET CONNECTIONS



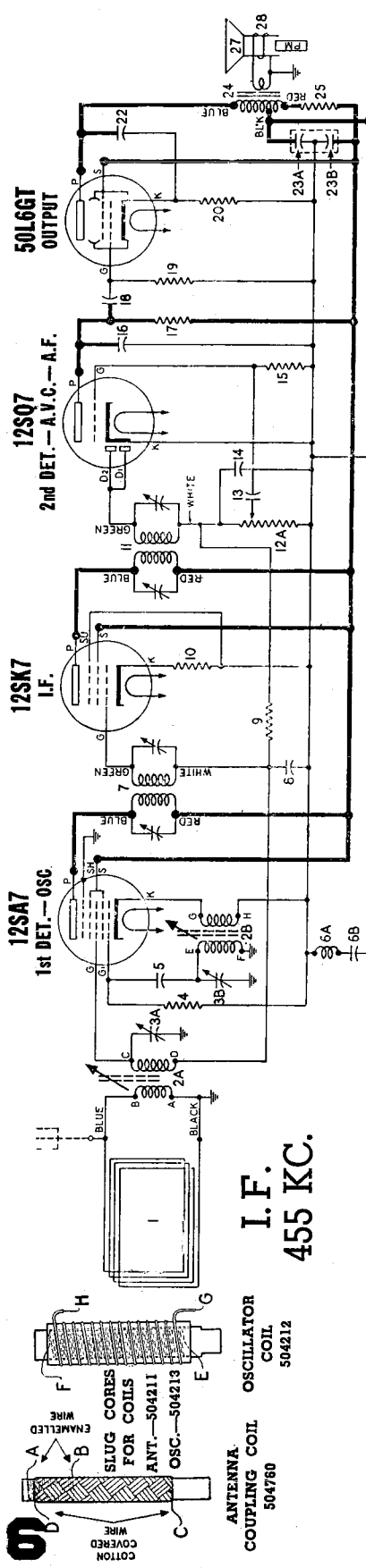
- C1A & B VARIABLE COND. PB-40402  
 C2A RF TRIMMER  
 C2B O.S.C. TRIMMER  
 C5 .05 MFD. 200V.  
 C5 .1 MFD. 400V.  
 C6A & B NO. 1 IF TRIMMER  
 C7 .1 MFD. 200V.  
 C8A & B NO. 2 IF TRIMMER  
 C9 100 MMF. 500V.  
 C10 100 MMF. 500V.  
 C11 .02 MFD. 200V.  
 C12 .05 MFD. 500V.  
 C13 .05 MFD. 600V.  
 C14 .01 MFD. 600V.  
 C15 20-0-10 MFD. 450V.  
 C16 .05 MFD. 400V.  
 C17 .002 MFD. 200V.  
 C18 .15 MMF.
- R1 20000  
 R2 1 MEG  
 R3 100  
 R4 500  
 R5 500  
 R6 500  
 R7 270  
 R8 27000  
 R9 10000  
 R10 270000  
 R11 680000  
 R12 680
- L1 LOOP ASSY. [AB-43022-1 (526 PS)  
 AB-43056-1 (526 PS)  
 L2 BC OSC. COIL AB-43200-2  
 L3 NO. 1 IF COIL AA-6800-7  
 L4 NO. 2 IF COIL AA-6800-2
- RESISTOR VALUES:  
 .5 W BR-12G-203  
 .5 W BR-12N-105  
 .5 W BR-12S-101  
 .5 W BR-12S-105  
 .5 W BR-12S-105  
 .5 W BR-12S-105  
 .5 W BR-12S-271  
 .5 W BR-12S-271  
 .5 W BR-12S-271  
 2 W DR-12S-103  
 2 W DR-12S-103  
 5 W BR-12N-684  
 5 W BR-12S-681
- COMPONENT PARTS:  
 PC-40CK-503  
 PC-40GL-104  
 AB-43500-44  
 PC-40GK-104  
 AB-43500-55  
 MC-60G-101  
 PC-40CK-203  
 MC-60G-101  
 MC-60G-101  
 PC-40GL-503  
 PC-40GM-103  
 PA-4300-3  
 PC-40GL-503  
 PC-40GK-202  
 PA 4328-1

THE SPARKS-WITHINGTON COMPANY

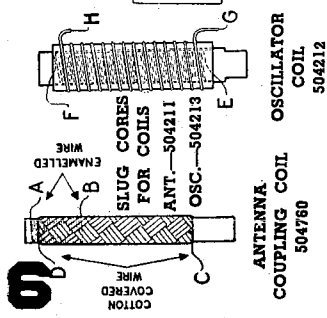
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

140

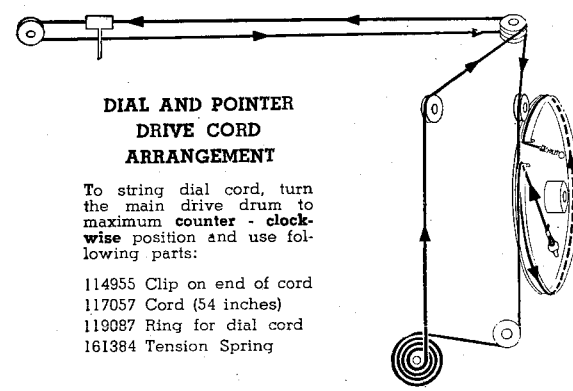


I.F.  
455 KC.



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

DIA-GRAM PART NO.	DESCRIPTION
3A, B	Condenser—trimmer assembly
5	Condenser—100 Mmfd. 500 volt.
6B	Condenser—.05 Mfd. 200 volt.
8	Condenser—.004 Mfd. 400 volt.
13	Condenser—.008 Mfd. 400 volt.
14	Condenser—.004 Mfd. 400 volt.
16	Condenser—.02 Mfd. 400 volt.
18	Condenser—.02 Mfd. 400 volt.
22	Condenser—electrolytic
23-A, B	A—40 Mfd. 150 volt B—20 Mfd. 150 volt
29	Condenser—.05 Mfd. 400 volt.
4	Resistor—carbon 22,000 ohms 1/4 watt.
9	Resistor—carbon 2.2 Meg. 1/4 watt.
10	Resistor—carbon 47 ohms 1/4 watt.
12A, B	Volume control—with switch 1 Meg.
15	Resistor—carbon 10 Meg. 1/4 watt.
17	Resistor—carbon 470,000 ohms 1/4 watt.
19	Resistor—carbon 470,000 ohms 1/4 watt.
20	Resistor—carbon 150 ohms 1 watt.
25	Resistor—carbon 1,500 ohms 1 watt.
26	Resistor—carbon 33 ohms 1/2 watt.
1	Loop antenna
2A, B	Coil—antenna (less slug)
2-B	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	Transformer—1st I.F.
11	Transformer—2nd I.F.
24	Transformer—output for C-502816 speaker.
21	Transformer—output for W-502816 speaker.
21	Lamp—dial (Mazda 47) 6-8V. 150 Ma.



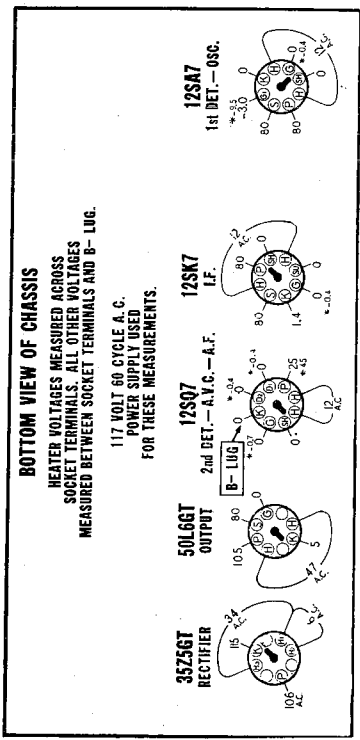
To string dial cord, turn the main drive drum to maximum counter-clockwise position and use following parts:

- 114955 Clip on end of cord
- 117057 Cord (54 inches)
- 119087 Ring for dial cord
- 161384 Tension Spring

### 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.

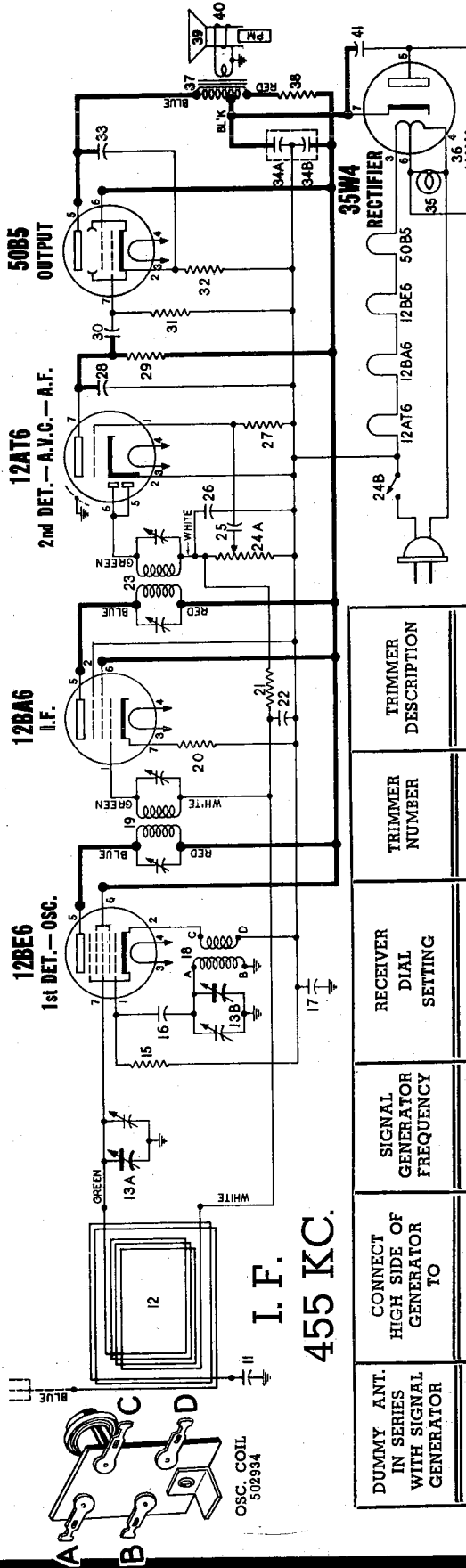
117 VOLT 60 CYCLE A.C. POWER SUPPLY USED FOR THESE MEASUREMENTS.

### REAR OF CHASSIS

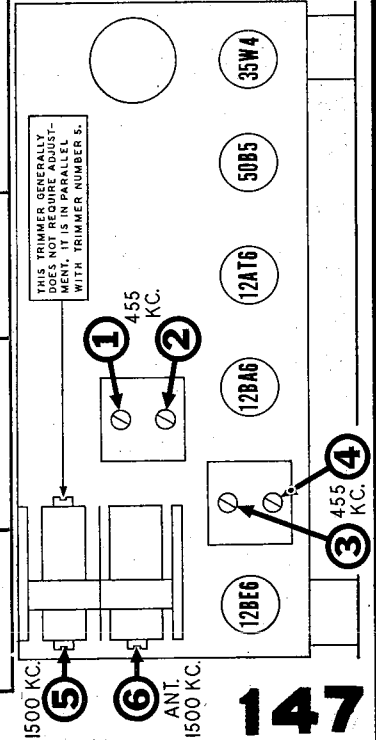
\*—Measured with vacuum tube voltmeter

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.
200 MMFD. Mica Condenser	External antenna lead on loop.	1500 KC	1500 KC	3-4	1st I.F.
200 MMFD. Mica Condenser	External antenna lead on loop.	1500 KC	Tune to 1500 KC generator signal.	5	Broadcast Oscillator
				6	Broadcast Antenna



DIA-GRAM NO.	PART NO.	DESCRIPTION
11	502151	CONDENSERS
13-A, B...	502923	Condenser—01 Mfd. 400 volt.
16	502929	Condenser—variable gang (with drum)
17	502158	Condenser—mica 47 Mmfd. 500 volt.
22	502153	Condenser—2 Mfd. 400 volt.
25	502156	Condenser—05 Mfd. 200 volt.
26	502882	Condenser—104 Mfd. 400 volt.
28	502892	Condenser—220 Mmfd. 500 volt.
30	502470	Condenser—0008 Mfd. 400 volt.
33	502156	Condenser—004 Mfd. 400 volt.
34-A, B...	502152	Condenser—02 Mfd. 400 volt.
	500256	Condenser—electrolytic A-40 Mfd. 150 volt
		B-20 Mfd. 150 volt
41	502157	Condenser—05 Mfd. 400 volt.
15	502130	RESISTORS
20	502458	Resistor—carbon 22,000 ohms 1/4 watt
21	502135	Resistor—carbon 220 ohms 1/4 watt
24-A, B...	502928	Resistor—carbon 2.2 Meg. 1/4 watt
27	502136	Volume control—with switch: 1 Meg.
29	502134	Resistor—carbon 10 Meg. 1/4 watt
31	502134	Resistor—carbon 470,000 ohms 1/4 watt
32	502922	Resistor—carbon 470,000 ohms 1/4 watt
35	502374	Resistor—carbon 150 ohms 1 watt
36	502333	Resistor—carbon 33 ohms 1/2 watt
38	502333	Resistor—carbon 150 ohms 1 watt.
35	118921	OTHER ELECTRICAL PARTS
		Lamp—dial (Mazda 47) 6-8V 150 Ma.
		(502458) Cone & voice coil for W-502816 speaker
39		(502816) Cone & voice coil for C-502816 speaker
40		Speaker—P.M. dynamic (4 inch).



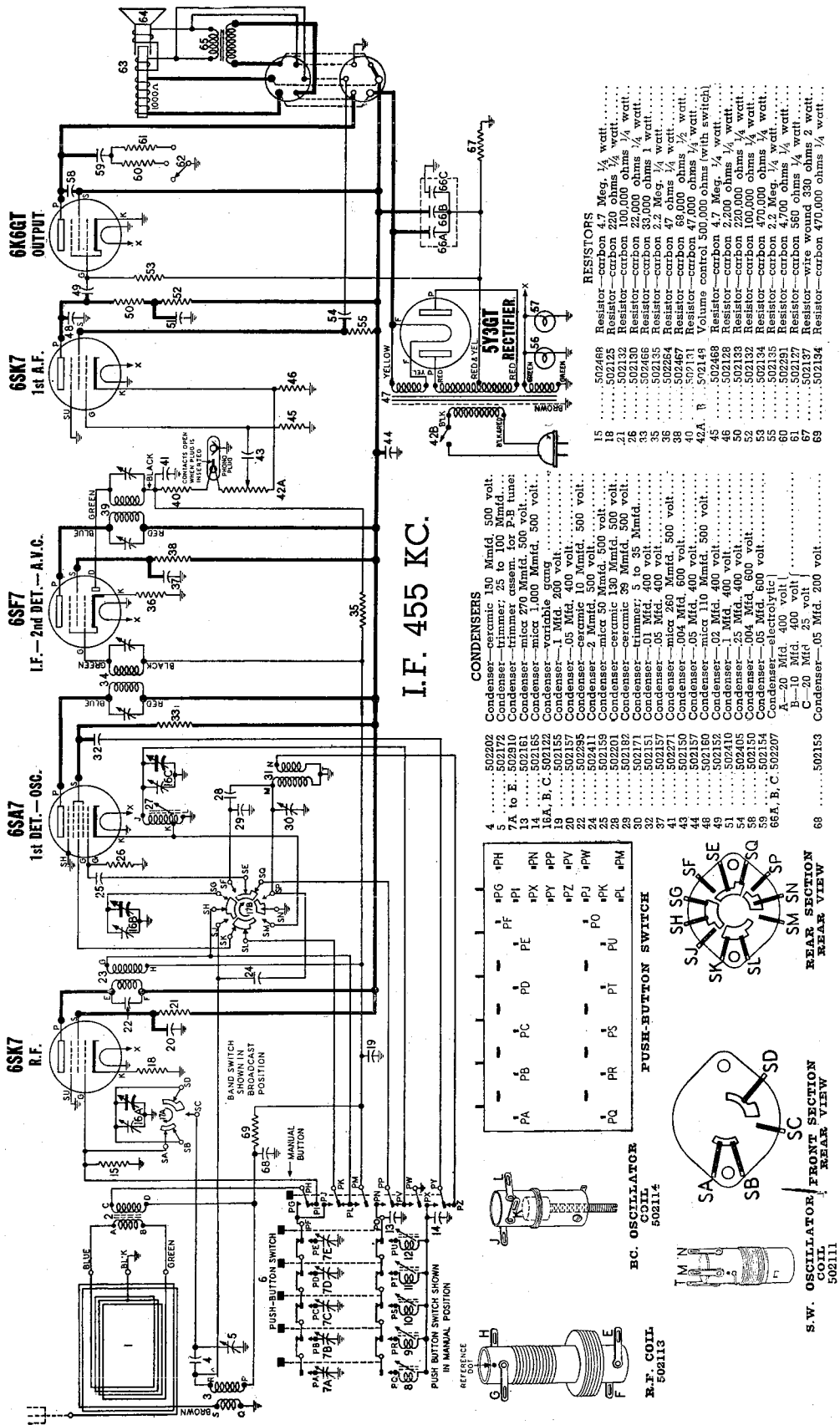


# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

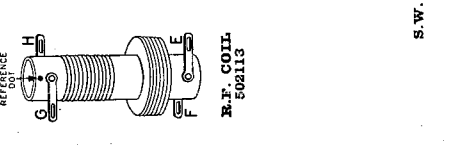
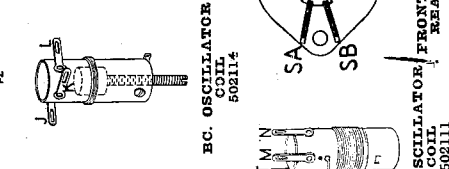
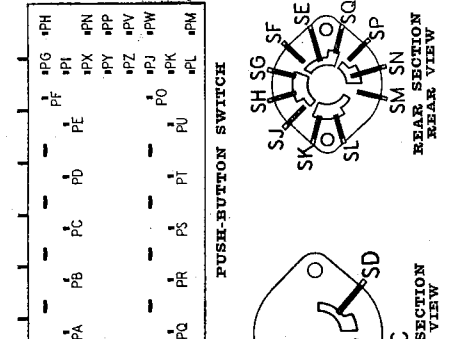
**NOTE:** A very small quantity of early production chassis utilized a circuit which differs from the one shown here. These differences may be summarized as follows:

1. Terminal "p" 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 360 ohms  $\frac{1}{2}$  watt.
4. Improved sensitivity for P.B. 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 360 ohms to 220 ohms, will improve sensitivity for Manual tuning on the Broadcast Band.



**CONDENSERS**

4	.....	502202	Condenser—ceramic 130 Mmfd. 500 volt.
5	.....	502172	Condenser—trimmer; 25 to 100 Mmfd. ....
7A to E	.....	502910	Condenser—trimmer essent. for P.B. tune; 14 to 16 Mmfd. ....
13	.....	502161	Condenser—micr 270 Mmfd. 500 volt. ....
14	.....	502125	Condenser—micr 1,000 Mmfd. 300 volt. ....
16A, B, C	.....	502132	Condenser—1 Mfd. 200 volt. ....
19	.....	502155	Condenser—.05 Mfd. 400 volt. ....
20	.....	502157	Condenser—micr 260 Mmfd. 500 volt. ....
22	.....	502295	Condenser—ceramic 10 Mmfd. 500 volt. ....
24	.....	502411	Condenser—micr 30 Mmfd. 500 volt. ....
25	.....	502159	Condenser—micr 270 Mmfd. 500 volt. ....
28	.....	502182	Condenser—ceramic 29 Mmfd. 500 volt. ....
29	.....	502171	Condenser—trimmer; 5 to 35 Mmfd. ....
30	.....	502151	Condenser—.05 Mfd. 400 volt. ....
32	.....	502157	Condenser—micr 260 Mmfd. 500 volt. ....
37	.....	502271	Condenser—.05 Mfd. 400 volt. ....
41	.....	502150	Condenser—.05 Mfd. 400 volt. ....
43	.....	502150	Condenser—.05 Mfd. 400 volt. ....
44	.....	502180	Condenser—.02 Mfd. 400 volt. ....
48	.....	502152	Condenser—.01 Mfd. 400 volt. ....
49	.....	502410	Condenser—.25 Mfd. 400 volt. ....
51	.....	502405	Condenser—.05 Mfd. 400 volt. ....
54	.....	502150	Condenser—.05 Mfd. 400 volt. ....
58	.....	502154	Condenser—electrolytic A—20 Mfd. 400 volt. ....
59	.....	502207	B—10 Mfd. 400 volt. ....
68A, B, C	.....	502207	C—20 Mfd. 25 volt. ....
68	.....	502153	Condenser—.05 Mfd. 200 volt. ....



**RESISTORS**

15	.....	502468	Resistor—carbon Meg. $\frac{1}{4}$ watt. ....
18	.....	502125	Resistor—carbon 270 ohms $\frac{1}{2}$ watt. ....
21	.....	502130	Resistor—carbon 100,000 ohms $\frac{1}{4}$ watt. ....
26	.....	502466	Resistor—carbon 22,000 ohms $\frac{1}{4}$ watt. ....
33	.....	502466	Resistor—carbon 33,000 ohms $\frac{1}{4}$ watt. ....
38	.....	502466	Resistor—carbon 2.2 Meg. $\frac{1}{4}$ watt. ....
39	.....	502464	Resistor—carbon 47,000 ohms $\frac{1}{4}$ watt. ....
40	.....	502131	Resistor—carbon 47,000 ohms $\frac{1}{4}$ watt. ....
42A	.....	502149	Volume control 500,000 ohms (with switch) ....
45	.....	502468	Resistor—carbon 4.7 Meg. $\frac{1}{4}$ watt. ....
46	.....	502128	Resistor—carbon 2,200 ohms $\frac{1}{4}$ watt. ....
50	.....	502133	Resistor—carbon 220,000 ohms $\frac{1}{4}$ watt. ....
52	.....	502132	Resistor—carbon 100,000 ohms $\frac{1}{4}$ watt. ....
53	.....	502135	Resistor—carbon 2.2 Meg. $\frac{1}{4}$ watt. ....
55	.....	502135	Resistor—carbon 2.2 Meg. $\frac{1}{4}$ watt. ....
60	.....	502291	Resistor—carbon 4,700 ohms $\frac{1}{4}$ watt. ....
61	.....	502127	Resistor—carbon 560 ohms $\frac{1}{4}$ watt. ....
67	.....	502137	Resistor—wire wound 330 ohms 2 watt. ....
69	.....	502134	Resistor—carbon 470,000 ohms $\frac{1}{4}$ watt. ....

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

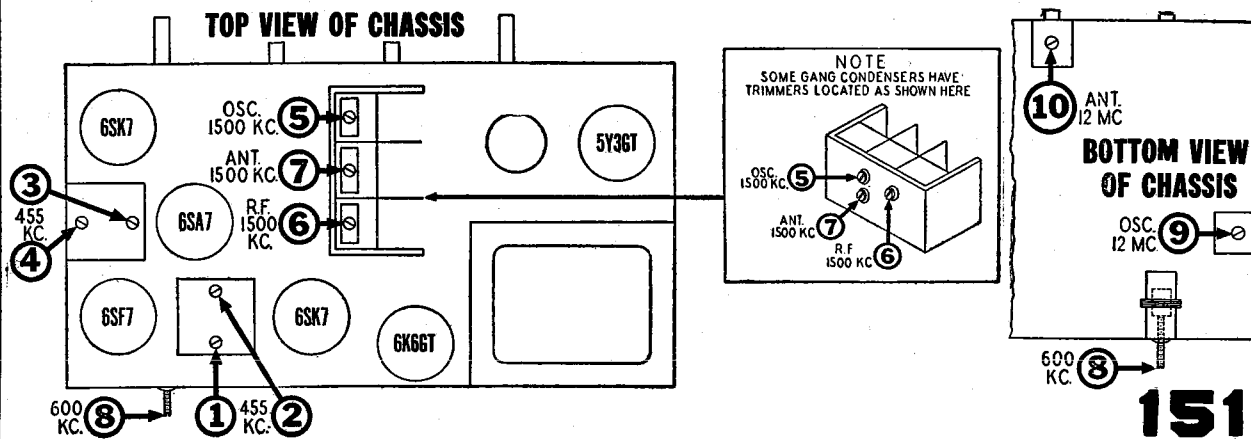
Connect the ground lead of the signal generator to the receiver chassis.

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.

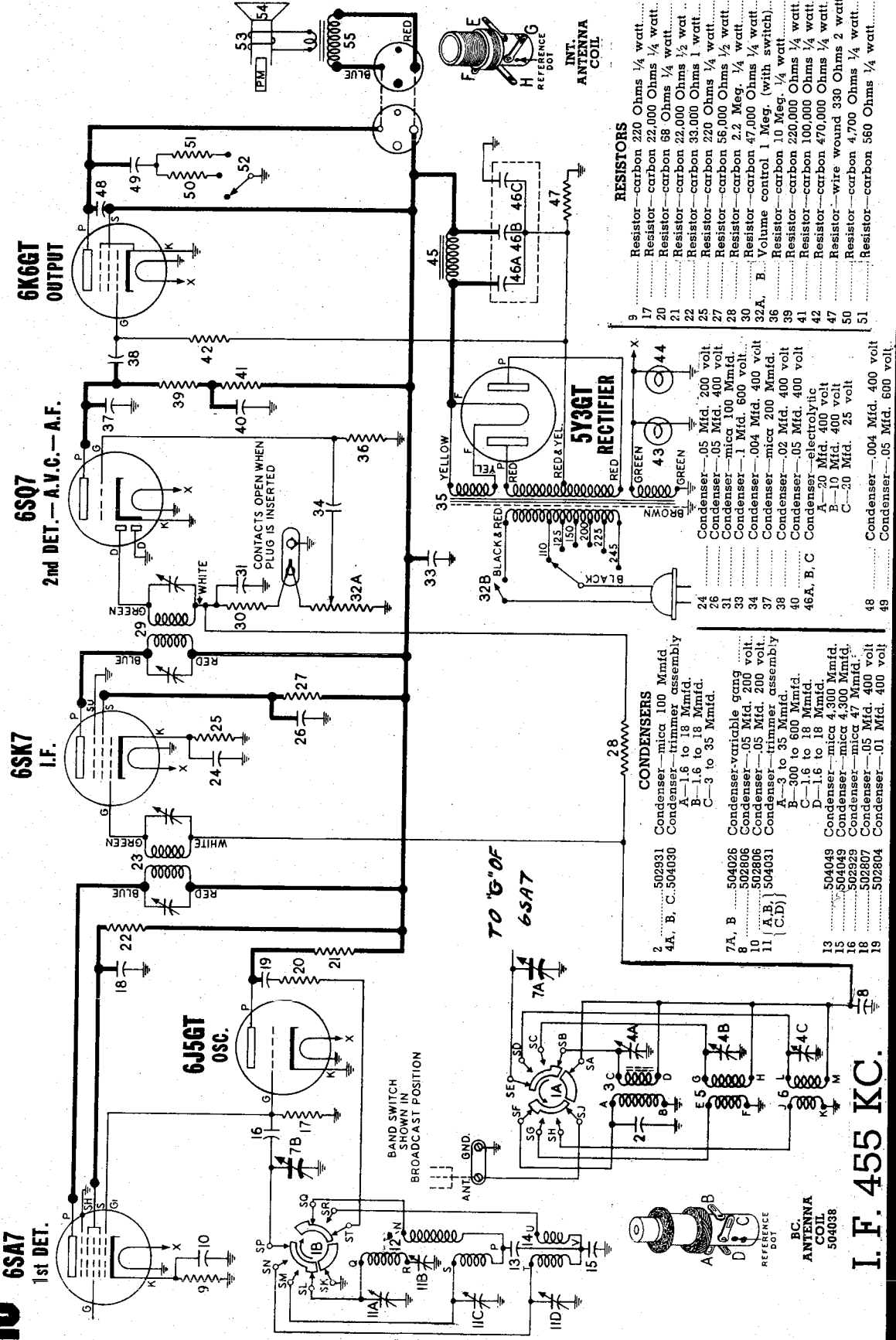
DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT	
.1 MFD. Condenser	Trimmer on rear section of gang	455 KC	Broadcast (Clockwise)	Any point where 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.	





MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

STEWART-WARNER MODEL 9013-A



**RESISTORS**

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

**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	502906 Condenser—.05 Mfd. 200 volt
10	502906 Condenser—.05 Mfd. 200 volt
11	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.
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

**ANTENNA COIL**

BC	504038
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**RESISTORS**

45	46A 46B 46C
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**CONDENSERS**

43	44
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**RESISTORS**

47	48
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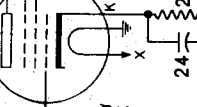
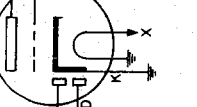
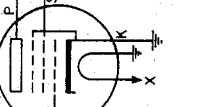
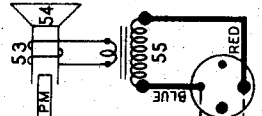
**CONDENSERS**

49	50
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I. F. 455 KC.

TO "G" OF 6SA7

BAND SWITCH SHOWN IN BROADCAST POSITION



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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.

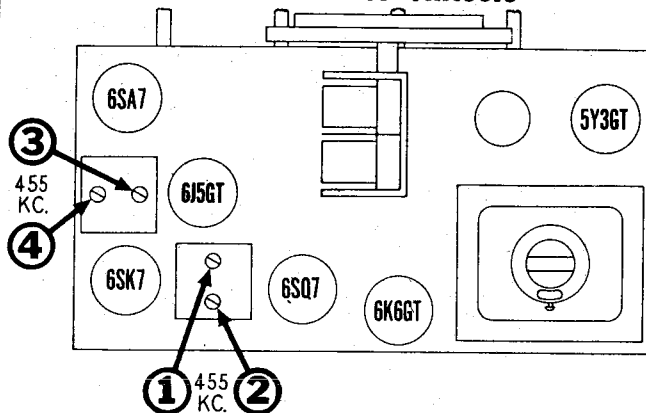
Connect on output meter across the speaker voice coil or from the plate of the 6K6GT tube to chassis through a 0.1 Mfd. condenser.

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

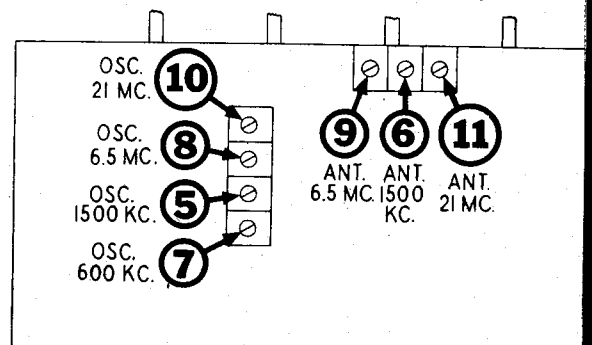
Set volume control to maximum volume position and use a weak signal from the signal generator.

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**



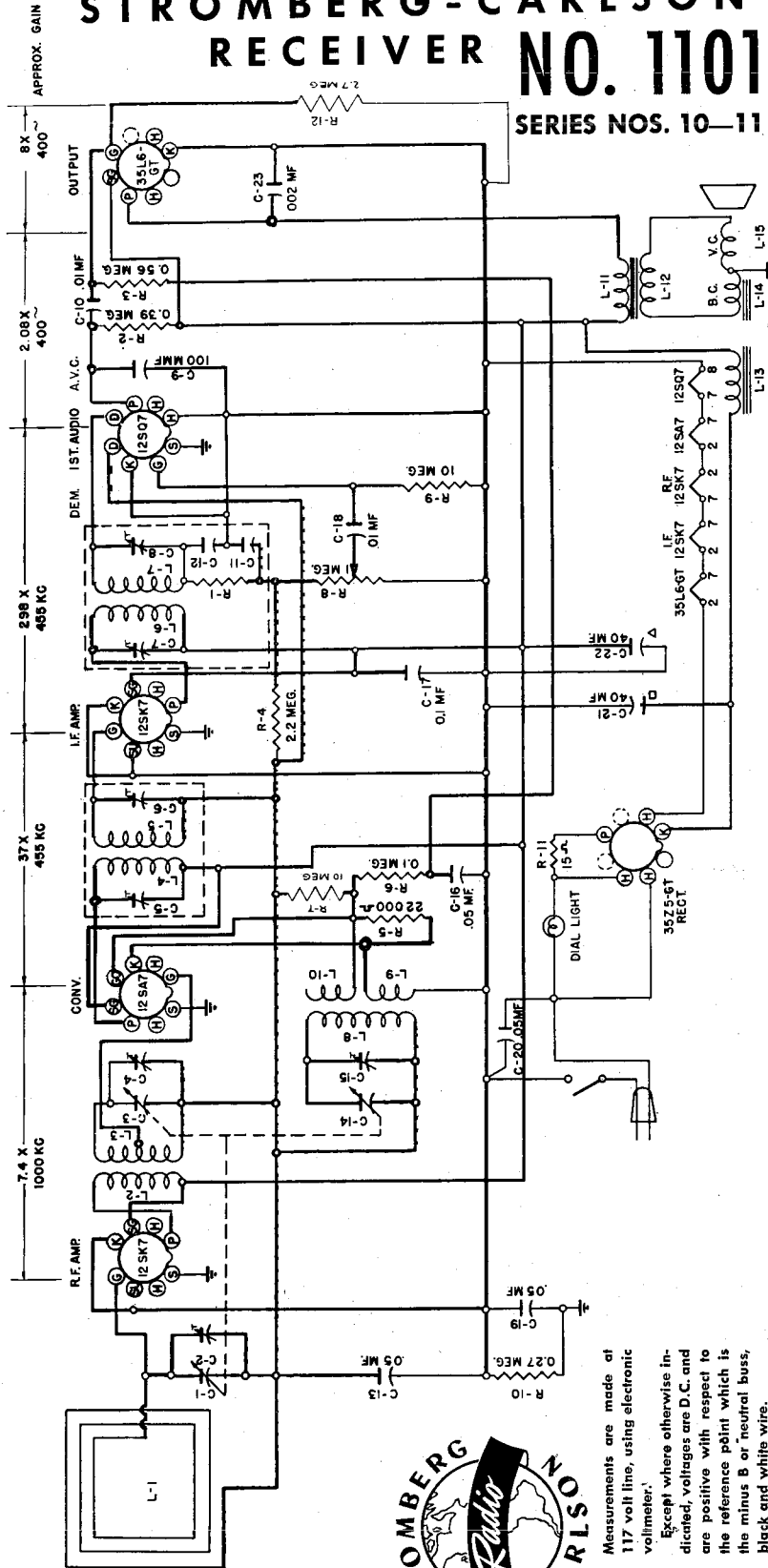
**BOTTOM VIEW OF CHASSIS**



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

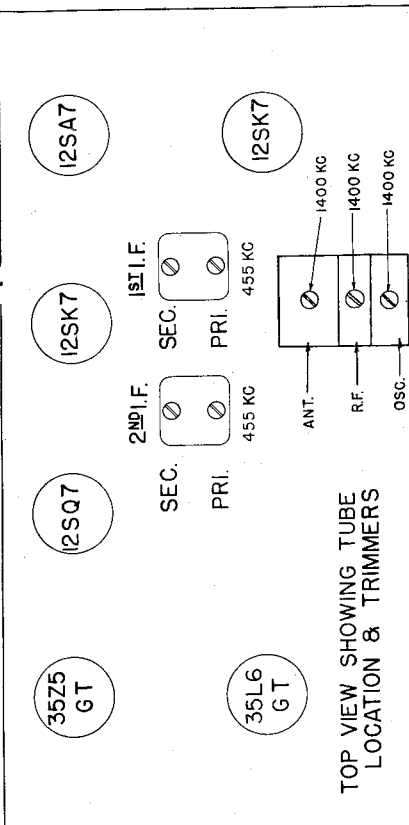
## STROMBERG-CARLSON RECEIVER NO. 1101

SERIES NOS. 10-11

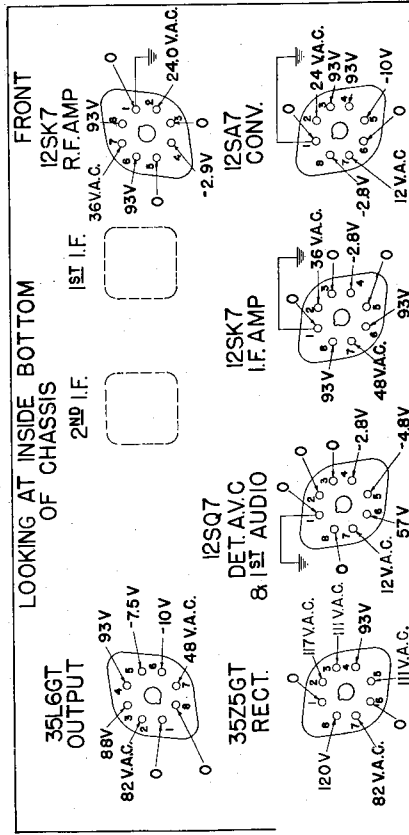


Measurements are made at 117 volt line, using electronic voltmeter.

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.

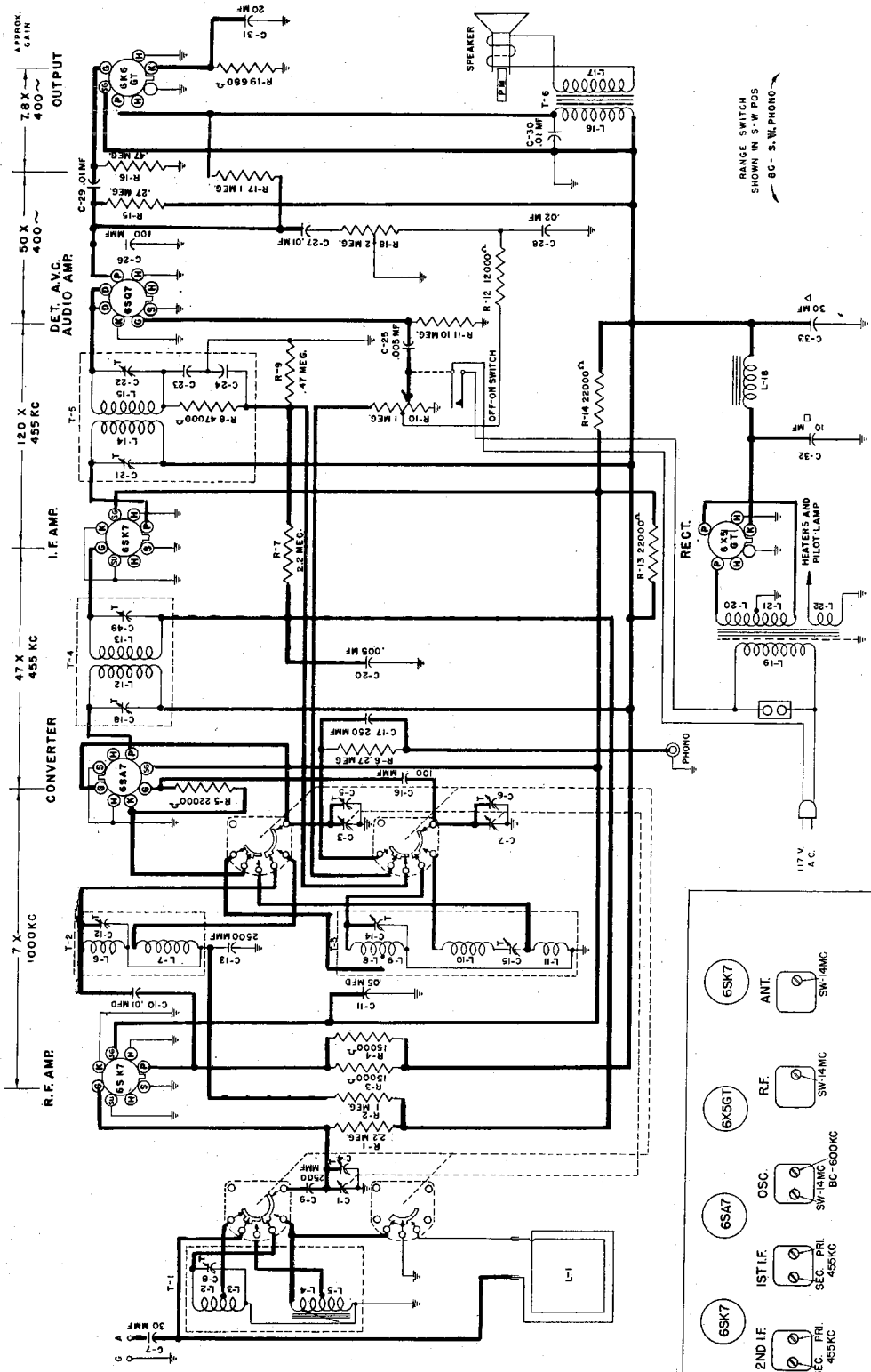


TOP VIEW SHOWING TUBE LOCATION & TRIMMERS

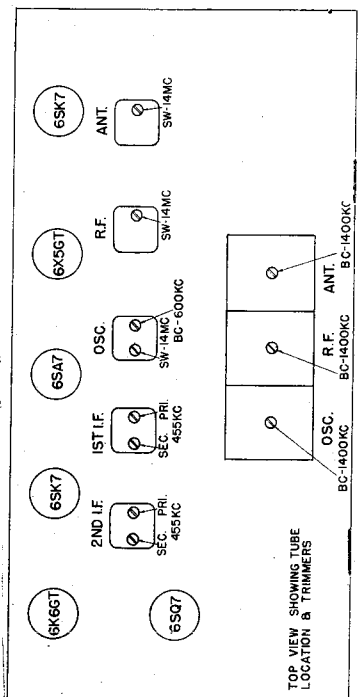




MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



STROMBERG - CARLSON  
 RADIO RECEIVER NO. 1110  
 SERIES NO. 10



STROMBERG-CARLSON CO.

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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.

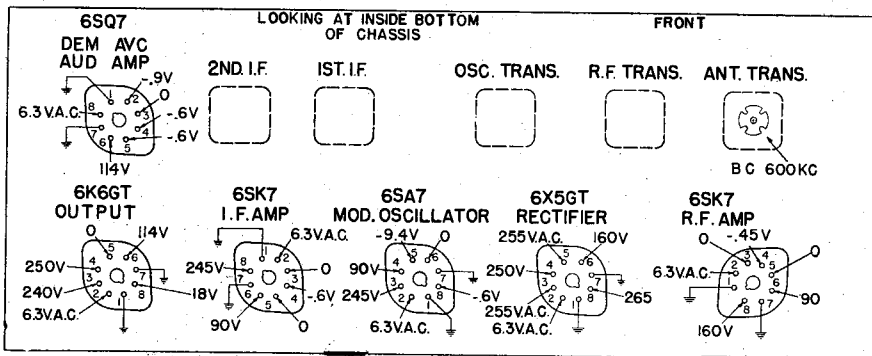
**Antenna must remain connected for R.F. adjustments.**

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.

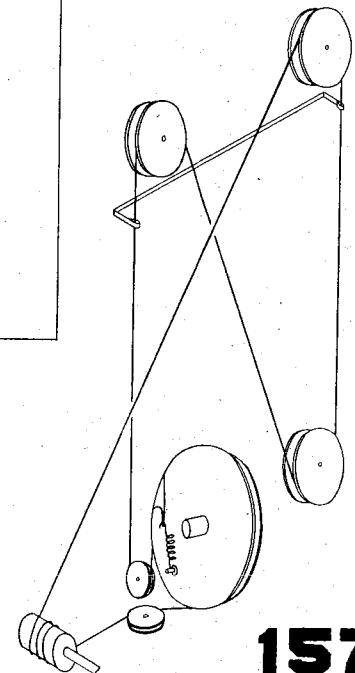
## Radio Frequency Adjustments

### 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.

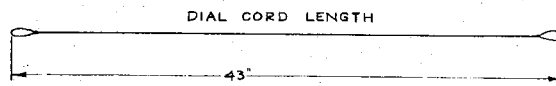


DIAL CORDING DIAGRAM



## SPECIFICATIONS

Voltage Rating.....105-125 Volts  
 Type of Circuit.....Superheterodyne  
 Tuning 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





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

**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.)





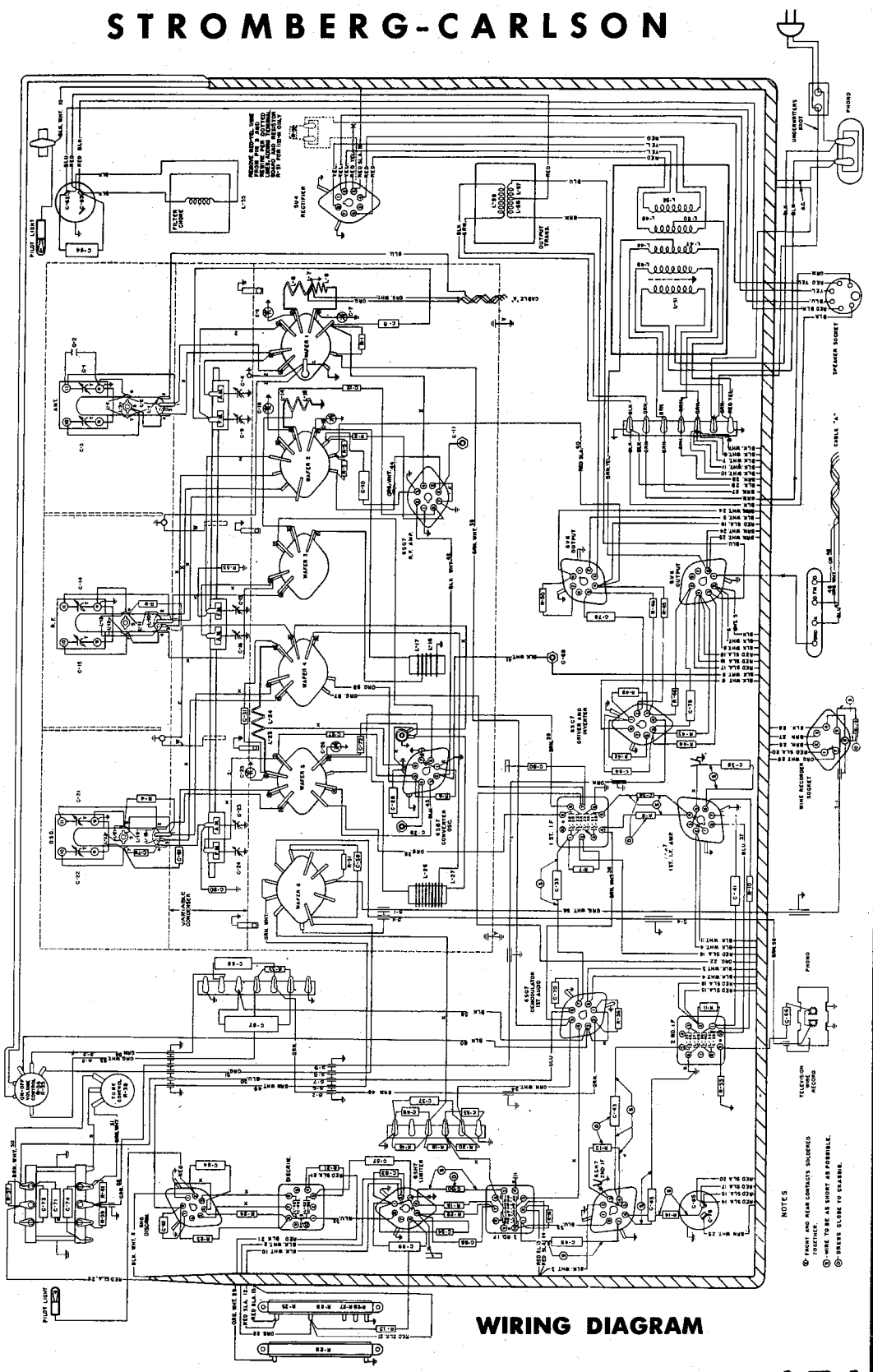
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## STROMBERG-CARLSON

**FRONT VIEW OF CHASSIS**

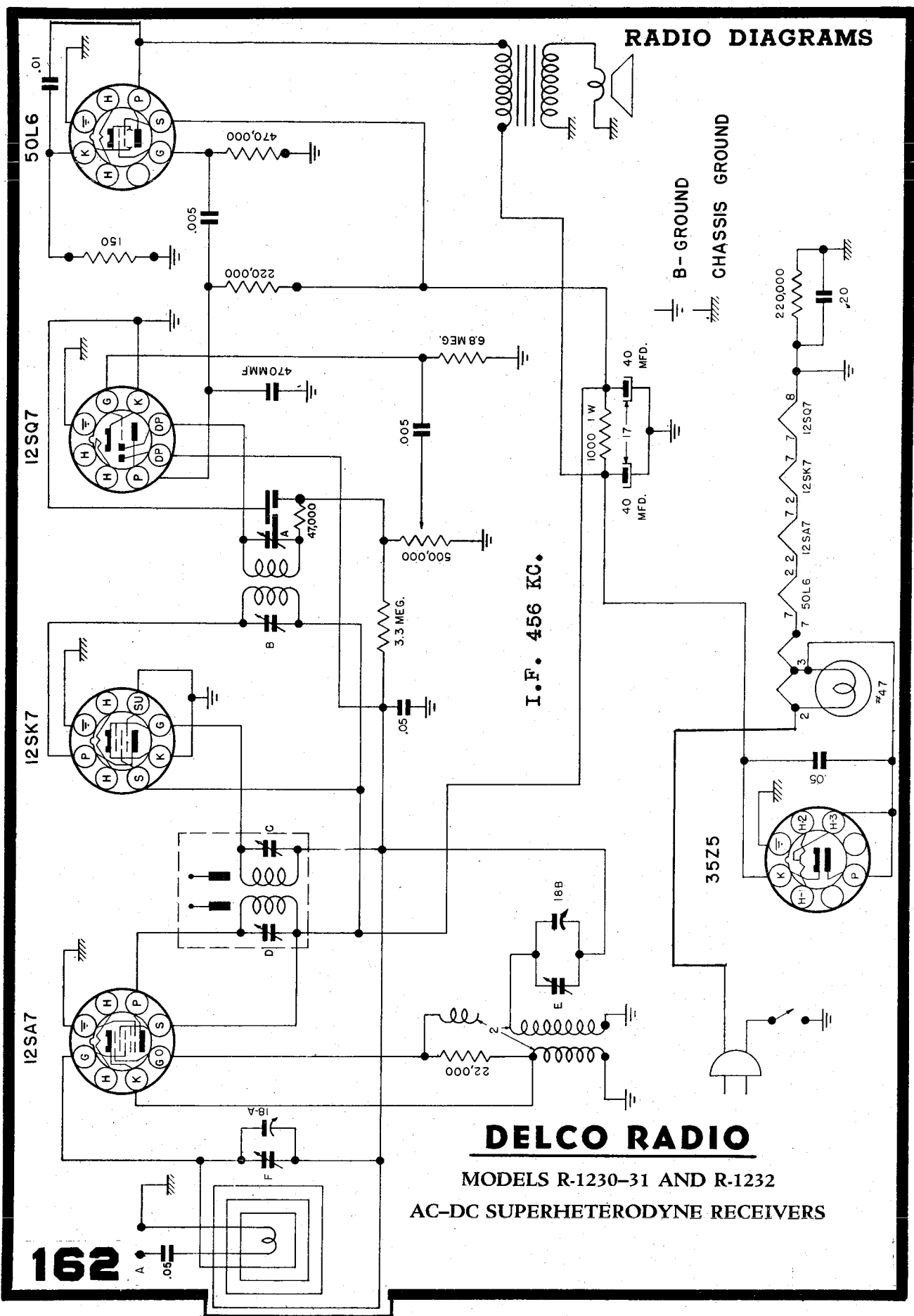
1500 K.C. MC. 10 MC. 600 MC. 9C. MC. SW.	1500 K.C. MC. 10 MC. 600 MC. 9C. MC. SW.	1500 K.C. MC. 10 MC. 600 MC. 9C. MC. SW.
OSC.	R. F.	ANT.

**Stromberg-Carlson  
Model 1121**



**WIRING DIAGRAM**

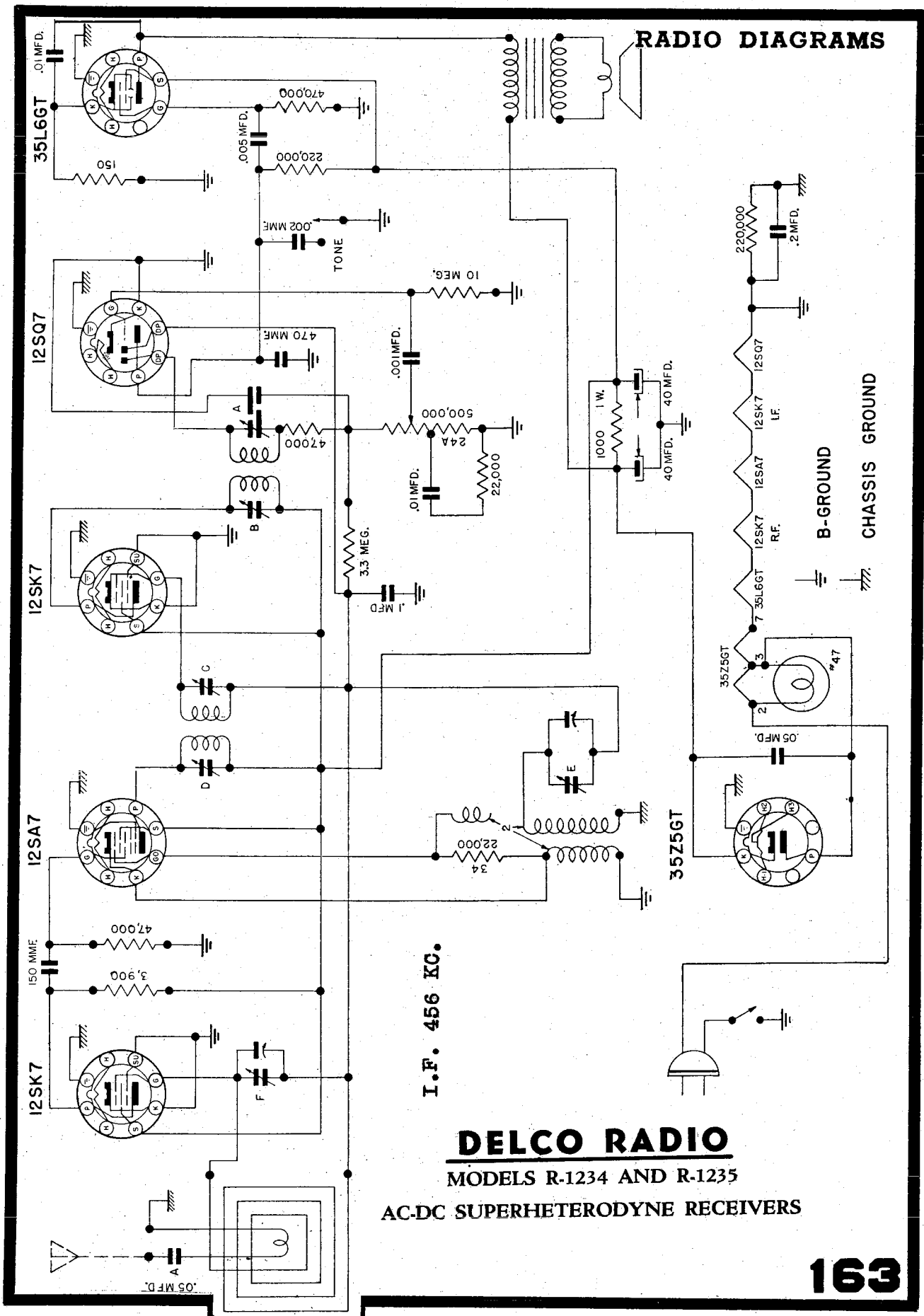
- NOTES**
- ⊗ FRONT AND REAR CONTACTS SOLDERED
  - ⊙ WELDS TO BE AS SHORT AS POSSIBLE
  - ⊕ SPACES CLOSE TO CLASSE.



**DELCO RADIO**

MODELS R-1230-31 AND R-1232  
AC-DC SUPERHETERODYNE RECEIVERS

**RADIO DIAGRAMS**



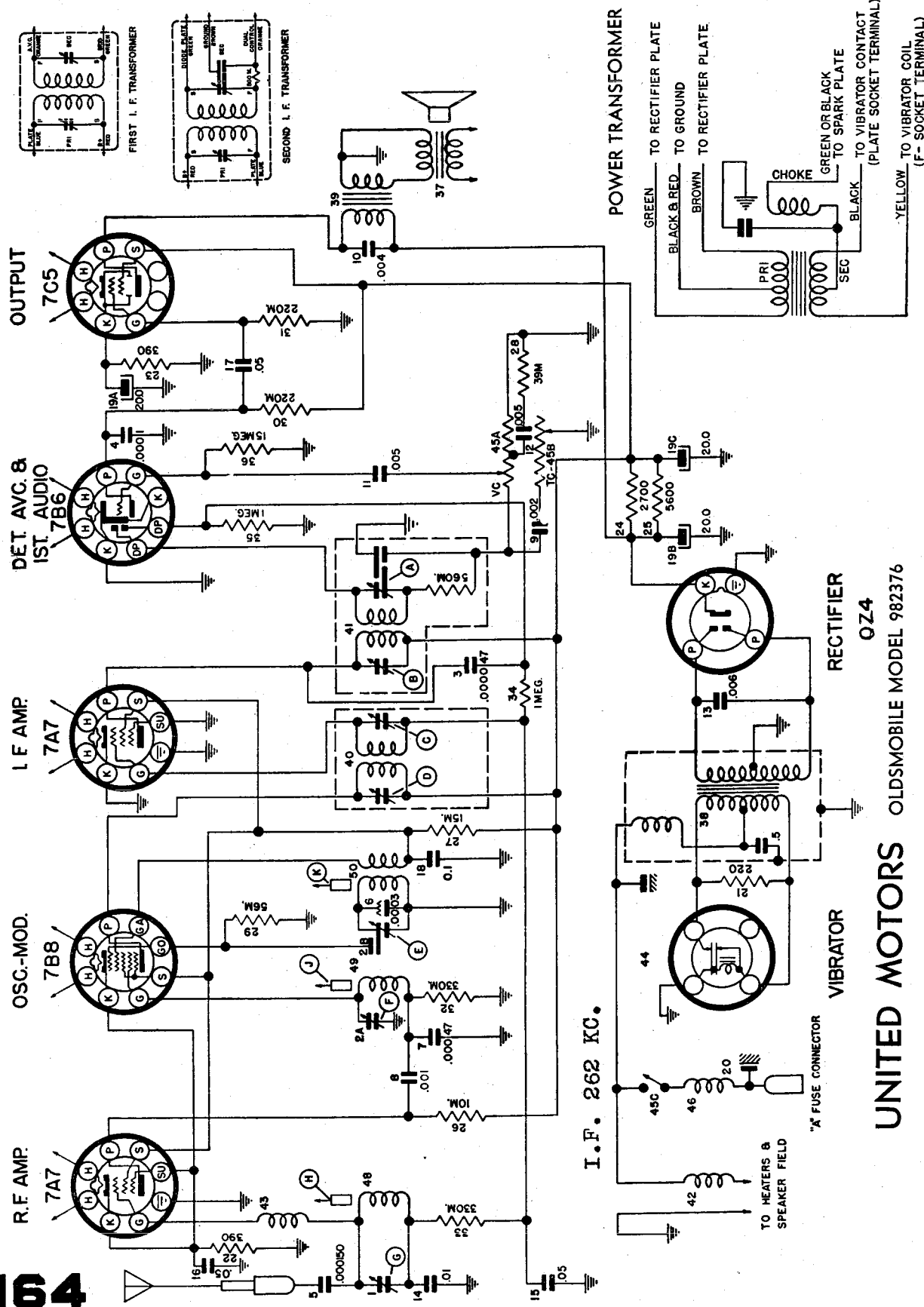
I.F. 456 KC.

**DELCO RADIO**

MODELS R-1234 AND R-1235

AC-DC SUPERHETERODYNE RECEIVERS

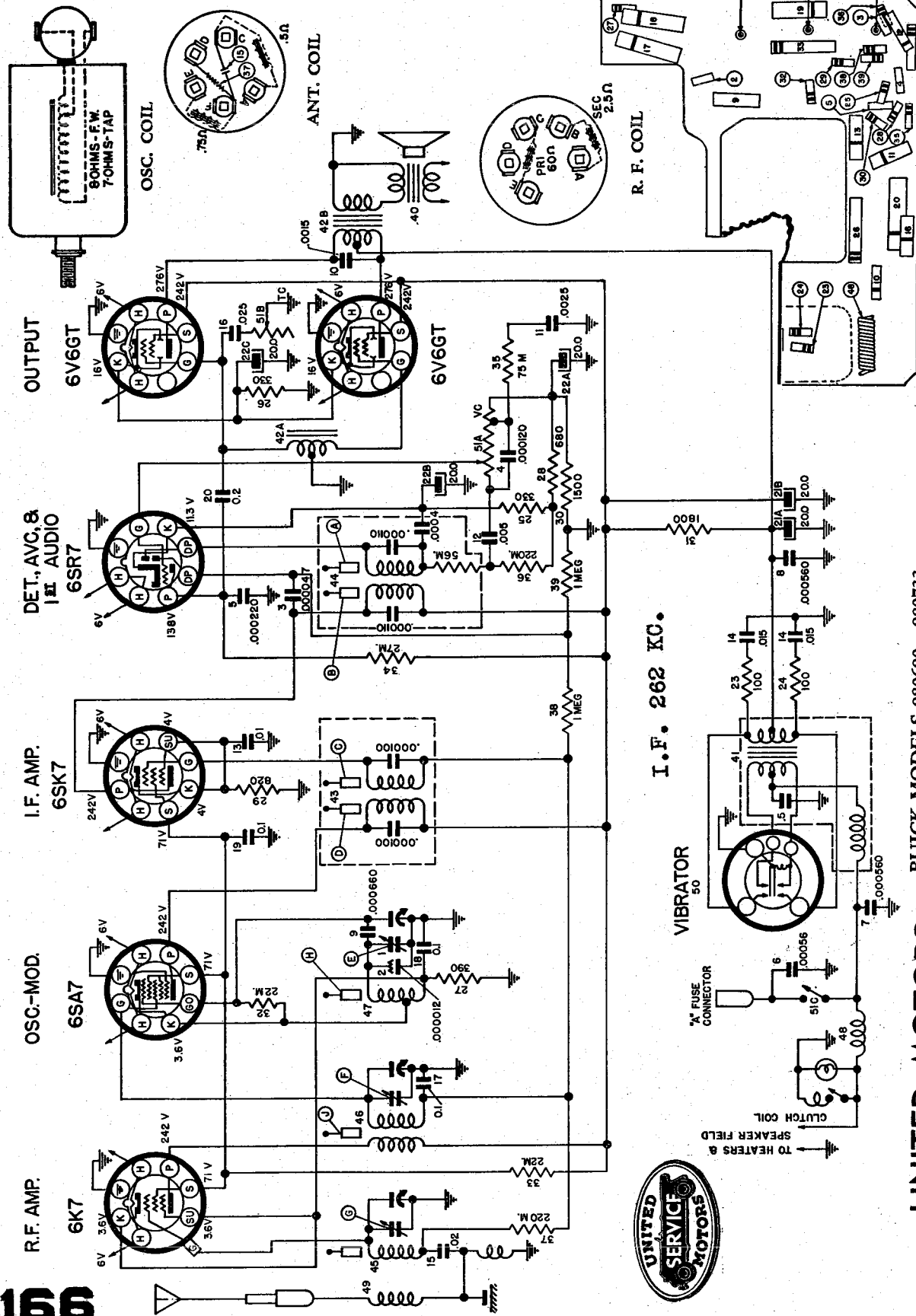
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



UNITED MOTORS OLDSMOBILE MODEL 982376



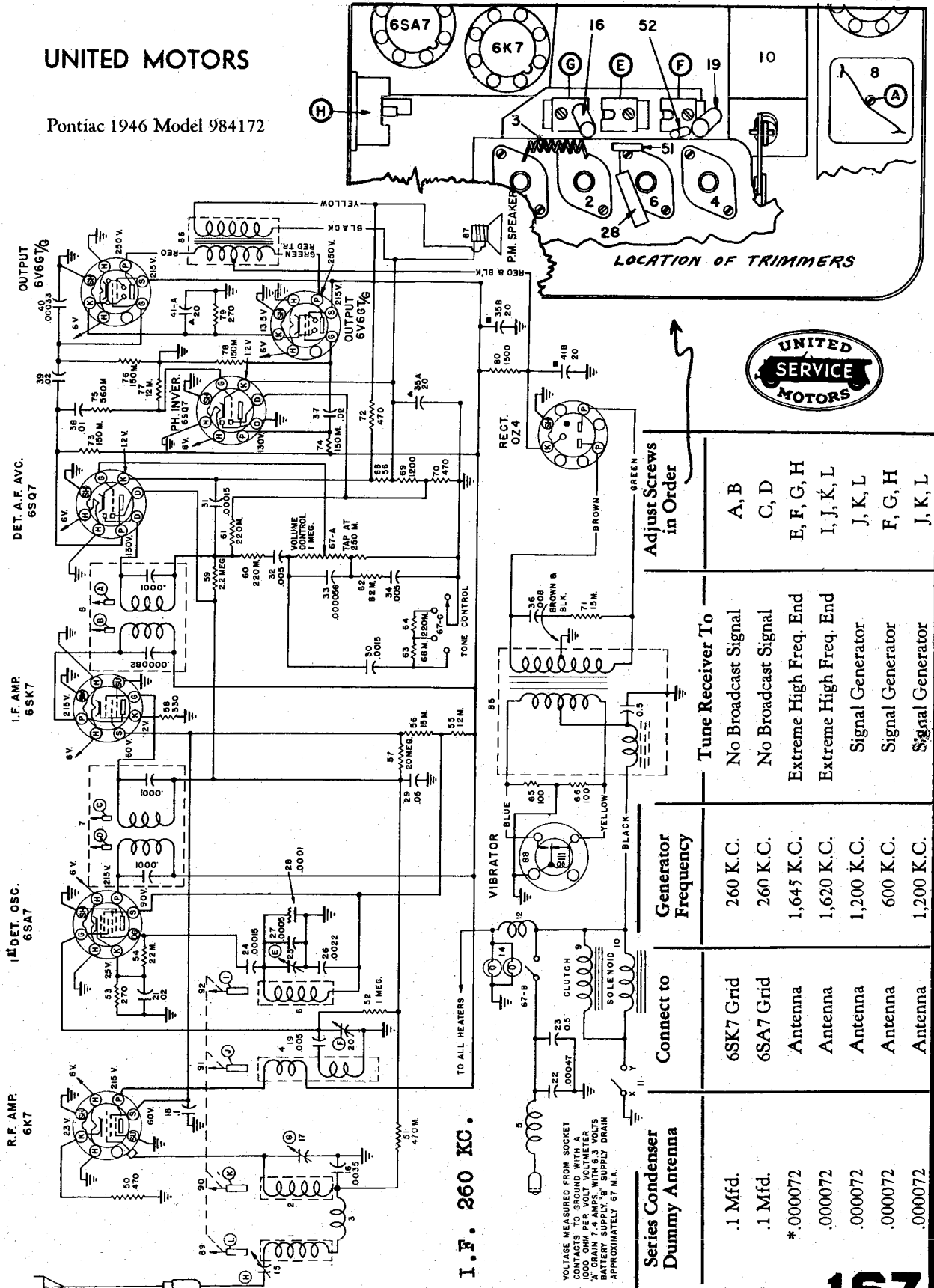
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

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

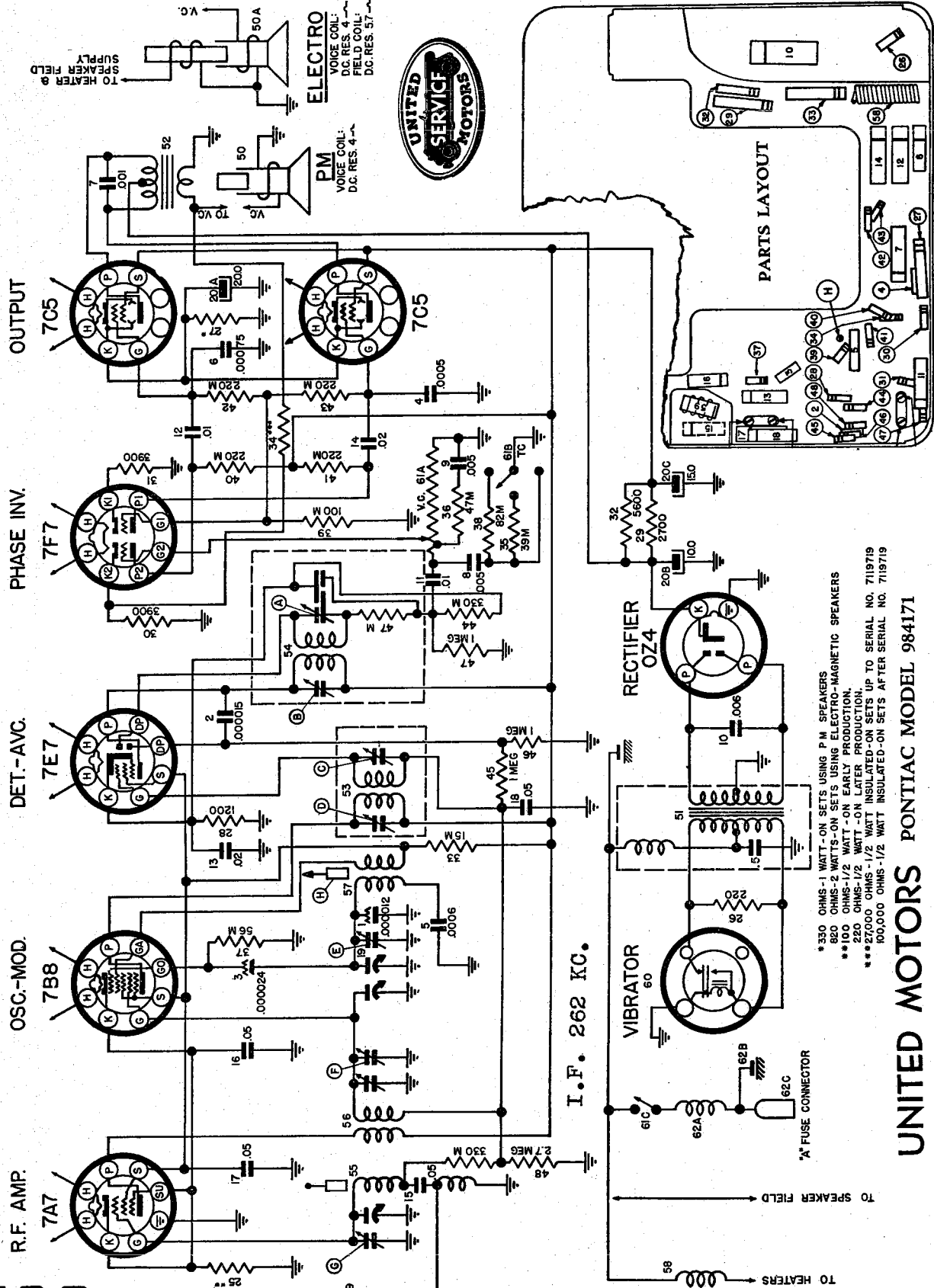
I.F. 260 KC.

VOLTAGE MEASURED FROM SOCKET CONTACTS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. A DRAIN OF 50 AMPS. WITH 8.3 VOLTS SUPPLY DRAIN APPROXIMATELY 67 M.A.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

168



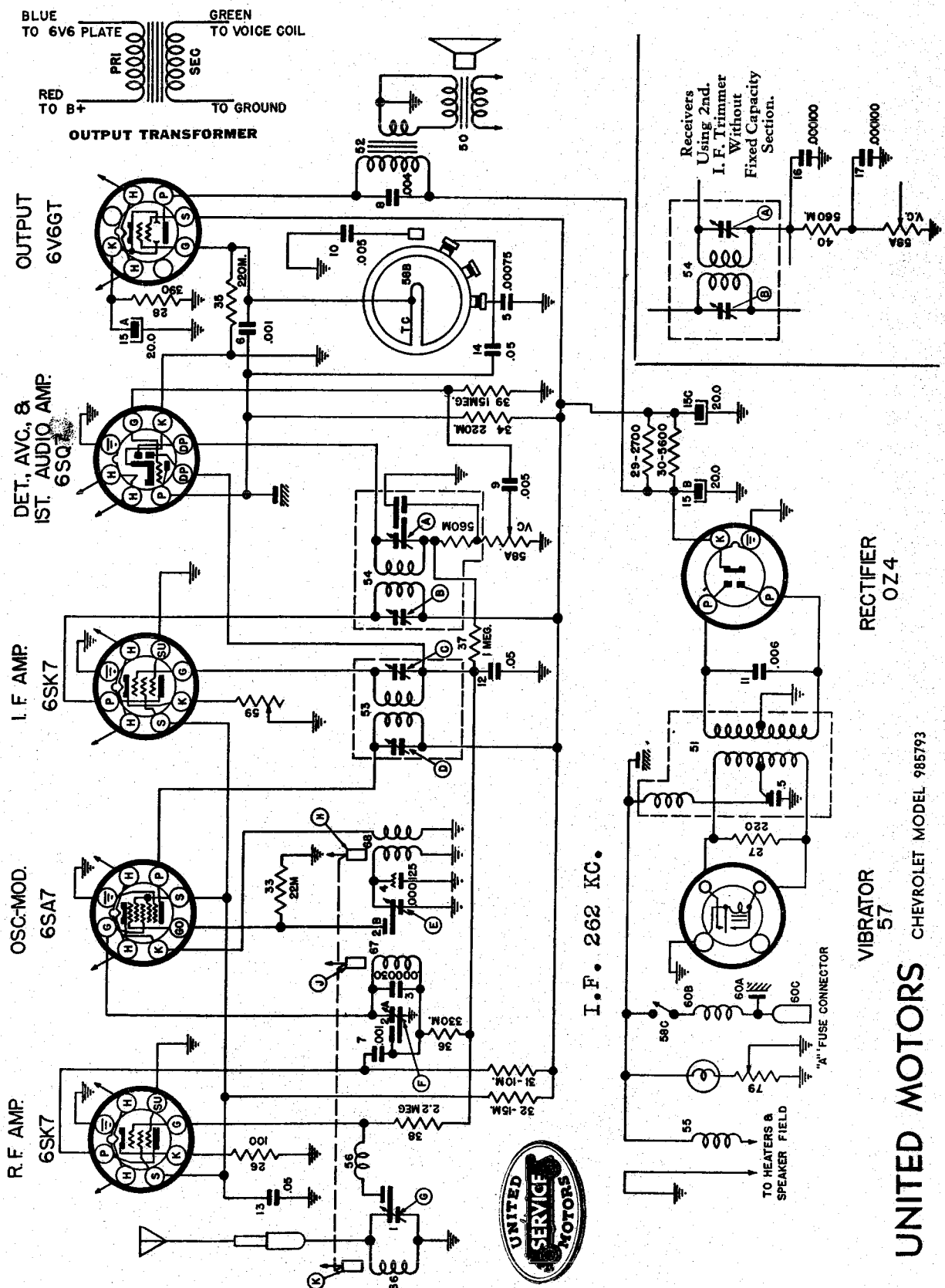
\*300 OHMS - 1 WATT - ON SETS USING P.M. SPEAKERS  
 800 OHMS - 2 WATT - ON SETS USING ELECTRO-MAGNETIC SPEAKERS  
 \*\*100 OHMS - 1/2 WATT - ON LATER PRODUCTION  
 \*\*\*27,000 OHMS - 1/2 WATT INSULATED-ON SETS UP TO SERIAL NO. 7119719  
 100,000 OHMS - 1/2 WATT INSULATED-ON SETS AFTER SERIAL NO. 7119719

**UNITED MOTORS PONTIAC MODEL 984171**

\*A FUSE CONNECTOR

TO HEATERS  
 TO SPEAKER FIELD

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

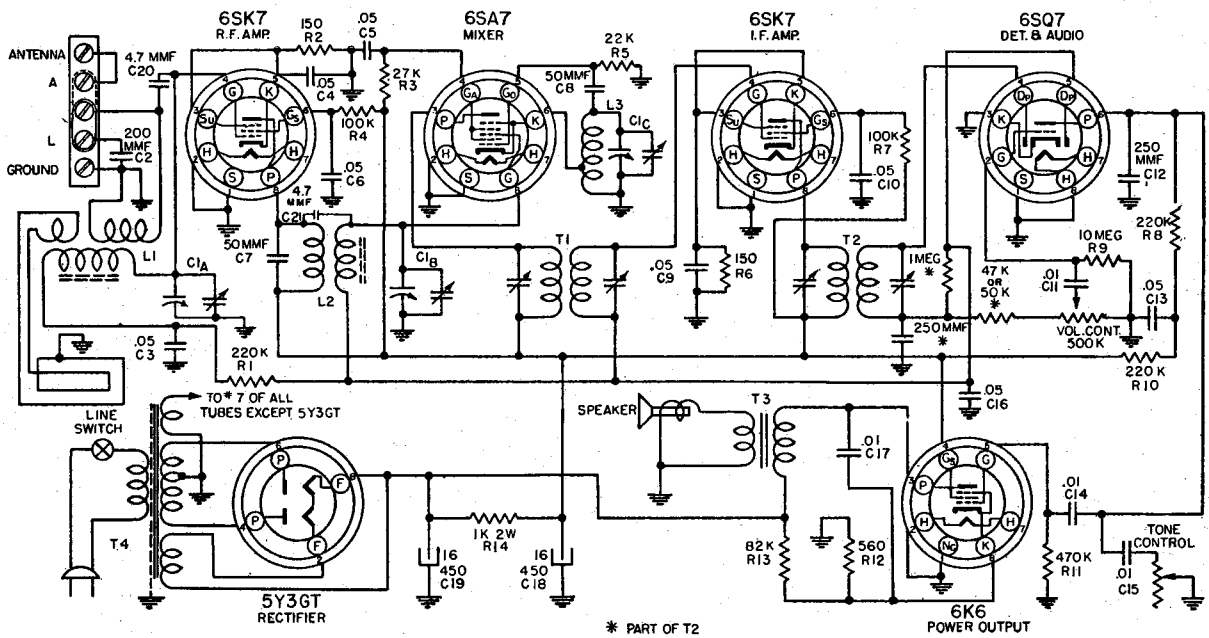
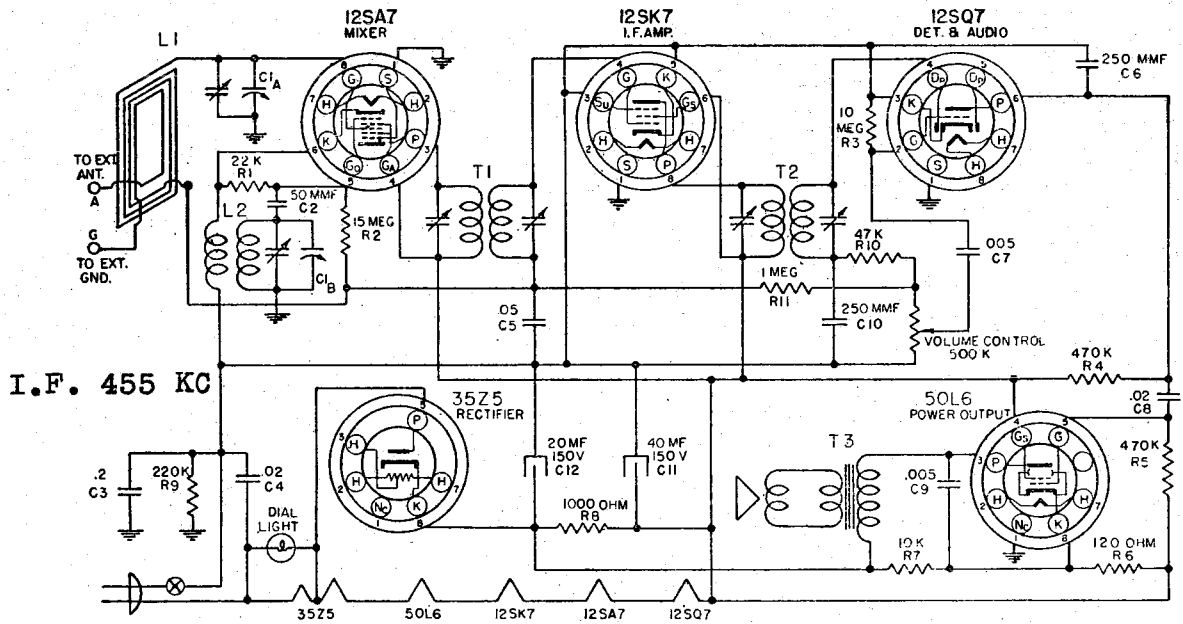




# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

WARWICK MANUFACTURING CORPORATION

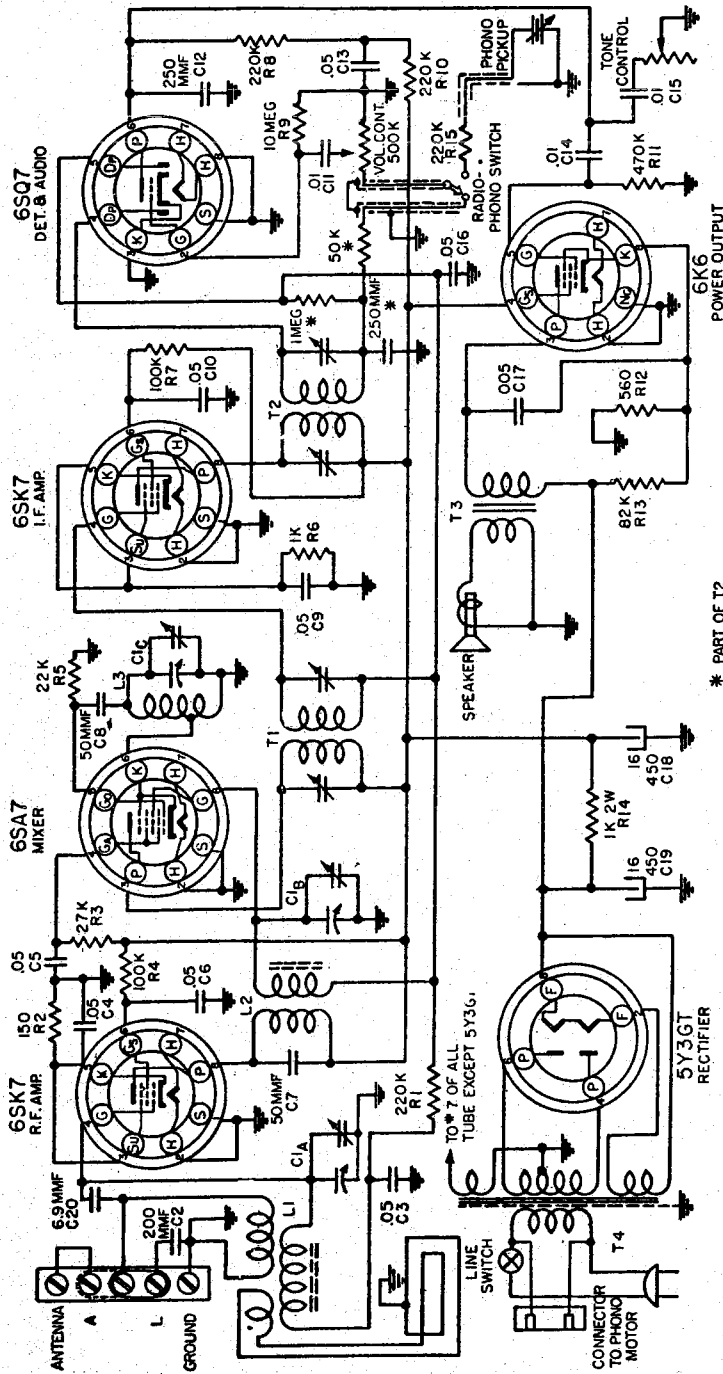
Model C102



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

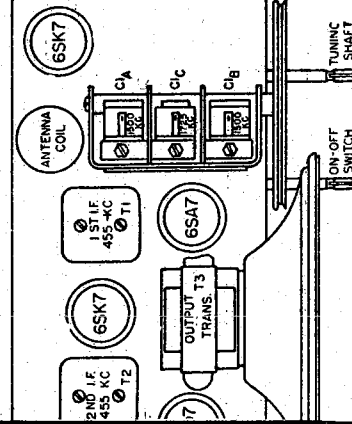
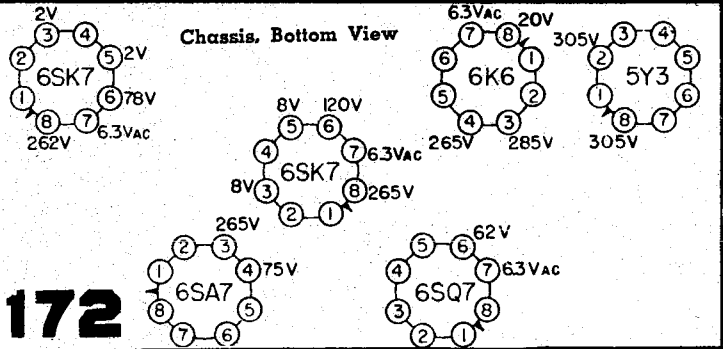
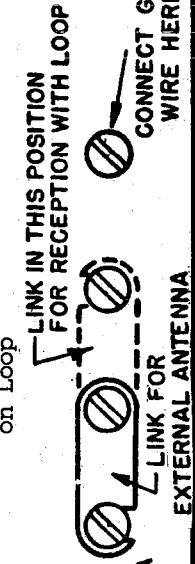
# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



\* PART OF T2

Position of Variable	Generator Frequency	Dummy Ant. mid.	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



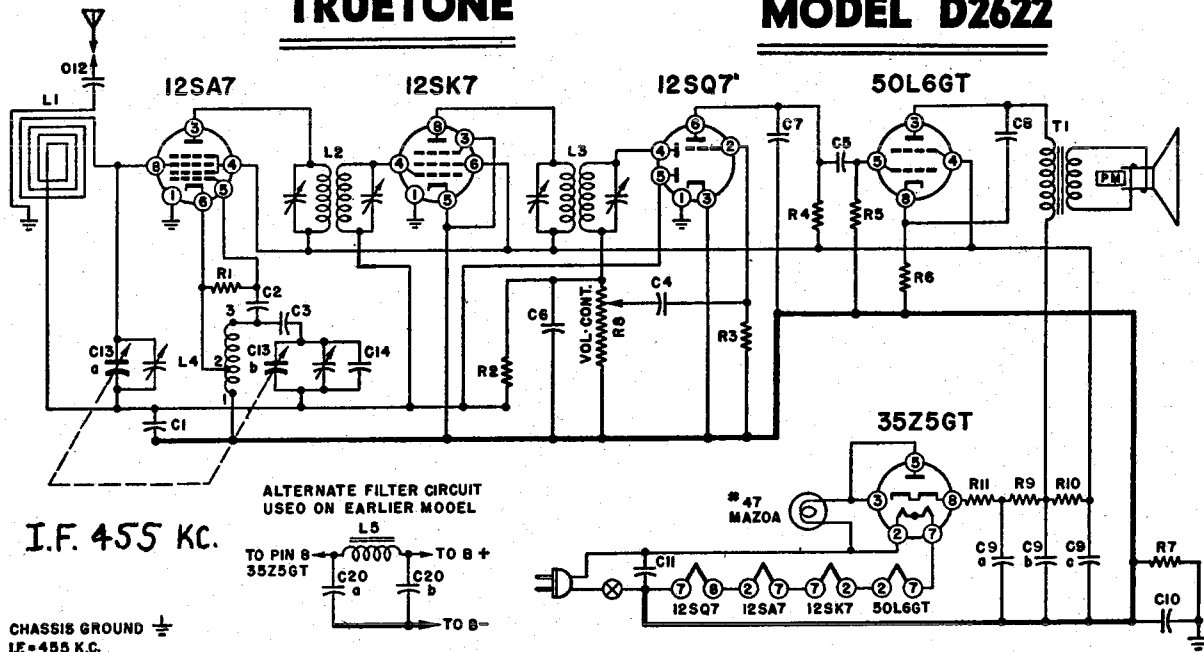
Factory Number P108D

## TRUE TONE MODEL D-1644



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## TRUETONE MODEL D2622



I.F. 455 Kc.

CHASSIS GROUND  $\perp$   
IF = 455 Kc.

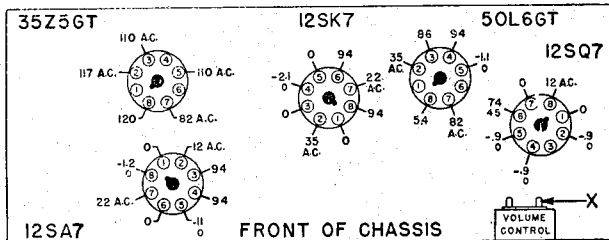
### CONDENSERS

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	C1/2W
R2	470,000 ohms	C1/2W
R3	10 megohms	C1/2W
R4	220,000 ohms	C1/2W
R5	470,000 ohms	C1/2W
R6	150 ohms	C1/2W
R7	150,000 ohms	C1/2W
R8	1 megohm	Volume Control
R9	150 ohms	CIW
R10	1,000 ohms	CIW
R11	33 ohms	CIW

### VOLTAGE DATA:-



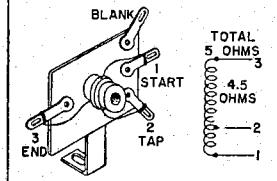
Bottom View of Chassis, Showing Voltages

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.

### COILS

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

### OSCILLATOR COIL



VOLUME CONTROL AND ON-OFF SWITCH

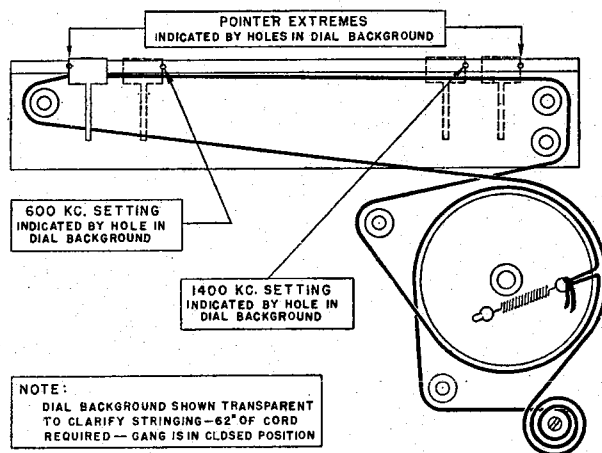


STATION SELECTOR CONTROL



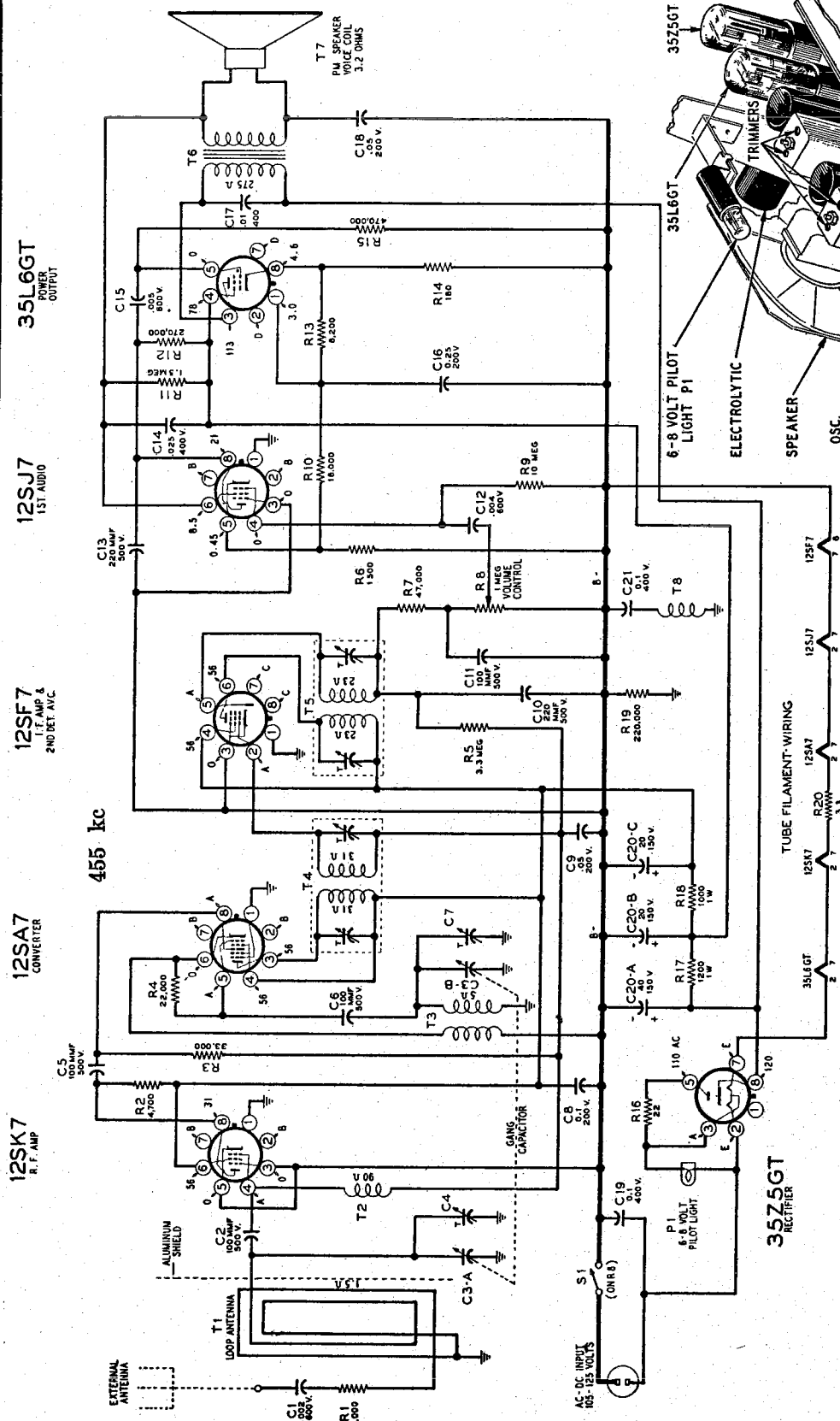
## MODEL D2622

### DIAL STRINGING AND POINTER SETTINGS:-



NOTE:  
DIAL BACKGROUND SHOWN TRANSPARENT TO CLARIFY STRINGING—62' OF CORD REQUIRED—GANG IS IN CLOSED POSITION

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



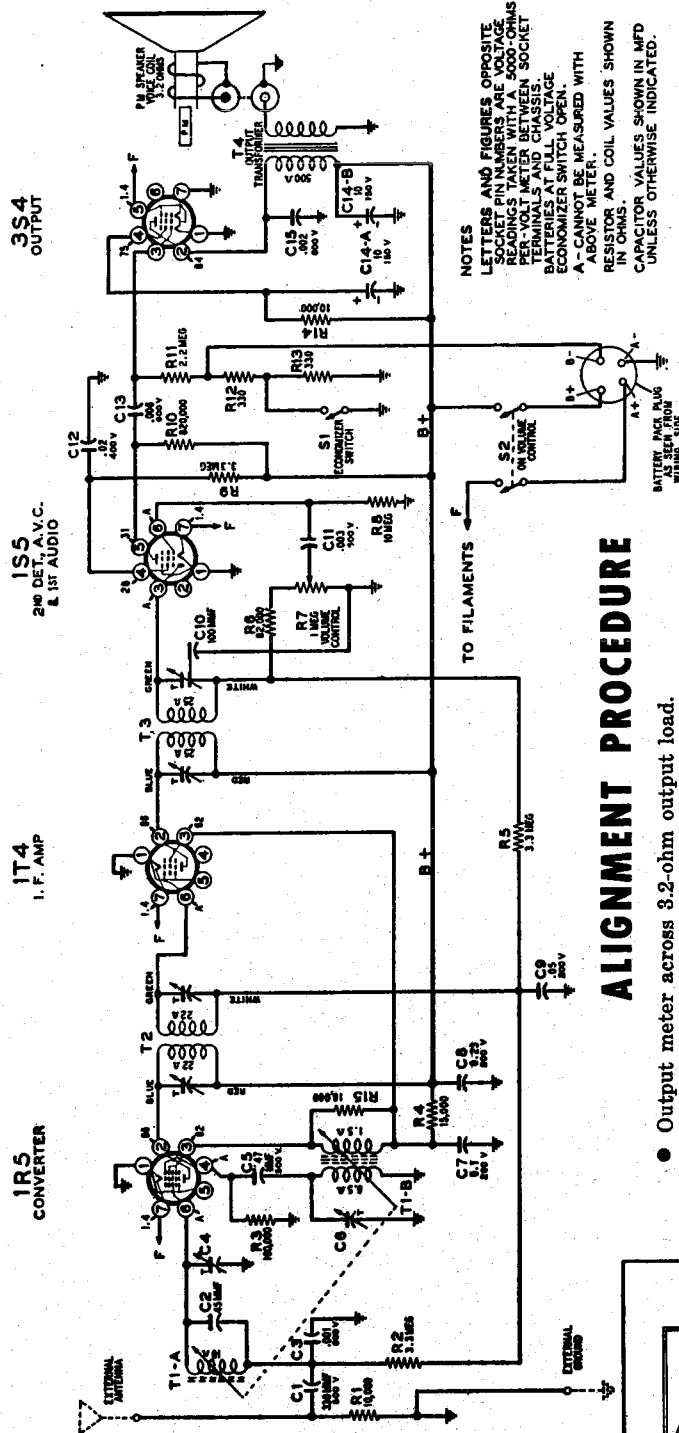
NOTES: SOCKET VOLTAGES MEASURED WITH 5000-OHMS PER VOLT DC VOLTMETER BETWEEN B- AND DESIGNATED PINS.  
 A CANNOT BE MEASURED WITH 5000-OHMS PER-VOLT DC VOLTMETER.  
 B 12 VOLTS AC BETWEEN PINS 2 AND 7.  
 C 12 VOLTS AC BETWEEN PINS 7 AND 8.  
 D 35 VOLTS AC BETWEEN PINS 2 AND 7.  
 E 34 VOLTS AC BETWEEN PINS 2 AND 7.  
 RESISTOR VALUES ARE 1/2 WATT UNLESS OTHERWISE SHOWN  
 CAPACITOR VALUES SHOWN IN "MF" UNLESS OTHERWISE INDICATED.

WESTERN AUTO SUPPLY COMPANY

**MODEL D2616**  
 Factory Model 6D117



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



**NOTES**  
 LETTERS AND FIGURES OPPOSITE  
 TUBES INDICATE PIN POSITIONS.  
 READINGS TAKEN WITH A 5000-OHM  
 PER-VOLT METER BETWEEN SOCKET  
 TERMINALS AND CHASSIS.  
 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.

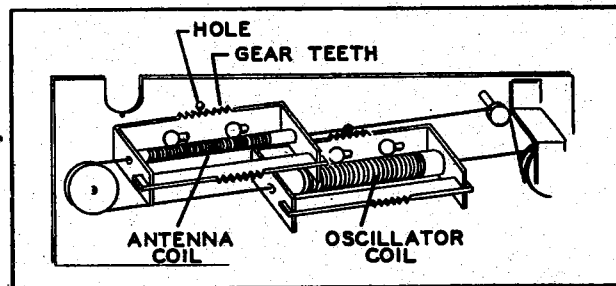
## ALIGNMENT PROCEDURE

- 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		Connection to Radio	Tuner Setting	Adjust for Maximum Output (in order shown)
Frequency	455 kc	Grid (pin 6) of 1R5	Iron cores all the way out	Trimmers on output and input I.F. cans
	1700 kc	Grid (pin 6) of 1R5	Iron cores all the way out	Oscillator trimmer C6
	1700 kc	Antenna lead	Iron cores all the way out	Antenna trimmer C4
	1400 kc	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.

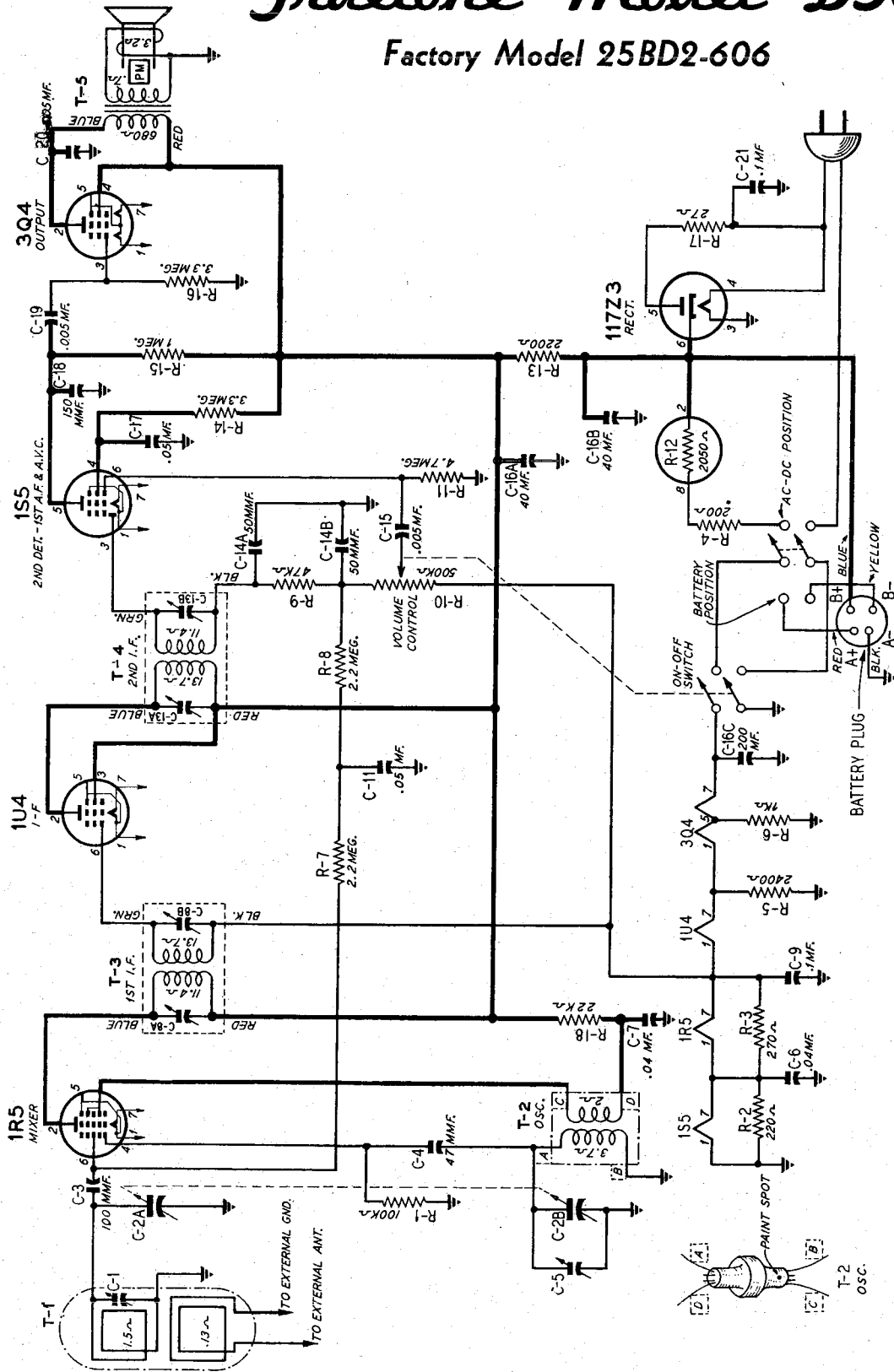
WESTERN AUTO SUPPLY

MODEL D2665

Factory Model 4B114 - Series A

# Jruetone Model D3615

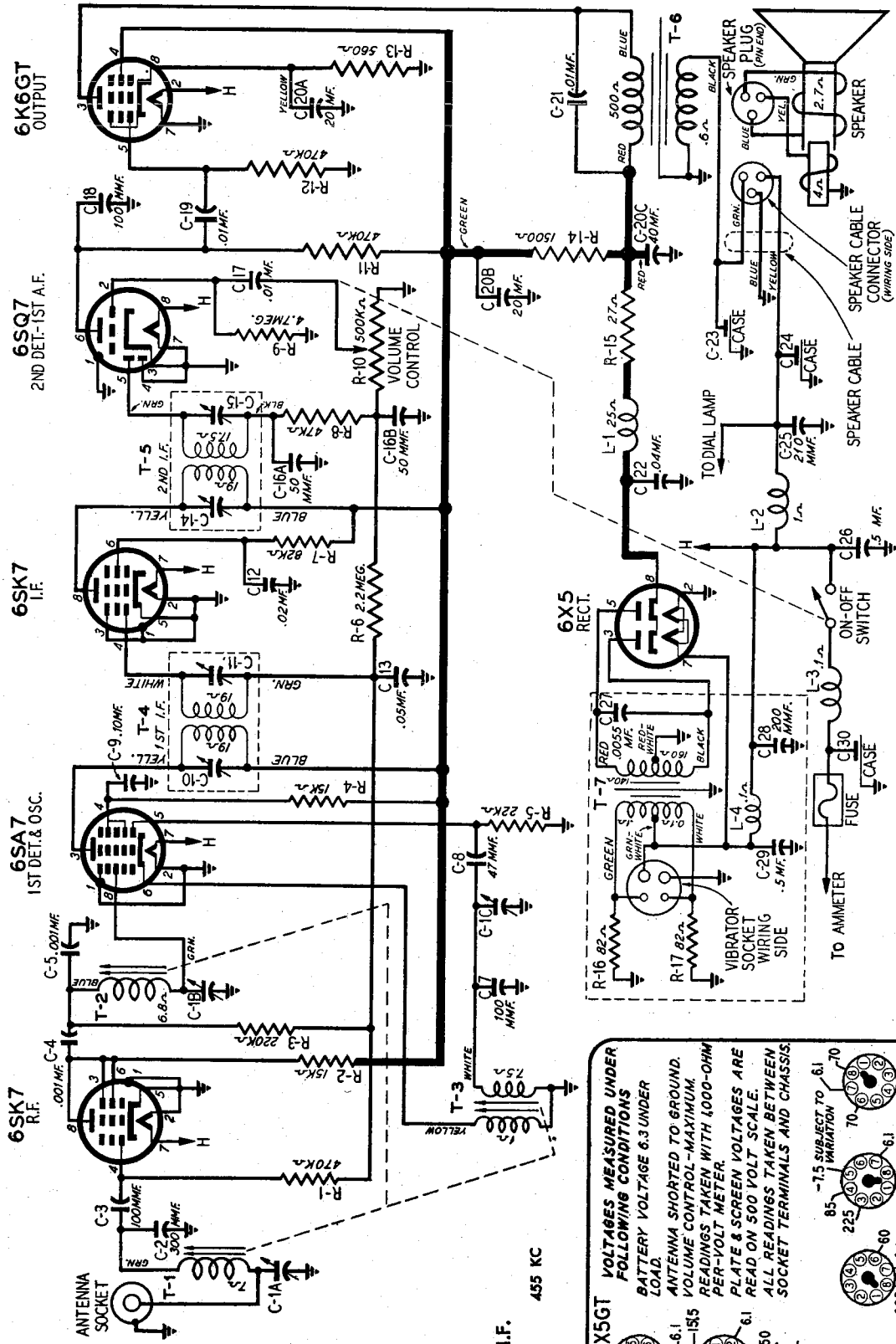
Factory Model 25BD2-606



"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

MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS



*Truetone Model D4630*

Factory Model 26C19-61

**6X5 OR 6X5GT RECT.**  
 270-1 6.1  
 155 6.1  
 225 250 6.1  
 60 6.1

**6SK7 I.F.**  
 225-1 L 6.1  
 70 6.1  
 85 6.1

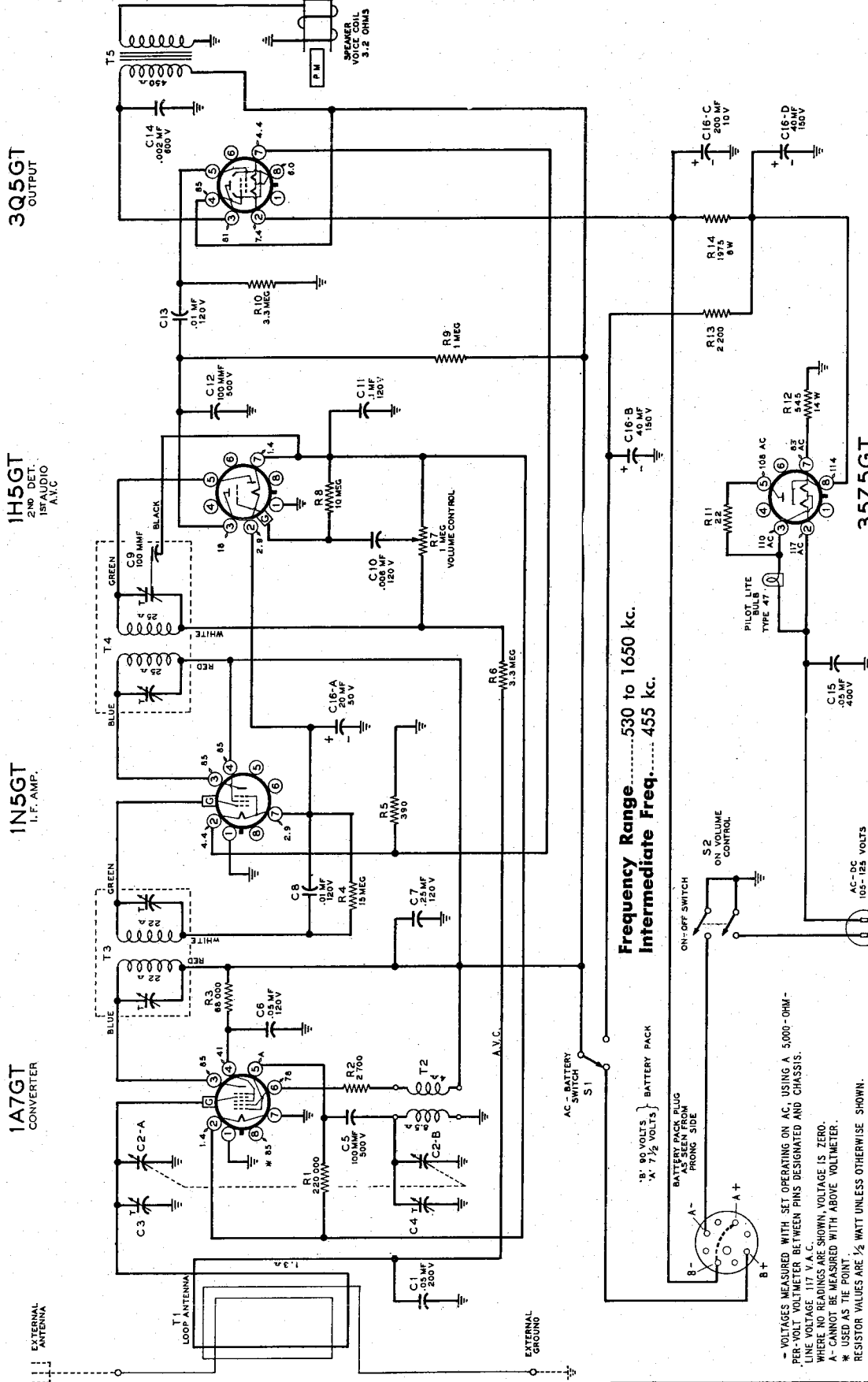
**6SA7 1ST DET. & OSC.**  
 225 6.1  
 70 6.1  
 85 6.1

**6SK7 R.F.**  
 225 6.1  
 70 6.1  
 85 6.1

**6K6GT OUTPUT**  
 225 6.1  
 70 6.1  
 85 6.1

**VOLTAGES MEASURED UNDER FOLLOWING CONDITIONS:**  
 BATTERY VOLTAGE 6.3 UNDER LOAD.  
 ANTENNA SHORTED TO GROUND.  
 VOLUME CONTROL - MAXIMUM.  
 READINGS TAKEN WITH 1000-OHM PER-VOLT METER.  
 PLATE & SCREEN VOLTAGES ARE READ ON 500 VOLT SCALE.  
 ALL READINGS TAKEN BETWEEN SOCKET TERMINALS AND CHASSIS.

**-7.5 SUBJECT TO .61 VARIATION**



**MODEL D3619**  
Factory Model 5P110

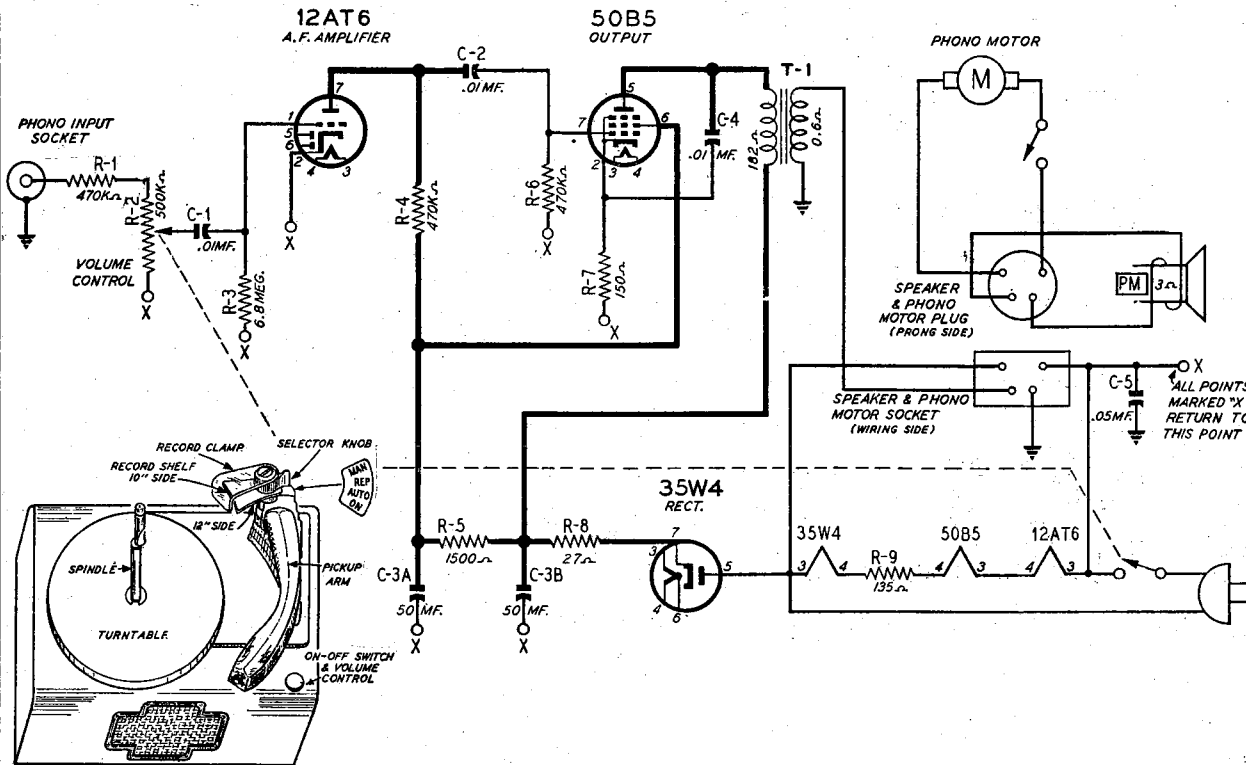
# TRUETONE RADIO

Frequency Range.....530 to 1650 kc.  
Intermediate Freq.....455 kc.

\*- VOLTAGES MEASURED WITH SET OPERATING ON AC, USING A 5,000-OHM-  
PER-VOLT METER BETWEEN PINS DESIGNATED AND CHASSIS.  
C- LINE VOLTAGE MEASURED BETWEEN PINS DESIGNATED AND CHASSIS.  
A- CANNOT BE MEASURED WITH ABOVE VOLT-METER.  
\* USED AS THE POINT  
RESISTOR VALUES ARE 1/2 WATT UNLESS OTHERWISE SHOWN.

# Truetone Model D2607

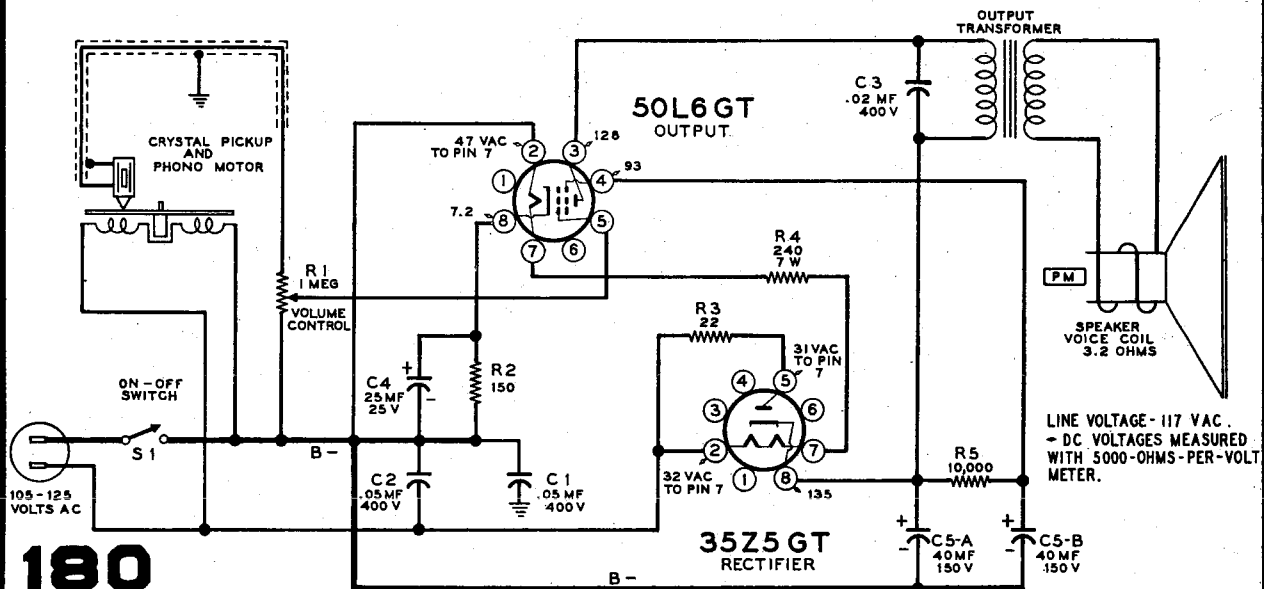
Factory Model 23P1-634



# TRUETONE

## MODEL D2605

Factory Model 2AW2



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Westinghouse Electric

**H-104** MAHOGANY  
**H-105** WALNUT

**H-107** MAHOGANY  
**H-108** WALNUT

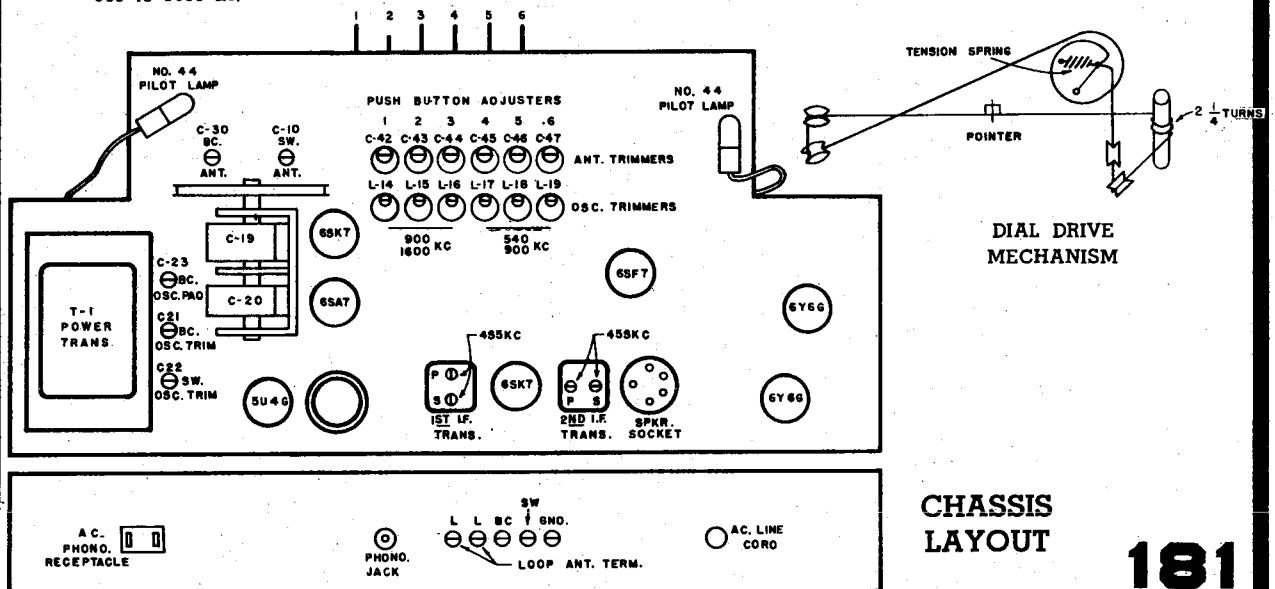
Steps	Connect Signal Generator to—	Adjust Signal Generator to—	Tune Radio Dial to —	Adjust
1	6SK7, i-f amplifier, control grid through a 0.1 mfd. capacitor	455 kc	550 kc	secondary trimmer or 2nd i-f transformer for maximum output
2	6SK7, i-f amplifier, control grid through a 0.1 mfd. capacitor	455 kc	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.

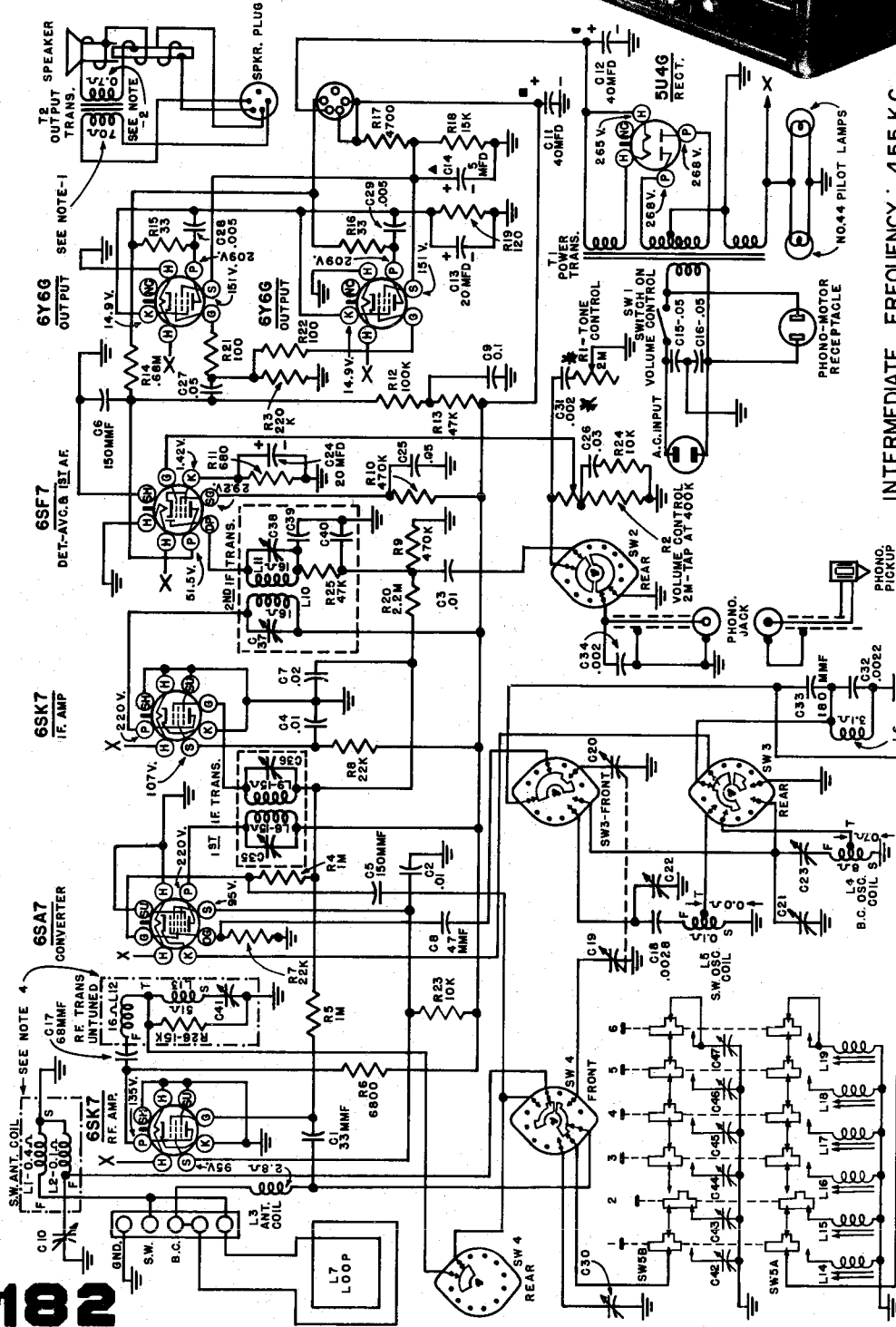
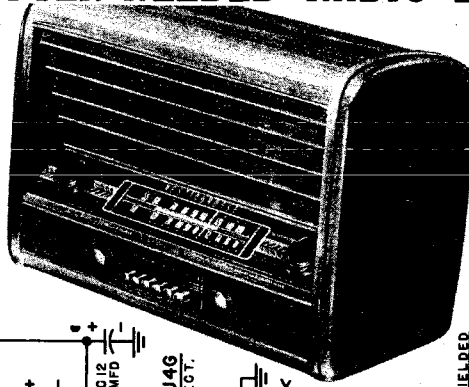
3. Reset the phono-band switch on "PUSH BUTTON" and depress the first push button (right button, viewed from the front). Adjust L14, using a small long-handled screwdriver, to receive the station. Adjust C42 for maximum volume on the station.
4. Return the band switch to "BROADCAST" to make sure that the push button has been set to the desired station.
5. Adjust remaining push buttons in the same manner.



# 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.

H-104 & H-105



INTERMEDIATE FREQUENCY: 455 KC

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.
4. DOT-DASH LINE DENOTES ASSEMBLY OF COMPONENT PARTS UNSHIELDED.
5. ALL VOLTAGES MEASURED FROM CHASSIS (GND.) USING 20,000 OHMS/VOLT METER. LINE FOR THE BROADCAST BAND. READINGS SHOULD APPROXIMATE THE VALUES SHOWN WITHIN 20 PERCENT.

\*R1-C51 in some later models were wired across R14 for tone control action.

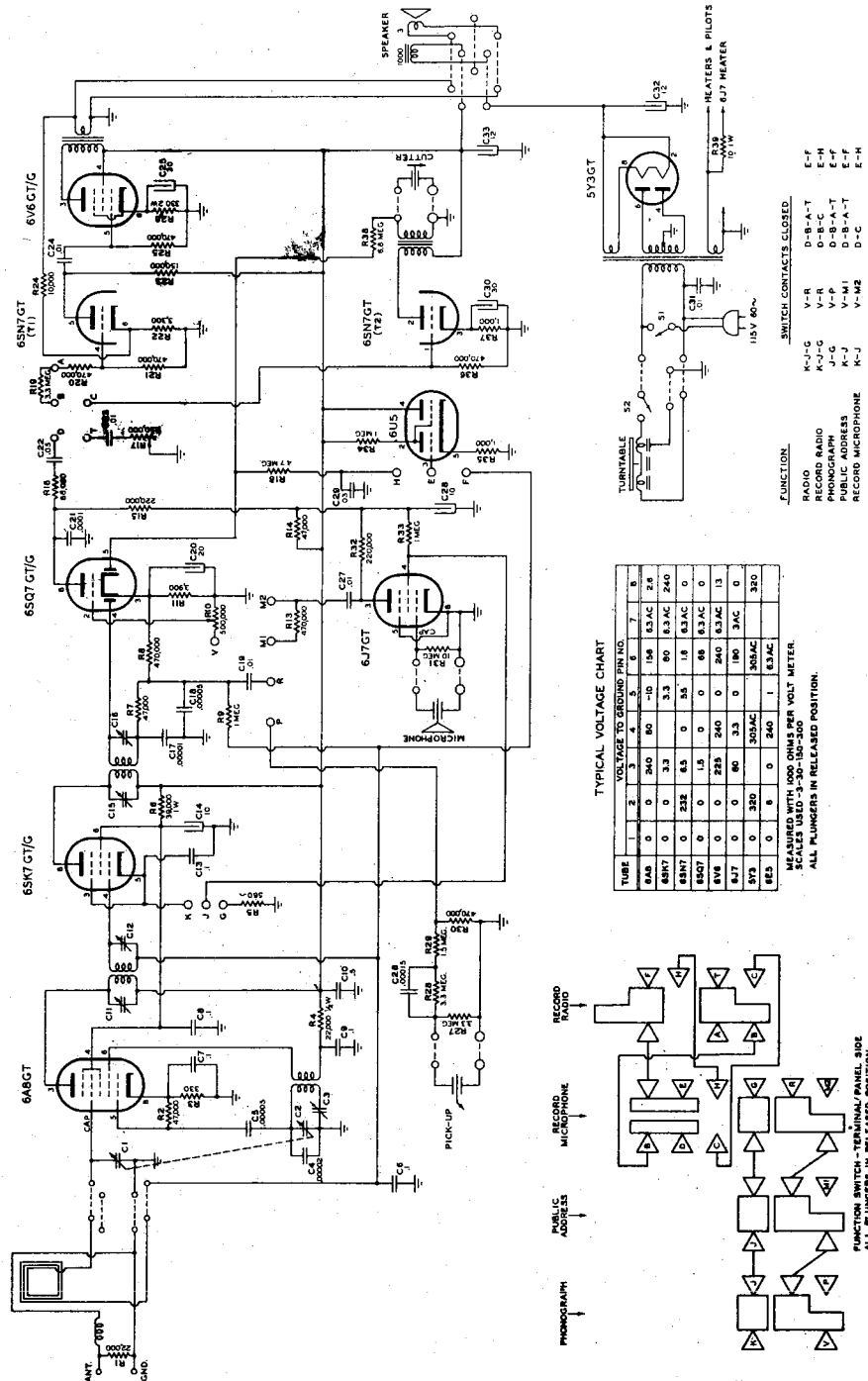
**H-104 H-105 H-107 H-108**  
MAHOAGNY WALNUT MAHOAGNY WALNUT

# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

WILCOX-GAY CORPORATION—CHARLOTTE, MICHIGAN

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

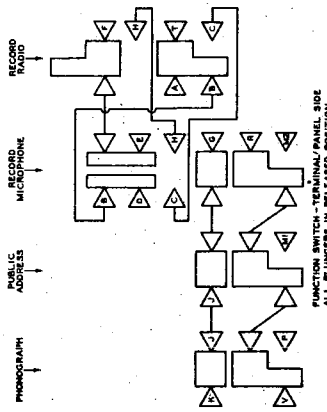
### Schematic Diagram—Serial Numbers 701, 752 to 703, 631



TYPICAL VOLTAGE CHART

TUBE	1	2	3	4	5	6	7	8
6AB	0	240	80	-10	156	83AC	2.8	
6BCT	0	232	63	0	18	83AC	0	
6SQT	0	0	1.5	0	0	83AC	0	
6J7GT	0	0	228	240	0	240	83AC	13
6SNT	0	80	3.3	0	180	3AC	0	
6J7	0	0	0	0	240	1	83AC	320
6S2	0	0	0	0	240	1	83AC	

MEASURED WITH 1000 OHMS PER VOLT METER.  
SCALES USED: 1-30-50-100-300.  
ALL PLUNGERS IN RELEASED POSITION.



FUNCTION:  
RADIO  
RECORD RADIO  
PHONOGRAPH  
PUBLIC ADDRESS  
RECORD MICROPHONE

SWITCH CONTACTS CLOSED:  
K-L-G  
K-J-G  
J-G  
V-P  
V-MI  
V-M2  
D-B-A-T  
D-B-A-T  
D-B-A-T  
D-B-A-T  
D-B-A-T  
D-C

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.

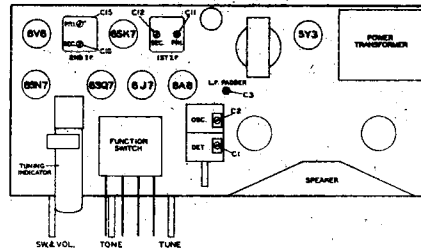
Alignment data continued on the next page.



# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

## 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

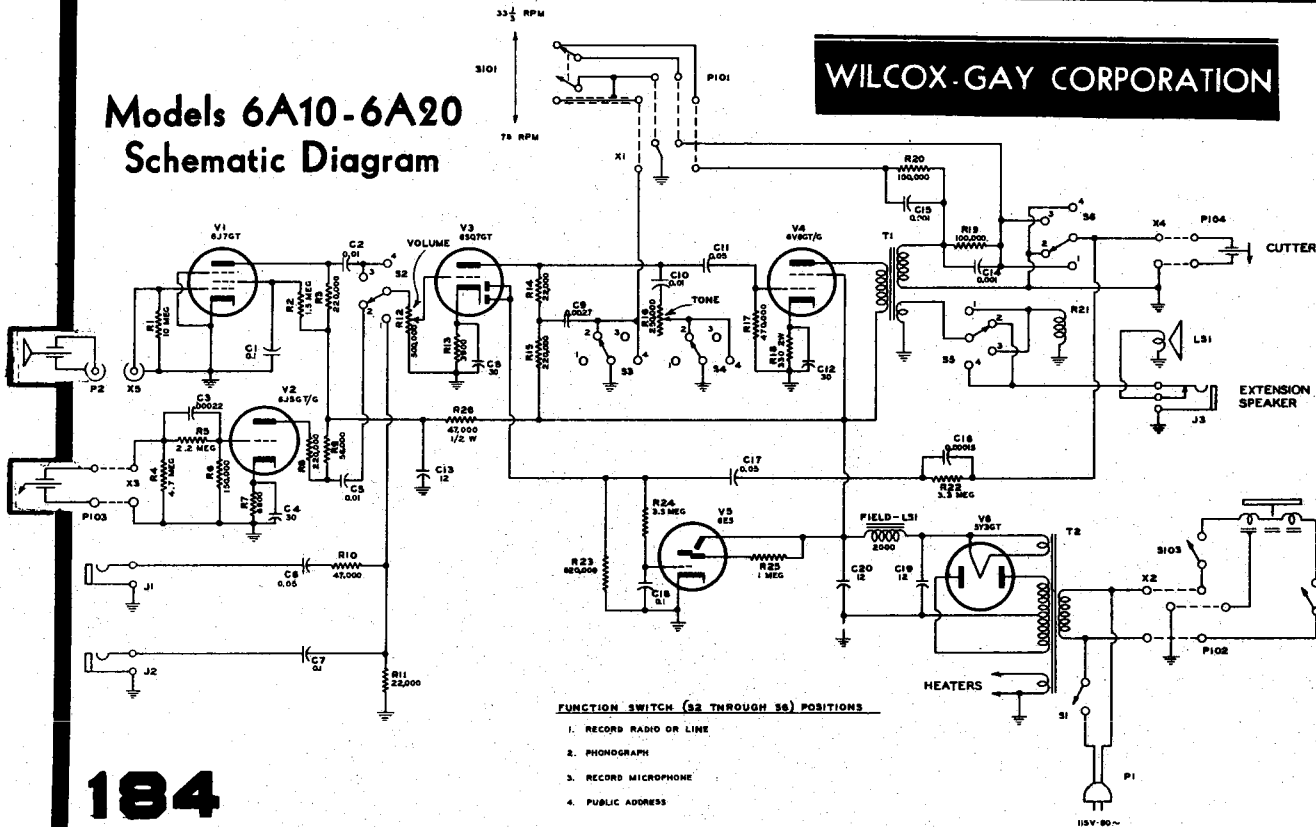
600 K.C.  
1400 K.C.  
1400 K.C.

600 K.C.  
1400 K.C.  
1400 K.C.

L.F. Pad (C3)  
Osc. (C2)  
Det. (C1)

### Models 6A10-6A20 Schematic Diagram

WILCOX-GAY CORPORATION



FUNCTION SWITCH (S2 THROUGH S6) POSITIONS

1. RECORD RADIO OR LINE
2. PHONOGRAPH
3. RECORD MICROPHONE
4. PUBLIC ADDRESS







# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

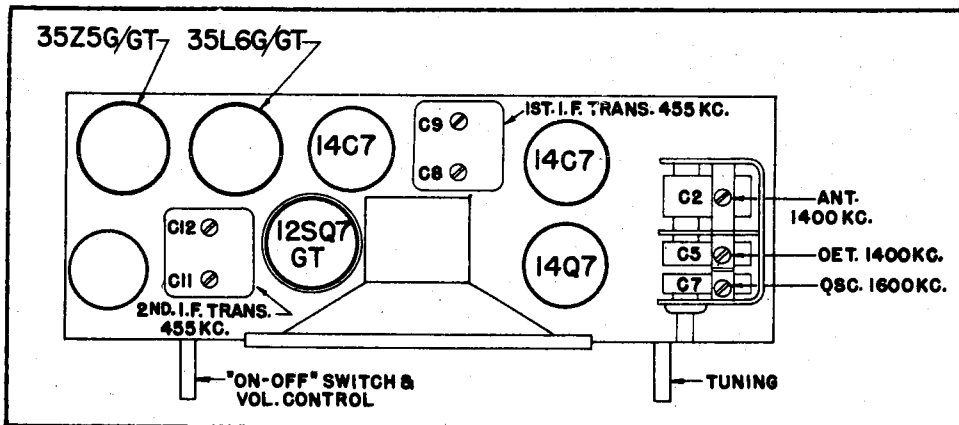
Zenith Radio Corp.

**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.





# MANUAL OF 1947 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Zenith Radio Corp.

**MODELS 8H023 - 8H034**

**CHASSIS No. 8C01**

Opera- tion	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 wavetrapp 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		L21 coil slug Primary discr.	Align primary of discriminator for maximum reading
6 (b)	Pin 4 (grid) on 6SH7 limiter socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L22 coil slug sec. of discr.	Adjust secondary of discrimin- ator for zero reading
7 (c)	Pin 4 (grid) on 6SH7 2nd IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		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		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		L9 & L10 Primary & Sec. of 1st IF transformer	Align 1st IF transformer for maximum reading
10 (c)	Antenna Post (Re- move line ant.)	270 ohms	98 Mc. Unmodulated	FM	98 Mc.	L7 Osc. Coil slug	Set oscillator to dial scale
11 (c)	Antenna Post (Re- move line ant.)	270 ohms	98 Mc. Unmodulated	FM	98 Mc.	L3 & L2 Det. and RF coil slugs	Align det. and ant. stages to maximum reading
12 (c)	Antenna Post (Re- move line ant.)	270 ohms	45 Mc. Unmodulated	FM	45 Mc.	C14	Set oscillator to dial scale
13 (c)	Antenna Post (Re- move line ant.)	270 ohms	45 Mc. Unmodulated	FM	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.

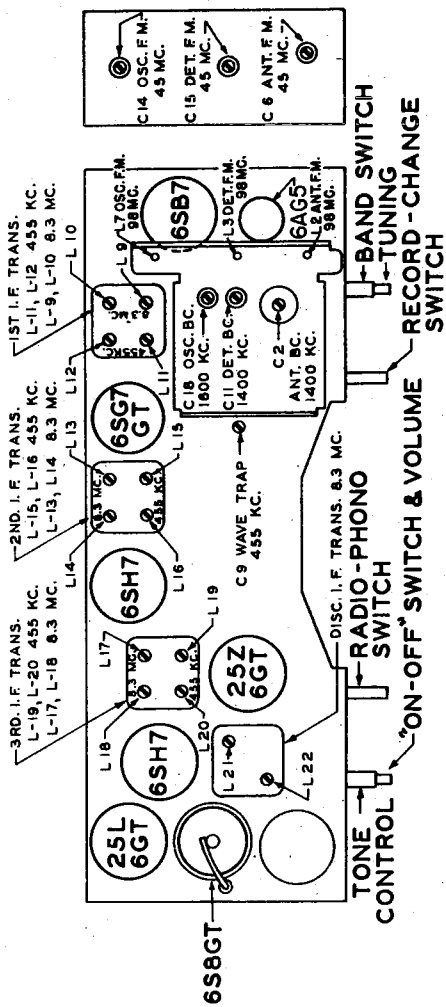
**AM Alignment:** The alignment of this chassis on the standard broadcast band is conventional. The alignment slugs in the IF transformers are threaded and screw into the coil forms. The slugs are slotted for a small size fiber screw driver. Do not press hard on the aligning tool (fiber screw driver)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

**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 8.5 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.



**TUBE AND TRIMMER LOCATION**



*Another  
Supreme Publications  
Service Manual*

**Supreme Publications are Available at All Leading Radio Jobbers**