Most-Often-Needed

1955

VOLUME R-15

RADIO DIAGRAMS

and Servicing Information

THEORY
PRACTICE EXPERIENCE

Compiled by

M. N. BEITMAN

SUPREME PUBLICATIONS

VOLUME R-15
PRICE $2

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1955

Volume 15

RADIO DIAGRAMS

and Servicing Information

Supreme Publications

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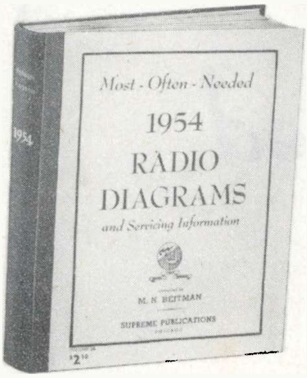
RADIO DIAGRAM MANUALS



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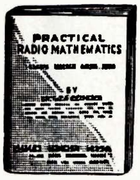

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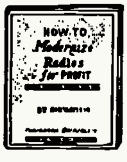

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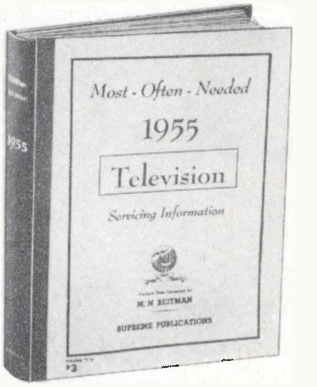

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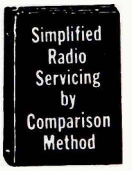

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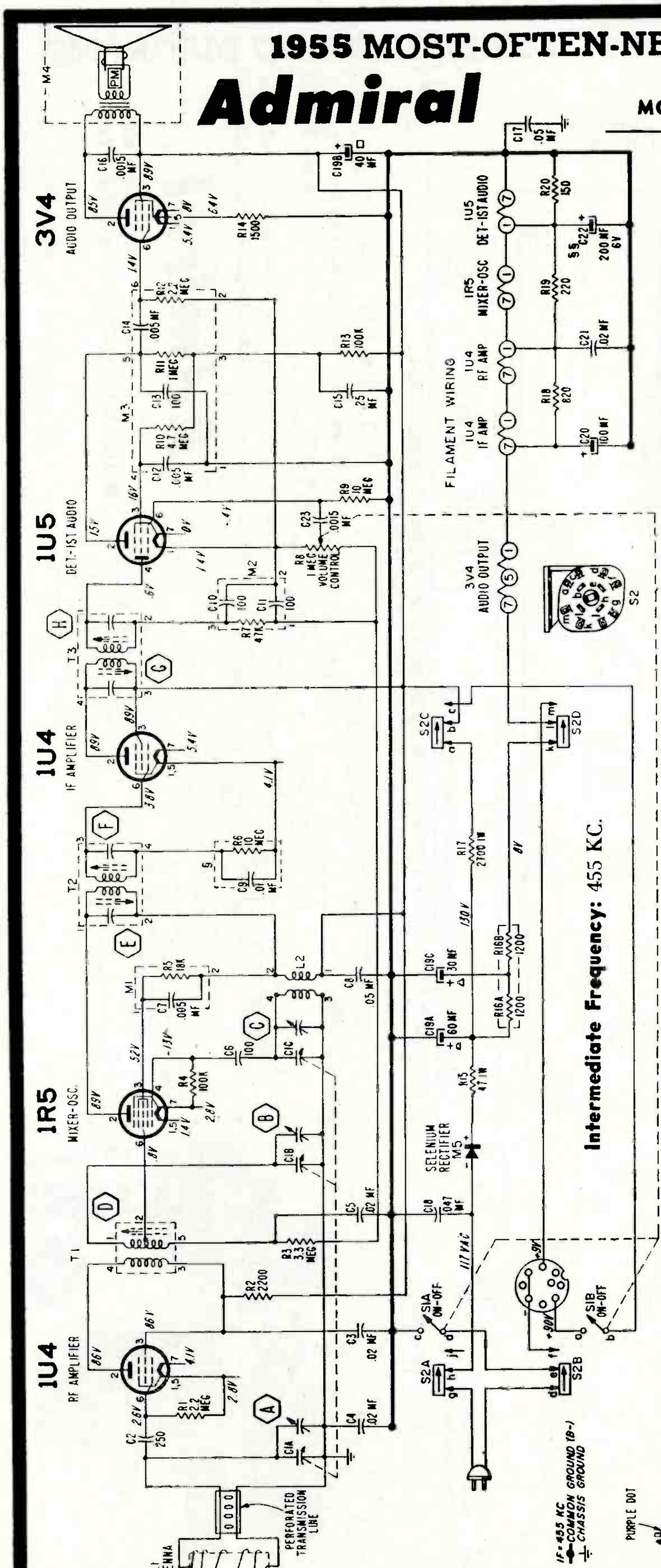
1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

Admiral

CHASSIS 5K3

MODELS 5K31, 5K32, 5K34, 5K38, 5K39


M4
PM
3V4
AUDIO OUTPUT
1U5
DET-1ST AUDIO
1U4
IF AMPLIFIER
1R5
MIXER-OSC.
1U4
RF AMPLIFIER
C16 .0015 MF
C19B 40 MF
C17 .05 MF
R14 1500
R12 2.2 MEG
C14 .005 MF
R13 100K
R11 1 MEG
C13 100
C15 .25 MF
R10 4.7 MEG
M3
C12 .005 MF
R9 10 MEG
C23 .0015 MF
R8 1 MEG VOLUME CONTROL
M2
C10 100
C11 100
R7 47K
T3
T2
R6 10 MEG
C9 .01 MF
L2
C8 .05 MF
M1
R5 18K
C7 .005 MF
C6 100
R4 100K
C1A
C1B
C1C
C5 .02 MF
C18 .047 MF
T1
R3 3.3 MEG
R2 2200
C3 .02 MF
C4 .02 MF
C2 250
R1 2.2 MEG
PERFORATED TRANSMISSION LINE
L1 ANTENNA
C19C 30 MF
C19A 60 MF
R16B 1200
R16A 1200
R17 2100 1W
R15 47 1W
SELENIUM RECTIFIER M5
117 VAC
S1A ON-OFF
S1B ON-OFF
S2A
S2B
S2C
S2D
S2
-9V
+90V
FILAMENT WIRING
1U4 IF AMP
1U4 RF AMP
1R5 MIXER-OSC
1U5 DET-1ST AUDIO
3V4 AUDIO OUTPUT
R18 820
R19 220
R20 150
C20 100 MF
C21 .02 MF
C22 200 MF 6V
IF = 455 KC
COMMON GROUND (B-)
CHASSIS GROUND
A
B
C
D
E
F
G
H

Intermediate Frequency: 455 KC.

NOTE: S2 SHOWN IN AC POSITION. ALL VOLTAGE READINGS TAKEN WITH A VACUUM TUBE VOLTMETER.

(A), *ETC; INDICATE ALIGNMENT POINTS*

§ *IN EARLY MODELS; C9 AND R6 WERE A COUPLATE. REPLACE COUPLATE WITH INDIVIDUAL COMPONENTS.*

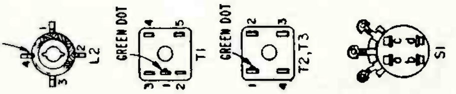
§§ *IN EARLY MODELS, C22 WAS .1 MF, 200 VOLT PAPER. REPLACE WITH 200 MF, 6 VOLT ELECTROLYTIC CAPACITOR.*

Voltages shown on schematic diagram.

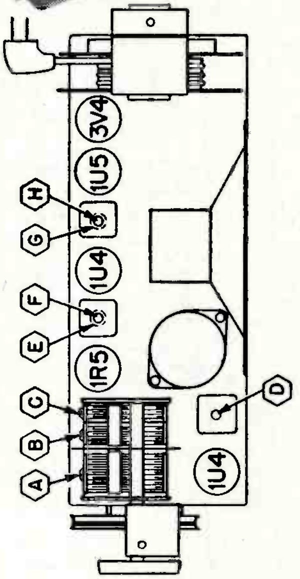
All voltages taken between tube socket terminals and B— (pin 7 of 1U5 tube).

Dial set at low frequency end; volume control at minimum.

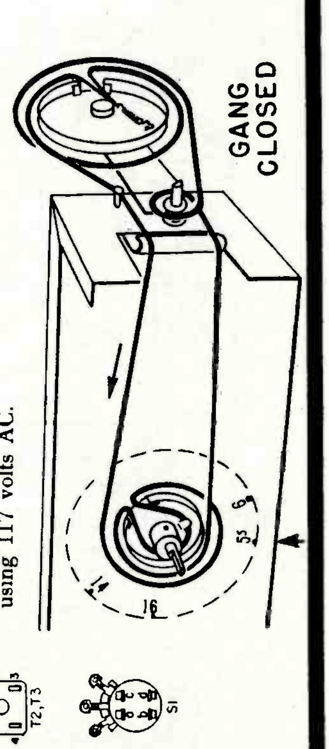
Voltages measured with a vacuum-tube voltmeter, using 117 volts AC.

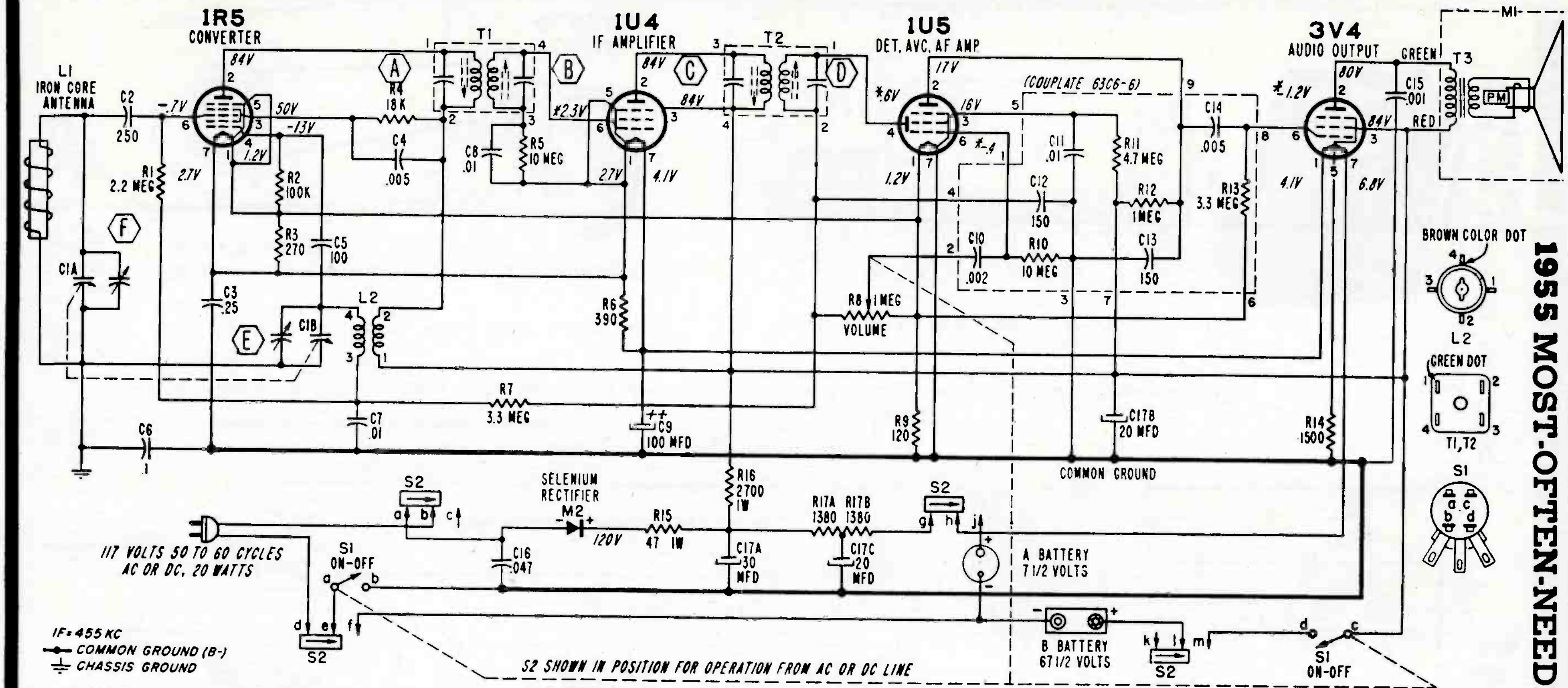

PURPLE DOT
L2
GREEN DOT
T1
GREEN DOT
T2,T3
S1

TUBE AND ADJUSTMENT LOCATIONS


A
B
C
D
E
F
G
H
1U4
1R5
1U4
1U5
3V4

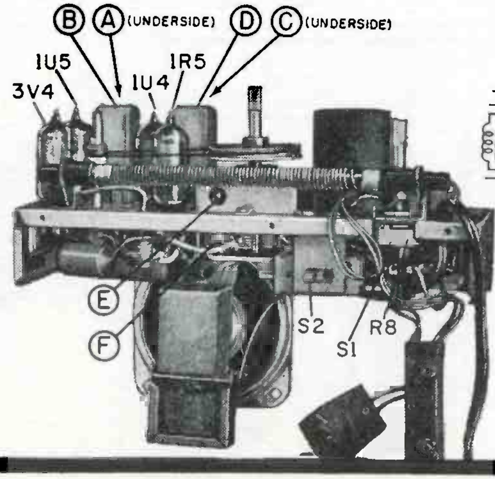
Adjustments E and G are made from underside of chassis


GANG CLOSED
14
16
5
6

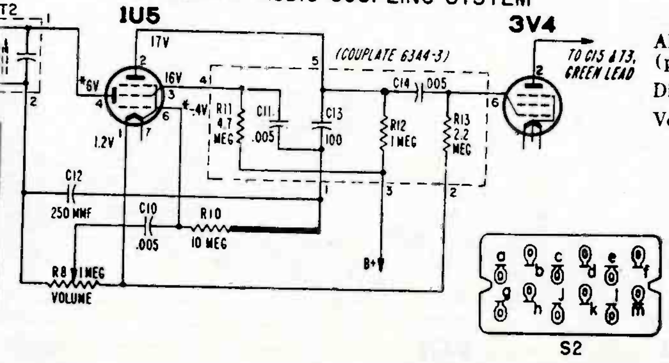

1R5
CONVERTER
1U4
IF AMPLIFIER
1U5
DET. AVC. AF AMP
3V4
AUDIO OUTPUT
L1
IRON CORE
ANTENNA
C2 250
R1 2.2 MEG
C1A
C1B
R2 100K
R3 270
C5 100
C3 .25
L2
R4 18K
C4 .005
T1
C8 .01
R5 10 MEG
R6 390
R7 3.3 MEG
C7 .01
C6 .1
++C9 100 MFD
T2
(COUPLATE 63C6-6)
C11 .01
C12 150
C10 .002
R10 10 MEG
R11 4.7 MEG
R12 1MEG
C13 150
R8 1MEG VOLUME
C14 .005
R13 3.3 MEG
R9 120
C17B 20 MFD
COMMON GROUND
R14 1500
C15 .001
GREEN
RED
T3
PM
-MI-
84V
50V
-13V
1.2V
-.7V
2.7V
*2.3V
4.1V
*.6V
17V
16V
*-.4
80V
*1.2V
6.8V
BROWN COLOR DOT
L2
GREEN DOT
T1,T2
S1
117 VOLTS 50 TO 60 CYCLES
AC OR DC, 20 WATTS
S2
S1 ON-OFF
SELENIUM RECTIFIER M2
120V
R15 47 1W
C16 .047
R16 2700 1W
C17A 30 MFD
R17A 1380
R17B 1380
C17C 20 MFD
A BATTERY 7 1/2 VOLTS
B BATTERY 67 1/2 VOLTS
IF=455KC
COMMON GROUND (B-)
CHASSIS GROUND
S2 SHOWN IN POSITION FOR OPERATION FROM AC OR DC LINE

++ C9 MAY BE PART OF C17. IF C9 IS SEPARATE, THE 100 MFD SECTION OF C17 MUST BE CONNECTED TO COMMON GROUND

* THESE VOLTAGES WILL BE LOWER, OR PRACTICALLY ZERO, IF TAKEN WITH A 1000 OHM PER VOLT METER.


Ⓑ
Ⓐ (UNDERSIDE)
Ⓓ
Ⓒ (UNDERSIDE)
1U5
3V4
1U4
1R5
Ⓔ
Ⓕ
S2
S1
R8

ALTERNATE AUDIO COUPLING SYSTEM


T2
1U5
3V4
TO C15 & T3, GREEN LEAD
17V
16V
*6V
1.2V
*-.4V
(COUPLATE 6344-3)
R11 4.7 MEG
C11 .005
C13 100
C14 .005
R12 1MEG
R13 2.2 MEG
C12 250 MMF
C10 .005
R10 10 MEG
R8 1MEG VOLUME
B+
S2

VOLTAGE DATA

Voltages shown on schematic diagram.

All voltages taken between tube socket terminals and B minus (pin 7 of 1U5 tube).

Dial set at low frequency end; volume control at minimum.

Voltages measured on 117 volts AC with vacuum-tube voltmeter.

Admiral

CHASSIS 4Z1
MODELS 4Z11, 4Z12, 4Z14, 4Z18, 4Z19

(Alignment on page 7)

Admiral (Continued from page 6)

CHASSIS 4Z1
MODELS 4Z11, 4Z12, 4Z14, 4Z18, 4Z19

ALIGNMENT PROCEDURE

- Battery power is preferable for alignment; use FRESH batteries. If this set is to be aligned while operating on an AC power line, an isolation transformer should be used. If an isolation transformer is not available, connect a .1 mfd. capacitor in series with the signal generator low side to B minus (pin 7 of 1U5 tube.)
- The chassis cover must be removed to align adjustments A and C.
- Set Volume control full on.
- Connect output meter across speaker voice coil.
- Use lowest setting of signal generator capable of producing adequate indication on lowest scale of output meter.
- Use a non-metallic alignment tool for IF transformers.
- Repeat adjustments to insure good results.

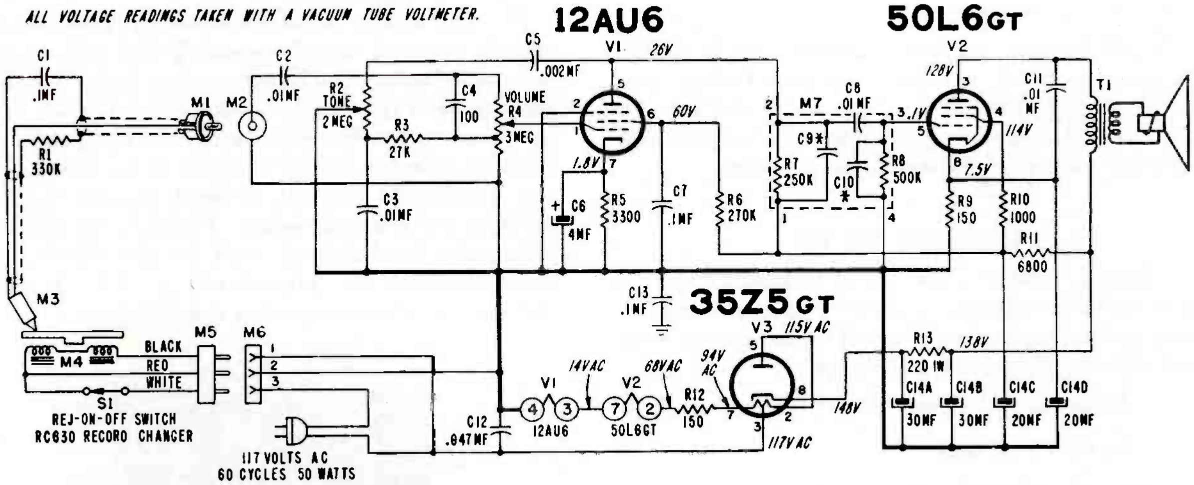
Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Adjustment Description	Adjustment Designation	Type of Adjustment
1	.1 mfd. capacitor	Stator of antenna tuning capacitor	455 KC	Gang fully open	2nd IF 1st IF	A, B* C, D*	Maximum output
2	.1 mfd. capacitor	Stator of antenna tuning capacitor	1620 KC	Gang fully open	Oscillator (on gang)	E	Maximum output
Install the metal chassis cover removed during IF Alignment.							
3	Loop of several turns of wire, or place generator lead close to receiver for adequate signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	Maximum output

*Adjustments B and D are made from underside of chassis. To avoid splitting the slotted head of powdered iron tuning slug in IF transformers, use an alignment tool with a blade 3/32" wide.

Admiral

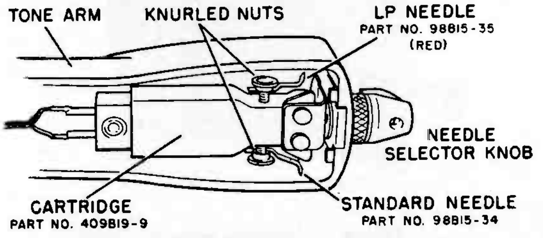
Chassis 361
Model 3G18

ALL VOLTAGE READINGS TAKEN WITH A VACUUM TUBE VOLTMETER.

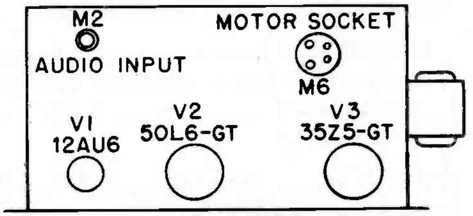

12AU6
50L6GT
35Z5GT
C1 .1MF
R1 330K
M1
M2
C2 .01MF
R2 TONE 2MEG
R3 27K
C3 .01MF
C4 100
VOLUME R4 3MEG
C5 .002MF
V1 26V
1.8V
C6 4MF
R5 3300
60V
C7 .1MF
R6 270K
M7
C8 .01MF
C9*
C10*
R7 250K
R8 500K
V2
128V
3.1V
114V
7.5V
C11 .01 MF
T1
R9 150
R10 1000
R11 6800
C13 .1MF
V3 115V AC
R13 220 1W
138V
C14A 30MF
C14B 30MF
C14C 20MF
C14D 20MF
148V
117V AC
14V AC
68V AC
94V AC
R12 150
V1 12AU6
V2 50L6GT
C12 .047MF
M3
M4
M5
M6
BLACK
RED
WHITE
S1
REJ-ON-OFF SWITCH
RC630 RECORD CHANGER
117 VOLTS AC
60 CYCLES 50 WATTS

*C9 & C10 TOTAL 250MMF. WHEN REPLACING WITH INDIVIDUAL COMPONENTS, USE ANY COMBINATION TOTALING 250MMF OR USE 250MMF ACROSS R7 IN PLACE OF C9 AND C10.

—•— COMMON GROUND
⏚ CHASSIS GROUND


TONE ARM
KNURLED NUTS
LP NEEDLE
PART NO. 98815-35
(RED)
NEEDLE SELECTOR KNOB
CARTRIDGE
PART NO. 409819-9
STANDARD NEEDLE
PART NO. 98815-34

Bottom View of Cartridge and Needles.


M2
AUDIO INPUT
MOTOR SOCKET
M6
V1
12AU6
V2
50L6-GT
V3
35Z5-GT

Side View of Chassis.

Admiral

5R3 Chassis Models 5R32 • 5R33 • 5R35 • 5R36 • 5R37 • 5R38

5S3 Radio Chassis Models 5S32 • 5S33 • 5S34 • 5S35 • 5S38

5T3 Radio Chassis Models 5T31 • 5T32 • 5T33 • 5T34 • 5T38

This material applies to all models listed above. The circuit on page 9 is exact for Chassis 5R3 and 5T3. Chassis 5S3 circuit is exactly the same except for clock and associated switch. Alignment information and additional service data on page 10.

GENERAL

This receiver employs the latest radio circuitry and a "printed" circuit wiring technique. The "printed" circuit wiring used in this receiver replaces the hookup wire used in earlier receivers; see figure 1. The "printed" circuit wiring is permanently bonded to the underside of the plastic chassis base. This results in uniformity of chassis wiring, fewer wiring troubles and simplified circuit tracing and trouble shooting. All circuit components are of standard size and design and are mounted on the top side of the chassis; see figure 2. Audio circuit components are contained in a couplate.

Trouble shooting and parts replacement will, in general, be the same as for receivers wired with hookup wire. However, when servicing, it is important to read the service information given in this manual with respect to the technique of servicing printed circuit receivers.

SERVICING THE SET

Servicing "printed" circuit sets is, in general, much the same as servicing ordinary receivers. However, certain tools and techniques are well suited for this type of work. The following items are especially useful:

1. Good pair of long-nose pliers.
2. Sharp wire cutters.
3. Small stiff glue brush (for solder removal).
4. Pencil type soldering iron with a small tip (35 watts or less).

   WARNING: Excessive heat may damage the "printed" circuit during component replacement if a soldering pencil, iron or gun of higher wattage rating is used.
5. 60-40 low temperature rosin core solder (should be used for all soldering).
6. Tinned jumper wires.
7. Metal pick (soldering aid).

COMPONENT REPLACEMENT

All components used in this receiver are of standard size and design and are mounted on the top side of the chassis; see figure 2.

Resistors and capacitors should be replaced by clipping out the defective part and neatly soldering the new part to the connecting leads remaining from the original part.

If a unit, such as the oscillator coil or IF transformer is to be removed, heat the mounting lugs with a pencil type soldering iron and straighten them with a long nose pliers or metal pick. Continue heating the lugs and brush away the molten solder with a small stiff glue brush. Remove the defective unit by lifting it off the chassis. Before inserting the new unit, be certain that the lug holes are open and free from solder. Forcing a lug against a solder filled lug hole may break the bond between the chassis base and the "printed" wiring. It is, therefore, necessary to exercise care when replacing units.

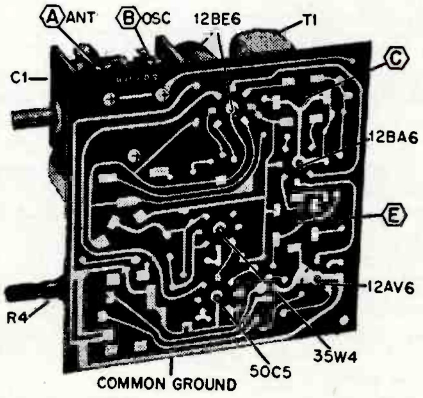
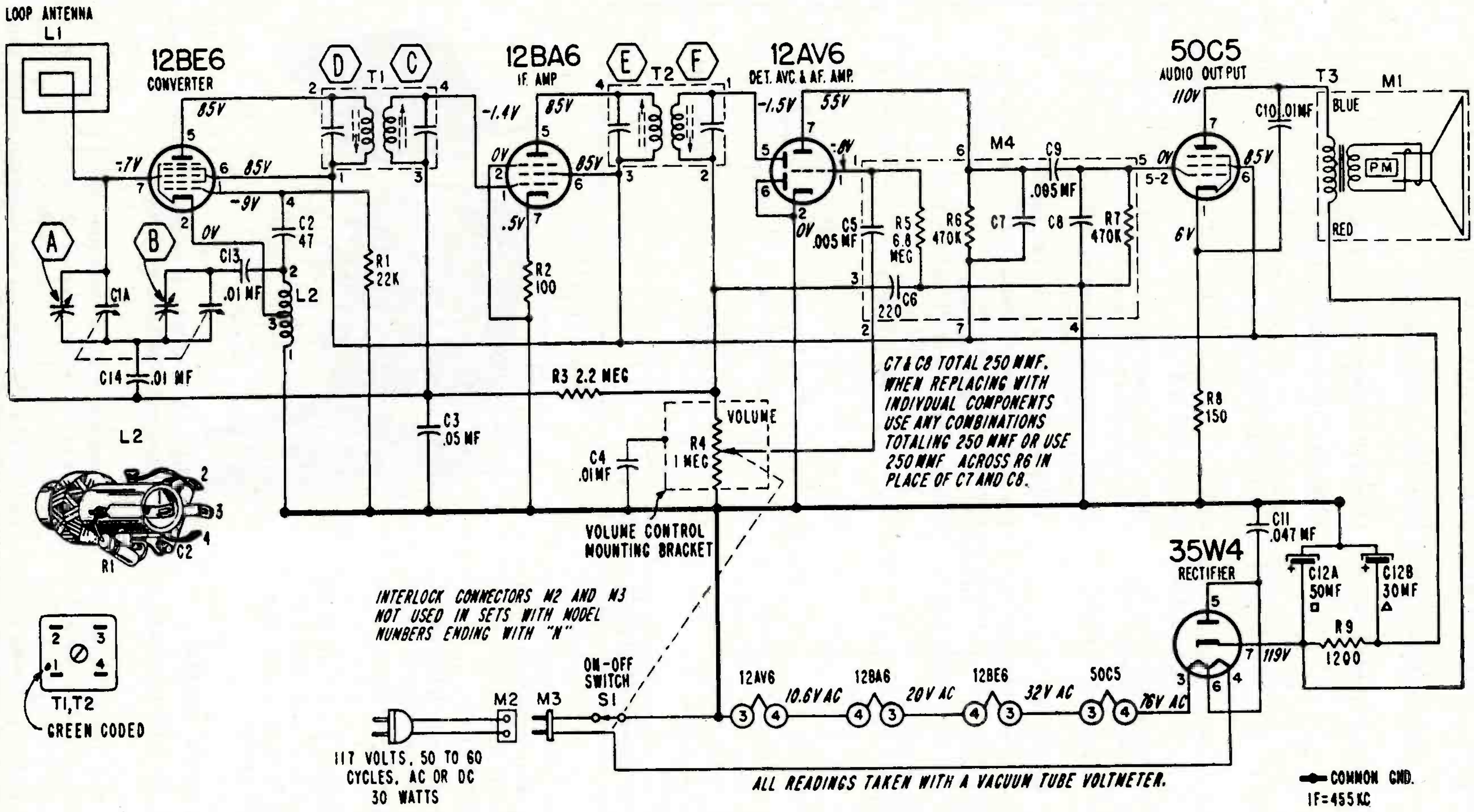


Figure 1. Bottom View of Chassis.

Admiral Corp. Chassis 5R3, 5S3, and 5T3 (Continued)


LOOP ANTENNA L1
12BE6 CONVERTER
12BA6 IF AMP
12AV6 DET. AVC & AF. AMP.
50C5 AUDIO OUTPUT
35W4 RECTIFIER
T1
T2
T3
M1
M4
PM
BLUE
RED
A
B
C
D
E
F
C1A
C2 47
C3 .05 MF
C4 .01MF
C5 .005 MF
C6 220
C7
C8
C9 .005 MF
C10 .01MF
C11 .047 MF
C12A 50MF
C12B 30MF
C13 .01 MF
C14 .01 MF
R1 22K
R2 100
R3 2.2 MEG
R4 1 MEG
VOLUME
R5 6.8 MEG
R6 470K
R7 470K
R8 150
R9 1200
L2
85V
-7V
-9V
0V
-1.4V
.5V
-1.5V
55V
-.8V
110V
6V
119V
5-2
12AV6
10.6V AC
12BA6
20V AC
12BE6
32V AC
50C5
76V AC
VOLUME CONTROL MOUNTING BRACKET
M2
M3
ON-OFF SWITCH S1
117 VOLTS, 50 TO 60 CYCLES, AC OR DC 30 WATTS
T1,T2 GREEN CODED
COMMON GND.
IF=455KC

C7 & C8 TOTAL 250 MMF. WHEN REPLACING WITH INDIVDUAL COMPONENTS USE ANY COMBINATIONS TOTALING 250 MMF OR USE 250 MMF ACROSS R6 IN PLACE OF C7 AND C8.

INTERLOCK CONNECTORS M2 AND M3 NOT USED IN SETS WITH MODEL NUMBERS ENDING WITH "N"

ALL READINGS TAKEN WITH A VACUUM TUBE VOLTMETER.

VOLTAGE PRECAUTION

The chassis of this receiver is connected directly to one side of the power line. To avoid possibility of damage to test equipment or to printed circuit wiring, do not place the chassis directly on a metal service bench, tools or other metal objects.

When taking voltage readings or making resistance measurements, use test leads with needle point prods to avoid possibility of short circuit between sections of the printed circuit wiring.

VOLTAGE DATA

Voltages shown on schematic diagram.

- All readings made between tube socket terminals and common ground; see figure 1.
- Dial turned to low frequency end; volume control at minimum.
- Measured on 117 Volts AC line.
- All voltages measured with vacuum-tube voltmeter.

Admiral Chassis 5R3, 5S3, and 5T3 (Continued)

Service Data and Alignment Information

Frequency Range: Standard broadcast band, 535 to 1620 KC.

Intermediate Frequency: 455 KC.

Power Supply: Power line of 117 volts, 50 to 60 cycles AC or DC.

Power Consumption: 30 watts.

Antenna: Built-in loop antenna.

Speaker: 6" PM. with Alnico V magnet. Voice coil impedance, 3.2 ohms.

ALIGNMENT PROCEDURE

- Use an isolation transformer if available; otherwise, connect a .1 mfd. capacitor in series with low side of signal generator and connect to chassis.
  Caution: Do not connect a ground wire directly to chassis.
- Set volume control full on.
- Connect output meter across speaker voice coil.
- Use lowest setting of signal generator capable of producing adequate indication on lowest scale of output meter.
- Use a non-metallic alignment tool with a blade 3/32" wide for aligning IF transformers.
- Repeat adjustments to insure good results.

STEP	CONNECTION OF SIGNAL GENERATOR	SIGNAL GENERATOR FREQUENCY	RECEIVER GANG SETTING	ADJUSTMENT
1	Through a .1 mf capacitor to pin 7 of the 12BE6 (Converter) tube	455 KC	Gang fully open	*"E", "F", *"C" and "D" for maximum output
2	Same as "STEP 1"	1620 KC	Gang fully open	"B" for maximum output
3	Radiated Signal. Loop of several turns of wire, or place generator lead close to receiver loop for adequate signal pickup.	1400 KC	Tune in generator signal	"A" for maximum output

*Adjustments "C" and "E" made from underside of chassis; see figure 1.

An open or damaged section of "printed" circuit wiring can be replaced by soldering a short jumper wire across the points to be connected. Pigtail trimmings from capacitors and resistors are ideal for this purpose.

To avoid need for complete tube socket replacement, defective tube socket pin clips may be replaced individually. Tube socket pin clips are available under part number 87A35-2.

Note: If sockets must be replaced, the tubular shield (center connection) at the bottom of each tube socket must be securely soldered to the "printed" circuit wiring, otherwise hum or oscillation will result.

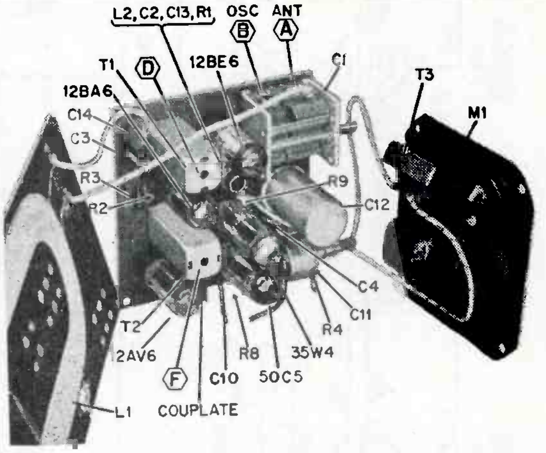


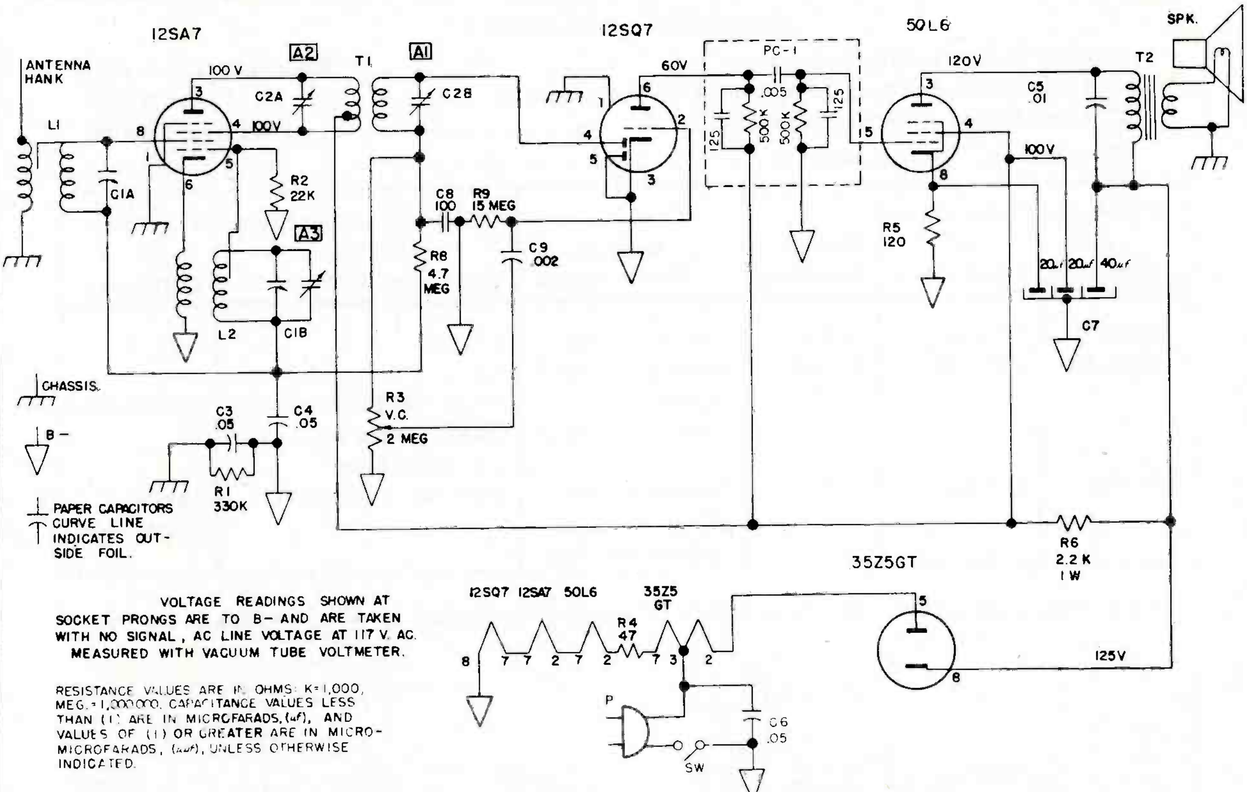
Figure 2. Top View of Chassis. Location of components and alignment points shown.

TO REMOVE CHASSIS FROM CABINET

To remove the chassis from the cabinet, proceed as follows:

Remove the line cord plug from the AC outlet, the knobs from the front of the cabinet, and the three hex head screws and the two snap buttons in the corners of the cabinet back. Remove the screw under the **Tuning** knob, the screw that holds the **Volume** control bracket to the cabinet and the screw that holds the line cord retainer or interlock to the cabinet. Slide the chassis out of its mounting rack after disconnecting the output transformer leads.

Arvin INDUSTRIES, INC., MODEL 840T - 842T RE 278-1


12SA7
ANTENNA HANK
L1
C1A
100 V
C2A
A2
T1
A1
C28
12SQ7
60V
PC-1
.005
500K
500K
125
125
50L6
120V
C5 .01
T2
SPK.
100V
R2 22K
A3
L2
C1B
C8 100
R9 15 MEG
C9 .002
R8 4.7 MEG
R5 120
20uf 20uf 40uf
C7
CHASSIS
B-
C3 .05
C4 .05
R1 330K
R3 V.C. 2 MEG
R6 2.2 K 1 W
35Z5GT
12SQ7 12SA7 50L6 35Z5 GT
R4 47
125V
P
SW
C6 .05

PAPER CAPACITORS CURVE LINE INDICATES OUTSIDE FOIL.

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B- AND ARE TAKEN WITH NO SIGNAL, AC LINE VOLTAGE AT 117 V. AC. MEASURED WITH VACUUM TUBE VOLTMETER.

RESISTANCE VALUES ARE IN OHMS: K=1,000, MEG.=1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (uf), AND VALUES OF (1) OR GREATER ARE IN MICRO-MICROFARADS, (uuf), UNLESS OTHERWISE INDICATED.

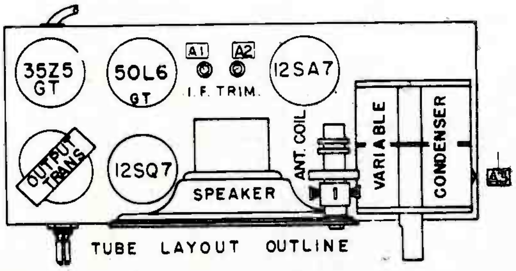
ALIGNMENT PROCEDURE

Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmers Adj. in order shown for Maximum Output	Function of Trimmer
Open	455 Kc.	.05 µf	Pin 8 12SA7	A1, A2	I. F.
1400 Kc.	1400 Kc.	50 µµf	Antenna Lug with Hank removed	** A3	Oscillator

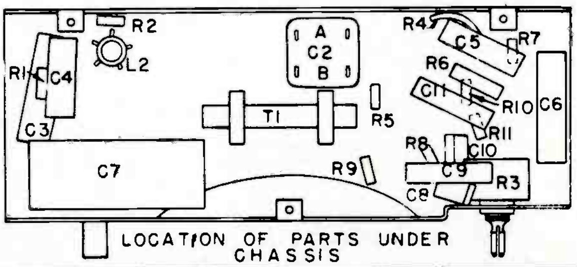
** Since the antenna section of the variable capacitor has no trimmer, the rotor of the variable should be rocked back and forth on both sides of 1400 Kc while adjusting the oscillator trimmer for maximum output.

Check sensitivity at 600 Kc. If weak, adjust antenna section plates for maximum output at 600 Kc. Tracking of the capacitor at points other than 1400 Kc is accomplished by bending the outside plates on the variable capacitor rotor, which are cut for this purpose.

The alignment procedure should be repeated stage by stage in the original order for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.


35Z5 GT
50L6 GT
A1
A2
I.F. TRIM.
12SA7
OUTPUT TRANS
12SQ7
SPEAKER
ANT. COIL
VARIABLE
CONDENSER
A3

TUBE LAYOUT OUTLINE


R2
L2
A C2 B
R4
C5
R7
R1
C4
R6
C11
R10
C6
T1
R5
R11
C3
R8
C10
C7
R9
C9
C8
R3

LOCATION OF PARTS UNDER CHASSIS

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

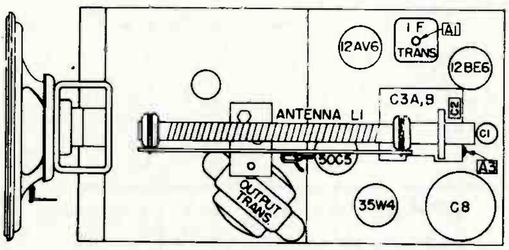
Arvin INDUSTRIES, INC., MODEL 848T - 849T RE 369

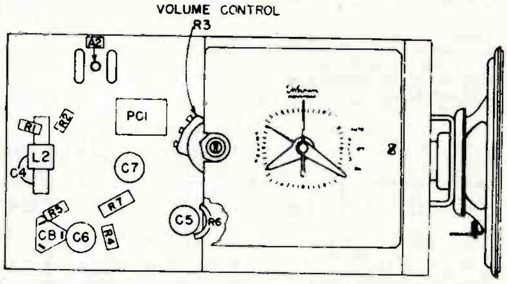
ALIGNMENT PROCEDURE

Output meter connection .... Speaker voice coil
Output meter reading to indicate .5 watt output.................. 1.26 Volts
Connection of generator ground lead...................... Floating ground
Position of volume control.............................. Fully clockwise

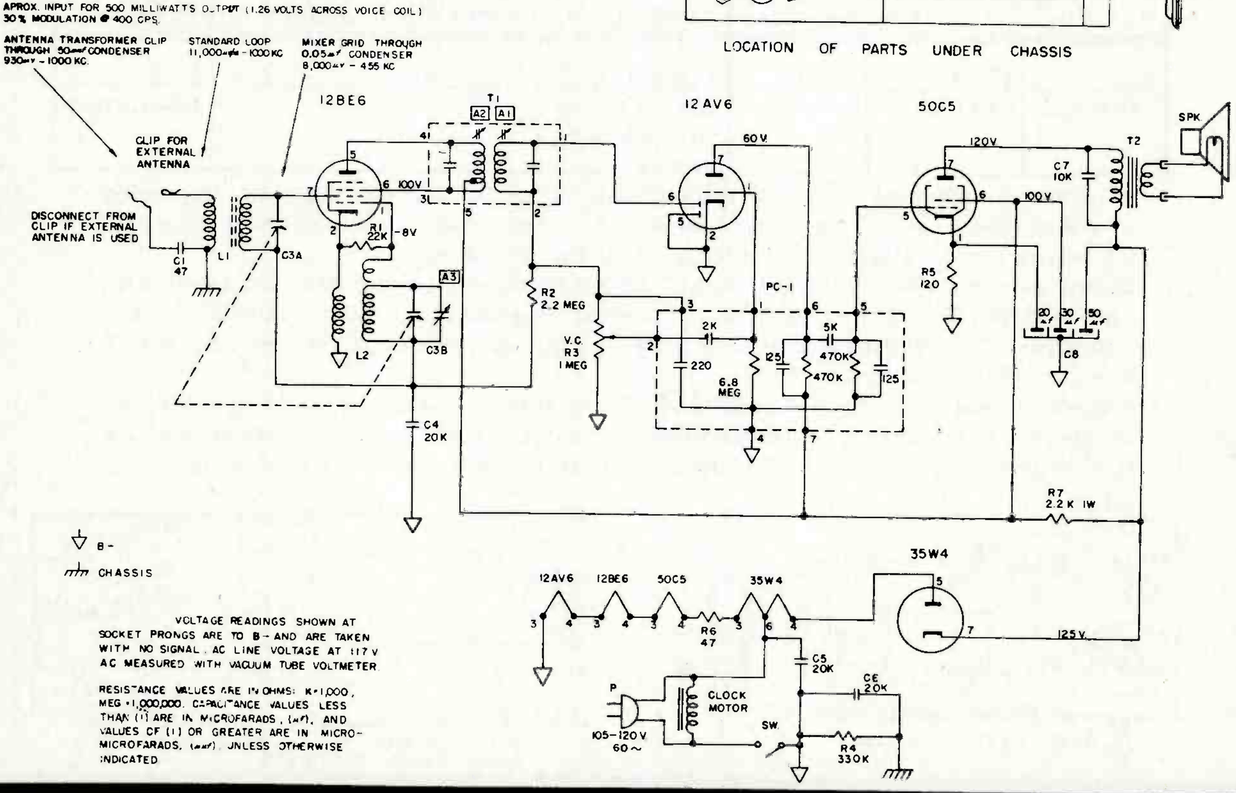
Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmer Adjustment for Maximum Output	Function of Trimmer
Open	455 Kc	.05 µf	Pin 7 12BE6	A1, A2	I.F.
1400 Kc	1400 Kc	50 µµf	Antenna Clip (Blue wire disconnected)	A3 Rock Variable while making this adj. to track antenna	Oscillator
600 Kc	600 Kc	50 µµf	Antenna Clip (Blue wire disconnected)	Antenna Sections plates	Check point

Keep signal generator at a low value to prevent detuning by AVC action.


12AV6
I F TRANS
A1
12BE6
C3A,B
C2
ANTENNA L1
C1
A3
50C5
OUTPUT TRANS.
35W4
C8


VOLUME CONTROL
R3
A2
R1
R2
PC1
C4
L2
C7
R5
R7
CB
C6
R4
C5
R6

LOCATION OF PARTS UNDER CHASSIS


APROX. INPUT FOR 500 MILLIWATTS OUTPUT (1.26 VOLTS ACROSS VOICE COIL)
30% MODULATION @ 400 CPS.
ANTENNA TRANSFORMER CLIP THROUGH 50µµf CONDENSER 930µv - 1000 KC.
STANDARD LOOP 11,000µv/m - 1000 KC
MIXER GRID THROUGH 0.05µf CONDENSER 8,000µv - 455 KC
CLIP FOR EXTERNAL ANTENNA
DISCONNECT FROM CLIP IF EXTERNAL ANTENNA IS USED
12BE6
T1
A2
A1
100V
R1 22K
-8V
C1 47
L1
C3A
L2
A3
C3B
R2 2.2 MEG
C4 20K
12AV6
60V
V.C. R3 1 MEG
PC-1
2K
220
6.8 MEG
125
5K
470K
470K
125
50C5
120V
100V
C7 10K
T2
SPK
R5 120
20 µf
30 µf
50 µf
C8
R7 2.2K 1W
35W4
125V
12AV6
12BE6
50C5
35W4
R6 47
C5 20K
C6 20K
CLOCK MOTOR
P
105-120V 60~
SW
R4 330K
B-
CHASSIS

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B- AND ARE TAKEN WITH NO SIGNAL. AC LINE VOLTAGE AT 117 V AC MEASURED WITH VACUUM TUBE VOLTMETER.

RESISTANCE VALUES ARE IN OHMS: K=1,000, MEG =1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (µf), AND VALUES OF (1) OR GREATER ARE IN MICRO-MICROFARADS, (µµf), UNLESS OTHERWISE INDICATED

ARVIN Industries

MODEL 850T -853T

RE 375

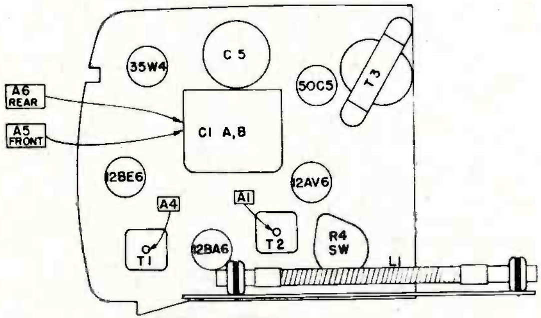
ALIGNMENT PROCEDURE

Output meter connection........................ Across speaker voice coil
Output meter reading to indicate 500 milliwatts (standard output).. 1.26 volts
Connection of generator ground lead.......................... Floating ground
Generator modulation.. 30% 400 cycles
Position of volume control.................................... Fully clockwise

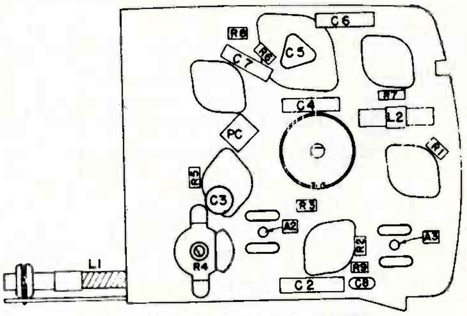
Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmers Adjusted in Order Shown for Maximum Output	Function of Trimmer
Open	455	.05µf	Pin 7 12BE6	A1, A2, A3, A4	I.F.
Open	1650		* Test Loop	A5	Oscillator
1400	1400		* Test Loop	A6	Antenna
600	600		* Test Loop	Check Point	

* Standard Hazeltine Test Loop Model 1150 or 3 turns of wire about 6" in diameter placed about one foot from the set loop.

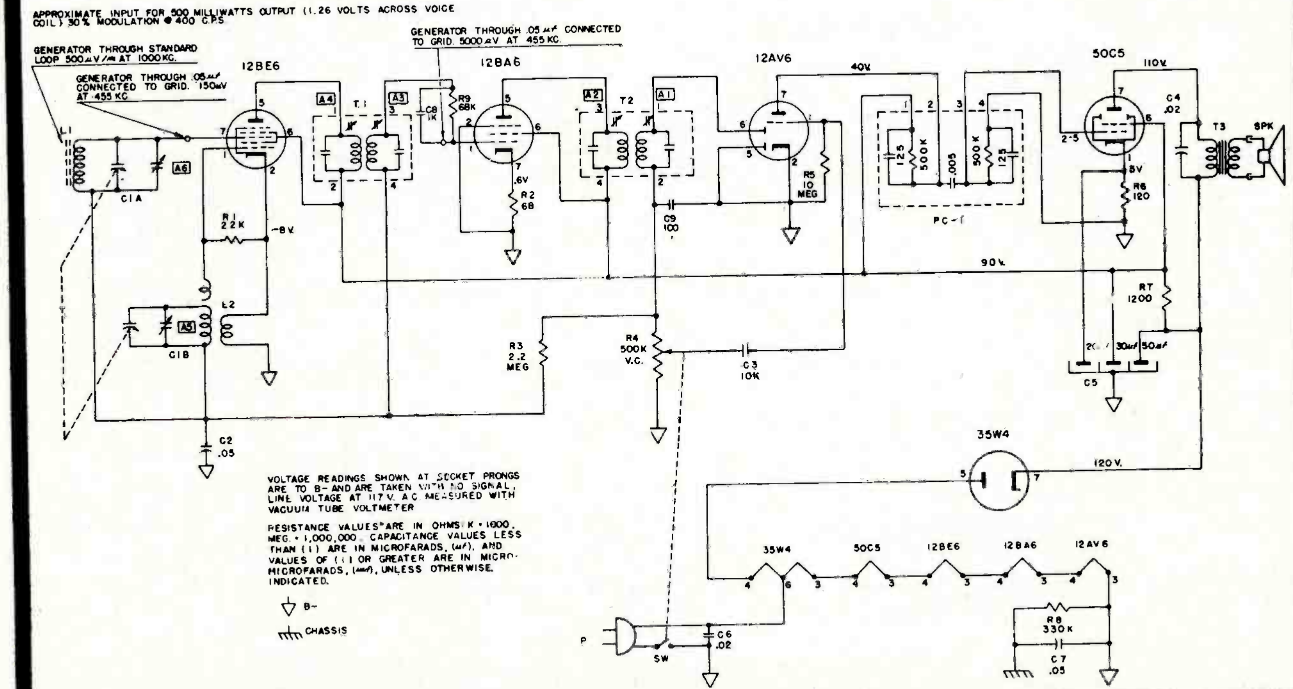
The alignment procedure should be repeated in the original order for greatest accuracy. Always keep the output from the signal generator at its lowest possible value to make the AVC action of the receiver ineffective.


35W4
C 5
50C5
T3
A6 REAR
A5 FRONT
C1 A,B
12BE6
12AV6
A4
A1
T1
12BA6
T2
R4 SW
L1

TUBE LAYOUT


R8
C6
C7
R6
C5
C4
R7
L2
PC
R1
R5
C3
R3
A2
A3
R4
R2
C2
C8
L1

LOCATION OF PARTS UNDER CHASSIS


L1
C1A
A6
12BE6
A4
T.1
A3
C8 1K
R9 68K
12BA6
A2
T2
A1
12AV6
40V
R1 22K
-8V
L2
A5
C1B
.6V
R2 68
C9 100
R5 10 MEG
PC-1
50C5
110V
C4 .02
T3
SPK
8V
R6 120
90V
RT 1200
R3 2.2 MEG
R4 500K V.C.
C3 10K
C5
C2 .05
35W4
120V.
35W4
50C5
12BE6
12BA6
12AV6
R8 330K
C7 .05
P
SW
C6 .02

APPROXIMATE INPUT FOR 500 MILLIWATTS OUTPUT (1.26 VOLTS ACROSS VOICE COIL) 30% MODULATION @ 400 C.P.S

GENERATOR THROUGH STANDARD LOOP 500µV/m AT 1000KC.

GENERATOR THROUGH .05µf CONNECTED TO GRID. 150µV AT 455 KC

GENERATOR THROUGH .05µf CONNECTED TO GRID. 5000µV AT 455 KC.

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B- AND ARE TAKEN WITH NO SIGNAL, LINE VOLTAGE AT 117 V. A.C. MEASURED WITH VACUUM TUBE VOLTMETER

RESISTANCE VALUES ARE IN OHMS. K = 1000. MEG. = 1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (µf), AND VALUES OF (1) OR GREATER ARE IN MICRO-MICROFARADS, (µµf), UNLESS OTHERWISE INDICATED.

B-

CHASSIS

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

ARVIN Industries

MODEL 851T - 855T

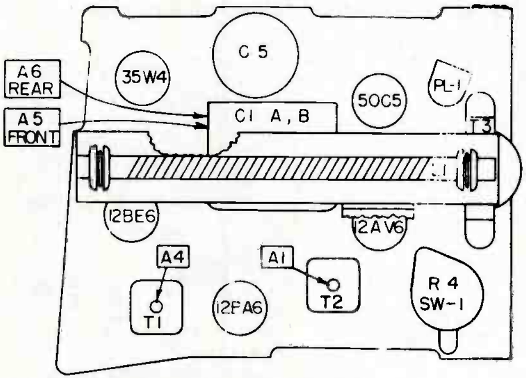
RE 377

ALIGNMENT PROCEDURE

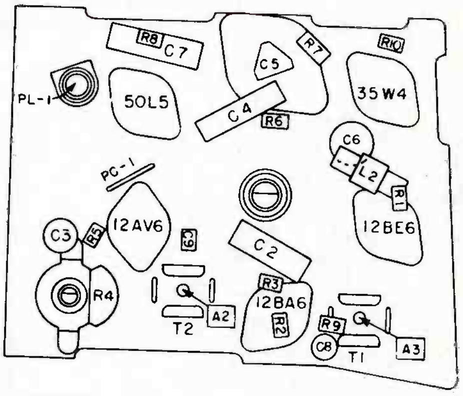
Output meter connection........................Across speaker voice coil
Output meter reading to indicate 500 milliwatts (standard output)...1.26 volts
Connection of generator ground lead......................Floating ground
Generator modulation.........................30% 400 cycles
Position of volume control.........................Fully clockwise

Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmers Adjusted in Order Shown for Maximum Output	Functions of Trimmer
Open	455	.05 µf	Pin 7 12BE6	A1, A2, A3, A4	I. F.
Open	1650		* Test Loop	A5	Oscillator
1400	1400		* Test Loop	A6	Antenna
600	600		* Test Loop	Check Point	

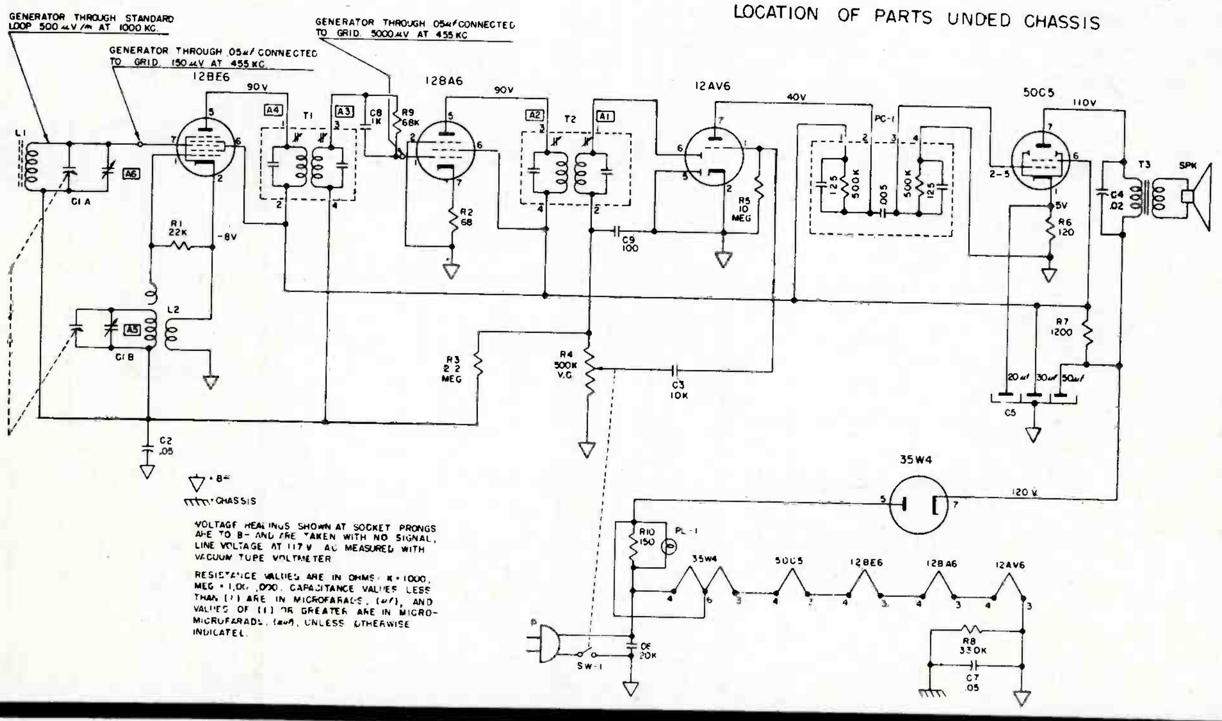
* Standard Hazeltine Test Loop Model 1150 or 3 turns of wire about 6" in diameter placed about one foot from the set loop.


A6 REAR
A5 FRONT
35W4
C 5
50C5
PL-1
C1 A, B
T3
12BE6
12AV6
A4
A1
T1
12FA6
T2
R 4 SW-1

APPROXIMATE INPUT FOR 500 MILLIWATTS OUTPUT (1.26 VOLTS ACROSS VOICE COIL) 30 % MODULATION @ 400 CPS


R8
C7
C5
R7
R10
PL-1
50L5
C4
R6
35W4
C6
PC-1
L2
R1
12BE6
C3
R5
12AV6
C9
C2
R4
R3
12BA6
R2
A2
T2
R9
C8
T1
A3

LOCATION OF PARTS UNDED CHASSIS


GENERATOR THROUGH STANDARD LOOP 500 µV/m AT 1000 KC.
GENERATOR THROUGH .05µf CONNECTED TO GRID. 150 µV AT 455 KC.
GENERATOR THROUGH .05µf CONNECTED TO GRID. 5000 µV AT 455 KC
12BE6
90V
128A6
90V
12AV6
40V
50C5
110V
L1
C1 A
A6
A4
T1
A3
C8 1K
R9 68K
A2
T2
A1
PC-1
T3
SPK
C4 .02
5V
R6 120
R1 22K
-8V
L2
A5
C1 B
R2 68
C9 100
R5 10 MEG
R3 2.2 MEG
R4 500K V.C.
C3 10K
R7 1200
20µf
30µf
50µf
C5
C2 .05
35W4
120V
R10 150
PL-1
35W4
50C5
12BE6
12BA6
12AV6
R8 330K
C7 .05
C6 20K
SW-1
+B-
CHASSIS

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B- AND ARE TAKEN WITH NO SIGNAL, LINE VOLTAGE AT 117 V AC MEASURED WITH VACUUM TUBE VOLTMETER

RESISTANCE VALUES ARE IN OHMS. K = 1000, MEG = 1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (µf), AND VALUES OF (1) OR GREATER ARE IN MICRO-MICROFARADS, (µµf), UNLESS OTHERWISE INDICATED.

ARVIN Industries

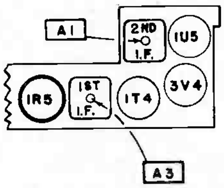
MODEL 852P - 854P RE 381 RE 372

ALIGNMENT PROCEDURE

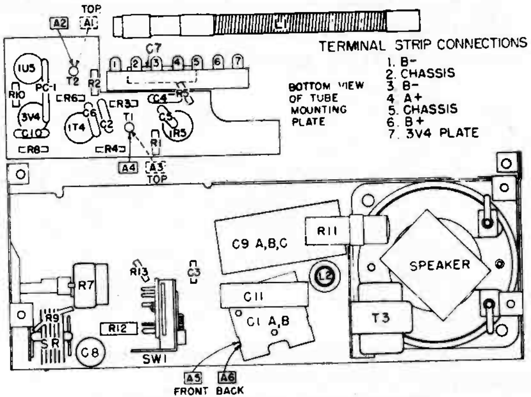
Output meter reading to indicate .05 watt across voice coil 0.4V
Generator ground lead connected .... floating ground
Generator modulation .... 30% 400 cycles
Position of Volume Control .... fully on

Position of Variable	Generator Frequency	Dummy Antenna	Generator Connections	Adjust Trimmers (In order shown)	Function of Trimmer
Open	455 Kc	.05 µf	Mixer Grid	A1, A2, A3, A4	I. F.
Open	1650 Kc		* Test Loop	A5	Oscillator
1400 Kc	1400 Kc		* Test Loop	A6	Antenna
600 Kc	600 Kc		* Test Loop	Check Point	

* Standard Hazeltine Test Loop Model 1150 or 3 turns of wire about 6" in diameter placed about one foot from the set loop.

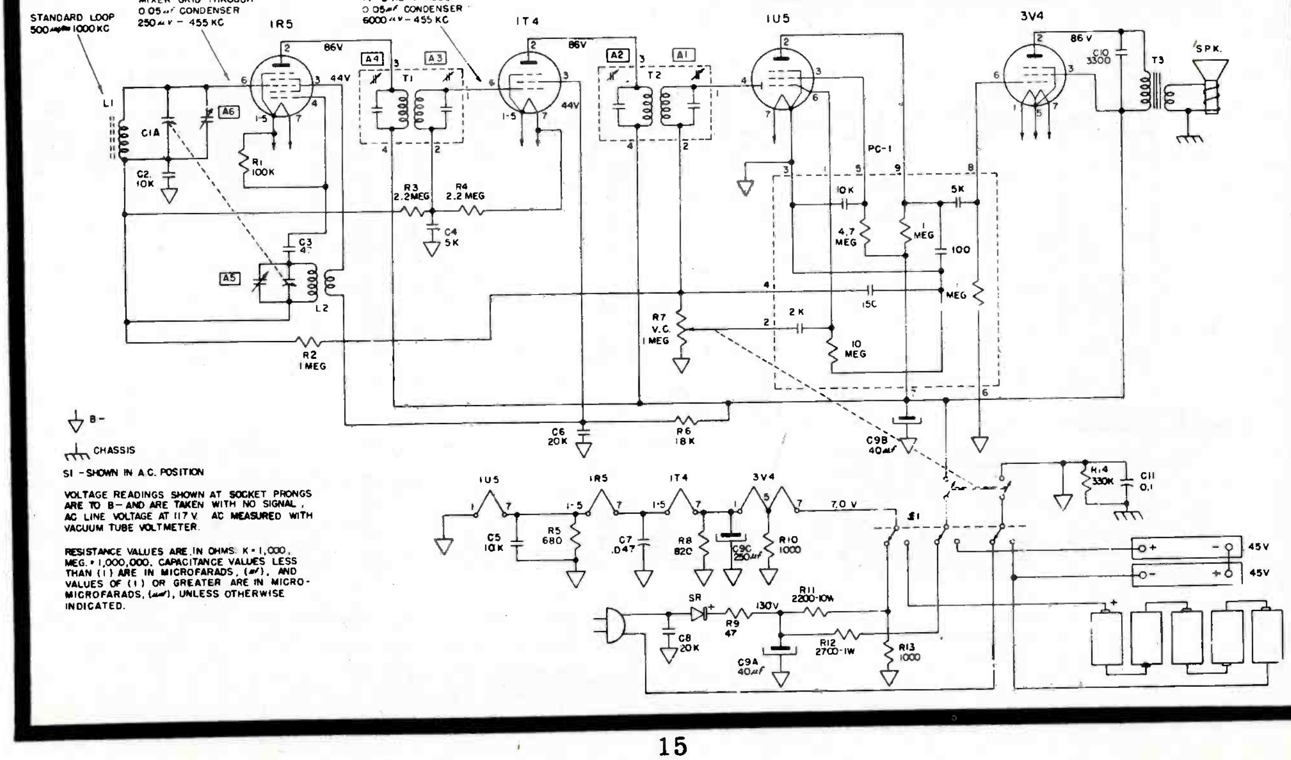

A1
2ND I.F.
1U5
1R5
1ST I.F.
1T4
3V4
A3

TUBE LAYOUT


TOP
A2
AC
C1
C7
1U5
PC-1
T2
R2
R10
CR6
CR3
C4
R5
3V4
C6
C10
1T4
C2
T1
C5
1R5
CR8
CR4
R1
A4
A3
TOP
TERMINAL STRIP CONNECTIONS
1. B-
2. CHASSIS
3. B-
4. A+
5. CHASSIS
6. B+
7. 3V4 PLATE
BOTTOM VIEW OF TUBE MOUNTING PLATE
C9 A,B,C
R11
SPEAKER
R13
C3
R7
L2
C11
C1 A,B
T3
R9
SR
R12
C8
SW1
A5
A6
FRONT
BACK

LOCATION OF PARTS UNDER CHASSIS

APPROX. INPUT FOR 50 MILLIWATTS OUTPUT (0.4 VOLT VOICE COIL) 30% MODULATION 400 C.P.S


STANDARD LOOP 500 µµv 1000 KC
MIXER GRID THROUGH 0.05 µf CONDENSER 250 µv – 455 KC
I F GRID THROUGH 0.05 µf CONDENSER 6000 µv – 455 KC
1R5
1T4
1U5
3V4
86V
44V
A4
A3
A2
A1
A6
A5
T1
T2
T3
L1
L2
C1A
C2 10K
R1 100K
R3 2.2 MEG
R4 2.2 MEG
C4 5K
C3
R2 1 MEG
PC-1
10K
4.7 MEG
1 MEG
5K
100
MEG
150
2K
10 MEG
R7 V.C. 1 MEG
C10 3300
SPK.
C6 20K
R6 18K
C9B 40µf
R14 330K
C11 0.1
S1
7.0 V
C5 10K
R5 680
C7 .047
R8 82C
C9C 250µf
R10 1000
SR
R9 47
130V
R11 2200-10W
R12 2700-1W
C8 20K
C9A 40µf
R13 1000
45V
45V
B-
CHASSIS

S1 - SHOWN IN A.C. POSITION

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B- AND ARE TAKEN WITH NO SIGNAL, AC LINE VOLTAGE AT 117 V. AC MEASURED WITH VACUUM TUBE VOLTMETER.

RESISTANCE VALUES ARE IN OHMS. K = 1,000, MEG. = 1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (µf), AND VALUES OF (1) OR GREATER ARE IN MICRO-MICROFARADS, (µµf), UNLESS OTHERWISE INDICATED.

ARVIN Industries

MODEL 858T - 859T

RE374

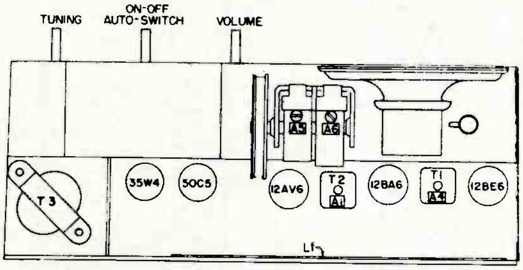
Model 857T, Chassis RE 378, is electrically similar to sets described on this page. If differs in physical respects and has a phono jack.

ALIGNMENT PROCEDURE

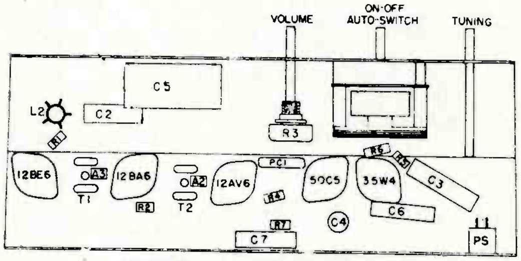
Output meter connection	Across speaker voice coil
Output meter reading to indicate 500 milliwatts (standard output)	1.26 volts
Connection of generator ground lead	Floating ground
Generator modulation	30% 400 cycles
Position of volume control	Fully clockwise

Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmers Adjusted in order Shown for Maximum Output	Function of Trimmer
Open	455	.05 µf	Pin 7 12BE6	A1, A2, A3, A4	I.F.
Open	1650		* Test Loop	A5	Oscillator
1400	1400		* Test Loop	A6 on	Antenna
600	600		* Test Loop	Check Point	

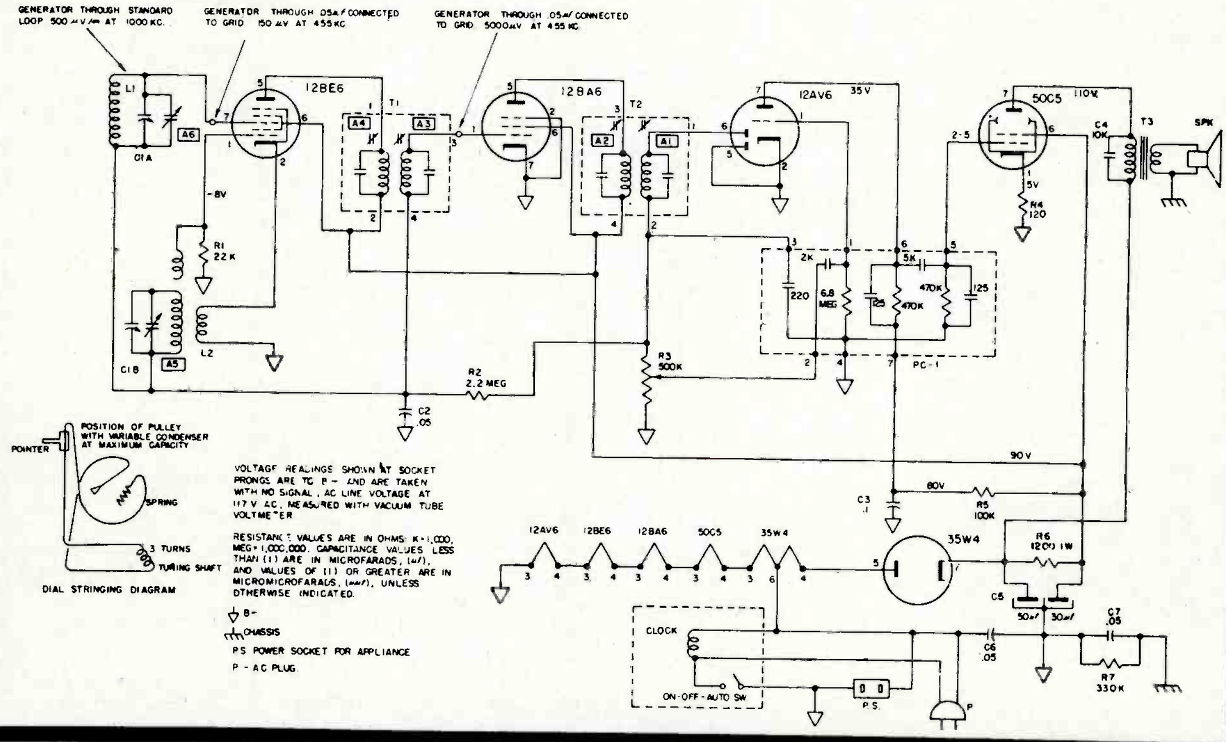
* Standard Hazeltine Test Loop Model 1150 or 3 turns of wire about 6" in diameter placed about one foot from the set loop.


TUNING
ON-OFF AUTO-SWITCH
VOLUME
A5
A6
T3
35W4
50C5
12AV6
T2
A1
12BA6
T1
A4
12BE6
L1

APPROXIMATE INPUT FOR 500 MILLIWATTS OUTPUT (1.26 VOLTS ACROSS VOICE COIL) 30 % MODULATION @ 400 CPS.


VOLUME
ON-OFF AUTO-SWITCH
TUNING
C5
L2
C2
R1
R3
12BE6
A3
T1
12BA6
A2
T2
R2
12AV6
PC1
R4
50C5
35W4
R5
R6
C3
C6
C4
R7
C7
PS

LOCATION OF PARTS UNDER CHASSIS


L1
C1A
A6
12BE6
-8V
R1 22K
C1B
A5
L2
T1
A4
A3
12BA6
T2
A2
A1
12AV6
35V
50C5
110V
5V
R4 120
C4 10K
T3
SPK
2K
220
6.8 MEG
5K
125
470K
470K
125
PC-1
R2 2.2 MEG
C2 .05
R3 500K
90V
C3 .1
80V
R5 100K
12AV6
12BE6
12BA6
50C5
35W4
35W4
R6 120Ω 1W
C5
50µf
30µf
C6 .05
C7 .05
R7 330K
CLOCK
ON-OFF-AUTO SW
P.S.
P
POINTER
SPRING
3 TURNS
TUNING SHAFT

GENERATOR THROUGH STANDARD LOOP 500 µV/m AT 1000 KC.

GENERATOR THROUGH .05µf CONNECTED TO GRID 150 µV AT 455 KC

GENERATOR THROUGH .05µf CONNECTED TO GRID 5000µV AT 455 KC

POSITION OF PULLEY WITH VARIABLE CONDENSER AT MAXIMUM CAPACITY

DIAL STRINGING DIAGRAM

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO B - AND ARE TAKEN WITH NO SIGNAL, AC LINE VOLTAGE AT 117 V AC, MEASURED WITH VACUUM TUBE VOLTMETER

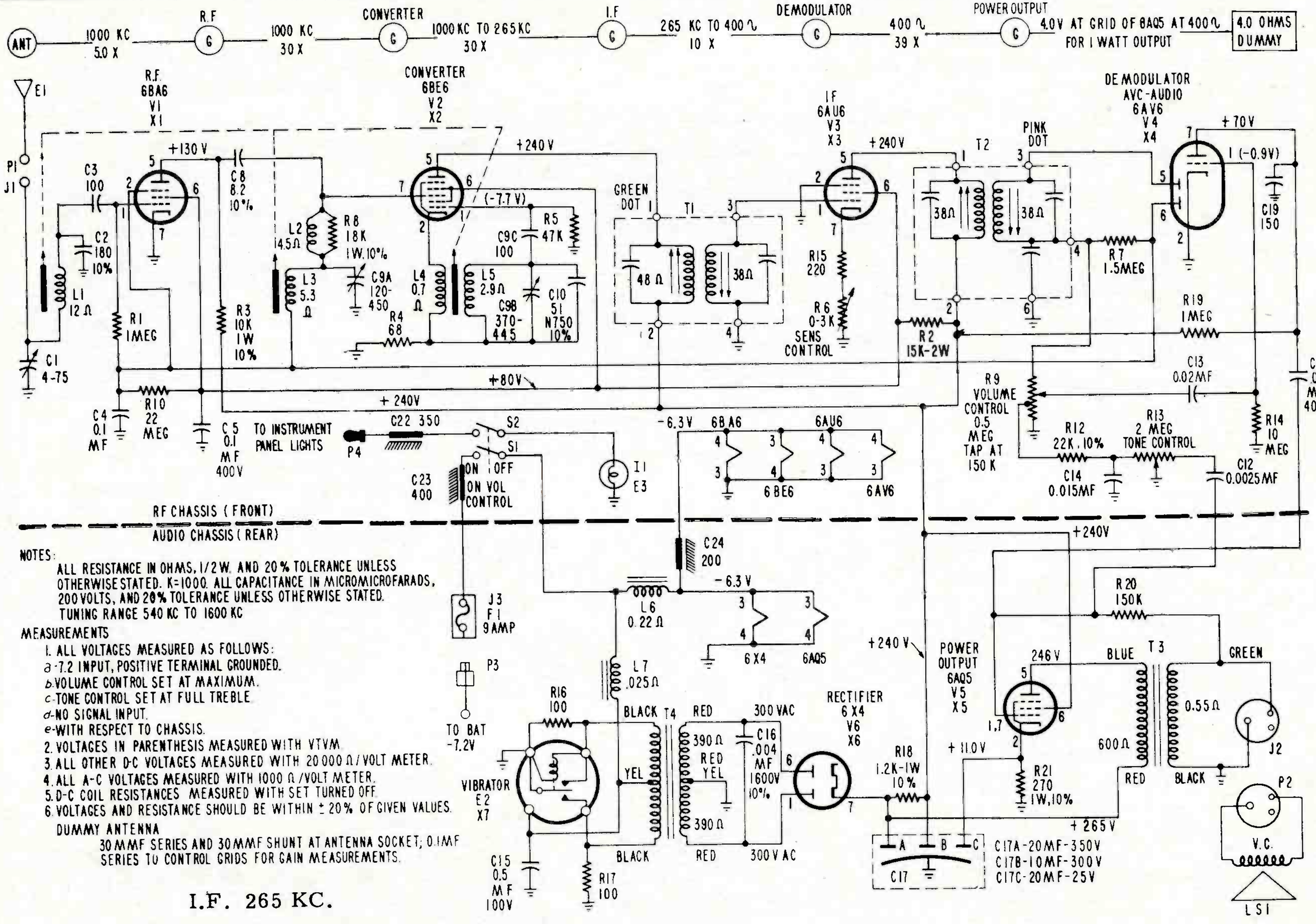
RESISTANCE VALUES ARE IN OHMS: K=1,000, MEG=1,000,000. CAPACITANCE VALUES LESS THAN (1) ARE IN MICROFARADS, (µf), AND VALUES OF (1) OR GREATER ARE IN MICROMICROFARADS, (µµf), UNLESS OTHERWISE INDICATED.

B-

CHASSIS

PS POWER SOCKET FOR APPLIANCE

P - AC PLUG.


ANT
1000 KC 5.0 X
R.F
1000 KC 30 X
CONVERTER
1000 KC TO 265 KC 30 X
I.F
265 KC TO 400 ∿ 10 X
DEMODULATOR
400 ∿ 39 X
POWER OUTPUT
4.0V AT GRID OF 6AQ5 AT 400∿ FOR 1 WATT OUTPUT
4.0 OHMS DUMMY
E1
P1
J1
R.F. 6BA6 V1 X1
CONVERTER 6BE6 V2 X2
IF 6AU6 V3 X3
DEMODULATOR AVC-AUDIO 6AV6 V4 X4
+130 V
+240 V
+70 V
1 (-0.9V)
(-7.7 V)
C3 100
C2 180 10%
L1 12 Ω
C1 4-75
R1 1MEG
C8 8.2 10%
R3 10K 1W 10%
L2 14.5Ω
R8 18K 1W.10%
L3 5.3 Ω
C9A 120-450
R4 68
L4 0.7 Ω
L5 2.9 Ω
C9C 100
R5 47K
C9B 370-445
C10 51 N750 10%
GREEN DOT
T1
48 Ω
38Ω
R15 220
R6 0-3K SENS CONTROL
T2
PINK DOT
38Ω
R2 15K-2W
R7 1.5MEG
C19 150
R19 1MEG
C13 0.02MF
C18 .01 MF 400V
R9 VOLUME CONTROL 0.5 MEG TAP AT 150 K
R12 22K. 10%
R13 2 MEG TONE CONTROL
R14 10 MEG
C14 0.015MF
C12 0.0025MF
+80V
+240V
C4 0.1 MF
R10 22 MEG
C5 0.1 MF 400V
TO INSTRUMENT PANEL LIGHTS
P4
C22 350
S2
S1
ON OFF ON VOL CONTROL
C23 400
I1 E3
-6.3V
6BA6
6AU6
6BE6
6AV6
RF CHASSIS (FRONT)
AUDIO CHASSIS (REAR)
C24 200
-6.3 V
L6 0.22 Ω
6X4
6AQ5
J3 F1 9AMP
P3
TO BAT -7.2V
L7 .025Ω
R16 100
VIBRATOR E2 X7
C15 0.5 MF 100V
R17 100
BLACK
T4
YEL
RED
390 Ω
RED YEL
300 VAC
C16 .004 MF 1600V 10%
300 V AC
RECTIFIER 6X4 V6 X6
R18 1.2K-1W 10%
+240 V
POWER OUTPUT 6AQ5 V5 X5
246 V
+11.0V
R21 270 1W,10%
C17
C17A-20MF-350V
C17B-10MF-300V
C17C-20MF-25V
+265 V
R20 150K
BLUE
T3
600 Ω
GREEN
0.55 Ω
J2
P2
V.C.
LS1

NOTES:

ALL RESISTANCE IN OHMS, 1/2W. AND 20% TOLERANCE UNLESS OTHERWISE STATED. K=1000. ALL CAPACITANCE IN MICROMICROFARADS, 200 VOLTS, AND 20% TOLERANCE UNLESS OTHERWISE STATED.

TUNING RANGE 540 KC TO 1600 KC

MEASUREMENTS

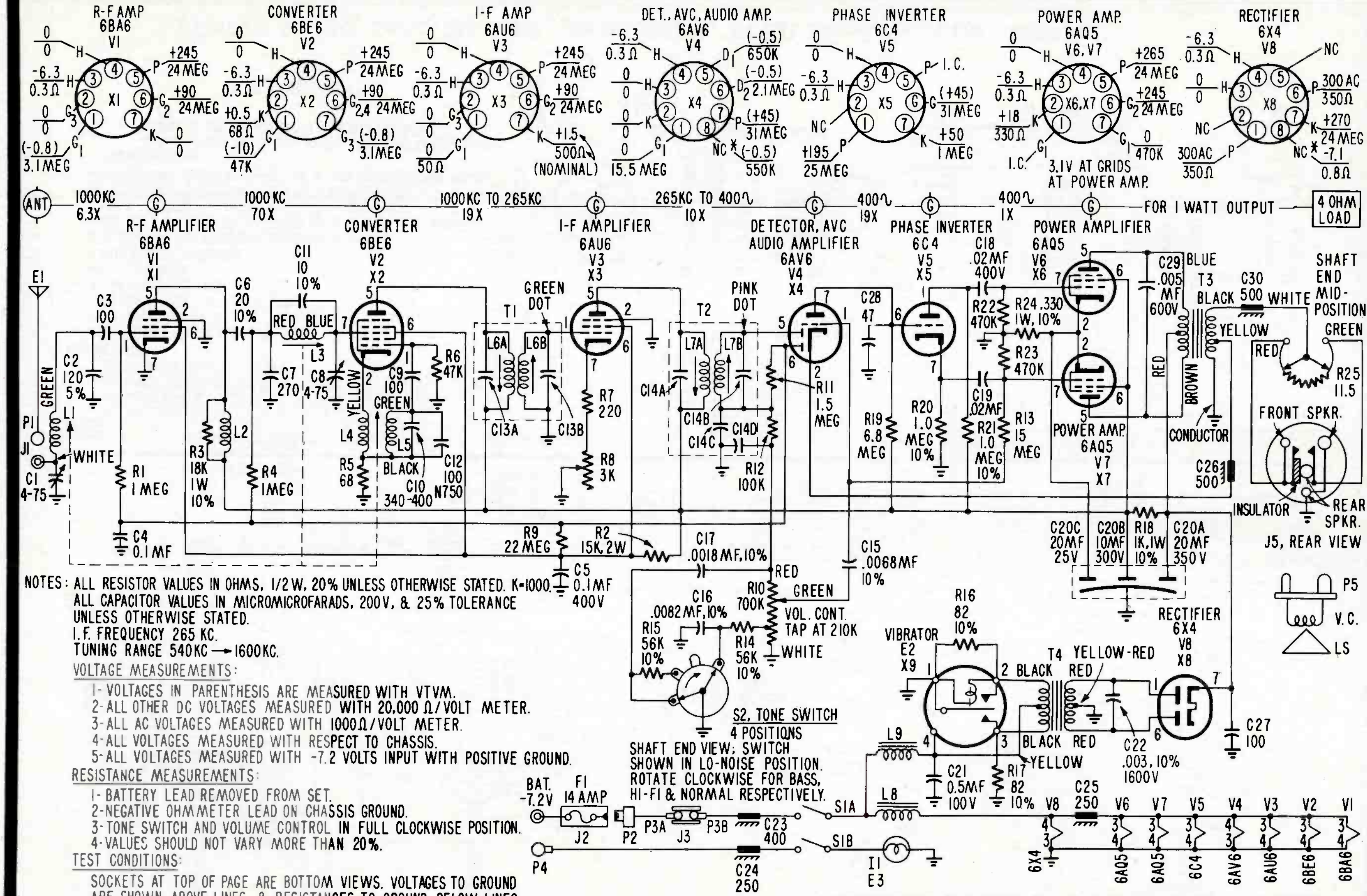
1. ALL VOLTAGES MEASURED AS FOLLOWS:
   - a-7.2 INPUT, POSITIVE TERMINAL GROUNDED.
   - b-VOLUME CONTROL SET AT MAXIMUM.
   - c-TONE CONTROL SET AT FULL TREBLE
   - d-NO SIGNAL INPUT.
   - e-WITH RESPECT TO CHASSIS.
2. VOLTAGES IN PARENTHESIS MEASURED WITH VTVM.
3. ALL OTHER D-C VOLTAGES MEASURED WITH 20 000 Ω/VOLT METER.
4. ALL A-C VOLTAGES MEASURED WITH 1000 Ω/VOLT METER.
5. D-C COIL RESISTANCES MEASURED WITH SET TURNED OFF.
6. VOLTAGES AND RESISTANCE SHOULD BE WITHIN ± 20% OF GIVEN VALUES.

DUMMY ANTENNA

30 MMF SERIES AND 30 MMF SHUNT AT ANTENNA SOCKET; 0.1MF SERIES TO CONTROL GRIDS FOR GAIN MEASUREMENTS.

I.F. 265 KC.

BENDIX RADIO Serial No. 5BF, Model R5BF, FORD Model No. FDH-18805-B1


R-F AMP 6BA6 V1
CONVERTER 6BE6 V2
I-F AMP 6AU6 V3
DET., AVC, AUDIO AMP. 6AV6 V4
PHASE INVERTER 6C4 V5
POWER AMP. 6AQ5 V6, V7
RECTIFIER 6X4 V8
X1
X2
X3
X4
X5
X6, X7
X8
3.1V AT GRIDS AT POWER AMP.
(NOMINAL)
ANT
1000KC 6.3X
1000KC 70X
1000KC TO 265KC 19X
265KC TO 400∿ 10X
400∿ 19X
400∿ 1X
FOR 1 WATT OUTPUT
4 OHM LOAD
R-F AMPLIFIER 6BA6 V1 X1
CONVERTER 6BE6 V2 X2
I-F AMPLIFIER 6AU6 V3 X3
DETECTOR, AVC AUDIO AMPLIFIER 6AV6 V4 X4
PHASE INVERTER 6C4 V5 X5
POWER AMPLIFIER 6AQ5 V6 X6
POWER AMP. 6AQ5 V7 X7
E1
P1
J1
GREEN
WHITE
L1
C1 4-75
C2 120 5%
C3 100
R1 1MEG
C4 0.1MF
R3 18K 1W 10%
L2
C6 20 10%
R4 1MEG
C11 10 10%
RED
BLUE
L3
C7 270
C8 4-75
YELLOW
L4
R5 68
C9 100
GREEN
L5
BLACK
C10 340-400
C12 100 N750
R6 47K
T1
GREEN DOT
L6A
L6B
C13A
C13B
R7 220
R8 3K
R9 22MEG
R2 15K, 2W
C5 0.1MF 400V
T2
PINK DOT
L7A
L7B
C14A
C14B
C14C
C14D
R11 1.5 MEG
R12 100K
C17 .0018MF, 10%
RED
GREEN
R10 700K
VOL. CONT. TAP AT 210K
WHITE
C16 .0082MF, 10%
R15 56K 10%
R14 56K 10%
S2, TONE SWITCH
4 POSITIONS
SHAFT END VIEW; SWITCH SHOWN IN LO-NOISE POSITION. ROTATE CLOCKWISE FOR BASS, HI-FI & NORMAL RESPECTIVELY.
C28 47
R19 6.8 MEG
C15 .0068MF 10%
R20 1.0 MEG 10%
C18 .02MF 400V
R22 470K
R24 .330 1W, 10%
R23 470K
C19 .02MF
R21 1.0 MEG 10%
R13 15 MEG
C29 .005 MF 600V
BLUE
T3
BLACK
C30 500
WHITE
YELLOW
RED
BROWN
CONDUCTOR
SHAFT END MID-POSITION
GREEN
RED
R25 11.5
FRONT SPKR.
REAR SPKR.
INSULATOR
J5, REAR VIEW
C26 500
C20C 20MF 25V
C20B 10MF 300V
R18 1K, 1W 10%
C20A 20MF 350V
P5
V.C.
LS
RECTIFIER 6X4 V8 X8
C27 100
VIBRATOR E2 X9
R16 82 10%
T4
YELLOW-RED
2 BLACK
RED
BLACK
RED
YELLOW
C22 .003, 10% 1600V
L9
C21 0.5MF 100V
R17 82 10%
BAT. -7.2V
F1 14 AMP
J2
P2
P3A
J3
P3B
C23 400
S1A
L8
C25 250
P4
C24 250
S1B
I1 E3
V8 6X4
V6 6AQ5
V7 6AQ5
V5 6C4
V4 6AV6
V3 6AU6
V2 6BE6
V1 6BA6

NOTES: ALL RESISTOR VALUES IN OHMS, 1/2W, 20% UNLESS OTHERWISE STATED. K=1000.
ALL CAPACITOR VALUES IN MICROMICROFARADS, 200V, & 25% TOLERANCE
UNLESS OTHERWISE STATED.
I.F. FREQUENCY 265 KC.
TUNING RANGE 540KC → 1600KC.

VOLTAGE MEASUREMENTS:

1- VOLTAGES IN PARENTHESIS ARE MEASURED WITH VTVM.
2- ALL OTHER DC VOLTAGES MEASURED WITH 20,000 Ω/VOLT METER.
3- ALL AC VOLTAGES MEASURED WITH 1000Ω/VOLT METER.
4- ALL VOLTAGES MEASURED WITH RESPECT TO CHASSIS.
5- ALL VOLTAGES MEASURED WITH -7.2 VOLTS INPUT WITH POSITIVE GROUND.

RESISTANCE MEASUREMENTS:

1- BATTERY LEAD REMOVED FROM SET.
2- NEGATIVE OHMMETER LEAD ON CHASSIS GROUND.
3- TONE SWITCH AND VOLUME CONTROL IN FULL CLOCKWISE POSITION.
4- VALUES SHOULD NOT VARY MORE THAN 20%.

TEST CONDITIONS:

SOCKETS AT TOP OF PAGE ARE BOTTOM VIEWS. VOLTAGES TO GROUND ARE SHOWN ABOVE LINES, & RESISTANCES TO GROUND BELOW LINES.
✱-INDICATES SOCKET LUG USED AS TIE POINT. CENTER PIN OF X8 USED AS FILAMENT TIE POINT.

DUMMY ANTENNA:

30MMF SERIES & 30MMF SHUNT AT ANTENNA SOCKET, 0.1MF SERIES TO CONTROL GRIDS FOR GAIN MEASUREMENTS.

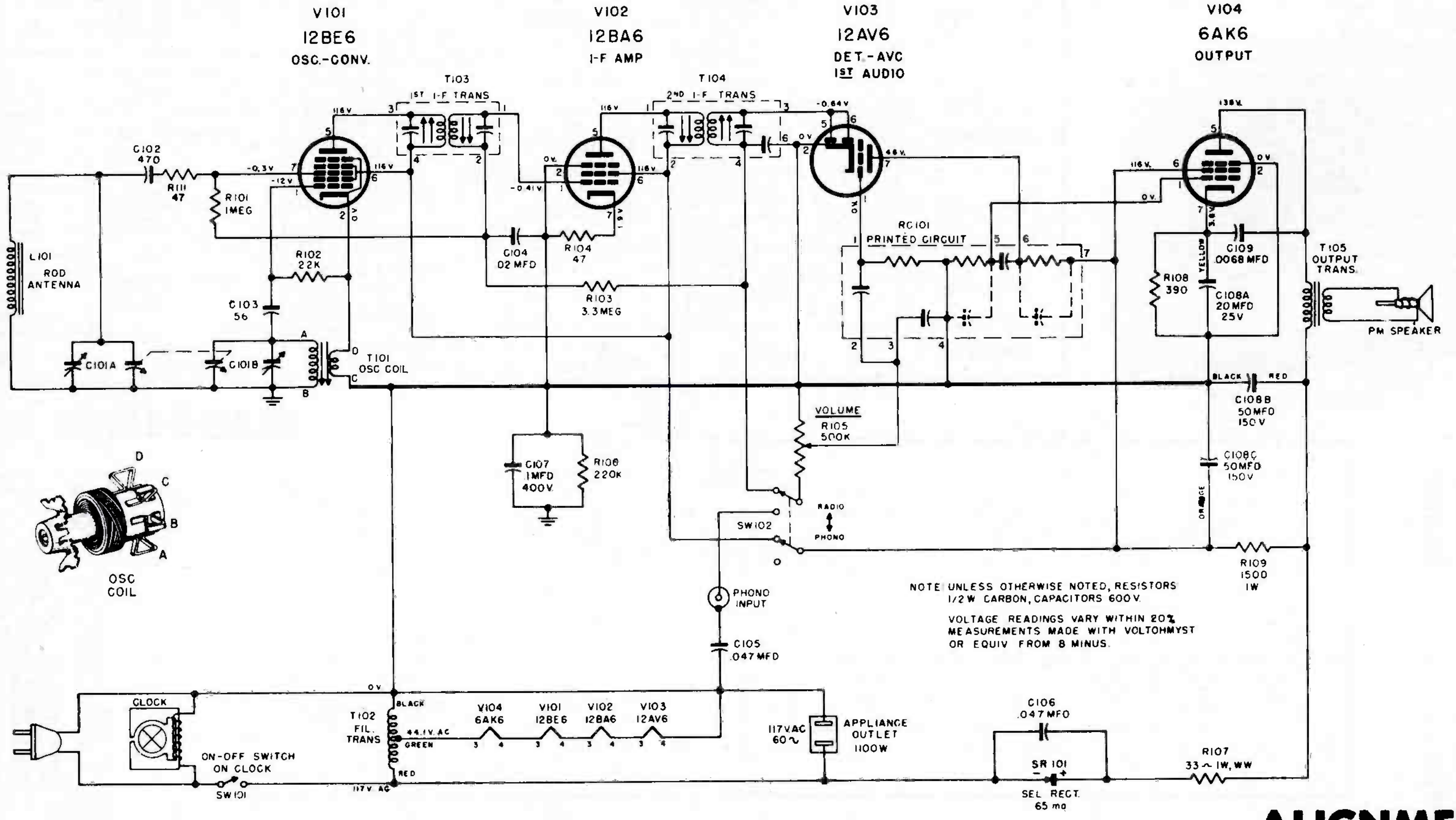
BENDIX RADIO Serial Nos. 5BH and 5BM,
Models R5BLA, R5BLB, R5BM, used in
Lincoln-Mercury, No. FDL-18805-B, -C, -D

Capehart

CAPEHART-FARNSWORTH COMPANY

MODEL
C-14

RADIO CHASSIS
CR-93


V101
12BE6
OSC.-CONV.
V102
12BA6
I-F AMP
V103
12AV6
DET.-AVC
1ST AUDIO
V104
6AK6
OUTPUT
T103
1ST I-F TRANS
T104
2ND I-F TRANS
C102 470
R111 47
R101 1MEG
R102 22K
C103 56
L101 ROD ANTENNA
C101A
C101B
T101 OSC COIL
C104 .02 MFD
R104 47
R103 3.3 MEG
C107 1MFD 400V
R106 220K
RC101 PRINTED CIRCUIT
VOLUME R105 500K
RADIO
PHONO
SW102
PHONO INPUT
C105 .047 MFD
R108 390
C109 .0068 MFD
C108A 20MFD 25V
C108B 50MFD 150V
C108C 50MFD 150V
BLACK
RED
YELLOW
ORANGE
T105 OUTPUT TRANS.
PM SPEAKER
R109 1500 1W
C106 .047 MFD
SR 101
SEL. RECT. 65 ma
R107 33 ~ 1W, WW
APPLIANCE OUTLET 1100W
117VAC 60~
T102 FIL. TRANS
GREEN
44.1V AC
117V AC
CLOCK
ON-OFF SWITCH ON CLOCK
SW101
OSC COIL
A
B
C
D
116V
-0.3V
-12V
-0.41V
-0.64V
46V
138V
0V

NOTE: UNLESS OTHERWISE NOTED, RESISTORS 1/2 W CARBON, CAPACITORS 600 V.

VOLTAGE READINGS VARY WITHIN 20% MEASUREMENTS MADE WITH VOLTOHMYST OR EQUIV FROM B MINUS.

Step	Set Generator	Set Gang	Connect Generator	Adjust	To Obtain
1	455KC	Fully Open	Pin 1 V102	T104 (Top & Bottom)	Maximum
2	"	" "	Across Rod Ant.	T103 (Top & Bottom)	"
3	1620KC	Fully Open	Across Rod Ant.	Oscillator Trimmer	"
4	537KC	Closed	" " "	T101	"
5	1500 KC	1500KC	Loosely Couple To Rod Ant.	Antenna Trimmer	"

ALIGNMENT

Equipment Required:

1. Calibrated R.F. Signal Generator (Signal from 455KC to 1620KC).
2. Low Range Output Meter.

Alignment:

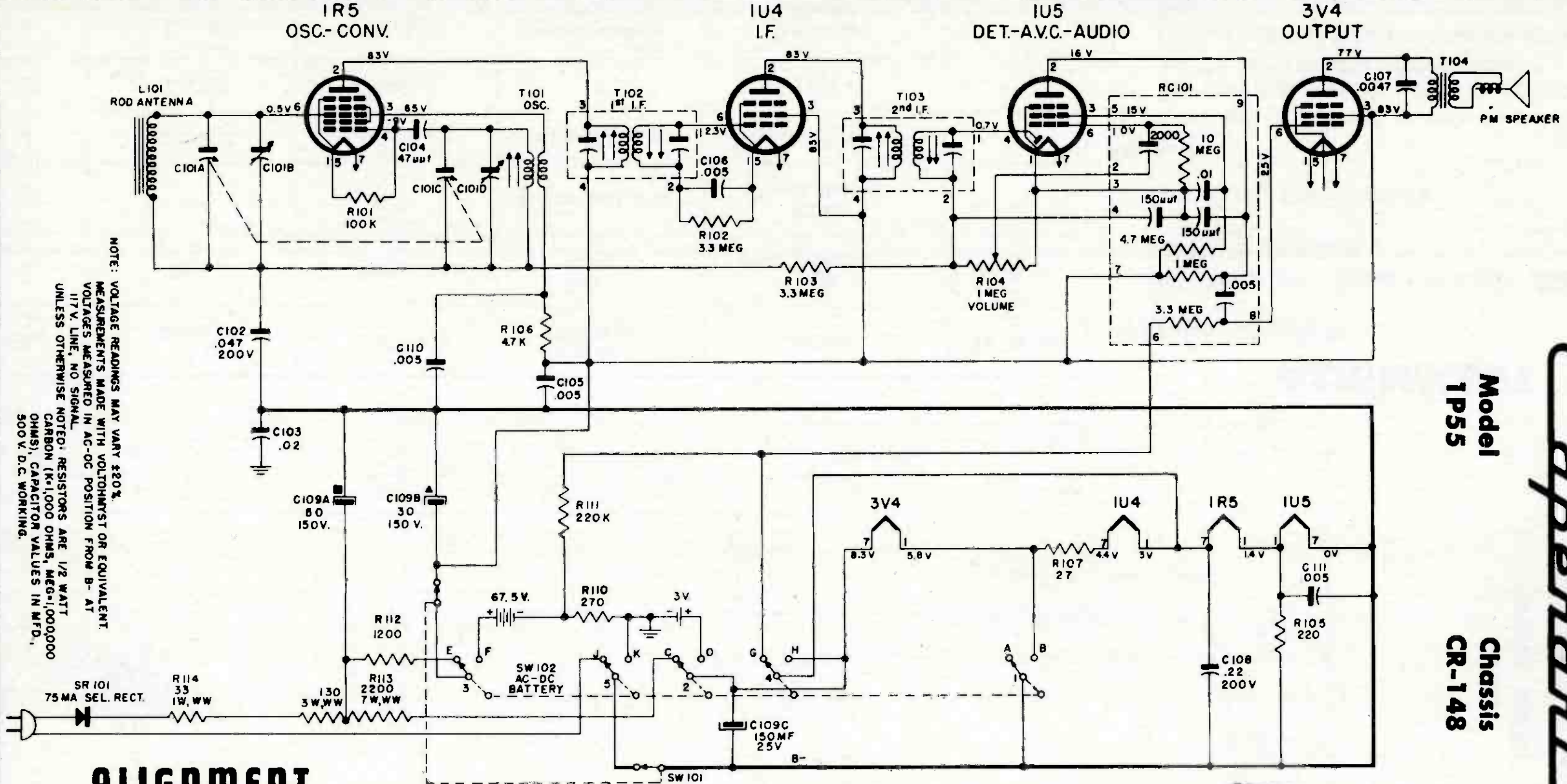
a. Turn set on, adjust volume to maximum.
b. See that dial pointer coincides with calibration marks at extremes of dial scale.
c. Connect output meter across the speaker voice coil.

CAPEHART-FARNSWORTH COMPANY

Capehart

Model
1P55

Chassis
CR-148


1R5
OSC.-CONV.
1U4
I.F.
1U5
DET.-A.V.C.-AUDIO
3V4
OUTPUT
L101
ROD ANTENNA
C101A
C101B
C101C
C101D
T101
OSC.
T102
1st I.F.
T103
2nd I.F.
T104
PM SPEAKER
RC101
R101
100K
R102
3.3 MEG
R103
3.3 MEG
R104
1 MEG
VOLUME
R105
220
R106
4.7K
R107
27
R110
270
R111
220K
R112
1200
R113
2200
7W,WW
130
3W,WW
R114
33
1W,WW
SR101
75MA SEL. RECT.
C102
.047
200V
C103
.02
C104
47uuf
C105
.005
C106
.005
C107
.0047
C108
.22
200V
C109A
80
150V.
C109B
30
150 V.
C109C
150MF
25V
C110
.005
C111
.005
67.5 V.
3V
SW102
AC-DC
BATTERY
SW101
ON-OFF
SWITCH ON
VOL CONT.
B-

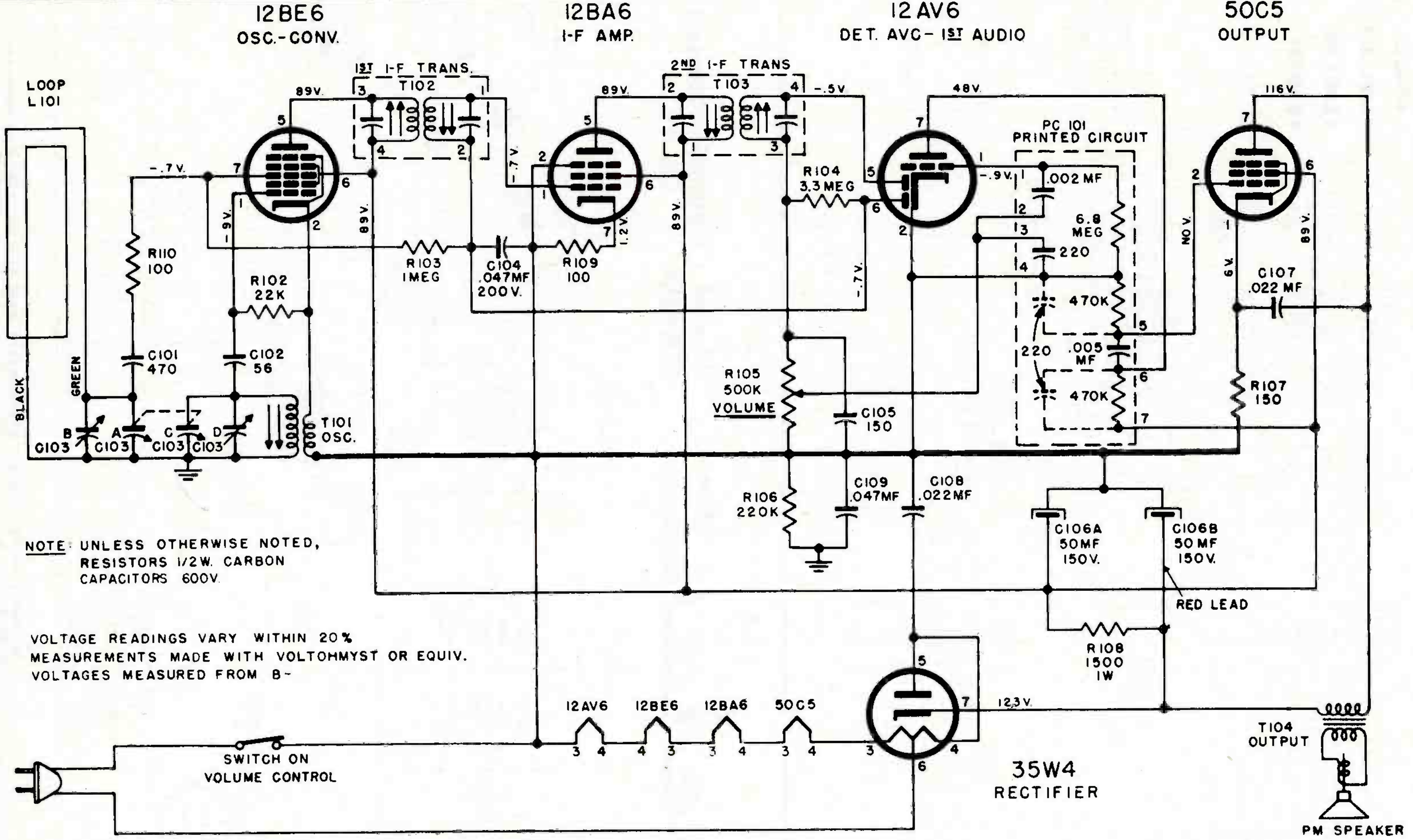
NOTE: VOLTAGE READINGS MAY VARY ±20%.
MEASUREMENTS MADE WITH VOLTOHMYST OR EQUIVALENT.
VOLTAGES MEASURED IN AC-DC POSITION FROM B- AT 117 V. LINE, NO SIGNAL.
UNLESS OTHERWISE NOTED: RESISTORS ARE 1/2 WATT CARBON (K=1,000 OHMS, MEG=1,000,000 OHMS), CAPACITOR VALUES IN MFD., 500 V. D.C. WORKING.

ALIGNMENT

Step No.	Set R. F. Gen. at	Connect R. F. Generator to	Set Gang to	Adjust	To Obtain
1	455KC (400 cy. mod.)	Pin 6 V102 thru .1mfd cap. Ground Lead to B-	Fully Closed	T103 I. F. Transformer (Top & Bottom)	Maximum
2	455KC (400 cy. mod.)	Pin 6 V101 thru .1mfd cap. Ground Lead to B-	Fully Closed	T102 I. F. Transformer (Top & Bottom)	Maximum
3	540KC (400 cy. mod.)	Pin 6 V101 thru .1mfd cap. Ground Lead to B-	Fully Closed	T101 Oscillator Slug	Maximum
4	1620KC (400 kc mod.)	Pin 6 V101 thru .1mfd cap. Ground Lead to B-	Fully Open	C101D Oscillator Trimmer	Maximum
5	1500KC (400 cy. mod.)	Form a Loop and closely couple to Ant.	1500KC	C101B Antenna Trimmer	Maximum

CAPEHART-FARNSWORTH

Model 3T55 **Chassis** CR-150 **Model** 2T55 **Chassis** CR-154


12BE6
OSC.-CONV.
12BA6
I-F AMP.
12AV6
DET. AVC- 1ST AUDIO
50C5
OUTPUT
LOOP
L101
BLACK
GREEN
1ST I-F TRANS.
T102
2ND I-F TRANS
T103
PC 101
PRINTED CIRCUIT
R110
100
R102
22K
C101
470
C102
56
C103 B
C103 A
C103 C
C103 D
T101
OSC.
R103
1MEG
C104
.047MF
200V.
R109
100
R104
3.3 MEG
.002 MF
6.8
MEG
220
470K
.005
MF
470K
220
R105
500K
VOLUME
C105
150
R106
220K
C109
.047MF
C108
.022MF
C107
.022 MF
R107
150
C106A
50MF
150V.
C106B
50 MF
150V.
RED LEAD
R108
1500
1W
T104
OUTPUT
PM SPEAKER
35W4
RECTIFIER
SWITCH ON
VOLUME CONTROL
12AV6
12BE6
12BA6
50C5
89V.
-.7V.
-.9V.
1.2V.
-.5V
48V.
-.9V.
116V.
NO V.
6V.
12.3V.

NOTE: UNLESS OTHERWISE NOTED,
RESISTORS 1/2W. CARBON
CAPACITORS 600V.

VOLTAGE READINGS VARY WITHIN 20%
MEASUREMENTS MADE WITH VOLTOHMYST OR EQUIV.
VOLTAGES MEASURED FROM B-

STEP	SET RF GENERATOR AT	SET CONDENSER GANG AT	ADJUST	TO OBTAIN
1	455KC	Fully Open at some quiet point	IF Slugs T103 T102	Maximum Output
2	1620KC	Fully Open	Osc. Trimmer C103D	Same
3	1500KC	1500KC	Ant. Trimmer C103B	Same
4	600KC	600KC	T101 Osc. Slug	Same

ALIGNMENT:

a. Turn set on, adjust volume to maximum.

b. See that dial pointer coincides with calibration marks at extremes of dial scale.

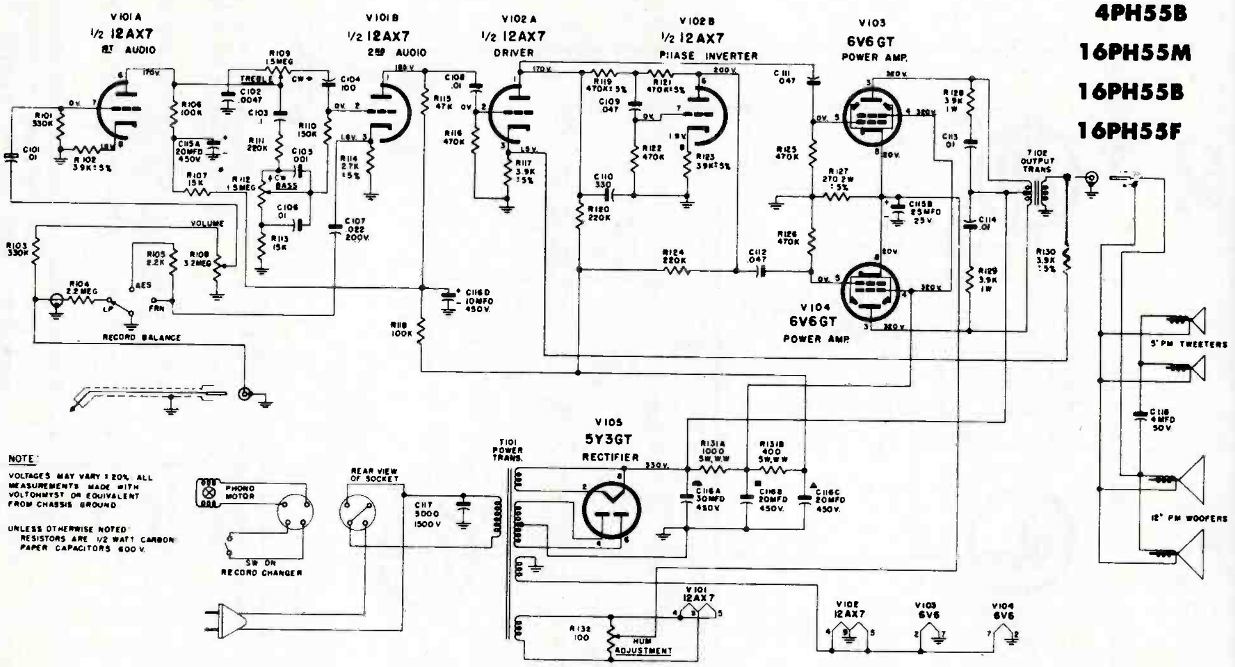
c. Connect output meter across the speaker voice coil.

d. Make a loop of the RF Generator leads (connect the leads together through a .01 mfd capacitor) and loosely couple to the Loop Antenna.

Capehart

AMPLIFIER CHASSIS
CA-156

4PH55M
4PH55B
16PH55M
16PH55B
16PH55F

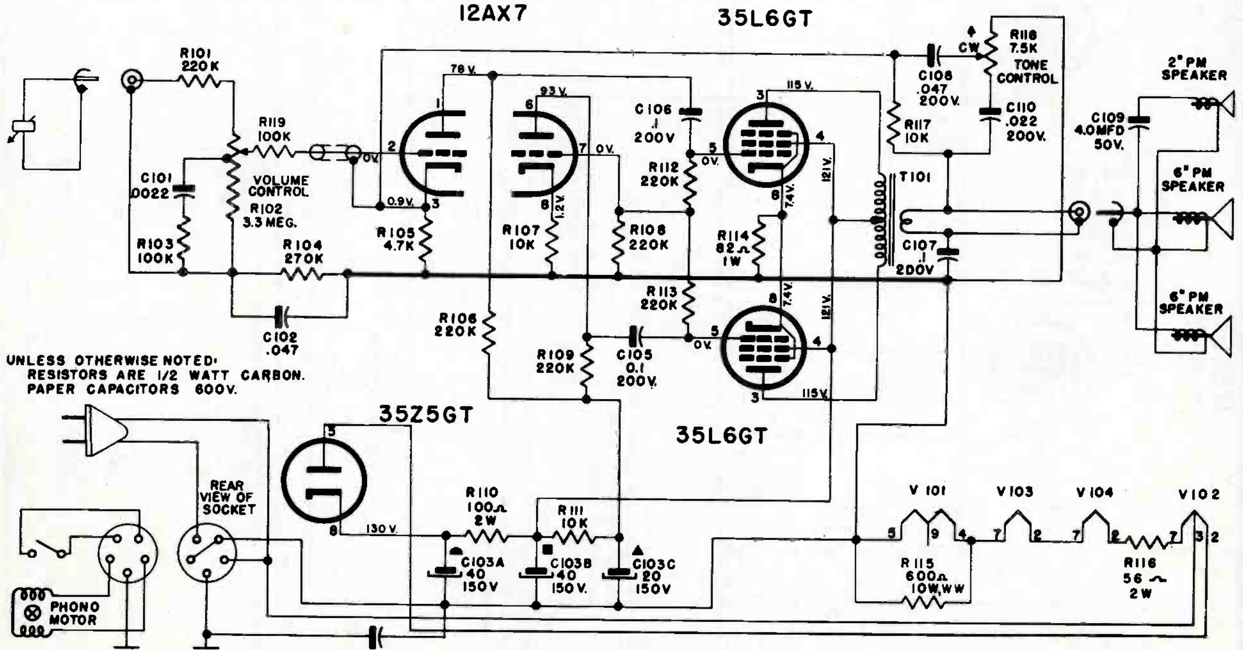

V101A
1/2 12AX7
1ST AUDIO
V101B
1/2 12AX7
2ND AUDIO
V102A
1/2 12AX7
DRIVER
V102B
1/2 12AX7
PHASE INVERTER
V103
6V6GT
POWER AMP.
V104
6V6GT
POWER AMP.
V105
5Y3GT
RECTIFIER
R101 330K
R102 3.9K±5%
C101 .01
R103 330K
R104 2.2MEG
R105 2.2K
R106 100K
R107 15K
R108 3.2MEG
VOLUME
R109 1.5MEG
TREBLE
CW
C102 .0047
C103 .1
C104 100
C105 .001
C106 .01
C107 .022 200V.
C115A 20MFD 450V
R110 150K
R111 220K
R112 1.5MEG
BASS
R113 15K
R114 2.7K ±5%
R115 47K
R116 470K
R117 3.9K ±5%
R118 100K
C108 .01
C116D 10MFD 450V.
R119 470K±5%
R121 470K±5%
C109 .047
R122 470K
R123 3.9K±5%
C110 330
R120 220K
R124 220K
C111 .047
C112 .047
R125 470K
R126 470K
R127 270 2W ±5%
C115B 25MFD 25V
R128 3.9K 1W
C113 .01
C114 .01
R129 3.9K 1W
R130 3.9K ±5%
T102 OUTPUT TRANS
5" PM TWEETERS
C118 4MFD 50V
12" PM WOOFERS
AES
LP
FRN
RECORD BALANCE
170V.
189V
170V.
200V.
320V.
1.6V.
1.5V.
1.9V.
0V.
20V.
PHONO MOTOR
SW ON RECORD CHANGER
REAR VIEW OF SOCKET
C117 5000 1500V
T101 POWER TRANS.
330V.
R131A 1000 5W,WW
R131B 400 5W,WW
C116A 30MFD 450V.
C116B 20MFD 450V.
C116C 20MFD 450V.
R132 100
HUM ADJUSTMENT
V101 12AX7
V102 12AX7
V103 6V6
V104 6V6

NOTE:
VOLTAGES MAY VARY ±20% ALL MEASUREMENTS MADE WITH VOLTOHMYST OR EQUIVALENT FROM CHASSIS GROUND

UNLESS OTHERWISE NOTED:
RESISTORS ARE 1/2 WATT CARBON
PAPER CAPACITORS 600 V.

Capehart

Model 6TP45M Amplifier Chassis CA-161

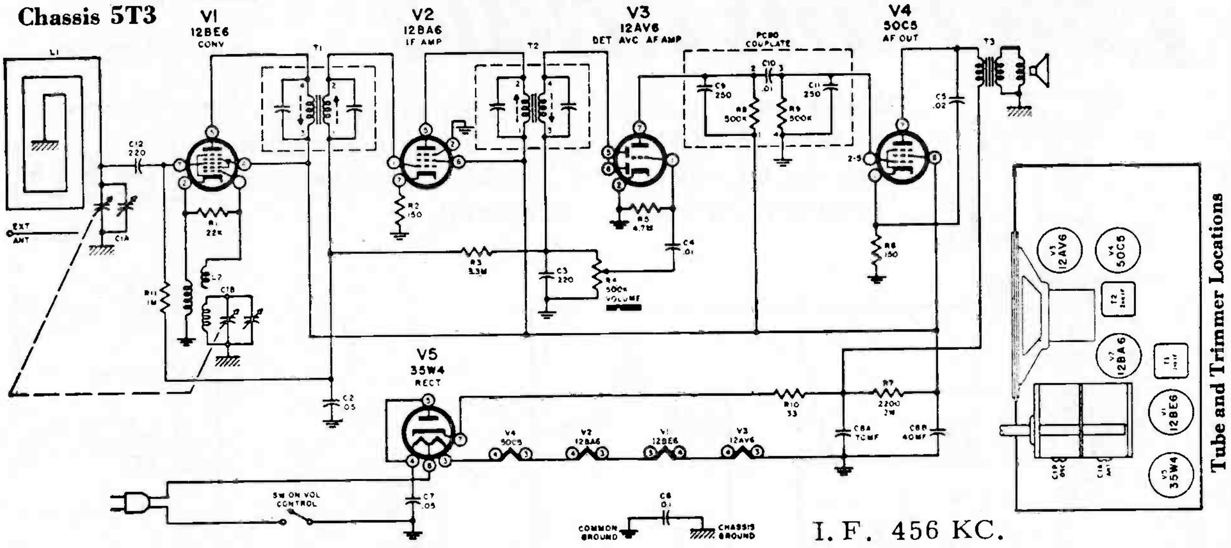

12AX7
35L6GT
35L6GT
35Z5GT
R101 220K
R119 100K
C101 .0022
VOLUME CONTROL R102 3.3 MEG.
R103 100K
R104 270K
C102 .047
R105 4.7K
R106 220K
R107 10K
R108 220K
R109 220K
C105 0.1 200V.
C106 .1 200V
R112 220K
R113 220K
R114 82Ω 1W
R116 7.5K TONE CONTROL
CW
C108 .047 200V.
R117 10K
C110 .022 200V.
T101
C107 .1 200V
C109 4.0MFD 50V.
2" PM SPEAKER
6" PM SPEAKER
6" PM SPEAKER
78V.
93V.
0V.
0.9V.
1.2V.
115V.
121V.
7.4V.
130V.
REAR VIEW OF SOCKET
PHONO MOTOR
R110 100Ω 2W
R111 10K
C103A 40 150V
C103B 40 150V.
C103C 20 150V
C104 .047
V101
V103
V104
V102
R115 600Ω 10W,WW
R116 56 Ω 2W

UNLESS OTHERWISE NOTED:
RESISTORS ARE 1/2 WATT CARBON.
PAPER CAPACITORS 600V.

NOTE:
VOLTAGES MAY VARY ±20%. ALL MEASUREMENTS MADE WITH VOLTOHMYST OR EQUIVALENT FROM B–.

CBS-Columbia, MODELS: 5155-Ebony; 5156-Ivory; 5156-Maroon; 5156-Sand

Chassis 5T3


V1
12BE6
CONV
V2
12BA6
IF AMP
V3
12AV6
DET AVC AF AMP
V4
50C5
AF OUT
PC80
COUPLATE
L1
T1
T2
T3
EXT
ANT
C12
220
C1A
R1
22K
L7
C1B
R11
1M
R2
150
R3
3.3M
C3
220
R4
500K
VOLUME
R5
4.7M
C4
.01
C9
250
C10
.01
C11
250
R8
500K
R9
500K
C5
.02
2-5
R6
150
V5
35W4
RECT
C2
.05
R10
33
R7
2200
2W
C8A
70MF
C8B
40MF
V4
50C5
V2
12BA6
V1
12BE6
V3
12AV6
SW ON VOL
CONTROL
C7
.05
C6
.01
COMMON
GROUND
CHASSIS
GROUND
Tube and Trimmer Locations
V3
12AV6
V4
50C5
T2
V2
12BA6
T1
V1
12BE6
V5
35W4
C1B
OSC
C1A
ANT

I. F. 456 KC.

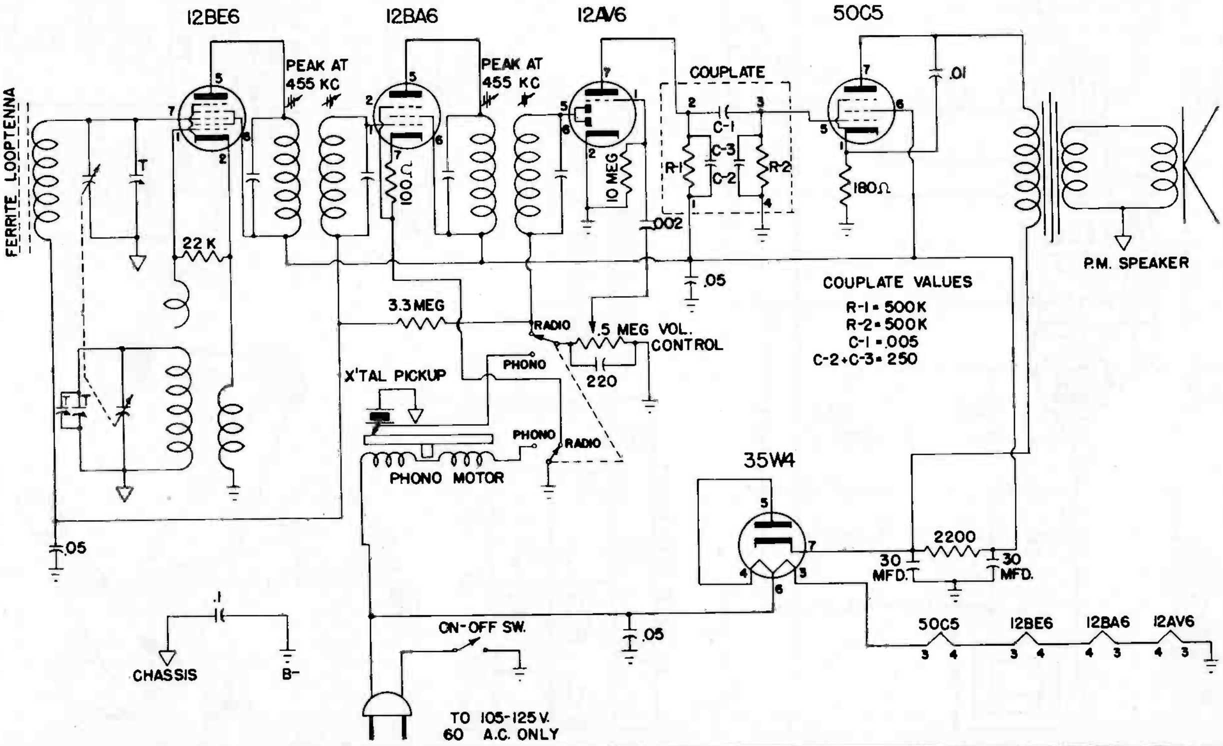
DeWALD Radio-Phonograph Models J-540 and J-541

(The circuit below is exact for J-540. Model J-541 is the same except for a jack in the voice coil circuit.)

TO PLAY PHONOGRAPH;-Turn volume control-power switch "ON". Move Radio-Phonograph switch lever to Phonograph position. Allow approximately one minute for the tubes to heat up. Select desired speed by moving speed lever over number marked on cabinet. Pull needle guard off, but do not discard. Replace needle guard when phonograph is not in use.

Set motor lever to proper speed of record.

When phonograph or radio is turned off, it is advisable to place this lever in the off position.

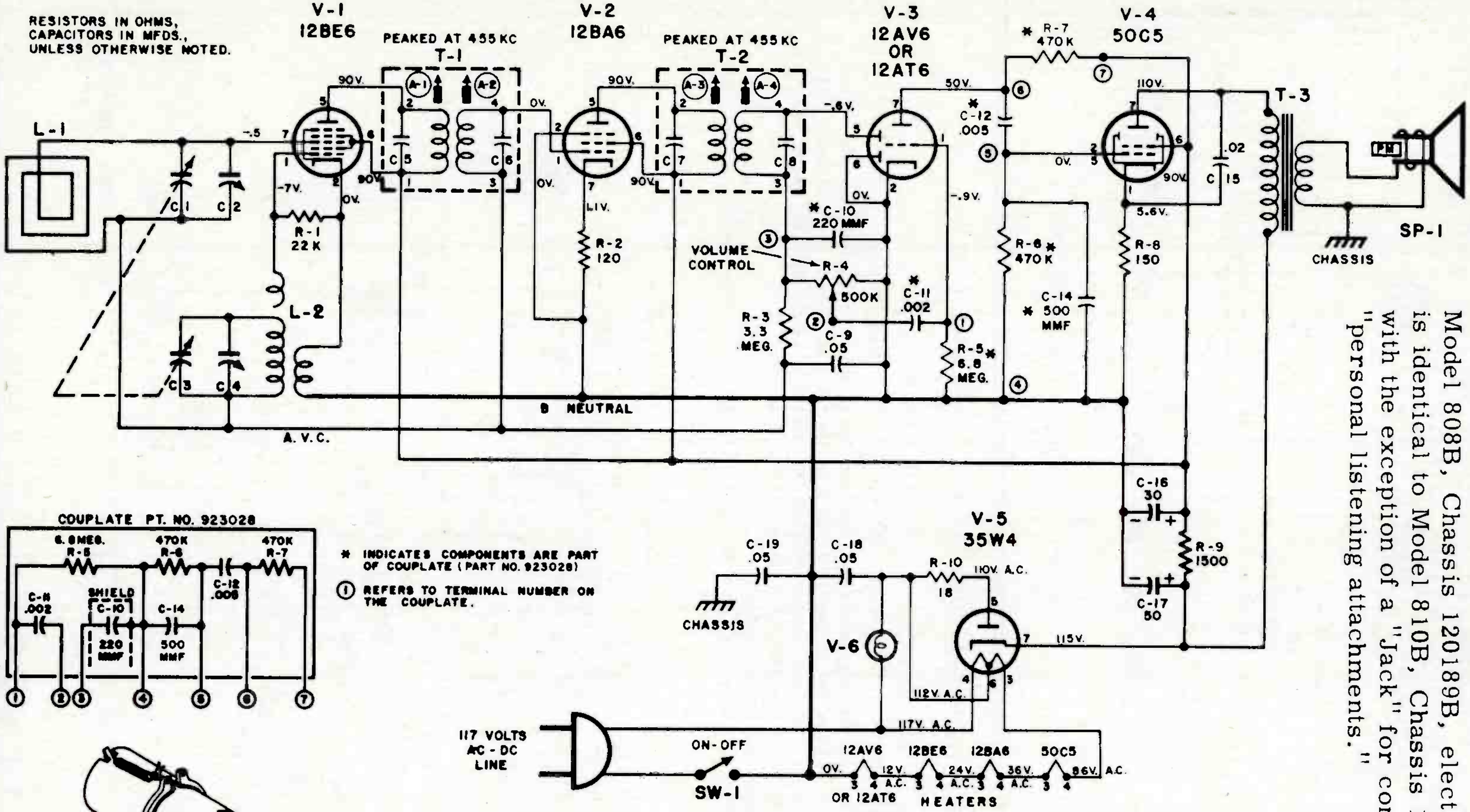

12BE6
12BA6
12AV6
50C5
FERRITE LOOPTENNA
PEAK AT
455 KC
PEAK AT
455 KC
COUPLATE
.01
C-1
R-1
C-3
C-2
R-2
180Ω
100Ω
10 MEG
.002
22 K
.05
3.3MEG
RADIO
.5 MEG VOL.
CONTROL
220
PHONO
X'TAL PICKUP
PHONO
RADIO
PHONO MOTOR
COUPLATE VALUES
R-1 = 500K
R-2 = 500K
C-1 = .005
C-2+C-3 = 250
P.M. SPEAKER
35W4
2200
30
MFD.
30
MFD.
.05
.1
CHASSIS
B-
ON-OFF SW.
.05
TO 105-125V.
60 A.C. ONLY
50C5
12BE6
12BA6
12AV6

Emerson Radio

MODEL 810B

CHASSIS 120222-B

Model 808B, Chassis 120189B, electrically is identical to Model 810B, Chassis 120222B, with the exception of a "Jack" for connecting "personal listening attachments."

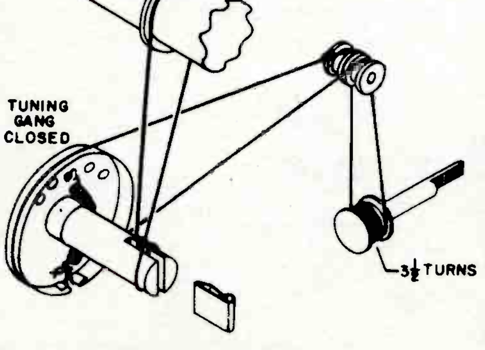

RESISTORS IN OHMS, CAPACITORS IN MFDS., UNLESS OTHERWISE NOTED.
V-1 12BE6
PEAKED AT 455 KC T-1
V-2 12BA6
PEAKED AT 455 KC T-2
V-3 12AV6 OR 12AT6
V-4 50C5
T-3
SP-1
CHASSIS
L-1
C1
C2
C3
C4
C5
C6
C7
C8
L-2
R-1 22K
R-2 120
R-3 3.3 MEG.
R-4 500K
VOLUME CONTROL
*C-10 220 MMF
*C-11 .002
C-9 .05
R-5* 6.8 MEG.
*C-12 .005
* R-7 470K
R-6* 470K
C-14 * 500 MMF
R-8 150
.02 C 15
B NEUTRAL
A.V.C.
C-16 30
R-9 1500
C-17 50
V-5 35W4
C-19 .05
C-18 .05
R-10 18
110V. A.C.
115V.
V-6
112V. A.C.
117V. A.C.
117 VOLTS AC-DC LINE
ON-OFF
SW-1
12AV6 OR 12AT6
12BE6
12BA6
50C5
HEATERS
0V.
12V.
24V.
36V.
86V.
A.C.
90V.
-.5
-7V.
0V.
L.I.V.
-.6V.
50V.
-.9V.
110V.
5.6V.
COUPLATE PT. NO. 923028
6.8MEG. R-5
470K R-6
470K R-7
C-11 .002
SHIELD C-10
220 MMF
C-14
500 MMF
C-12 .005
* INDICATES COMPONENTS ARE PART OF COUPLATE (PART NO. 923028)
① REFERS TO TERMINAL NUMBER ON THE COUPLATE.

RESISTANCE READINGS

All measurements taken from pin to B neutral unless otherwise indicated.
Resistance measurements taken with:
a) Power line cord disconnected from outlet.
b) Volume control set for maximum volume.

TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
12BE6	22K	.6	12	24	1500*	1500*	3.8 meg
12BA6	3.8 meg	0	24	36	1500*	1500*	120
12AV6 or 12AT6	6.8 meg	0	0	12	500K	0	470K
50C5	150	470K	36	80	470K	1500*	*175
35W4	NC	NC	80	110	120	105	0*

*Indicates resistances measured to Pin 7 of Rectifier 35W4 (B+).

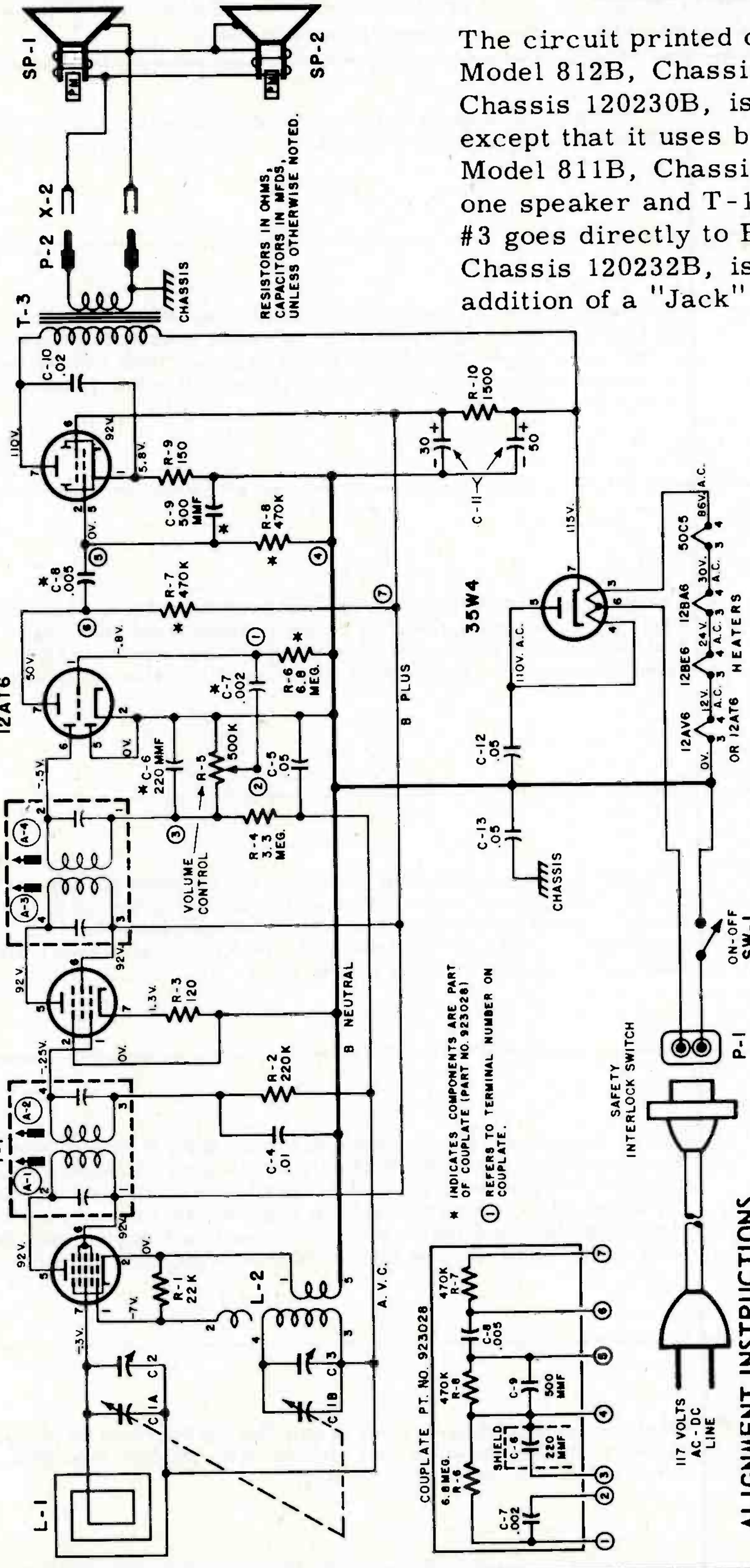

TUNING GANG CLOSED
3½ TURNS

Dial cord stringing.

Emerson

Model 811B, Chassis 120228B,
Model 812B, Chassis 120229B,
Model 813B, Chassis 120230B,
Model 822B, Chassis 120232B.

The circuit printed on this page is exact for Model 812B, Chassis 120229B. Model 813B, Chassis 120230B, is electrically identical except that it uses but a single speaker. Model 811B, Chassis 120228B, also uses one speaker and T-1 grid return terminal #3 goes directly to B Neutral. Model 822B, Chassis 120232B, is like 811B with the addition of a "Jack" for attachments.


SP-1
SP-2
X-2
P-2
T-3
CHASSIS
RESISTORS IN OHMS, CAPACITORS IN MFDS. UNLESS OTHERWISE NOTED.
50C5
C-10 .02
110V.
92V.
5.8V.
R-9 150
C-9 500 MMF
R-8 470K
C-8 .005
R-7 470K
R-10 1500
30
50
C-11
115V.
35W4
110V. A.C.
12AV6 OR 12AT6
50V.
-.8V.
C-7 .002
R-6 6.8 MEG.
C-6 220 MMF
R-5 500K
C-5 .05
VOLUME CONTROL
R-4 3.3 MEG.
B PLUS
C-12 .05
C-13 .05
CHASSIS
12AV6 OR 12AT6
12BE6
12BA6
50C5
HEATERS
86V. A.C.
ON-OFF SW-1
PEAKED AT 455 KC
T-2
12BA6
92V.
1.3V.
R-3 120
B NEUTRAL
R-2 220K
C-4 .01
PEAKED AT 455 KC
T-1
12BE6
R-1 22K
-7V.
-3V.
L-2
A.V.C.
L-1
C-1A
C-2
C-1B
C-3
* INDICATES COMPONENTS ARE PART OF COUPLATE (PART NO. 923028)
① REFERS TO TERMINAL NUMBER ON COUPLATE.
COUPLATE PT. NO. 923028
R-6 6.8MEG.
R-8 470K
R-7 470K
C-8 .005
C-9 500 MMF
SHIELD
C-6 220 MMF
C-7 .002
P-1
SAFETY INTERLOCK SWITCH
117 VOLTS AC-DC LINE

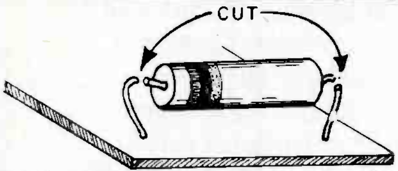
ALIGNMENT INSTRUCTIONS

STEP	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.005 mfd.	High side to grid (pin 7) of V1 (12BE6). Low side to B-neutral (See Alignment Note)	455 KC	Variable condenser fully open.	Across voice coil.	T2, T1 (A3, A4, A1, A2)	Adjust for maximum output.
2		Form loop of several turns and radiate signal into receiver	1620 KC	"	Across voice coil.	Trimmer C-3 (Osc.)	Adjust for maximum output.
3		"	1400 KC	Tune for maximum output.	Across voice coil.	Trimmer C-2 (Ant.)	Adjust for maximum output.

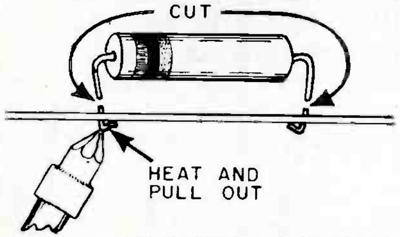
EMERSON RADIO

Information on Printed Circuit Repairs

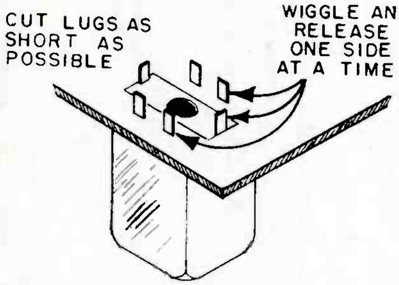
The equipment needed for servicing printed circuit chassis are the usual standard shop tools, plus a low wattage soldering iron (approximately 25 watts) with a fine tip, low temperature rosin core solder and a small stiff bristled brush to clean away the melted solder from around the connections.



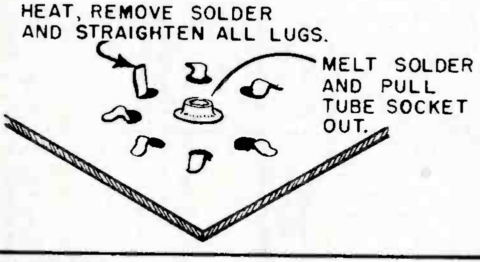
Cut resistor or capacitor leads as close to the component as possible, then connect the replacement part to the remaining section of the original leads and carefully solder.


CUT
HEAT AND
PULL OUT

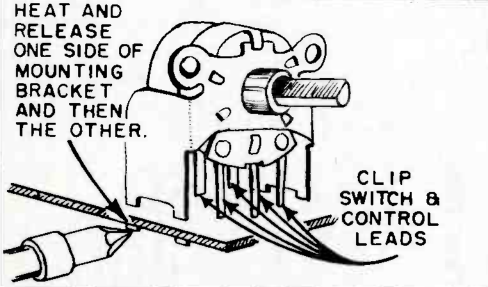
Cut resistor or capacitor leads as close to the chassis as possible. Heat connections just long enough to melt solder and remove leads from bottom one at a time. Clean area around the mounting holes and insert leads from replacement part through holes provided. Clip off excess lead, leaving a small piece to bend over and solder.


CUT LUGS AS SHORT AS POSSIBLE
WIGGLE AND RELEASE ONE SIDE AT A TIME

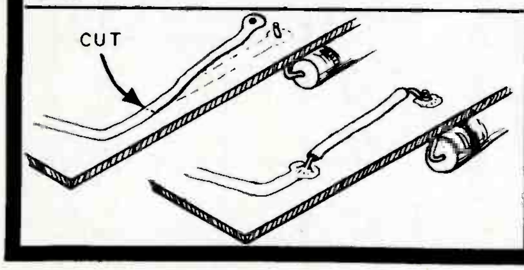
Cut transformer lugs (including spring clips) as close to chassis as possible. Heat connections (on one side) long enough for solder to melt, then wiggle loose first one side and then the other. Clean area around mounting holes and insert replacement part through same holes. Carefully resolder connections.


HEAT, REMOVE SOLDER AND STRAIGHTEN ALL LUGS.
MELT SOLDER AND PULL TUBE SOCKET OUT.

Melt and brush excess solder from socket pins and straighten out bent pins (one at a time). Remove solder from center ground lug of socket and remove socket (it may be necessary to reheat some of the lugs). Clean the area around mounting holes and insert new socket (with tube in it) in same holes. Bend socket lugs over and then carefully solder.


HEAT AND RELEASE ONE SIDE OF MOUNTING BRACKET AND THEN THE OTHER.
CLIP SWITCH & CONTROL LEADS

Cut the volume control and a.c. switch leads close to top of chassis. Heat these clipped leads from under the chassis and pull out with long nose pliers. Melt solder around mounting bracket lugs and straighten out these lugs if bent. Clip these lugs off as close to chassis as possible. Heat and remove one side of mounting bracket and then the other. Clean area around mounting holes and insert new part, bend lugs over slightly and carefully solder all connections.

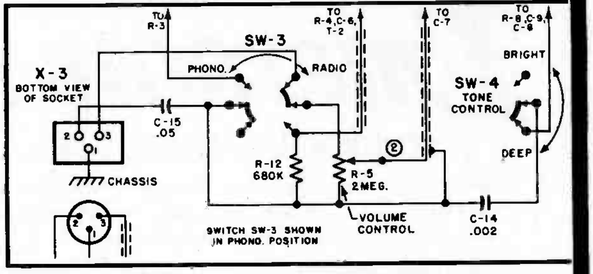


Cut off the section of the printed wiring strip that has lifted from the chassis and replace this section with a small piece of regular insulated wire. Bare wire may be used to replace short sections.

Emerson

CHASSIS - 120231-B

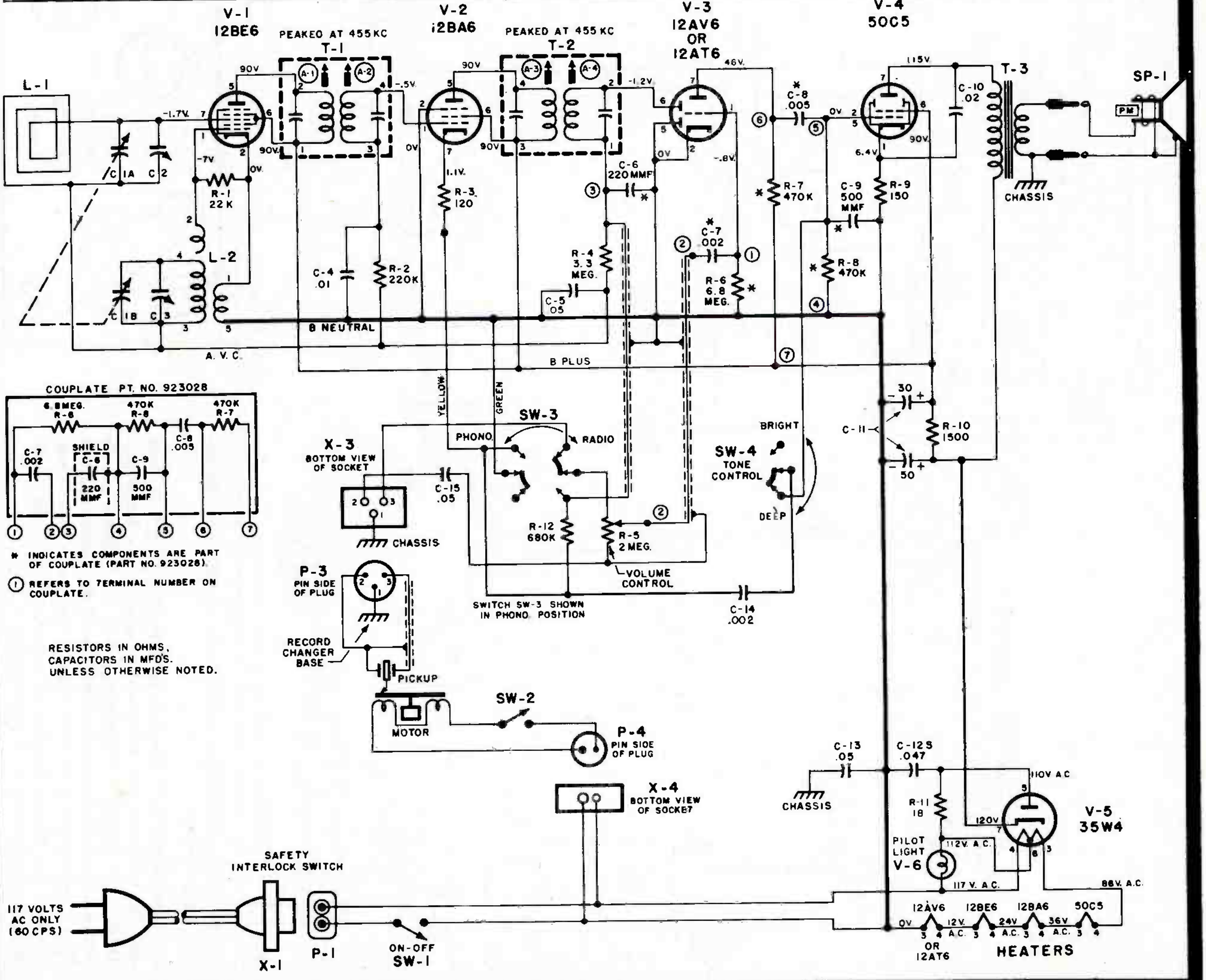
MODEL - 814B


TO R-3
TO R-4, C-6, T-2
TO C-7
TO R-8, C-9, C-6
SW-3
PHONO.
RADIO
X-3
BOTTOM VIEW OF SOCKET
C-15 .05
BRIGHT
SW-4
TONE CONTROL
DEEP
CHASSIS
R-12 680K
R-5 2MEG.
VOLUME CONTROL
C-14 .002
SWITCH SW-3 SHOWN IN PHONO. POSITION

ALTERNATE CIRCUIT USED ON SOME 120231-B CHASSIS.

ALIGNMENT INSTRUCTIONS

STEP	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.005 mfd.	High side to grid (pin 7) of V1 (12BE6). Low side to B-neutral	455 KC	Variable condenser fully open.	Across voice coil.	T2, T1 (A3, A4, A1, A2)	Adjust for maximum output.
2		Form loop of several turns and radiate signal into receiver	1620 KC	"	Across voice coil.	Trimmer C-3 (Osc.)	Adjust for maximum output.
3		"	1400 KC	Tune for maximum output.	Across voice coil.	Trimmer C-2 (Ant.)	Adjust for maximum output.


V-1 12BE6
V-2 12BA6
V-3 12AV6 OR 12AT6
V-4 50C5
PEAKED AT 455KC T-1
PEAKED AT 455 KC T-2
T-3
SP-1
PM
L-1
L-2
C1A
C2
C1B
C3
R-1 22K
R-2 220K
R-3 120
R-4 3.3 MEG.
R-5 2 MEG.
R-6 6.8 MEG.
R-7 470K
R-8 470K
R-9 150
R-10 1500
R-11 18
R-12 680K
C-4 .01
C-5 .05
C-6 220MMF
C-7 .002
C-8 .005
C-9 500 MMF
C-10 .02
C-11
C-12S .047
C-13 .05
C-14 .002
C-15 .05
30
50
90V
115V
-1.7V
-7V
-.5V
-1.2V
46V
-.8V
6.4V
1.1V
0V
B NEUTRAL
A.V.C.
B PLUS
CHASSIS
YELLOW
GREEN
SW-3
PHONO
RADIO
X-3
BOTTOM VIEW OF SOCKET
SW-4
TONE CONTROL
BRIGHT
DEEP
VOLUME CONTROL
SWITCH SW-3 SHOWN IN PHONO. POSITION
P-3
PIN SIDE OF PLUG
RECORD CHANGER BASE
PICKUP
MOTOR
SW-2
P-4
PIN SIDE OF PLUG
X-4
BOTTOM VIEW OF SOCKET
COUPLATE PT. NO. 923028
SHIELD
PILOT LIGHT V-6
110V A.C.
120V
112V A.C.
117 V. A.C.
88V. A.C.
V-5 35W4
12AV6 OR 12AT6
12BE6
12BA6
50C5
12V A.C.
24V A.C.
36V A.C.
HEATERS
117 VOLTS AC ONLY (60 CPS)
SAFETY INTERLOCK SWITCH
X-1
P-1
ON-OFF SW-1

* INDICATES COMPONENTS ARE PART OF COUPLATE (PART NO. 923028).

① REFERS TO TERMINAL NUMBER ON COUPLATE.

RESISTORS IN OHMS, CAPACITORS IN MFD'S. UNLESS OTHERWISE NOTED.

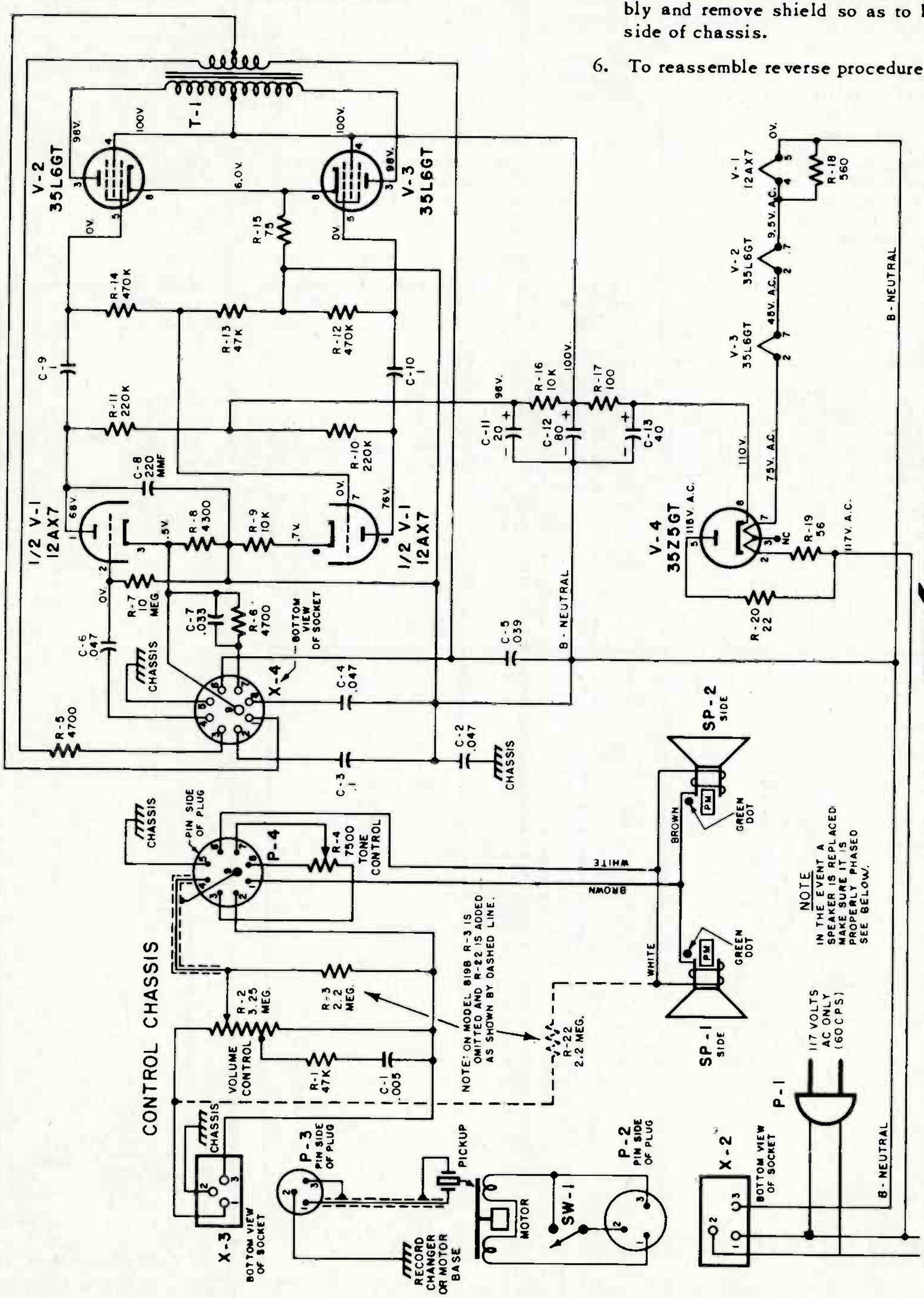
Emerson Radio

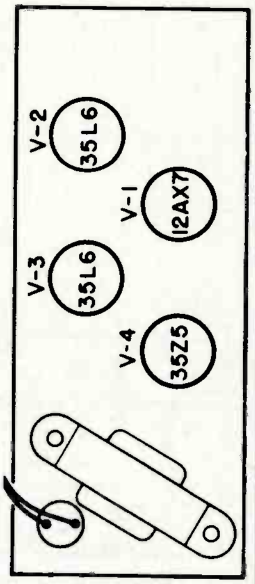
MODELS – 819B, 820B

CHASSIS – 120240-B

DISASSEMBLY INSTRUCTIONS

1. Remove four screws securing changer mounting board to cabinet. Lift mounting board with changer and disconnect plug P-3 from the control chassis.
2. Remove five screws securing inside perforated panel to cabinet and lift out panel. Disconnect plug P-2 from amplifier chassis and remove the changer.
3. Remove perforated back cover and remove screw securing chassis and shield assembly to rear of cabinet.
4. Remove two nuts and washers from threaded studs securing chassis and shield assembly to bottom of cabinet. Lift this assembly to clear studs, tilt forward and slide out.
5. Remove five screws securing chassis to shield assembly and remove shield so as to have access to underside of chassis.
6. To reassemble reverse procedure 1 through 5.


AMPLIFIER CHASSIS
CONTROL CHASSIS
T-1
V-2 35L6GT
V-3 35L6GT
1/2 V-1 12AX7
V-4 35Z5GT
98V.
100V.
6.0V.
0V.
68V.
76V.
R-15 75
R-14 470K
R-13 47K
R-12 470K
C-9 .1
C-10 .1
R-11 220K
R-10 220K
C-8 220 MMF
R-8 4300
R-9 10K
R-7 10 MEG
C-7 .033
R-6 4700
C-6 .047
R-5 4700
X-4
BOTTOM VIEW OF SOCKET
C-5 .039
C-4 .047
C-3 .1
C-2 .047
CHASSIS
B-NEUTRAL
C-11 20
R-16 10K
C-12 80
R-17 100
C-13 40
110V.
75V. A.C.
115V. A.C.
117V. A.C.
R-19 56
R-20 22
NC
V-1 12AX7
V-2 35L6GT
V-3 35L6GT
9.5V. A.C.
45V. A.C.
R-18 560
SP-2 SIDE
SP-1 SIDE
PM
GREEN DOT
BROWN
WHITE
NOTE
IN THE EVENT A SPEAKER IS REPLACED MAKE SURE IT IS PROPERLY PHASED SEE BELOW.
P-4
PIN SIDE OF PLUG
R-4 7500 TONE CONTROL
R-2 3.25 MEG.
R-3 2.2 MEG.
VOLUME CONTROL
R-1 47K
C-1 .005
NOTE: ON MODEL 819B R-3 IS OMITTED AND R-22 IS ADDED AS SHOWN BY DASHED LINE.
R-22 2.2 MEG.
117 VOLTS AC ONLY (60 CPS)
P-1
X-3
BOTTOM VIEW OF SOCKET
P-3
PIN SIDE OF PLUG
PICKUP
RECORD CHANGER OR MOTOR BASE
MOTOR
SW-1
P-2
PIN SIDE OF PLUG
X-2
BOTTOM VIEW OF SOCKET


V-2
35L6
V-1
12AX7
V-3
35L6
V-4
35Z5

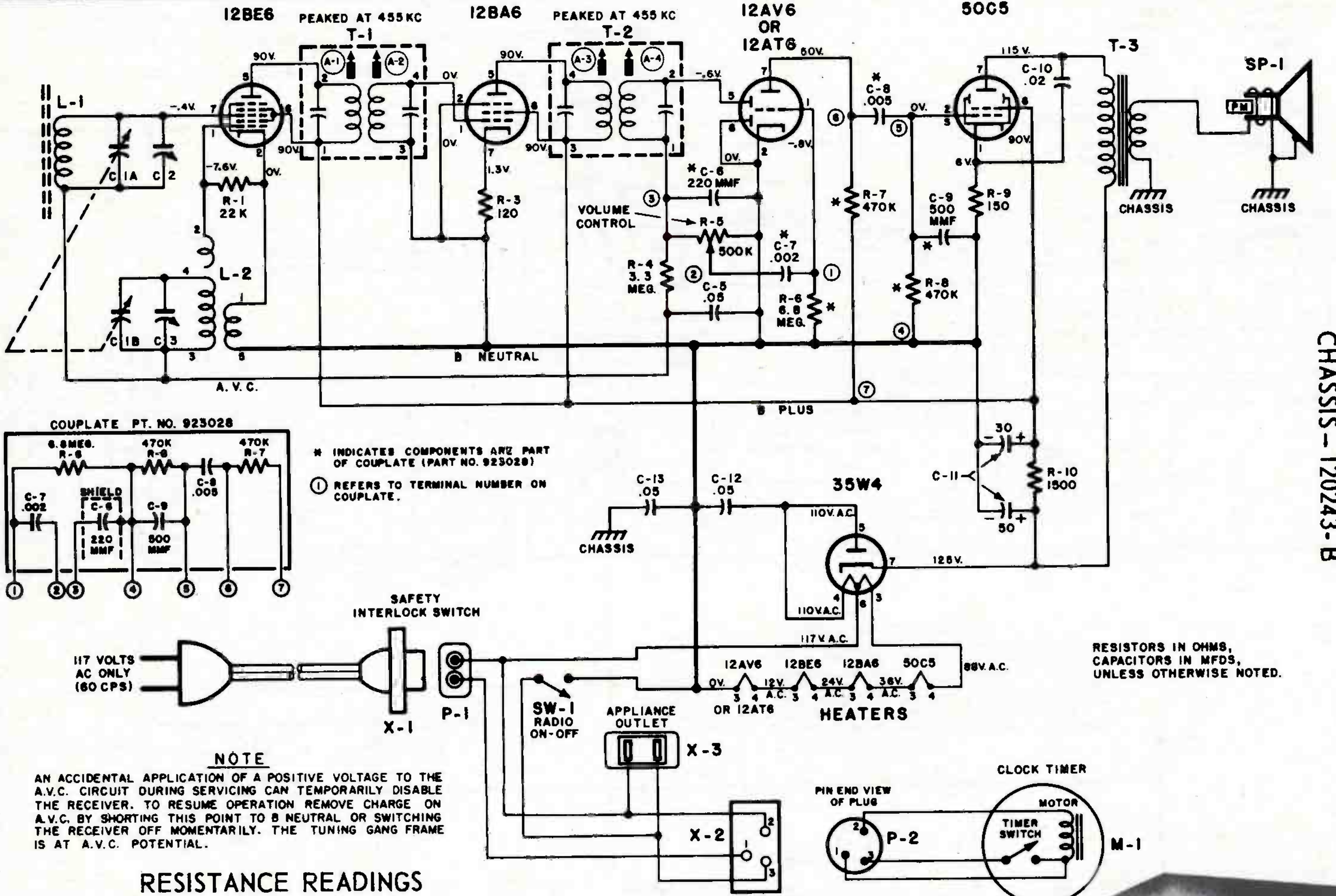
When it is necessary to replace a speaker use the following procedure.

Wire in the new speaker, then remove plug P-4 from amplifier chassis and momentarily apply 1½ volts from a flash light battery across pins 1 and 6 of plug P-4 observing the inward or outward motion of the speaker cones. If one cone moves in and the other moves out or vice versa, reverse the wiring polarity of one speaker so that both speaker cones move in or out together.

Emerson Radio

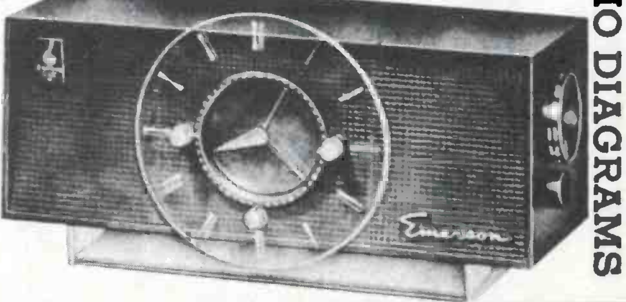
MODELS – 825-B
826-B

CHASSIS – 120243-B


12BE6
PEAKED AT 455 KC
T-1
12BA6
PEAKED AT 455 KC
T-2
12AV6 OR 12AT6
50C5
T-3
SP-1
CHASSIS
CHASSIS
L-1
L-2
C-1A
C-2
C-1B
C-3
R-1 22K
R-3 120
R-4 3.3 MEG.
R-5 500K
VOLUME CONTROL
C-6 220 MMF
C-5 .05
C-7 .002
R-6 6.8 MEG.
C-8 .005
R-7 470K
C-9 500 MMF
R-8 470K
R-9 150
C-10 .02
B NEUTRAL
A.V.C.
B PLUS
C-11
30
50
R-10 1500
C-13 .05
C-12 .05
CHASSIS
35W4
110V.A.C.
128V.
117V.A.C.
COUPLATE PT. NO. 923028
6.8MEG. R-6
470K R-8
470K R-7
C-7 .002
SHIELD C-6 220 MMF
C-9 500 MMF
C-8 .005
* INDICATES COMPONENTS ARE PART OF COUPLATE (PART NO. 923028)
① REFERS TO TERMINAL NUMBER ON COUPLATE.
SAFETY INTERLOCK SWITCH
117 VOLTS AC ONLY (60 CPS)
X-1
P-1
SW-1 RADIO ON-OFF
APPLIANCE OUTLET
X-3
X-2
BOTTOM VIEW
12AV6 OR 12AT6
12BE6
12BA6
50C5
HEATERS
88V.A.C.
PIN END VIEW OF PLUG
P-2
CLOCK TIMER
MOTOR
TIMER SWITCH
M-1
RESISTORS IN OHMS, CAPACITORS IN MFDS, UNLESS OTHERWISE NOTED.

NOTE

AN ACCIDENTAL APPLICATION OF A POSITIVE VOLTAGE TO THE A.V.C. CIRCUIT DURING SERVICING CAN TEMPORARILY DISABLE THE RECEIVER. TO RESUME OPERATION REMOVE CHARGE ON A.V.C. BY SHORTING THIS POINT TO B NEUTRAL OR SWITCHING THE RECEIVER OFF MOMENTARILY. THE TUNING GANG FRAME IS AT A.V.C. POTENTIAL.



RESISTANCE READINGS

TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
12BE6	22K	0.8	13	26	1500•	1500•	3.8 MEG
12BA6	15.	0.0	26	39	1500•	1500•	120.
12AV6 or 12AT6	6.8 MEG	0.0	0	13	.5 MEG	0.0	470K•
50C5	150.	470K	39	82	470K	1500•	150•
35W4	N.C.	N.C.	82	115	115	108	0•

1. Voltages indicated are positive d.c., resistances in ohms, unless otherwise indicated.
2. Measurements made with voltohmyst or equivalent.
3. All measurements taken from pin to B neutral unless otherwise indicated.

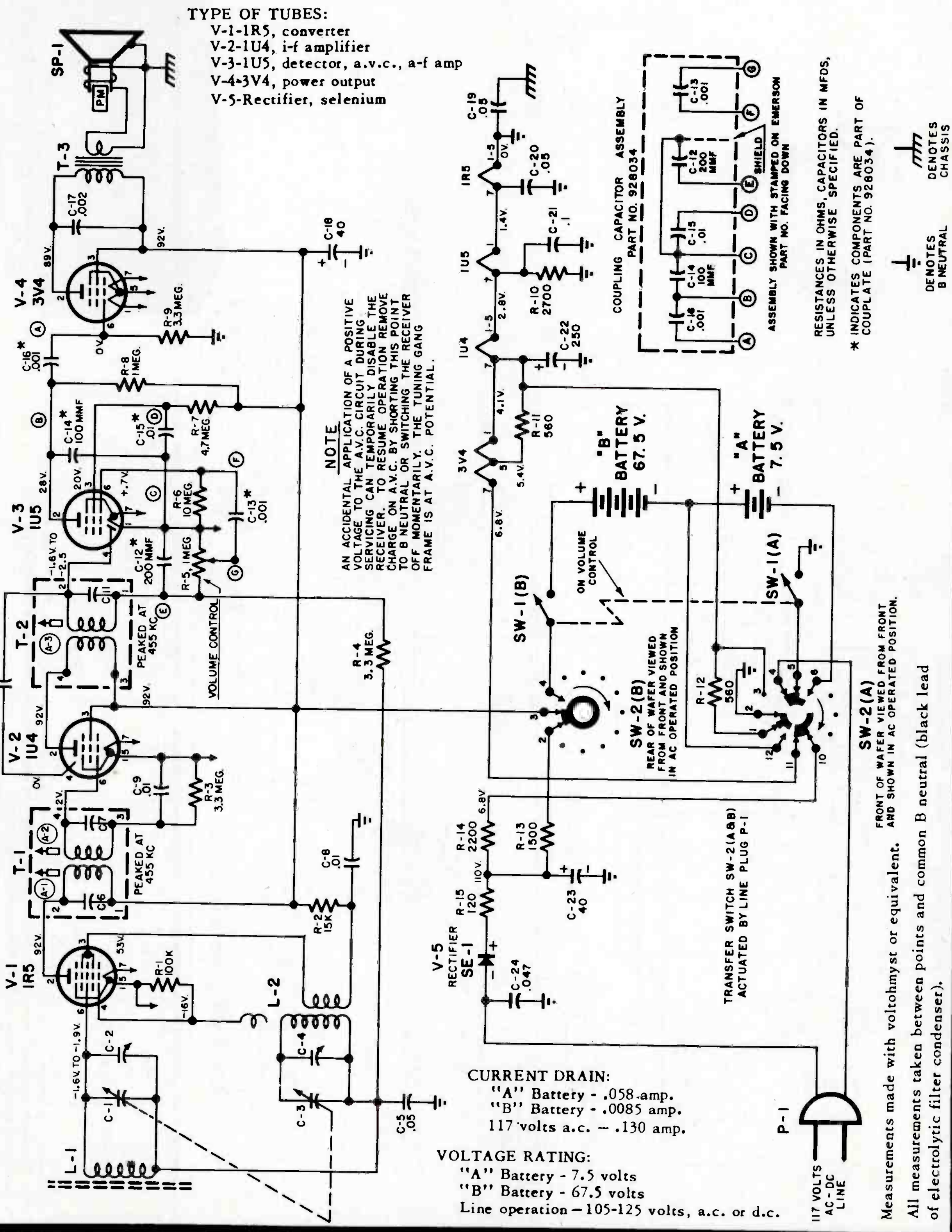
• Resistance measured to Pin 7 of Rectifier 35W4 (B+).

Emerson Radio

MODEL – 830B

CHASSIS – 120252-B

TYPE OF TUBES:
V-1-1R5, converter
V-2-1U4, i-f amplifier
V-3-1U5, detector, a.v.c., a-f amp
V-4-3V4, power output
V-5-Rectifier, selenium


SP-1
PM
T-3
C-17 .002
89V.
92V.
V-4 3V4
R-9 3.3 MEG.
0V.
C-16* .001
A
R-8 1 MEG.
C-14* 100 MMF
B
C-15* .01
D
R-7 4.7 MEG.
V-3 1U5
28V.
20V.
+.7V.
C
R-6 10 MEG.
F
C-13* .001
C-12* 200 MMF
R-5, 1 MEG
G
E
VOLUME CONTROL
-1.6V. TO -2.5
T-2
A-3
C-11
PEAKED AT 455 KC
C-10 2.2 MMF
92V.
V-2 1U4
0V.
C-9 .01
R-3 3.3 MEG.
R-4 3.3 MEG.
C-18 40
4.2V.
T-1
A-2
A-1
C-7
C-6
PEAKED AT 455 KC
C-8 .01
R-2 15K
V-1 1R5
92V.
53V.
R-1 100K
-16V.
L-2
-1.6V. TO -1.9V.
C-2
C-1
C-4
C-3
C-5 .05
L-1
C-19 .05
1R5
0V.
C-20 .05
1.4V.
C-21 .1
1U5
R-10 2700
2.8V.
1U4
C-22 250
4.1V.
R-11 560
3V4
5.4V.
6.8V.
"B" BATTERY 67.5 V.
"A" BATTERY 7.5 V.
SW-1(B)
ON VOLUME CONTROL
SW-1(A)
SW-2(B)
REAR OF WAFER VIEWED FROM FRONT AND SHOWN IN AC OPERATED POSITION
R-12 560
SW-2(A)
FRONT OF WAFER VIEWED FROM FRONT AND SHOWN IN AC OPERATED POSITION.
R-14 2200
6.8V.
R-13 1500
110V.
C-23 40
R-15 120
V-5 RECTIFIER SE-1
C-24 .047
C-13 .001
C-12 200 MMF
SHIELD
C-15 .01
C-14 100 MMF
C-16 .001
P-1
117 VOLTS AC-DC LINE

NOTE
AN ACCIDENTAL APPLICATION OF A POSITIVE VOLTAGE TO THE A.V.C. CIRCUIT DURING SERVICING CAN TEMPORARILY DISABLE THE RECEIVER. TO RESUME OPERATING REMOVE CHARGE ON A.V.C. BY SHORTING THIS POINT TO B NEUTRAL OR SWITCHING THE RECEIVER OFF MOMENTARILY. THE TUNING GANG FRAME IS AT A.V.C. POTENTIAL.

COUPLING CAPACITOR ASSEMBLY PART NO. 928034

ASSEMBLY SHOWN WITH STAMPED ON EMERSON PART NO. FACING DOWN

RESISTANCES IN OHMS, CAPACITORS IN MFDS, UNLESS OTHERWISE SPECIFIED.

* INDICATES COMPONENTS ARE PART OF COUPLATE (PART NO. 928034).

DENOTES B NEUTRAL

DENOTES CHASSIS

TRANSFER SWITCH SW-2(A&B) ACTUATED BY LINE PLUG P-1

CURRENT DRAIN:
"A" Battery - .058 amp.
"B" Battery - .0085 amp.
117 volts a.c. – .130 amp.

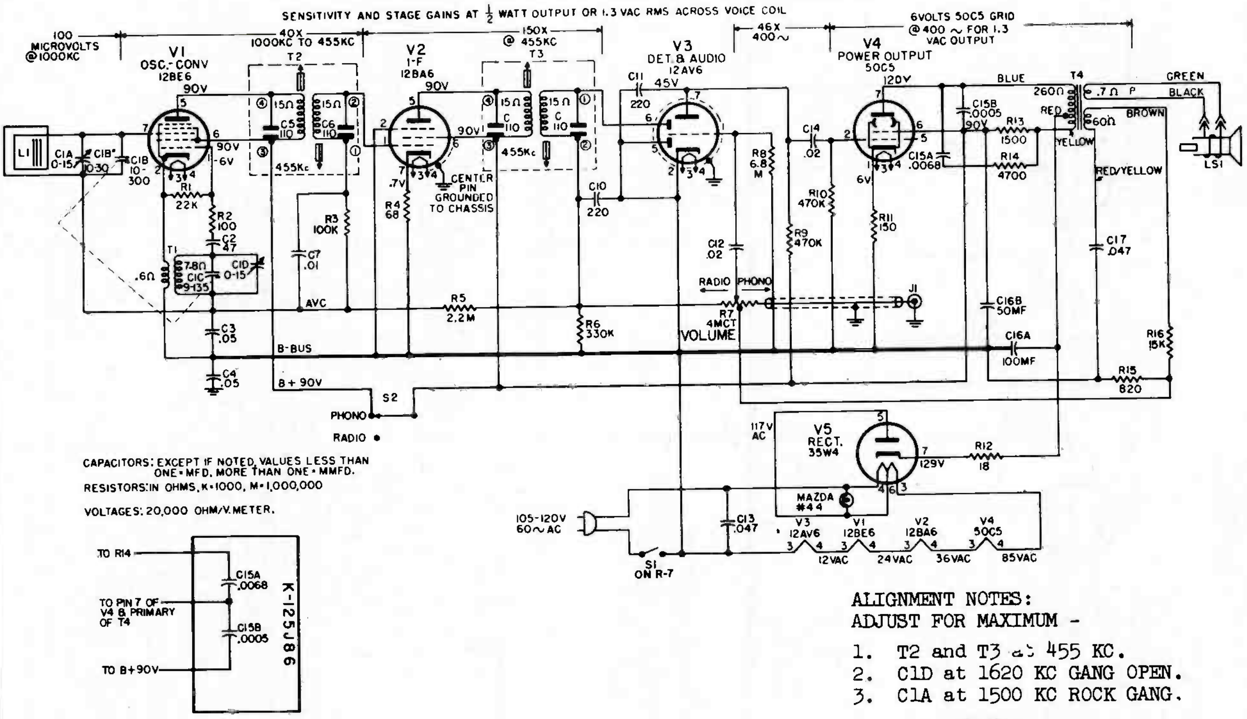
VOLTAGE RATING:
"A" Battery - 7.5 volts
"B" Battery - 67.5 volts
Line operation – 105-125 volts, a.c. or d.c.

Measurements made with voltohmyst or equivalent.

All measurements taken between points and common B neutral (black lead of electrolytic filter condenser).

GENERAL ELECTRIC

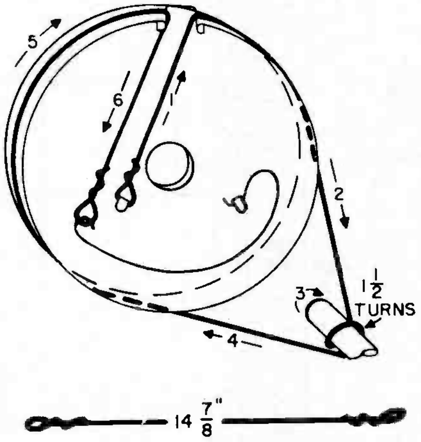
MODELS 446, 447 AND 448

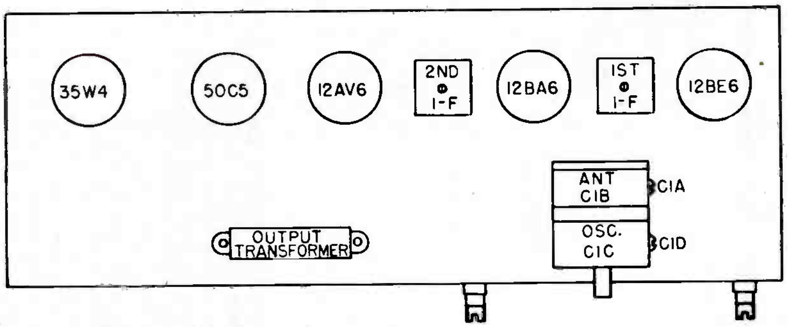

SENSITIVITY AND STAGE GAINS AT ½ WATT OUTPUT OR 1.3 VAC RMS ACROSS VOICE COIL
100 MICROVOLTS @1000KC
40X 1000KC TO 455KC
150X @ 455KC
46X 400~
6VOLTS 50C5 GRID @400 ~ FOR 1.3 VAC OUTPUT
V1 OSC.-CONV 12BE6
V2 I-F 12BA6
V3 DET. & AUDIO 12AV6
V4 POWER OUTPUT 50C5
V5 RECT. 35W4
T2
T3
T4
455KC
90V
-6V
.7V
45V
120V
6V
129V
117V AC
CENTER PIN GROUNDED TO CHASSIS
L1
C1A 0-15
C1B 10-300
C1C 9-135
C1D 0-15
R1 22K
R2 100
C2 47
T1
7.8Ω
.6Ω
C3 .05
C4 .05
C5 110
C6 110
C7 .01
R3 100K
AVC
R4 68
R5 2.2M
R6 330K
C10 220
C11 220
C12 .02
C14 .02
R7 4MCT VOLUME
R8 6.8 M
R9 470K
R10 470K
R11 150
RADIO PHONO
J1
C15A .0068
C15B .0005
R13 1500
R14 4700
C16A 100MF
C16B 50MF
C17 .047
R15 820
R16 15K
R12 18
BLUE
GREEN
BLACK
BROWN
RED
YELLOW
RED/YELLOW
260Ω
.7Ω P
60h
LS1
B-BUS
B+90V
S2
PHONO
RADIO
MAZDA #44
C13 .047
105-120V 60~AC
S1 ON R-7
12VAC
24VAC
36VAC
85VAC
TO R14
TO PIN 7 OF V4 & PRIMARY OF T4
TO B+90V
K-125J86

CAPACITORS: EXCEPT IF NOTED, VALUES LESS THAN ONE • MFD. MORE THAN ONE • MMFD.
RESISTORS: IN OHMS, K•1000, M•1,000,000
VOLTAGES: 20,000 OHM/V. METER.

ALIGNMENT NOTES:
ADJUST FOR MAXIMUM -

1. T2 and T3 at 455 KC.
2. C1D at 1620 KC GANG OPEN.
3. C1A at 1500 KC ROCK GANG.


5
6
1
2
3
1½ TURNS
4
14 7/8"


35W4
50C5
12AV6
2ND I-F
12BA6
1ST I-F
12BE6
ANT C1B
C1A
OSC. C1C
C1D
OUTPUT TRANSFORMER

SPECIFICATIONS

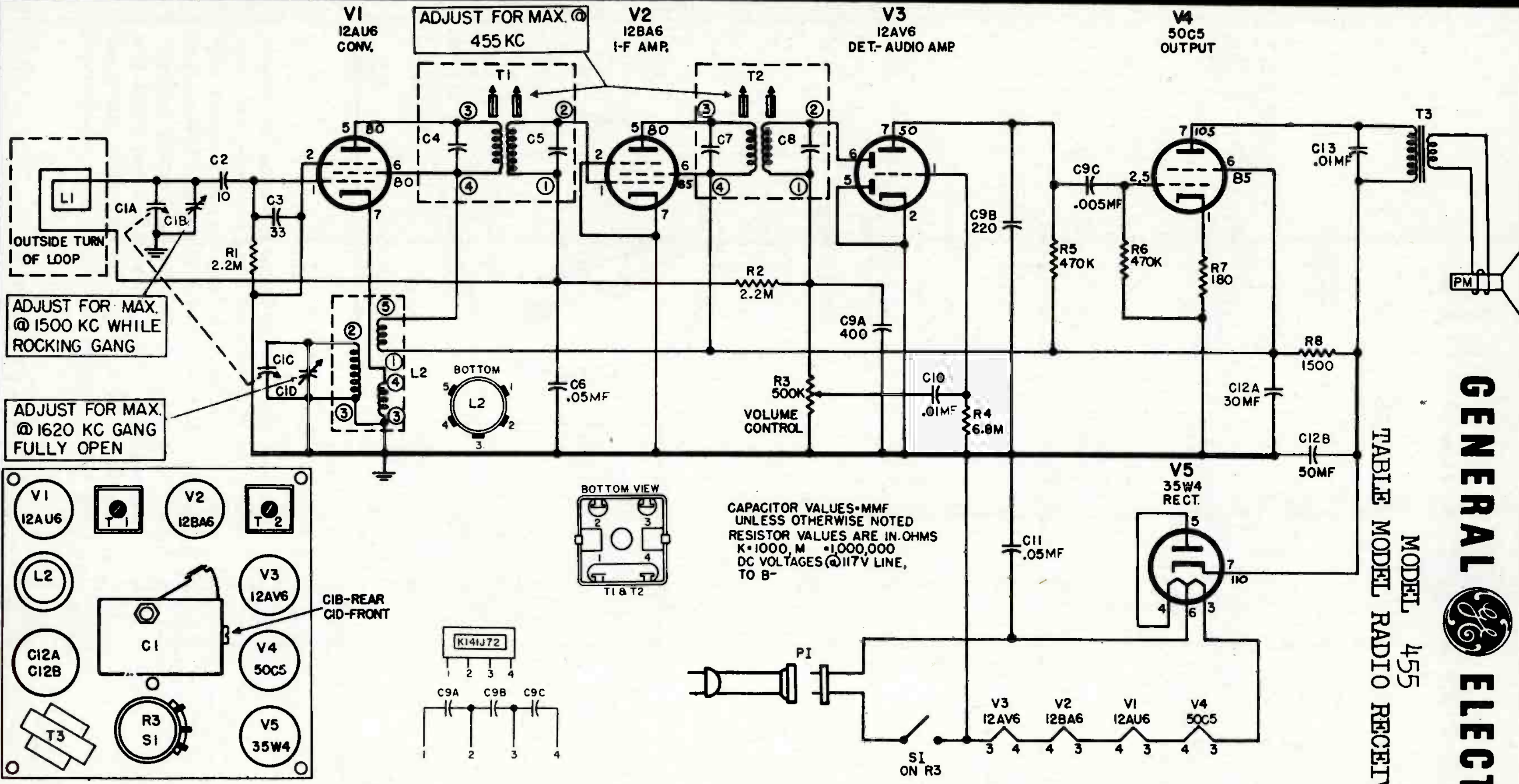
CABINETS:	446—Mahogany, 447—Ivory, 448—Red
DIMENSIONS:	12⅞ x 6 x 6 inches
ELECTRICAL RATING:	105–120 volts 50–60 cycles
OUTPUT:	Undistorted 1 watt Maximum 1.75 watts
PHONO:	Input jack provided
LOUDSPEAKER:	5¼ in., PM; Voice Coil Impedance 3.2 ohms @ 400 cycles
TUBE COMPLEMENT:	V1 Oscillator Converter . . . . 12BE6 V2 I-F Amplifier . . . . 12BA6 V3 Detector-Audio . . . . 12AV6 V4 Audio Power Amplifier . . . . 50C5 V5 Rectifier . . . . 35W4 I1 Dial light . . . . G-E Mazda No. 44

The "radio silencer" switch is used only on the rare occasions when located in an unusually strong signal area, where some background from radio signal reception may be audible when playing records. Normally this interference may be removed by simply detuning the radio away from the interfering frequency.

The newest type off-on switch is used on these models. It is combined with the phonograph and radio volume control and allows the receiver to be turned off or on at any desired volume setting.

GENERAL ELECTRIC

MODEL 455
TABLE MODEL RADIO RECEIVER


V1
12AU6
CONV.
ADJUST FOR MAX. @ 455 KC
V2
12BA6
I-F AMP.
V3
12AV6
DET.- AUDIO AMP.
V4
50C5
OUTPUT
T1
T2
T3
PM
C4
C5
C7
C8
C2
10
C3
33
R1
2.2M
L1
C1A
C1B
OUTSIDE TURN OF LOOP
ADJUST FOR MAX. @ 1500 KC WHILE ROCKING GANG
ADJUST FOR MAX. @ 1620 KC GANG FULLY OPEN
C1C
C1D
L2
BOTTOM
C6
.05MF
R2
2.2M
C9A
400
R3
500K
VOLUME CONTROL
C10
.01MF
R4
6.8M
C9B
220
C9C
.005MF
R5
470K
R6
470K
R7
180
R8
1500
C12A
30MF
C12B
50MF
C13
.01MF
V5
35W4
RECT.
C11
.05MF
P1
S1
ON R3
BOTTOM VIEW
T1 & T2
K141J72
CAPACITOR VALUES•MMF UNLESS OTHERWISE NOTED
RESISTOR VALUES ARE IN OHMS K•1000, M •1,000,000
DC VOLTAGES @ 117V LINE, TO B-
C1B-REAR
C1D-FRONT
C1
R3
S1
C12A
C12B
V1
12AU6
V2
12BA6
V3
12AV6
V4
50C5
V5
35W4

TO REMOVE CHASSIS FROM CABINET:

Remove cabinet back and interlock. Remove the four self tapping screws (hex heads), one on each corner of the chassis, and the single hex screw just below the tuning gang capacitor. Pull off the volume control knob. The tuning control knob is captivated to the cabinet, so the chassis must be pulled out of the cabinet, at the same time pulling it off the tuning knob, which remains on the cabinet. When pulling out the chassis, it is best to grasp the tuning capacitor (C1) by the thumb and forefinger of one hand and the tuning knob by the other hand and pull.

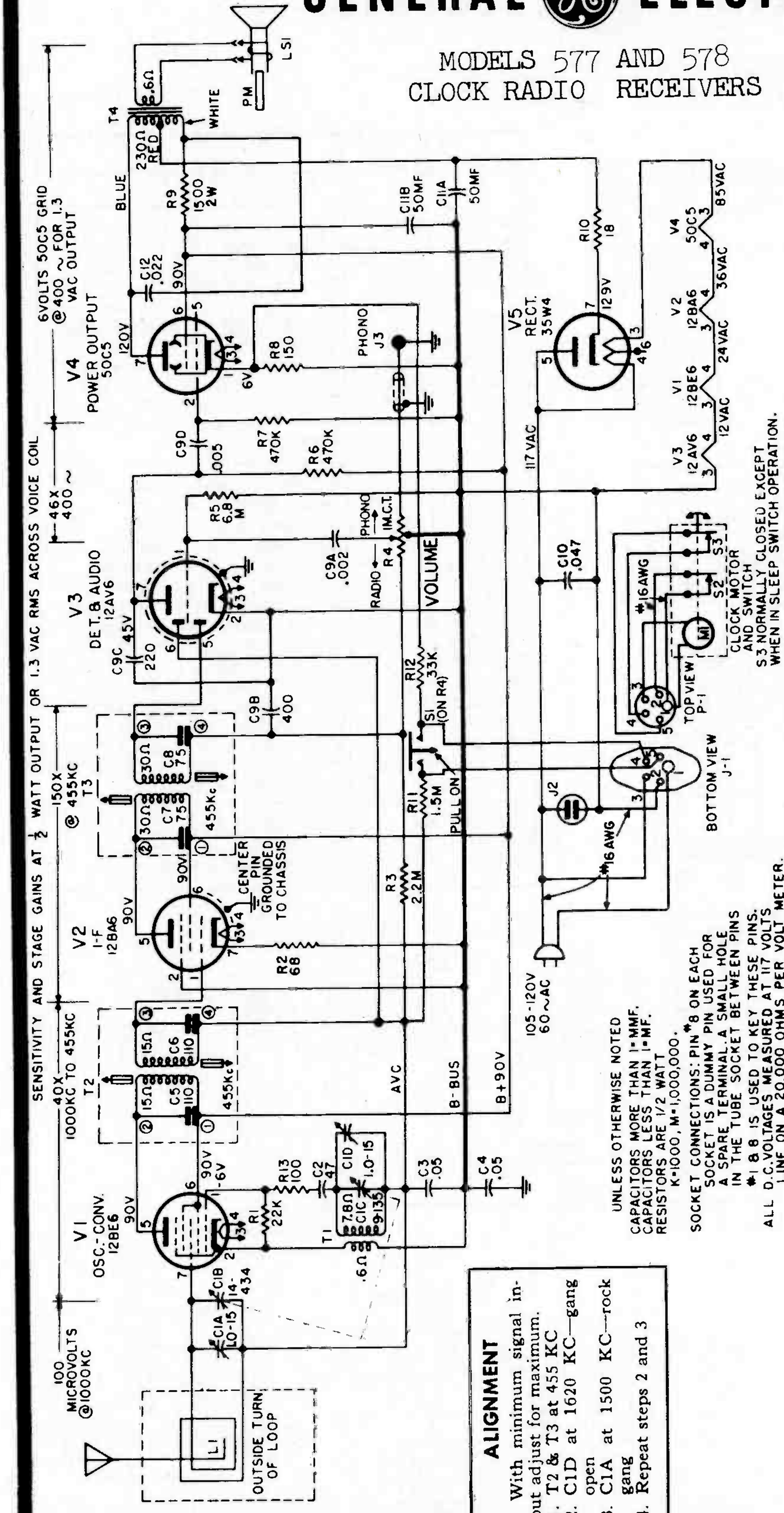
CAUTION: It is important to use extreme care while replacing parts and/or soldering on this chassis. Too much heat on the chassis will cause the copper plating to become unbonded. Only apply the soldering iron long enough to melt the solder and pull out the part to be replaced.

TO REPLACE A TUBE SOCKET:

Cut the socket free by cutting all of the socket terminals at the chassis. Now, heat each terminal only enough to push it out. The new socket can now be inserted into the holes left by the old one and soldered into place.

GENERAL ELECTRIC

MODELS 577 AND 578
CLOCK RADIO RECEIVERS


SENSITIVITY AND STAGE GAINS AT 1/2 WATT OUTPUT OR 1.3 VAC RMS ACROSS VOICE COIL
100 MICROVOLTS @1000KC
40X 1000KC TO 455KC
150X @ 455KC
46X 400~
6VOLTS 50C5 GRID @400~ FOR 1.3 VAC OUTPUT
V1 OSC.-CONV. 12BE6
V2 I-F 12BA6
V3 DET. & AUDIO 12AV6
V4 POWER OUTPUT 50C5
V5 RECT. 35W4
L1
OUTSIDE TURN OF LOOP
C1A 10-15
C1B 14-434
C1C 9-135
C1D 1.0-15
T1
T2
T3
T4
455Kc
CENTER PIN GROUNDED TO CHASSIS
R1 22K
R2 68
R3 2.2M
R4 VOLUME
R5 6.8M
R6 470K
R7 470K
R8 150
R9 1500 2W
R10 18
R11 1.5M
R12 33K (ON R4)
R13 100
C2 47
C3 .05
C4 .05
C5 110
C6 110
C7 75
C8 75
C9A .002
C9B 400
C9C 220
C9D .005
C10 .047
C11A 50MF
C11B 50MF
C12 .022
AVC
B-BUS
B+90V
PHONO J3
RADIO
PHONO
IM.C.T.
S1 (PULL ON)
S2
S3
M1
CLOCK MOTOR AND SWITCH
TOP VIEW P-1
BOTTOM VIEW J-1
J2
#16 AWG
105-120V 60~AC
117 VAC
12VAC
24VAC
36VAC
85VAC
129V
120V
90V
45V
-6V
6V
LS1
PM
BLUE
RED
WHITE
230Ω
.6Ω
15Ω
30Ω
7.8Ω

S3 NORMALLY CLOSED EXCEPT WHEN IN SLEEP SWITCH OPERATION.
FOR MAXIMUM LOUDNESS IN SLEEP SWITCH OPERATION CLOSE S1.

UNLESS OTHERWISE NOTED
CAPACITORS MORE THAN 1=MMF.
CAPACITORS LESS THAN 1=MF.
RESISTORS ARE 1/2 WATT
K=1000, M=1,000,000.

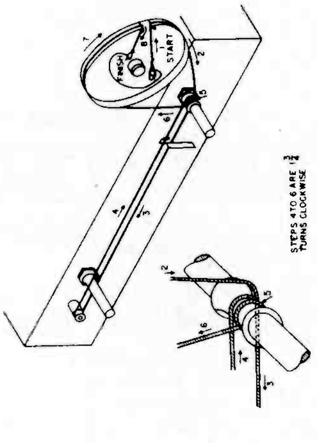
SOCKET CONNECTIONS: PIN *8 ON EACH SOCKET IS A DUMMY PIN USED FOR A SPARE TERMINAL. A SMALL HOLE IN THE TUBE SOCKET BETWEEN PINS *1 & 8 IS USED TO KEY THESE PINS.

ALL D.C. VOLTAGES MEASURED AT 117 VOLTS LINE ON A 20,000 OHMS PER VOLT METER. ALL VOLTAGES ARE D-C UNLESS OTHERWISE NOTED. READINGS TAKEN BETWEEN TUBE PIN TERMINALS & B-.

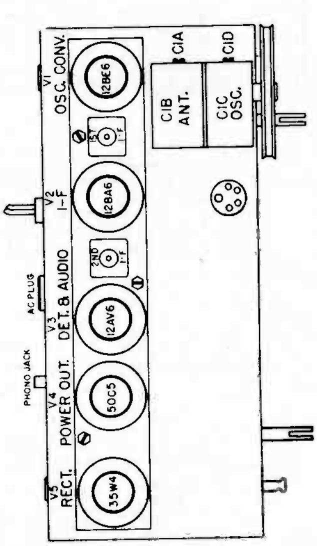
Schematic Diagram, Models 577 and 578

ALIGNMENT

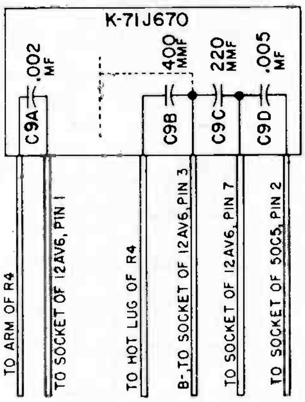
With minimum signal input adjust for maximum.
1. T2 & T3 at 455 KC
2. C1D at 1620 KC—gang open
3. C1A at 1500 KC—rock gang
4. Repeat steps 2 and 3


START
STEPS 4 TO 6 ARE 1 1/2 TURNS CLOCKWISE

Dial Cording


V1 OSC. CONV.
12BE6
1ST I-F
V2 I-F
12BA6
2ND I-F
V3 DET. & AUDIO
12AV6
V4 POWER OUT.
50C5
V5 RECT.
35W4
C1A
C1D
C1B ANT.
C1C OSC.
AC PLUG
PHONO JACK

Location of Tubes and Adjustments


K-71J670
C9A .002 MF
C9B 400 MMF
C9C 220 MMF
C9D .005 MF
TO ARM OF R4
TO SOCKET OF 12AV6, PIN 1
TO HOT LUG OF R4
B- TO SOCKET OF 12AV6, PIN 3
TO SOCKET OF 12AV6, PIN 7
TO SOCKET OF 50C5, PIN 2

Bullplate Connections

GENERAL ELECTRIC

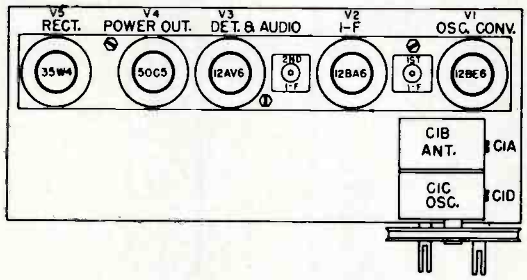
MODELS 580, 581 AND 582
CLOCK RADIO RECEIVERS

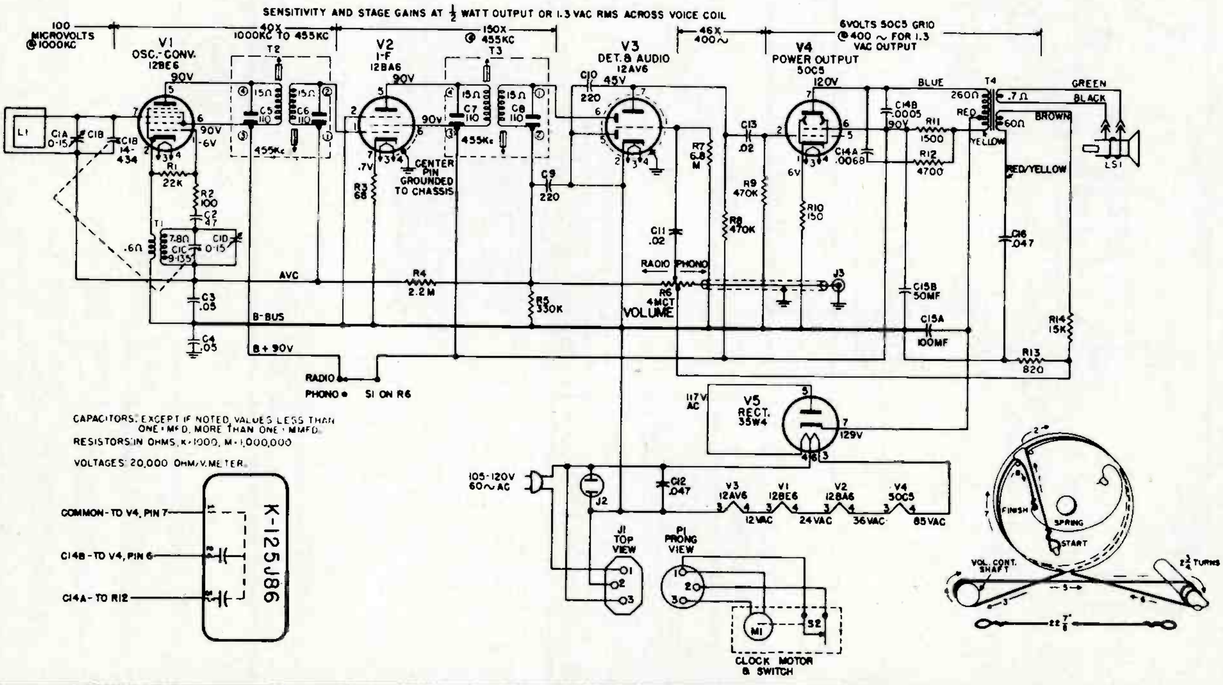
ALIGNMENT CHART

STEP	CONNECT TEST OSCILLATOR TO	TEST OSC. SETTING	TUNING GANG SETTING	ADJUST FOR MAX. OUTPUT
		I-F ALIGNMENT		
1	V2,12BA6 grid (Pin 1) in series with .05 mfd.	455 KC		Cores of second I-F trans. T3
2	V1,12BE6 grid (Pin 7) in series with .05 mfd.			Cores of first I-F trans. T2
3				Recheck adjustment of T2 and T3.
		R-F ALIGNMENT		
4	Inductively coupled to radio loop	1620 KC	Open	C1D
5		1500 KC	For maximum output	C1A*

*Rock tuning for maximum, while adjusting C1A.

CAT.NO.	SYMBOL	DESCRIPTION
		CAPACITORS
*RCC-126	C16	.047mf., 200 V.,paper,85°C
*RCC-129	C11,C13	.02mf.,+40%-10%,400V,paper
*RCE-166	C15A,B	100-50 mf.,150V.,electro.
RCT-079	C1A,B,C,D	Tuning, two-gang
*RCN-053	C12	.047mf.,600 V.,paper molded
*RCW-3075	C2	47mmf.,ceramic
*RCW-3104	C14A,B,	.0068mf.,.0005mf.,ceramic
*RCW-3137	C9,C10	220mmf., 20%, 400 V., cer.
*UCC-045	C3,4	.05mf.,+40%-10%,400V.,paper
		RESISTORS
RRC-278	R6	Volume control, 4 meg., CT., with switch, S1
*URD-021	R3	68 ohms, 1/2 w. carbon
*URD-025	R2	100 ohms, 1/2 w. carbon
*URD-029	R10	150 ohms, 1/2 w. carbon
*URD-047	R13	820 ohms, 1/2 w. carbon
*URD-065	R12	4700 ohms, 1/2 w. carbon
*URD-077	R14	15,000 ohms, 1/2 w. carbon
*URD-081	R1	22,000 ohms, 1/2 w. carbon
*URD-089	R8,9	470,000 ohms, 1/2 w., carbon
*URD-109	R5	330,000 ohms, 1/2 w. carbon
*URD-129	R4	2.2 megohm, 1/2 w. carbon
*URD-141	R7	6.8 megohm, 1/2 w. carbon
*URF-053	R11	1500 ohms, 2 w. carbon
		COILS AND TRANSFORMERS
*RLC-122	T1	COIL -Oscillator
*RTL-143	T2,3	TRANSFORMER -1st or 2nd I-F
*RTD-157	T4	TRANSFORMER -Audio output


V5
RECT.
35W4
V4
POWER OUT.
50C5
V3
DET. & AUDIO
12AV6
2ND
I-F
V2
I-F
12BA6
1ST
I-F
V1
OSC. CONV.
12BE6
C1B
ANT.
C1A
C1C
OSC.
C1D

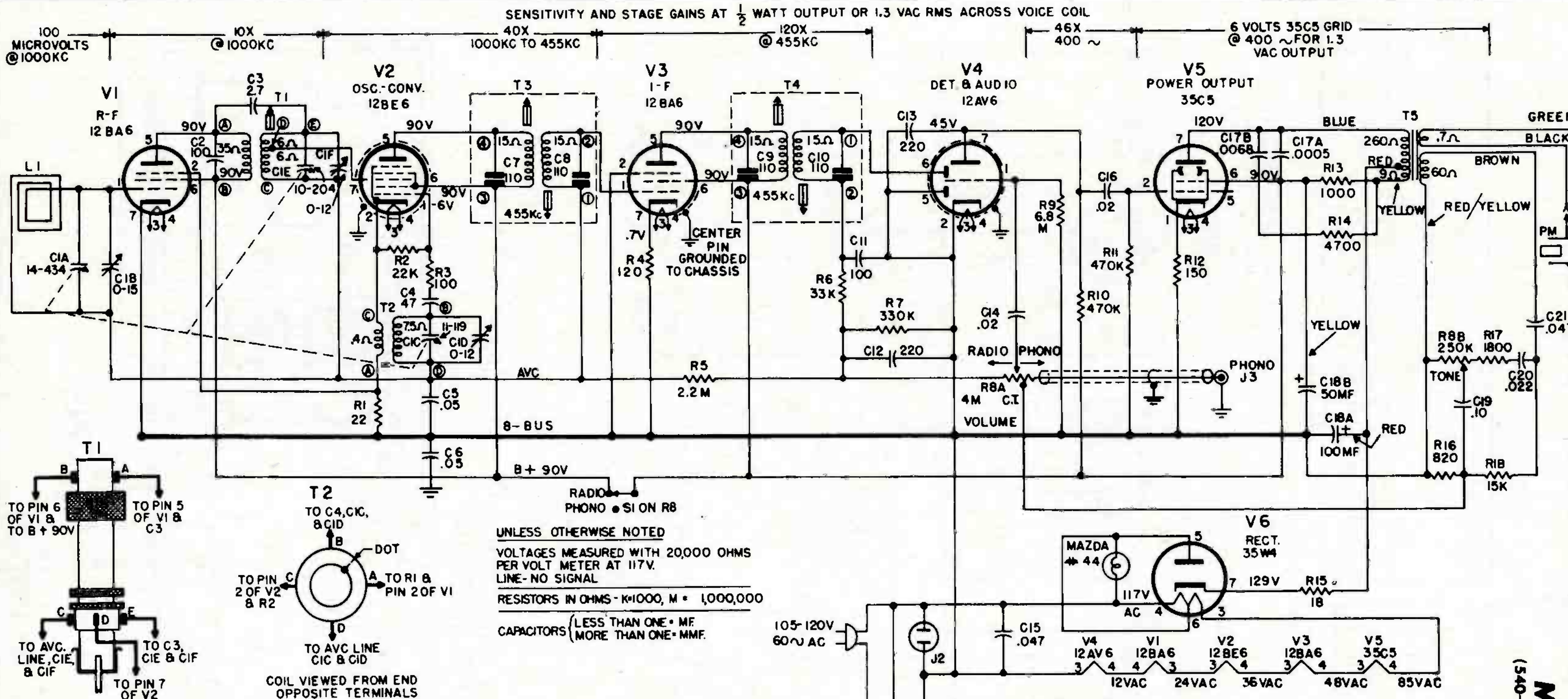

SENSITIVITY AND STAGE GAINS AT 1/2 WATT OUTPUT OR 1.3 VAC RMS ACROSS VOICE COIL
100 MICROVOLTS @ 1000KC
40X 1000KC TO 455KC
150X @ 455KC
46X 400~
6VOLTS 50C5 GRID @400 ~ FOR 1.3 VAC OUTPUT
V1
OSC.-CONV.
12BE6
V2
I-F
12BA6
V3
DET. & AUDIO
12AV6
V4
POWER OUTPUT
50C5
V5
RECT.
35W4
T1
T2
T3
T4
L1
C1A 0-15
C1B
C18 14-434
C1D 0-15
C1C 9-135
R1 22K
R2 100
C2 47
C3 .05
C4 .05
C5 110
C6 110
C7 110
C8 110
C9 220
C10 220
C11 .02
C12 .047
C13 .02
C14A .0068
C14B .0005
C15A 100MF
C15B 50MF
C16 .047
R3 68
R4 2.2M
R5 330K
R6 4MCT VOLUME
R7 6.8 M
R8 470K
R9 470K
R10 150
R11 1500
R12 4700
R13 820
R14 15K
15Ω
7.8Ω
.6Ω
260Ω
.7Ω
60Ω
455Kc
90V
-6V
.7V
45V
120V
6V
129V
117V AC
CENTER PIN GROUNDED TO CHASSIS
AVC
B-BUS
B+90V
RADIO
PHONO
S1 ON R6
J3
BLUE
RED
YELLOW
RED/YELLOW
GREEN
BLACK
BROWN
LS1
105-120V 60~AC
J2
12VAC
24VAC
36VAC
85VAC
J1 TOP VIEW
P1 PRONG VIEW
M1
S2
CLOCK MOTOR & SWITCH
K-125J86
COMMON-TO V4, PIN 7
C14B-TO V4, PIN 6
C14A-TO R12
FINISH
SPRING
START
VOL. CONT. SHAFT
2 3/4 TURNS
22 7/8"

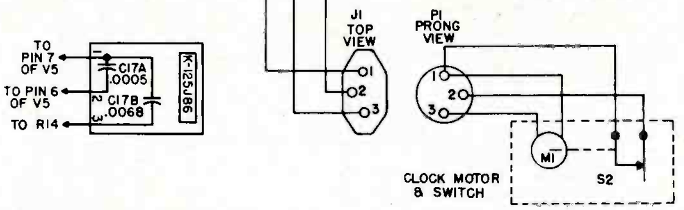
CAPACITORS: EXCEPT IF NOTED, VALUES LESS THAN ONE=MFD. MORE THAN ONE=MMFD.
RESISTORS: IN OHMS, K=1000, M=1,000,000
VOLTAGES: 20,000 OHM/V. METER.

GENERAL ELECTRIC

MODEL 590

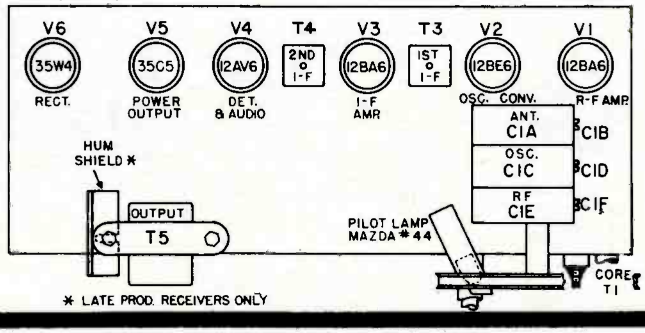
(540–1600 KC, 455 KC I-F)


SENSITIVITY AND STAGE GAINS AT 1/2 WATT OUTPUT OR 1.3 VAC RMS ACROSS VOICE COIL
100 MICROVOLTS @1000KC
10X @1000KC
40X 1000KC TO 455KC
120X @455KC
46X 400 ~
6 VOLTS 35C5 GRID @ 400 ~ FOR 1.3 VAC OUTPUT
V1 R-F 12BA6
V2 OSC.-CONV. 12BE6
V3 I-F 12BA6
V4 DET & AUDIO 12AV6
V5 POWER OUTPUT 35C5
V6 RECT. 35W4
T1
T2
T3
T4
T5
L1
LS1
PM
GREEN
BLACK
BROWN
BLUE
RED/YELLOW
YELLOW
RED
C1A 14-434
C1B 0-15
C2 100
C3 2.7
C1F
C1E
10-204
0-12
C1D 0-12
C1C
11-119
C4 47
C5 .05
C6 .05
C7 110
C8 110
C9 110
C10 110
C11 100
C12 220
C13 220
C14 .02
C15 .047
C16 .02
C17A .0005
C17B .0068
C18A 100MF
C18B 50MF
C19 .10
C20 .022
C21 .047
R1 22
R2 22K
R3 100
R4 120
R5 2.2 M
R6 33K
R7 330K
R8A 4M C.T. VOLUME
R8B 250K TONE
R9 6.8 M
R10 470K
R11 470K
R12 150
R13 1000
R14 4700
R15 18
R16 820
R17 1800
R18 15K
CENTER PIN GROUNDED TO CHASSIS
455Kc
AVC
8-BUS
B+ 90V
RADIO
PHONO
PHONO J3
RADIO ● PHONO ● S1 ON R8
MAZDA #44
117V AC
129V
105-120V 60~ AC
J2
12VAC 24VAC 36VAC 48VAC 85VAC
TO PIN 6 OF V1 & TO B+90V
TO PIN 5 OF V1 & C3
TO AVC. LINE, C1E, & C1F
TO C3, C1E & C1F
TO PIN 7 OF V2
TO C4, C1C, & C1D
DOT
TO PIN 2 OF V2 & R2
TO R1 & PIN 2 OF V1
TO AVC LINE C1C & C1D
COIL VIEWED FROM END OPPOSITE TERMINALS
UNLESS OTHERWISE NOTED
VOLTAGES MEASURED WITH 20,000 OHMS PER VOLT METER AT 117V. LINE- NO SIGNAL
RESISTORS IN OHMS - K=1000, M = 1,000,000
CAPACITORS (LESS THAN ONE = MF, MORE THAN ONE = MMF.

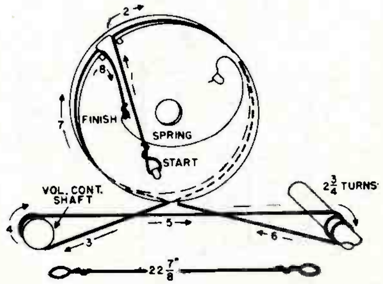

TO PIN 7 OF V5
TO PIN 6 OF V5
TO R14
C17A .0005
C17B .0068
K-125J86
J1 TOP VIEW
P1 PRONG VIEW
M1
S2
CLOCK MOTOR & SWITCH

ALIGNMENT CHART

Step	Connect Test Oscillator To	Test Oscillator Setting	Receiver Tuning	Adjust for Maximum Output
1	12BA6, V3 grid (pin 1) in series with .05 mf.	455 KC	Minimum capacity	Cores of 2nd i-f transformer T4
2	12BE6, V2 grid (pin 7) in series with .05 mf.			Cores of 1st i-f transformer, T3
3				Recheck adjustment of T4 and T3
4	Inductively coupled to radio loop, L1	1620 KC	Minimum capacity	C1D, oscillator trimmer
5		1500 KC	For maximum	C1F, r-f trimmer
6				C1B, antenna trimmer
7		Approximately 600 KC	For maximum. Rock-in with core of T1	Core of r-f transformer, T1. Rock-in with receiver tuning.
8	Repeat steps 4, 5, 6 and 7.			


V6 35W4 RECT.
V5 35C5 POWER OUTPUT
V4 12AV6 DET. & AUDIO
T4 2ND I-F
V3 12BA6 I-F AMP.
T3 1ST I-F
V2 12BE6 OSC. CONV.
V1 12BA6 R-F AMP.
ANT. C1A
OSC. C1C
RF C1E
C1B
C1D
C1F
HUM SHIELD *
OUTPUT T5
PILOT LAMP MAZDA #44
CORE T1

* LATE PROD. RECEIVERS ONLY

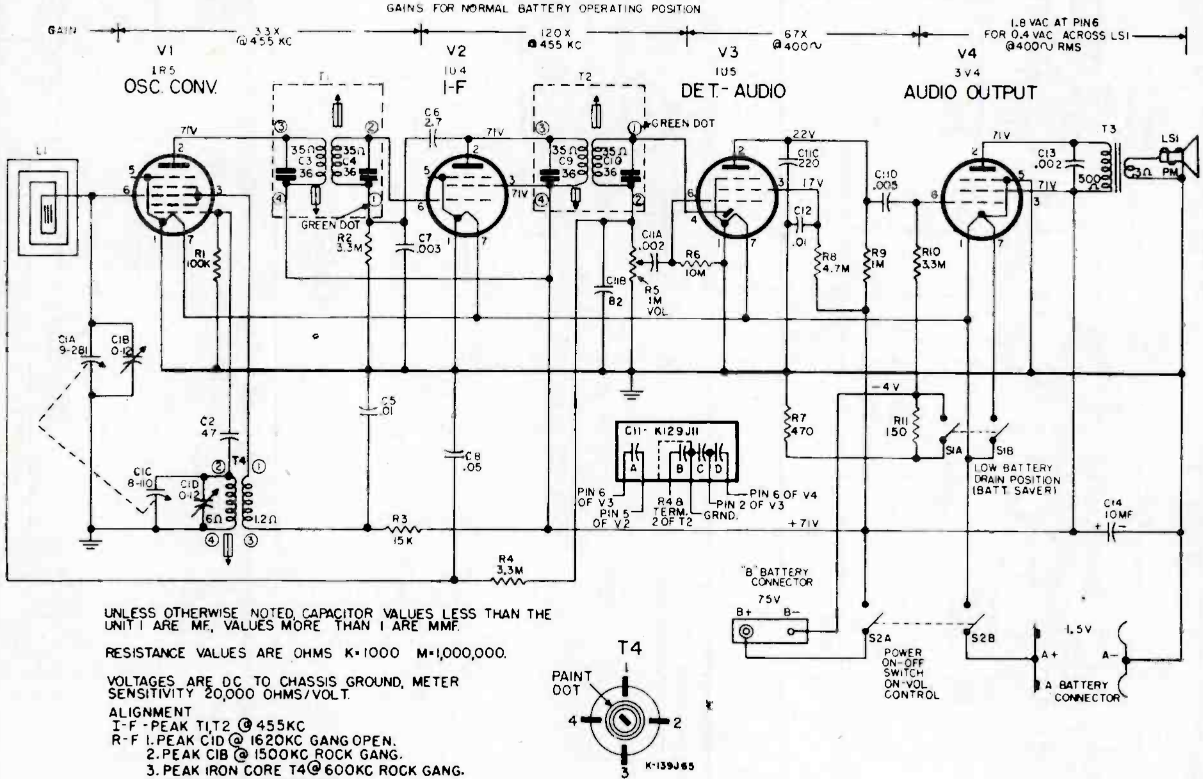

FINISH
SPRING
START
2¾ TURNS
VOL. CONT. SHAFT
22 7/8"
1
2
3
4
5
6
7
8

GENERAL ELECTRIC

MODELS 635, 636 AND 637

CABINET: (Plastic)	Model 635-Green; Model 636-Red; Model 637-Gray;
ELECTRICAL RATING: (Batteries only)	"A" Batteries-2 Eveready #964 or Burgess #21R, or equivalent "B" Battery-1 Eveready #437 or Burgess #XX-50, or equivalent.

LOUDSPEAKER:	Size . . . . 4 inches Type . . . . Alnico PM Voice Coil Impedance @ 400 cycles . . . . 3.2 ohms
OPERATING FREQUENCIES:	Tuning Range . . . . 540-1600 KC I-F Amplifier . . . . . . 455 KC

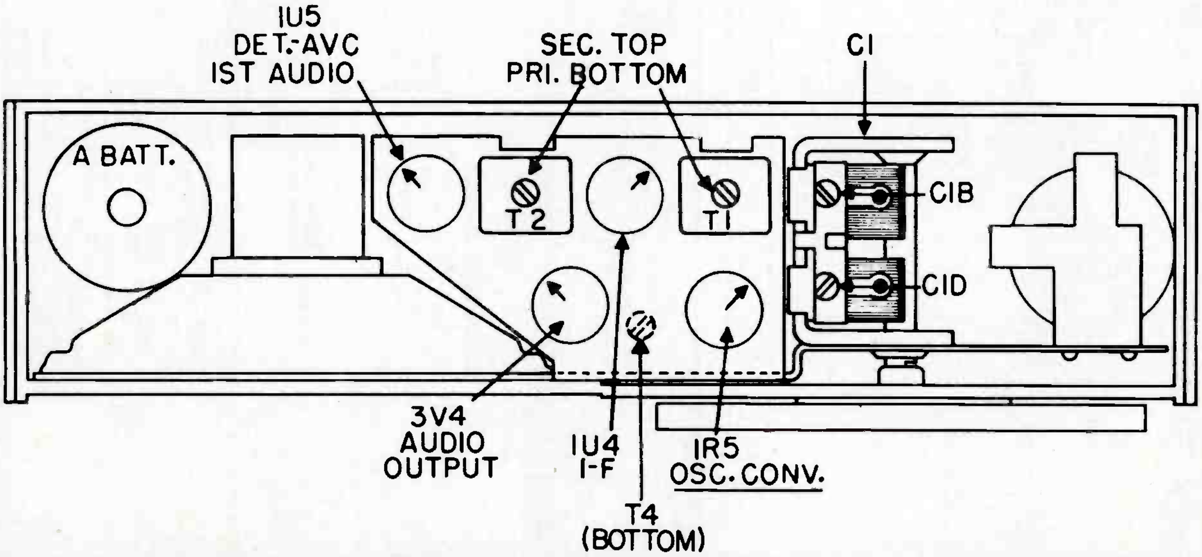

GAINS FOR NORMAL BATTERY OPERATING POSITION
GAIN
3.3X @455 KC
120X @455 KC
67X @400∿
1.8 VAC AT PIN6 FOR 0.4 VAC ACROSS LS1 @400∿ RMS
V1
1R5
OSC. CONV.
V2
1U4
I-F
V3
1U5
DET.- AUDIO
V4
3V4
AUDIO OUTPUT
L1
T1
T2
T3
LS1
3Ω PM
GREEN DOT
71V
22V
17V
-4V
+71V
C3 35Ω 36
C4 35Ω 36
C9 35Ω 36
C10 35Ω 36
C6 2.7
C7 .003
C11A .002
C11B 82
C11C 220
C11D .005
C12 .01
C13 .002
500Ω
R1 100K
R2 3.3M
R5 1M VOL
R6 10M
R8 4.7M
R9 1M
R10 3.3M
C1A 9-281
C1B 0-12
C1C 8-110
C1D 0-12
C2 47
T4
6Ω
1.2Ω
C5 .01
C8 .05
R3 15K
R4 3.3M
R7 470
R11 150
S1A
S1B
LOW BATTERY DRAIN POSITION (BATT SAVER)
C11- K129J11
A B C D
PIN 6 OF V3
PIN 5 OF V2
R4 & TERM. 2 OF T2
GRND.
PIN 2 OF V3
PIN 6 OF V4
C14 10MF
"B" BATTERY CONNECTOR
75V
B+ B-
S2A
S2B
POWER ON-OFF SWITCH ON-VOL CONTROL
1.5V
A+ A-
A BATTERY CONNECTOR
T4
PAINT DOT
1 2 3 4
K-139J65

UNLESS OTHERWISE NOTED, CAPACITOR VALUES LESS THAN THE UNIT 1 ARE MF., VALUES MORE THAN 1 ARE MMF.

RESISTANCE VALUES ARE OHMS K=1000 M=1,000,000.

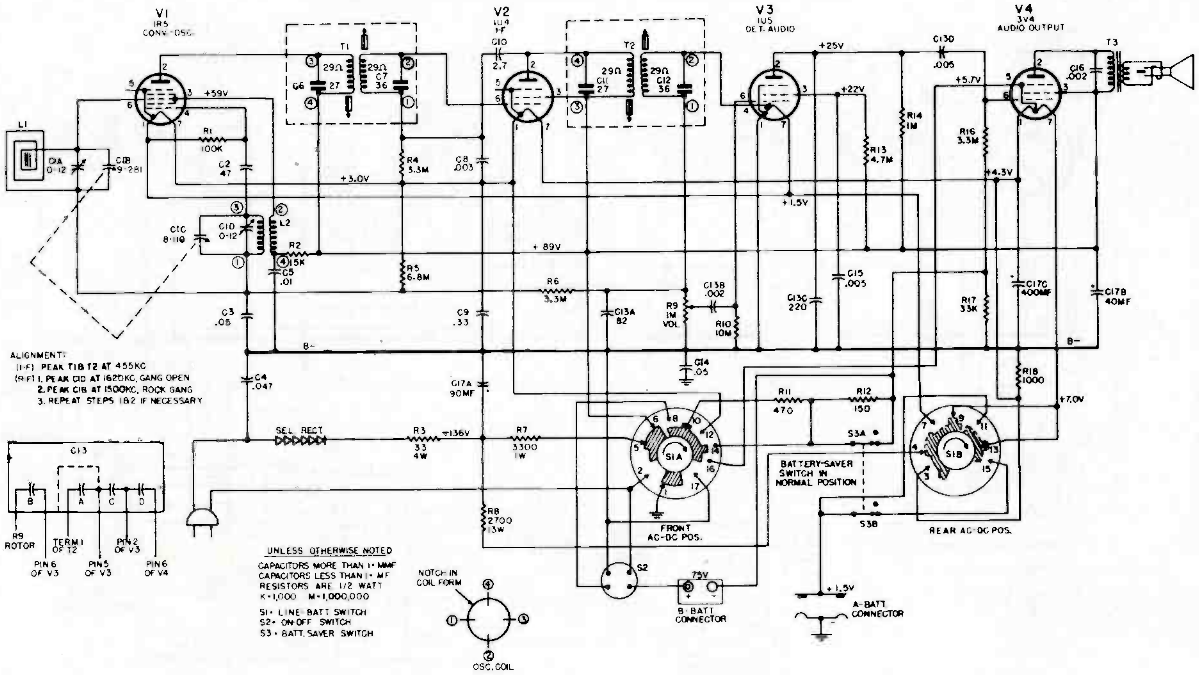
VOLTAGES ARE DC TO CHASSIS GROUND, METER SENSITIVITY 20,000 OHMS/VOLT.

ALIGNMENT
I-F -PEAK T1,T2 @ 455KC
R-F 1. PEAK C1D @ 1620KC GANG OPEN.
2. PEAK C1B @ 1500KC ROCK GANG.
3. PEAK IRON CORE T4 @ 600KC ROCK GANG.
4. REPEAT AS NECESSARY.


1U5
DET.-AVC
1ST AUDIO
SEC. TOP
PRI. BOTTOM
C1
A BATT.
T2
T1
C1B
C1D
3V4
AUDIO
OUTPUT
1U4
I-F
1R5
OSC. CONV.
T4
(BOTTOM)

GENERAL ELECTRIC

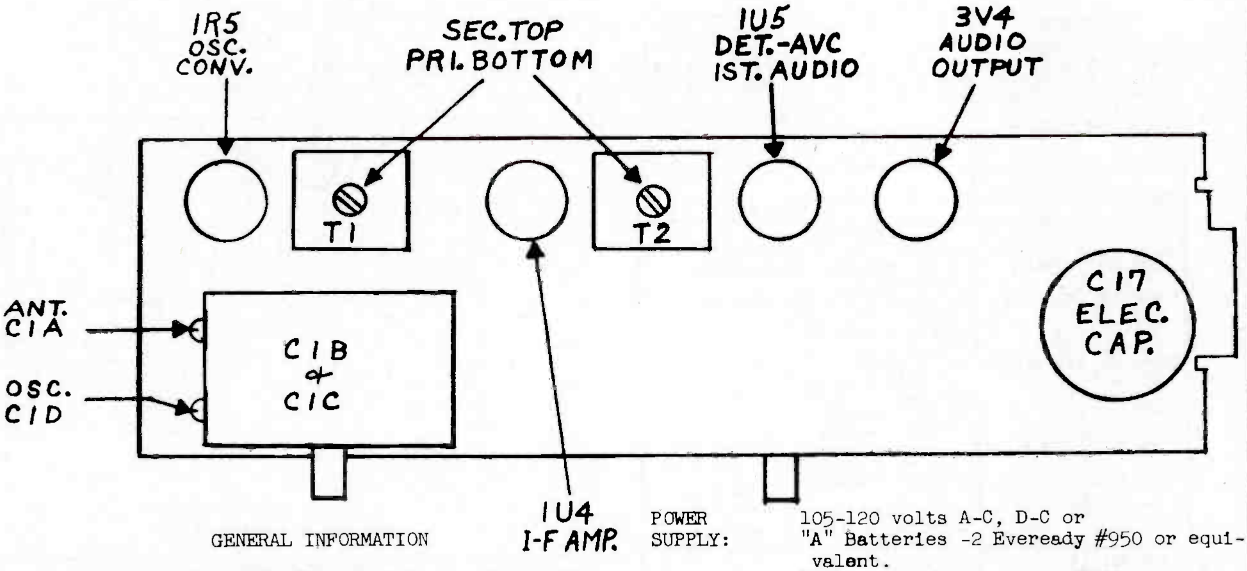
MODELS 645, 646, 647 and 648
PORTABLE RADIO RECEIVERS


V1
1R5
CONV.-OSC.
V2
1U4
I-F
V3
1U5
DET. AUDIO
V4
3V4
AUDIO OUTPUT
T1
T2
T3
L1
L2
C1A 0-12
C1B 9-281
C1C 8-110
C1D 0-12
R1 100K
C2 47
R2 15K
C5 .01
C3 .05
C4 .047
R4 3.3M
C8 .003
R5 6.8M
C9 .33
R6 3.3M
C13A 82
R9 1M VOL.
C13B .002
R10 10M
C14 .05
C13C 220
C15 .005
R13 4.7M
R14 1M
C13D .005
R16 3.3M
R17 33K
C16 .002
C17C 400MF
C17B 40MF
C17A 90MF
R18 1000
R11 470
R12 150
+59V
+3.0V
+89V
+25V
+22V
+1.5V
+5.7V
+4.3V
+7.0V
+136V
B-
SEL. RECT.
R3 33 4W
R7 3300 1W
R8 2700 13W
S1A
S1B
FRONT AC-DC POS.
REAR AC-DC POS.
BATTERY-SAVER SWITCH IN NORMAL POSITION
S3A
S3B
S2
75V
B-BATT CONNECTOR
+1.5V
A-BATT CONNECTOR
C13
B
A
C
D
R9 ROTOR
TERM 1 OF T2
PIN 2 OF V3
PIN 6 OF V3
PIN 5 OF V3
PIN 6 OF V4
NOTCH IN COIL FORM
OSC. COIL

ALIGNMENT:
(I-F) PEAK T1 & T2 AT 455KC
(R-F) 1. PEAK C1D AT 1620KC, GANG OPEN
2. PEAK C1B AT 1500KC, ROCK GANG
3. REPEAT STEPS 1 & 2 IF NECESSARY

UNLESS OTHERWISE NOTED
CAPACITORS MORE THAN 1 = MMF
CAPACITORS LESS THAN 1 = MF
RESISTORS ARE 1/2 WATT
K=1,000 M=1,000,000

S1 = LINE BATT SWITCH
S2 = ON-OFF SWITCH
S3 = BATT. SAVER SWITCH


1R5
OSC.
CONV.
SEC. TOP
PRI. BOTTOM
1U5
DET.-AVC
1ST. AUDIO
3V4
AUDIO
OUTPUT
T1
T2
C17
ELEC.
CAP.
ANT.
C1A
OSC.
C1D
C1B
&
C1C
1U4
I-F AMP.

GENERAL INFORMATION

The Models 645, 646, 647 and 648 are four-tube superhetrodyne three-way portable radio receivers. These receivers operate on AC, DC or batteries and incorporate a battery "saver" switch, and the use of a ferrite iron-core antenna.

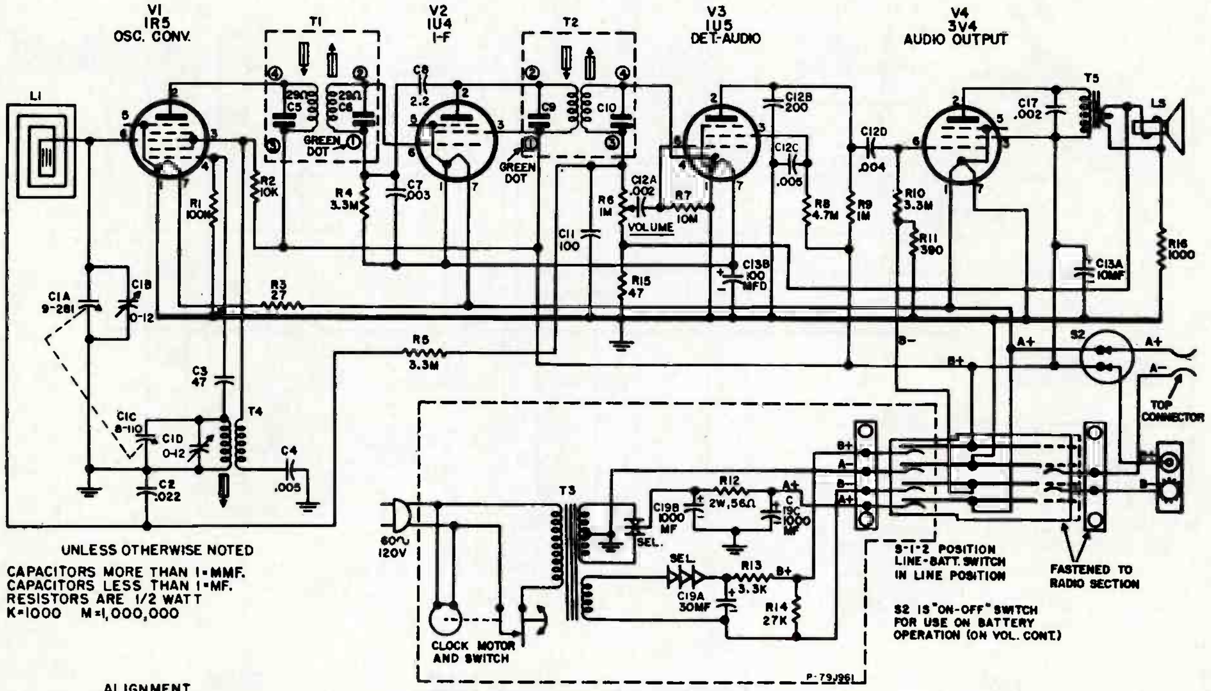
COILS AND TRANSFORMERS

N-RLC-134	L2	COIL -Oscillator
N-RLL-061	L1	ANTENNA ASSEMBLY
RTL-152	T1,2	TRANSFORMER -I-F
N-RTO-171	T3	TRANSFORMER -Output

POWER SUPPLY:	105-120 volts A-C, D-C or "A" Batteries -2 Eveready #950 or equivalent. "B" Battery -1 Eveready #467 or equivalent.	
AUDIO POWER OUTPUT:	80 milliwatts	
LOUDSPEAKER:	Size	4 inches
	Type	Alnico PM
	Voice Coil Impedance @ 400 cycles	3.2 ohms
OPERATING FREQUENCIES:	Tuning Range	.540 to 1600 KC
	I-F Amplifier	455 KC

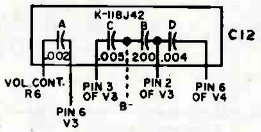
GENERAL ELECTRIC

MODELS 660 AND 661
CLOCK-RADIO PORTABLE RECEIVERS


V1
1R5
OSC. CONV.
T1
V2
1U4
I-F
T2
V3
1U5
DET-AUDIO
V4
3V4
AUDIO OUTPUT
L1
GREEN DOT
C5
C6
C8
2.2
C9
C10
C7
.003
C12A
.002
C12B
200
C12C
.005
C12D
.004
C17
.002
T5
LS
R1
100K
R2
10K
R3
27
R4
3.3M
R5
3.3M
R6
1M
VOLUME
R7
10M
R8
4.7M
R9
1M
R10
3.3M
R11
390
R15
47
R16
1000
C11
100
C13B
100 MFD
C13A
10MF
C1A
9-281
C1B
0-12
C1C
8-110
C1D
0-12
C3
47
T4
C4
.005
C2
.022
S2
A+
A-
B+
B-
TOP CONNECTOR
T3
60∿
120V
C19B
1000 MF
R12
2W, 56Ω
C19C
1000 MF
SEL.
R13
3.3K
C19A
30MF
R14
27K
CLOCK MOTOR AND SWITCH
S-1-2 POSITION LINE-BATT. SWITCH IN LINE POSITION
FASTENED TO RADIO SECTION
S2 IS "ON-OFF" SWITCH FOR USE ON BATTERY OPERATION (ON VOL. CONT.)
P-79J961

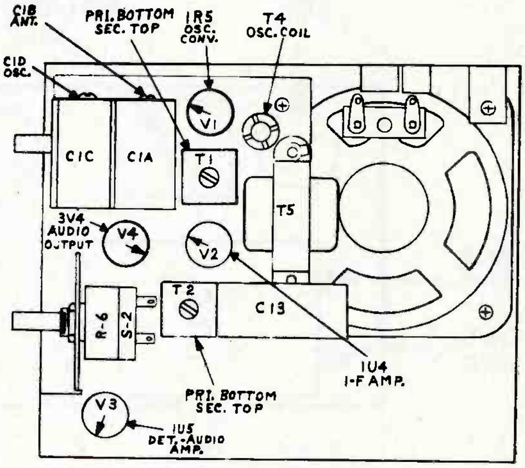
UNLESS OTHERWISE NOTED

CAPACITORS MORE THAN 1=MMF.
CAPACITORS LESS THAN 1=MF.
RESISTORS ARE 1/2 WATT
K=1000 M=1,000,000


K-118J42
C12
A
B
C
D
.002
.005
200
.004
VOL CONT. R6
PIN 6 V3
PIN 3 OF V3
B-
PIN 2 OF V3
PIN 6 OF V4

ALIGNMENT

I-F PEAK T1,T2 @ 455KC.
R-F 1. PEAK C1D @ 1620KC GANG OPEN.
2. PEAK C1B @ 1500KC ROCK GANG.
3. PEAK IRON CORE T4 @ 600KC, ROCK GANG.
4. REPEAT AS NECESSARY.


C1B ANT.
PRI. BOTTOM SEC. TOP
1R5 OSC. CONV.
T4 OSC. COIL
C1D OSC.
C1C
C1A
V1
T1
T5
3V4 AUDIO OUTPUT
V4
V2
T2
C13
R-6
S-2
1U4 I-F AMP.
PRI. BOTTOM SEC. TOP
V3
1U5 DET.-AUDIO AMP.

TUBE AND TRIMMER LOCATIONS

CAT.NO.	SYMBOL	DESCRIPTION
		CAPACITORS
N-RCE-213	C13A, B	10 mf., @ 100V., 100 mf., @ 3V., electrolytic
N-RCE-214	C19A,B,C,	30 mf., @ 100V., 1000-1000 mf., @ 15V., electrolytic
RCC-123	C2	.022 mf., paper . . . .
RCN-039	C8	2.2 mmf., 20%, 500V . . . .
N-RCT-086	C1A,B,C,D	Tuning capacitor, two gang
RCW-3014	C4	5000 mmf., ceramic . . . .
RCW-3018	C17	2000 mmf., ceramic . . . .
RCW-3075	C3	47 mmf., ceramic . . . .
RCW-3079	C11	100 mmf., ceramic . . . .
RCW-3089	C12A,B,C,D	Bullplate -.002 mf., 200 mmf., .005 mf., .004 mf. . . . .
RCW-3118	C7	3000 mmf., ceramic . . . .
		RESISTORS (10%, 1/2 W. CARBON)
URD-011	R3	27 ohms . . . .
URD-017	R15	47 ohms . . . .
URD-039	R11	390 ohms . . . .
URD-049	R16	1,000 ohms . . . .
URD-061	R13	3,300 ohms . . . .
URD-073	R2	10K . . . .
URD-083	R14	27K . . . .
URD-097	R1	100K . . . .
URD-121	R9	1 megohm . . . .
URD-133	R4,5,10	3.3 megohms . . . .
URD-137	R8	4.7 megohms . . . .
URD-145	R7	10 megohms . . . .
URE-019	R12	56 ohms, 2 W . . . .
		POTENTIOMETER
N-RRC-322	R6,S2	Volume control & switch, 1 megohm

SPECIFICATIONS	
CABINET: (Plastic)	Model 660 - Two-tone gray Model 661 - Red and Antique White
ELECTRICAL RATING:	105 to 120 volts AC (clock power supply) "A" Batteries - 2 Eveready #950 or equivalent "B" Battery - 1 Eveready #467 or equivalent
AUDIO POWER OUTPUT:	70 milliwatts at 10% distortion 150 milliwatts maximum output
LOUDSPEAKER:	Size . . . . 3 1/2 inches Type . . . . Alnico PM VoiceCoil Impedance @ 400 cycles . . . 3.2 ohms
OPERATING FREQUENCIES:	Tuning Range . . . . 540-1600 KC I-F Amplifier . . . . 455 KC

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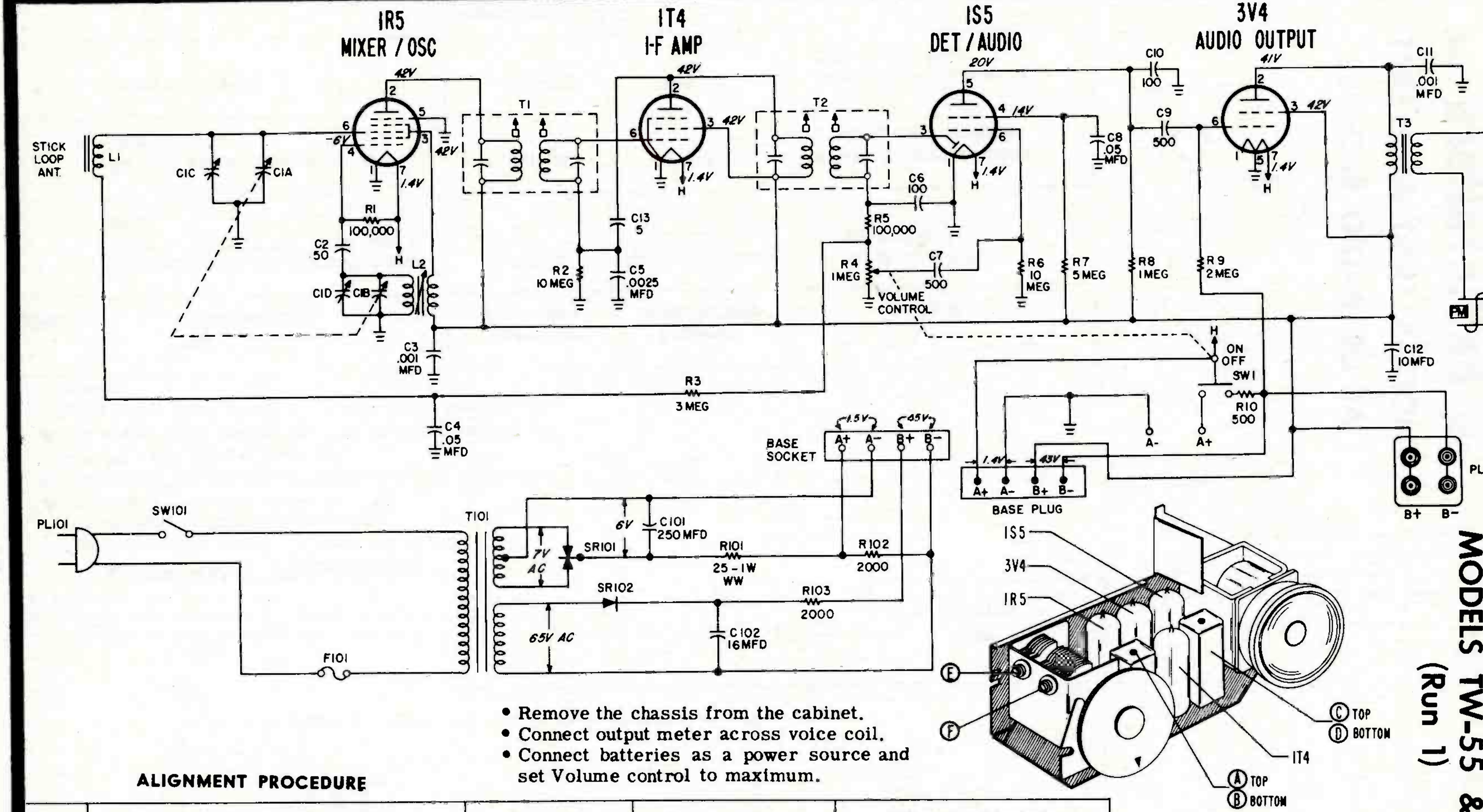
MODELS TW-55 & B-55

(Run 1)


1R5
MIXER / OSC
1T4
I-F AMP
1S5
DET / AUDIO
3V4
AUDIO OUTPUT
STICK LOOP ANT.
L1
C1C
C1A
C1D
C1B
L2
T1
T2
T3
C2 50
R1 100,000
C3 .001 MFD
C4 .05 MFD
R2 10 MEG
C13 5
C5 .0025 MFD
R3 3 MEG
C6 100
R5 100,000
R4 1MEG
VOLUME CONTROL
C7 500
R6 10 MEG
C8 .05 MFD
R7 5 MEG
R8 1MEG
C10 100
C9 500
R9 2 MEG
C11 .001 MFD
C12 10MFD
PM
-6V
42V
1.4V
H
20V
14V
41V
ON
OFF
SW1
R10 500
A-
A+
PL 2
B+
B-
BASE SOCKET
A+ A- B+ B-
1.5V
45V
BASE PLUG
1.4V
43V
PL101
SW101
T101
F101
7V AC
65V AC
SR101
SR102
6V
C101 250 MFD
R101 25-1W WW
R102 2000
R103 2000
C102 16MFD
1S5
3V4
1R5
1T4
Ⓐ TOP
Ⓑ BOTTOM
Ⓒ TOP
Ⓓ BOTTOM
Ⓔ
Ⓕ

- Remove the chassis from the cabinet.
- Connect output meter across voice coil.
- Connect batteries as a power source and set Volume control to maximum.

ALIGNMENT PROCEDURE

Step	Signal Generator Connections	Generator Frequency	Receiver Dial Setting	Adjust for Maximum Output
1	High side through .1 mfd. capacitor to stator plates of osc. section of tuning gang. Low side to chassis.	460 KC	Gang Half-Meshed	A, B, C, & D
2	Place the chassis in the cabinet and connect the built-in antenna leads. Slide the small panel from the side of the cabinet adjacent to the tuning gang to gain access to the remaining adjustments.			
3	Loosely couple the generator to the built-in antenna. (a few turns of wire wrapped around the handle will be satisfactory)	1240 KC	1240 KC (highest freq. CD emblem on the dial)	E, osc. trimmer & F, ant. trimmer

NOTES

1. Resistance indicated in ohms and capacitance in mmf. unless otherwise specified. K = 1000.
2. Resistors have 1/10 watt rating unless otherwise specified. (Replace with ½ watt)
3. Voltage readings taken under the following conditions:
   - A. All voltage readings are DC and positive unless otherwise noted.
   - B. TW-55 voltages measured to chassis unless otherwise indicated.
   - C. B-55 voltages measured between points indicated.
   - D. All B-55 readings were taken while connected to the receiver with the receiver operating.
   - E. Line voltage set to 110V 60∿AC and readings taken on a VTVM.

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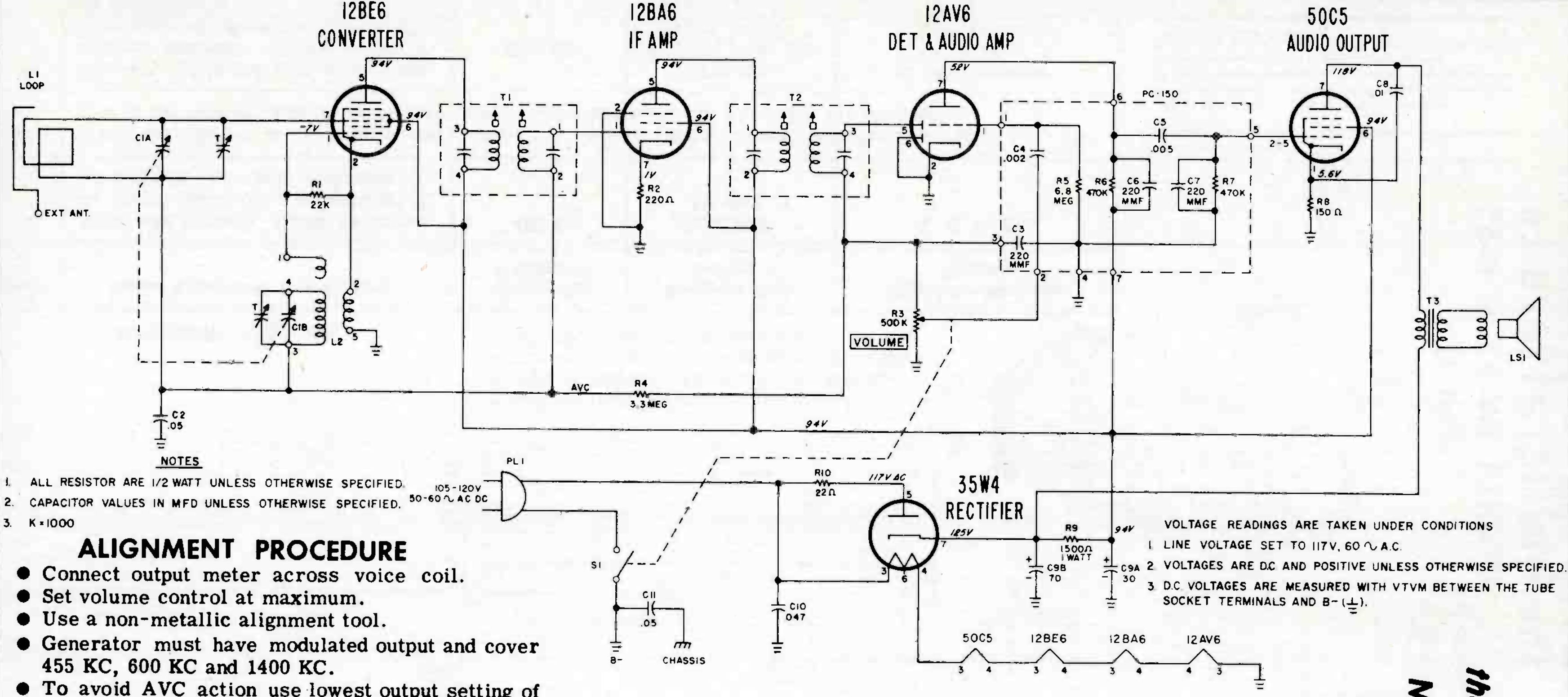
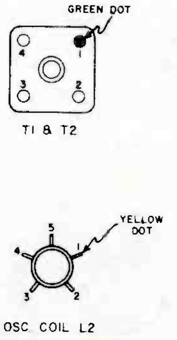
MODELS 5R60 AND 5R61
AC DC RADIO RECEIVER


12BE6
CONVERTER
12BA6
IF AMP
12AV6
DET & AUDIO AMP
50C5
AUDIO OUTPUT
35W4
RECTIFIER
L1
LOOP
EXT ANT.
C1A
C1B
L2
R1
22K
C2
.05
T1
T2
AVC
R4
3.3 MEG
R2
220Ω
94V
-7V
1V
52V
118V
5.6V
125V
117V AC
PC-150
C3
220
MMF
C4
.002
C5
.005
C6
220
MMF
C7
220
MMF
C8
.01
R3
500K
VOLUME
R5
6.8
MEG
R6
470K
R7
470K
R8
150 Ω
T3
LS1
PL1
105-120V
50-60 ∿ AC DC
S1
C11
.05
B-
CHASSIS
C10
.047
R10
22Ω
R9
1500Ω
1 WATT
C9B
70
C9A
30
50C5
12BE6
12BA6
12AV6

NOTES
1. ALL RESISTOR ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED.
2. CAPACITOR VALUES IN MFD UNLESS OTHERWISE SPECIFIED.
3. K = 1000

VOLTAGE READINGS ARE TAKEN UNDER CONDITIONS
1. LINE VOLTAGE SET TO 117V, 60 ∿ A.C.
2. VOLTAGES ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
3. D.C. VOLTAGES ARE MEASURED WITH VTVM BETWEEN THE TUBE SOCKET TERMINALS AND B- (⊥).


GREEN DOT
1
2
3
4
T1 & T2
YELLOW DOT
1
2
3
4
5
OSC COIL L2

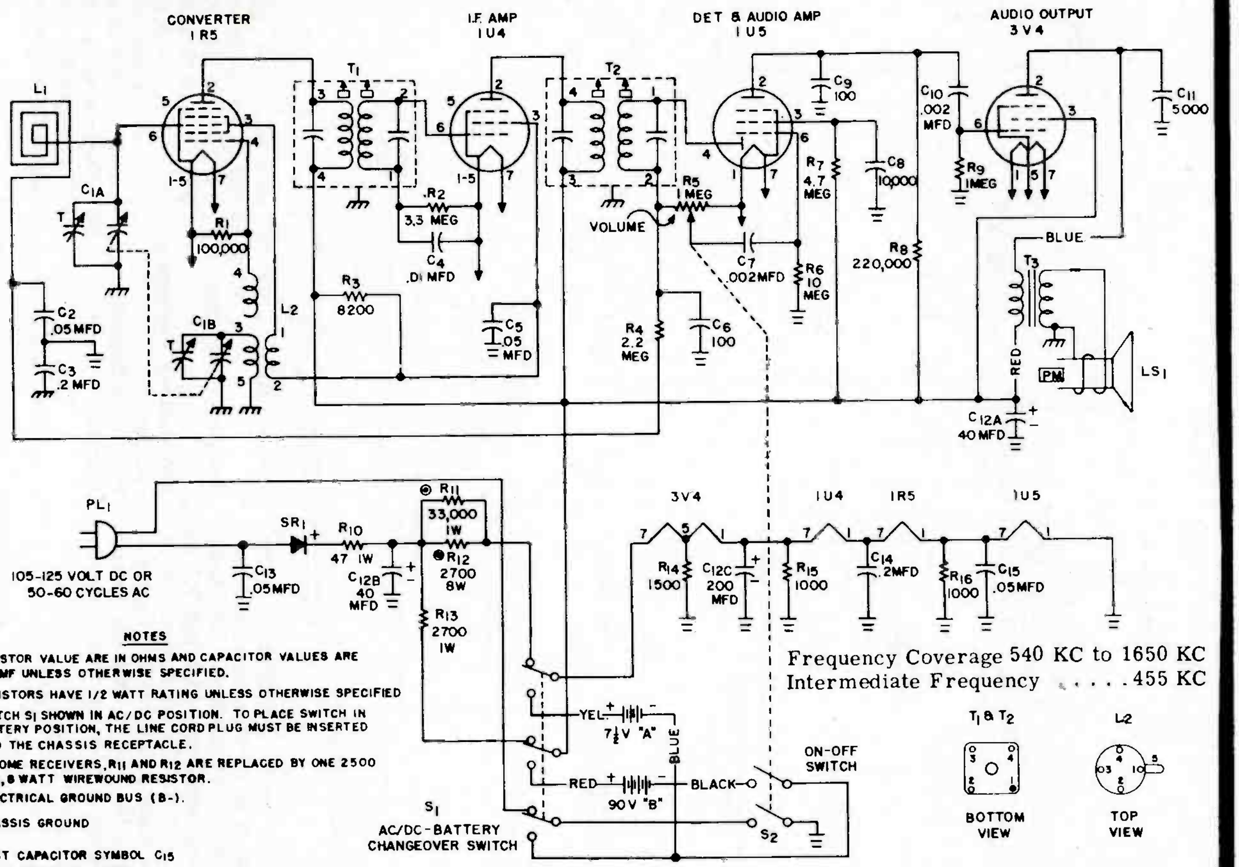
ALIGNMENT PROCEDURE

- Connect output meter across voice coil.
- Set volume control at maximum.
- Use a non-metallic alignment tool.
- Generator must have modulated output and cover 455 KC, 600 KC and 1400 KC.
- To avoid AVC action use lowest output setting of generator that gives a satisfactory reading on meter.

Step	Signal Generator Connections	Generator Frequency	Receiver Dial Setting	Adjust
1	High side through .01 mfd. capacitor to pin 7 of V1. Low side to B-.	455 KC	Gang fully open	A and B (2nd I-F) C and D (1st I-F)
2	Radiate signal generator into loop antenna.	1400 KC	1400 KC	E (Oscillator trimmer) F (Antenna Trimmer)
3	Same as step 2.	600 KC	600 KC	Knife outside plates of C1B if required.

Repeat steps 2 & 3

hallicrafters MODEL 5R24


CONVERTER
1R5
I.F. AMP
1U4
DET & AUDIO AMP
1U5
AUDIO OUTPUT
3V4
L1
T1
T2
C1A
C1B
R1
100,000
L2
C2
.05 MFD
C3
.2 MFD
R2
3.3 MEG
C4
.01 MFD
R3
8200
C5
.05
MFD
R5
1 MEG
VOLUME
R4
2.2
MEG
C6
100
C7
.002MFD
R6
10
MEG
R7
4.7
MEG
C8
10,000
C9
100
C10
.002
MFD
R8
220,000
R9
1MEG
C11
5000
BLUE
T3
RED
PM
LS1
C12A
40 MFD
PL1
SR1
R10
47 1W
C13
.05MFD
C12B
40
MFD
R11
33,000
1W
R12
2700
8W
R13
2700
1W
R14
1500
C12C
200
MFD
R15
1000
C14
.2MFD
R16
1000
C15
.05MFD
YEL
7½V "A"
RED
90V "B"
BLACK
BLUE
ON-OFF
SWITCH
S2
S1
AC/DC-BATTERY
CHANGEOVER SWITCH
T1 & T2
BOTTOM
VIEW
L2
TOP
VIEW

105-125 VOLT DC OR
50-60 CYCLES AC

NOTES

1. RESISTOR VALUE ARE IN OHMS AND CAPACITOR VALUES ARE IN MMF UNLESS OTHERWISE SPECIFIED.
2. RESISTORS HAVE 1/2 WATT RATING UNLESS OTHERWISE SPECIFIED
3. SWITCH S_1 SHOWN IN AC/DC POSITION. TO PLACE SWITCH IN BATTERY POSITION, THE LINE CORD PLUG MUST BE INSERTED INTO THE CHASSIS RECEPTACLE.

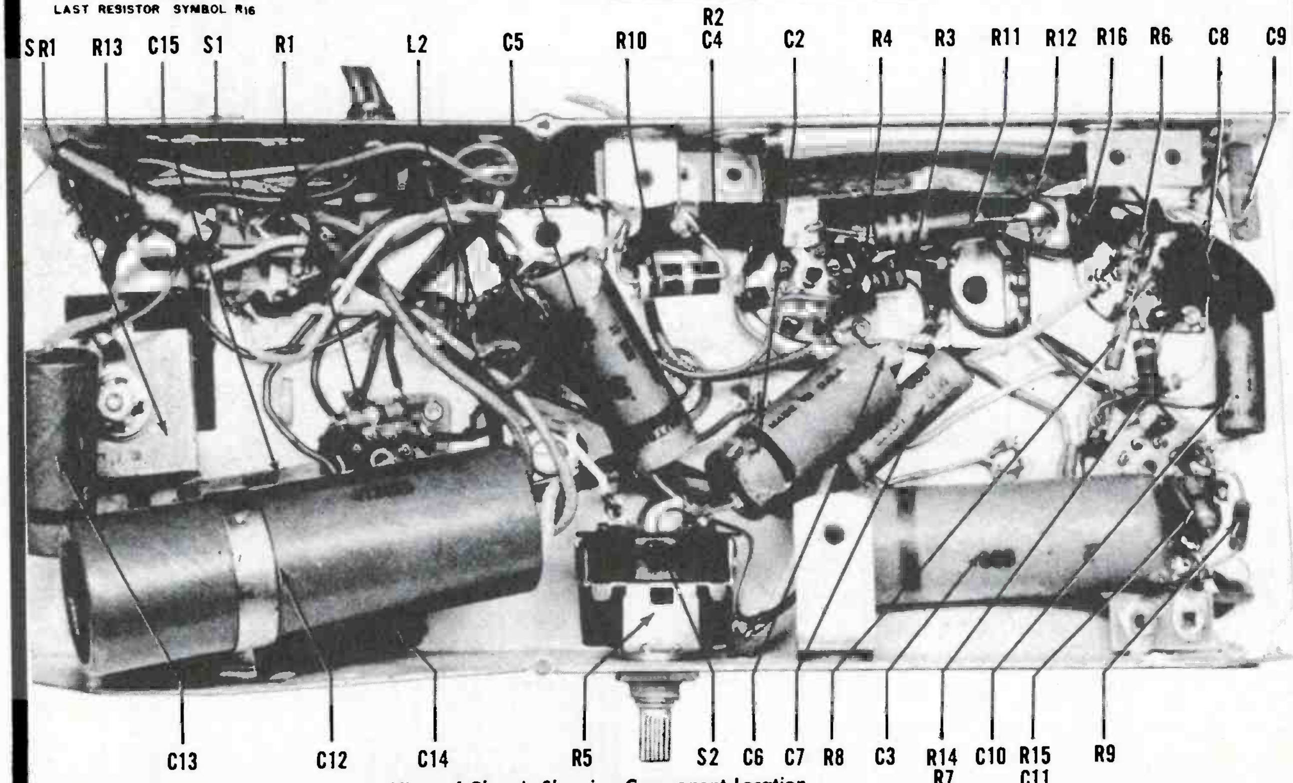
● IN SOME RECEIVERS, R_{11} AND R_{12} ARE REPLACED BY ONE 2500 OHM, 8 WATT WIREWOUND RESISTOR.

⏚ ELECTRICAL GROUND BUS (B-).

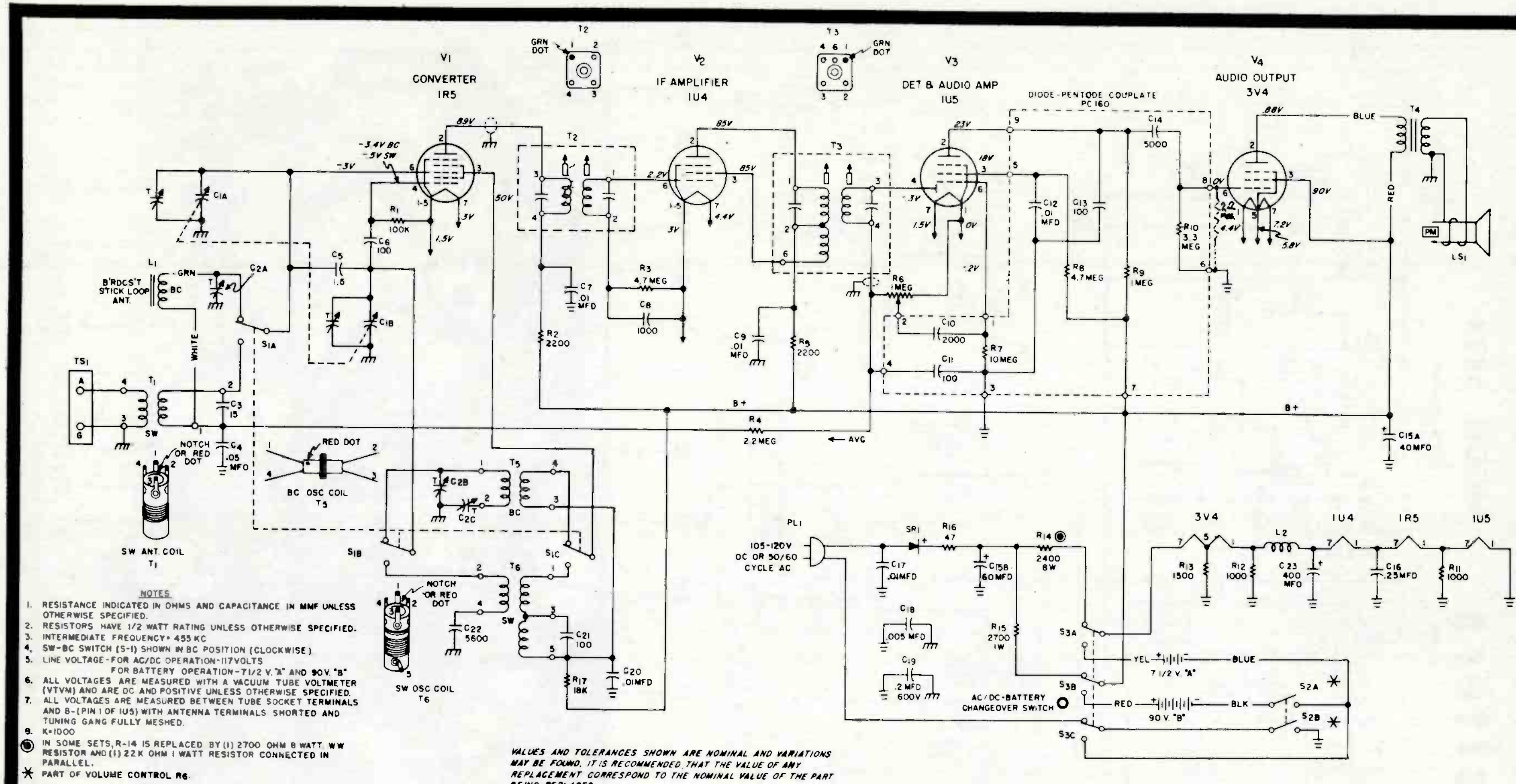
CHASSIS GROUND

LAST CAPACITOR SYMBOL C_{15}
LAST RESISTOR SYMBOL R_{16}

Frequency Coverage 540 KC to 1650 KC
Intermediate Frequency . . . . 455 KC


SR1
R13
C15
S1
R1
L2
C5
R10
R2
C4
C2
R4
R3
R11
R12
R16
R6
C8
C9
C13
C12
C14
R5
S2
C6
C7
R8
C3
R14
R7
C10
R15
C11
R9

Bottom View of Chassis Showing Component Location


V1
CONVERTER
1R5
T2
GRN DOT
V2
IF AMPLIFIER
1U4
T3
GRN DOT
V3
DET & AUDIO AMP
1U5
DIODE-PENTODE COUPLATE
PC160
V4
AUDIO OUTPUT
3V4
T4
BLUE
RED
LS1
PM
B'RDCS'T STICK LOOP ANT.
L1
GRN
WHITE
TS1
A
G
SW ANT. COIL
T1
NOTCH OR RED DOT
RED DOT
BC OSC COIL
T5
SW OSC COIL
T6
S1A
S1B
S1C
C1A
C1B
C2A
C2B
C2C
C3 15
C4 .05 MFD
C5 1.5
C6 100
R1 100K
C7 .01 MFD
R2 2200
R3 4.7 MEG
C8 1000
C9 .01 MFD
R5 2200
R4 2.2 MEG
AVC
B+
R6 1 MEG
C10 2000
C11 100
R7 10 MEG
C12 .01 MFD
C13 100
R8 4.7 MEG
R9 1 MEG
C14 5000
R10 3.3 MEG
C15A 40 MFD
C21 100
C22 5600
R17 18K
C20 .01 MFD
PL1
105-120V DC OR 50/60 CYCLE AC
SR1
R16 47
C17 .01 MFD
C15B 60 MFD
R14 2400 8W
C18 .005 MFD
C19 .2 MFD 600V
R15 2700 1W
AC/DC-BATTERY CHANGEOVER SWITCH
S3A
S3B
S3C
S2A
S2B
YEL
7 1/2 V. "A"
BLK
90 V. "B"
3V4
1U4
1R5
1U5
L2
R13 1500
R12 1000
C23 400 MFD
C16 .25 MFD
R11 1000
89V
-3.4V BC
-5V SW
-3V
50V
3V
1.5V
2.2V
85V
4.4V
23V
18V
-3V
-.2V
1.5V
0V
88V
90V
8.0V
7.2V
5.8V

NOTES

1. RESISTANCE INDICATED IN OHMS AND CAPACITANCE IN MMF UNLESS OTHERWISE SPECIFIED.
2. RESISTORS HAVE 1/2 WATT RATING UNLESS OTHERWISE SPECIFIED.
3. INTERMEDIATE FREQUENCY• 455 KC
4. SW-BC SWITCH (S-1) SHOWN IN BC POSITION (CLOCKWISE)
5. LINE VOLTAGE-FOR AC/DC OPERATION-117VOLTS
   FOR BATTERY OPERATION-7 1/2 V. "A" AND 90V. "B"
6. ALL VOLTAGES ARE MEASURED WITH A VACUUM TUBE VOLTMETER (VTVM) AND ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
7. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND B-(PIN 1 OF 1U5) WITH ANTENNA TERMINALS SHORTED AND TUNING GANG FULLY MESHED.
8. K=1000

◉ IN SOME SETS, R-14 IS REPLACED BY (1) 2700 OHM 8 WATT WW RESISTOR AND (1) 22K OHM 1 WATT RESISTOR CONNECTED IN PARALLEL.

✳ PART OF VOLUME CONTROL R6.

⏚ B- (COMMON GROUND)

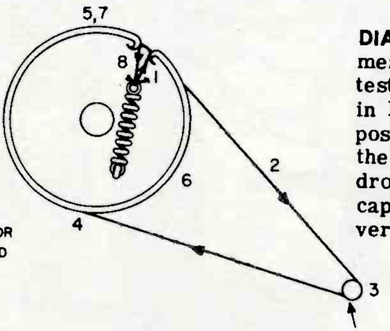
⏚ CHASSIS

VALUES AND TOLERANCES SHOWN ARE NOMINAL AND VARIATIONS MAY BE FOUND. IT IS RECOMMENDED THAT THE VALUE OF ANY REPLACEMENT CORRESPOND TO THE NOMINAL VALUE OF THE PART BEING REPLACED.

○ SWITCH S3 SHOWN IN AC/DC POSITION. TO PLACE SWITCH IN BATTERY POSITION, INSERT LINE CORD PLUG INTO CHASSIS RECEPTACLE.

DIAL CORD STRINGING - Set the tuning capacitor in a fully meshed position. Tie one end of a 30-inch length of 30 lb. test dial cord to the tension spring at position 1 as shown in Fig. 4. Follow the stringing procedure 1 through 8. At position 8, stretch the spring and tie the cord securely to the spring. Cut off the loose ends of the cord and apply a drop of quick drying cement to the knot. With the tuning capacitor fully meshed, align the pointer so that it points vertically downward.

Power Supply . .	105-120 volts DC/50-60 cycle AC or 90 and 7½ volt batteries
Frequency Coverage. . .	BC - 535 to 1620 KC SW - 5.8 to 18.3 MC
Intermediate Frequency	455 KC
Speaker	4-inch PM
Voice Coil Impedance.	3.2 ohms
Antenna	BC - Built-in stick loop SW - Terminals for single wire or doublet



NOTE
TUNING CAPACITOR
FULLY CLOSED

3 1/2 TURNS

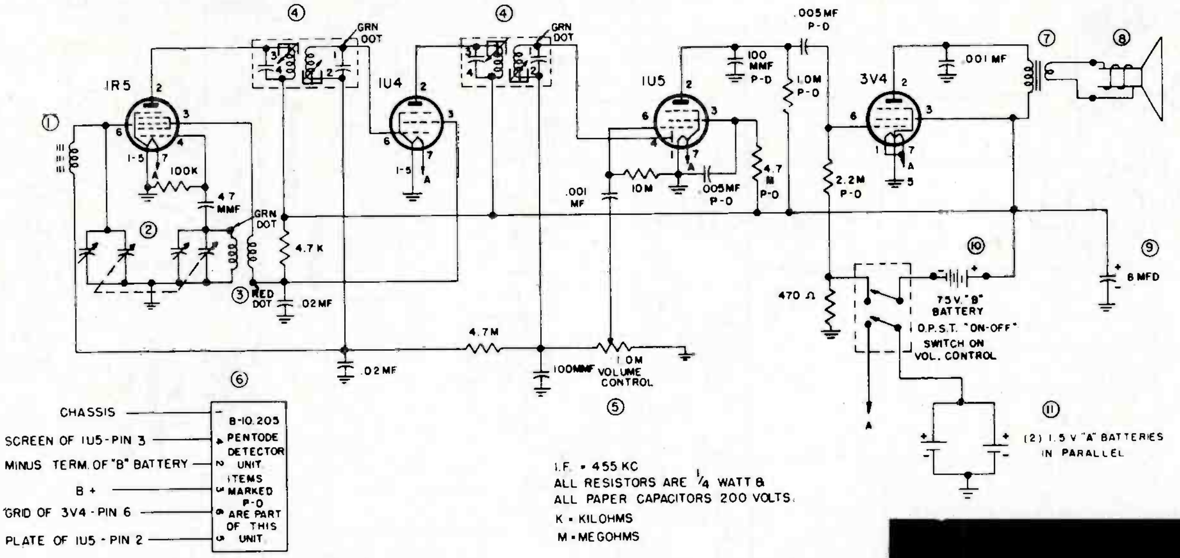
Fig. 4. Dial Cord Stringing Diagram

The Hallicrafters Co. Models 5R40, 5R41, and 5R42

MAJESTIC RADIO AND TELEVISION

DIVISION OF THE WILCOX-GAY CORPORATION

MODEL 4L1 — SCHEMATIC DIAGRAM


①
②
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④
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⑤
⑥
⑦
⑧
⑨
⑩
⑪
1R5
1U4
1U5
3V4
GRN DOT
GRN DOT
GRN DOT
RED DOT
100K
47 MMF
4.7 K
.02 MF
.02 MF
4.7M
.001 MF
10 M
.005MF P-D
100 MMF P-D
.005MF P-D
1.0M P-D
4.7 M P-D
2.2 M P-D
.001 MF
100MMF
1.0M VOLUME CONTROL
470 Ω
75 V. "B" BATTERY
O.P.S.T. "ON-OFF" SWITCH ON VOL. CONTROL
8 MFD
A
(2) 1.5 V "A" BATTERIES IN PARALLEL
CHASSIS
SCREEN OF 1U5-PIN 3
MINUS TERM. OF "B" BATTERY
B +
GRID OF 3V4-PIN 6
PLATE OF 1U5-PIN 2
B-10.205 PENTODE DETECTOR UNIT
ITEMS MARKED P-D ARE PART OF THIS UNIT

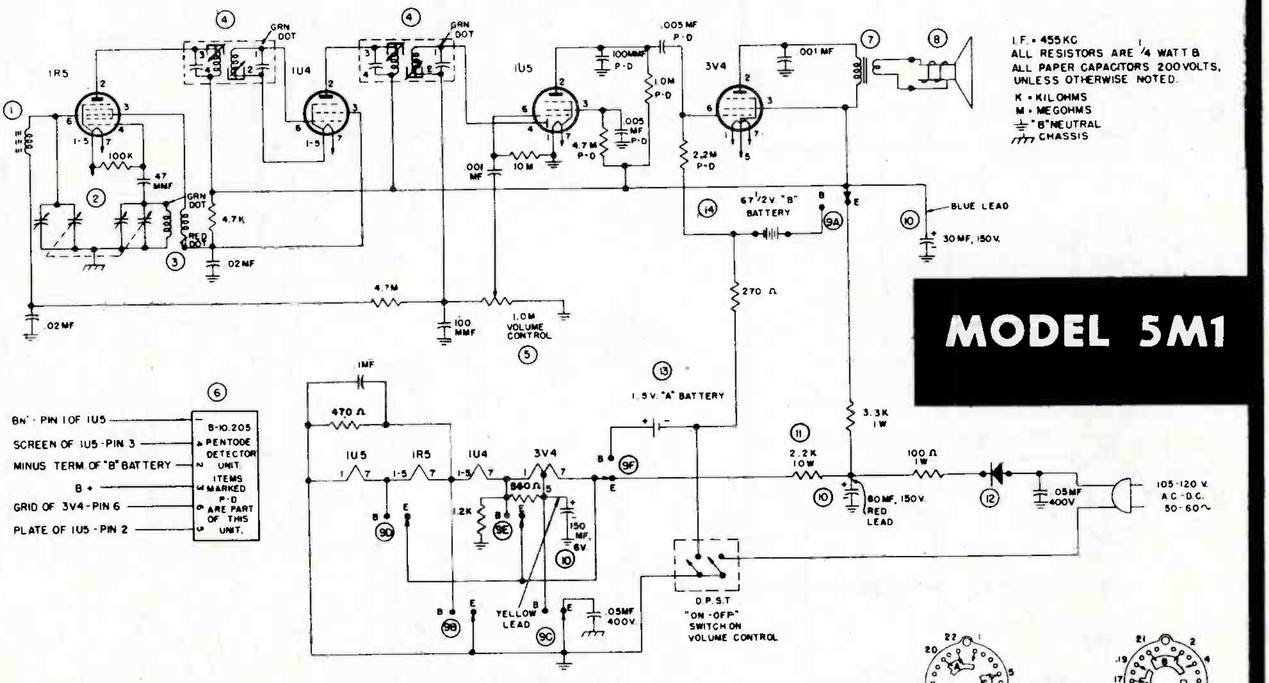
I.F. = 455 KC
ALL RESISTORS ARE ¼ WATT &
ALL PAPER CAPACITORS 200 VOLTS.
K = KILOHMS
M = MEGOHMS

MODEL 4L1

	PART NO.	DESCRIPTION
①	C-1.600	FERRITE ROD ANTENNA
②	C-2.227	2 GANG VARIABLE CONDENSER
③	C-1.601	OSCILLATOR COIL
④	C-1.445-5	I.F. TRANSFORMER
⑤	C-8.233	VOLUME CONTROL & OPST SWITCH
⑥	B-10.205	PENTODE DETECTOR COUPLATE
⑦	C-9.380-1	OUTPUT TRANSFORMER

	PART NO.	DESCRIPTION
⑧	C-30.339 OR C-30.446	P M SPEAKER
⑨	B-5.544 OR B-5.417	ELECTROLYTIC CAP. 8 MFD, 70 V,
⑩		75 V. "B" BATTERY. "EVEREADY" TYPE NO.437, OR EQUIV.
⑪		2 - 1.5 V. "A" BATTERIES, "EVEREADY" TYPE NO. 964,

MODEL 5M1 — SCHEMATIC DIAGRAM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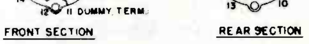
⑩
⑪
⑫
⑬
⑭
9A
9B
9C
9D
9E
9F
1R5
1U4
1U5
3V4
GRN DOT
GRN DOT
GRN DOT
RED DOT
100K
47 MMF
4.7K
.02MF
.02MF
4.7M
.001 MF
10 M
4.7M P-D
.005 MF P-D
100MMF P-D
.005 MF P-D
1.0M P-D
2.2M P-D
.001 MF
100 MMF
1.0M VOLUME CONTROL
67½V. "B" BATTERY
BLUE LEAD
30 MF, 150 V.
270 Ω
1 MF
470 Ω
1U5
1R5
1U4
3V4
1.2K
560 Ω
150 MF. 6V.
1.5 V. "A" BATTERY
3.3K 1W
2.2K 10W
100 Ω 1W
80 MF, 150 V
RED LEAD
.05MF 400V
105-120 V. A.C.-D.C. 50-60~
YELLOW LEAD
.05MF 400V
O.P.S.T. "ON-OFF" SWITCH ON VOLUME CONTROL
B
E
8N⁻ - PIN 1 OF 1U5
SCREEN OF 1U5-PIN 3
MINUS TERM. OF "B" BATTERY
B +
GRID OF 3V4-PIN 6
PLATE OF 1U5-PIN 2
B-10.205 PENTODE DETECTOR UNIT
ITEMS MARKED P-D ARE PART OF THIS UNIT

I.F. = 455 KC
ALL RESISTORS ARE ¼ WATT &
ALL PAPER CAPACITORS 200 VOLTS,
UNLESS OTHERWISE NOTED.
K = KILOHMS
M = MEGOHMS
⏚ "B" NEUTRAL
⏚ CHASSIS

MODEL 5M1

	PART NO	DESCRIPTION
①	C-1.600	FERRITE ROD ANTENNA
②	C-2.227	2 GANG VARIABLE CONDENSER
③	C-1.601	OSCILLATOR COIL
④	C-1.445-5	I.F. TRANSFORMER
⑤	C-8.233	VOLUME CONTROL & DPST SWITCH
⑥	B-10.205	PENTODE DETECTOR COUPLATE
⑦	C-9.380-1	OUTPUT TRANSFORMER

	PART NO.	DESCRIPTION
⑧	C-30.339 OR C-30.446	PM SPEAKER
⑨	C-11.334	ELECTRIC-BATTERY SWITCH
⑩	C-5.415-7	ELECTROLYTIC CAP. - 80-30-150MFD
⑪	B-6.325-1	2.2 K OHMS, ±5%, 10 W, W.W. RESISTOR
⑫	C-39.206	6PL SELENIUM RECTIFIER
⑬		1.5 V. "A" BATTERY, "EVEREADY" NO.964, SIZE "G," OR EQUIV.
⑭		67½ V. "B" BATTERY, "EVEREADY, NO. 477, OR EQUIV.

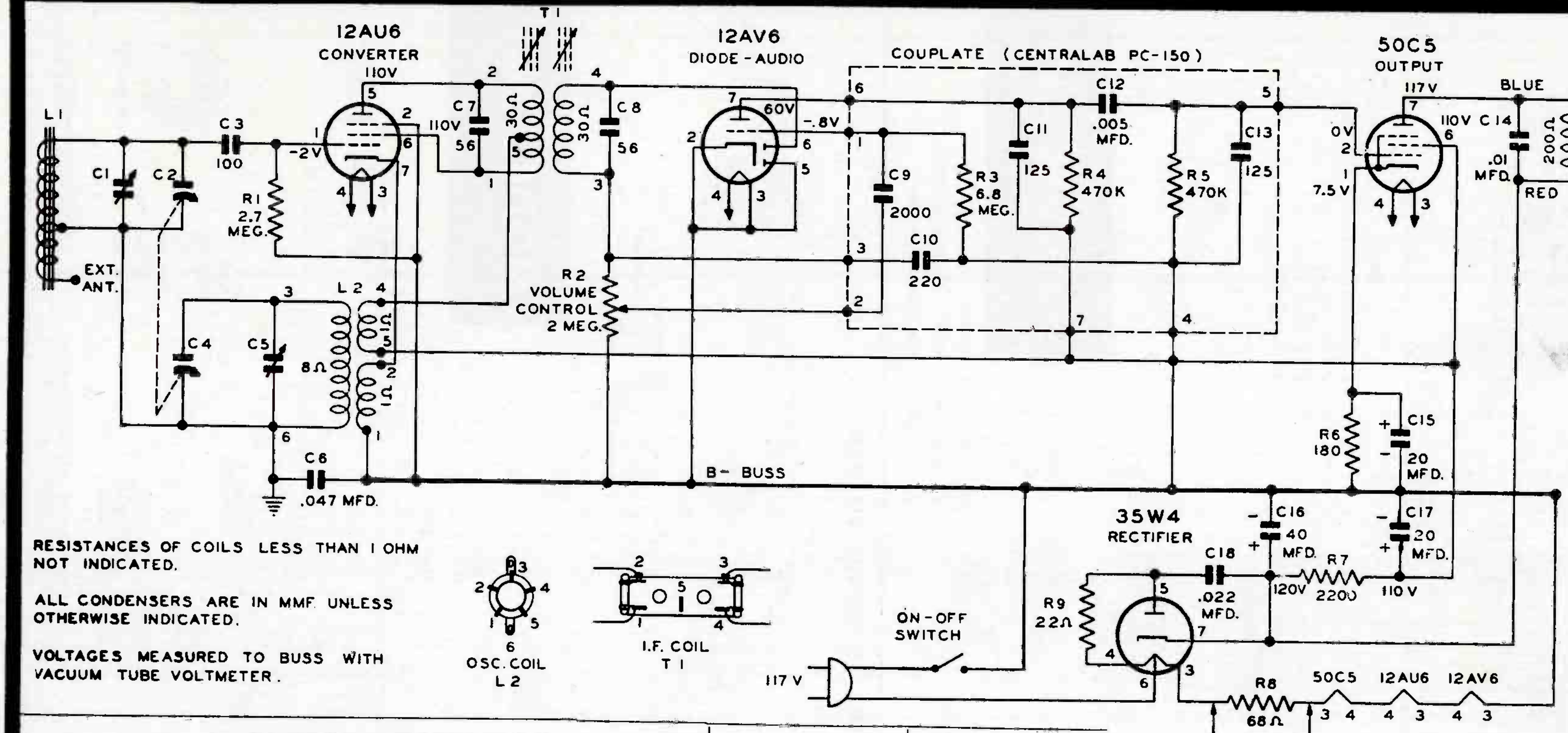

22
1
20
5
7
16
14
9
12
11 DUMMY TERM.
A
B
C
D
E
F
21
2
19
4
17
15
8
13
10

FRONT SECTION REAR SECTION

⑨ WAFER SCHEMATIC OF ELECTRIC-BATTERY SWITCH C-11.334, SHOWN IN ELECTRIC POSITION

Montgomery Ward

Models
GSL-1614A, GSL-1615A
GSL-1616A, GSL-1617A

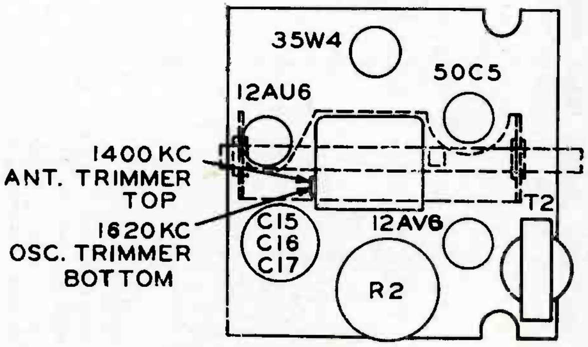

12AU6
CONVERTER
110V
T1
12AV6
DIODE - AUDIO
COUPLATE (CENTRALAB PC-150)
50C5
OUTPUT
117V
BLUE
T2
L1
C1
C2
C3
100
R1
2.7
MEG.
-2V
EXT.
ANT.
C7
110V
56
30Ω
C8
56
60V
-.8V
C9
2000
C10
220
R3
6.8
MEG.
C11
125
C12
.005
MFD.
R4
470K
R5
470K
C13
125
0V
7.5V
110V C14
.01
MFD.
200Ω
RED
L2
C4
C5
8Ω
C6
.047 MFD.
R2
VOLUME
CONTROL
2 MEG.
B- BUSS
R6
180
C15
20
MFD.
35W4
RECTIFIER
C16
40
MFD.
C17
20
MFD.
C18
.022
MFD.
R7
220Ω
120V
110V
R9
22Ω
ON-OFF
SWITCH
117 V
R8
68Ω
10 V.AC.
50C5
12AU6
12AV6
OSC. COIL
L 2
I.F. COIL
T 1

RESISTANCES OF COILS LESS THAN 1 OHM NOT INDICATED.

ALL CONDENSERS ARE IN MMF. UNLESS OTHERWISE INDICATED.

VOLTAGES MEASURED TO BUSS WITH VACUUM TUBE VOLTMETER.

SIGNAL GENERATOR				TUNER SETTING	ADJUST FOR MAXIMUM OUTPUT
FREQUENCY	COUPLING CAPACITOR	CONNECTION TO RADIO	GROUND CONNECTION		
455 Kc	.05 Mfd.	Rear stator plates of of tuning condenser.	B Minus Buss Lead	Any point near center where no interfering signal is received.	Slugs at top of I. F. Coil T-1.
1620 Kc	.05 Mfd.	Rear stator plates of of tuning condenser.	B Minus Buss Lead	Exactly 1620 Kc.	Oscillator trimmer of Gang. (C5)
1400 Kc	—	Lay Generator lead near back of cabinet.	B Minus Buss Lead	Exactly 1400 Kc.	Antenna trimmer of Gang. (C1)


35W4
50C5
12AU6
1400 KC
ANT. TRIMMER
TOP
1620 KC
OSC. TRIMMER
BOTTOM
C15
C16
C17
12AV6
T2
R2

TOP VIEW

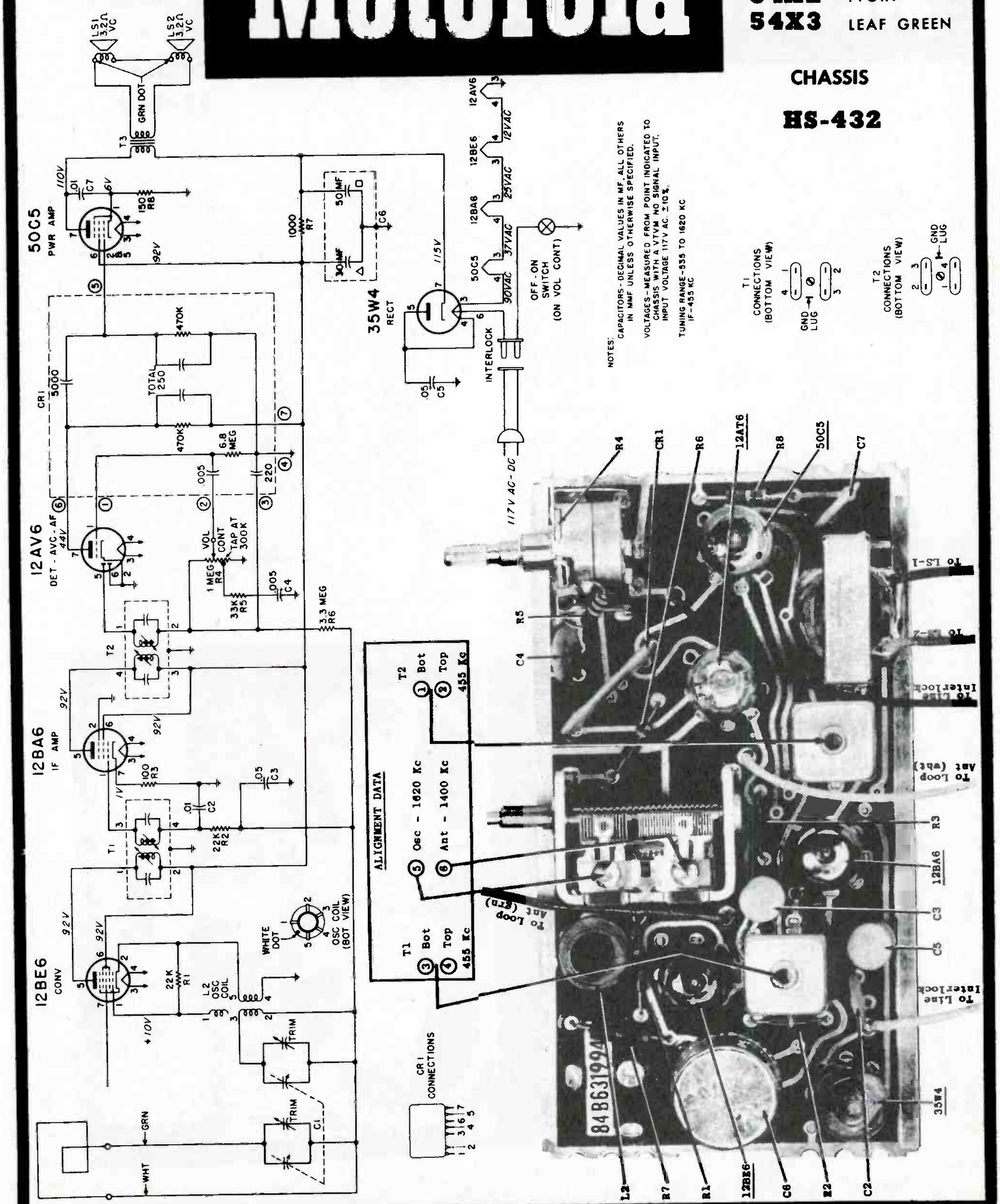
Motorola

MODELS

54X1	MAHOGANY
54X2	IVORY
54X3	LEAF GREEN

CHASSIS

HS-432



50C5 PWR AMP
12AV6 DET - AVC - AF
12BA6 IF AMP
12BE6 CONV
35W4 RECT
T1
T2
T3
GRN DOT
LS1 3.2Ω VC
LS2 3.2Ω VC
L2 OSC COIL
WHITE DOT
OSC COIL (BOT VIEW)
CR1
CR1 CONNECTIONS
TRIM
C1
GRN
WHT
OFF-ON SWITCH (ON VOL CONT)
INTERLOCK
117 V AC-DC
VOL CONT TAP AT 300K
1 MEG R4
33K R5
.005 C4
3.3 MEG R6
22K R2
22K R1
100 R3
150 R8
1000 R7
470K
TOTAL 250
6.8 MEG
50 MF
30 MF
.05 C5
.01 C7
.01 C2
.05 C3
110V
92V
44V
1V
+10V
115V
90VAC
37VAC
25VAC
12VAC
NOTES:
CAPACITORS - DECIMAL VALUES IN MF, ALL OTHERS IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM NO SIGNAL INPUT. INPUT VOLTAGE 117V AC. ±10%.
TUNING RANGE - 535 TO 1620 KC
IF - 455 KC
T1 CONNECTIONS (BOTTOM VIEW)
T2 CONNECTIONS (BOTTOM VIEW)
GND LUG
ALIGNMENT DATA
⑤ Osc - 1620 Kc
⑥ Ant - 1400 Kc
T1 ③ Bot ④ Top 455 Kc
T2 ① Bot ② Top 455 Kc
To LS-1
To LS-2
To Line Interlock
To Loop Ant (wht)
To Loop Ant (Grn)
R4
CR1
R6
12AT6
R8
50C5
C7
R5
C4
R3
12BA6
C3
C5
35W4
L2
R7
R1
12BE6
C6
R2
C2
84B631994

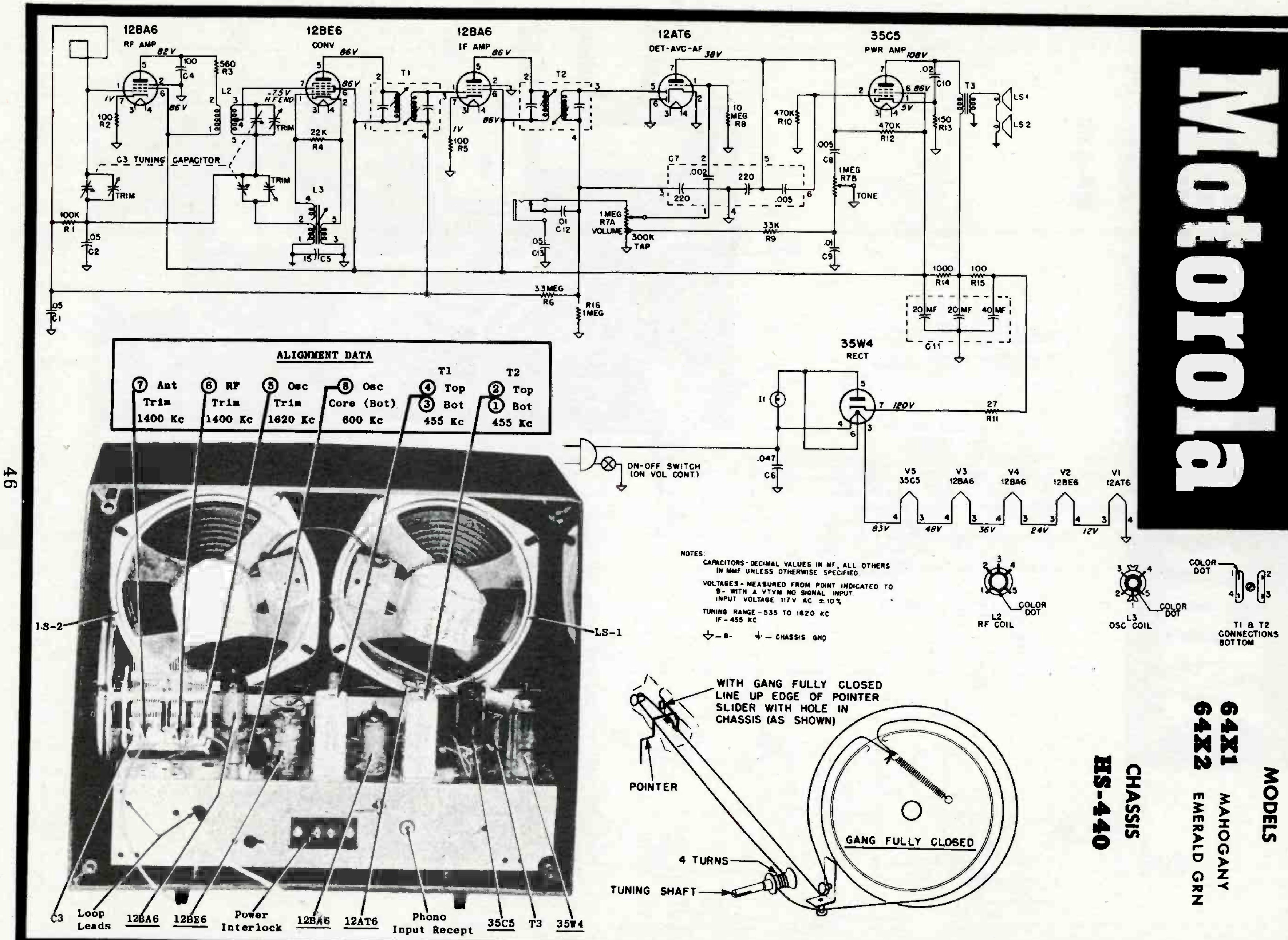
Motorola

MODELS

64X1 MAHOGANY
64X2 EMERALD GRN

CHASSIS

HS-440


12BA6
RF AMP
82V
86V
1V
100
C4
560
R3
100
R2
L2
100K
R1
.05
C2
.05
C1
C3 TUNING CAPACITOR
TRIM
12BE6
CONV
86V
-7.5V
H FEND
22K
R4
L3
15
C5
T1
12BA6
IF AMP
1V
100
R5
T2
12AT6
DET-AVC-AF
38V
10 MEG
R8
C7
.002
220
220
.005
.01
C12
.05
C13
1MEG
R7A
VOLUME
300K
TAP
33K
R9
470K
R10
.005
C8
1MEG
R7B
TONE
.01
C9
35C5
PWR AMP
108V
86V
5V
.02
C10
470K
R12
150
R13
T3
LS1
LS2
3.3MEG
R6
R16
1MEG
1000
R14
100
R15
20 MF
20 MF
40 MF
C11
35W4
RECT
120V
27
R11
11
.047
C6
ON-OFF SWITCH
(ON VOL CONT)
V5
35C5
V3
12BA6
V4
12BA6
V2
12BE6
V1
12AT6
83V
48V
36V
24V
12V
L2
RF COIL
COLOR DOT
L3
OSC COIL
COLOR DOT
COLOR DOT
T1 & T2
CONNECTIONS
BOTTOM
WITH GANG FULLY CLOSED
LINE UP EDGE OF POINTER
SLIDER WITH HOLE IN
CHASSIS (AS SHOWN)
POINTER
GANG FULLY CLOSED
4 TURNS
TUNING SHAFT
LS-2
LS-1
C3
Loop
Leads
12BA6
12BE6
Power
Interlock
12BA6
12AT6
Phono
Input Recept
35C5
T3
35W4

ALIGNMENT DATA

				T1	T2
⑦ Ant Trim 1400 Kc	⑥ RF Trim 1400 Kc	⑤ Osc Trim 1620 Kc	⑧ Osc Core (Bot) 600 Kc	④ Top ③ Bot 455 Kc	② Top ① Bot 455 Kc

NOTES:

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

VOLTAGES-MEASURED FROM POINT INDICATED TO B- WITH A VTVM NO SIGNAL INPUT.
INPUT VOLTAGE 117V AC ± 10%

TUNING RANGE-535 TO 1620 KC
IF-455 KC

▽ – B- ⏚ – CHASSIS GND

Motorola

MODELS

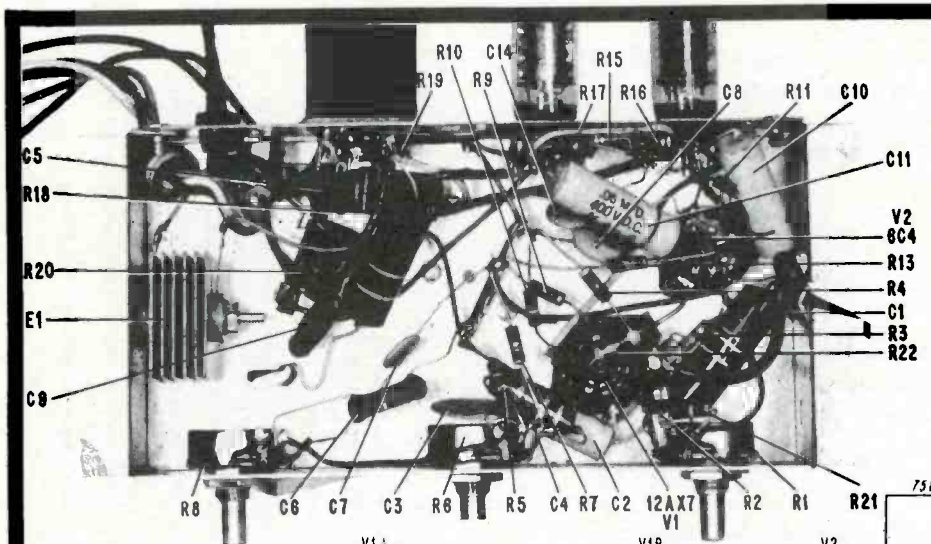
54HF1
54HF1B

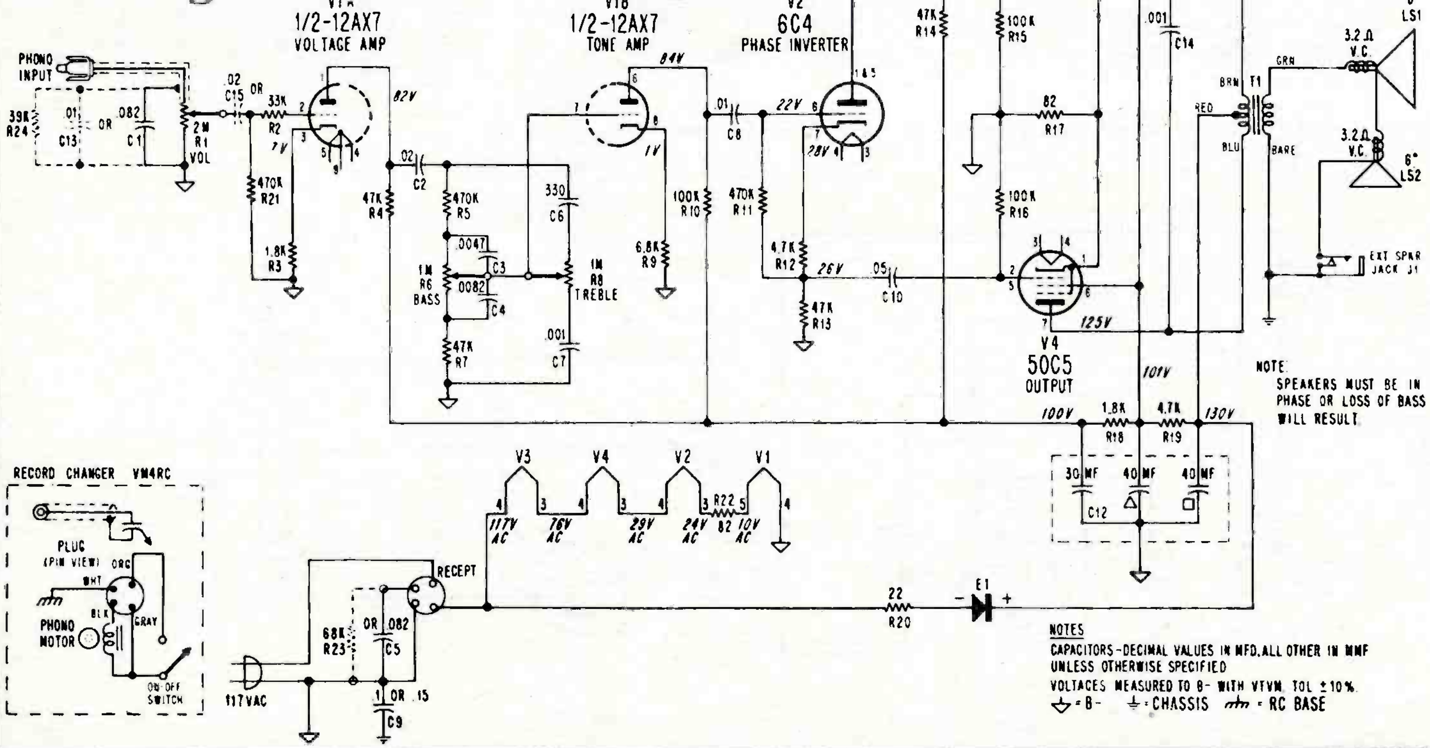
CHASSIS

HS-443

TO REMOVE CHASSIS FROM CABINET

1. Remove amplifier control knobs.
2. Remove the screws at the corners of the record changer mounting board.
3. Grasp record changer base and tilt up front of mounting board. Disconnect leads from changer.
4. Completely remove record changer and mounting board.
5. Disconnect speaker leads.
6. Remove the screws that mount the amplifier chassis to the cabinet and remove chassis from cabinet.


R10
C14
R15
R19
R9
R17
R16
C8
R11
C10
C5
C11
R18
V2
6C4
R13
R20
R4
E1
C1
R3
R22
C9
R8
C6
C7
C3
R6
R5
C4
R7
C2
12AX7
V1
R2
R1
R21


V3
50C5
OUTPUT
125V
75V
C5
C11
47K
R14
100K
R15
.001
C14
8"
LS1
3.2 Ω
V.C.
GRN
BRN
T1
RED
BLU
BARE
3.2 Ω
V.C.
6"
LS2
82
R17
100K
R16
EXT SPKR
JACK J1
125V
V4
50C5
OUTPUT
V1A
1/2-12AX7
VOLTAGE AMP
V1B
1/2-12AX7
TONE AMP
V2
6C4
PHASE INVERTER
PHONO
INPUT
39K
R24
.01
C13
OR
.082
C1
2M
R1
VOL
.02
C15
OR
33K
R2
7V
82V
84V
1V
.01
C8
22V
28V
.02
C2
470K
R21
1.8K
R3
47K
R4
470K
R5
.0047
C3
1M
R6
BASS
.0082
C4
47K
R7
330
C6
1M
R8
TREBLE
.001
C7
100K
R10
6.8K
R9
470K
R11
4.7K
R12
26V
47K
R13
.05
C10
101V
100V
1.8K
R18
4.7K
R19
130V
30 MF
C12
40 MF
40 MF
V3
V4
V2
V1
117V AC
76V AC
29V AC
24V AC
R22
82
10V AC
RECEPT
22
R20
E1
68K
R23
OR
.082
C5
.1
OR
.15
C9
117VAC
RECORD CHANGER VM4RC
PLUG
(PIN VIEW)
ORG
WHT
BLK
GRAY
PHONO
MOTOR
ON OFF
SWITCH

NOTE:
SPEAKERS MUST BE IN PHASE OR LOSS OF BASS WILL RESULT.

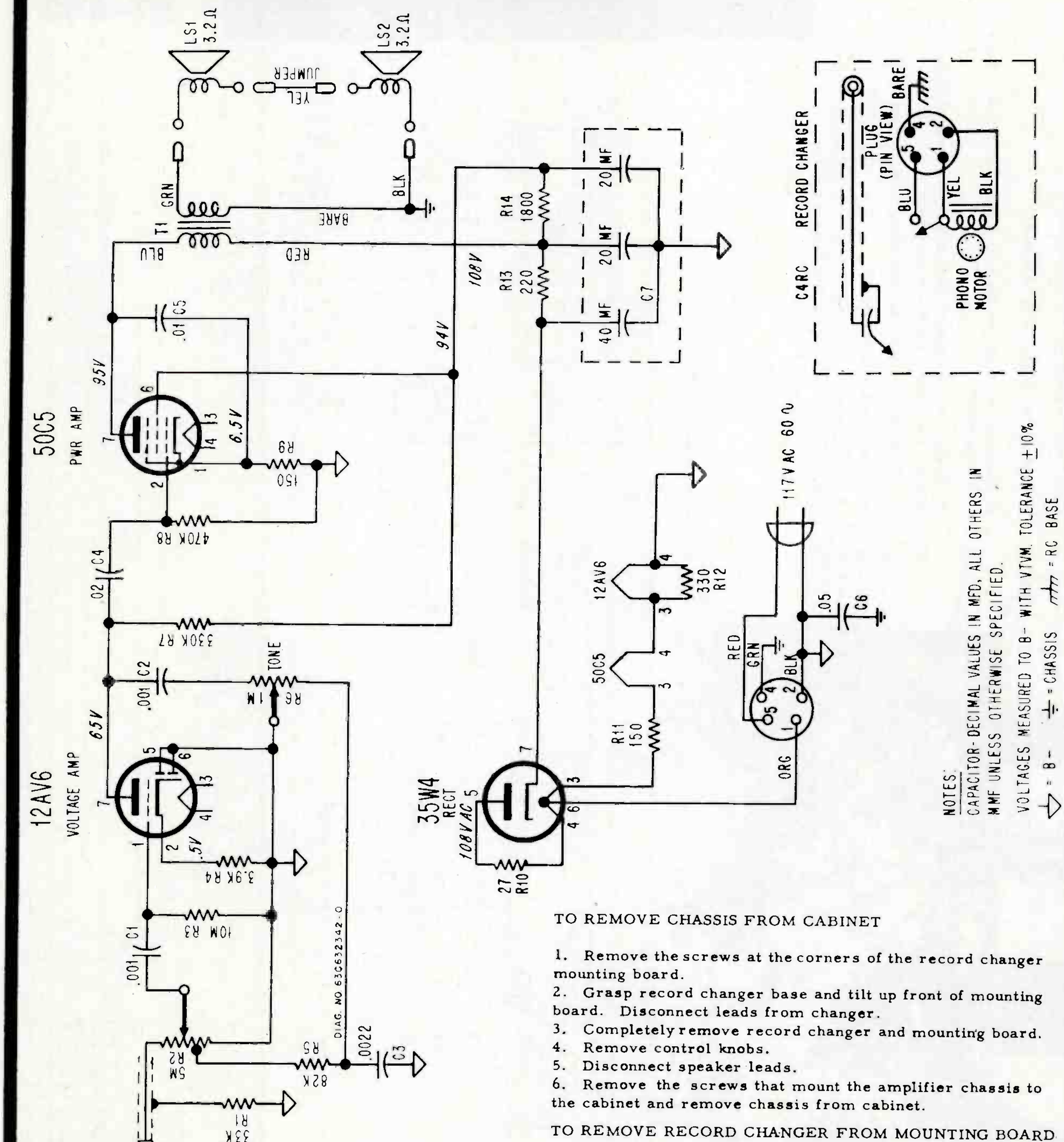
NOTES
CAPACITORS-DECIMAL VALUES IN MFD. ALL OTHER IN MMF UNLESS OTHERWISE SPECIFIED
VOLTAGES MEASURED TO B- WITH VTVM. TOL ±10%.
▽ = B-   ⏚ = CHASSIS   ⫨ = RC BASE

Motorola

Model 34F1, Chassis HS-444

and

Model 34F1C, Chassis HS-467


LS1 3.2Ω
LS2 3.2Ω
YEL JUMPER
GRN
BLK
T1
BLU
RED
BARE
R14 1800
R13 220
108V
94V
20 MF
20 MF
40 MF
C7
.01 C5
95V
50C5
PWR AMP
6.5V
R9 150
470K R8
.02 C4
330K R7
.001 C2
TONE
R6 1M
65V
12AV6
VOLTAGE AMP
.5V
3.9K R4
10M R3
.001 C1
5M R2
R5 82K
.0022 C3
33K R1
PHONO INPUT
DIAG. NO. 63C632342-0
35W4
RECT
108V AC
27 R10
R11 150
12AV6
330 R12
117 V AC 60 ∿
.05 C6
RED
GRN
BLK
ORG
C4RC
RECORD CHANGER
PLUG (PIN VIEW)
BARE
BLU
YEL
BLK
PHONO MOTOR

NOTES:
CAPACITOR-DECIMAL VALUES IN MFD, ALL OTHERS IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGES MEASURED TO B- WITH VTVM. TOLERANCE ±10%
▽ = B- ⏚ = CHASSIS ⫫ = RC BASE

TO REMOVE CHASSIS FROM CABINET

1. Remove the screws at the corners of the record changer mounting board.
2. Grasp record changer base and tilt up front of mounting board. Disconnect leads from changer.
3. Completely remove record changer and mounting board.
4. Remove control knobs.
5. Disconnect speaker leads.
6. Remove the screws that mount the amplifier chassis to the cabinet and remove chassis from cabinet.

TO REMOVE RECORD CHANGER FROM MOUNTING BOARD

1. Turn the three changer mounting screws down flush with the changer base.
2. From the bottom of changer, turn the three Tinnerman nuts, located at the ends of the mounting screws, so they are parallel with the screws.
3. Grasp record changer by the base and lift up.

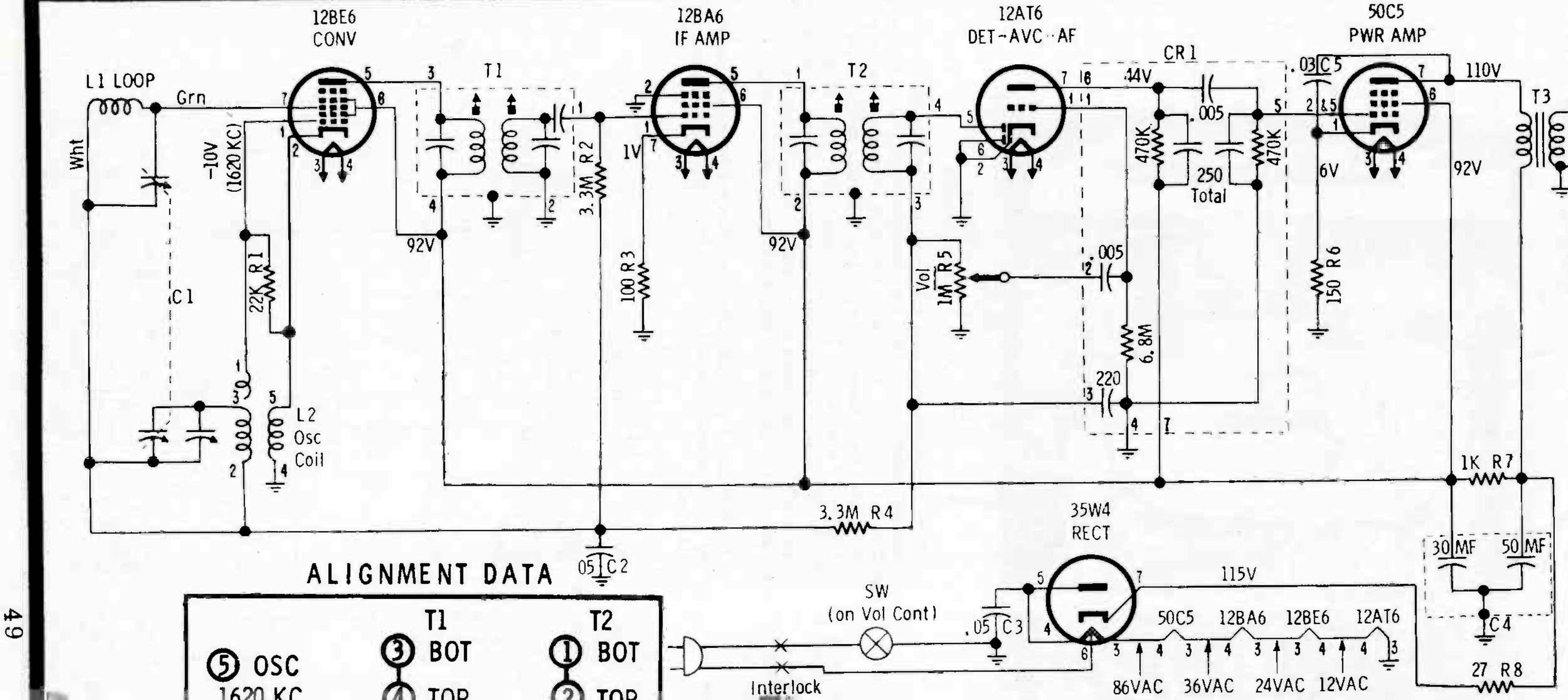
MOTOROLA, INC.

MODELS

55A1 Mahogany
55A2 Ebony
55A3 White

CHASSIS

HS-422


12BE6
CONV
12BA6
IF AMP
12AT6
DET-AVC-AF
50C5
PWR AMP
L1 LOOP
Grn
Wht
-10V
(1620 KC)
C1
22K R1
L2
Osc
Coil
T1
92V
3.3M R2
1V
100 R3
T2
92V
Vol
1M R5
CR1
44V
.005
470K
250
Total
470K
.005
6.8M
220
.03 C5
6V
150 R6
110V
T3
92V
LS1
1K R7
3.3M R4
.05 C2
35W4
RECT
115V
SW
(on Vol Cont)
.05 C3
Interlock
50C5
12BA6
12BE6
12AT6
86VAC
36VAC
24VAC
12VAC
30 MF
50 MF
C4
27 R8

ALIGNMENT DATA

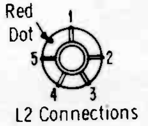
	T1	T2
⑤ OSC 1620 KC	③ BOT ④ TOP 455 KC	① BOT ② TOP 455 KC

NOTES:

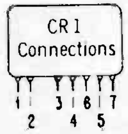
Capacitors - Decimal values in MF, all others in MMF unless otherwise specified

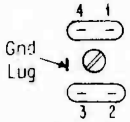
Voltages - Measured from point indicated to ground with a VTVM. No signal input input voltage - 117V AC ±10%.

Tuning Range - 535 to 1620 KC
IF - 455 KC

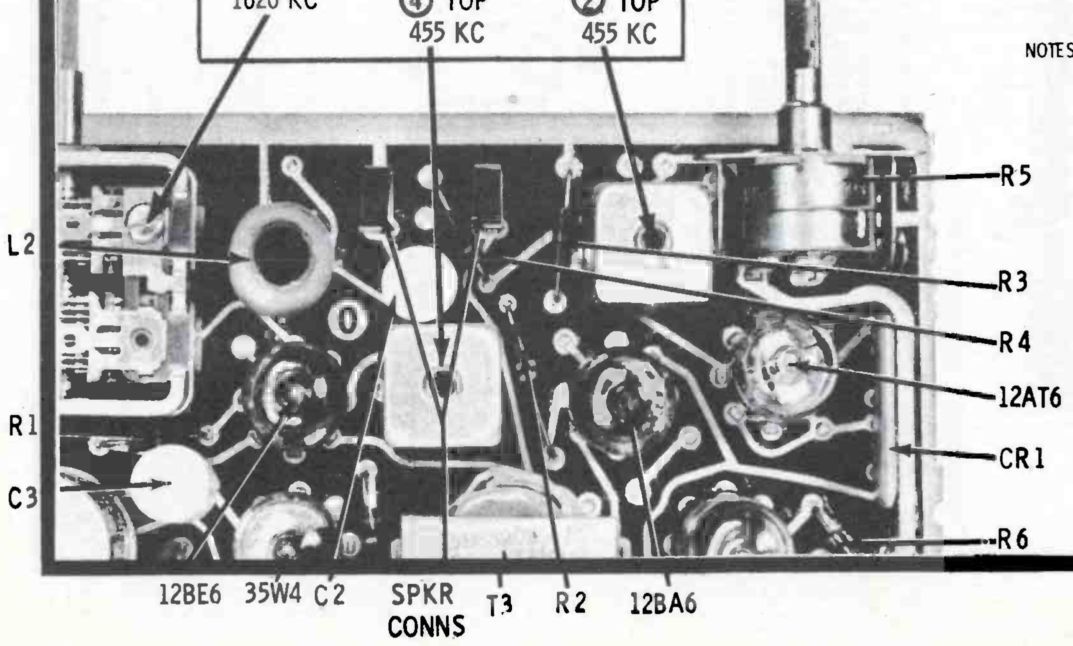

Red
Dot
1
2
3
4
5

L2 Connections


CR1
Connections
1
2
3
4
6
5
7


4
1
Gnd
Lug
3
2

T1 & T2 Connections
(Bottom View)


L2
R1
C3
12BE6
35W4
C2
SPKR
CONNS
T3
R2
12BA6
R5
R3
R4
12AT6
CR1
R6

MOTOROLA, INC.

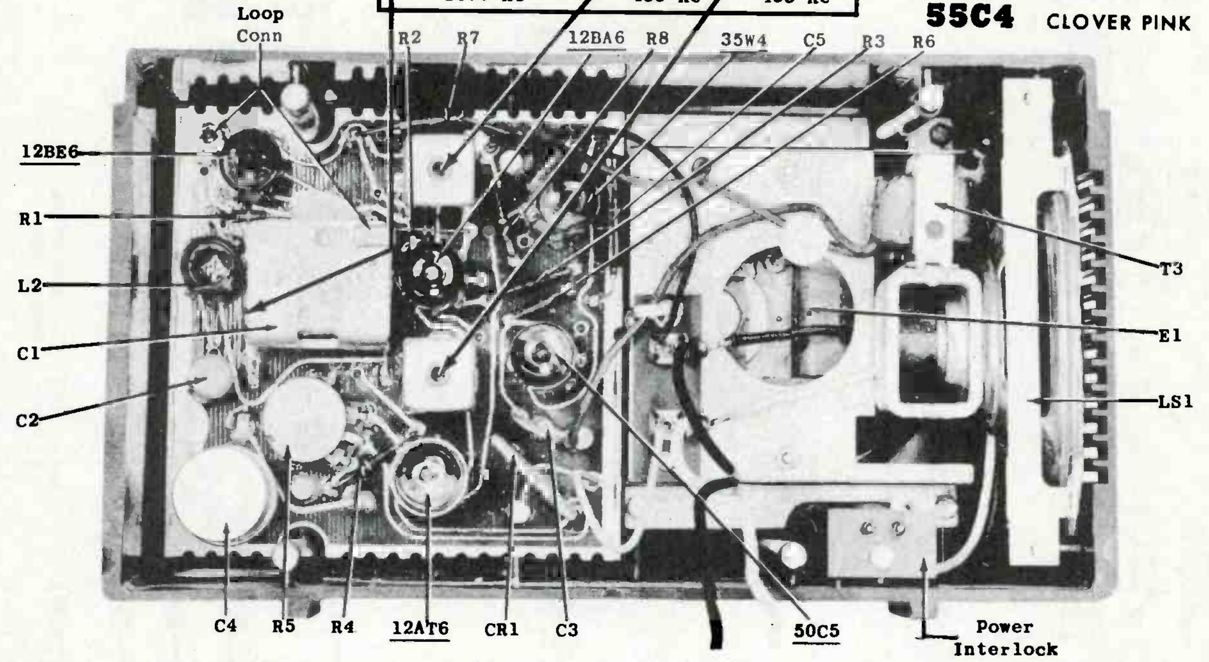
CHASSIS
HS-456

ALIGNMENT DATA

	T1	T2
⑤ Osc - Front 1620 Kc	③ Bot	① Bot
⑥ Ant - Rear 1400 Kc	④ Top 455 Kc	② Top 455 Kc

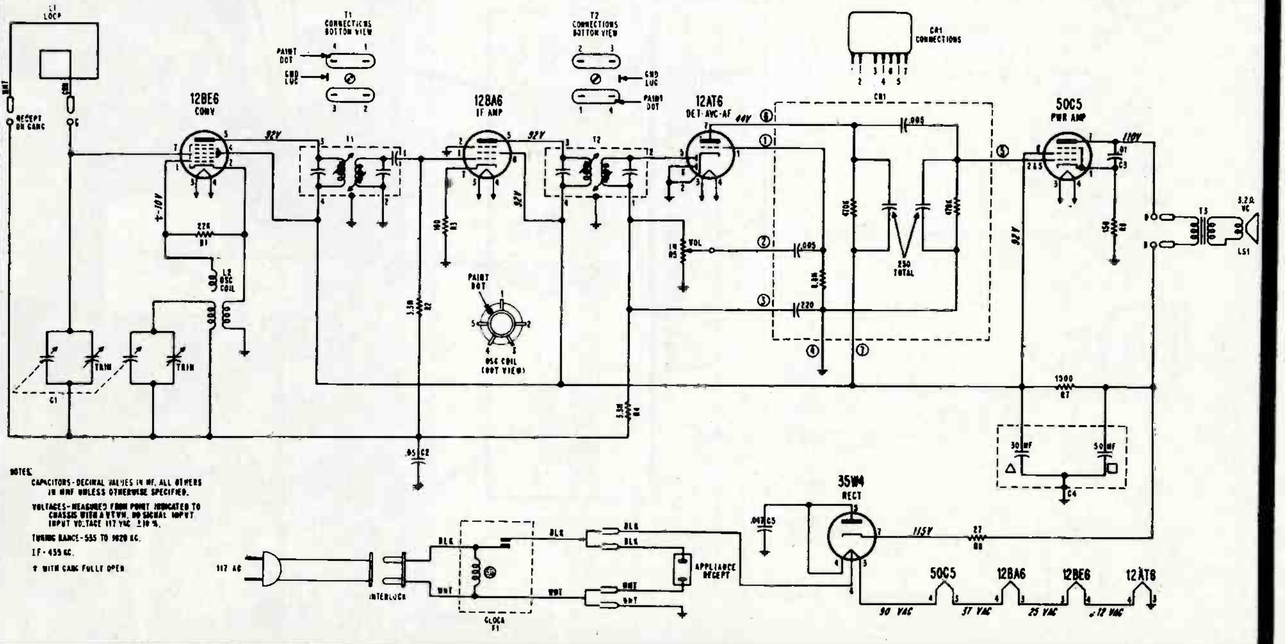
MODELS

55C1	MAHOGANY
55C2	WHITE
55C3	MINT GREEN
55C4	CLOVER PINK


Loop Conn
R2
R7
12BA6
R8
35W4
C5
R3
R6
12BE6
R1
L2
C1
C2
T3
E1
LS1
C4
R5
R4
12AT6
CR1
C3
50C5
Power Interlock

COMPONENT REPLACEMENT

1. To prevent tube breakage, remove them before replacing components.
2. WHEN REMOVING DEFECTIVE COMPONENTS USE ONLY A SMALL SOLDERING IRON (60 WATTS OR LESS) TO AVOID DAMAGE TO THE WIRING. DO NOT USE A SOLDERING GUN. WARNING: THE LEADS ARE VERY THIN, AND EXCESSIVE HEAT WILL BURN THEM OR LOOSEN THEM FROM THE BASE MATERIAL.
3. Plated connections or leads, if damaged, may be replaced with a jumper of regular hookup wire.
4. It is recommended that multiple lug components be removed by immersing all the lugs simultaneously into a controlled temperature soldering pot, Motorola Part Number 66T632703. The component may then be lifted off the chassis easily. If a soldering pot is not available, heat each lug individually with a small soldering iron and shake or brush off as much molten solder as possible. Then, by alternately heating and loosening each lug, the entire component will be freed.
5. An individual tube clip may be removed by squeezing it it with pliers and then unsoldering it. The new clip snaps into the hole.

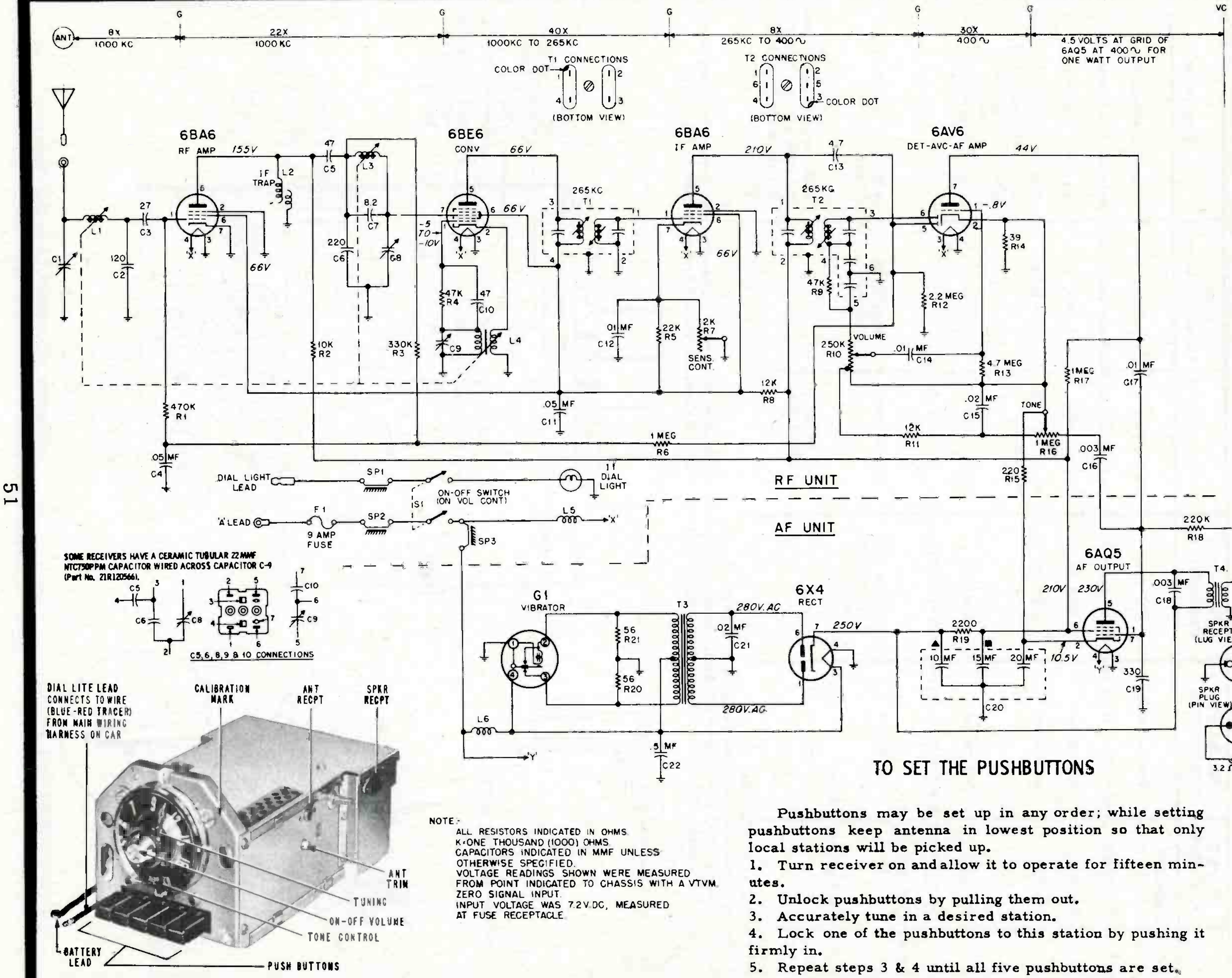

L1 LOOP
RECEPT OR CABC
12BE6 CONV
92V
T1 CONNECTIONS BOTTOM VIEW
PAINT DOT
GND LUG
T1
12BA6 IF AMP
92V
T2 CONNECTIONS BOTTOM VIEW
T2
12AT6 DET-AVC-AF
44V
CR1 CONNECTIONS
CR1
.005
50C5 PWR AMP
110V
T3
3.2Ω VC
LS1
27K R1
L2 OSC COIL
C1
TRIM
TRIM
PAINT DOT
OSC COIL (BOT VIEW)
VOL
R5
.005
.220
470K
470K
250 TOTAL
1300 R7
30 MF
50 MF
C4
.05 C2
35W4 RECT
.047 C5
115V
27 R8
BLK
WHT
APPLIANCE RECEPT
INTERLOCK
CLOCK F1
117 AC
50C5
12BA6
12BE6
12AT6
90 VAC
37 VAC
25 VAC
12 VAC

NOTES:
CAPACITORS - DECIMAL VALUES IN MF. ALL OTHERS IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. NO SIGNAL INPUT INPUT VOLTAGE 117 VAC ±10 %.
TUNING RANGE - 535 TO 1620 KC.
IF - 455 KC.
* WITH GANG FULLY OPEN

Motorola

(Alignment on the next page, over.)

MODEL
MOTOROLA 5MF
FORD FDH-18805-B2


ANT
8X 1000 KC
G
22X 1000 KC
G
40X 1000KC TO 265KC
G
8X 265KC TO 400∿
G
30X 400∿
G
4.5 VOLTS AT GRID OF 6AQ5 AT 400∿ FOR ONE WATT OUTPUT
VC
T1 CONNECTIONS
COLOR DOT
(BOTTOM VIEW)
T2 CONNECTIONS
COLOR DOT
(BOTTOM VIEW)
6BA6 RF AMP
155V
66V
IF TRAP L2
L1
C1
27 C3
120 C2
47 C5
L3
8.2 C7
220 C6
C8
6BE6 CONV
66V
-5 TO -10V
47K R4
47 C10
C9
L4
10K R2
330K R3
470K R1
.05 MF C4
265KC T1
6BA6 IF AMP
210V
66V
.01 MF C12
22K R5
2K R7
SENS. CONT.
.05 MF C11
12K R8
1 MEG R6
4.7 C13
265KG T2
47K R9
6AV6 DET-AVC-AF AMP
44V
-.8V
39 R14
2.2 MEG R12
VOLUME
250K R10
.01 MF C14
4.7 MEG R13
.02 MF C15
12K R11
TONE
1 MEG R16
1 MEG R17
.01 MF C17
.003 MF C16
220 R15
220K R18
RF UNIT
AF UNIT
DIAL LIGHT LEAD
SP1
1 DIAL LIGHT
ON-OFF SWITCH (ON VOL CONT)
S1
'A' LEAD
F1
9 AMP FUSE
SP2
L5
'X'
SP3
SOME RECEIVERS HAVE A CERAMIC TUBULAR 22 MMF NTC750PPM CAPACITOR WIRED ACROSS CAPACITOR C-9 (Part No. 21R120566).
C5,6,8,9 & 10 CONNECTIONS
G1 VIBRATOR
56 R21
56 R20
T3
.02 MF C21
280V.AC
280V.AC
6X4 RECT
250V
L6
'Y'
.5 MF C22
2200 R19
10 MF
15 MF
20 MF
C20
10.5V
6AQ5 AF OUTPUT
210V
230V
.003 MF C18
330 C19
T4
SPKR RECEPT (LUG VIEW)
SPKR PLUG (PIN VIEW)
3.2 ΩVC
LS1
DIAL LITE LEAD CONNECTS TO WIRE (BLUE-RED TRACER) FROM MAIN WIRING HARNESS ON CAR
CALIBRATION MARK
ANT RECPT
SPKR RECPT
ANT TRIM
TUNING
ON-OFF VOLUME
TONE CONTROL
BATTERY LEAD
PUSH BUTTONS

NOTE:-
ALL RESISTORS INDICATED IN OHMS.
K=ONE THOUSAND (1000) OHMS.
CAPACITORS INDICATED IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGE READINGS SHOWN WERE MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ZERO SIGNAL INPUT.
INPUT VOLTAGE WAS 7.2V.DC, MEASURED AT FUSE RECEPTACLE.

TO SET THE PUSHBUTTONS

Pushbuttons may be set up in any order; while setting pushbuttons keep antenna in lowest position so that only local stations will be picked up.

1. Turn receiver on and allow it to operate for fifteen minutes.
2. Unlock pushbuttons by pulling them out.
3. Accurately tune in a desired station.
4. Lock one of the pushbuttons to this station by pushing it firmly in.
5. Repeat steps 3 & 4 until all five pushbuttons are set.

MOTOROLA Alignment for Ford Models 5MF and 5MF8 (Continued)

ALIGNMENT

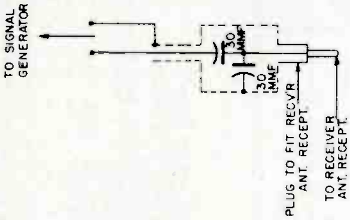
Connect output meter across speaker voice coil. Set tone control to high & volume to maximum. Attenuate generator to maintain 1.79 volts (1 watt) on output meter to prevent overloading receiver. *Field alignment of tuner is not recommended unless it has been tampered with or has had components replaced.

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	TUNER SET TO	ADJUST. (in order shown)	REMARKS
IF ALIGNMENT						
1.	.1 mf	Pin 7 -6BE6	265 Kc	Hi end stop	1,2,3 & 4	Peak for maximum.
*RF ALIGNMENT - Note: For step 2 back tuner cores 1-3/8" out of coils to eliminate their effect on trimmer adjustments.						
2.	See Fig.	Ant recept	1605 Kc	Hi end stop	5, 6 & 7	Peak for maximum.
3.	See Fig.	Ant recept	1200 Kc	9/32" from hi end stop	8, 9 & 10	Peak for maximum using core alignment tools shown in Figure.
4.	See Fig.	Ant recept	1605 Kc	Hi end stop	5, 6 & 7	Peak for maximum.
5.	Repeat steps 3 & 4 until no further increase; then cement cores in place.					
SENSITIVITY CONTROL						
6.	See Fig.	Ant recept	600 Kc & 5 microvolts output	Tune for max	Sensitivity control	Adj for 1.79 volt output (1 watt)
ANTENNA TRIMMER ADJ						
7.	-	-	-	Weak station around 1400 Kc	7	With receiver in car peak ant trim for max volume. Ant should be fully extended.

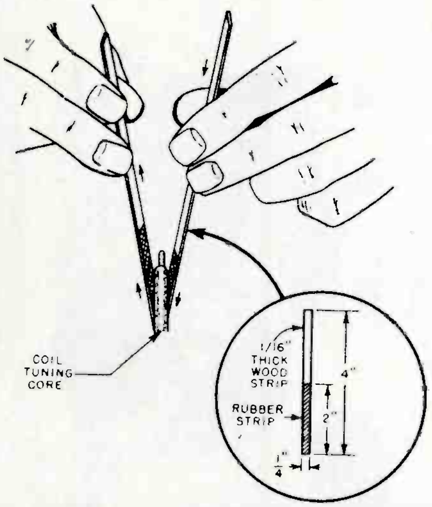
TO CALIBRATE POINTER

A. Remove dial scale and tune receiver to 1400 Kc signal.

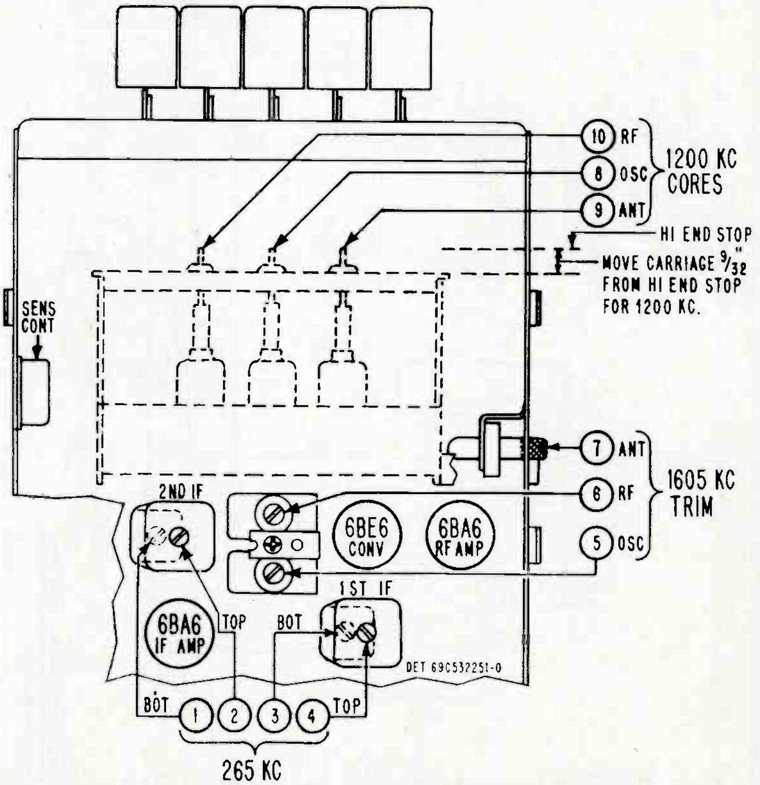
B. To rotate pointer pull pointer off shaft, set to coincide with calibration mark on front housing (see cover photo) and push back onto shaft. CAUTION: Do not twist pointer while on shaft; this may result in a broken pointer or dial cord.


TO SIGNAL GENERATOR
30 MMF
30 MMF
PLUG TO FIT RECVR ANT. RECEPT.
TO RECEIVER ANT. RECEPT.

DUMMY ANTENNA DETAIL


COIL TUNING CORE
1/16" THICK WOOD STRIP
RUBBER STRIP
4"
2"
1/4"

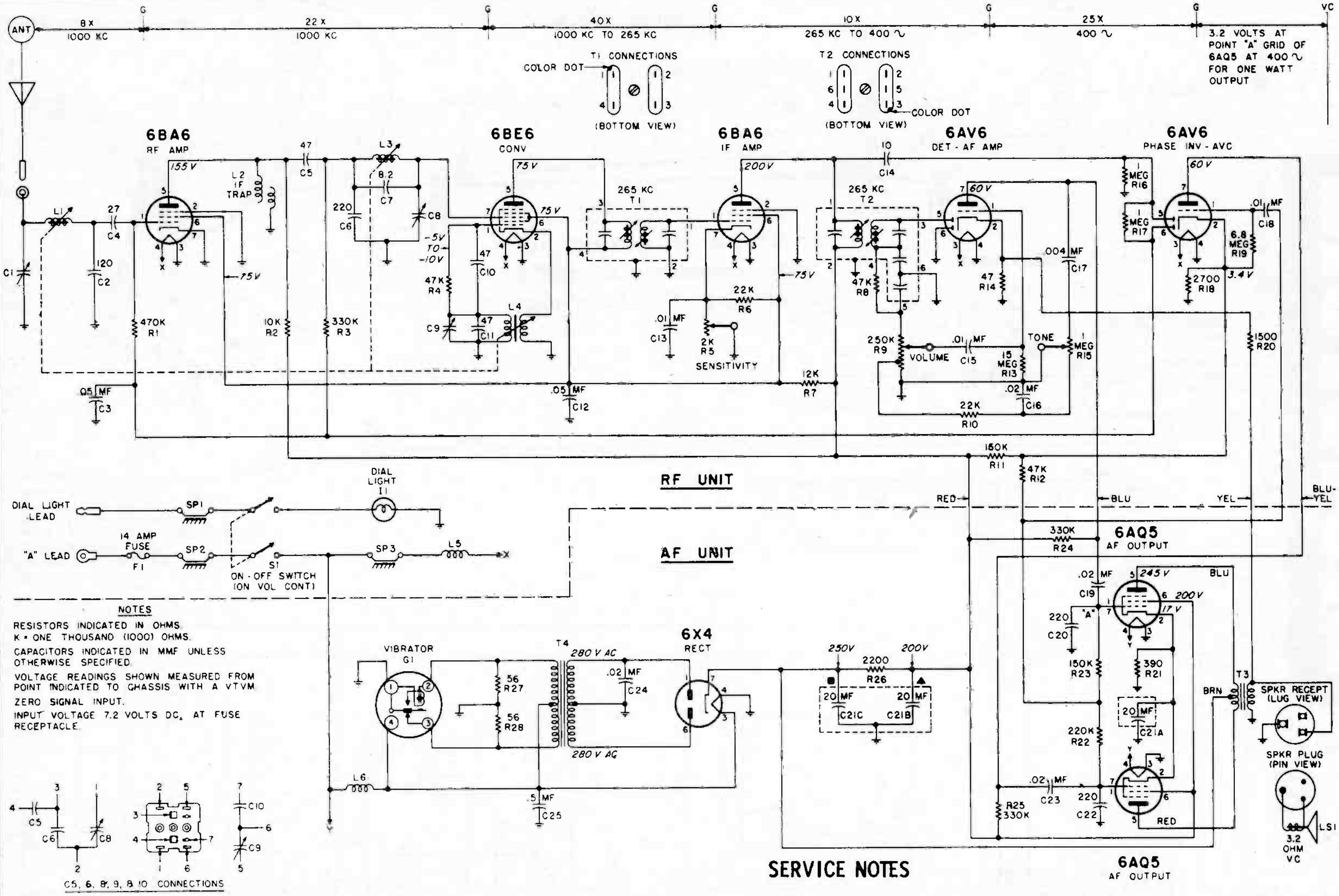
CORE ALIGNMENT TOOL DETAIL


10 RF
8 OSC
9 ANT
1200 KC CORES
HI END STOP
MOVE CARRIAGE 9/32" FROM HI END STOP FOR 1200 KC.
SENS CONT
7 ANT
6 RF
5 OSC
1605 KC TRIM
2ND IF
6BE6 CONV
6BA6 RF AMP
1ST IF
6BA6 IF AMP
TOP
BOT
BOT
TOP
1 2 3 4
265 KC
DET 69C532251-0

ALIGNMENT ADJUSTMENT LOCATIONS DETAIL

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

MOTOROLA Auto Radio Model 5MF8, Ford No. FDH-18805-A2
(Alignment information on adjacent page at left)


ANT
8X 1000 KC
22X 1000 KC
40X 1000 KC TO 265 KC
10X 265 KC TO 400 ∿
25X 400 ∿
G
VC
3.2 VOLTS AT POINT "A" GRID OF 6AQ5 AT 400 ∿ FOR ONE WATT OUTPUT
T1 CONNECTIONS (BOTTOM VIEW)
T2 CONNECTIONS (BOTTOM VIEW)
COLOR DOT
6BA6 RF AMP
6BE6 CONV
6BA6 IF AMP
6AV6 DET - AF AMP
6AV6 PHASE INV - AVC
6AQ5 AF OUTPUT
6AQ5 AF OUTPUT
6X4 RECT
L1
L2 IF TRAP
L3
L4
L5
L6
265 KC T1
265 KC T2
470K R1
10K R2
330K R3
47K R4
2K R5 SENSITIVITY
22K R6
12K R7
47K R8
250K R9 VOLUME
22K R10
150K R11
47K R12
15 MEG R13
47 R14
1 MEG R15 TONE
1 MEG R16
1 MEG R17
2700 R18
6.8 MEG R19
1500 R20
390 R21
220K R22
150K R23
330K R24
R25 330K
2200 R26
56 R27
56 R28
C1
120 C2
.05 MF C3
27 C4
47 C5
220 C6
8.2 C7
C8
C9
47 C10
47 C11
.05 MF C12
.01 MF C13
10 C14
.01 MF C15
.02 MF C16
.004 MF C17
.01 MF C18
.02 MF C19
220 C20
20 MF C21A
20 MF C21B
20 MF C21C
.02 MF C23
220 C22
.02 MF C24
.5 MF C25
155 V
75 V
-5V TO -10V
200 V
60 V
3.4 V
245 V
17 V
250 V
RF UNIT
AF UNIT
RED
BLU
YEL
BLU-YEL
BRN
T3
T4
280 V AC
DIAL LIGHT I1
DIAL LIGHT LEAD
"A" LEAD
14 AMP FUSE F1
SP1
SP2
SP3
S1 ON - OFF SWITCH (ON VOL CONT)
VIBRATOR G1
SPKR RECEPT (LUG VIEW)
SPKR PLUG (PIN VIEW)
LS1
3.2 OHM VC
C5, 6, 8, 9, 8 10 CONNECTIONS

NOTES
RESISTORS INDICATED IN OHMS.
K = ONE THOUSAND (1000) OHMS.
CAPACITORS INDICATED IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGE READINGS SHOWN MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM.
ZERO SIGNAL INPUT.
INPUT VOLTAGE 7.2 VOLTS DC, AT FUSE RECEPTACLE.

TYPE - Automotive type superheterodyne receiver specifically designed for installation in the 1955 Ford.

TUNING RANGE - 540 to 1600 Kc IF - 265 Kc

OPERATES FROM - 6 volt storage battery

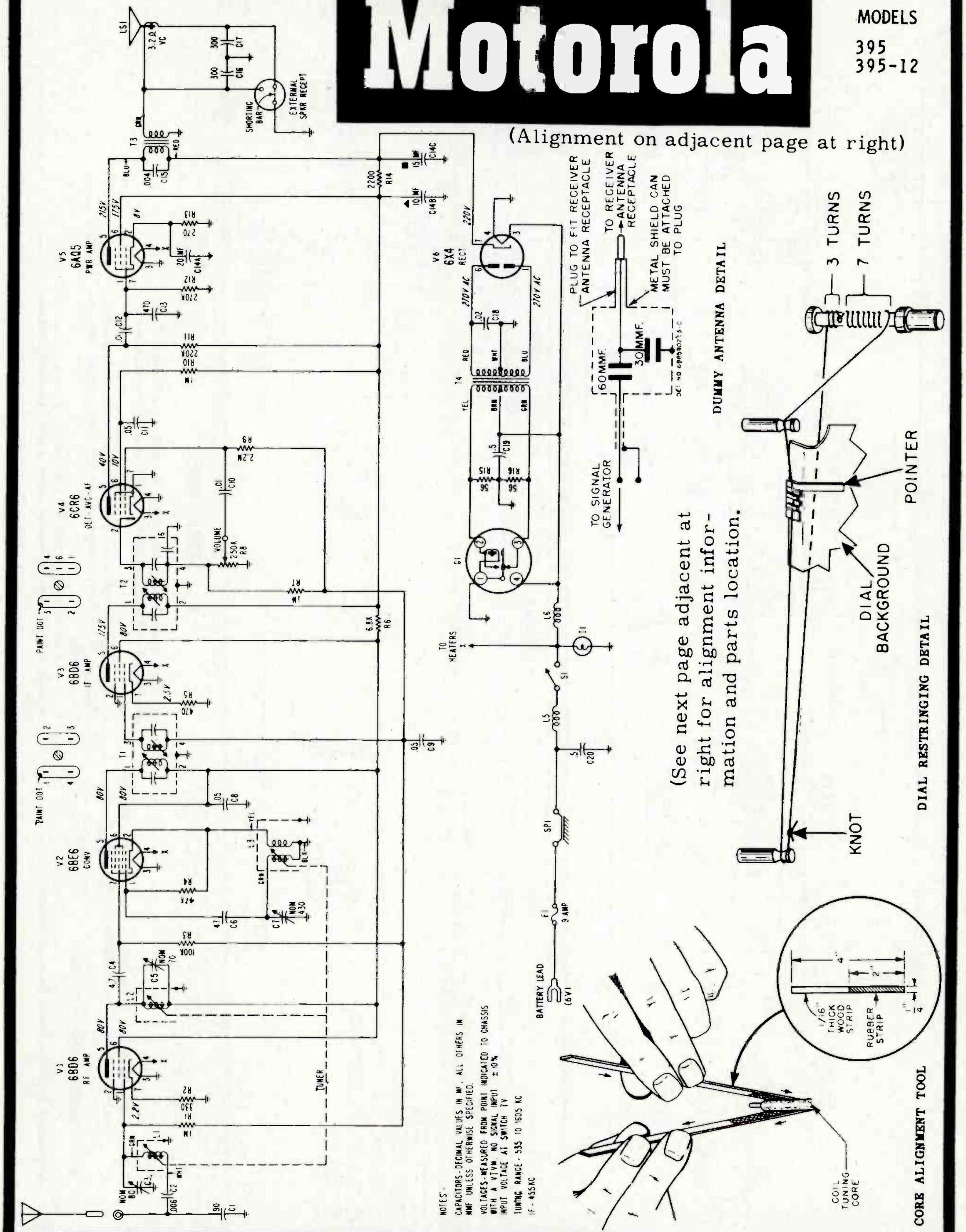
SERVICE NOTES

1. The dial light is connected to the instrument panel lighting circuit and will not light unless the instrument lights are on.
2. To replace vibrator, audio output tubes, or rectifier, while set is in car, remove screw from tube shield and remove shield.
3. To replace tubes in the RF section, while set is in car, remove shield as described above, then remove bottom cover.

Motorola

MODELS
395
395-12

(Alignment on adjacent page at right)


V1 6BD6 RF AMP
V2 6BE6 CONV
V3 6BD6 IF AMP
V4 6CR6 DET-AVC-AF
V5 6AQ5 PWR AMP
V6 6X4 RECT
LS1 3.2Ω VC
EXTERNAL SPKR RECEPT
SHORTING BAR
T1
T2
T3
T4
L1
L2
L3
L5
L6
G1
S1
SP1
F1 9 AMP
VOLUME 250K R8
TUNER
PAINT DOT
TO HEATERS
BATTERY LEAD (6V)
PLUG TO FIT RECEIVER ANTENNA RECEPTACLE
TO RECEIVER ANTENNA RECEPTACLE
METAL SHIELD CAN MUST BE ATTACHED TO PLUG
60MMF
30MMF
TO SIGNAL GENERATOR
3 TURNS
7 TURNS
POINTER
DIAL BACKGROUND
KNOT
1/16" THICK WOOD STRIP
RUBBER STRIP
4"
2"
1/4"
COIL TUNING CORE

NOTES:
CAPACITORS - DECIMAL VALUES IN MF. ALL OTHERS IN MMF UNLESS OTHERWISE SPECIFIED.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. NO SIGNAL INPUT ±10% INPUT VOLTAGE AT SWITCH 7V
TUNING RANGE - 535 TO 1605 KC
IF - 455 KC

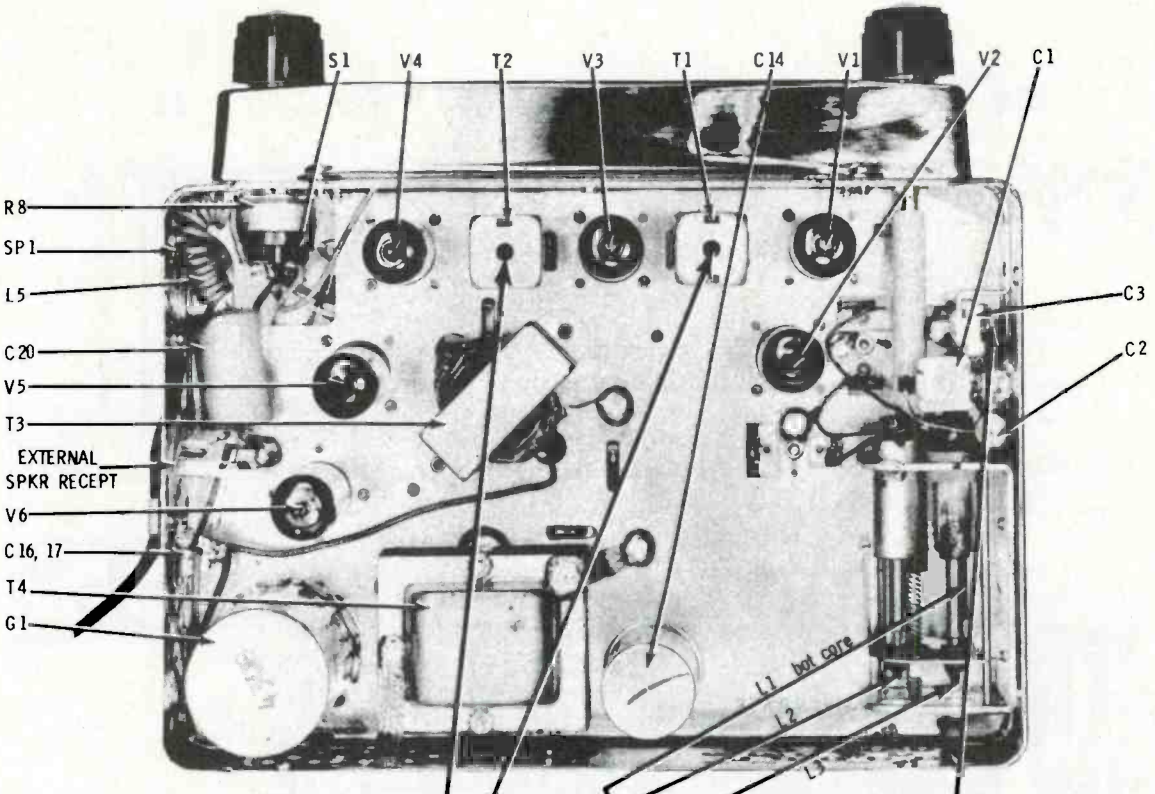
DUMMY ANTENNA DETAIL

(See next page adjacent at right for alignment information and parts location.)

DIAL RESTRINGING DETAIL

CORE ALIGNMENT TOOL

MOTOROLA Model 395, 395-12, Alignment Adjustments and Parts Location


S1
V4
T2
V3
T1
C14
V1
V2
C1
R8
SP1
L5
C20
V5
T3
EXTERNAL SPKR RECEPT
V6
C16, 17
T4
G1
C3
C2
L1 bot core
L2
L3

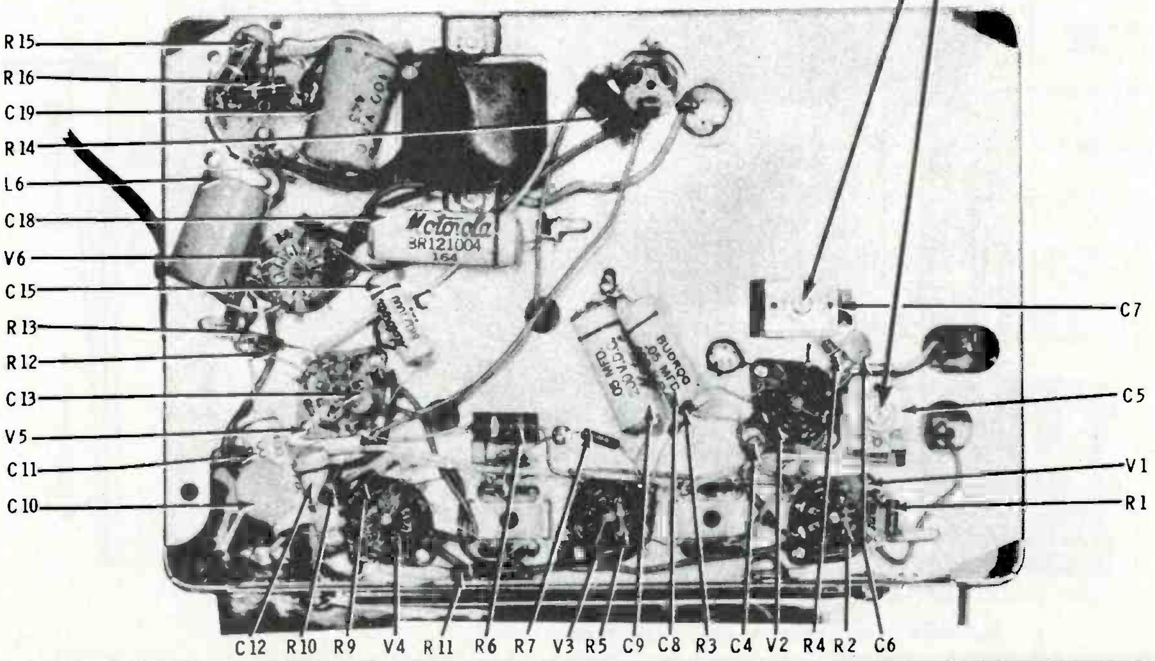
TUBES		
REF. NO.	MODEL 395	MODEL 395-12
V1	6BD6 (RF)	12BD6 (RF)
V2	6BE6	12BE6
V3	6BD6 (IF)	12BD6 (IF)
V4	6CR6	12CR6
V5	6AQ5	12AQ5
V6	6X4	12X4

④ TOP 1st IF 455 KC
③ BOT

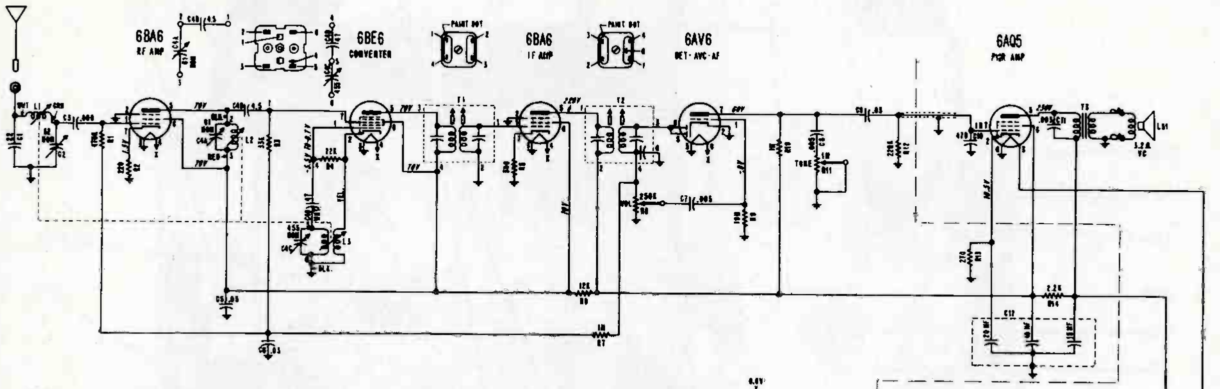
② TOP 2nd IF 455 KC
① BOT

⑧ OSC CORE 1400 KC
⑨ RF CORE 1400 KC
⑩ ANT CORE 1400 KC

ANT TRIM 1610 KC ⑦
RF TRIM 1610 KC ⑥
OSC TRIM 1610 KC ⑤


R15
R16
C19
R14
L6
C18
V6
C15
R13
R12
C13
V5
C11
C10
C7
C5
V1
R1
C12
R10
R9
V4
R11
R6
R7
V3
R5
C9
C8
R3
C4
V2
R4
R2
C6

MOTOROLA Models MoPar 613 used in Plymouth P26, P27, and MoPar 614 used in Dodge D55, D56.


6BA6
RF AMP
6BE6
CONVERTER
6BA6
IF AMP
6AV6
DET-AVC-AF
6AQ5
PWR AMP
T1
T2
T3
TONE
3.2 Ω VC

NOTES:

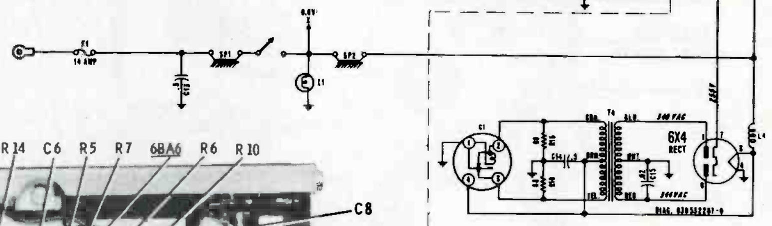
Capacitors - Decimal values in MF, all others in MMF unless otherwise specified

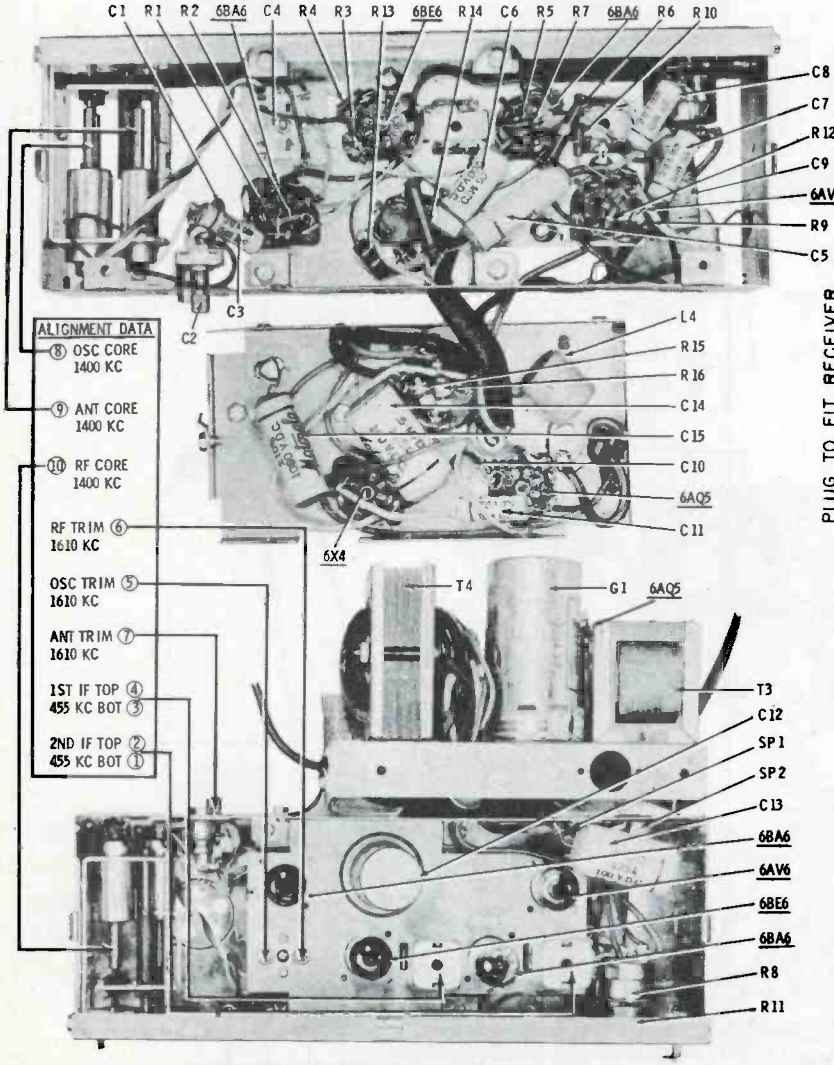
Voltages - Measured from point indicated to chassis with a VTVM. No signal input. ±20%

Input voltage at switch 6.6V

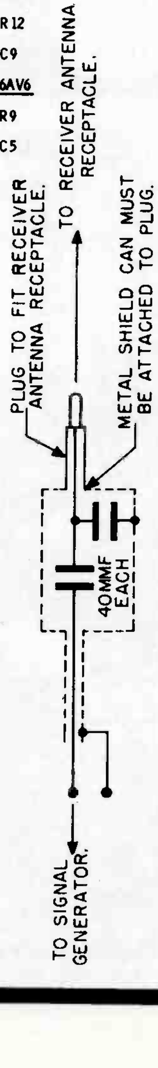
Tuning range - 563 to 1610 Kc

IF - 455 Kc

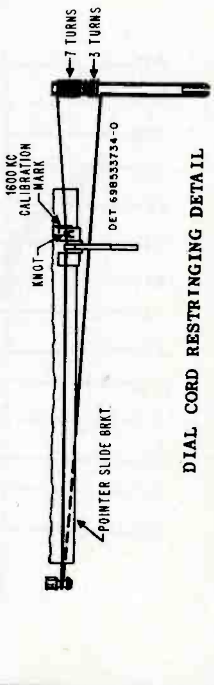

6.6V
F1
14 AMP
SP1
SP2
L1
C1
T4
6X4
RECT


C1
R1
R2
6BA6
C4
R4
R3
R13
6BE6
R14
C6
R5
R7
6BA6
R6
R10
C8
C7
R12
C9
6AV6
R9
C5
C3
C2
ALIGNMENT DATA
⑧ OSC CORE 1400 KC
⑨ ANT CORE 1400 KC
⑩ RF CORE 1400 KC
RF TRIM ⑥ 1610 KC
OSC TRIM ⑤ 1610 KC
ANT TRIM ⑦ 1610 KC
1ST IF TOP ④ 455 KC BOT ③
2ND IF TOP ② 455 KC BOT ①
L4
R15
R16
C14
C15
C10
6AQ5
C11
6X4
T4
G1
6AQ5
T3
C12
SP1
SP2
C13
6BA6
6AV6
6BE6
6BA6
R8
R11

ALIGNMENT ADJUSTMENT & PARTS LOCATION


TO RECEIVER ANTENNA RECEPTACLE.
PLUG TO FIT RECEIVER ANTENNA RECEPTACLE.
METAL SHIELD CAN MUST BE ATTACHED TO PLUG.
40MMF EACH
TO SIGNAL GENERATOR.

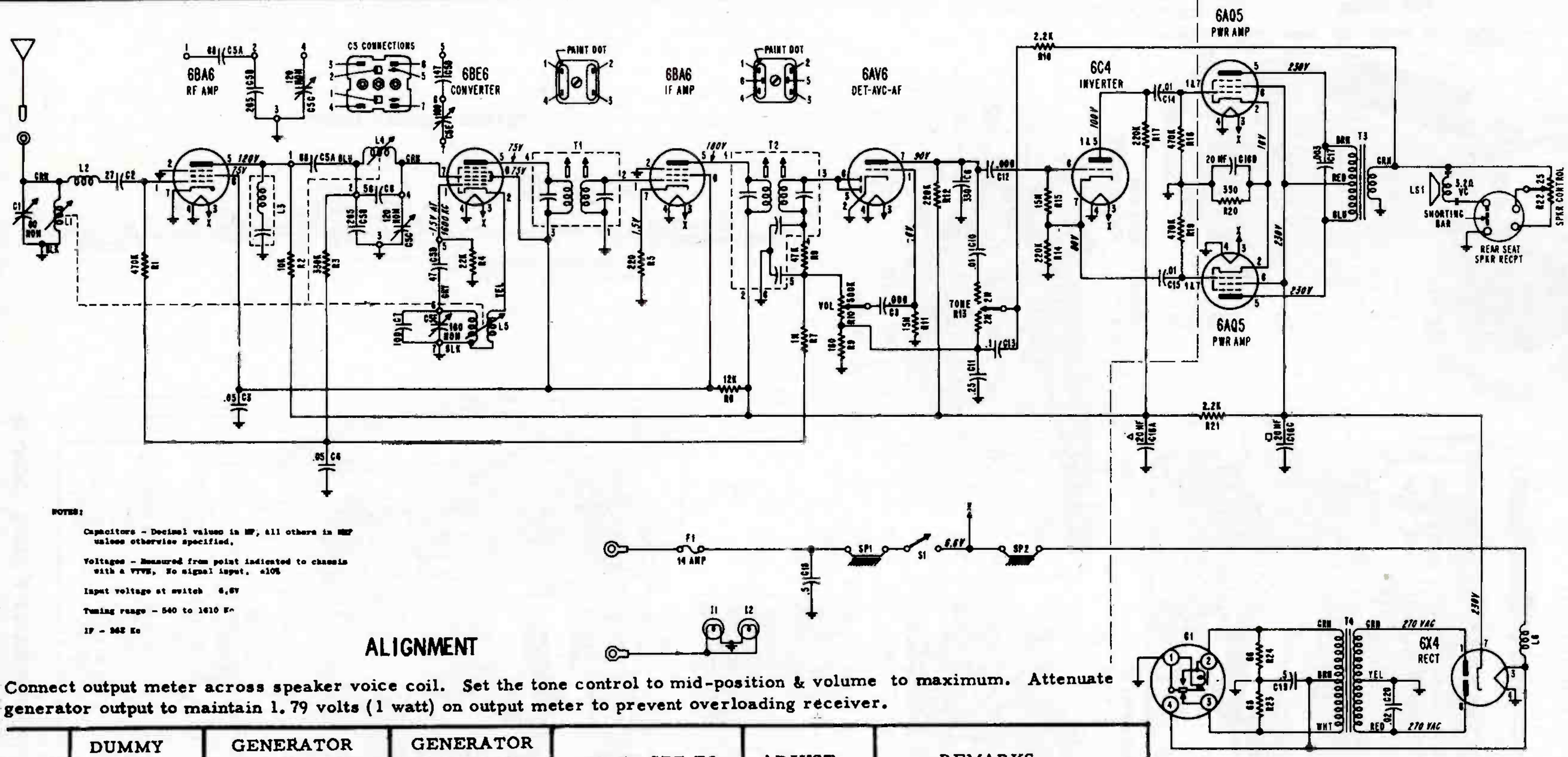
DUMMY ANTENNA DETAIL


7 TURNS
3 TURNS
1600 KC CALIBRATION MARK
KNOT
DET 698533734-0
POINTER SLIDE BRKT.

DIAL CORD RESTRINGING DETAIL

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

MOTOROLA Models MoPar 833, MoPar 834, and MoPar 836


6BA6
RF AMP
6BE6
CONVERTER
C5 CONNECTIONS
PAINT DOT
6BA6
IF AMP
6AV6
DET-AVC-AF
6C4
INVERTER
6AQ5
PWR AMP
6AQ5
PWR AMP
6X4
RECT
T1
T2
T3
T4
LS1
SHORTING BAR
REAR SEAT SPKR RECPT
SPKR CONTROL
VOL
TONE R13
F1
14 AMP
SP1
S1
6.6V
SP2
G1
I1
I2
L1
L2
L3
L4
L5
L6
230V
100V
90V
75V
270 VAC

NOTES:

Capacitors - Decimal values in MF, all others in MMF unless otherwise specified.

Voltages - Measured from point indicated to chassis with a VTVM, No signal input. ±10%

Input voltage at switch 6.6V

Tuning range - 540 to 1610 Kc

IF - 262 Kc

(For Alignment see next page, over.)

GENERAL INFORMATION

Automotive type receivers designed for installation in the following cars:

Model 833 - Dodge D55, D56
Model 834 - DeSoto S21, S22
Model 836 - Plymouth P26, P27

RANGE - 540 to 1600 Kc IF - 262 Kc

ALIGNMENT

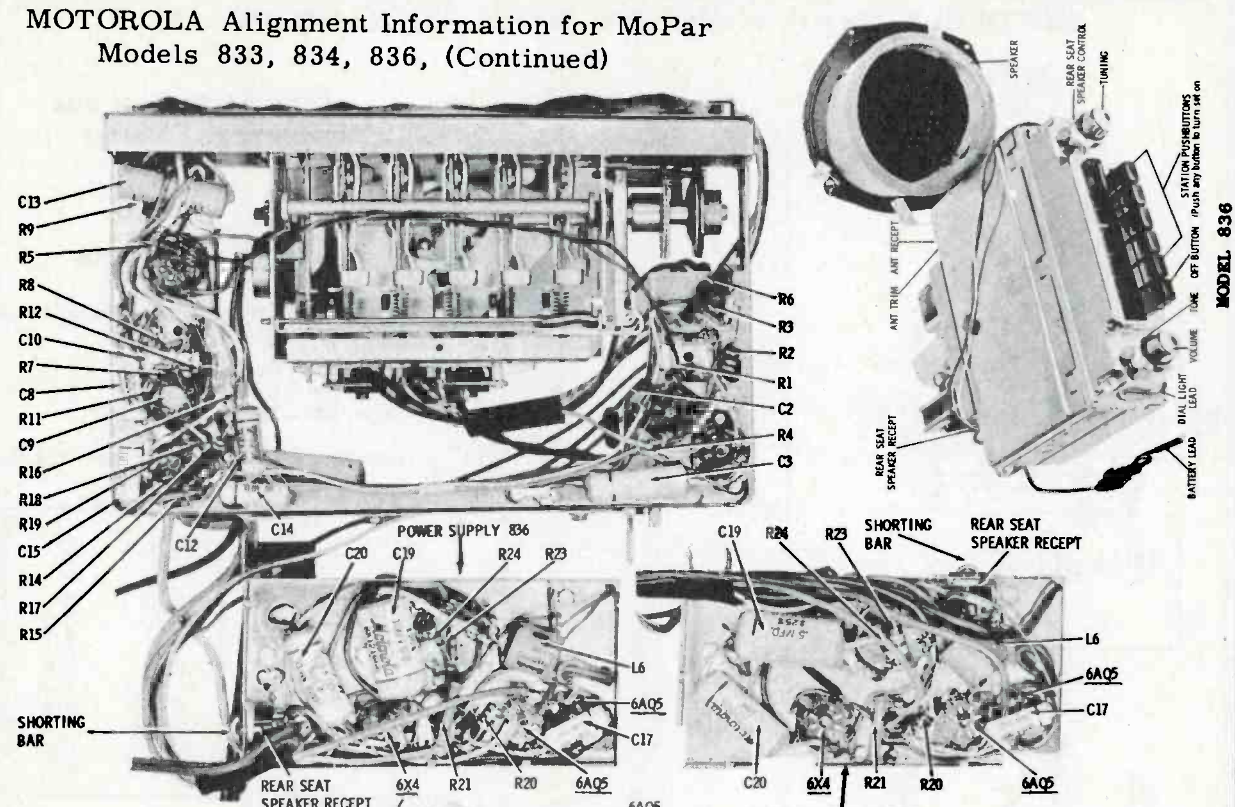
Connect output meter across speaker voice coil. Set the tone control to mid-position & volume to maximum. Attenuate generator output to maintain 1.79 volts (1 watt) on output meter to prevent overloading receiver.

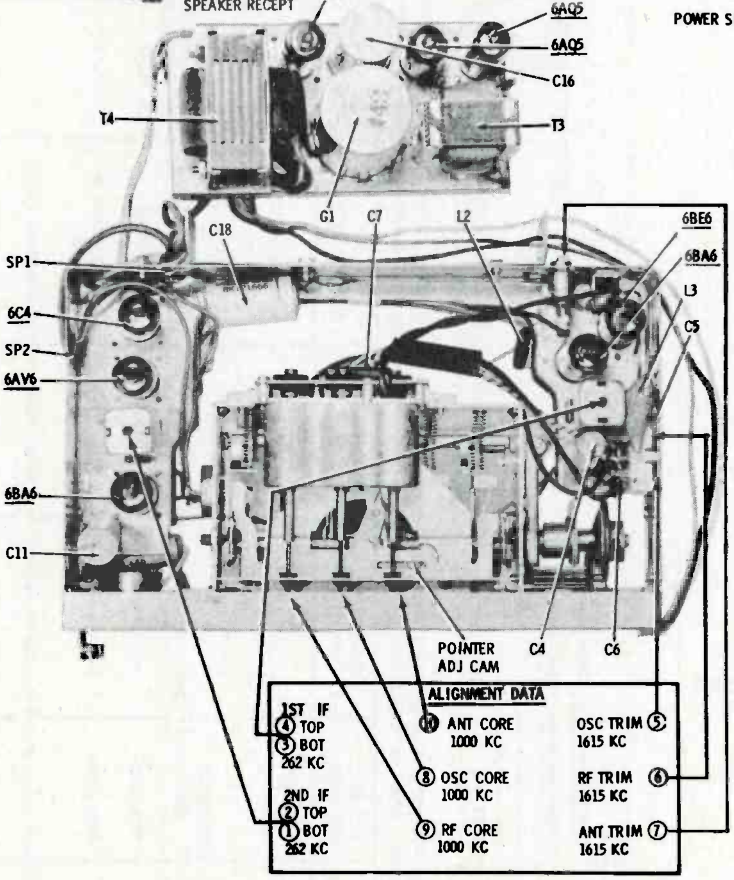
STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	TUNER SET TO	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	6BE6 grid (pin 7) & chassis	262 Kc	Hi end stop	1, 2, 3, 4	Peak for maximum.
RF ALIGNMENT Note: Back tuner cores completely out of coils before proceeding. Remove escutcheon to expose core screws.						
2.	See Fig.	Ant recept	1615 Kc	Hi end stop	5, 6, 7	Peak for maximum.
3.	See Fig.	Ant recept	1000 Kc	25/32" from hi end stop	8, 9, 10	Peak for maximum. Use alignment tool, Part No. 66A76278.
4. Repeat steps 2 and 3 until no further increase, then cement cores in place.						
5.	-	-	-	Weak station around 1400 Kc	7	With radio installed in car, peak ant trimmer.

POINTER CALIBRATION

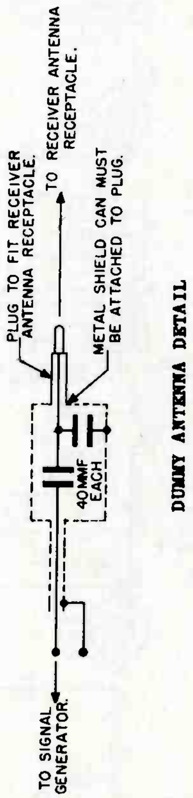
Tune receiver to a 1000 Kc signal and adjust pointer adjusting cam located at the front portion of the core carriage until pointer lines up with calibration mark on dial background.

MOTOROLA Alignment Information for MoPar Models 833, 834, 836, (Continued)


C13
R9
R5
R8
R12
C10
R7
C8
R11
C9
R16
R18
R19
C15
R14
R17
R15
C12
C14
R6
R3
R2
R1
C2
R4
C3
SPEAKER
REAR SEAT SPEAKER CONTROL
TUNING
STATION PUSHBUTTONS (Push any button to turn set on)
OFF BUTTON
TONE
VOLUME
DIAL LIGHT LEAD
BATTERY LEAD
ANT RECEPT
ANT TRIM
REAR SEAT SPEAKER RECEPT
MODEL 836
POWER SUPPLY 836
C20
C19
R24
R23
L6
6AQ5
C17
SHORTING BAR
REAR SEAT SPEAKER RECEPT
6X4
R21
R20
6AQ5
C19
R24
R23
SHORTING BAR
REAR SEAT SPEAKER RECEPT
L6
6AQ5
C17
C20
6X4
R21
R20
6AQ5
POWER SUPPLY 833 & 834


6AQ5
6AQ5
C16
T4
T3
G1
C7
L2
C18
SP1
6C4
SP2
6AV6
6BA6
C11
6BE6
6BA6
L3
C5
POINTER ADJ CAM
C4
C6
ALIGNMENT DATA
1ST IF
④ TOP
③ BOT
262 KC
2ND IF
② TOP
① BOT
262 KC
⑩ ANT CORE
1000 KC
⑧ OSC CORE
1000 KC
⑨ RF CORE
1000 KC
OSC TRIM ⑤
1615 KC
RF TRIM ⑥
1615 KC
ANT TRIM ⑦
1615 KC

ALIGNMENT ADJUSTMENTS & PARTS LOCATION


TO RECEIVER ANTENNA RECEPTACLE.
PLUG TO FIT RECEIVER ANTENNA RECEPTACLE.
METAL SHIELD CAN MUST BE ATTACHED TO PLUG.
40MMF EACH
TO SIGNAL GENERATOR.

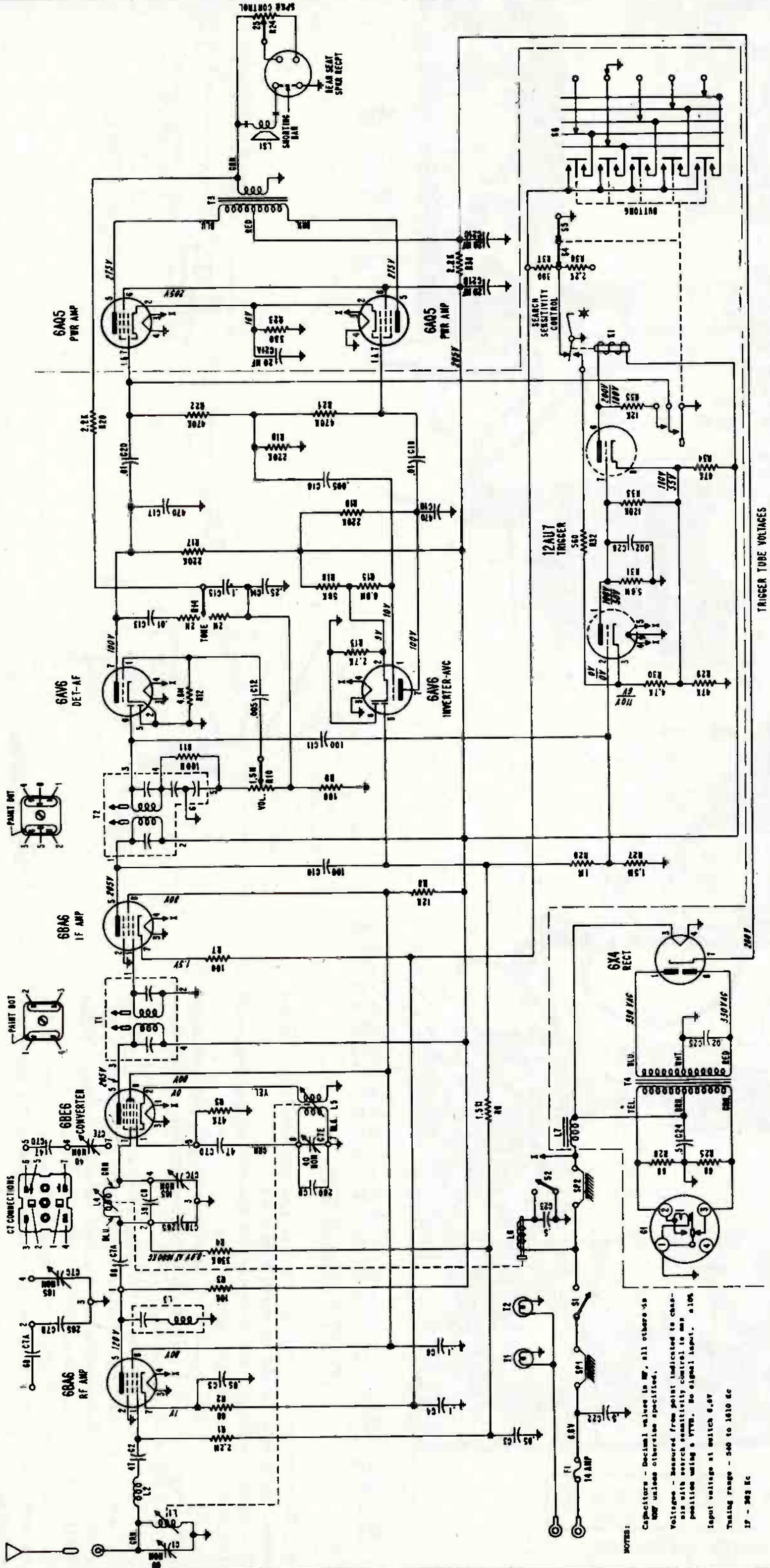
DUMMY ANTENNA DETAIL

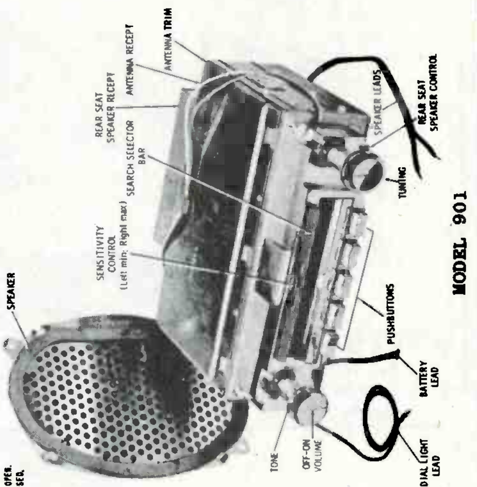
Motorola

MODELS
MoPar 900
MoPar 901

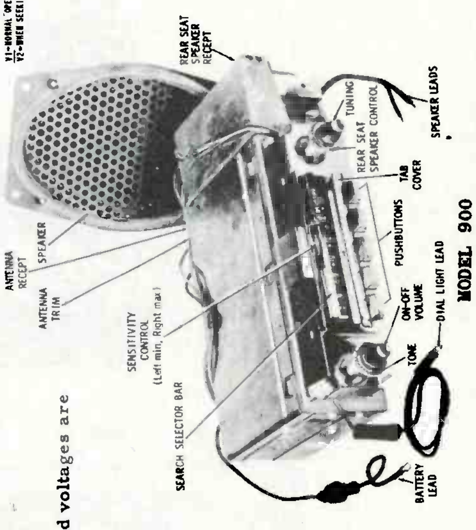
(For Alignment see the next page, over.)

900 for Dodge D55, D56
901 for DeSoto S21, S22


6BA6 RF AMP
6BE6 CONVERTER
6BA6 IF AMP
6AV6 DET-AF
6AV6 INVERTER-AVC
6AQ5 PWR AMP
6AQ5 PWR AMP
12AU7 TRIGGER
6X4 RECT
SEARCH SENSITIVITY CONTROL
BUTTONS
REAR SEAT SPKR RECPT
SPKR CONTROL
SHORTING BAR
TRIGGER TUBE VOLTAGES
V1-NORMAL OPERATION, RELAY K1 OPEN.
V2-WHEN SEEKING, RELAY K1 CLOSED.
PAINT DOT
CT CONNECTIONS


ANTENNA TRIM
ANTENNA RECEPT
REAR SEAT SPEAKER RECEPT
SEARCH SELECTOR BAR
SENSITIVITY CONTROL (Left min; Right max)
SPEAKER
SPEAKER LEADS
REAR SEAT SPEAKER CONTROL
TUNING
PUSHBUTTONS
BATTERY LEAD
DIAL LIGHT LEAD
OFF-ON VOLUME
TONE

MODEL 901


REAR SEAT SPEAKER RECEPT
TUNING
REAR SEAT SPEAKER CONTROL
SPEAKER LEADS
TAB COVER
PUSHBUTTONS
DIAL LIGHT LEAD
ON-OFF VOLUME
TONE
BATTERY LEAD
SPEAKER
ANTENNA RECEPT
ANTENNA TRIM
SENSITIVITY CONTROL (Left min, Right max)
SEARCH SELECTOR BAR

MODEL 900

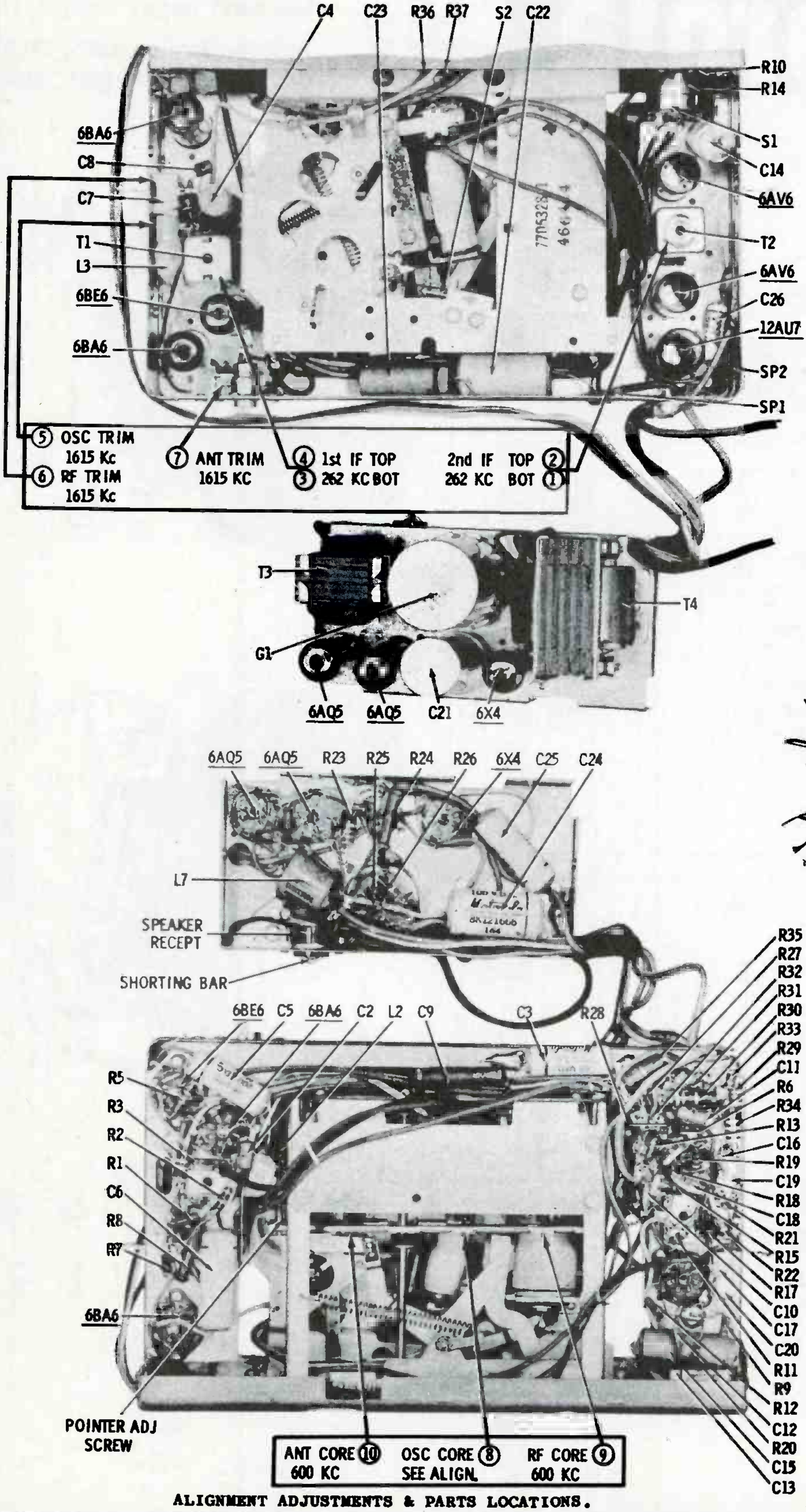
RESISTOR DIFFERENCE

In some sets, the following resistors and voltages are used in place of those shown on schematic:

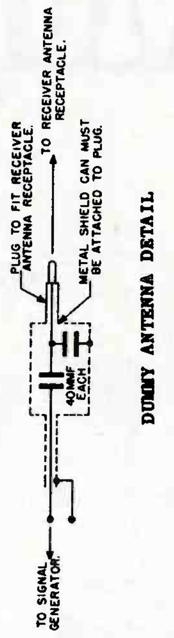
Resistors				
R-13	6R5581	3300	10%	1/2W
R-30	6R490492	6800	20%	1W
R-31	6R3988	3.3 meg	20%	1/2W
R-32	6R6229	1000	10%	1/2W

Voltages
6AV6 Inverter pin 2 12 volts
12AU7 Trigger pin 1 & 7 $\frac{100V}{55V}$
pin 3 $\frac{110V}{7V}$
pin 8 $\frac{100V}{60V}$

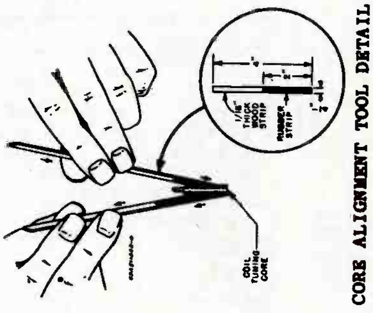
MOTOROLA MoPar 900 and 901 Models, Alignment Information (Continued)


C4
C23
R36
R37
S2
C22
R10
R14
S1
C14
6AV6
T2
6AV6
C26
12AU7
SP2
SP1
6BA6
C8
C7
T1
L3
6BE6
6BA6
⑤ OSC TRIM 1615 Kc
⑥ RF TRIM 1615 Kc
⑦ ANT TRIM 1615 KC
④ 1st IF TOP
③ 262 KC BOT
2nd IF TOP ②
262 KC BOT ①
T3
T4
G1
6AQ5
6AQ5
C21
6X4
6AQ5
6AQ5
R23
R25
R24
R26
6X4
C25
C24
L7
SPEAKER RECEPT
SHORTING BAR
6BE6
C5
6BA6
C2
L2
C9
C3
R28
R35
R27
R32
R31
R30
R33
R29
C11
R6
R34
R13
C16
R19
C19
R18
C18
R21
R15
R22
R17
C10
C17
C20
R11
R9
R12
C12
R20
C15
C13
R5
R3
R2
R1
C6
R8
R7
6BA6
POINTER ADJ SCREW
ANT CORE ⑩ 600 KC
OSC CORE ⑧ SEE ALIGN.
RF CORE ⑨ 600 KC

ALIGNMENT ADJUSTMENTS & PARTS LOCATIONS.


PLUG TO FIT RECEIVER ANTENNA RECEPTACLE.
TO RECEIVER ANTENNA RECEPTACLE.
METAL SHIELD CAN MUST BE ATTACHED TO PLUG.
40MMF EACH
TO SIGNAL GENERATOR.

DUMMY ANTENNA DETAIL

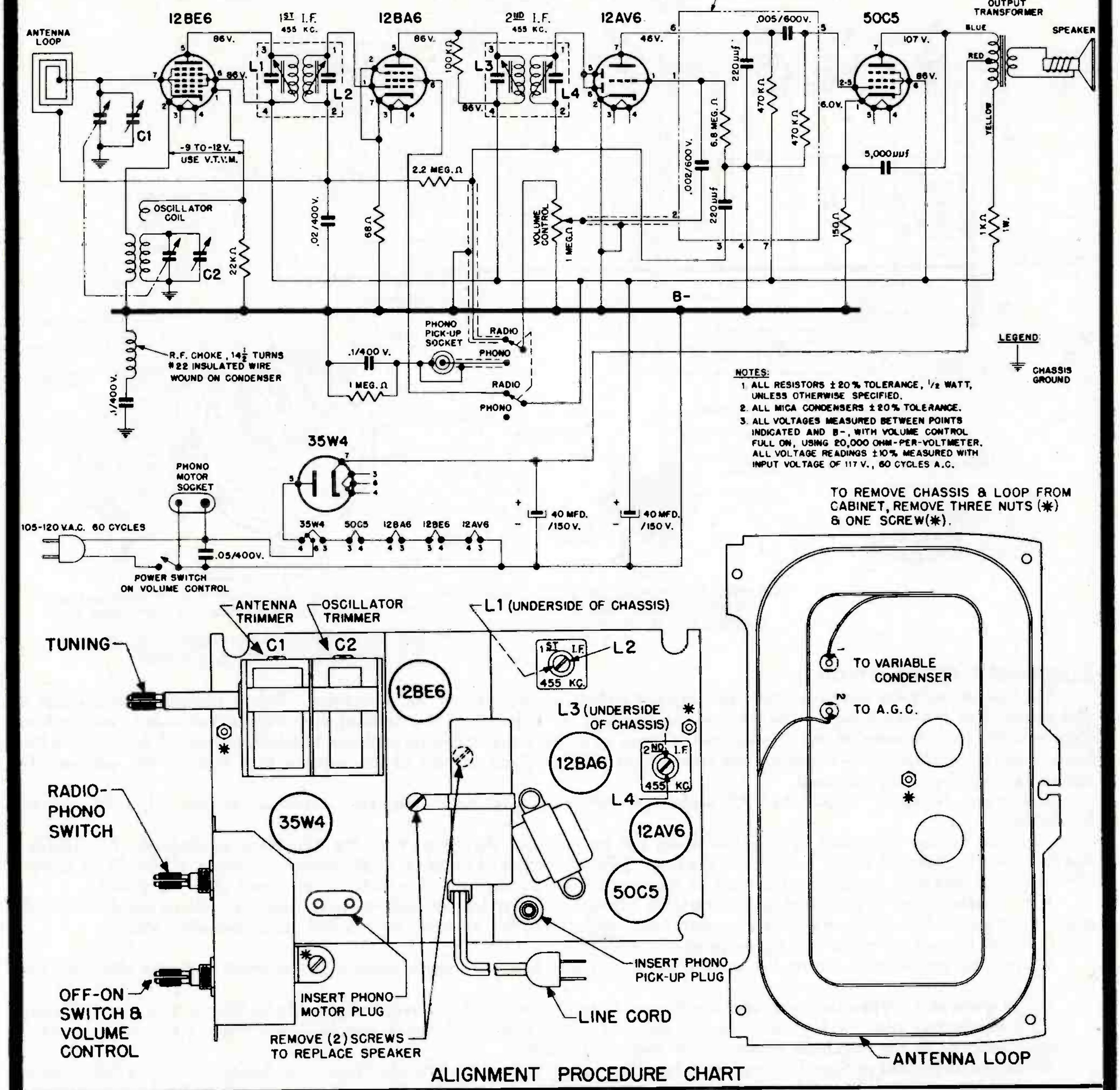

1/16" THICK FIBRE STRIP
RUBBER STRIP
COIL TUNING CORE

CORE ALIGNMENT TOOL DETAIL

TO SET PUSHBUTTONS

1. Turn receiver on and allow to operate for fifteen minutes. Antenna should be fully extended.
2. Open the hinged tab cover below the dial scale, exposing the five red pushbutton setting tabs.
3. Starting at left end of dial, tune in manually first desired station and move the first pushbutton setting tab until it lines up with the dial pointer tip.
4. Repeat step 3 for the remaining pushbutton setting tabs.
5. Check the settings of each pushbutton setting tab by depressing the corresponding station selector button. If the station is not tuned in exactly, readjust the tab.
6. Pushbutton setting should be done in sequence from left to right, using the pushbutton setting tabs in the same sequence.

OLYMPIC RADIO MODEL 401


PRINTED CIRCUIT "AUDET" CENTRALAB PC-150
ANTENNA LOOP
12BE6
1ST I.F. 455 KC.
12BA6
2ND I.F. 455 KC.
12AV6
50C5
OUTPUT TRANSFORMER
SPEAKER
BLUE
RED
YELLOW
86 V.
86 V.
86 V.
46 V.
107 V.
86 V.
6.0 V.
L1
L2
L3
L4
C1
C2
-9 TO -12 V. USE V.T.V.M.
OSCILLATOR COIL
22K Ω
120K Ω
.005/600 V.
220 μμf
470 K Ω
470 K Ω
6.8 MEG. Ω
.002/600 V.
220 μμf
5,000 μμf
150 Ω
1K Ω 1W.
2.2 MEG. Ω
.02/400 V.
68 Ω
VOLUME CONTROL 1 MEG. Ω
B-
R.F. CHOKE, 14½ TURNS #22 INSULATED WIRE WOUND ON CONDENSER
.1/400 V.
.1/400 V.
1 MEG. Ω
PHONO PICK-UP SOCKET
RADIO
PHONO
RADIO
PHONO
35W4
PHONO MOTOR SOCKET
105-120 V.A.C. 60 CYCLES
.05/400 V.
POWER SWITCH ON VOLUME CONTROL
35W4 50C5 12BA6 12BE6 12AV6
40 MFD. /150 V.
40 MFD. /150 V.
LEGEND:
CHASSIS GROUND
ANTENNA TRIMMER
OSCILLATOR TRIMMER
TUNING
C1
C2
12BE6
L1 (UNDERSIDE OF CHASSIS)
L2
1ST I.F. 455 KC.
L3 (UNDERSIDE OF CHASSIS)
2ND I.F. 455 KC.
L4
12BA6
12AV6
50C5
35W4
RADIO-PHONO SWITCH
OFF-ON SWITCH & VOLUME CONTROL
INSERT PHONO MOTOR PLUG
REMOVE (2) SCREWS TO REPLACE SPEAKER
LINE CORD
INSERT PHONO PICK-UP PLUG
TO VARIABLE CONDENSER
TO A.G.C.
ANTENNA LOOP

NOTES:
1. ALL RESISTORS ±20% TOLERANCE, ½ WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ±20% TOLERANCE.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON, USING 20,000 OHM-PER-VOLTMETER. ALL VOLTAGE READINGS ±10% MEASURED WITH INPUT VOLTAGE OF 117 V., 60 CYCLES A.C.

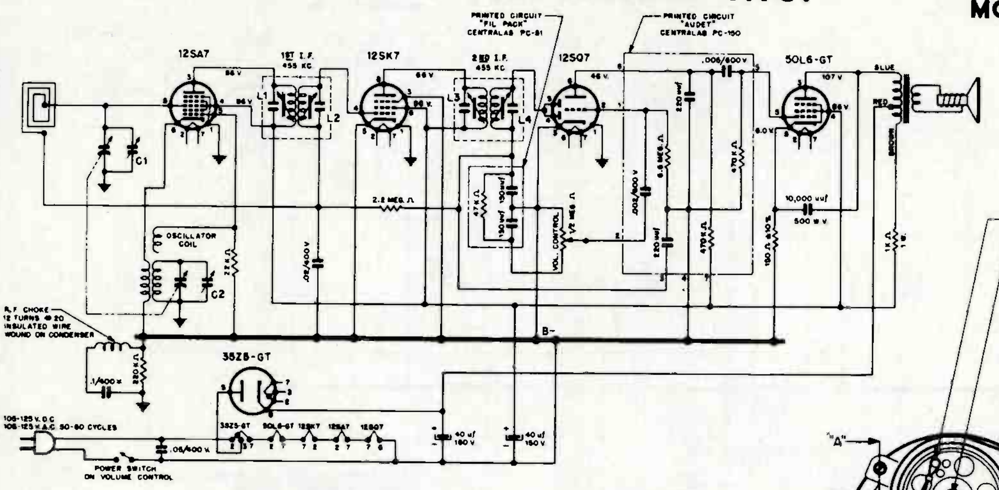
TO REMOVE CHASSIS & LOOP FROM CABINET, REMOVE THREE NUTS (✻) & ONE SCREW (✻).

ALIGNMENT PROCEDURE CHART

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO-	SET SIGNAL GENERATOR TO-	TURN RECEIVER DIAL TO-	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)
1	ANTENNA SECTION TUNING CONDENSER IN SERIES WITH .1 MFD. COND.	455 KC.	FULL COUNTER-CLOCKWISE POSITION. (CONDENSER PLATES FULLY OPEN)	L4, L3, L2, L1 AND REPEAT IN SAME ORDER (1ST. AND 2ND. I.F. TRANSFORMERS)
2	USE RADIATED SIGNAL	1620 KC.		C2 (OSCILLATOR TRIMMER)
3		1500 KC.	MAXIMUM SIGNAL APPROX. 1500 KC.	C1 (ANTENNA TRIMMER)
4		REPEAT STEPS 2 AND 3		

OLYMPIC RADIO & TELEVISION INC.

OLYMPIC RADIO
MODEL 441

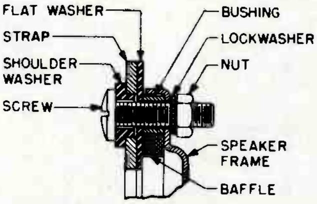

PRINTED CIRCUIT "FIL PACK" CENTRALAB PC-81
PRINTED CIRCUIT "AUDET" CENTRALAB PC-150
12SA7
1ST I.F. 455 KC
12SK7
2ND I.F. 455 KC
12SQ7
50L6-GT
86 V
L1
L2
L3
L4
C1
C2
46 V
.006/600 V
107 V
BLUE
RED
BROWN
6.0 V
2.2 MEG. Ω
47 K Ω
150 uuf
OSCILLATOR COIL
22 K Ω
.02/400 V
VOL. CONTROL 1/2 MEG. Ω
.002/600 V
220 uuf
6.8 MEG. Ω
470 K Ω
10,000 uuf 500 W V
180 Ω ±10%
1K Ω 1 W
B−
R.F. CHOKE 12 TURNS #20 INSULATED WIRE WOUND ON CONDENSER
220 K Ω
.1/400 V
35Z5-GT
105-125 V. D.C
105-125 V. A.C 50-60 CYCLES
35Z5-GT
50L6-GT
12SK7
12SA7
12SQ7
.05/400 V
40 uf 150 V
POWER SWITCH ON VOLUME CONTROL

LEGEND:

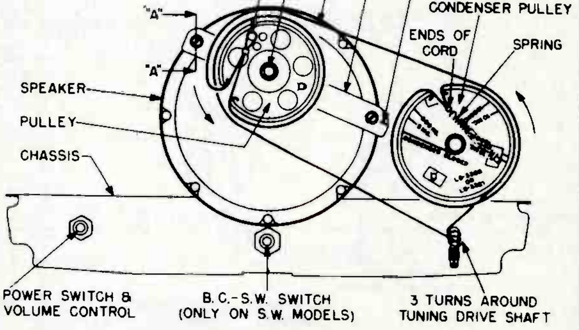
CHASSIS GROUND

NOTES:

1. ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ±20% TOLERANCE.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B−, WITH VOLUME CONTROL FULL ON, USING 20,000 OHM-PER-VOLT METER. ALL VOLTAGE READINGS ±10%, MEASURED WITH INPUT VOLTAGE OF 117 V., 60 CYCLES A.C.


FLAT WASHER
STRAP
SHOULDER WASHER
SCREW
BUSHING
LOCKWASHER
NUT
SPEAKER FRAME
BAFFLE

ENLARGED SECTION VIEW THRU "A-A"
SHOWING DIAL SHAFT STRAP
ASSEMBLY, MOUNTED TO SPEAKER.


STUD
DIAL POINTER SHAFT
DIAL CORD
STRAP
ALIGNMENT LINE ON STRAP
CALIBRATION LABEL ON VARIABLE CONDENSER PULLEY
ENDS OF CORD
SPRING
"A"
"A"
SPEAKER
PULLEY
CHASSIS
D
POWER SWITCH & VOLUME CONTROL
B.C.-S.W. SWITCH (ONLY ON S.W. MODELS)
3 TURNS AROUND TUNING DRIVE SHAFT

FRONT VIEW OF CHASSIS SHOWING STRINGING OF DIAL CORD
WITH VARIABLE CONDENSER FULLY CLOSED.

ALIGNMENT INSTRUCTIONS:

The chassis must be removed from the cabinet before alignment can be performed. Before removing chassis pull off dial pointer and the two knobs at the front of the cabinet. At the rear of the cabinet, remove the two screws at the lower right and left hand corners of the chassis apron; these screws are accessible through the notched corners of the antenna loop back. Also remove the screws holding the upper right and left hand corners of the antenna loop back to the cabinet. The chassis can then be easily removed.

Equipment required: Modulated RF signal generator; output meter; insulated screw-driver. two .1 mfd 400 volt condensers.

To insure proper alignment, a radiated signal will be required during part of the alignment procedure. To radiate a signal, connect a loop of about 6 inches in diameter (one turn of #14 or #12 wire) across the output of the signal generator, and place this loop parallel to the loop of the receiver to be aligned, at a distance of about 10 or 12 inches.

A calibration chart is provided on the variable condenser pulley for convenience in setting the variable condenser to the alignment frequencies. These markings are referenced against the line stamped on the dial pulley mounting strap.

Connect the output meter and signal generator as follows:

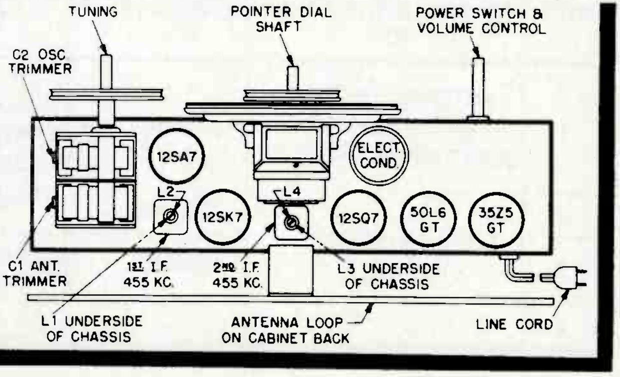
Output meter: Connect across the speaker voice coil and turn the volume control to maximum (extreme clockwise position).

Signal generator: When the generator is not used to radiate a signal, connect the low side to the receiver chassis through a .1 mfd condenser, clip the high side to the point at which signal injection is required, and keep the output as low as possible. Proceed in the sequence shown in the alignment chart.

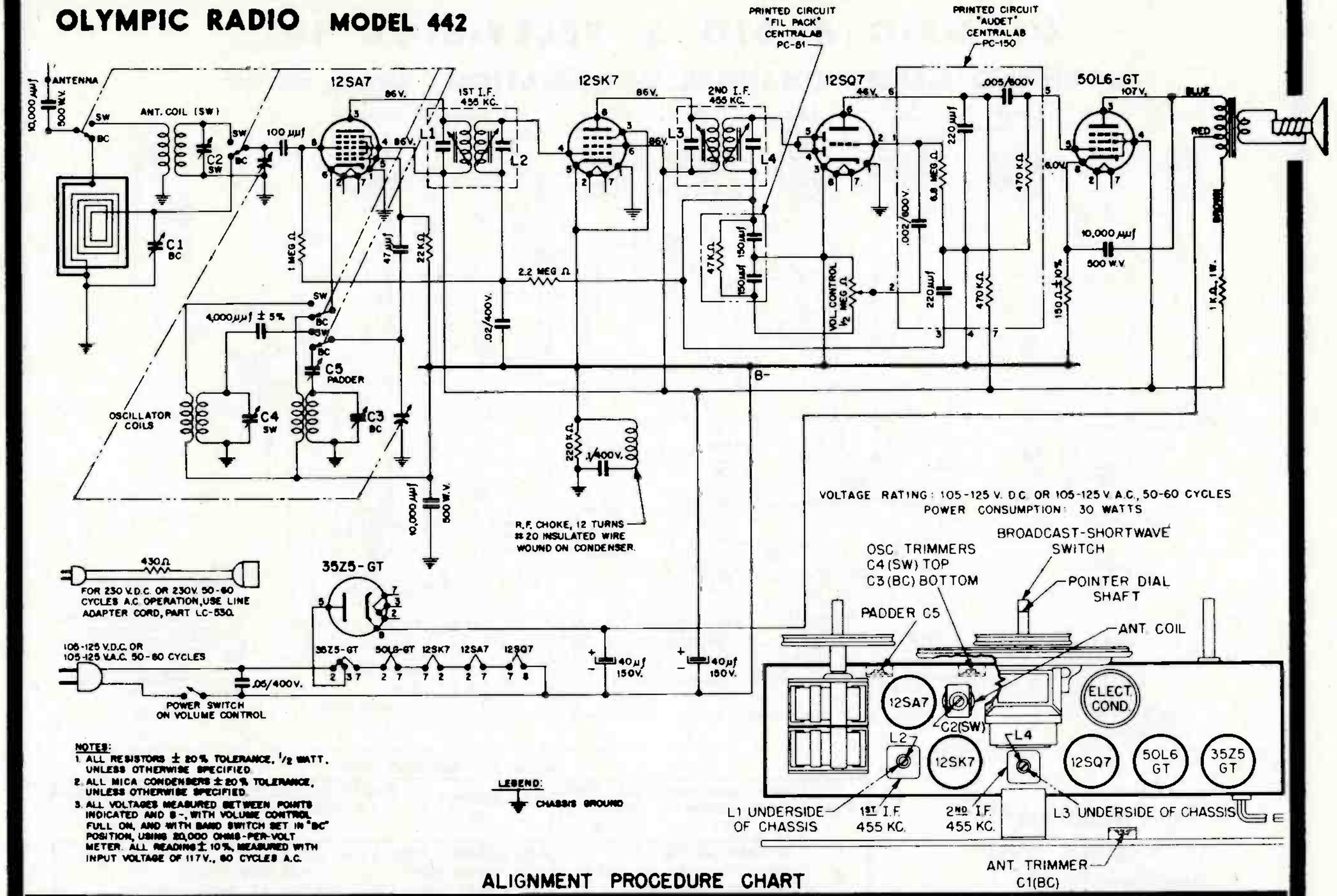
When the alignment process is completed, turn the tuning knob shaft until the tuning condenser plates are fully meshed. Replace the chassis inside the cabinet, insert and tighten the screws previously removed, and assemble the two knobs on their shafts at the front panel. With the condenser plate fully meshed place the dial pointer on its shaft so that it points directly to the horizontal line at the "55" end of the dial.

ALIGNMENT PROCEDURE CHART

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO-	SET SIGNAL GENERATOR TO-	TURN RECEIVER DIAL TO-	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)
1	ANTENNA SECTION TUNING CONDENSER IN SERIES WITH .1 MFD. COND.	455 KC.	FULL CLOCKWISE POSITION. (CONDENSER PLATES FULLY OPEN)	L4, L3, L2, L1 AND REPEAT IN SAME ORDER (1ST AND 2ND I.F. TRANSFORMERS)
2	USE RADIATED SIGNAL	1500 KC.	1500 KC. ON CALIBRATION LABEL (150 ON DIAL)	C2 (OSCILLATOR TRIMMER)
3		1500 KC	MAXIMUM SIGNAL APPROX. 1500 ON CALIBRATION LABEL (150 ON DIAL)	C1 (ANTENNA TRIMMER)
4		REPEAT STEPS 2 AND 3		


TUNING
POINTER DIAL SHAFT
POWER SWITCH & VOLUME CONTROL
C2 OSC TRIMMER
12SA7
ELECT. COND.
L2
L4
12SK7
12SQ7
50L6 GT
35Z5 GT
C1 ANT. TRIMMER
1ST I.F. 455 KC.
2ND I.F. 455 KC.
L3 UNDERSIDE OF CHASSIS
L1 UNDERSIDE OF CHASSIS
ANTENNA LOOP ON CABINET BACK
LINE CORD

OLYMPIC RADIO MODEL 442


PRINTED CIRCUIT "FIL PACK" CENTRALAB PC-61
PRINTED CIRCUIT "AUDET" CENTRALAB PC-150
ANTENNA
10,000 μμf 500 W.V.
SW
BC
ANT. COIL (SW)
C2 SW
100 μμf
12SA7
86V.
1ST I.F. 455 KC.
L1
L2
12SK7
86V.
2ND I.F. 455 KC.
L3
L4
12SQ7
46V.
.005/600V
50L6-GT
107V.
BLUE
RED
BROWN
C1 BC
1 MEG Ω
47 μμf
22 KΩ
2.2 MEG Ω
.02/400V.
47 KΩ
150 μμf
150 μμf
VOL. CONTROL ½ MEG Ω
.002/600V.
6.8 MEG Ω
220 μμf
220 μμf
470 KΩ
470 KΩ
6.0V.
10,000 μμf 500 W.V
150 Ω ± 10%
1 KΩ, 1W.
4,000 μμf ± 5%
C5 PADDER
B-
OSCILLATOR COILS
C4 SW
C3 BC
220 KΩ
.1/400V.
10,000 μμf 500 W.V.
R.F. CHOKE, 12 TURNS #20 INSULATED WIRE WOUND ON CONDENSER.
430 Ω
FOR 230 V.D.C. OR 230V. 50-60 CYCLES A.C. OPERATION, USE LINE ADAPTER CORD, PART LC-530.
35Z5-GT
105-125 V.D.C. OR 105-125 V.A.C. 50-60 CYCLES
35Z5-GT 50L6-GT 12SK7 12SA7 12SQ7
.05/400V.
POWER SWITCH ON VOLUME CONTROL
40 μf 150V.
40 μf 150V.
OSC TRIMMERS C4 (SW) TOP C3 (BC) BOTTOM
BROADCAST-SHORTWAVE SWITCH
POINTER DIAL SHAFT
PADDER C5
ANT. COIL
12SA7
C2 (SW)
ELECT COND.
L2
L4
12SK7
12SQ7
50L6 GT
35Z5 GT
L1 UNDERSIDE OF CHASSIS
1ST I.F. 455 KC.
2ND I.F. 455 KC.
L3 UNDERSIDE OF CHASSIS
ANT. TRIMMER C1 (BC)

VOLTAGE RATING: 105-125 V. D.C. OR 105-125 V. A.C., 50-60 CYCLES
POWER CONSUMPTION: 30 WATTS

NOTES:
1. ALL RESISTORS ± 20% TOLERANCE, ½ WATT, UNLESS OTHERWISE SPECIFIED
2. ALL MICA CONDENSERS ± 20% TOLERANCE, UNLESS OTHERWISE SPECIFIED
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON, AND WITH BAND SWITCH SET IN "BC" POSITION, USING 20,000 OHMS-PER-VOLT METER. ALL READING ± 10%, MEASURED WITH INPUT VOLTAGE OF 117 V., 60 CYCLES A.C.

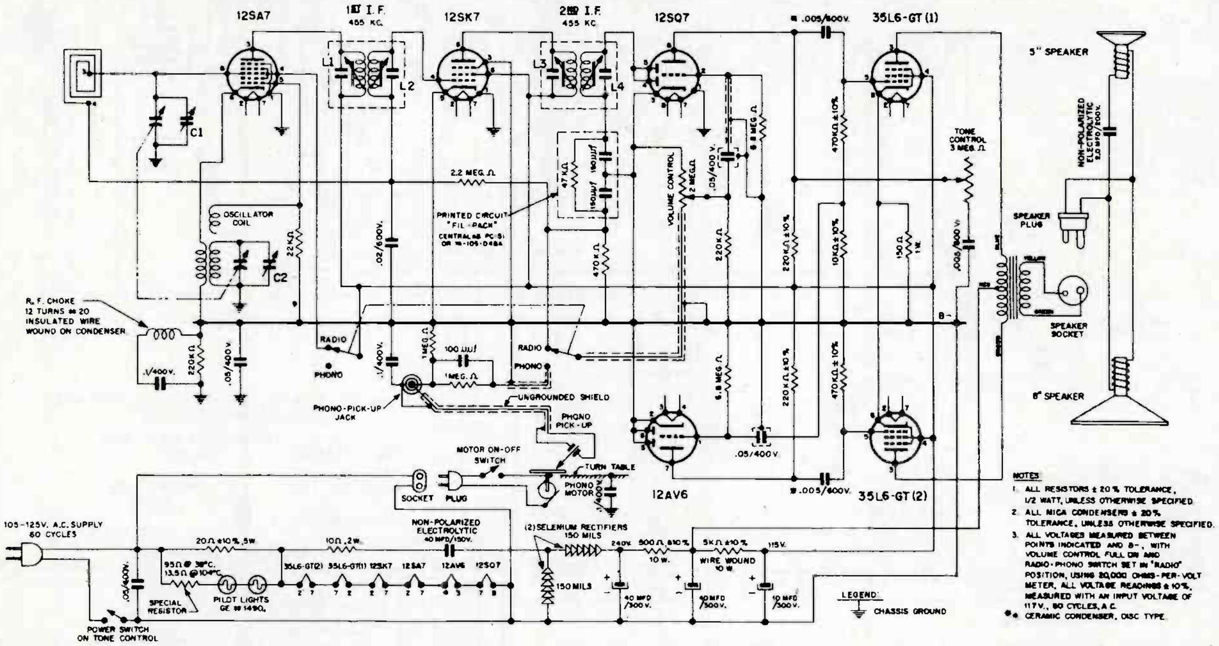
LEGEND:
CHASSIS GROUND

ALIGNMENT PROCEDURE CHART

STEP		CONNECT HIGH SIDE OF SIGNAL GENERATOR TO—	SET SIGNAL GENERATOR TO—	TURN RECEIVER DIAL TO—	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE).
1	B.C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 4 OF THE 12SK7 TUBE IN SERIES WITH A .1 MFD. 400 VOLT CONDENSER.	455 KC.	FULL CLOCKWISE POSITION (CONDENSER PLATES FULLY OPEN).	L4 AND L3 (2ND. I.F. TRANSFORMER)
2	B.C.	R.F. SECTION OF VARIABLE CONDENSER OR PIN 8 OF THE 12SA7 TUBE IN SERIES WITH A .1 MFD. 400 VOLT CONDENSER.	455 KC.	FULL CLOCKWISE POSITION (CONDENSER PLATES FULLY OPEN).	L2 AND L1 (1ST. I.F. TRANSFORMER)
3	B.C.	REPEAT STEPS 1 AND 2			
4	B.C.	USE RADIATED SIGNAL (CONNECT BOTH SIDES OF SIGNAL GENERATOR TO RADIATION LOOP).	1500 KC.	1500 KC. ON CALIBRATION LABEL (150 ON DIAL)	C3 (OSCILLATOR TRIMMER)
5	B.C.		1500 KC.	MAXIMUM SIGNAL 1500 KC. ON CALIBRATION LABEL	C1 (ANTENNA TRIMMER)
6	B.C.		600 KC.	MAXIMUM SIGNAL 600 KC. ON CALIBRATION LABEL	C5 (PADDER) ROCK VARIABLE FOR MAXIMUM SIGNAL
7	B.C.	REPEAT STEPS 4, 5, AND 6			
8	S.W.	ANTENNA WIRE ON LOOP IN SERIES WITH A 400 OHM CARBON RESISTOR.	15 MC.	15 MC. ON CALIBRATION LABEL	C4 (OSCILLATOR TRIMMER) SECOND PEAK FROM TIGHT POSITION C2 (ANTENNA TRIMMER). WHILE ADJUSTING C2, ROCK VARIABLE FOR MAXIMUM SIGNAL.
9	S.W.		5 MC.	RESONANCE (APPROX. 5 MC. ON CALIBRATION LABEL)	5 MC. CALIBRATION LINE (AT RESONANCE) COINCIDES WITH ALIGNMENT LINE ON STRAP. IF NOT REPEAT STEP 8.

OLYMPIC RADIO & TELEVISION INC.

AM-PHONO 3-SPEED CHANGER COMBINATION MODEL HF 500


12SA7
1ST I.F. 455 KC.
12SK7
2ND I.F. 455 KC
12SQ7
✱ .005/600V.
35L6-GT (1)
5" SPEAKER
L1
L2
L3
L4
C1
C2
2.2 MEG. Ω
47 KΩ
150 µµf
150 µµf
PRINTED CIRCUIT "FIL-PACK" CENTRALAB PC-51 OR ✱-105-046A
OSCILLATOR COIL
22 KΩ
.02/600V.
470 KΩ
VOLUME CONTROL 2 MEG Ω
.05/400 V.
6.8 MEG Ω
470 KΩ ± 10%
TONE CONTROL 3 MEG. Ω
NON-POLARIZED ELECTROLYTIC 2.0 MFD/200V.
SPEAKER PLUG
220 KΩ
220 KΩ ± 10%
10 KΩ ± 10%
150 Ω 1 W.
.005/600 V✱
SPEAKER SOCKET
B-
R. F. CHOKE 12 TURNS # 20 INSULATED WIRE WOUND ON CONDENSER
.1/400 V.
220 KΩ
.05/400V
RADIO
PHONO
.1/400V.
1 MEG Ω
100 µµf
1 MEG. Ω
PHONO-PICK-UP JACK
UNGROUNDED SHIELD
PHONO PICK-UP
6.8 MEG Ω
220 KΩ ± 10%
470 KΩ ± 10%
8" SPEAKER
MOTOR ON-OFF SWITCH
TURN TABLE
PHONO MOTOR
.1/400V
SOCKET
PLUG
12AV6
.05/400 V
✱ .005/600V.
35L6-GT (2)
105-125V. A.C. SUPPLY 60 CYCLES
20 Ω ± 10% 5W
10 Ω .2W.
NON-POLARIZED ELECTROLYTIC 40 MFD/150V.
(2) SELENIUM RECTIFIERS 150 MILS
240V.
500 Ω ± 10% 10 W.
5K Ω ± 10% WIRE WOUND 10 W.
115V.
95 Ω @ 38°C. 13.5 Ω @ 104°C
SPECIAL RESISTOR
PILOT LIGHTS GE # 1490.
35L6-GT(2)
35L6-GT(1)
12SK7
12SA7
12AV6
12SQ7
.05/400V.
150 MILS
40 MFD /300 V.
40 MFD /300 V.
10 MFD /300 V.
POWER SWITCH ON TONE CONTROL
LEGEND:
CHASSIS GROUND

NOTES

1. ALL RESISTORS ± 20 % TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ± 20 % TOLERANCE, UNLESS OTHERWISE SPECIFIED.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON AND RADIO-PHONO SWITCH SET IN "RADIO" POSITION, USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ± 10%. MEASURED WITH AN INPUT VOLTAGE OF 117 V., 60 CYCLES, A.C.

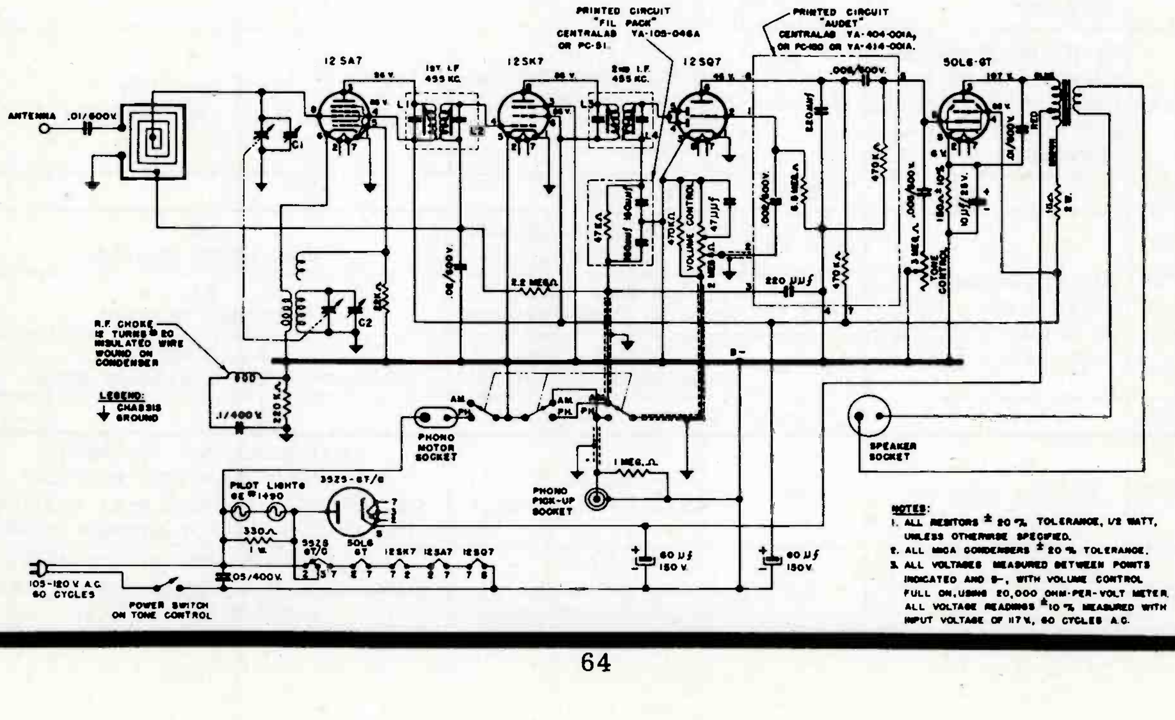
✱ CERAMIC CONDENSER, DISC TYPE.

This alignment procedure chart applies to all models listed on this page.

ALIGNMENT PROCEDURE CHART

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO -	SET SIGNAL GENERATOR TO -	TURN RECEIVER DIAL TO -	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE)
1	ANTENNA SECTION TUNING CONDENSER IN SERIES WITH .1 MFD. COND.	455 KC.	FULL CLOCKWISE POSITION (CONDENSER PLATES FULLY OPEN)	L 4, L 3, L 2, L 1 AND REPEAT IN SAME ORDER (1ST AND 2ND. I.F. TRANSFORMERS)
2	USE RADIATED SIGNAL	1500 KC.	1500 KC. (150 ON DIAL)	C 2 (OSCILLATOR)
3		1500 KC	MAXIMUM SIGNAL (APPROX. 150 ON DIAL)	C 1 (ANTENNA)
4		REPEAT STEPS 2 AND 3		

OLYMPIC AM-Phono Combination, Models 571 and 573


PRINTED CIRCUIT "FIL PACK" CENTRALAB YA-105-046A OR PC-51
PRINTED CIRCUIT "AUDET" CENTRALAB YA-404-001A, OR PC-180 OR YA-414-001A.
12 SA7
96 V.
1ST I.F. 455 KC.
12SK7
96 V.
2ND I.F. 455 KC.
12SQ7
46 V.
.005/600V.
50L6-GT
107 V.
ANTENNA
.01/600V.
C1
L1
L2
L3
L4
220 µµf
470 KΩ
47 KΩ
150 µµf
150 µµf
470 KΩ
VOLUME CONTROL 2 MEG Ω
47 µµf
.005/600V.
6.8 MEG Ω
.005/600 V.
150 Ω ± 10%
10 µf/25V.
.01/600 V.
RED
15 Ω 2 W.
.02/600V.
2.2 MEG Ω
C2
220 µµf
470 KΩ
3 MEG Ω TONE CONTROL
6 V.
R.F. CHOKE 12 TURNS # 20 INSULATED WIRE WOUND ON CONDENSER
B-
LEGEND:
CHASSIS GROUND
.1/400 V.
220 KΩ
AM
PH.
PHONO MOTOR SOCKET
SPEAKER SOCKET
1 MEG. Ω
PILOT LIGHTS GE # 1490
35Z5-GT/G
PHONO PICK-UP SOCKET
330 Ω 1 W.
35Z5 GT/G
50L6 GT
12SK7
12SA7
12SQ7
60 µf 150 V
60 µf 150V
105-120 V A.C. 60 CYCLES
.05/400V.
POWER SWITCH ON TONE CONTROL

NOTES:

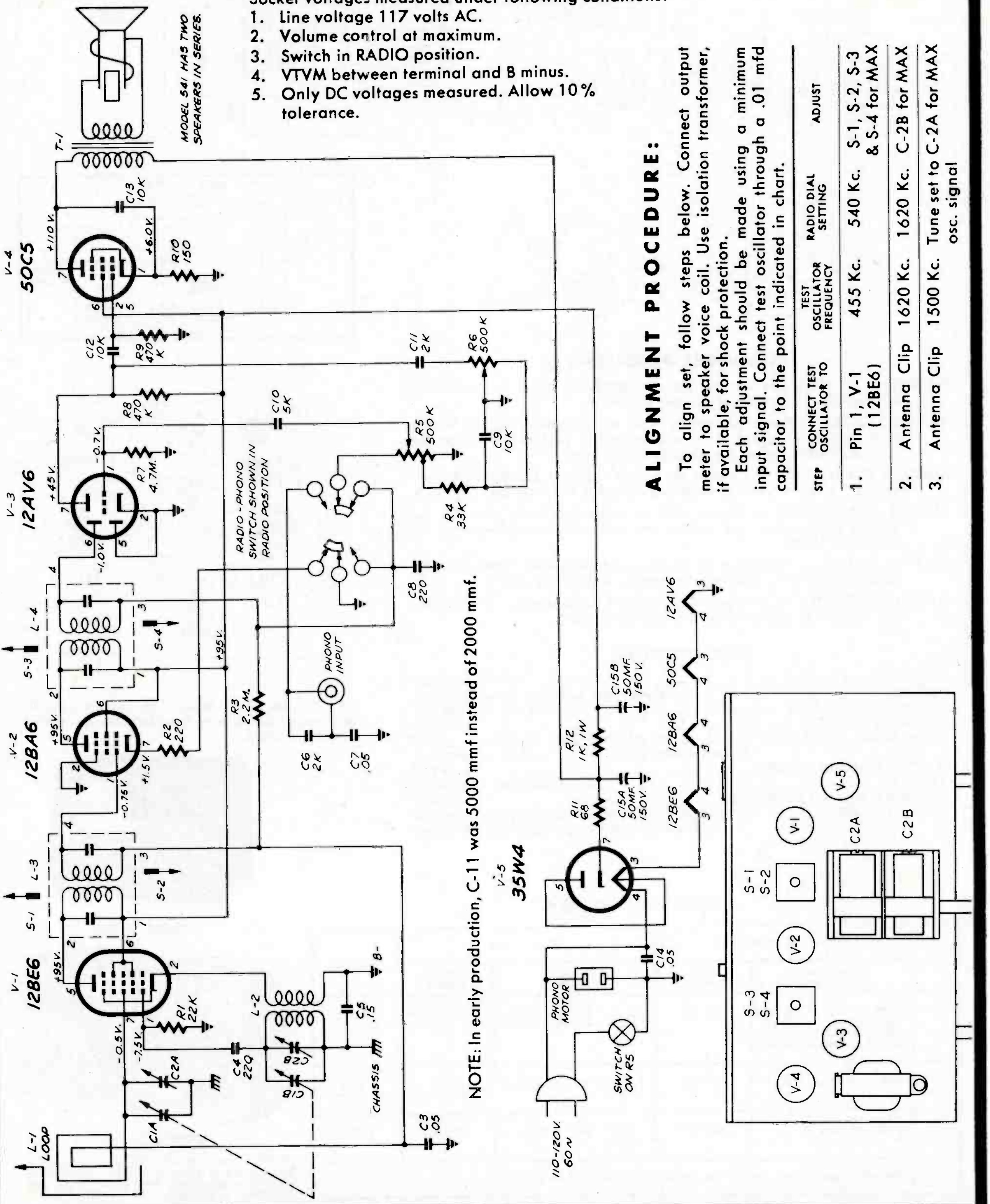
1. ALL RESITORS ± 20 % TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ± 20 % TOLERANCE.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON, USING 20,000 OHM-PER-VOLT METER. ALL VOLTAGE READINGS ± 10 % MEASURED WITH INPUT VOLTAGE OF 117 V., 60 CYCLES A.C.

Packard-Bell

MODEL 541 RADIO-PHONO
MODEL 543 CHAIRSIDE RADIO

Socket voltages measured under following conditions:

1. Line voltage 117 volts AC.
2. Volume control at maximum.
3. Switch in RADIO position.
4. VTVM between terminal and B minus.
5. Only DC voltages measured. Allow 10% tolerance.


MODEL 541 HAS TWO SPEAKERS IN SERIES.
T-1
C13 10K
+110 V.
+6.0 V.
R10 150
V-4 50C5
C12 10K
R9 470K
C11 2K
R6 500K
R8 470K
C10 5K
R5 500K
C9 10K
R4 33K
V-3 12AV6
+45 V.
-0.7 V.
R7 4.7M.
-1.0 V.
RADIO-PHONO SWITCH SHOWN IN RADIO POSITION
C8 220
L-4
S-3
S-4
+95 V.
PHONO INPUT
R3 2.2 M.
C6 2K
C7 .05
V-2 12BA6
+95 V.
R2 220
+1.5 V.
-0.75 V.
L-3
S-1
S-2
V-1 12BE6
+95 V.
-0.5 V.
-7.5 V.
R1 22K
L-2
C5 .15
B-
C4 22Q
C2B
C2A
C1B
C1A
CHASSIS
L-1 LOOP
C3 .05
V-5 35W4
R11 68
C15A 50MF. 150V.
R12 1K, 1W
C15B 50MF. 150V.
12BE6
12BA6
50C5
12AV6
C14 .05
PHONO MOTOR
SWITCH ON R5
110-120 V. 60 ~
V-1
V-2
V-3
V-4
V-5
S-1 S-2
S-3 S-4
C2A
C2B

NOTE: In early production, C-11 was 5000 mmf instead of 2000 mmf.

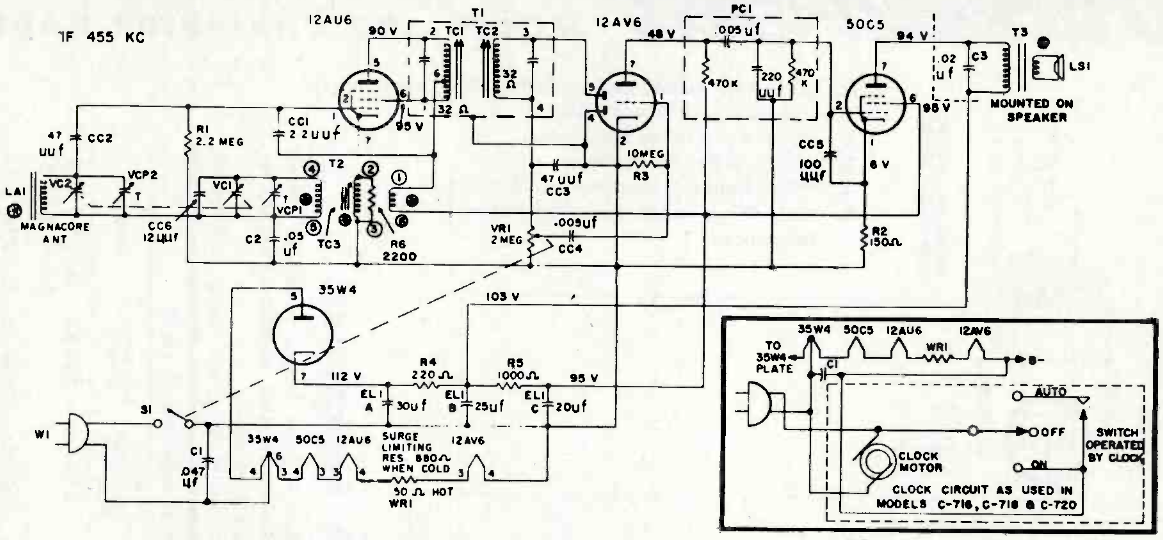
ALIGNMENT PROCEDURE:

To align set, follow steps below. Connect output meter to speaker voice coil. Use isolation transformer, if available, for shock protection.

Each adjustment should be made using a minimum input signal. Connect test oscillator through a .01 mfd capacitor to the point indicated in chart.

STEP	CONNECT TEST OSCILLATOR TO	TEST OSCILLATOR FREQUENCY	RADIO DIAL SETTING	ADJUST
1.	Pin 1, V-1 (12BE6)	455 Kc.	540 Kc.	S-1, S-2, S-3 & S-4 for MAX
2.	Antenna Clip	1620 Kc.	1620 Kc.	C-2B for MAX
3.	Antenna Clip	1500 Kc.	Tune set to osc. signal	C-2A for MAX

PHILCO HOME RADIO MODELS C-579, C-580, C-716, C-718 and C-720


IF 455 KC
12AU6
90 V
T1
2 TC1 TC2 3
32 Ω
95 V
12AV6
48 V
PC1
.005 uf
470K
220 uuf
470 K
50C5
94 V
.02 uf
C3
T3
LS1
MOUNTED ON SPEAKER
95 V
47 uuf CC2
R1 2.2 MEG
CC1 22 uuf
T2
LA1
VC2
VCP2
VC1
VCP1
MAGNACORE ANT
CC6 12 uuf
C2 .05 uf
TC3
R6 2200
47 uuf CC3
10MEG R3
VR1 2 MEG
.005uf CC4
CC5 100 uuf
6 V
R2 150Ω
35W4
103 V
112 V
R4 220Ω
R5 1000Ω
95 V
EL1 A 30uf
EL1 B 25uf
EL1 C 20uf
S1
W1
C1 .047 uf
35W4 50C5 12AU6
SURGE LIMITING RES 880Ω WHEN COLD
50 Ω HOT WR1
12AV6
TO 35W4 PLATE
WR1
B-
AUTO
OFF
ON
SWITCH OPERATED BY CLOCK
CLOCK MOTOR

CLOCK CIRCUIT AS USED IN MODELS C-716, C-718 & C-720

ALIGNMENT PROCEDURE

GENERAL — Allow the set and test equipment to warm up for fifteen minutes before starting alignment procedure.

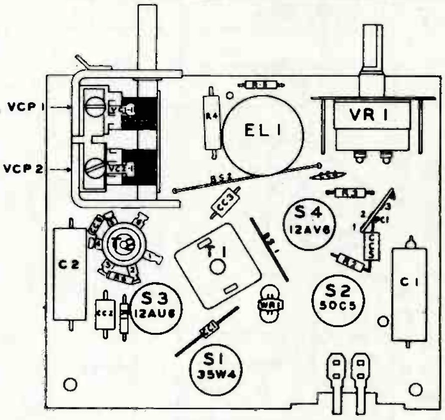
TUNING DIAL — Before proceeding with the alignment, set the tuning knob indicator so that it is in a horizontal position, just pass the "55" dial mark, when the gang is fully closed.

OUTPUT INDICATOR — Connect the output indicator (a 1000 ohms-per-volt, a-c voltmeter, or an oscilloscope) across the voice-coil terminals.

SIGNAL GENERATOR — Use an AM r-f signal generator. Connect the ground lead to B—, and connect the output lead as indicated in the alignment chart.

OUTPUT LEVEL — Attenuate the signal-generator output throughout the alignment so as to maintain the output level below 0.4 volt.

RADIO CONTROLS — Set the volume control to maximum. Set the tuning control as indicated in the alignment chart.

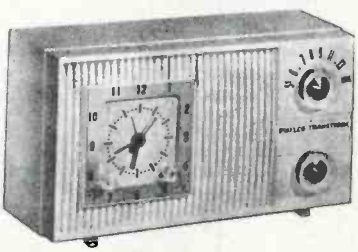

VCP 1
VCP 2
VR 1
EL 1
R4
T1
S4 12AV6
S3 12AU6
S2 50C5
S1 35W4
C2
C1

NOTE: In Clock Models, the switch on VR1 is removed and a wire is added between wiring panel and clock.

SPECIFICATIONS

CABINET	Moulded plastic
CIRCUIT	Three tube autodyne (plus rectifier)
FREQUENCY RANGE	540 KC to 1620 KC
AUDIO OUTPUT	1 Watt
OPERATING VOLTAGE—Models C-579 & C-580	105 to 120v., ac or dc
Models C-716 & C-718	105 to 120v., ac
POWER CONSUMPTION	30 Watts
AERIAL	Self Contained Magnacore
INTERMEDIATE FREQUENCY	455KC
PHILCO TUBES	12AU6 Converter-oscillator, 12AV6 detector 1st audio, 50C5 output and 35W4 rectifier

MODEL C-580



MODEL C-718

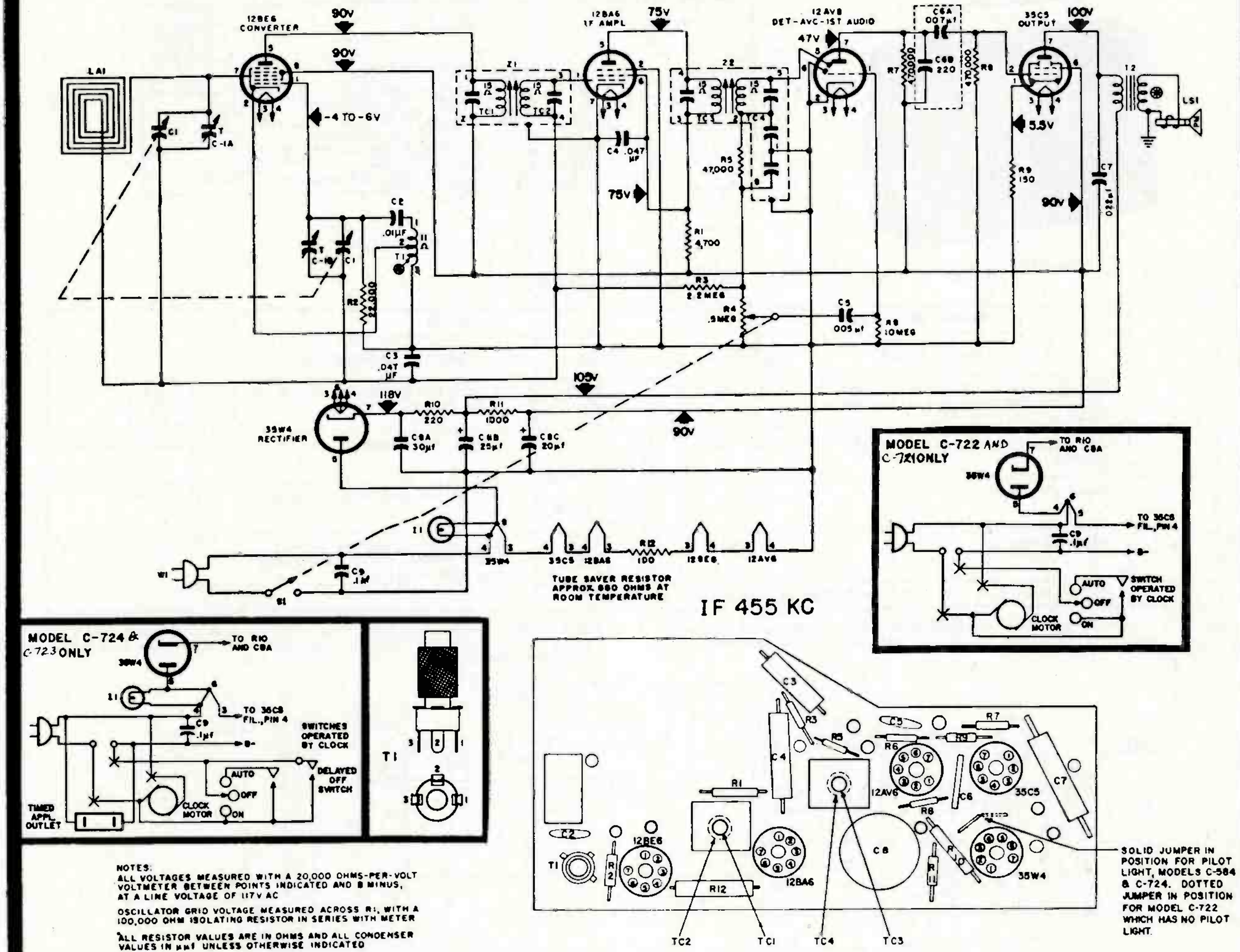
ALIGNMENT CHART

Step	SIGNAL GENERATOR		RADIO		Adjust
	Connection to Radio	Dial Setting	Special Instructions	Dial Setting	
1	Connect signal generator through a .1 mf. condenser to antenna section of tuning gang.	455 KC	Adjust for maximum output in order given.	Tuning gang fully opened	TC2 I-F sec. TC1 I-F pri.
2	Use radiating loop	1620 KC	Adjust for maximum output.	Gang fully opened	VCP-2 osc. trim.
3	Same as Step 2	1400 KC	Adjust for maximum output.	1400 KC	VCP-1 ant. trim.
4	Repeat Steps 2 and 3 until no further improvement is obtained.				

NOTE: Use a 6-to-8 turn, 6-inch diameter loop made of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

PHILCO MODELS C-583, C-721 and C-723 (All Code 124)

C-584 (124), C-722 (124), & C-724 (124)


12BE6 CONVERTER
90V
90V
-4 TO -6V
LA1
C1
C-1A
T
C-1B
C2 .01μF
T1
11 Ω
R2 22,000
C3 .047 μF
Z1
TC1
TC2
15 Ω
12BA6 IF AMPL
75V
C4 .047 μF
75V
Z2
TC3
TC4
R5 47,000
R1 4,700
R3 2.2MEG
R4 .5MEG
12AV6 DET-AVC-1ST AUDIO
47V
C6A .007μf
C6B 220
R7 470,000
R8 470,000
C5 .005 μf
R6 10MEG
35C5 OUTPUT
100V
5.5V
R9 150
90V
C7 .025μf
T2
LS1
105V
90V
35W4 RECTIFIER
118V
R10 220
R11 1000
C8A 30μf
C8B 25μf
C8C 20μf
I1
W1
S1
C9 .1μf
35W4
35C5
12BA6
R12 100
12BE6
12AV6
TUBE SAVER RESISTOR APPROX. 880 OHMS AT ROOM TEMPERATURE
IF 455 KC
MODEL C-722 AND C-721 ONLY
35W4
TO R10 AND C8A
TO 35C5 FIL., PIN 4
C9 .1μf
B-
AUTO
OFF
ON
CLOCK MOTOR
SWITCH OPERATED BY CLOCK
MODEL C-724 & C-723 ONLY
35W4
TO R10 AND C8A
I1
TO 35C5 FIL., PIN 4
C9 .1μf
B-
SWITCHES OPERATED BY CLOCK
AUTO
OFF
ON
DELAYED OFF SWITCH
CLOCK MOTOR
TIMED APPL. OUTLET
T1
C3
R3
R5
C5
R6
R9
R7
C4
R1
12AV6
C6
35C5
C7
R8
C2
12BE6
R2
C8
R10
R11
35W4
12BA6
R12
TC2
TC1
TC4
TC3
SOLID JUMPER IN POSITION FOR PILOT LIGHT, MODELS C-584 & C-724. DOTTED JUMPER IN POSITION FOR MODEL C-722 WHICH HAS NO PILOT LIGHT.

NOTES:
ALL VOLTAGES MEASURED WITH A 20,000 OHMS-PER-VOLT VOLTMETER BETWEEN POINTS INDICATED AND B MINUS, AT A LINE VOLTAGE OF 117V AC

OSCILLATOR GRID VOLTAGE MEASURED ACROSS R1, WITH A 100,000 OHM ISOLATING RESISTOR IN SERIES WITH METER

ALL RESISTOR VALUES ARE IN OHMS AND ALL CONDENSER VALUES IN μμf UNLESS OTHERWISE INDICATED

⊛ INDICATES LESS THAN 1 OHM.

× INDICATES CLOCK SOCKET CONNECTIONS.

ALIGNMENT PROCEDURE

RADIO CONTROLS — Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT METER — Connect across voice-coil terminals.

OUTPUT LEVEL — During alignment, adjust signal-generator output to hold output-meter reading below .5 volts.

ALIGNMENT CHART

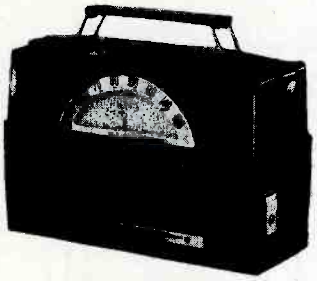
STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to B—; output lead through a .1-mf. condenser to grid (pin 7) of 12BE6.	455 KC	Tuning gang fully open	Adjust tuning cores, in order given, for maximum output. TC1 and TC3 are located at top of transformers.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (See note below).	1620 KC	1620 KC *	Adjust trimmer for maximum output.	C1-B — osc.
3	Same as step 2.	1500 KC	1500 KC	Adjust trimmer for maximum output.	C1-A — aerial

NOTE: Make up a 6-8 turn, 6 inch diameter loop from insulated wire, connect to signal-generator leads, and place near radio loop.

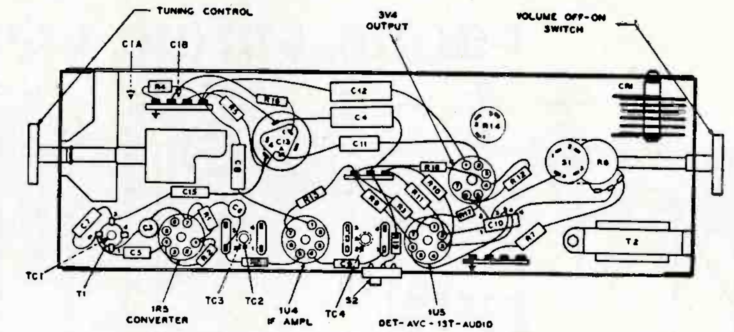
* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006 inch non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

PHILCO PORTABLE RADIO MODEL C-661

MODEL C-662



MODEL C-662

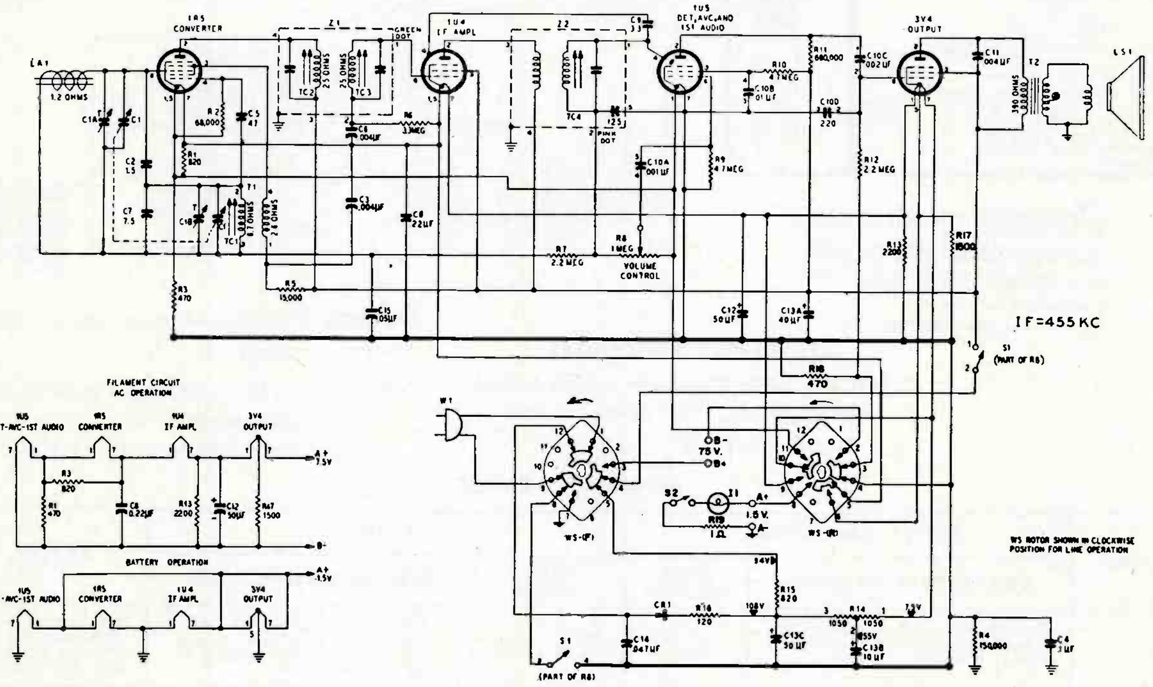

TUNING CONTROL
C1A
C1B
3V4 OUTPUT
VOLUME OFF-ON SWITCH
R4
C12
C4
C11
R18
R14
CR1
C3
C13
R16
C15
R11
R10
R12
R9
C10
R7
T2
C5
C7
TC1
T1
1R5 CONVERTER
TC3
TC2
1U4 IF AMPL
C6
S2
TC4
1U5 DET-AVC-1ST-AUDIO

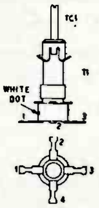
ALIGNMENT CHART

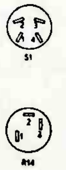
STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Connect signal generator through a .1-uf. condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd i-f sec. TC2—1st i-f pri. TC3—1st i-f sec.
2	Use radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (mark on extreme right.)	Adjust for maximum output.	C1B—osc. trimmer
3	Same as step 2.	1400 kc.	1400 kc. (second mark from right.)	Adjust for maximum output.	C1A—antenna trimmer
4	Same as step 2.	600 kc.	600 kc. (See NOTE 2 below.)	Adjust for maximum output. Rock tuning gang while making this adjustment.	TC1—osc. core
5	Repeat steps 2, 3, and 4 until no further improvement is obtained.				

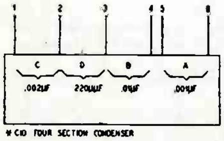
NOTE 1. Use a 6-to-8-turn, 6-inch-diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

NOTE 2. The tuning condenser can be set to the proper frequency by turning it until the dial pointer coincides with the respective marks on the dial backplate.


1R5 CONVERTER
1U4 IF AMPL
1U5 DET, AVC, AND 1ST AUDIO
3V4 OUTPUT
LA1
1.2 OHMS
C1A
C1
R2 68,000
C5 47
Z1
Z2
GREEN DOT
TC2
TC3
25 OHMS
C8 .004µF
R6 3.3MEG
C9 3.3
TC4
125
PINK DOT
R11 680,000
C10C .002µF
C11 .004µF
T2
LS1
390 OHMS
R10 4.7 MEG
C10B .01µF
C10D 220
C10A .001µF
R9 4.7 MEG
R12 2.2 MEG
R1 820
C2 1.5
C7 7.5
C1B
TC1
T1
8.7 OHMS
2.4 OHMS
C3 .004µF
C8 .22µF
R7 2.2 MEG
R8 1 MEG
VOLUME CONTROL
R13 2200
R17 1500
R3 470
R5 15,000
C15 .05µF
C12 50µF
C13A 40µF
IF=455KC
S1 (PART OF R8)
R18 470
W1
B- 75 V.
B+
S2
I1
A+ 1.5 V.
R19 1Ω
WS-(F)
WS-(R)
WS ROTOR SHOWN IN CLOCKWISE POSITION FOR LINE OPERATION
94V
R15 820
CR1
R16 120
108V
R14
1050
1050
7.5V
55V
C13C 50µF
C13B 10µF
R4 150,000
C4 3µF
C14 .047µF
S1
(PART OF R8)
FILAMENT CIRCUIT AC OPERATION
1U5 DET-AVC-1ST AUDIO
1R5 CONVERTER
1U4 IF AMPL
3V4 OUTPUT
A+ 7.5V
R3 820
R1 470
C8 0.22µF
R13 2200
C12 50µF
R17 1500
B-
BATTERY OPERATION
A+ 1.5V


TC1
T1
WHITE DOT
1
2
3
4




1
2
3
4
5
6
C
D
B
A
.002µF
220µµF
.01µF
.001µF
★C10 FOUR SECTION CONDENSER

TUBE SOCKET VOLTAGES

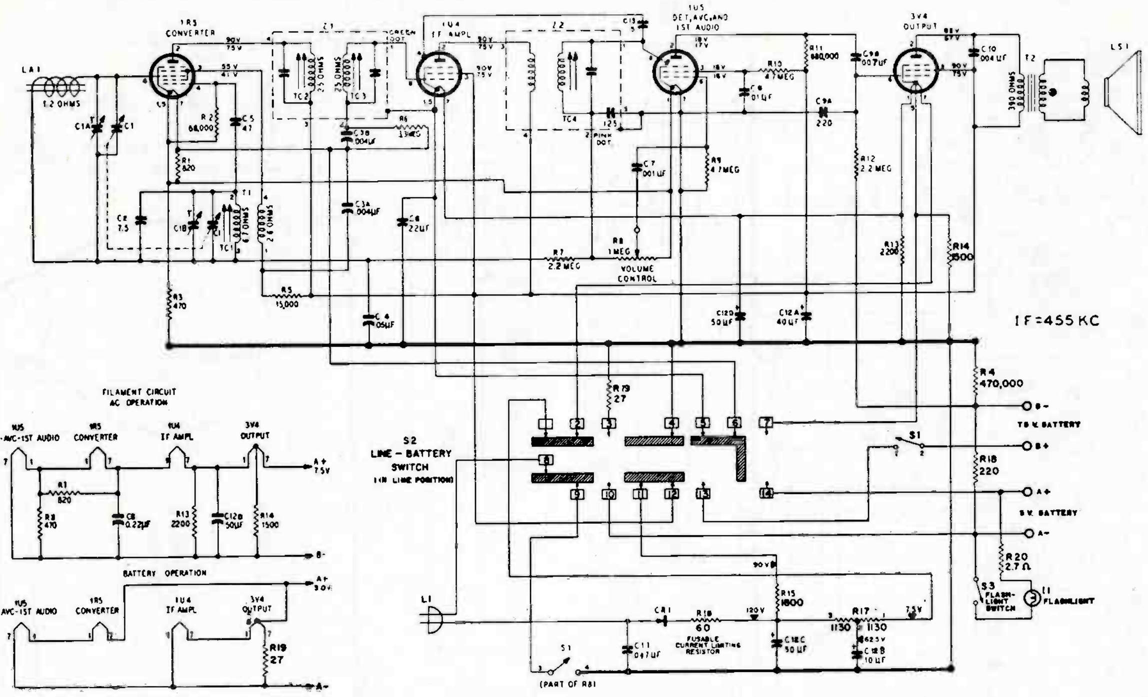
B SUPPLY	1R5		1U4		1U5		3V4	
	RF PLATE PIN 2	OSC PLATE PIN 3	PLATE PIN 2	SCREEN PIN 3	PLATE PIN 2	SCREEN PIN 3	PLATE PIN 2	SCREEN PIN 3
PWR LINE (AC OR DC)	90	55	90	90	18	16	86	90
BATTERY	70	41	70	70	17	16	67	70

NOTES:
ALL RESISTOR VALUES IN OHMS AND ALL CONDENSER VALUES IN µµF UNLESS OTHERWISE MARKED. ● LESS THAN 1 OHM.
VOLTAGES MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM POINTS INDICATED TO B-.

SPECIFICATIONS

CABINET.......PLASTIC PORTABLE
CIRCUIT.......FOUR-TUBE SUPERHETERODYNE (PLUS SELENIUM RECTIFIER)
AUDIO OUTPUT
  A-C OR D-C OPERATION.......160 MILLIWATTS
  BATTERY OPERATION.......85 MILLIWATTS
OPERATING VOLTAGE.......117 VOLTS, A C OR DC
1.5-VOLT "A" BATTERY AND 75-VOLT "B" BATTERY
POWER CONSUMPTION
  A-C OR D-C OPERATION.......11 WATTS
  BATTERY OPERATION.......10 MA. FROM 75-VOLT "B" BATTERY
280 MA FROM 1.5-VOLT "A" BATTERY
ANTENNA.......MAGNECOR HIGH-IMPEDANCE LOOP.
INTERMEDIATE FREQUENCY.......455 KC.
PHILCO TUBES.......1R5 CONVERTER, 1U4 I-F AMPLIFIER,
1U5 DETECTOR-A.V.C. 1ST AUDIO,
3V4 OUTPUT
BATTERY TYPE.......P144 "B" BATTERY
(2) P77 "A" BATTERIES

PHILCO PORTABLE RADIO MODEL C-663


1R5 CONVERTER
1U4 I F AMPL
1U5 DET, AVC, AND 1ST AUDIO
3V4 OUTPUT
LA1
1.2 OHMS
C1A
C1
R2 68,000
C5 47
R1 820
C3B .004UF
R6 15MEG
C3A .004UF
C6 .22UF
C7 .001UF
R9 4.7MEG
R10 4.7MEG
C8 .01UF
C9A 220
C9B .007UF
R11 680,000
R12 2.2 MEG
C10 .004 UF
T2
380 OHMS
LS1
T1
TC1
TC2
TC3
TC4
Z1
Z2
GREEN DOT
PINK DOT
125
R7 2.2 MEG
R8 1MEG VOLUME CONTROL
R5 15,000
R3 470
C4 .05UF
C12B 50UF
C12A 40UF
R13 2200
R14 1500
I F = 455 KC
R4 470,000
R19 27
S2 LINE - BATTERY SWITCH (IN LINE POSITION)
S1
75 V. BATTERY
B−
B+
R18 220
A+
9 V. BATTERY
A−
R20 2.7 Ω
S3 FLASH-LIGHT SWITCH
I1 FLASHLIGHT
L1
CR1
R16 60
FUSABLE CURRENT LIMITING RESISTOR
R15 1800
R17 1130
C11 .047UF
C18C 50UF
C18B 10UF
S1 (PART OF R8)
FILAMENT CIRCUIT AC OPERATION
1U5 DET-AVC-1ST AUDIO
1R5 CONVERTER
1U4 IF AMPL
3V4 OUTPUT
A+ 7.5V
R1 820
R3 470
C8 0.22UF
R13 2200
C12B 50UF
R14 1500
B−
BATTERY OPERATION
A+ 9.0V
R19 27
A−

ALIGNMENT PROCEDURE

Dial Indicator — Before alignment, the dial knob should be set as follows: with the condenser gang plates fully meshed, the first knob marking (past the 550 KC point) should be perpendicular to the front of the chassis.

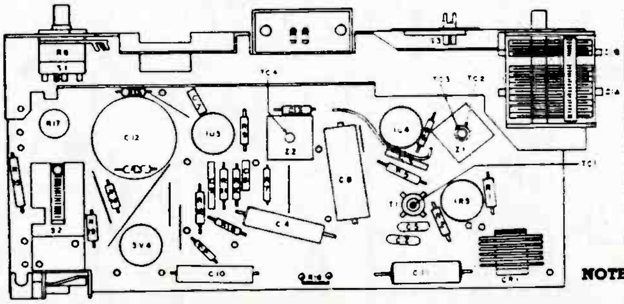
Output Indicator — Connect a 1000-ohms-per-volt a-c voltmeter or an oscilloscope across the voice-coil terminals.

Signal Generator — Use an AM r-f signal generator. Connect the ground lead to B—, and connect the output lead as indicated in the alignment chart.

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Connect signal generator through a .1 mfd condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd I-F sec. TC3—1st I-F sec. TC2—1st I-F pri.
2	Use radiating loop (See note one below).	1620 kc.	1620 kc. (See note 2 below).	Adjust for maximum.	C1B—osc. trimmer
3	Same as step 2.	1400 kc.	1400 kc. (Tune for signal.)	Adjust for maximum.	C1A—ant. trimmer
4	Same as step 2.	600 kc.	600 kc. (Tune for signal.)	Adjust for maximum output. Rock tuning gang while making this adjustment.	TC-1—Osc. core
5	Repeat steps 2, 3, and 4 until no further improvement is noted.				

NOTE 1: Use a 6- to -8 turn, 6 inch diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

NOTE 2: The tuning condenser can be set to the proper frequency for the oscillator adjustment as follows: Fully open the tuning gang and insert a .006 non-metallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

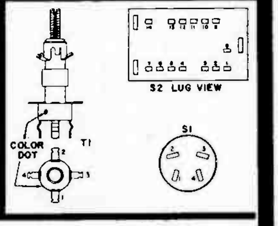

R8
TC4
TC3
TC2
R17
C12
1U5
Z2
1U4
Z1
C8
C4
1R5
3V4
S2
C10
C9-B
CR1
TC1
A

SPECIFICATIONS

CABINET........PLASTIC PORTABLE
CIRCUIT........FOUR TUBE SUPERHETRODYNE (PLUS SELENIUM RECTIFIER)
AUDIO OUTPUT..AC OR DC OPERATION — 150 MILLIWATTS
BATTERY OPERATION — 75 MILLIWATTS
SUPPLY VOLTAGE .117 VOLTS, AC OR DC
9.0 VOLT "A" SUPPLY & 75 VOLT "B" BATTERY
POWER AC OR DC OPERATION.....11 WATTS
CONSUMPTION.BATTERY OPERATION.....10 MA FROM "B"
150 MA FROM "A"
ANTENNA.......MAGNECOR, HIGH-IMPEDANCE LOOP
INTERMEDIATE FREQUENCY...455 KC
PHILCO TUBES..1R5 CONVERTER, 1U4 I-F AMPLIFIER,
1U5 DETECTOR-A.V.C.-1 AUDIO, 3V4 OUTPUT
BATTERY TYPES.P-144 "B" BATTERY
(2) P-77 "A" BATTERIES
FLASHLIGHT BULB. TYPE PR-4, PHILCO PART NUMBER 5463-E

NOTES

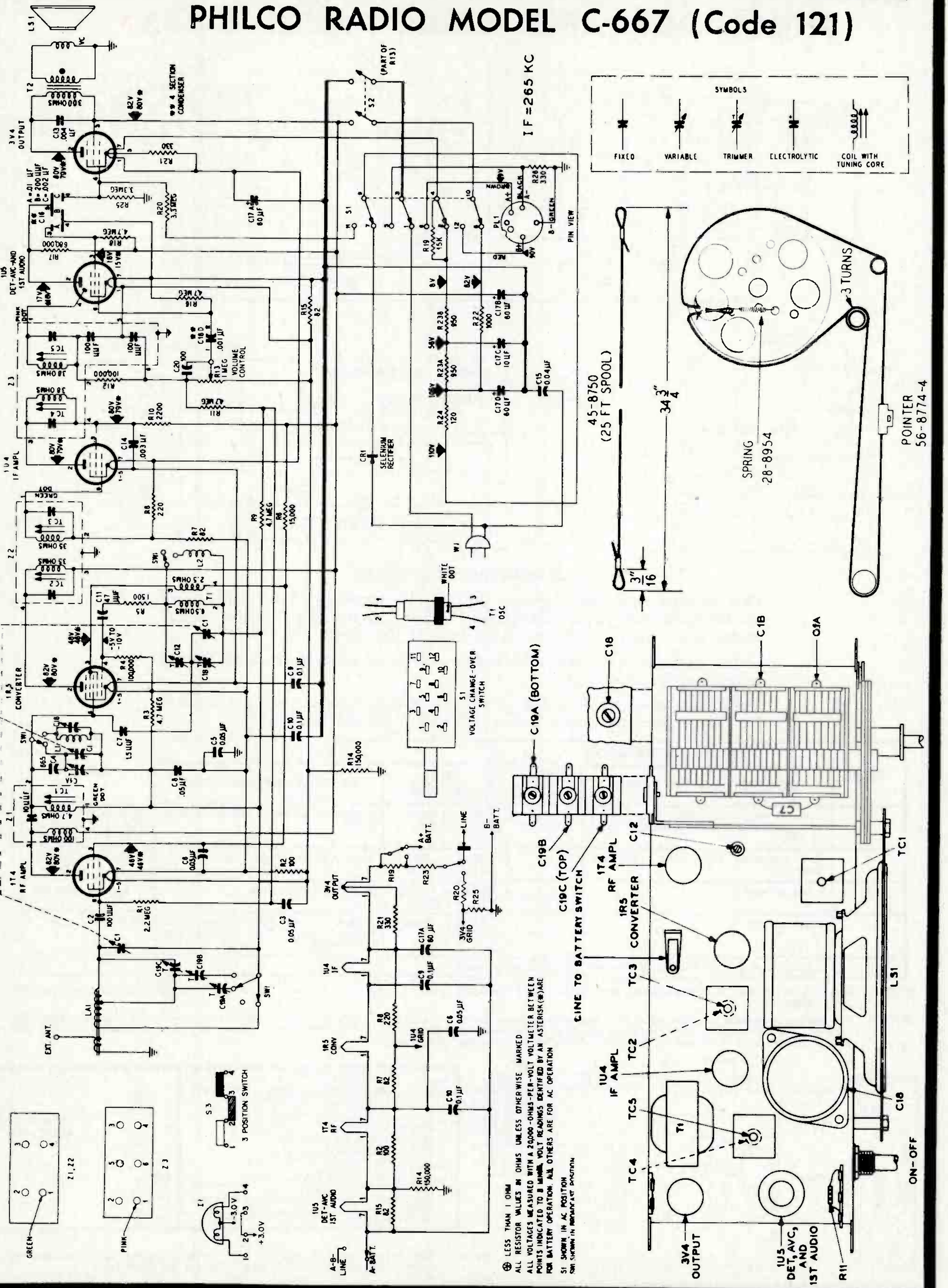
VALUES-RESISTORS IN OHMS, CONDENSERS IN µµF UNLESS OTHERWISE MARKED.
● LESS THAN 1 OHM.
VOLTAGES MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM B−.
TUBE VOLTAGES-TOP VOLTAGE WITH LINE SUPPLY, BOTTOM VOLTAGE WITH BATTERY.


COLOR DOT
T1
S2 LUG VIEW
S1

NOTES: R20 wired between positive "A" battery terminal and the flashlight socket assembly. Jumpers are indicated by solid lines.

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

PHILCO RADIO MODEL C-667 (Code 121)



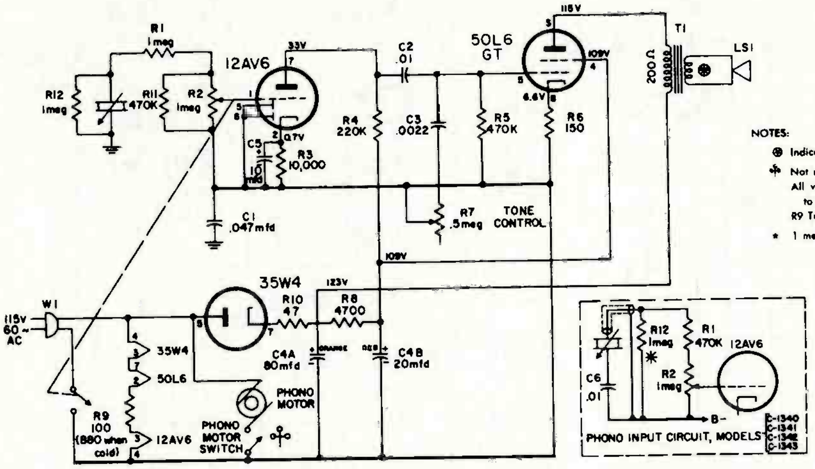
IF = 265 KC
SYMBOLS
FIXED
VARIABLE
TRIMMER
ELECTROLYTIC
COIL WITH TUNING CORE
1T4 RF AMPL
1R5 CONVERTER
1U4 IF AMPL
1U5 DET-AVC-AND 1ST AUDIO
3V4 OUTPUT
L S1
T2
Z1
Z2
Z3
TC1
TC2
TC3
TC4
TC5
LA1
EXT. ANT.
SW1
S1 VOLTAGE CHANGE-OVER SWITCH
S2 (PART OF R13)
S3 3 POSITION SWITCH
R13 1 MEG VOLUME CONTROL
CR1 SELENIUM RECTIFIER
PL1
PIN VIEW
W1
T1 OSC
WHITE DOT
GREEN DOT
PINK DOT
GREEN
PINK
A+ BATT.
A- B- LINE
A- BATT.
B- BATT.
LINE
3V4 GRID
1U4 GRID
Z1, Z2
+3.0V
-3.0V
45-8750 (25 FT SPOOL)
34 3/4"
3/16"
SPRING 28-8954
3 TURNS
POINTER 56-8774-4
C18
C1B
C1A
C19A (BOTTOM)
C19B
C19C (TOP)
C12
LINE TO BATTERY SWITCH
C7
ON-OFF
R11
1U5 DET, AVC, AND 1ST AUDIO
3V4 OUTPUT

⊕ LESS THAN 1 OHM
ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE MARKED
ALL VOLTAGES MEASURED WITH A 20,000-OHMS-PER-VOLT VOLTMETER BETWEEN POINTS INDICATED TO B MINUS. VOLT READINGS IDENTIFIED BY AN ASTERISK (*) ARE FOR BATTERY OPERATION. ALL OTHERS ARE FOR AC OPERATION

S1 SHOWN IN AC POSITION
SW1 SHOWN IN BROADCAST POSITION

PHILCO

MODELS C-1334, C-1340, C-1341, C-1342, C-1343


R1
1meg
12AV6
33V
C2
.01
50L6
GT
115V
T1
LS1
200Ω
R12
1meg
R11
470K
R2
1meg
C5
10mfd
R3
10,000
0.7V
R4
220K
C3
.0022
R5
470K
R6
150
109V
6.6V
C1
.047mfd
R7
.5meg
TONE
CONTROL
109V
35W4
123V
R10
47
R8
4700
W1
115V
60~
AC
35W4
50L6
C4A
80mfd
C4B
20mfd
PHONO
MOTOR
R9
100
(880 when
cold)
12AV6
PHONO
MOTOR
SWITCH
C6
.01
R12
1meg
R1
470K
12AV6
R2
1meg
B-
PHONO INPUT CIRCUIT, MODELS
C-1340
C-1341
C-1342
C-1343

NOTES:

- ⊕ Indicates resistance of less than 1 ohm.
- ✣ Not used in Model C-1334.
  All voltages measured with a 10,000 ohms/volt meter from B— to point indicated.
  R9 Tube Saver Resistor drops 15V when hot.
- * 1 megohm, used in Model C-1340 (with M-24) only.

Model C-1334 Schematic (for Models C-1340 to C-1343 see inset)

BASE VIEW showing Component Placement, Model C-1334. Models C-1340, C-1341, C-1342 and C-1343 use the same amplifier chassis except for the removal of R11 and the addition of C6.

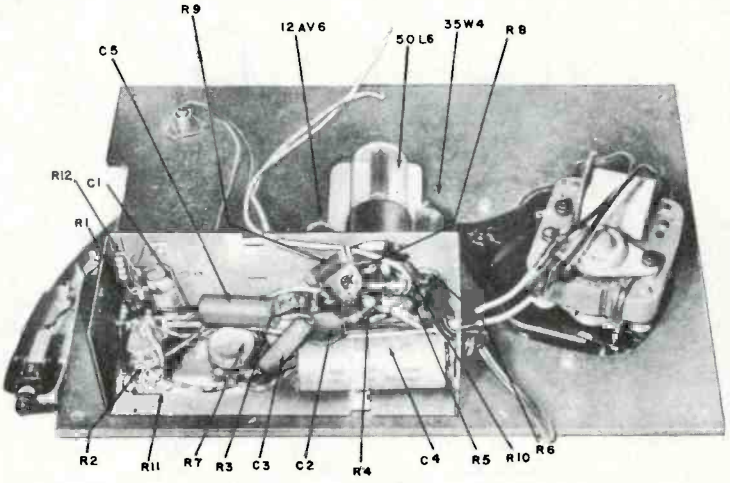
SPECIFICATIONS

Circuit — Two tube amplifier plus rectifier.

Audio Output — 1.0 watt.

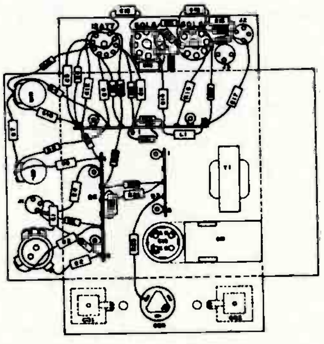
Operating Voltage — 105 to 125 volts, 60 cycles, A.C.

Power Consumption — 55 watts.

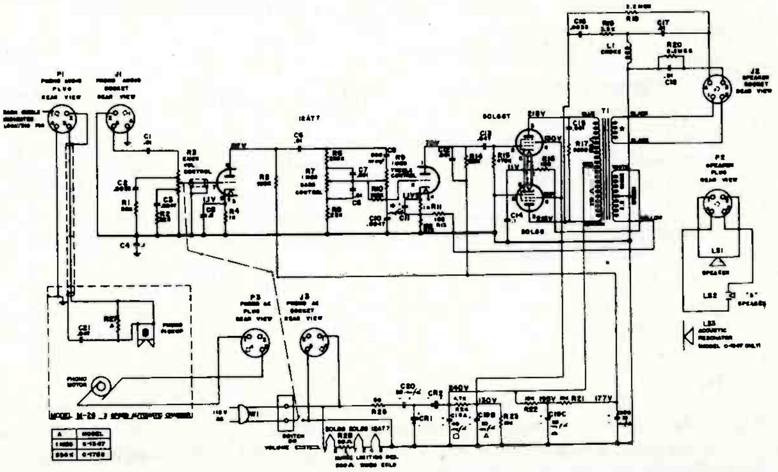

R9
12 AV6
50 L6
35W4
R8
C5
R12
C1
R1
R2
R11
R7
R3
C3
C2
R4
C4
R5
R10
R6

PHILCO HI-FIDELITY PHONOGRAPHS

MODELS C-1347 and C-1755

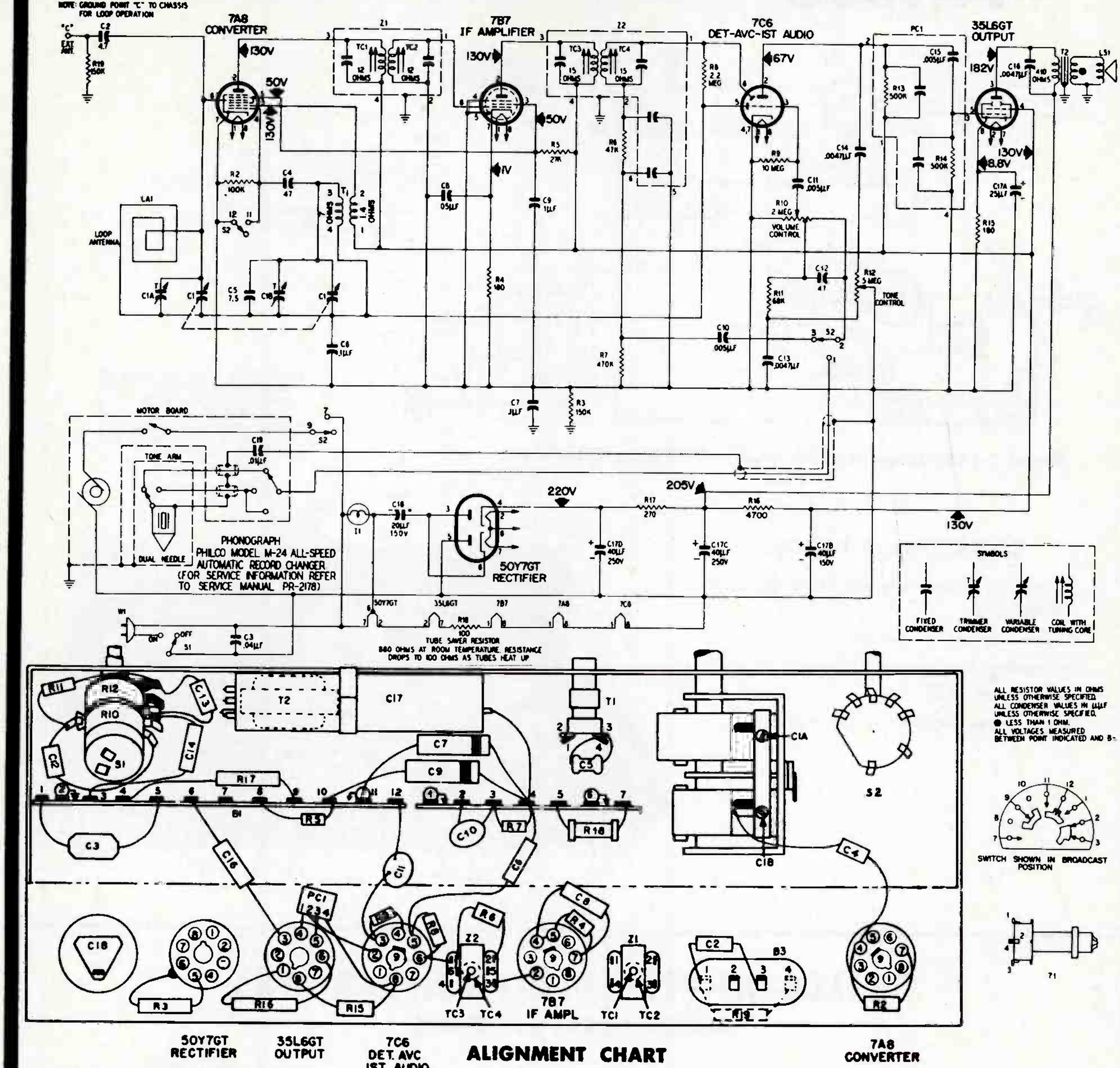


Base View — Models C-1347 and C-1755


12AT7
50L6GT
T1
J2
P2
LS1
LS2
LS3
P1
J1
P3
J3
PHONO
MOTOR
CR1

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

PHILCO RADIO-PHONOGRAPH MODEL C1348


NOTE: GROUND POINT "C" TO CHASSIS FOR LOOP OPERATION
"C"
EXT ANT.
C2 4.7
R19 150K
7A8 CONVERTER
130V
50V
7B7 IF AMPLIFIER
Z1
TC1
TC2
12 OHMS
Z2
TC3
TC4
15 OHMS
1V
R5 27K
R6 47K
7C6 DET-AVC-IST AUDIO
67V
R8 2.2 MEG
R9 10 MEG
C11 .005µF
R10 2 MEG VOLUME CONTROL
35L6GT OUTPUT
PC1
C15 .005µF
R13 500K
R14 500K
C14 .0047µF
182V
C16 .0047µF
410 OHMS
T2
LS1
8.8V
C17A 25µF
R15 180
LA1
LOOP ANTENNA
R2 100K
C4 47
T1
S2
C1A
C5 7.5
C1B
C1
C8 .05µF
C9 .1µF
R4 180
C6 .1µF
C12 47
R11 68K
R12 5 MEG TONE CONTROL
C10 .005µF
C13 .0047µF
R7 470K
C7 .1µF
R3 150K
MOTOR BOARD
TONE ARM
C19 .01µF
DUAL NEEDLE
PHONOGRAPH
PHILCO MODEL M-24 ALL-SPEED AUTOMATIC RECORD CHANGER (FOR SERVICE INFORMATION REFER TO SERVICE MANUAL PR-2178)
I1
C18 20µF 150V
50Y7GT RECTIFIER
220V
205V
R17 270
R16 4700
C17D 40µF 250V
C17C 40µF 250V
C17B 40µF 150V
130V
50Y7GT
35L6GT
7B7
7A8
7C6
R18 100
TUBE SAVER RESISTOR
880 OHMS AT ROOM TEMPERATURE. RESISTANCE DROPS TO 100 OHMS AS TUBES HEAT UP
W1
ON
OFF
S1
C3 .04µF
SYMBOLS
FIXED CONDENSER
TRIMMER CONDENSER
VARIABLE CONDENSER
COIL WITH TUNING CORE
ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER VALUES IN µµF UNLESS OTHERWISE SPECIFIED.
● LESS THAN 1 OHM.
ALL VOLTAGES MEASURED BETWEEN POINT INDICATED AND B-
SWITCH SHOWN IN BROADCAST POSITION
R11
R12
R10
S1
C13
C14
C2
T2
C17
C7
C9
T1
C1A
S2
C1B
R17
B1
R5
C3
C10
R7
R18
C16
C11
C8
C4
PC1
R6
R8
R4
Z2
Z1
C2
B3
C18
R3
R16
R15
R2
TC3
TC4
7B7 IF AMPL
TC1
TC2
50Y7GT RECTIFIER
35L6GT OUTPUT
7C6 DET. AVC IST AUDIO
7A8 CONVERTER

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST TRIMMER
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Output lead through a .01-µf. condenser to grid (pin 6) of 7A8 converter tube.	455 kc. (modulated)	Gang fully open	Adjust, in order given in next column, for maximum output. TC2 and TC4 are located at top of transformers.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1B—oscillator trimmer
3	Same as step 2.	1520 kc.	1520 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1A—antenna trimmer

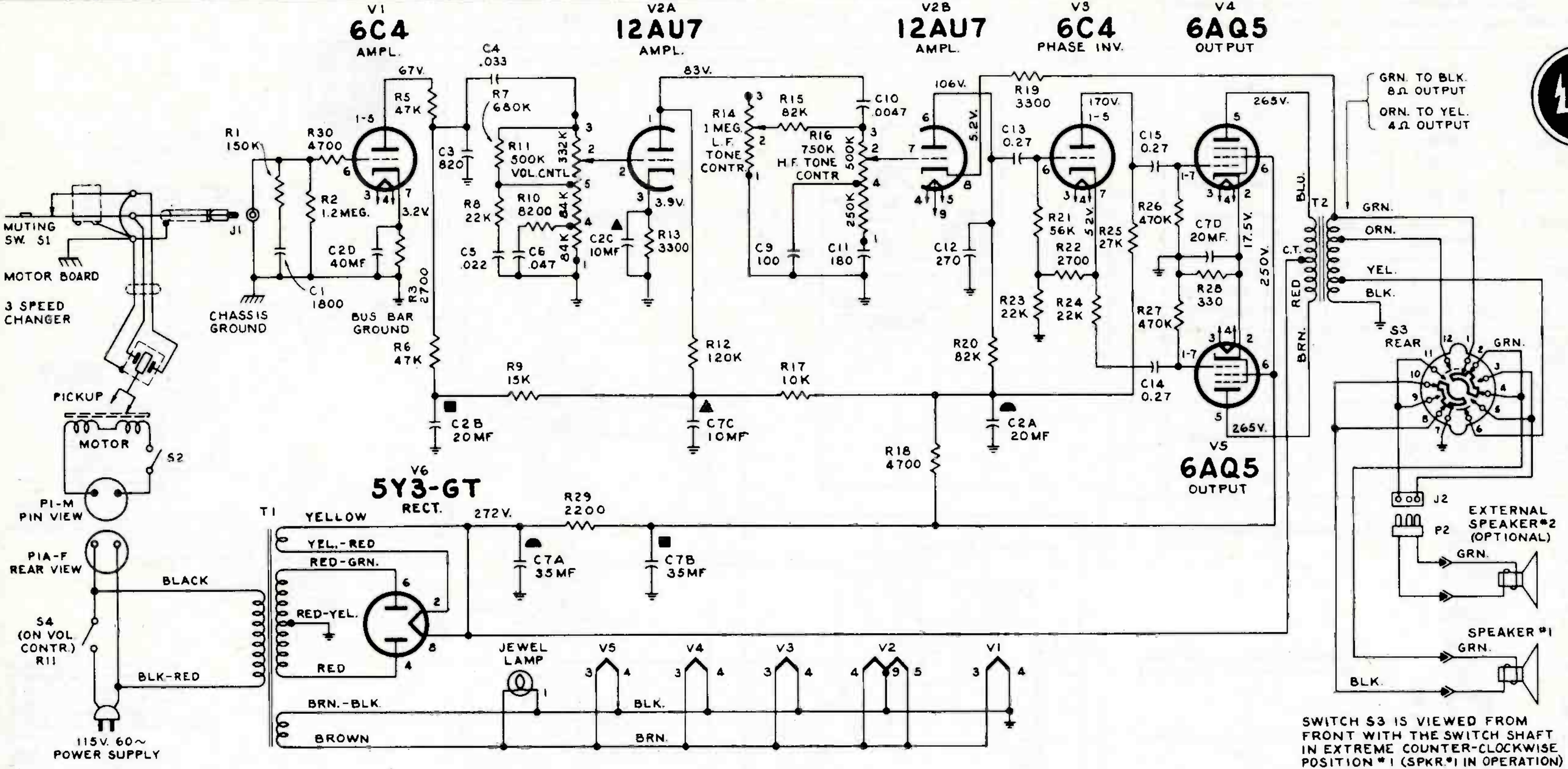
NOTE 1: Make up a 6—8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place near radio loop.

NOTE 2: The tuning gang can be set to 1620 kc. and 1520 kc. by turning the tuning control until the pointer coincides with the respective marks on the dial backplate.

RCA VICTOR

MODEL 3-HS-61

Chassis No. RS-145A


V1
6C4
AMPL.
V2A
12AU7
AMPL.
V2B
12AU7
AMPL.
V3
6C4
PHASE INV.
V4
6AQ5
OUTPUT
V5
6AQ5
OUTPUT
V6
5Y3-GT
RECT.
GRN. TO BLK. 8Ω OUTPUT
ORN. TO YEL. 4Ω OUTPUT
R1 150K
R30 4700
R2 1.2MEG.
C1 1800
C2D 40MF
R3 2700
R5 47K
R6 47K
C3 820
C4 .033
R7 680K
R11 500K VOL.CNTL.
R8 22K
R10 8200
C5 .022
C6 .047
332K
84K
C2C 10MF
R13 3300
R12 120K
R14 1 MEG. L.F. TONE CONTR.
R15 82K
R16 750K H.F. TONE CONTR.
500K
250K
C9 100
C11 180
C10 .0047
R17 10K
R9 15K
C2B 20MF
C7C 10MF
R19 3300
C13 0.27
C12 270
R20 82K
R18 4700
C2A 20MF
R21 56K
R22 2700
R23 22K
R24 22K
R25 27K
C15 0.27
C14 0.27
R26 470K
R27 470K
C7D 20MF.
R28 330
67V.
83V.
3.2V.
3.9V.
106V.
5.2V.
170V.
265V.
17.5V.
250V.
272V.
T2
BLU.
C.T.
RED
BRN.
GRN.
ORN.
YEL.
BLK.
S3 REAR
J2
P2
EXTERNAL SPEAKER #2 (OPTIONAL)
SPEAKER #1
MUTING SW. S1
MOTOR BOARD
3 SPEED CHANGER
PICKUP
MOTOR
S2
J1
CHASSIS GROUND
BUS BAR GROUND
P1-M PIN VIEW
P1A-F REAR VIEW
S4 (ON VOL. CONTR.) R11
115V. 60~ POWER SUPPLY
T1
BLACK
BLK-RED
YELLOW
YEL.-RED
RED-GRN.
RED-YEL.
RED
BRN.-BLK.
BROWN
R29 2200
C7A 35MF
C7B 35MF
JEWEL LAMP
V5
V4
V3
V2
V1
BLK.
BRN.

SWITCH S3 IS VIEWED FROM FRONT WITH THE SWITCH SHAFT IN EXTREME COUNTER-CLOCKWISE POSITION #1 (SPKR.#1 IN OPERATION)

COIL RESISTANCE VALUES LESS THAN 1 OHM ARE NOT SHOWN.

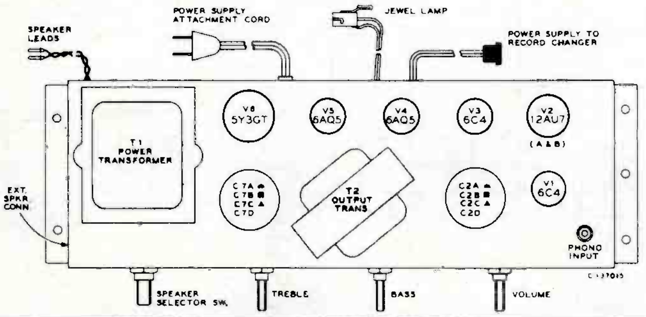
VOLTAGES MEASURED TO CHASSIS WITH VOLTOHMYST AND SHOULD HOLD WITHIN ±20% WITH RATED LINE VOLTAGE.

RESISTANCE VALUES IN OHMS. K=1000

CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.

REVERSING THE LEADS TO EITHER SPEAKER WILL RESULT IN DISTORTION AND LOW VOLUME ON TWO SPEAKER OPERATION.

For record changer information see material on RP-197 Series, pages 95-102, SUPREME Vol. 14, 1954 Radio Diagrams Manual.


SPEAKER LEADS
POWER SUPPLY ATTACHMENT CORD
JEWEL LAMP
POWER SUPPLY TO RECORD CHANGER
EXT. SPKR CONN.
T1 POWER TRANSFORMER
V6 5Y3GT
V5 6AQ5
V4 6AQ5
V3 6C4
V2 12AU7 (A & B)
V1 6C4
C7A ▲ C7B ■ C7C ▲ C7D
T2 OUTPUT TRANS.
C2A ● C2B ■ C2C ▲ C20
PHONO INPUT
SPEAKER SELECTOR SW.
TREBLE
BASS
VOLUME
C-27015

V1	6C4	7	1.2	MA.
V2A	12AU7	3	1.2	MA.
V2B	12AU7	8	1.6	MA.
V3	6C4	7	2.13	MA.
V4	6AQ5	2	24.1	MA.
V5	6AQ5	2	24.1	MA.
V6	5Y3GT	8	54.3	MA.

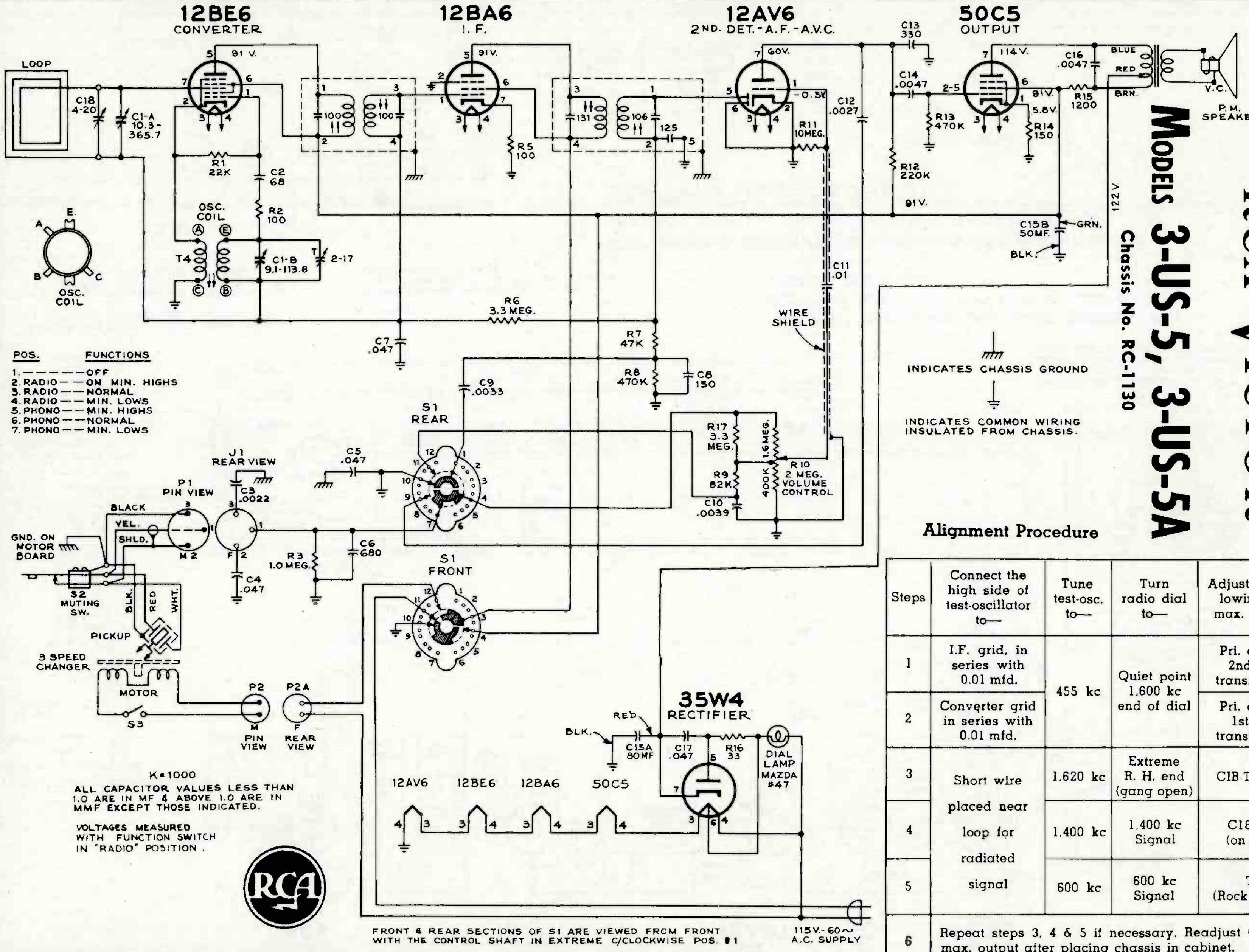
CRITICAL LEAD DRESS

1. Dress all capacitors except C3, and C12 against chassis.
2. Dress R29 at least ¾ inch away from chassis and transformer.
3. Dress all heater leads close to chassis.
4. Keep leads on R1, R2, R30, and C1 as short as possible.

RCA VICTOR

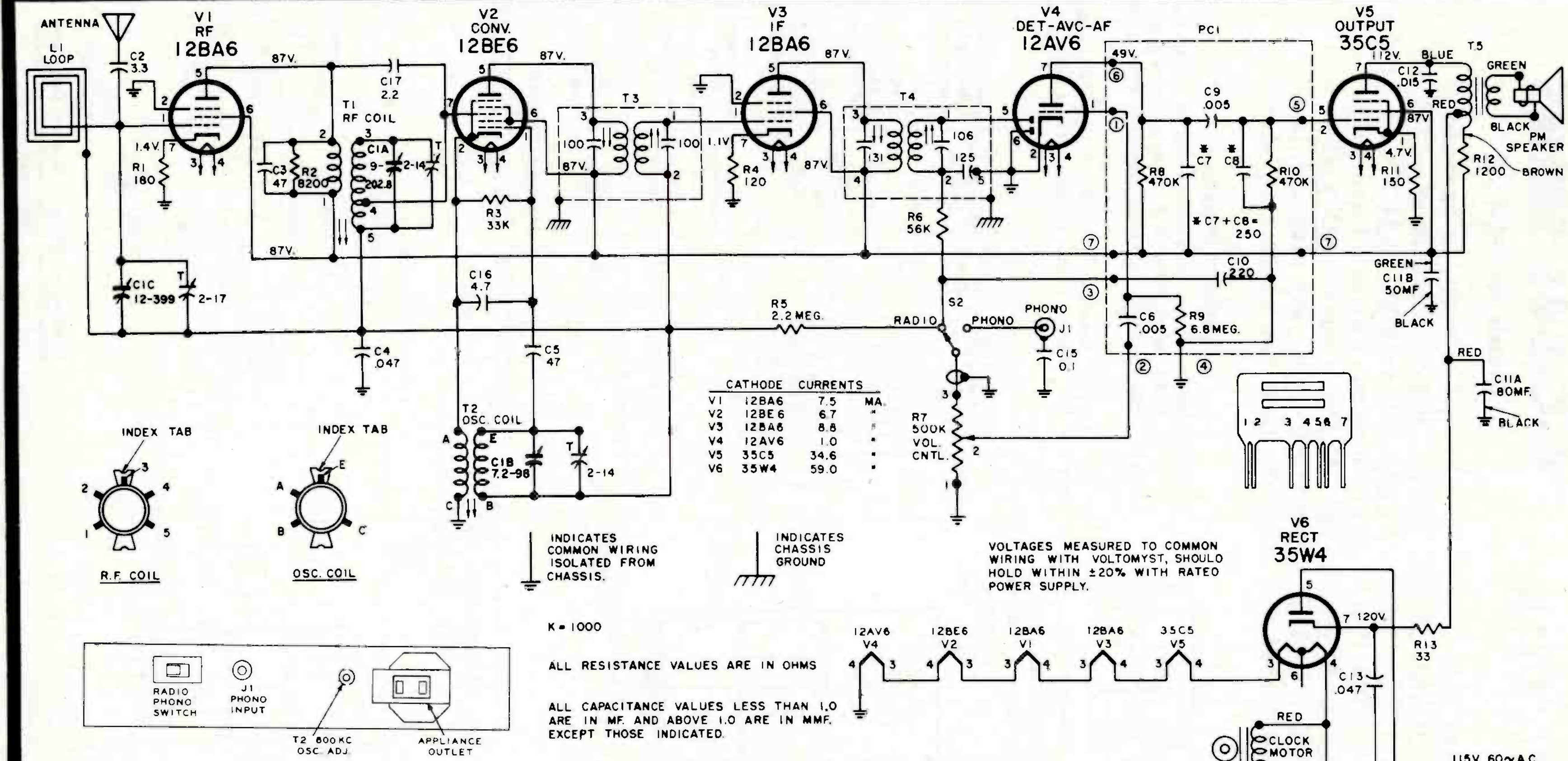
MODELS 3-US-5, 3-US-5A

Chassis No. RC-1130


12BE6
CONVERTER
12BA6
I. F.
12AV6
2ND. DET.-A.F.-A.V.C.
50C5
OUTPUT
35W4
RECTIFIER
LOOP
C18 4-20
C1-A 10.3-365.7
R1 22K
C2 68
R2 100
OSC. COIL
T4
C1-B 9.1-113.8
T 2-17
R5 100
R6 3.3 MEG.
C7 .047
R7 47K
R8 470K
C8 150
C9 .0033
R11 10MEG.
C12 .0027
C11 .01
WIRE SHIELD
C13 330
C14 .0047
R13 470K
R12 220K
C16 .0047
R15 1200
R14 150
C15B 50MF.
GRN.
BLK.
BLUE
RED
BRN.
V.C.
P.M. SPEAKER
91 V.
60V.
-0.5V
114 V.
5.8V.
122 V.
INDICATES CHASSIS GROUND
INDICATES COMMON WIRING INSULATED FROM CHASSIS.
R17 3.3 MEG.
1.6 MEG.
R9 82K
400K
R10 2 MEG. VOLUME CONTROL
C10 .0039
S1 REAR
S1 FRONT
C5 .047
J1 REAR VIEW
C3 .0022
P1 PIN VIEW
C4 .047
R3 1.0 MEG.
C6 680
BLACK
YEL.
SHLD.
GND. ON MOTOR BOARD
S2 MUTING SW.
PICKUP
3 SPEED CHANGER
MOTOR
S3
P2 PIN VIEW
P2A REAR VIEW
C15A 80MF
C17 .047
R16 33
DIAL LAMP MAZDA #47
115V.-60~ A.C. SUPPLY
POS. FUNCTIONS
1. OFF
2. RADIO ON MIN. HIGHS
3. RADIO NORMAL
4. RADIO MIN. LOWS
5. PHONO MIN. HIGHS
6. PHONO NORMAL
7. PHONO MIN. LOWS
K=1000
ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MF & ABOVE 1.0 ARE IN MMF EXCEPT THOSE INDICATED.
VOLTAGES MEASURED WITH FUNCTION SWITCH IN "RADIO" POSITION.
FRONT & REAR SECTIONS OF S1 ARE VIEWED FROM FRONT WITH THE CONTROL SHAFT IN EXTREME C/CLOCKWISE POS. #1

Alignment Procedure

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. output
1	I.F. grid, in series with 0.01 mfd.	455 kc	Quiet point 1,600 kc end of dial	Pri. & Sec. 2nd I.F. transformer
2	Converter grid in series with 0.01 mfd.			Pri. & Sec. 1st I.F. transformer
3	Short wire placed near loop for radiated signal	1,620 kc	Extreme R. H. end (gang open)	CIB-T (osc.)
4		1,400 kc	1,400 kc Signal	C18 (ant.) (on loop)
5		600 kc	600 kc Signal	T4 (Rock Gang)
6	Repeat steps 3, 4 & 5 if necessary. Readjust C18 for max. output after placing chassis in cabinet.			


ANTENNA
L1 LOOP
C2 3.3
V1 RF 12BA6
R1 180
1.4V.
87V.
C17 2.2
T1 RF COIL
C3 47
R2 8200
C1A 9-202.8
2-14
C1C 12-399
2-17
C4 .047
V2 CONV. 12BE6
R3 33K
C16 4.7
C5 47
T2 OSC. COIL
C1B 7.2-98
2-14
T3
V3 IF 12BA6
R4 120
1.1V.
T4
R6 56K
R5 2.2 MEG.
S2
RADIO
PHONO
PHONO J1
C15 0.1
R7 500K VOL. CNTL.
V4 DET-AVC-AF 12AV6
49V.
PC1
C9 .005
C7
C8
✱C7+C8=250
R8 470K
R10 470K
C10 220
C6 .005
R9 6.8 MEG.
V5 OUTPUT 35C5
112V.
BLUE
T5
C12 .015
RED
GREEN
BLACK
PM SPEAKER
BROWN
R11 150
4.7V.
R12 1200
GREEN
C11B 50MF
BLACK
RED
C11A 80MF.
BLACK
V6 RECT 35W4
120V.
R13 33
C13 .047
INDEX TAB
R.F. COIL
OSC. COIL
INDICATES COMMON WIRING ISOLATED FROM CHASSIS.
INDICATES CHASSIS GROUND
RADIO PHONO SWITCH
J1 PHONO INPUT
T2 600KC OSC. ADJ.
APPLIANCE OUTLET

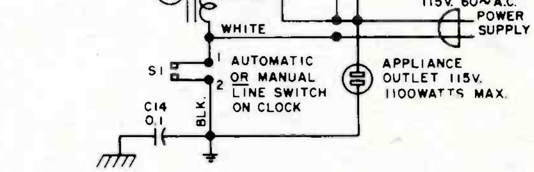
CATHODE		CURRENTS	MA.
V1	12BA6	7.5	MA.
V2	12BE6	6.7	"
V3	12BA6	8.8	"
V4	12AV6	1.0	"
V5	35C5	34.6	"
V6	35W4	59.0	"

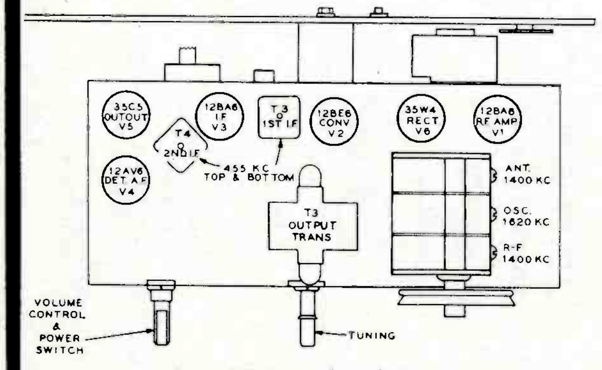
VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOMYST, SHOULD HOLD WITHIN ±20% WITH RATED POWER SUPPLY.

K = 1000

ALL RESISTANCE VALUES ARE IN OHMS

ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN MF. AND ABOVE 1.0 ARE IN MMF. EXCEPT THOSE INDICATED.


RED
CLOCK MOTOR
WHITE
S1
AUTOMATIC OR MANUAL LINE SWITCH ON CLOCK
BLK.
C14 0.1
115V. 60~A.C. POWER SUPPLY
APPLIANCE OUTLET 115V. 1100WATTS MAX.


35C5 OUTPUT V5
12AV6 DET A.F. V4
T4 2ND I.F.
12BA6 I.F. V3
455 KC TOP & BOTTOM
T3 1ST I.F.
12BE6 CONV V2
35W4 RECT V6
12BA6 RF AMP V1
ANT. 1400 KC
OSC. 1620 KC
R-F 1400 KC
T3 OUTPUT TRANS
VOLUME CONTROL & POWER SWITCH
TUNING

Tube and Trimmer Locations

Step	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin No. 7 of 12BE6 (V2 conv.)	455 kc	Quiet point near 600 kc	Top and bottom cores of T3 and T4
2	"External Antenna" terminal	1620 kc	Gang open	C1-B Osc.
3		1400 kc	1400 kc signal	C1-A R.F. C1-C Ant.
4		Shunt C1-A with 22,000 ohm resistor		
		600 kc	600 kc	T2 Osc. (Rock gang)
5		Remove 22,000 ohm resistor from C1-A		
		600 kc	600 kc	T1 R.F.
6		Repeat steps 3, 4 and 5		

RCA VICTOR

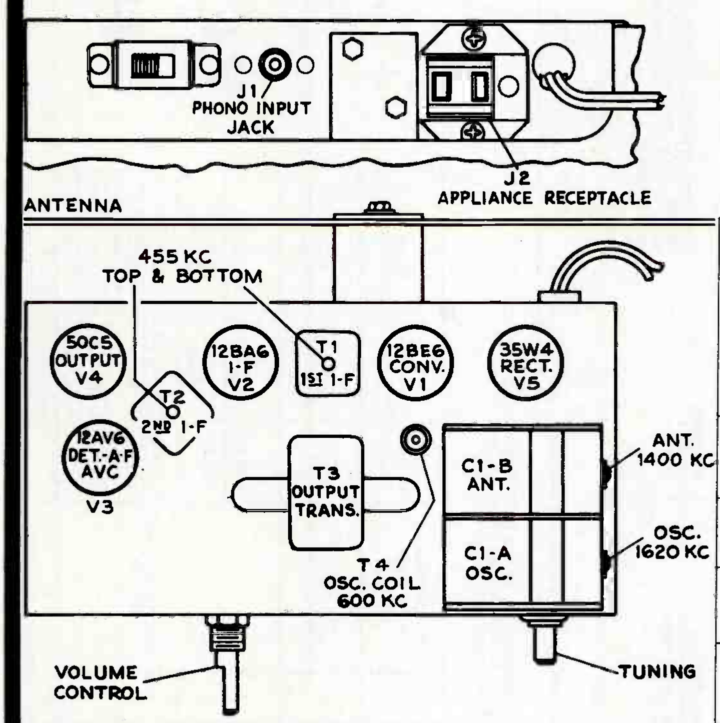
4-C-671, 4-C-672

Chassis No. RC 1142

RCA VICTOR 4-C-541 SERIES

Chassis No. RC-1145

The material on this page and on the page adjacent at right, is exact for Models 4C541, 4C542, 4C543, 4C544, 4C545, 4C547, Chassis RC-1145. Models 4C531, 4C532, 4C533, 4C534, 4C535, Chassis RC-1144 are similar electrically to RC-1145, but omit radio-phono switch S2 and outlet J2. Models 4X551, 4X552, 4X553, 4X554, 4X555, Chassis RC-1146, and Models 5X560, 5X562, 5X564, Chassis RC-1150, are also similar electrically to Chassis RC-1145 described on these two pages, but omit clock mechanism.


J1 PHONO INPUT JACK
J2 APPLIANCE RECEPTACLE
ANTENNA
455 KC TOP & BOTTOM
50C5 OUTPUT V4
12BA6 I-F V2
T1 1ST I-F
12BE6 CONV. V1
35W4 RECT. V5
T2 2ND I-F
12AV6 DET.-A-F AVC V3
T3 OUTPUT TRANS.
C1-B ANT.
C1-A OSC.
ANT. 1400 KC
OSC. 1620 KC
T4 OSC. COIL 600 KC
VOLUME CONTROL
TUNING

Tube and Trimmer Locations

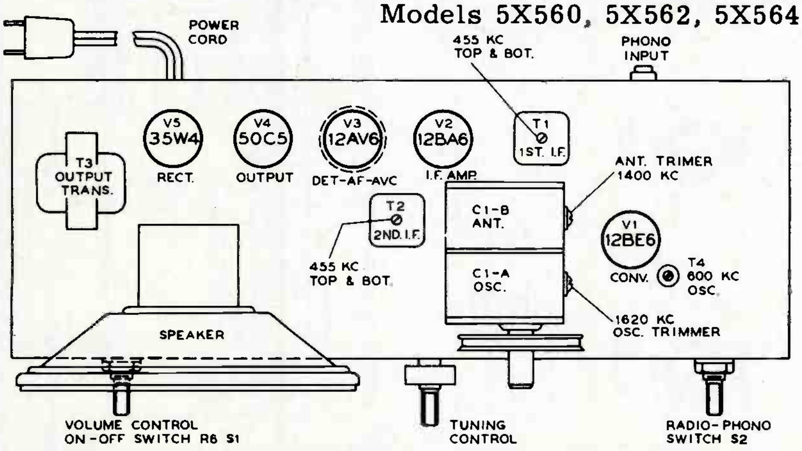
Alignment Procedure

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.

An isolation transformer (115/115 v.) may be necessary for the receiver if the test-oscillator is also a.c. operated.

Step	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. output
1	12BA6 I-F grid through .01 mfd. capacitor	455 kc	Quiet-point 1,600 kc end of dial	T2 (top and bottom) 2nd I-F trans.
2	Stator of C1-B through .01 mfd.			T1 (top and bottom) 1st I-F trans.
3	Short wire placed near loop to radiate signal	1,620 kc	Max. clockwise	osc. trimmer C1-A
4		1,400 kc	1,400 kc signal	ant. trimmer C1-B
5		600 kc	600 kc signal	osc. coil T-4 (rock gang)
6		Repeat steps 3, 4, and 5		

This material is applicable only to Chassis RC-1150, Models 5X560, 5X562, 5X564.


POWER CORD
455 KC TOP & BOT.
PHONO INPUT
V5 35W4 RECT.
V4 50C5 OUTPUT
V3 12AV6 DET-AF-AVC
V2 12BA6 I.F. AMP.
T1 1ST. I.F.
T3 OUTPUT TRANS.
ANT. TRIMER 1400 KC
T2 2ND. I.F.
455 KC TOP & BOT.
C1-B ANT.
C1-A OSC.
V1 12BE6 CONV.
T4 600 KC OSC.
1620 KC OSC. TRIMMER
SPEAKER
VOLUME CONTROL ON-OFF SWITCH R6 S1
TUNING CONTROL
RADIO-PHONO SWITCH S2

Tube and Trimmer Locations

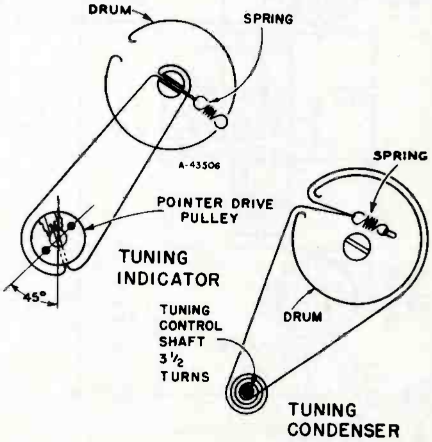
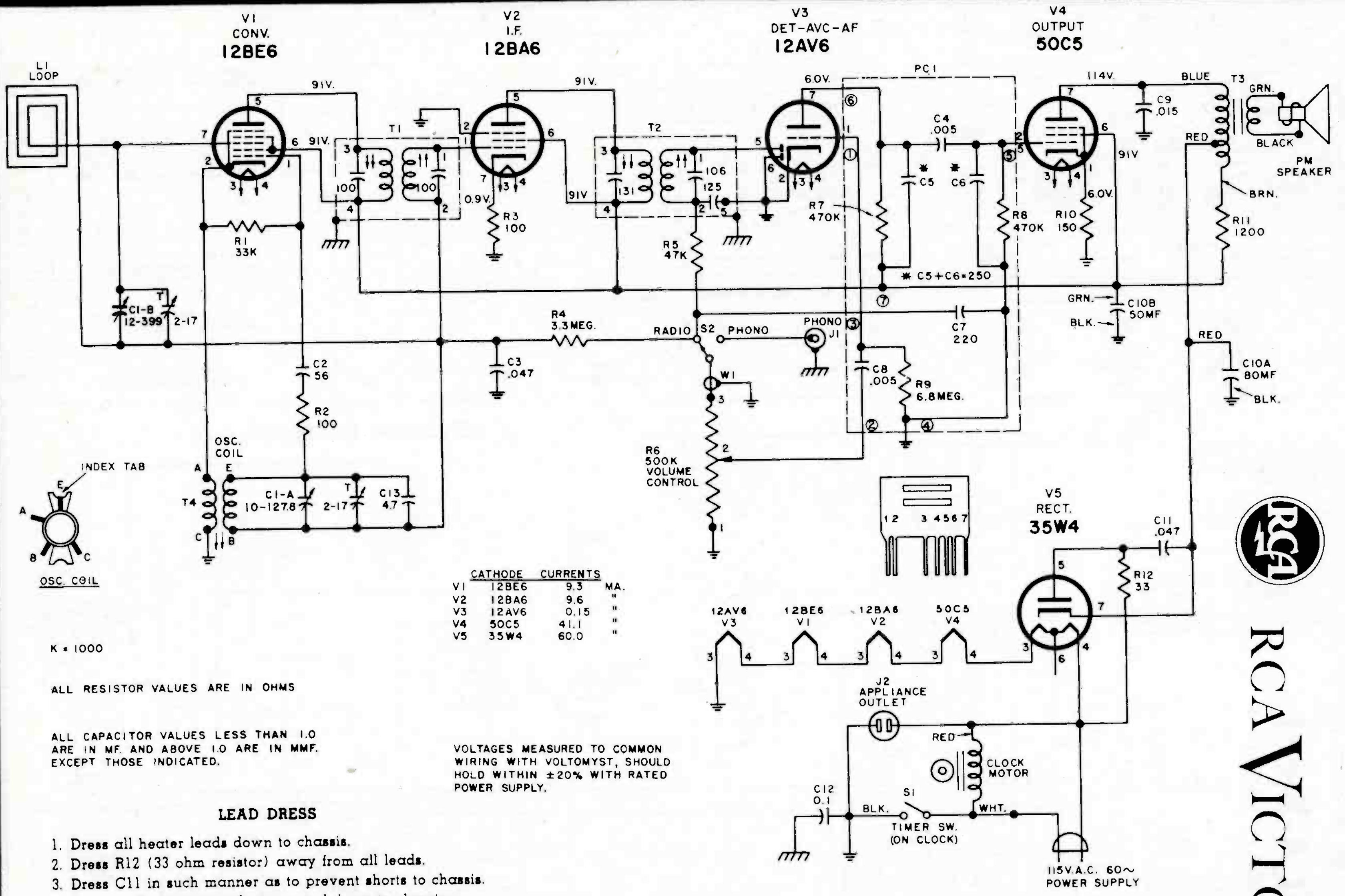

DRUM
SPRING
A-43506
POINTER DRIVE PULLEY
45°
TUNING INDICATOR
SPRING
DRUM
TUNING CONTROL SHAFT 3½ TURNS
TUNING CONDENSER

Diagram of Drive Cord with Condenser Rotor Closed (Extreme Counter-clockwise Position)

RCA Victor Series 4C541, Chassis RC-1145, and others (Material continued)

RCA VICTOR


V1
CONV.
12BE6
V2
I.F.
12BA6
V3
DET-AVC-AF
12AV6
V4
OUTPUT
50C5
V5
RECT.
35W4
L1
LOOP
T1
T2
T3
T4
PC1
91V.
91V
0.9V.
6.0V.
114V.
BLUE
GRN.
BLACK
RED
BRN.
PM
SPEAKER
C1-B
12-399
2-17
C1-A
10-127.8
C2
56
C3
.047
C4
.005
C5
C6
✱ C5+C6=250
C7
220
C8
.005
C9
.015
C10A
80MF
C10B
50MF
C11
.047
C12
0.1
C13
4.7
100
131
106
125
R1
33K
R2
100
R3
100
R4
3.3MEG.
R5
47K
R6
500K
VOLUME
CONTROL
R7
470K
R8
470K
R9
6.8MEG.
R10
150
R11
1200
R12
33
RADIO
S2
PHONO
PHONO
J1
W1
OSC.
COIL
INDEX TAB
A
B
C
E
OSC. COIL
1 2 3 4 5 6 7
12AV6
V3
12BE6
V1
12BA6
V2
50C5
V4
J2
APPLIANCE
OUTLET
CLOCK
MOTOR
RED
WHT.
BLK.
S1
TIMER SW.
(ON CLOCK)
115V.A.C. 60~
POWER SUPPLY

K = 1000

ALL RESISTOR VALUES ARE IN OHMS

ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MF. AND ABOVE 1.0 ARE IN MMF. EXCEPT THOSE INDICATED.

	CATHODE	CURRENTS	
V1	12BE6	9.3	MA.
V2	12BA6	9.6	"
V3	12AV6	0.15	"
V4	50C5	41.1	"
V5	35W4	60.0	"

VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOMYST, SHOULD HOLD WITHIN ±20% WITH RATED POWER SUPPLY.

LEAD DRESS

1. Dress all heater leads down to chassis.
2. Dress R12 (33 ohm resistor) away from all leads.
3. Dress C11 in such manner as to prevent shorts to chassis.
4. Dress audio leads to volume control down to chassis.
5. Dress PC-1 (printed circuit) away from I.F. circuits.
6. Dress 50C5 plate lead down to chassis and along back apron.
7. Dress black lead to clock switch terminal away from mechanism of clock switch.

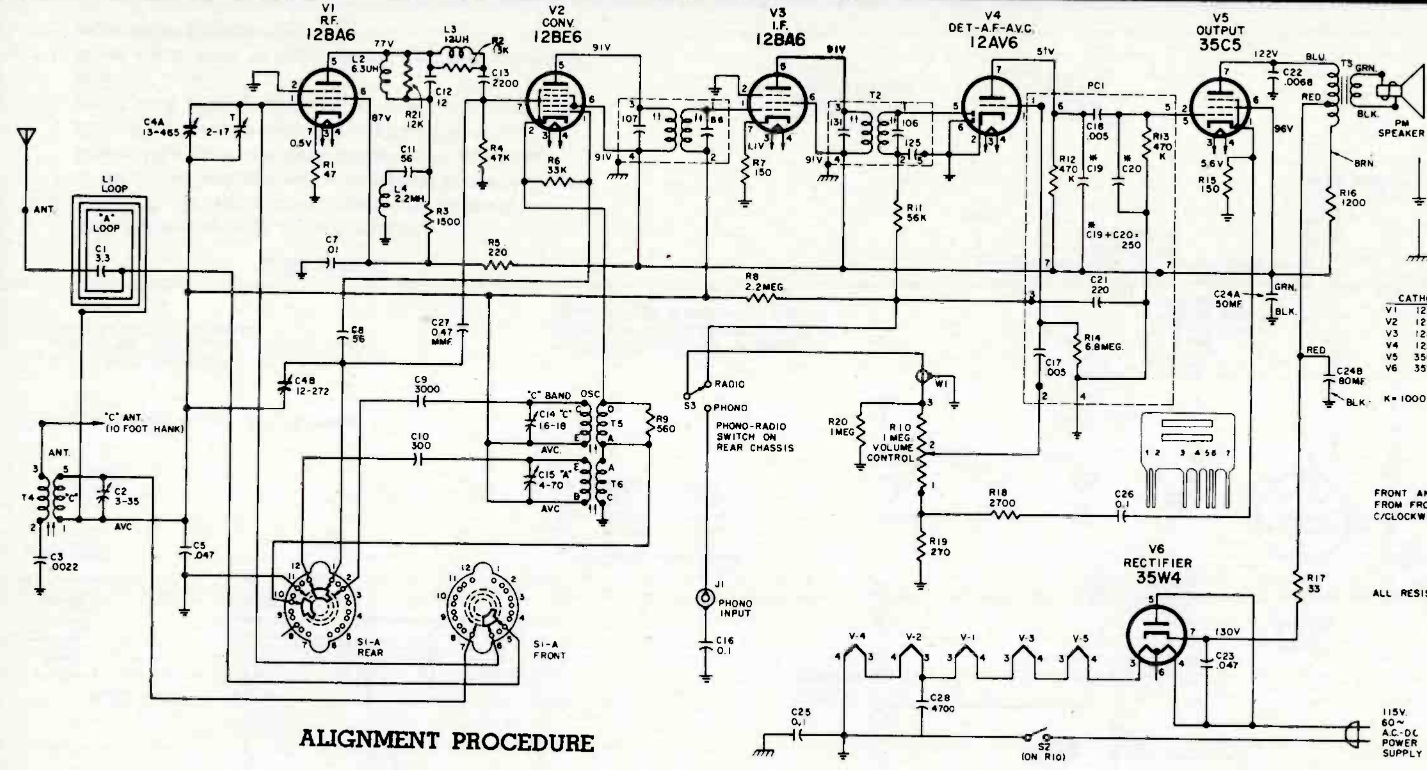
INDICATES COMMON WIRING ISOLATED FROM CHASSIS.

INDICATES CHASSIS GROUND

RCA VICTOR

MODEL 4-X-661

Chassis No. RC-1141, RC-1141A


V1
R.F.
12BA6
V2
CONV.
12BE6
V3
I.F.
12BA6
V4
DET-A.F-A.V.C.
12AV6
V5
OUTPUT
35C5
V6
RECTIFIER
35W4
ANT.
L1
LOOP
"A" LOOP
C1
3.3
C4A
13-465
T
2-17
0.5V
R1
47
77V
L2
6.3UH
87V
R21
12K
L3
12UH
R2
1.5K
C13
2200
C12
12
C11
56
L4
2.2MH.
R3
1500
C7
.01
R4
47K
R6
33K
R5
220
91V
107
86
C8
56
C27
0.47
MMF.
C4B
12-272
C9
3000
C10
300
"C" BAND OSC
C14 "C"
16-18
T5
R9
560
AVC.
C15 "A"
4-70
T6
AVC
"C" ANT.
(10 FOOT HANK)
ANT.
T4
"C"
C2
3-35
AVC
C3
.0022
C5
.047
S1-A
REAR
S1-A
FRONT
R7
150
1.1V
T2
131
106
125
R8
2.2MEG
R11
56K
RADIO
S3
PHONO
PHONO-RADIO
SWITCH ON
REAR CHASSIS
J1
PHONO
INPUT
C16
0.1
51V
PC1
C18
.005
R12
470
K
C19
C20
R13
470
K
C19+C20=
250
C21
220
R14
6.8MEG.
C17
.005
W1
R20
1MEG
R10
1 MEG
VOLUME
CONTROL
R18
2700
C26
0.1
R19
270
1 2 3 4 5 6 7
122V
C22
.0068
BLU.
T3
GRN.
RED
BLK.
PM
SPEAKER
BRN
96V
5.6V
R15
150
R16
1200
C24A
50MF
GRN.
BLK.
RED
C24B
80MF
BLK.
R17
33
130V
C23
.047
V-4
V-2
V-1
V-3
V-5
C28
4700
C25
0.1
S2
(ON R10)
115V.
60~
A.C.-DC
POWER
SUPPLY

INDICATES COMMON WIRING ISOLATED FROM CHASSIS

INDICATES CHASSIS GROUND

CATHODE		CURRENTS	
V1	12BA6	11.5	MA.
V2	12BE6	6.8	"
V3	12BA6	6.5	"
V4	12AV6	0.1	"
V5	35C5	34.9	"
V6	35W4	59.8	"

K = 1000

FRONT AND REAR SECTIONS OF S1A-S1A ARE VIEWED FROM FRONT WITH THE CONTROL SHAFT IN EXTREME C/CLOCKWISE POSITION #1

POS.	FUNCTION
1	"A" BAND
2	"C" BAND

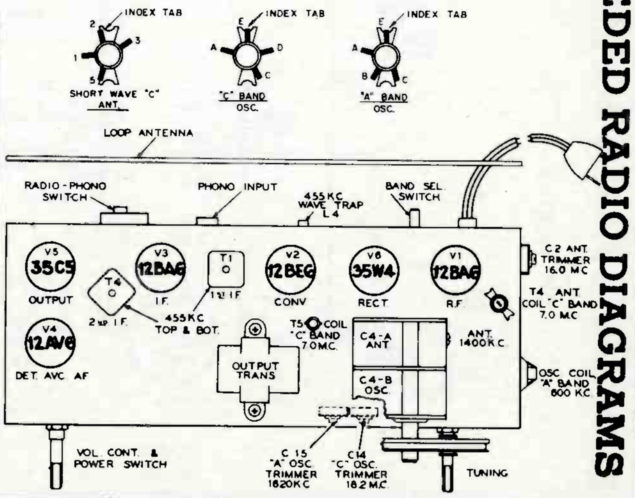
ALL RESISTOR VALUES ARE IN OHMS

ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MF. AND ABOVE 1.0 ARE IN MMF EXCEPT THOSE INDICATED

VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOMYST, SHOULD HOLD WITHIN ±20% WITH RATED POWER SUPPLY

ALIGNMENT PROCEDURE

Steps	Connect the High Side of The Test Osc. to—	Tune Test Osc. to—	Range Switch to—	Turn Radio Dial to—	Adjust for maximum output
1	Pin No. 7 of 12BE6 Converter tube in series with 0.1 mfd.	455 kc.	"A"	Quiet Point near 1600 kc.	Top and bottom T2 2nd I.F. Trans. *Top and bottom T1 1st I.F. Trans.
2	Pin No. 1 of 12BA6 R.F. tube in series with 0.1 mfd.				L4 wave trap for minimum output
3	(Radiated signal) short piece of wire placed near ant.	1620 kc.	"A"	1620 kc. (Cap. min.)	C-15 "A" Osc.
4		1400 kc.		1400 kc.	C4A "A" ant. Trimmer
5		600 kc.		600 kc.	T6 "A" Osc. Rocking gang.
6	Repeat steps 3, 4 and 5.				
7	Through 47 mmf. capacitor to jumper wire to "C" Band Ant. Coil.	18.2 mc.	"C"	18.2 mc. (Min. cap.)	**C-14 "C" Osc.
8		16.0 mc.		16.0 mc.	***†C-2 "C" Ant.
9		7.0 mc.		7.0 mc.	††T-5 "C" Osc. T-4 "C" Ant.
10	Repeat steps 7, 8, and 9 as necessary.				

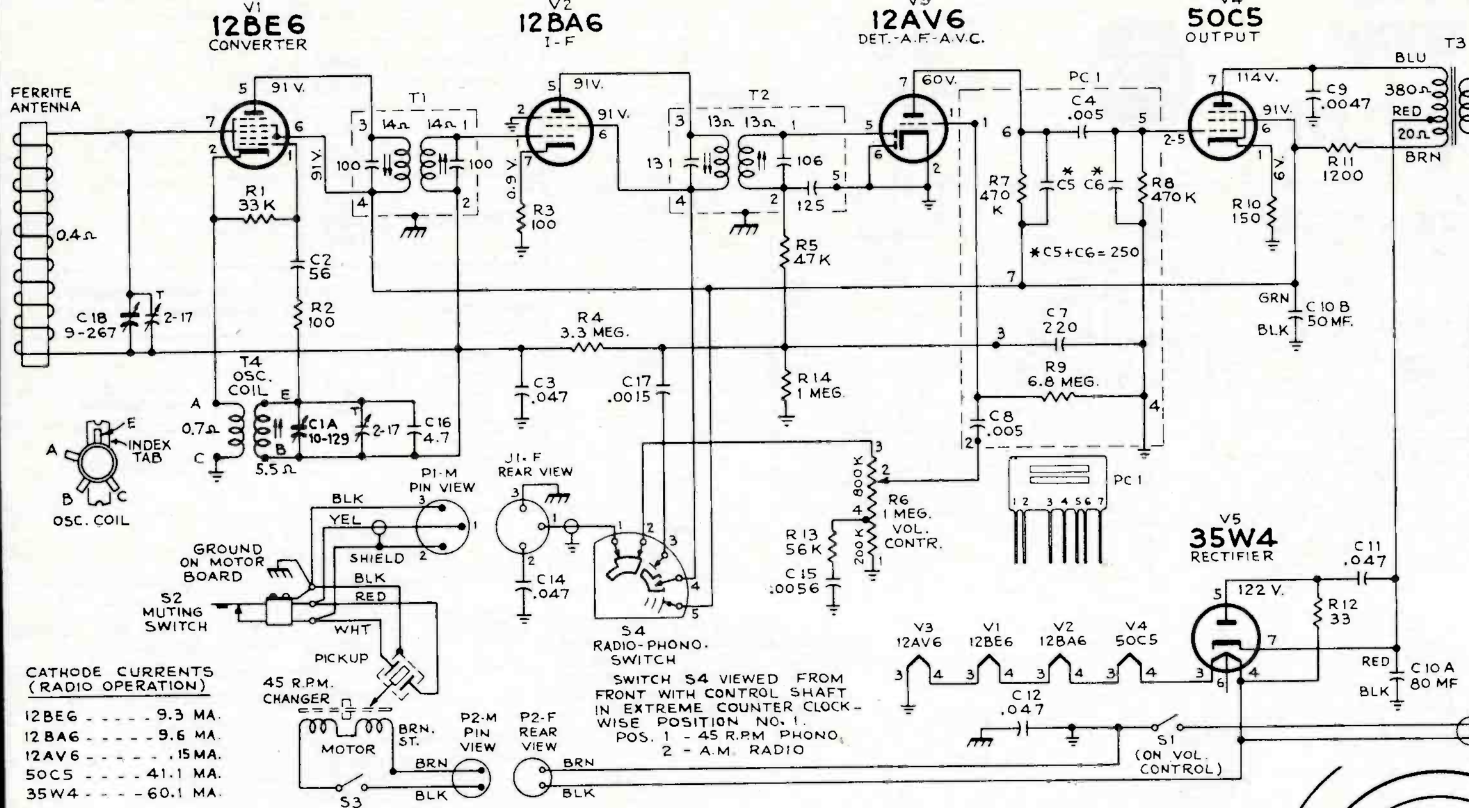

INDEX TAB
2
3
1
5
SHORT WAVE "C" ANT.
INDEX TAB
E
A
D
C
"C" BAND OSC.
INDEX TAB
E
A
B
C
"A" BAND OSC.
LOOP ANTENNA
RADIO-PHONO SWITCH
PHONO INPUT
455 KC WAVE TRAP L4
BAND SEL. SWITCH
V5
35C5
OUTPUT
T4
2nd I.F.
V3
12BA6
I.F.
T1
1st I.F.
455KC TOP & BOT.
V2
12BE6
CONV
V6
35W4
RECT.
V1
12BA6
R.F.
C2 ANT. TRIMMER 16.0 MC
T4 ANT COIL "C" BAND 7.0 MC
V4
12AV6
DET. AVC AF
OUTPUT TRANS
T5 COIL "C" BAND 7.0 MC.
C4-A ANT
C4-B OSC.
ANT. 1400 KC
OSC. COIL "A" BAND 600 KC
VOL. CONT. & POWER SWITCH
C 15 "A" OSC. TRIMMER 1620 KC
C14 "C" OSC. TRIMMER 18.2 MC.
TUNING

RCA VICTOR

Radio Phonograph Combination

MODEL 4-Y-511

Chassis No. RC 1134


FERRITE ANTENNA
0.4Ω
C18 9-267
T 2-17
V1 12BE6 CONVERTER
91 V.
R1 33K
C2 56
R2 100
T4 OSC. COIL
A
0.7Ω
C
E
B
5.5Ω
C1A 10-129
T 2-17
C16 4.7
INDEX TAB
OSC. COIL
T1
14Ω 14Ω
100 100
V2 12BA6 I-F
91V.
0.9 V.
R3 100
T2
13Ω 13Ω
131
106
125
R5 47K
R4 3.3 MEG.
C3 .047
C17 .0015
R14 1 MEG.
V3 12AV6 DET.-A.F.-A.V.C.
60V.
PC 1
C4 .005
R7 470 K
C5 C6
R8 470K
*C5+C6=250
C7 220
R9 6.8 MEG.
C8 .005
V4 50C5 OUTPUT
114V.
91V.
6V.
R10 150
C9 .0047
R11 1200
T3
BLU
380Ω
RED
20Ω
BRN
GRN
BLK
PM SPEAKER
GRN
C10B 50MF.
BLK
R6 1 MEG. VOL. CONTR.
800K
200K
R13 56K
C15 .0056
P1-M PIN VIEW
BLK
YEL
SHIELD
RED
WHT
J1-F REAR VIEW
C14 .047
GROUND ON MOTOR BOARD
S2 MUTING SWITCH
PICKUP
45 R.P.M. CHANGER
MOTOR
BRN. ST.
S3
P2-M PIN VIEW
P2-F REAR VIEW
BRN
BLK
S4 RADIO-PHONO. SWITCH
V5 35W4 RECTIFIER
122 V.
C11 .047
R12 33
RED
BLK
C10A 80 MF
V3 12AV6
V1 12BE6
V2 12BA6
V4 50C5
C12 .047
S1 (ON VOL. CONTROL)
115V. 60~ SUPPLY

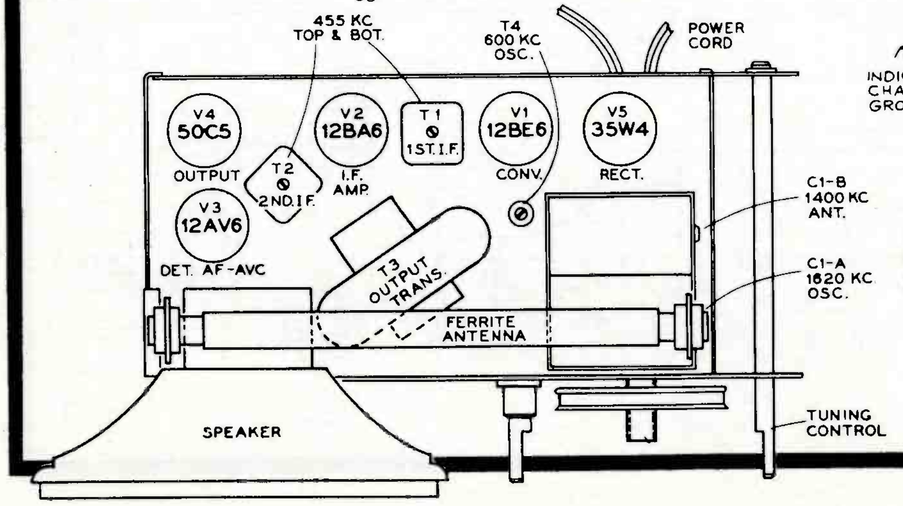
SWITCH S4 VIEWED FROM FRONT WITH CONTROL SHAFT IN EXTREME COUNTER CLOCK-WISE POSITION NO. 1.
POS. 1 - 45 R.P.M. PHONO
2 - A.M. RADIO

CATHODE CURRENTS
(RADIO OPERATION)

12BE6	9.3 MA.
12BA6	9.6 MA.
12AV6	.15 MA.
50C5	41.1 MA.
35W4	60.1 MA.

INDICATES CHASSIS GROUND

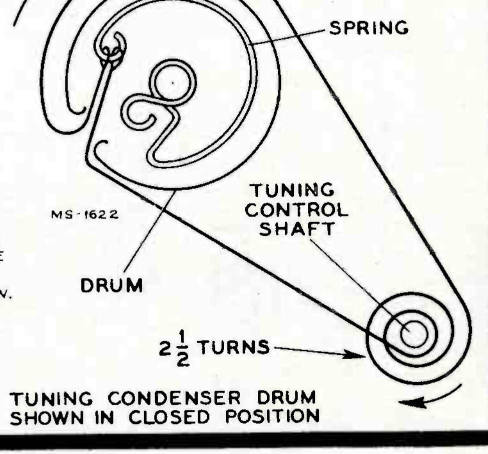
INDICATES COMMON WIRING INSULATED FROM CHASSIS


455 KC TOP & BOT.
T4 600 KC OSC.
POWER CORD
V4 50C5 OUTPUT
T2 2ND.I.F.
V2 12BA6 I.F. AMP.
T1 1ST.I.F.
V1 12BE6 CONV.
V5 35W4 RECT.
V3 12AV6 DET. AF-AVC
T3 OUTPUT TRANS.
FERRITE ANTENNA
C1-B 1400 KC ANT.
C1-A 1620 KC OSC.
SPEAKER
TUNING CONTROL

RESISTANCE VALUES IN OHMS. K=1000

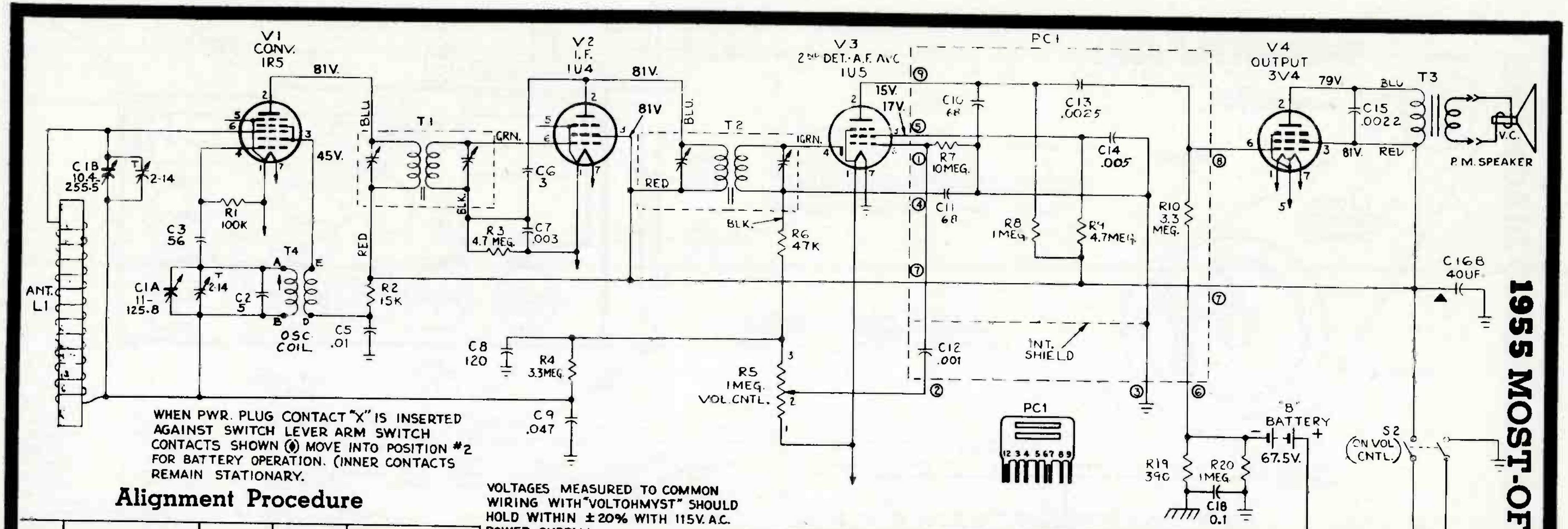
CAPACITANCE VALUES LESS THAN 1, IN MF. AND ABOVE 1 IN MMF. UNLESS OTHERWISE NOTED.

VOLTAGES MEASURED WITH FUNCTION SW. IN "RADIO" POSITION.


SPRING
MS-1622
TUNING CONTROL SHAFT
DRUM
2½ TURNS

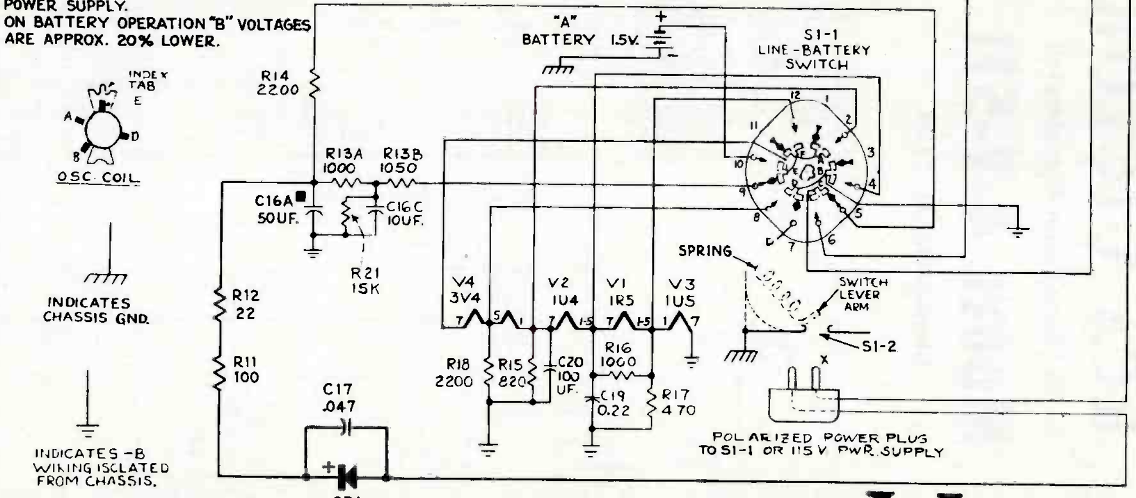
TUNING CONDENSER DRUM SHOWN IN CLOSED POSITION

RCA VICTOR
MODEL 5-BX-41
Chassis No. RC-1147


V1 CONV. 1R5
81V.
45V.
C1B 10.4-255.5
2-14
R1 100K
C3 56
C1A 11-125.8
2.14
C2 5
T4
A B D E
OSC COIL
ANT. L1
C5 .01
R2 15K
BLU
RED
T1
GRN.
BLK.
R3 4.7 MEG.
C7 .003
C6 3
V2 I.F. 1U4
81V.
81V
BLU.
RED
T2
IGRN.
BLK.
R6 47K
C8 120
R4 3.3MEG.
C9 .047
R5 1MEG. VOL.CNTL.
V3 2ND DET.-A.F. AVC 1U5
15V.
17V.
PC1
C10 68
R7 10MEG.
C11 68
C12 .001
C13 .0025
C14 .005
R8 1MEG.
R9 4.7MEG.
R10 3.3 MEG.
INT. SHIELD
PC1
V4 OUTPUT 3V4
79V
81V.
C15 .0022
BLU
RED
T3
V.C.
P.M. SPEAKER
C16B 40UF.
"B" BATTERY 67.5V.
S2 (ON VOL. CNTL.)
R19 390
R20 1MEG.
C18 0.1

WHEN PWR. PLUG CONTACT "X" IS INSERTED AGAINST SWITCH LEVER ARM SWITCH CONTACTS SHOWN (◆) MOVE INTO POSITION #2 FOR BATTERY OPERATION. (INNER CONTACTS REMAIN STATIONARY.

VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST" SHOULD HOLD WITHIN ±20% WITH 115V. A.C. POWER SUPPLY.
ON BATTERY OPERATION "B" VOLTAGES ARE APPROX. 20% LOWER.


"A" BATTERY 1.5V.
R14 2200
INDEX TAB
A B D E
OSC. COIL
INDICATES CHASSIS GND.
INDICATES -B WIRING ISOLATED FROM CHASSIS.
R13A 1000
R13B 1050
C16A 50UF.
C16C 10UF.
R21 15K
R12 22
R11 100
C17 .047
SR1
V4 3V4
V2 1U4
V1 1R5
V3 1U5
R18 2200
R15 820
C20 100 UF.
R16 1000
C19 0.22
R17 470
S1-1 LINE-BATTERY SWITCH
SPRING
SWITCH LEVER ARM
S1-2
X
POLARIZED POWER PLUG TO S1-1 OR 115V. PWR. SUPPLY

6 POLE-2 POSITION SWITCH S1-1 SHOWN FROM TERM. END WITH SWITCH SHAFT IN C/CLOCKWISE POSITION #1. (115V. OPERATION)

POSITION	FUNCTION
1	115V. AC-DC OPERATION
2	BATTERY OPERATION

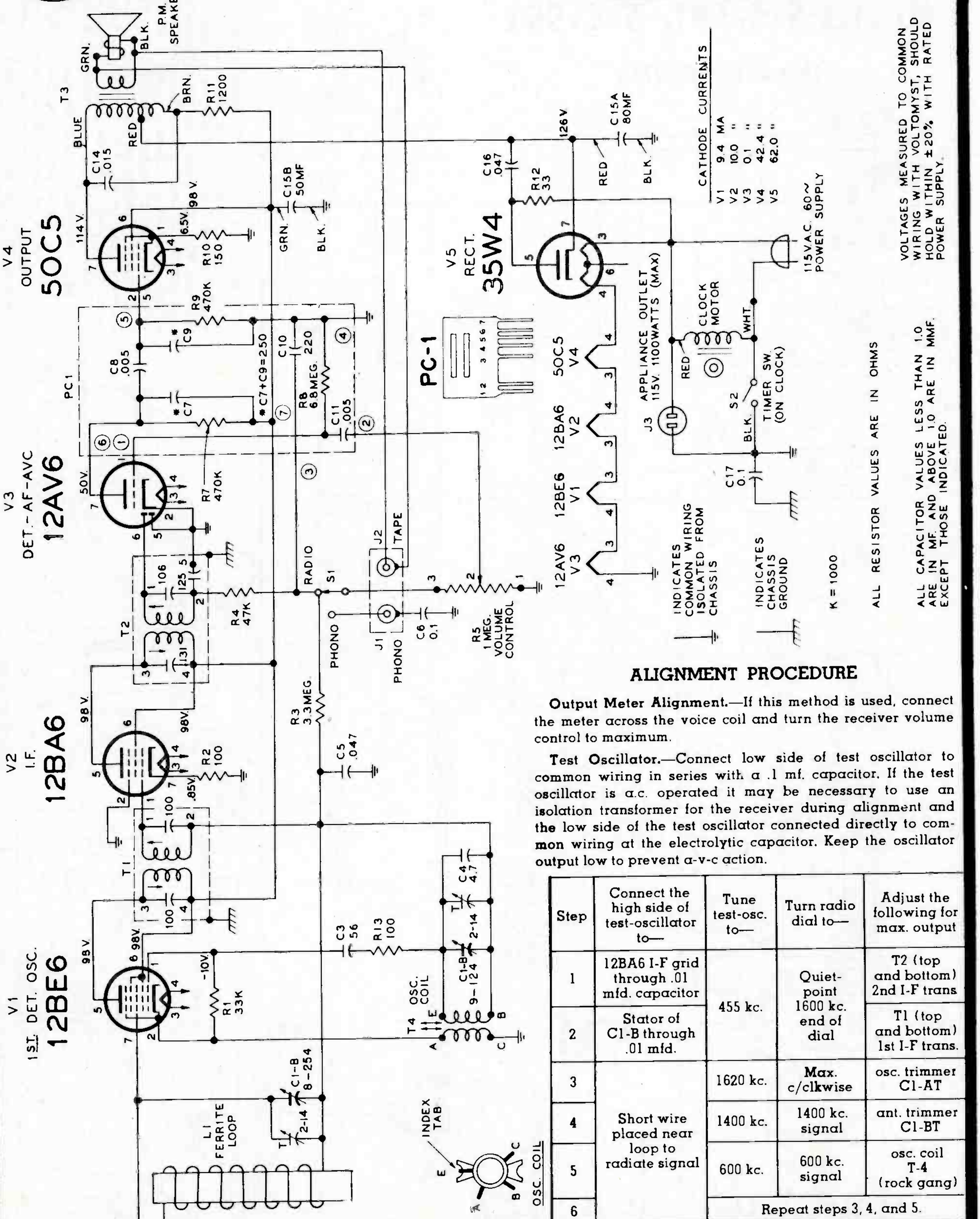
Alignment Procedure

Step	Connect High Side of Sig. Gen. to —	Sig. Gen. Output	Dial Pointer Setting	Adjust for Max. Output
1	Remove chassis from case Remove chassis cover			
2	Connection lug of C1-B (rear section of gang) in series with .005 mfd.	455 kc	Quiet point near 1600 kc	T2 2nd I. F. Trans.
3				T1 1st I. F. Trans.
4	Replace chassis cover and install chassis in case. Fasten antenna leads under tab on chassis apron.			
5	Short wire placed near antenna for radiated signal	1620 kc	gang fully open	C1-A (osc.)
6		1420 kc	1400 kc signal	C1-B (ant.)
7		600 kc	600 kc signal	T4 (osc.) rock gang
8	Repeat steps 5, 6 and 7.			

RCA VICTOR

MODEL 5-C-581

Chassis No. RC-1148A


P.M. SPEAKER
GRN.
BLK.
T3
BLUE
RED
BRN.
R11 1200
C14 .015
114 V.
98 V.
6.5V.
C15B 50MF
GRN.
BLK.
V4 OUTPUT 50C5
R10 150
R9 470K
C8 .005
*C9
*C7
*C7+C9=250
C10 220
R8 6.8MEG.
C11 .005
PC1
V3 DET.-AF-AVC 12AV6
50V.
R7 470K
T2
106
125
131
R4 47K
RADIO
S1
PHONO
J2 TAPE
J1 PHONO
C6 0.1
R5 1 MEG. VOLUME CONTROL
V2 I.F. 12BA6
98 V.
98V.
.85V.
R2 100
R3 3.3MEG.
C5 .047
T1
100
V1 1ST. DET. OSC. 12BE6
98V.
-10V.
R1 33K
C3 56
R13 100
C4 4.7
2-14
C1-B 9-124
OSC. COIL
T4
A B C E
C1-B 8-254
2-14
L1 FERRITE LOOP
INDEX TAB
E B C
OSC. COIL
PC-1
V5 RECT. 35W4
C16 .047
R12 33
126V
C15A 80MF
RED
BLK.
APPLIANCE OUTLET 115V. 1100WATTS (MAX)
J3
CLOCK MOTOR
RED
WHT.
S2 TIMER SW. (ON CLOCK)
BLK.
C17 0.1
115V.A.C. 60~ POWER SUPPLY
50C5 V4
12BA6 V2
12BE6 V1
12AV6 V3
CATHODE CURRENTS
V1 9.4 MA
V2 10.0 "
V3 0.1 "
V4 42.4 "
V5 62.0 "
INDICATES COMMON WIRING ISOLATED FROM CHASSIS
INDICATES CHASSIS GROUND
K = 1000
ALL RESISTOR VALUES ARE IN OHMS
ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MF. AND ABOVE 1.0 ARE IN MMF. EXCEPT THOSE INDICATED.
VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOMYST, SHOULD HOLD WITHIN ±20% WITH RATED POWER SUPPLY.

ALIGNMENT PROCEDURE

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

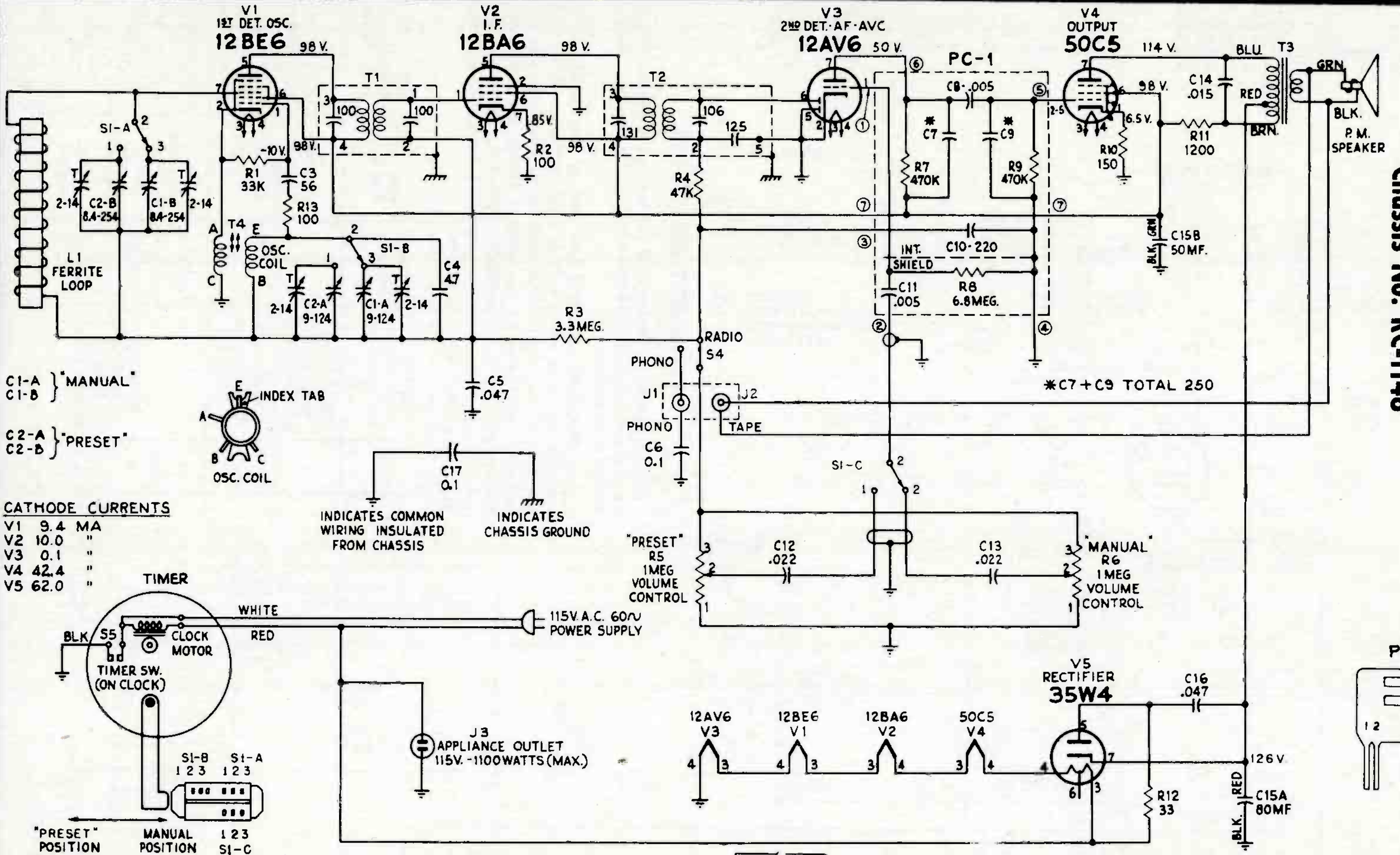
Test Oscillator.—Connect low side of test oscillator to common wiring in series with a .1 mf. capacitor. If the test oscillator is a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the test oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Step	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. output
1	12BA6 I-F grid through .01 mfd. capacitor	455 kc.	Quiet-point 1600 kc. end of dial	T2 (top and bottom) 2nd I-F trans
2	Stator of C1-B through .01 mfd.			T1 (top and bottom) 1st I-F trans.
3	Short wire placed near loop to radiate signal	1620 kc.	Max. c/clkwise	osc. trimmer C1-AT
4		1400 kc.	1400 kc. signal	ant. trimmer C1-BT
5		600 kc.	600 kc. signal	osc. coil T-4 (rock gang)
6	Repeat steps 3, 4, and 5.			

RCA VICTOR

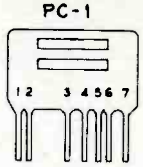
MODELS 5-C-591, 5-C-592

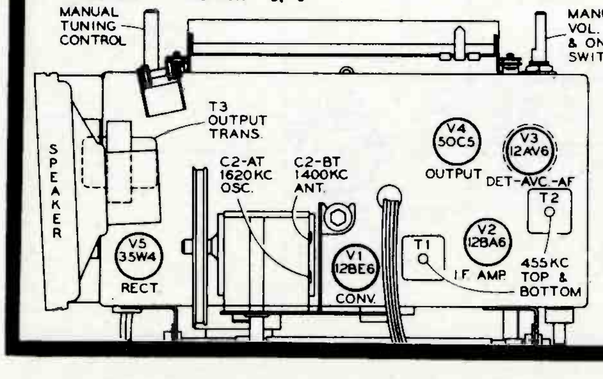
Chassis No. RC-1148

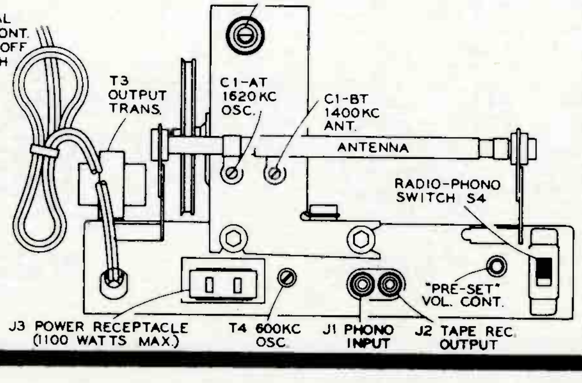

V1
1ST DET. OSC.
12BE6
V2
I.F.
12BA6
V3
2ND DET.-AF-AVC
12AV6
V4
OUTPUT
50C5
V5
RECTIFIER
35W4
T1
T2
T3
PC-1
P.M. SPEAKER
BLU
RED
BRN.
GRN
BLK.
98 V.
50 V.
114 V.
85 V.
6.5 V.
-10V.
126 V.
S1-A
S1-B
S1-C
L1
FERRITE LOOP
T4
OSC. COIL
C1-A
C1-B
C2-A
C2-B
R1 33K
C3 56
R13 100
R2 100
C4 47
R3 3.3MEG.
R4 47K
C5 .047
C6 0.1
C7
C8 .005
C9
R7 470K
R9 470K
C10-220
R8 6.8MEG.
C11 .005
INT. SHIELD
R10 150
R11 1200
C14 .015
C15B 50MF.
C15A 80MF
C16 .047
R12 33
C12 .022
C13 .022
C17 0.1
✻C7+C9 TOTAL 250
RADIO
PHONO
S4
J1
J2
TAPE
"PRESET" R5 1MEG VOLUME CONTROL
"MANUAL" R6 1MEG VOLUME CONTROL
C1-A
C1-B
"MANUAL"
C2-A
C2-B
"PRESET"
INDEX TAB
OSC. COIL
INDICATES COMMON WIRING INSULATED FROM CHASSIS
INDICATES CHASSIS GROUND
115V A.C. 60∿ POWER SUPPLY
WHITE
RED
BLK
TIMER
S5
CLOCK MOTOR
TIMER SW. (ON CLOCK)
J3
APPLIANCE OUTLET
115V.-1100WATTS (MAX.)
"PRESET" POSITION
MANUAL POSITION

CATHODE CURRENTS

V1	9.4 MA
V2	10.0 "
V3	0.1 "
V4	42.4 "
V5	62.0 "


PC-1
1 2 3 4 5 6 7


MANUAL TUNING CONTROL
MANUAL VOL. CONT. & ON-OFF SWITCH
SPEAKER
T3 OUTPUT TRANS.
C2-AT 1620KC OSC.
C2-BT 1400KC ANT.
V4 50C5 OUTPUT
V3 12AV6 DET-AVC-AF
T2
455KC TOP & BOTTOM
V2 12BA6
T1 I.F. AMP
V1 12BE6 CONV.
V5 35W4 RECT


T3 OUTPUT TRANS.
C1-AT 1620KC OSC.
C1-BT 1400KC ANT.
ANTENNA
RADIO-PHONO SWITCH S4
"PRE-SET" VOL. CONT.
J3 POWER RECEPTACLE (1100 WATTS MAX.)
T4 600KC OSC.
J1 PHONO INPUT
J2 TAPE REC. OUTPUT

The clock is a new RCA developed timing unit, basically different from previous design. In addition to the conventional "automatic" wake-up features, a "preset" position is provided. With this "preset" feature it is possible to have the clock turn on the radio at a predetermined time to a different station and with a different volume level than when the radio was turned off (either manually or by "sleep" feature of the clock). A second important feature of the new timing unit is the simplification of the controls; the large clear polystyrene clock crystal has a knurled raised rim which can be set by rotation to four positions: "OFF," "ON," "AUTO," and "PRE-SET." A molded knob at the cabinet top can be pulled out for alarm buzzer sounding or pushed down for buzzer silencing; the same knob can be rotated for setting the "sleep" timing. Sleep time setting is indicated in a small window at the upper clock dial marked in 15 minute intervals up to one hour.

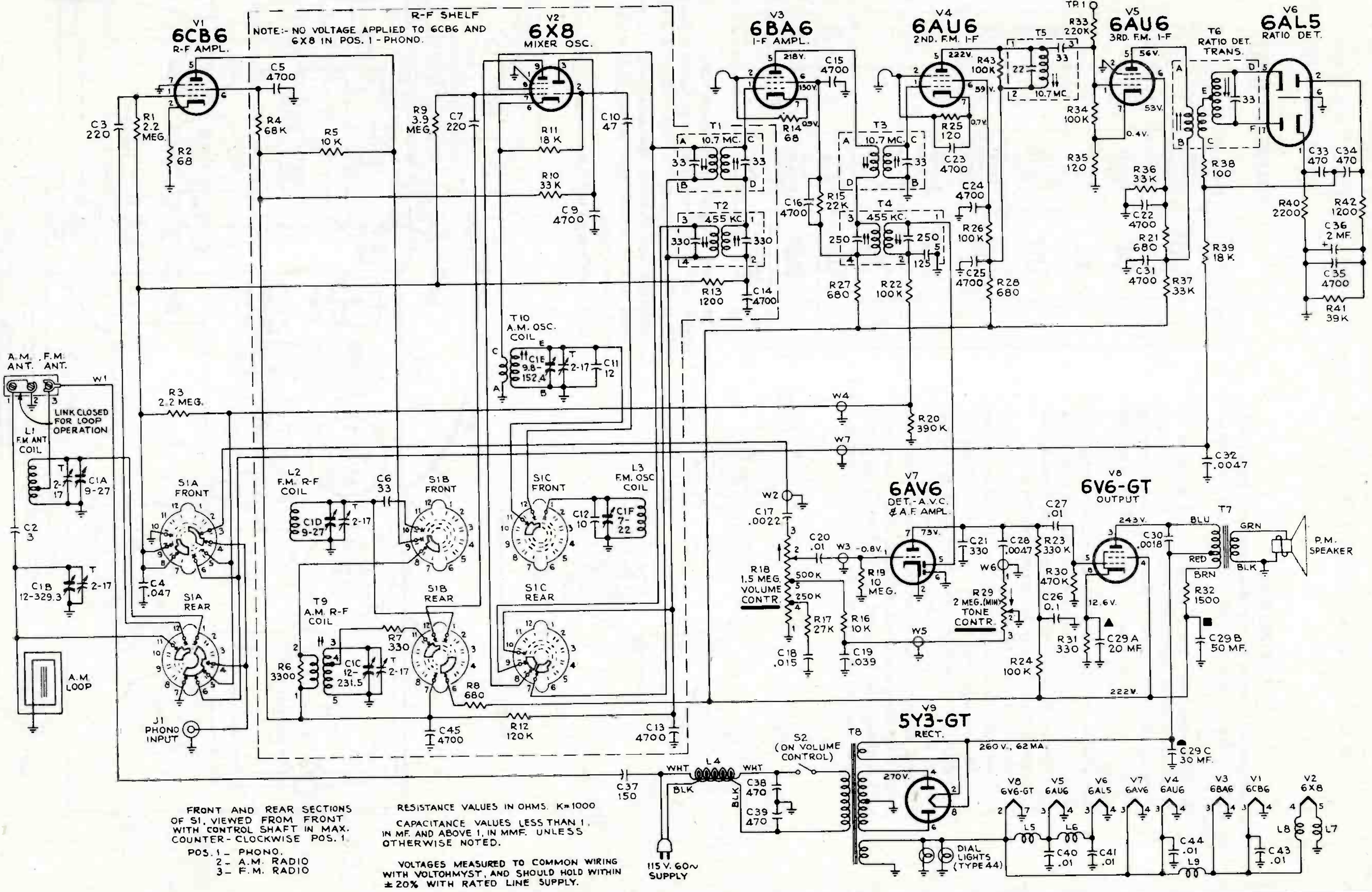
RCA VICTOR

AM-FM Radio Receiver

MODEL 6-RF-9

Chassis No. RC1129A

(Alignment information and service data continued on the next two pages.)


V1
6CB6
R-F AMPL.
R-F SHELF
NOTE:- NO VOLTAGE APPLIED TO 6CB6 AND 6X8 IN POS. 1 - PHONO.
V2
6X8
MIXER OSC.
V3
6BA6
I-F AMPL.
V4
6AU6
2ND. F.M. I-F
TP1
R33 220K
T5
V5
6AU6
3RD. F.M. I-F
T6
RATIO DET. TRANS.
V6
6AL5
RATIO DET.
C3 220
R1 2.2 MEG.
R2 68
C5 4700
R4 68K
R5 10K
R9 3.9 MEG.
C7 220
R11 18K
R10 33K
C9 4700
C10 47
T1 10.7 MC.
T2 455 KC.
R13 1200
C14 4700
218V.
150V.
C15 4700
R14 68
0.9V.
T3 10.7 MC.
T4 455 KC.
C16 4700
R15 22K
R27 680
R22 100K
222V.
59V.
R43 100K
R25 120
C23 4700
C24 4700
R26 100K
C25 4700
R28 680
0.7V.
10.7 MC
R34 100K
R35 120
56V.
53V.
0.4V.
R36 33K
C22 4700
R21 680
C31 4700
R37 33K
R38 100
R39 18K
C33 470
C34 470
R40 2200
R42 1200
C36 2 MF.
C35 4700
R41 39K
T10 A.M. OSC. COIL
C1E 9.8-152.4
2-17
C11 12
A.M. F.M. ANT. ANT.
W1
LINK CLOSED FOR LOOP OPERATION
L1 F.M. ANT COIL
C1A 9-27
C2 3
C1B 12-329.3
2-17
R3 2.2 MEG.
W4
R20 390K
W7
C32 .0047
S1A FRONT
C4 .047
S1A REAR
A.M. LOOP
J1 PHONO INPUT
L2 F.M. R-F COIL
C1D 9-27
C6 33
S1B FRONT
S1C FRONT
L3 F.M. OSC COIL
C12 10
C1F 7-22
T9 A.M. R-F COIL
R6 3300
R7 330
C1C 12-231.5
S1B REAR
R8 680
S1C REAR
C45 4700
R12 120K
C13 4700
W2
C17 .0022
C20 .01
W3
-0.8V.
V7
6AV6
DET.-A.V.C. & A.F. AMPL.
73V.
R18 1.5 MEG. VOLUME CONTR.
500K
250K
R17 27K
R16 10K
C18 .015
C19 .039
R19 10 MEG.
C21 330
C28 .0047
W6
R29 2 MEG. (MIN) TONE CONTR.
W5
C27 .01
R23 330K
R30 470K
C26 0.1
R31 330
C29A 20 MF.
12.6V.
R24 100K
V8
6V6-GT
OUTPUT
243V.
C30 .0018
T7
BLU
GRN
RED
BRN
BLK
P.M. SPEAKER
R32 1500
C29B 50 MF.
222V.
S2 (ON VOLUME CONTROL)
T8
V9
5Y3-GT
RECT.
270V.
260V., 62 MA.
C29C 30 MF.
C37 150
L4
WHT
BLK
C38 470
C39 470
115V. 60~ SUPPLY
DIAL LIGHTS (TYPE 44)
V8 6V6-GT
V5 6AU6
V6 6AL5
V7 6AV6
V4 6AU6
V3 6BA6
V1 6CB6
V2 6X8
L5
L6
C40 .01
C41 .01
C44 .01
L9
C43 .01
L8
L7

FRONT AND REAR SECTIONS OF S1, VIEWED FROM FRONT WITH CONTROL SHAFT IN MAX. COUNTER-CLOCKWISE POS. 1.

POS. 1 - PHONO.
2 - A.M. RADIO
3 - F.M. RADIO

RESISTANCE VALUES IN OHMS. K=1000

CAPACITANCE VALUES LESS THAN 1, IN MF. AND ABOVE 1, IN MMF. UNLESS OTHERWISE NOTED.

VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOHMYST, AND SHOULD HOLD WITHIN ±20% WITH RATED LINE SUPPLY.

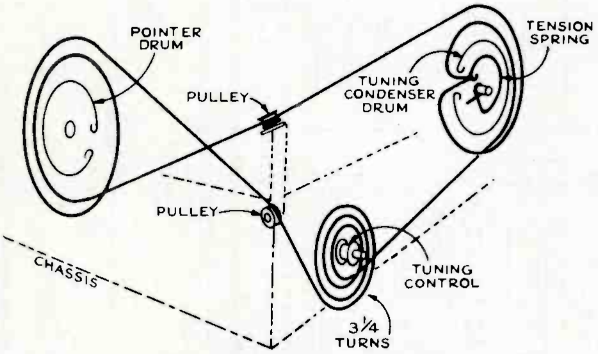
RCA Victor Model 6-RF-9, Chassis RC-1129A (Continued)

(See also next page)

CORE PEAKING

Incorrect peaking can seriously affect gain and bandwidth. The correct peak is noted for the various coils and transformers.

1. The RF transformer core screw should be adjusted on the peak position furtherest removed from the coil mounting clip. An incorrect peak may sometimes be obtained with the core screw almost all the way into the clip.
2. The oscillator coil (AM) should be adjusted on the peak obtained with the core coming out the lug end of the coil. When adjusting from the top of the chassis, this is the peak with the core furtherest into the coil.
3. The position of the FM IF transformer screws should be noted after adjustment. These cores should be peaked with the core part way out of the coil toward the adjusting hole. It is possible to run the IF cores all the way through the FM windings and obtain a second peak. This will cause serious overcoupling and should be avoided by using a marked adjusting stick. The correct peak is always the first peak obtained when the core is started in from the "backed all the way out" position.


POINTER DRUM
PULLEY
TUNING CONDENSER DRUM
TENSION SPRING
PULLEY
CHASSIS
TUNING CONTROL
3¼ TURNS

Dial Cord and Drive Assembly

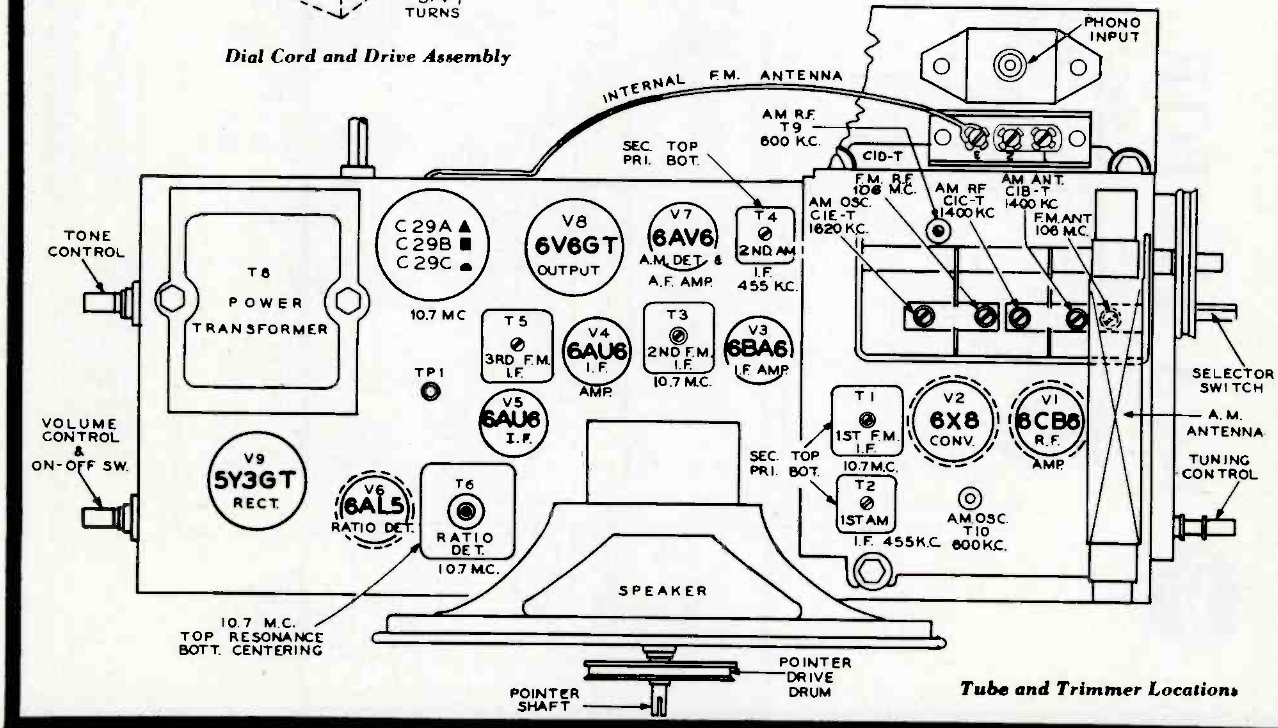
VOLTAGE CHART

Tube	Type	Elements	Pin No.	"AM"	"FM"	Phono.
1	RF amp. 6CB6	Plate	5	195	128	—
		Screen	6	96	65	—
		Cathode	2	0.4	0.5	—
		Grid	1	-1.4	-0.2	—
2	Mixer 6X8	Plate	9	39	38	—
		Screen	8	39	38	—
		Grid	7	-2.8	-1.5	—
	Osc. 6X8	Plate	3	79	66	—
		Grid	2	-6.1	-2.3	—
3	IF amp. 6BA6	Plate	5	195	187	218
		Screen	6	122	100	130
		Cathode	7	0.8	0.9	0.9
		Grid	1	-1.6	—	-1.2
4	IF amp. 6AU6	Plate	5	200	195	222
		Screen	6	65	62	69
		Cathode	7	0.55	0.55	0.65
5	IF amp. 6AU6	Plate	5	52	50	56
		Screen	6	49	47	53
		Cathode	7	0.36	0.35	0.4
		Grid	1	-0.34	-0.34	-0.3
6	Ratio Det. 6AL5	—	—	—	—	—
7	AF amp. 6AV6	Plate	7	69	69	73
		Grid	1	-0.8	-0.8	-0.8
8	Output 6V6GT	Plate	3	242	240	243
		Screen	4	200	195	222
		Cathode	8	11.1	10.7	12.6
9	Rectifier 5Y3GT	Fil.	8	257	254	260

The heater voltage of the mixer/oscillator tube (6X8) is approx. 0.4 volt lower than other tubes in the same circuit. This is due to the filament choke coils L7 and L8.

Voltages and currents measured with tuning condenser closed and no signal input should hold within ±20% with rated line voltage.

RCA VoltOhmyst used for measuring all voltages.


PHONO INPUT
INTERNAL F.M. ANTENNA
AM R.F. T9 600 K.C.
SEC. TOP PRI. BOT.
CID-T
F.M. R.F. 106 M.C.
AM RF CIC-T 1400 KC
AM ANT. CIB-T 1400 KC
AM OSC. CIE-T 1620 K.C.
F.M. ANT 106 M.C.
TONE CONTROL
T8 POWER TRANSFORMER
C29A ▲
C29B ■
C29C ▲
10.7 MC
V8 6V6GT OUTPUT
V7 6AV6 A.M. DET. & A.F. AMP.
T4 2ND AM I.F. 455 KC.
T5 3RD F.M. I.F.
V4 6AU6 I.F. AMP.
T3 2ND F.M. I.F. 10.7 M.C.
V3 6BA6 I.F. AMP.
TP1
V5 6AU6 I.F.
SELECTOR SWITCH
VOLUME CONTROL & ON-OFF SW.
V9 5Y3GT RECT.
V6 6AL5 RATIO DET.
T6 RATIO DET. 10.7 MC.
T1 1ST F.M. I.F. 10.7 M.C.
V2 6X8 CONV.
V1 6CB6 R.F. AMP.
A.M. ANTENNA
SEC. TOP PRI. BOT.
T2 1ST AM I.F. 455 K.C.
AM OSC. T10 600 K.C.
TUNING CONTROL
SPEAKER
10.7 M.C. TOP RESONANCE BOTT. CENTERING
POINTER DRIVE DRUM
POINTER SHAFT

Tube and Trimmer Locations

RCA Victor Model 6-RF-9, Chassis RC-1129A (Continued)

ALIGNMENT PROCEDURE

Due to the use of separate I.F. transformers, there is little interaction between the 10.7 mc. and the 455 kc. adjustments.

There is a slight interaction of adjustments on the tuning condenser between AM and FM.

Final adjustment of AM ant. trimmer should be made with chassis and antenna in cabinet.

Alignment Indicators:

For measuring the developed d-c voltage across C36 during FM alignment an RCA VoltOhmyst or an equivalent meter should be used. An output meter connected across the voice coil is also needed to indicate minimum audio output during FM Ratio Detector alignment.

The RCA VoltOhmyst can also be used to indicate audio output voltage across the voice coil or developed voltage on the AVC bus.

Signal Generator:

For alignment operations connect the low side of the signal generator to the receiver chassis. The output of the signal generator should always be controlled to prevent over-loading or excessive AVC action.

Oscilloscope Alignment:

It is preferable to use a sweep generator and oscilloscope for aligning I.F. and R.F. circuits to obtain a visual observation of curve shape during alignment.

With FM sweep generator connected between FM ant. (#3) terminal and chassis, and oscilloscope connected between the junction of R39-C32 and chassis, the overall FM linearity may be observed. With 100% FM modulation there should be a peak-to-peak separation of 150 kc. with 50,000 microvolts input before noticeable distortion of the sine wave is present.

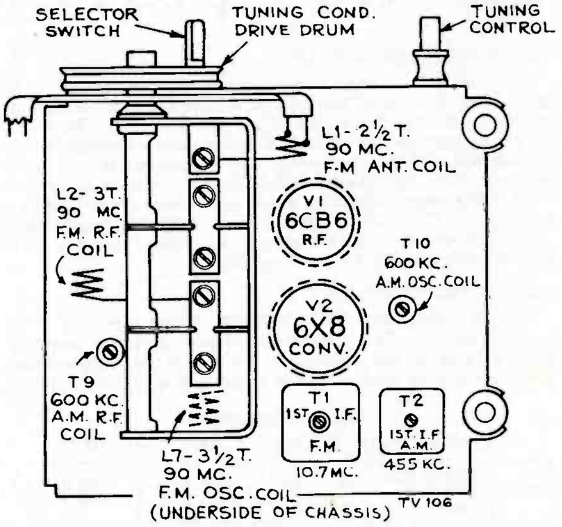
For FM alignment of the ratio detector, connect oscilloscope to junction of 56K resistors as in alignment table, adjusting T6 top and bottom cores for 10.7 mc. crossover and balanced peaks. When aligning other FM tuned circuits, connect oscilloscope to TP1. Follow alignment table sequence, adjusting for maximum gain and symmetry.

AM Alignment

RANGE SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin 1 of V3 6BA6 in series with .01 mfd.	455 kc.	Quiet point at low freq. end	T4 bottom core (pri.) T4 top core (sec.)
2	Tap terminal T9 term. 4 in series with .01 mfd.			T2 top core (sec.) T2 bottom core (pri.)
3	No. 1 terminal on ant. input strip	1620 kc.	High freq. end of dial (min. cap.)	C1E-T
4		1400 kc.	1400 kc. signal	C1B-T ant. C1C-T r.f.
5		Shunt a 10,000 ohm resistor across the r.f. section of the gang.		
6		600 kc.	600 kc. signal	T10 osc.* (Rock gang.)
7		Remove the 10,000 ohm resistor and peak T9 r.f.*		
8	Repeat 3, 4, 5, 6 and 7			

* The correct adjustment of the Osc. (T10) core is that peak obtained with core furtherest away from the coil mounting clips. R.F. (T9) core should be set to the peak obtained (2 peaks are seldom obtainable) with core closest to the mounting clips.


SELECTOR SWITCH
TUNING COND. DRIVE DRUM
TUNING CONTROL
L1- 2½T. 90 MC. F-M ANT. COIL
L2- 3T. 90 MC. F.M. R.F. COIL
V1 6CB6 R.F.
T10 600 KC. A.M. OSC. COIL
V2 6X8 CONV.
T9 600 KC. A.M. R.F. COIL
T1 1ST I.F. F.M. 10.7 MC.
T2 1ST. I.F. A.M. 455 KC.
L7- 3½T. 90 MC. F.M. OSC. COIL
(UNDERSIDE OF CHASSIS)
TV 106

FM Coil Locations

FM Alignment

RANGE SWITCH IN FM POSITION—
VOLUME CONTROL MAXIMUM—TONE CONTROL CENTER

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin 1 of V5 6AU6 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles	Quiet point at low freq. end	
2	Connect VoltOhmyst across R41-39K resistor. Adjust Sig. gen. output to give 1 volt d-c on VoltOhmyst.			T6 top core for max. d-c voltage across C36
3	Shunt R41 with two 56K ±1% resistors connected in series. Connect VoltOhmyst from center junction of 56K resistors to junction of R39 and C32.			T6 bottom core for 0 volts d-c
4	Pin 1 of V3 6BA6 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles	Quiet point at low freq. end	VoltOhmyst conn. to TP1. ††T5 top core. T3 top & bottom cores.
5	Stator of C1D in series with .01 mfd.			††T1 top and bottom cores
6	FM Ant. terminals 270 ohm resistor in series #3 term.	90 mc.	90 mc.	Remove bottom shield. **Osc. coil L3
7		106 mc.	106 mc. signal	Replace bottom shield. C1A-T ant., C1D-T r.f.
8		90 mc.	90 mc.	**L1 ant. L2 r.f.
9	Repeat steps 6, 7, and 8 until further adjustment does not improve calibration.			

†† Alternate loading may be necessary to provide accurate observation of peaks.

Alternate loading involves the use of a 680 ohm resistor to load the plate winding while the grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 680 ohm resistor after T3 and T1 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

Extreme care should be used to avoid running the I.F. cores all the way through the winding and out the other end.

** Note: FM antenna, mixer and oscillator coils are adjustable by increasing or decreasing the spacing between turns. The location of the tap on the antenna coil is ⅝ turn to ¾ turn from the ground end.

RCA VICTOR

AM-FM Radio Receiver

MODEL 6-XF-9

Chassis No. RC-1121B

(See next page at right for circuit diagram and additional material.)

ALIGNMENT INDICATORS:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate maximum audio output during AM alignment. Connect the output meter across the speaker voice coil. The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure AVC voltage. When audio output is being measured, the volume control should be turned to maximum. Adjust tone control to mid-position.

SIGNAL GENERATOR:

For all alignment operations, connect the low side of the signal generator to the receiver chassis. If output measurement is used for AM alignment, the output of the signal generator should be kept as low as possible to avoid AVC action.

AM Alignment

FUNCTION SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin No. 1 of V3 in series with .01 mfd	455 kc. (mod.)	Quiet point at high freq. end	T4 bottom core (sec.) T4 top core (pri.)
2	Tap lug 4 on AM RF coil			T2 bottom core (sec.) T2 top core (pri.)
3	Short wire placed near loop for radiated signal	1620 kc. (mod.)	1620 kc. (gang open)	.C1E-T (osc.)
4		1400 kc. (mod.)	1400 kc.	C37 (ant.) C1C-T (rf.)
5		600 kc. (mod.)	600 kc.	L6 (osc.) with (rocking gang)
6				L4 (RF)
7	Repeat steps 4, 5 and 6 until Maximum gain is obtained			

FM Alignment

FUNCTION SWITCH IN FM POSITION—VOLUME CONTROL MINIMUM—TONE CONTROL CENTER

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output
1	Pin No. 1 of V5-12AU6	10.7 mc	Quiet point at low frequency end	T6 top core for zero d.c. (across C26) T6 bottom core for maximum d.c. (junction of R24 and R25)
2	Pin No. 1 of V4-12AU6			†T5 top core
3	Pin No. 1 of V3-12BA6			T3 top core †*T3 bottom core
4	C1-B Stator			T1 top core †*T1 bottom core
5	FM Ant. terminals thru 270 ohm resistor	87 mc.	87 mc. (gang closed)	†FM osc. L8
6		106 mc.	106 mc.	†FM R.F C1B-T
7		90 mc.	90 mc.	†FM R.F. L2
8		Repeat steps 6 and 7 until maximum gain is obtained		
9		100 mc.	100 mc.	†FM Ant. coil L5

*If necessary for accurate peaking, the winding in the same transformer not being peaked should be loaded with a 680 ohm resistor.

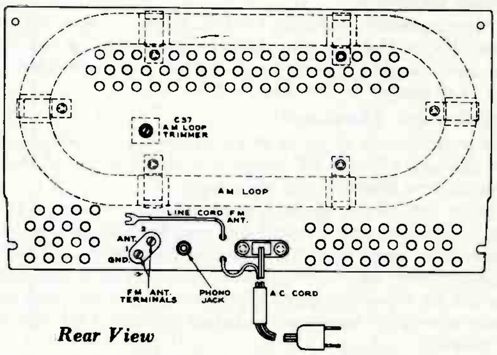
†Connect VoltOhmyst to pin 1 of V5 through a 220K isolating resistor with ¼ inch maximum exposed lead at grid terminal end. Output adjusted for 1 volt d.c. Dress VoltOhmyst lead away from input circuits.

Oscillator frequency is above signal frequency on both AM and FM

If an FM sweep generator is used for FM alignment, adjust for 10.7 mc, 0.4 mc sweep. Connect oscilloscope across C26, adjusting discriminator T6 top core for 10.7 mc crossover, and T6 bottom core for balanced peaks. Peak separation should be approximately 330 kc. When aligning the other FM tuned circuits, connect oscilloscope lead through a 220K resistor to pin 1 of V5. Follow alignment table sequence, adjusting for maximum gain and symmetrical curves.

TUNING RANGE

Standard Broadcast (AM)	540-1600 kc
Frequency Modulation (FM)	88-108 mc
Intermediate Frequency (AM)	455 kc
Intermediate Frequency (FM)	10.7 mc

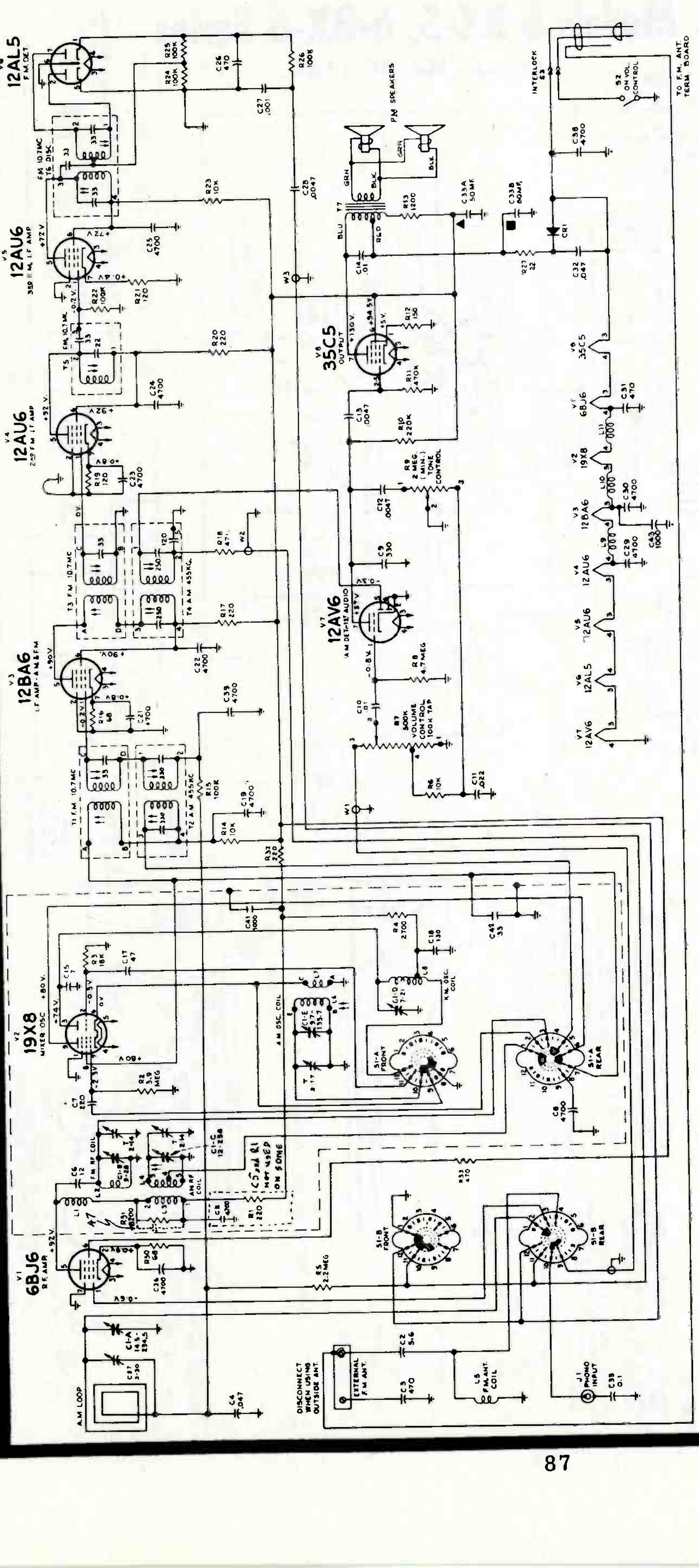


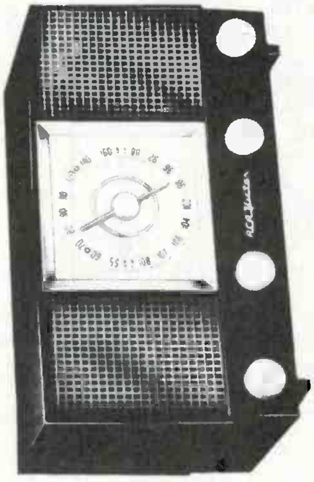
Rear View

CRITICAL LEAD DRESS

1. All FM IF Transformer grid and plate leads should be short and direct as possible and kept low, near chassis.
2. C26 leads should be kept as short as possible.
3. C32 leads should be kept as short as possible.
4. R24 and R25 leads should be kept as short as possible on T6 terminal 6 side.
5. C27 should ground in hole near terminal 5 of V6 with short leads.
6. AM oscillator coil should not be tilted over toward function switch when wrapping short bus leads to switch.
7. Keep leads V5 pin 5, to T6 term 1, as short as possible and low near chassis.
8. Dress C28 down on chassis and against terminal board. Run filament lead between V5 and V6 on side of V6 socket opposite C28.
9. All ceramic button 4700 uuf condensers should have leads as short as possible.
10. Green lead from AM oscillator stator gang terminal to AM oscillator coil should be dressed against front of shield box and up above filament choke.
11. RF plate choke L1, should be dressed at least ⅛" away from AM R.F. coil L4 and at least ⅛" from shield.
12. Mixer grid condenser C7 should be dressed away from FM oscillator gang stator terminal and away from leads connecting to terminals 8 and 9 of V2 socket.
13. Filament chokes L10 and L11 should be raised a minimum of 1/16" above chassis.
14. Use varnished tubing only on choke and coupling cond. leads coming through shield partition slot.
15. Condenser C2 should have lead on antenna terminal end not more than 3/16" long to prevent possible contact of lead or body to "Hot" chassis.
16. Condensers C3 and C35 should use varnished tubing, not vinyl, to prevent breakthrough crossing chassis edge.
17. Oscillator grid condenser C17 should have short leads and be dressed away from filament choke L10.
18. Leads from loop terminal to chassis terminal board should have a minimum of three twists (otherwise loop increases oscillator radiation).

RCA Victor Model 6-XF-9, Chassis RC-1121B (Continued)

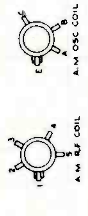

V1 6BJ6 RF AMP
V2 19X8 MIXER OSC
V3 12BA6 I.F. AMP - A.M. & F.M.
V4 12AU6 2nd F.M. I.F. AMP
V5 12AU6 3rd F.M. I.F. AMP
V6 12AL5 F.M. DET
V7 12AV6 A.M. DET-1st AUDIO
V8 35C5 OUTPUT
AM LOOP
DISCONNECT WHEN USING OUTSIDE ANT.
EXTERNAL F.M. ANT.
L5 F.M. ANT. COIL
J1 PHONO INPUT
C5 and R1 NOT USED ON SOME
S1-A FRONT
S1-A REAR
S1-B FRONT
S1-B REAR
A.M. OSC. COIL
A.M. RF COIL
F.M. RF COIL
F.M. OSC. COIL
T1 F.M. 10.7 MC
T2 A.M. 455 KC
T3 F.M. 10.7 MC
T4 A.M. 455 KC
T5 F.M. 10.7 MC
T6 F.M. 10.7 MC DISC.
T7
R7 500K VOLUME CONTROL 100K TAP
R9 2 MEG (MIN.) TONE CONTROL
PM SPEAKERS
CR1
INTERLOCK S3
S2 ON VOL. CONTROL
TO F.M. ANT. TERM BOARD



Model 6-XF9
The "Lindsay"

K = 1000

ALL RESISTANCE VALUES IN OHMS AND ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.

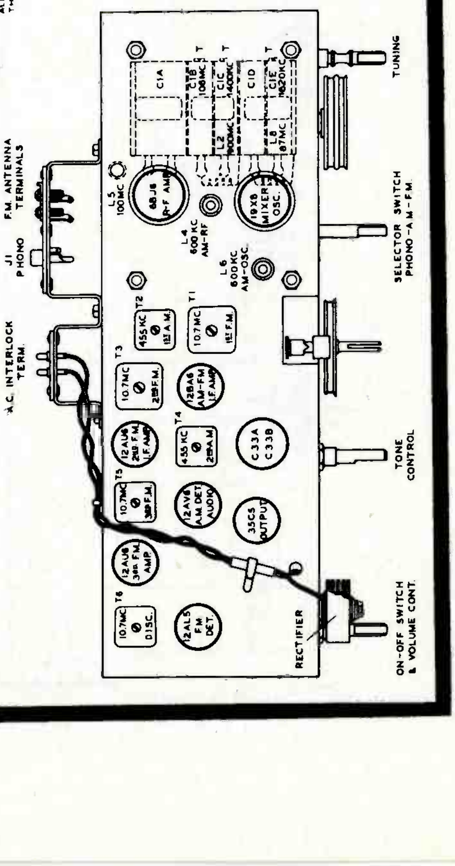

A.M. R.F COIL
A.M. OSC COIL

NOTES:

FRONT AND REAR SECTIONS OF FUNCTION SWITCH S1-A AND S1-B ARE VIEWED FROM FRONT WITH THE SWITCH SHAFT IN EXTREME COUNTER-CLOCKWISE POSITION #1 (PHONO)

POSITION	FUNCTION
1	PHONO
2	A.M.
3	F.M.

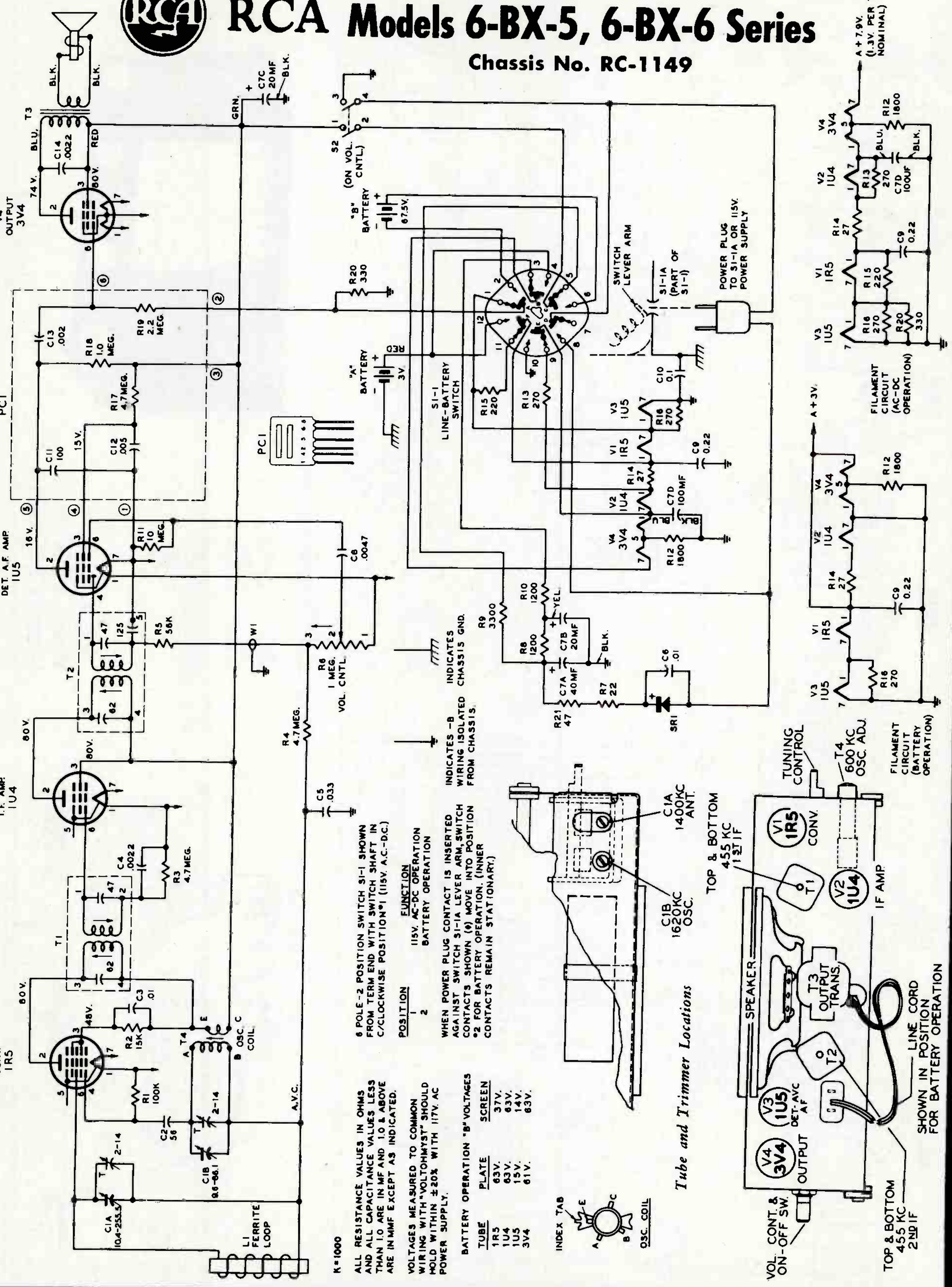
RCA Victor
Model 6-XF-9
Chassis RC-1121B


TUNING
SELECTOR SWITCH PHONO-A.M.-F.M.
TONE CONTROL
ON-OFF SWITCH & VOLUME CONT.
RECTIFIER
A.C. INTERLOCK TERM.
J1 PHONO
F.M. ANTENNA TERMINALS
C1A
C1B 108MC
C1C 1400KC
C1D
C1E 1620KC
L5 100MC
6BJ6 R-F AMP
19X8 MIXER OSC.
L4 600KC AM-RF
L6 600KC AM-OSC
T2 455KC 1st A.M.
T1 10.7MC 1st F.M.
T3 10.7MC 2nd F.M.
12BA6 AM-FM I.F. AMP
T4 455KC 2nd A.M.
12AU6 2nd F.M. I.F. AMP
C33A C33B
T5 10.7MC 3rd F.M.
12AV6 AM DET AUDIO
35C5 OUTPUT
12AU6 3rd F.M. AMP
T6 10.7MC DISC.
12AL5 FM DET

AC-DC-Battery Portable Receiver

RCA Models 6-BX-5, 6-BX-6 Series

Chassis No. RC-1149


V4 OUTPUT 3V4
T3
BLK.
BLU.
RED
C14 .0022
74V.
80V.
C7C 20MF
GRN.
S2 (ON VOL. CNTL.)
"B" BATTERY 67.5V.
"A" BATTERY 3V.
RED
R20 330
PC1
C13 .002
R18 1.0 MEG.
R19 2.2 MEG.
R17 4.7MEG.
C11 100
C12 .005
15V.
V3 DET. A.F. AMP 1U5
16V.
R11 10 MEG.
C8 .0047
T2
R5 56K
W1
R6 1 MEG. VOL. CNTL.
INDICATES CHASSIS GND.
V2 I.F. AMP 1U4
R4 4.7MEG.
C5 .033
C4 .0022
R3 4.7MEG.
T1
V1 CONV. 1R5
48V.
R2 15K
C3 .01
T4 OSC. COIL
R1 100K
C2 56
A.V.C.
C1A 10.4-255.5
C1B 9.6-98.1
L1 FERRITE LOOP
S1-1 LINE-BATTERY SWITCH
SWITCH LEVER ARM
S1-1A (PART OF S1-1)
POWER PLUG TO S1-1A OR 115V. POWER SUPPLY
R15 220
R13 270
R16 270
C10 0.1
C9 0.22
R14 27
C7D 100MF
R12 1800
R10 1200
YEL.
R9 3300
R8 1200
C7B 20MF
C7A 40MF
R21 47
R7 22
C6 .01
SR1
A+7.9V. (1.3V. PER TUBE NOMINAL)
FILAMENT CIRCUIT (AC-DC OPERATION)
A+3V.
FILAMENT CIRCUIT (BATTERY OPERATION)
INDEX TAB
OSC. COIL
C1A 1400KC ANT.
C1B 1620KC OSC.
TUNING CONTROL
T4 600 KC OSC. ADJ.
TOP & BOTTOM 455 KC 1ST IF
V1 1R5 CONV.
V2 1U4 IF AMP
SPEAKER
T3 OUTPUT TRANS.
T2
LINE CORD SHOWN IN POSITION FOR BATTERY OPERATION
V3 1U5 DET.-AVC AF
V4 3V4 OUTPUT
VOL. CONT. & ON-OFF SW.
TOP & BOTTOM 455 KC 2ND IF

Tube and Trimmer Locations

K=1000

ALL RESISTANCE VALUES IN OHMS AND ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN MF AND 1.0 & ABOVE ARE IN MMF EXCEPT AS INDICATED.

VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST" SHOULD HOLD WITHIN ±20% WITH 117V. AC POWER SUPPLY.

BATTERY OPERATION "B" VOLTAGES

TUBE	PLATE	SCREEN
1R5	63V.	37V.
1U4	63V.	63V.
1U5	15V.	14V.
3V4	61V.	63V.

6 POLE-2 POSITION SWITCH S1-1 SHOWN FROM TERM END WITH SWITCH SHAFT IN C/CLOCKWISE POSITION*1 (115V. A.C.-D.C.)

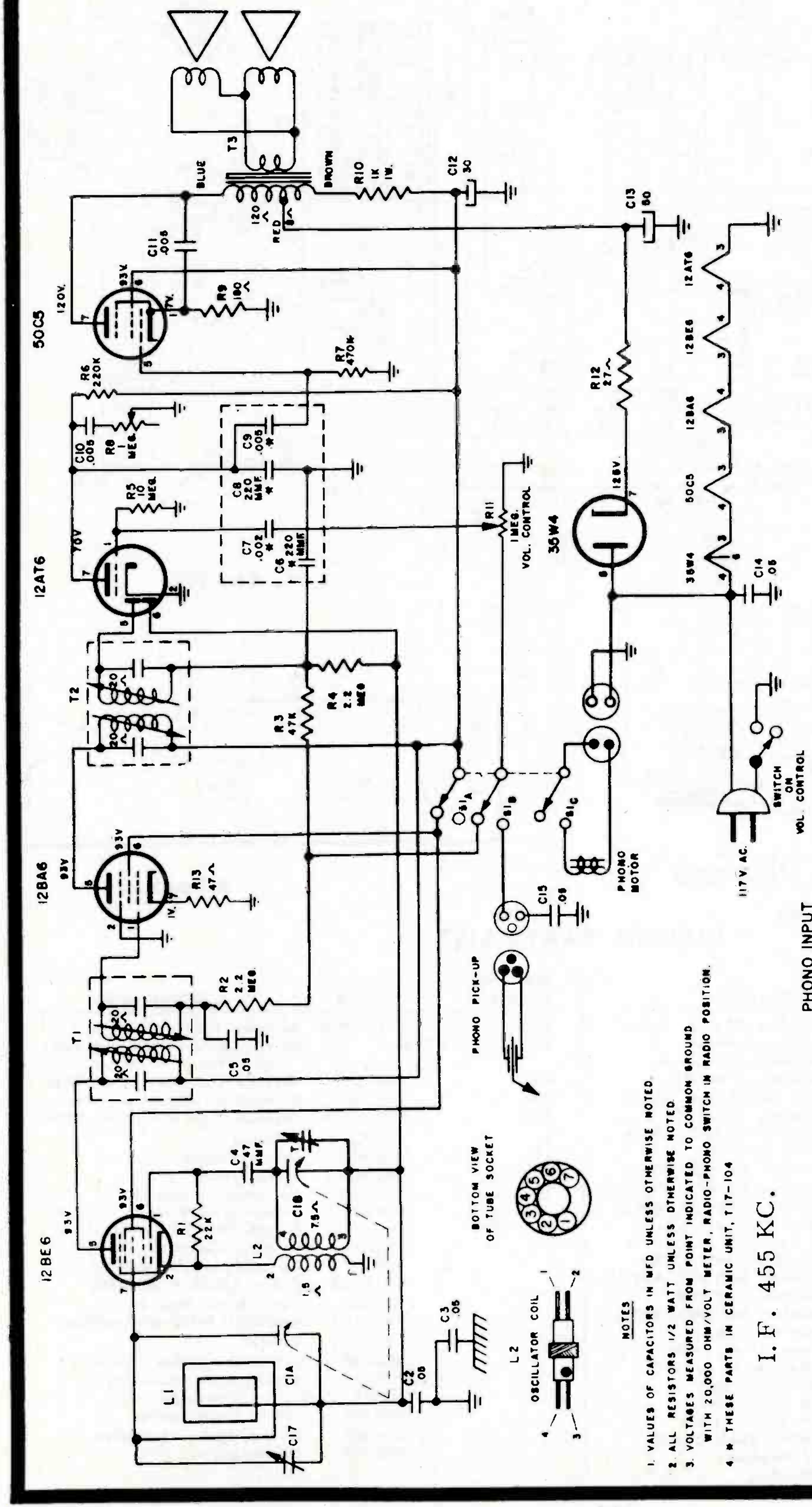
POSITION	FUNCTION
1	115V. AC-DC OPERATION
2	BATTERY OPERATION

WHEN POWER PLUG CONTACT IS INSERTED AGAINST SWITCH S1-1A LEVER ARM, SWITCH CONTACTS SHOWN (⊘) MOVE INTO POSITION *2 FOR BATTERY OPERATION. (INNER CONTACTS REMAIN STATIONARY.)

INDICATES -B WIRING ISOLATED FROM CHASSIS.

SEARS, ROEBUCK and CO.

Model Numbers 5036 and 5042,
Chassis No. 528.32400 and 528.32500


50C5
12AT6
12BA6
12BE6
35W4
T1
T2
T3
L1
L2
BLUE
BROWN
RED
R1 22K
R2 2.2 MEG.
R3 47K
R4 2.2 MEG
R5 10 MEG.
R6 220K
R7 470K
R8 1 MEG.
R9 180
R10 1K 1W.
R11 1 MEG. VOL. CONTROL
R12 27
R13 47
C1A
C1B 7.8
C2 .05
C3 .05
C4 47 MMF.
C5 .05
C6 * 220 MMF
C7 .002 *
C8 220 MMF *
C9 .005 *
C10 .005
C11 .005
C12 30
C13 50
C14 .05
C15 .05
C17
S1A
S1B
S1C
93V
120V.
70V
12BV.
PHONO MOTOR
PHONO PICK-UP
117V AC.
SWITCH ON VOL. CONTROL
BOTTOM VIEW OF TUBE SOCKET
L2 OSCILLATOR COIL

NOTES

1. VALUES OF CAPACITORS IN MFD UNLESS OTHERWISE NOTED.
2. ALL RESISTORS 1/2 WATT UNLESS OTHERWISE NOTED.
3. VOLTAGES MEASURED FROM POINT INDICATED TO COMMON GROUND WITH 20,000 OHM/VOLT METER, RADIO-PHONO SWITCH IN RADIO POSITION.
4. * THESE PARTS IN CERAMIC UNIT, T17-104

I. F. 455 KC.

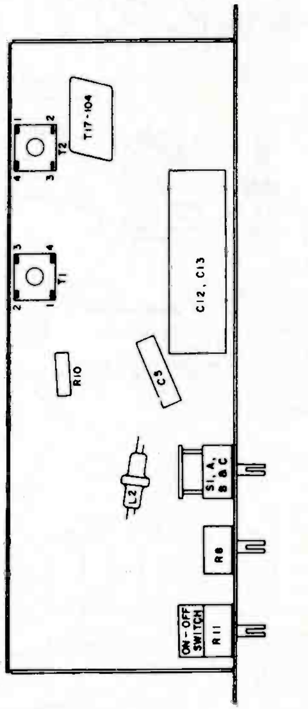
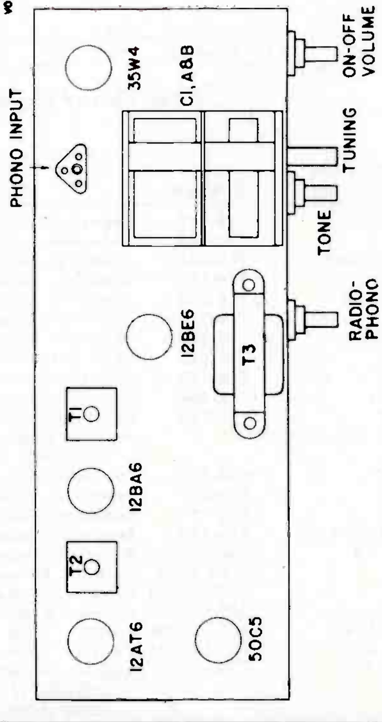

T17-104
T2
T1
C12, C13
R10
C5
L2
S1, A, B & C
R8
ON-OFF SWITCH
R11

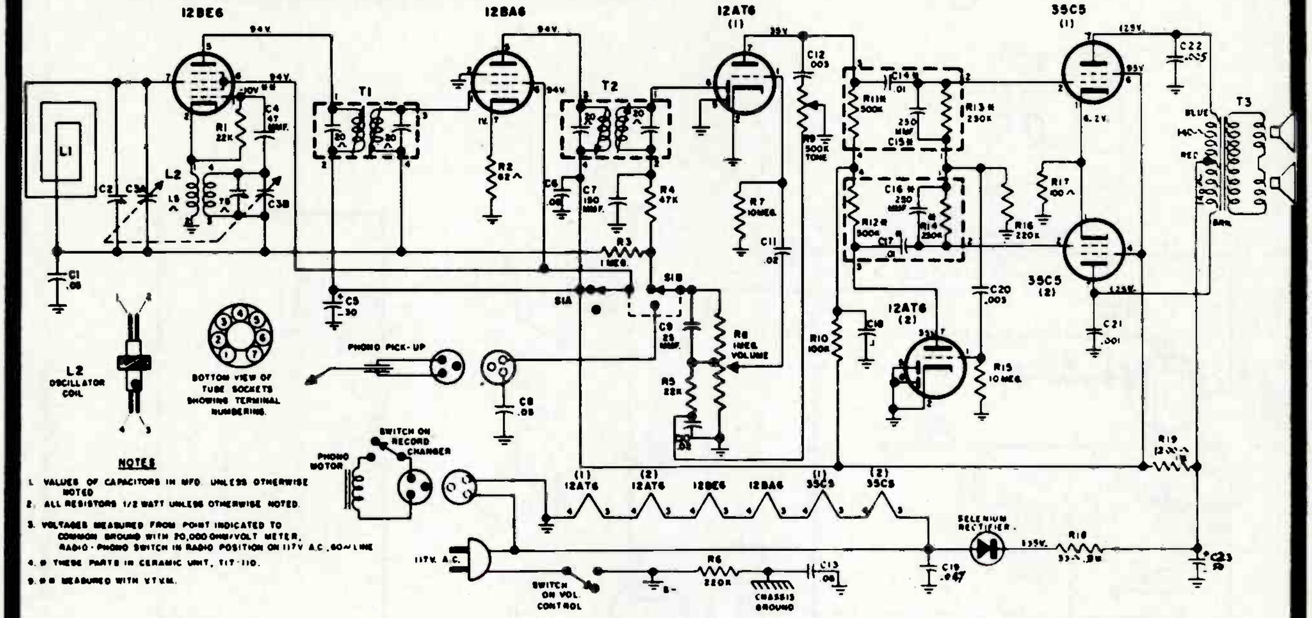
Fig. 2. Bottom View of Chassis


PHONO INPUT
35W4
C1, A&B
ON-OFF VOLUME
TUNING
TONE
RADIO-PHONO
12BE6
T3
T1
12BA6
T2
12AT6
50C5

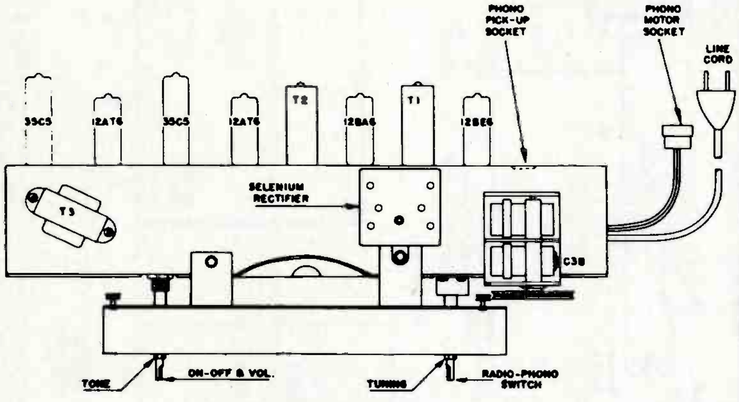
Top View of Chassis

SEARS, ROEBUCK and Co.

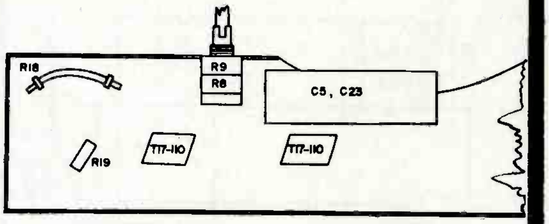
Models 5045, 5046, Chassis No. 528.34900


12BE6
12BA6
12AT6 (1)
35C5 (1)
35C5 (2)
12AT6 (2)
T1
T2
T3
L1
L2
C1 .05
C2
C3A
C3B
C3 30
C4 47 MMF.
C6 .05
C7 150 MMF.
C8 .05
C9 25 MMF.
C11 .02
C12 .003
C14
C15
C16
C17
C18 .1
C19 .047
C20 .005
C21 .001
C22 .005
C23 30
R1 22K
R2 82
R3 1 MEG.
R4 47K
R5 22K
R6 220K
R7 10 MEG.
R8 1 MEG. VOLUME
R9 500K TONE
R10 100K
R11 500K
R12 500K
R13 250K
R14 250K
R15 10 MEG.
R16 220K
R17 100
R18 33
R19 1200
S1A
S1B
94V.
-10V
35V
125V.
85V
6.2V.
135V.
117V. A.C.
BLUE
RED
BRN
PHONO PICK-UP
L2 OSCILLATOR COIL
BOTTOM VIEW OF TUBE SOCKETS SHOWING TERMINAL NUMBERING.
SWITCH ON RECORD CHANGER
PHONO MOTOR
SELENIUM RECTIFIER
SWITCH ON VOL. CONTROL
CHASSIS GROUND
NOTES
1. VALUES OF CAPACITORS IN MFD. UNLESS OTHERWISE NOTED
2. ALL RESISTORS 1/2 WATT UNLESS OTHERWISE NOTED.
3. VOLTAGES MEASURED FROM POINT INDICATED TO COMMON GROUND WITH 20,000 OHM/VOLT METER, RADIO-PHONO SWITCH IN RADIO POSITION ON 117V A.C., 60~ LINE
4. ● THESE PARTS IN CERAMIC UNIT, T17-110.
5. ●● MEASURED WITH V.T.V.M.

I. F. 455 KC.


PHONO PICK-UP SOCKET
PHONO MOTOR SOCKET
LINE CORD
35C5
12AT6
35C5
12AT6
T2
12BA6
T1
12BE6
T3
SELENIUM RECTIFIER
C3B
TONE
ON-OFF & VOL.
TUNING
RADIO-PHONO SWITCH

Top View of Chassis


R18
R9
R8
C5, C23
R19
T17-110
T17-110

Bottom View

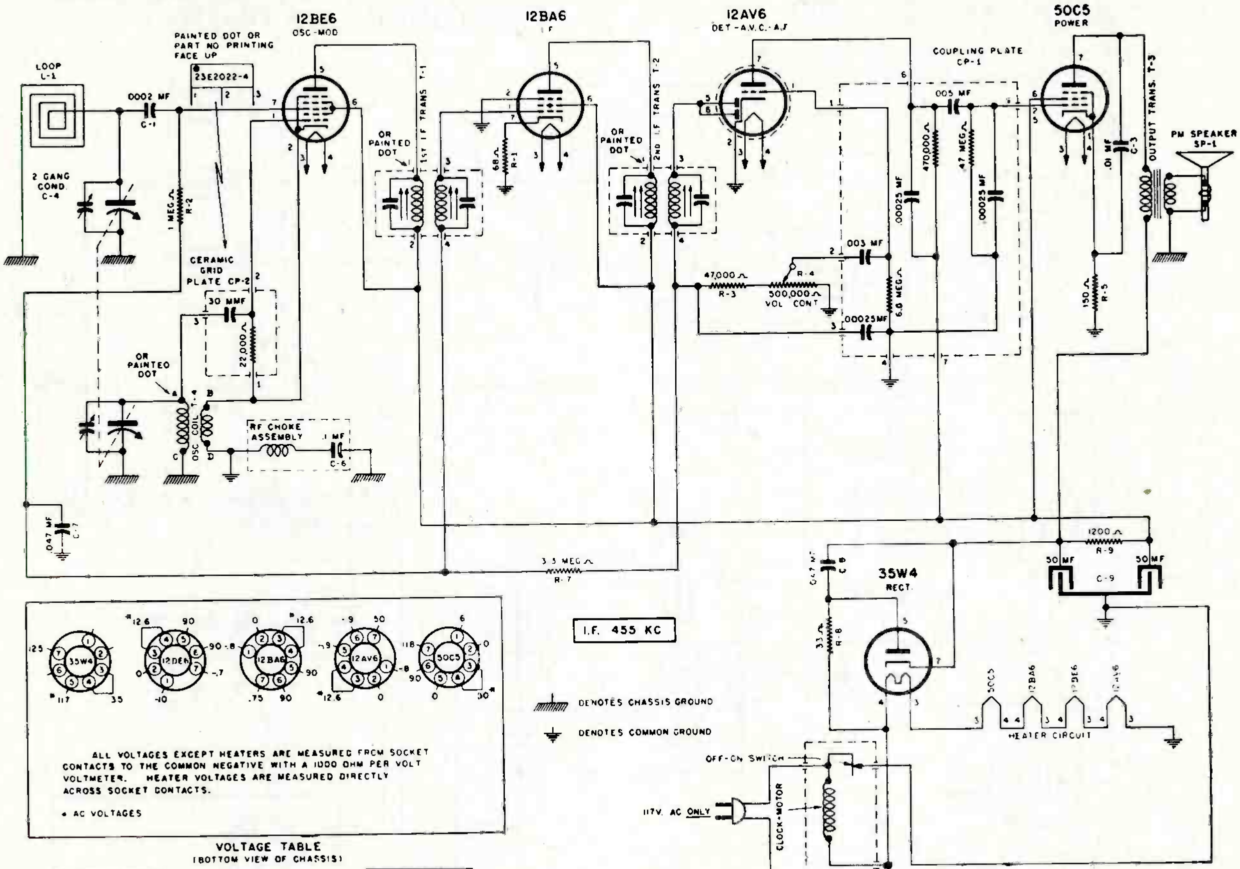
CHASSIS PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
C1, C6	T16-197	Capacitor, tubular; .05 mfd., 200 v.
C2	T20-143	Capacitor, antenna trimmer
C3, A & B	T19-231	Capacitor, variable; with drum
C4	T15-229	Capacitor, ceramic; 47 mmfd.
C5, C23	T18-304	Capacitor, elec., 30-50 mfd., 150 v.
C7	T15-251	Capacitor, ceramic; 150 mmfd.
C8, C13	T16-189	Capacitor, tubular; .05 mfd., 400 v.
C9	T15-256	Capacitor, mica; 25 mmfd.
C10	T16-150	Capacitor, tubular; .02 mfd., 400 v.
C11	T15-240	Capacitor, ceramic; .02 mfd., 400 v.
C12	T16-200	Capacitor, tubular; .003 mfd., 600 v.
C14, C15, C16, C17		Parts of ceramic coupling units (T17-110)
C18	T16-203	Capacitor, tubular; .1 mfd., 200 v.
C19	T16-447	Capacitor, tubular; .047 mfd., 400 v.
C20	T16-177	Capacitor, ceramic; .005 mfd.
C21, C22	T16-254	Capacitor, tubular; .001 mfd., 600 v.
R1, R5	S602230M	Resistor, 22K ohm, ½ w.
R2	S608200K	Resistor, 82 ohm, ½ w., 10%
R3	S601050M	Resistor, 1 megohm, ½ w.
R4	S604730M	Resistor, 47K ohm, ½ w.
R6, R16	S602240M	Resistor, 220K ohm, ½ w.
R7, R15	S601060M	Resistor, 10 megohm, ½ w.
R8, R9	T24-224	Resistor, variable, dual; ON-OFF VOLUME (1 megohm) TONE (500K ohm)

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
R10	S601040M	Resistor, 100K ohm, ½ w.
R11, R12, R13, R14		Parts of ceramic coupling units (T17-110)
R17	S601010K	Resistor, 100 ohm, ½ w., 10%
R18	T61-10	Resistor, 33 ohm, 3 w., 10%
R19	S601221K	Resistor, 1200 ohm, 1 w., 10%
L1	T82-72	Antenna
L2	T10-645	Coil, oscillator
T1	T10-508	Transformer, 1st I.F.
T2	T10-479	Transformer, 2nd I.F.
T3	T80-295	Transformer, Output
S1, A & B	T69-203	Switch, RADIO-PHONO
	T72-89	Bushing, dial cord
	T17-110	Ceramic coupling unit (2)
	T21-203	Cover, Selenium Rectifier
	T23-151	Cord, Power Line, 6 Ft.
	T37-163	Insulator, Selenium Rectifier
	T58-111	Pointer
	T83-780	Selenium rectifier (100 MA)
	T68-43	Socket, 7 pin miniature
	T68-41	Socket, Phono pick up
	T22-142	Socket, Phono motor
	T70-135	Spring, dial cord tension
	T51-109	String, pointer drive

SENTINEL RADIO CORPORATION

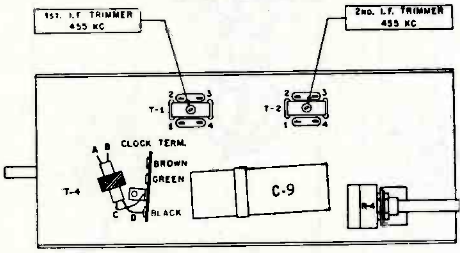
MODELS 353—1U-353

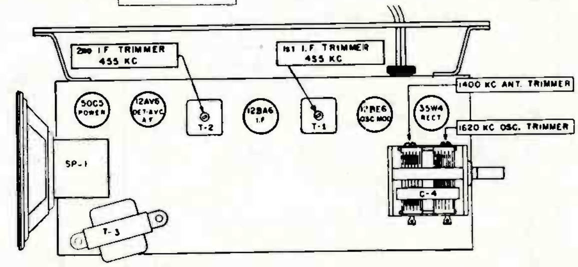

12BE6
OSC-MOD
12BA6
I.F.
12AV6
DET.-A.V.C.-A.F.
50C5
POWER
PAINTED DOT OR PART NO PRINTING FACE UP
23E2022-4
LOOP L-1
.0002 MF
C-1
2 GANG COND. C-4
1 MEG. R-2
CERAMIC GRID PLATE CP-2
30 MMF
22,000
OR PAINTED DOT
OSC COIL T-4
RF CHOKE ASSEMBLY
.1 MF
C-6
.047 MF
C-7
1st I.F. TRANS T-1
OR PAINTED DOT
68
R-1
2ND I.F. TRANS T-2
OR PAINTED DOT
COUPLING PLATE CP-1
.005 MF
470,000
.47 MEG.
.00025 MF
.00025 MF
.003 MF
47,000
R-3
R-4
500,000
VOL CONT
6.0 MEG.
.00025 MF
.01 MF
C-3
OUTPUT TRANS. T-3
PM SPEAKER SP-1
150
R-5
3.3 MEG.
R-7
1200
R-9
50 MF
50 MF
C-9
.047 MF
C-8
35W4
RECT.
33
R-8
I.F. 455 KC
DENOTES CHASSIS GROUND
DENOTES COMMON GROUND
50C5
12BA6
12BE6
12AV6
HEATER CIRCUIT
OFF-ON SWITCH
CLOCK-MOTOR
117V. AC ONLY
35W4
12BE6
12BA6
12AV6
50C5
*12.6
90
0
*12.6
-.9
50
6
125
90
-.8
-.9
118
0
0
-.7
90
-.8
90
*117
35
-10
.75
90
*12.6
0
0
30*

ALL VOLTAGES EXCEPT HEATERS ARE MEASURED FROM SOCKET CONTACTS TO THE COMMON NEGATIVE WITH A 1000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES ARE MEASURED DIRECTLY ACROSS SOCKET CONTACTS.

* AC VOLTAGES

VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)


1ST. I.F. TRIMMER 455 KC
2ND. I.F. TRIMMER 455 KC
T-1
T-2
CLOCK TERM.
A
B
C
D
BROWN
GREEN
BLACK
T-4
C-9
R-4

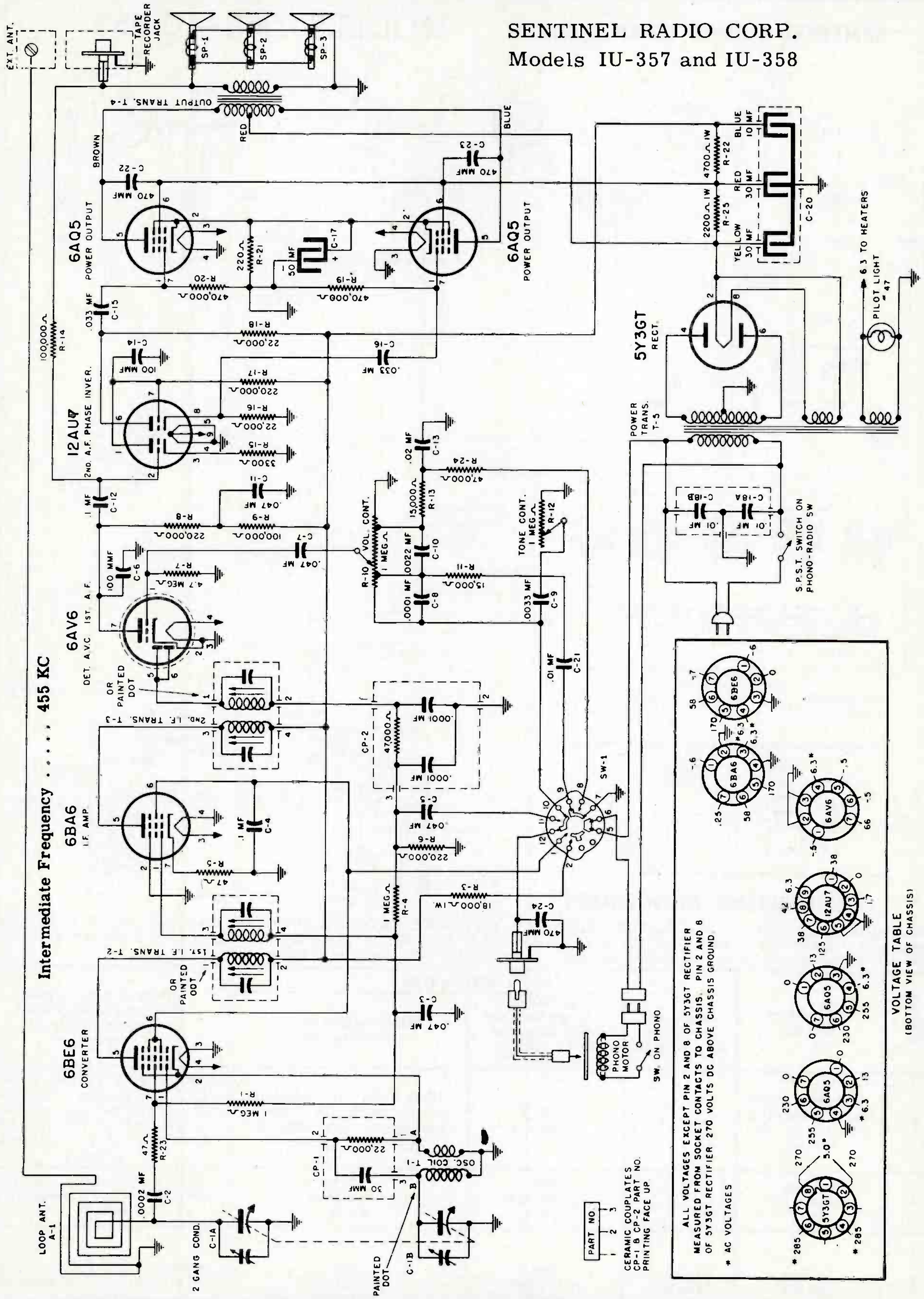

2ND I.F. TRIMMER 455 KC
1ST I.F. TRIMMER 455 KC
1400 KC ANT. TRIMMER
1620 KC OSC. TRIMMER
50C5 POWER
12AV6 DET-AVC A.F.
T-2
12BA6 I.F.
T-1
12BE6 OSC MOD
35W4 RECT
SP-1
C-4
T-3

ALIGNMENT PROCEDURE

When aligning the 1620 KC OSCILLATOR TRIMMER or the 1400 KC ANTENNA TRIMMER, couple test oscillator to receiver loop by: (1) make loop consisting of five to ten turns of NO. 20 to NO. 30 size wire, wound on a 2″ to 3″ form; (2) connect this loop across output of test oscillator; (3) place test oscillator loop near radio loop.

Steps	Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:
		Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
1	Any point where no interfering signal is received.	455 K.C.	.02 MFD. condenser	High side to antenna stator plates of tuning condenser. Low side to common negative.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. trimmers for maximum output.
2	Exactly 1620 K.C.	Exactly 1620 K.C.	See paragraph above.	See paragraph above.	Adjust 1620 K.C. oscillator trimmer for maximum output.
3	Approx. 1400 K.C.	Approx. 1400 K.C.	See paragraph above.	See paragraph above.	Adjust 1400 K.C. antenna trimmer for maximum output.

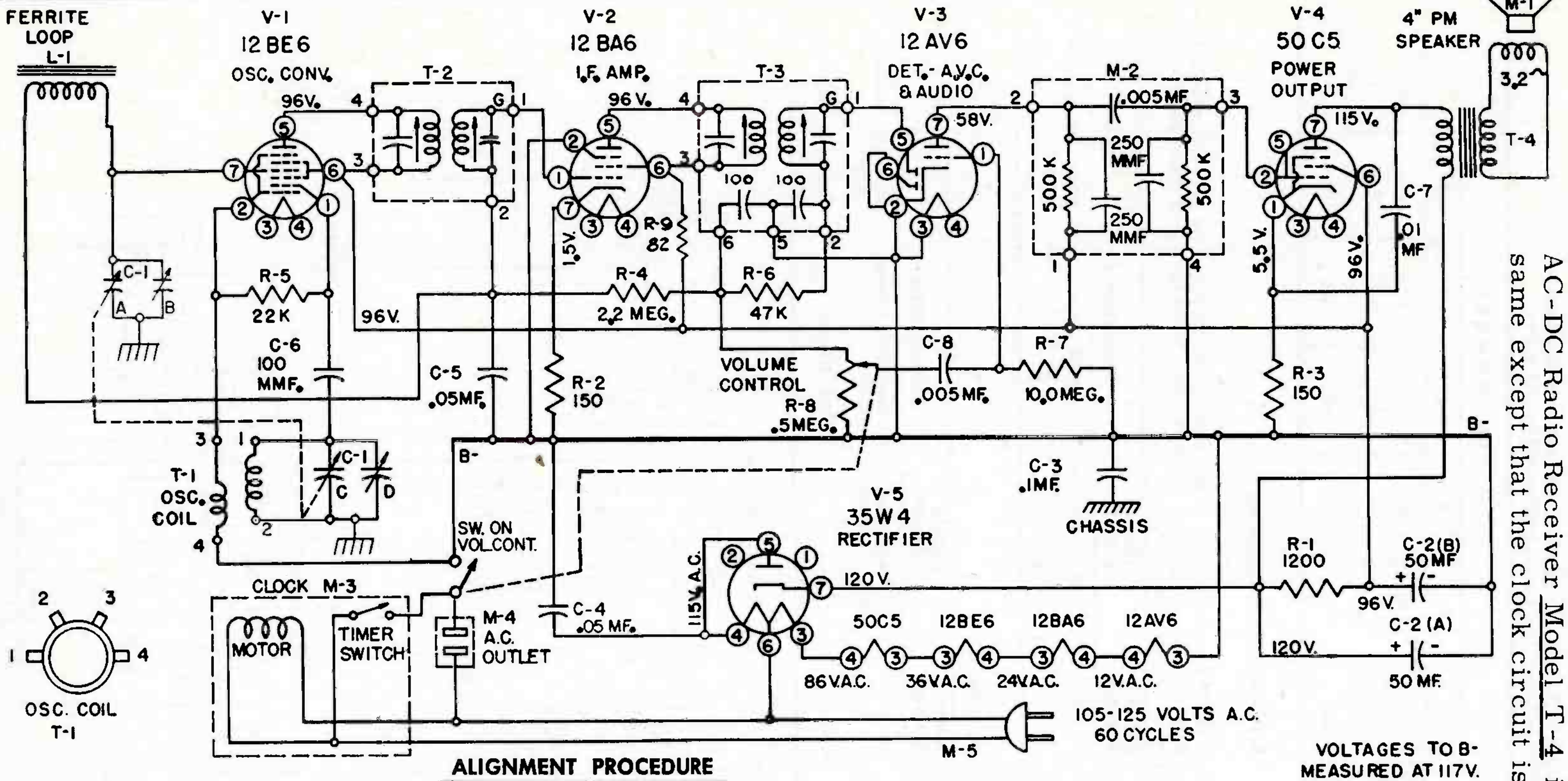
SENTINEL RADIO CORP.
Models IU-357 and IU-358


Intermediate Frequency . . . . . 455 KC
EXT. ANT.
TAPE RECORDER JACK
SP-1
SP-2
SP-3
OUTPUT TRANS. T-4
BROWN
RED
BLUE
6AQ5 POWER OUTPUT
6AQ5 POWER OUTPUT
12AU7 2ND. A.F. PHASE INVER.
6AV6 DET. A.V.C. 1ST. A.F.
6BA6 I.F. AMP.
6BE6 CONVERTER
5Y3GT RECT.
POWER TRANS. T-5
2ND. I.F. TRANS. T-3
1ST. I.F. TRANS. T-2
OR PAINTED DOT
LOOP ANT. A-1
2 GANG COND. C-1A
C-1B
PAINTED DOT
OSC. COIL T-1
CP-1
CP-2
VOL. CONT. 1 MEG. R-10
TONE CONT. 1 MEG. R-12
SW-1
PHONO MOTOR
SW. ON PHONO
S.P.S.T. SWITCH ON PHONO-RADIO SW
PILOT LIGHT #47
6.3 TO HEATERS
C-20
BLUE 10 MF
RED 30 MF
YELLOW 30 MF
4700Ω 1W R-22
2200Ω 1W R-25
CERAMIC COUPLATES CP-1 & CP-2 PART NO. PRINTING FACE UP
PART NO. 1 2 3
ALL VOLTAGES EXCEPT PIN 2 AND 8 OF 5Y3GT RECTIFIER MEASURED FROM SOCKET CONTACTS TO CHASSIS. PIN 2 AND 8 OF 5Y3GT RECTIFIER 270 VOLTS DC ABOVE CHASSIS GROUND
* AC VOLTAGES
VOLTAGE TABLE (BOTTOM VIEW OF CHASSIS)
6BE6
6BA6
6AV6
12AU7
6AQ5
6AQ5
5Y3GT

STROMBERG-CARLSON

CLOCK RADIO RECEIVER—MODELS C-3 C-5

AC-DC Radio Receiver Model T-4 is electrically the same except that the clock circuit is omitted.


FERRITE LOOP L-1
V-1 12 BE6 OSC. CONV.
96V.
C-1 A B
R-5 22K
C-6 100 MMF.
96V.
T-2
G
V-2 12 BA6 I.F. AMP.
96 V.
1.5V.
R-9 82
R-4 2.2 MEG.
C-5 .05MF.
R-2 150
B-
T-3
100 100
R-6 47K
V-3 12 AV6 DET.-A.V.C. & AUDIO
58V.
VOLUME CONTROL R-8 .5MEG.
C-8 .005MF.
R-7 10.0MEG.
M-2
.005MF
250 MMF
250 MMF
500 K
500 K
V-4 50 C5 POWER OUTPUT
115 V.
5.5 V.
96V.
C-7 .01 MF
4" PM SPEAKER
M-1
3.2~
T-4
R-3 150
B-
C-3 .1MF.
CHASSIS
T-1 OSC. COIL
C-1 C D
SW. ON VOL.CONT.
CLOCK M-3
MOTOR
TIMER SWITCH
M-4 A.C. OUTLET
C-4 .05 MF.
115V. A.C.
V-5 35W4 RECTIFIER
120V.
50C5 12BE6 12BA6 12AV6
86V.A.C. 36V.A.C. 24V.A.C. 12V.A.C.
R-1 1200
C-2(B) 50MF
96V.
C-2 (A)
120V.
50 MF.
105-125 VOLTS A.C. 60 CYCLES
M-5
OSC. COIL T-1

VOLTAGES TO B- MEASURED AT 117V. 60~INPUT

ALIGNMENT PROCEDURE

I.F. Alignment

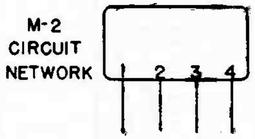
Receiver volume contral set at maximum. Output meter connected across speaker voice coil. Use modulated signal with output level from generator no higher than necessary to obtain indication on output meter. Use non-metallic alignment tool with light pressure on all slugs adjustments.

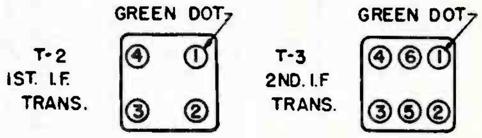
SIGNAL INPUT	FREQUENCY	DUMMY ANTENNA	TUNING CAPACITOR	ADJUSTMENTS	NOTES
Converter grid (pin 7 of V-1, 12BE6) or stator of C-1-A	455 KC (400 cycles modulation)	.1 mfd	Point of non-interference at mid frequency	Bottom and top slugs of T-2 and T-3	Adjust for maximum output.

R.F. Alignment

Rotate tuning condenser until fully unmeshed (min. capacity).

SIGNAL INPUT	FREQUENCY	DUMMY ANTENNA	TUNING CONDENSER	ADJUSTMENTS	NOTES
Converter grid (pin 7 of V-1, 12BE6) or stator of C-1-A	1625 KC	.1 mfd	Fully unmeshed (min. capacity)	Oscillator Trimmer C-1-D.	Adjust for maximum output.
Radiating loop	1400 KC		Tuned to 1400 KC	R.F. Trimmer C-1-B	Adjust for maximum output.


M-2 CIRCUIT NETWORK
1 2 3 4


GREEN DOT
T-2 1ST. I.F. TRANS.
④ ①
③ ②
GREEN DOT
T-3 2ND. I.F TRANS.
④ ⑥ ①
③ ⑤ ②

Stromberg-Carlson

AC/DC Battery Operated Portable Radio Receiver—Model EP-2

VOLTAGE CHART

Voltage measurements made at 117 volt 60 cycle line using vacuum tube voltmeter.
Except where otherwise noted, all voltages are positive with respect to B—.

TUBE	FUNCTION	PIN NUMBER						
		1	2	3	4	5	6	7
V-1	1R5 Converter	1.37	72	42	—5.0	1.37	—.1	2.75
V-2	1U4 I.F. Amp.	2.75	72	72	NC	2.75	1.5	4.3
V-3	1U5 Det. 1st audio	0	25	18	—.2	NC	—.05	1.37
V-4	3V5 Audio output	4.3	70	72	NC	5.8	0	7.2

ALIGNMENT PROCEDURE

I.F. Alignment

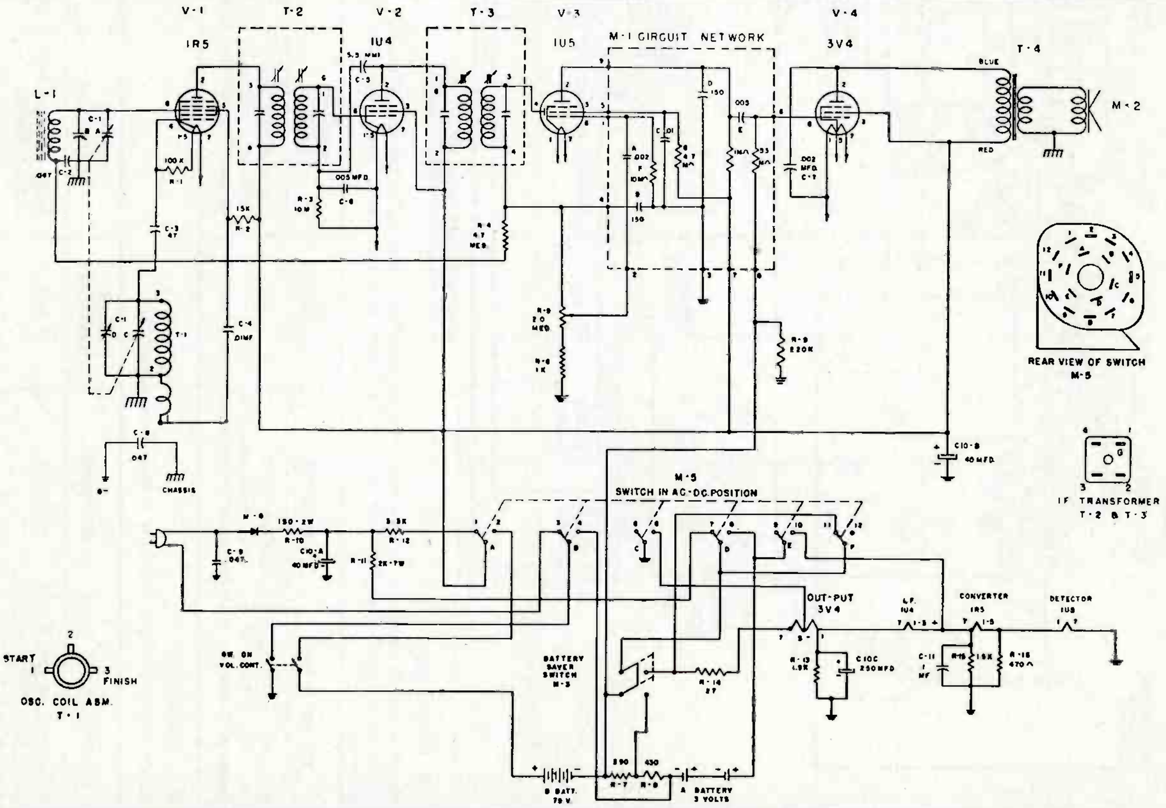
Receiver operation at 117 volt 60 cycle AC with volume control set at maximum. Output meter across speaker voice coil. Use modulated signal with output level from generator no higher thon necessary to obtain indication on output meter. Return low side of signal generator to B—. Use non-metallic alignment tool with light pressure on all slug adjustments.

SIGNAL INPUT	FREQUENCY	DUMMY ANTENNA	TUNING CAPACITOR	ADJUSTMENTS	NOTES
Converter grid (pin #6 at 1R5) or stator of C-1A	455 KC (400 cycles modulation)	0.1 mfd	Point of non-interference at mid-frequency	Bottom and top slugs of T-3 and T-2	Adjust for maximum output

R.F. Alignment

Rotate tuning condenser until fully unmeshed (min. capacity).

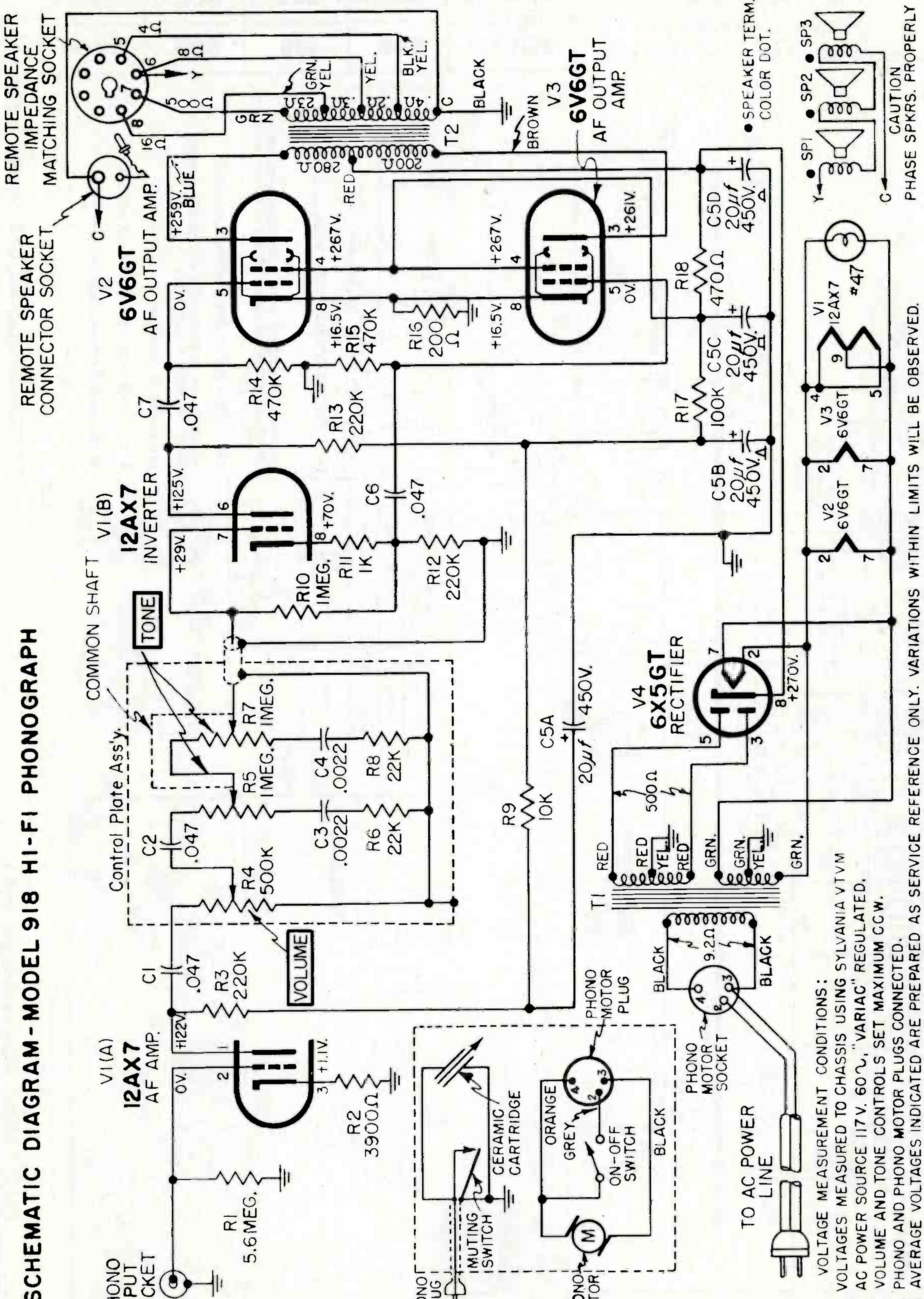
SIGNAL INPUT	FREQUENCY	DUMMY ANTENNA	TUNING CAPACITOR	ADJUSTMENTS	NOTES
Converter grid (pin #6 at 1R5) or stator of C-1A	1625 KC	0.1 mfd	Fully unmeshed (min. capacity)	Oscillator trimmer C-1D	Adjust for maximum output
Radiating loop	1400 KC	———		R.F. Trimmer C-1B	Adjust for maximum output


V-1
1R5
T-2
V-2
1U4
T-3
V-3
1U5
M-1 CIRCUIT NETWORK
V-4
3V4
T-4
BLUE
RED
M-2
L-1
C-1
C-2
.047
100 K
R-1
15K
R-2
C-3
47
5.5 MMF
C-5
.005 MFD
C-6
R-3
10 M
R-4
4.7
MEG.
.002
10M
4.7
.01
150
.005
1M
3.3
.002 MFD
C-7
R-5
2.0
MEG
R-6
1K
R-9
220K
T-1
C-4
.01MF
C-8
.047
B-
CHASSIS
REAR VIEW OF SWITCH
M-5
IF TRANSFORMER
T-2 & T-3
C10-B
40 MFD.
M-5
SWITCH IN AC-DC POSITION
M-6
150-2W
R-10
C10-A
40 MFD
C-9
.047
3.3K
R-12
R-11
2K-7W
OUT-PUT
3V4
I.F.
1U4
CONVERTER
1R5
DETECTOR
1U5
R-13
1.8K
C10C
250 MFD
C-11
1
MF
R-15
15K
R-16
470
R-14
27
SW. ON
VOL. CONT.
BATTERY
SAVER
SWITCH
M-3
390
430
R-7
R-8
B BATT.
79 V.
A BATTERY
3 VOLTS
START
1
2
3
FINISH
OSC. COIL ASM.
T-1

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

SYLVANIA MODEL 918 HI-FI PHONOGRAPH

SCHEMATIC DIAGRAM-MODEL 918 HI-FI PHONOGRAPH



PHONO INPUT SOCKET
R1 5.6MEG.
V1(A) 12AX7 AF AMP.
0V.
+122V.
+1.1V.
R2 3900Ω
C1 .047
R3 220K
VOLUME
R4 500K
C2 .047
Control Plate Ass'y.
COMMON SHAFT
TONE
R5 1MEG.
R7 1MEG.
C3 .0022
C4 .0022
R6 22K
R8 22K
V1(B) 12AX7 INVERTER
+29V.
+125V.
+70V.
R10 1MEG.
R11 1K
R12 220K
C6 .047
R9 10K
C5A 20µf 450V.
C7 .047
R13 220K
R14 470K
R15 470K
R16 200 Ω
+16.5V.
V2 6V6GT AF OUTPUT AMP.
+267V.
+259V. BLUE
RED
V3 6V6GT AF OUTPUT AMP.
+261V.
BROWN
C5B 20µf 450V.
C5C 20µf 450V.
C5D 20µf 450V.
R17 100K
R18 470Ω
T2
280Ω
200Ω
GRN
GRN. YEL.
YEL.
BLK. YEL.
BLACK
REMOTE SPEAKER IMPEDANCE MATCHING SOCKET
REMOTE SPEAKER CONNECTOR SOCKET
4 Ω
8 Ω
16 Ω
V4 6X5GT RECTIFIER
+270V.
500Ω
T1
RED
YEL.
GRN.
9.2Ω
BLACK
PHONO MOTOR PLUG
PHONO MOTOR SOCKET
TO AC POWER LINE
CERAMIC CARTRIDGE
MUTING SWITCH
PHONO PLUG
ORANGE
GREY
ON-OFF SWITCH
PHONO MOTOR
M
SP1
SP2
SP3
SPEAKER TERM. COLOR DOT.
CAUTION PHASE SPKRS. PROPERLY
V1 12AX7
#47
V2 6V6GT
V3 6V6GT

VOLTAGE MEASUREMENT CONDITIONS:

1. VOLTAGES MEASURED TO CHASSIS USING SYLVANIA VTVM
2. AC POWER SOURCE 117V. 60~, "VARIAC" REGULATED.
3. VOLUME AND TONE CONTROLS SET MAXIMUM CCW.
4. PHONO AND PHONO MOTOR PLUGS CONNECTED.
5. AVERAGE VOLTAGES INDICATED ARE PREPARED AS SERVICE REFERENCE ONLY. VARIATIONS WITHIN LIMITS WILL BE OBSERVED.

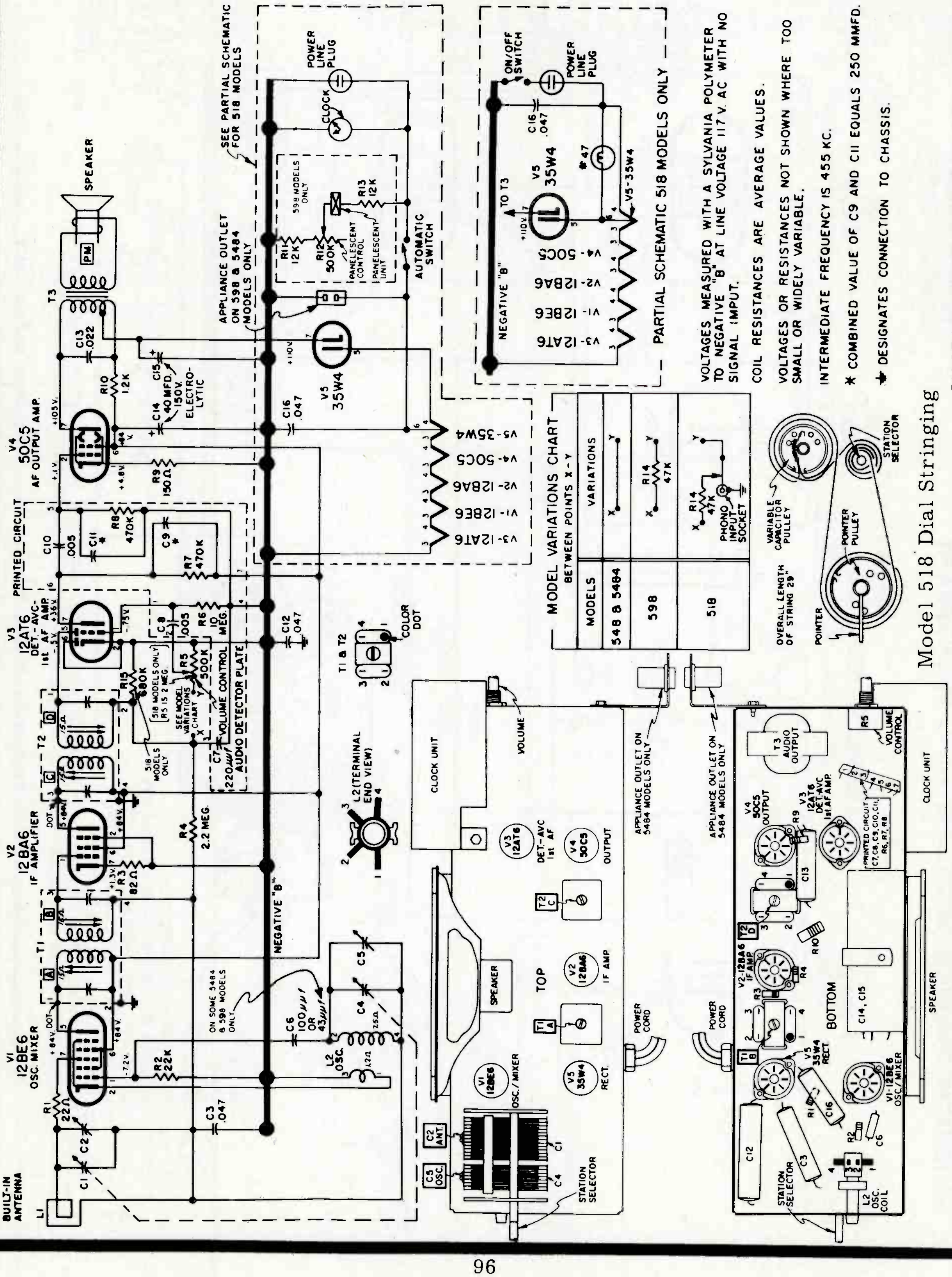
RESISTANCES: AVERAGE RESISTANCES OF TRANSFORMERS ARE INDICATED AND TAKEN WITH COMPONENT CONNECTED IN CIRCUIT.

Sylvania Electric Products Inc., Radio & Television Div., Service Dept., Buffalo 7, N.Y.

SYLVANIA
RADIO & TELEVISION

(Alignment on next page at right)

CHASSIS	1-602-4	1-602-5	1-602-6	1-602-7
USED IN MODELS	548	518	598	5484



BUILT-IN ANTENNA
L1
V1 12BE6 OSC. MIXER
V2 12BA6 IF AMPLIFIER
V3 12AT6 DET.-AVC-1st AF AMP.
V4 50C5 AF OUTPUT AMP.
V5 35W4
SPEAKER
PM
T1
T2
T3
PRINTED CIRCUIT
NEGATIVE "B"
SEE PARTIAL SCHEMATIC FOR 518 MODELS
APPLIANCE OUTLET ON 598 & 5484 MODELS ONLY
POWER LINE PLUG
CLOCK
598 MODELS ONLY
PANELESCENT CONTROL
PANELESCENT UNIT
AUTOMATIC SWITCH
AUDIO DETECTOR PLATE
VOLUME CONTROL
SEE MODEL VARIATIONS X CHART Y
518 MODELS ONLY (R5 IS 2 MEG.)
ON SOME 5484 & 598 MODELS ONLY
C6 100 μμf OR 43 μμf
L2 OSC.
C14 40 MFD. 150V. ELECTROLYTIC
V3-12AT6
V1-12BE6
V2-12BA6
V4-50C5
V5-35W4
ON/OFF SWITCH
TO T3
#47
PARTIAL SCHEMATIC 518 MODELS ONLY
T1 & T2
COLOR DOT
L2 (TERMINAL END VIEW)
MODEL VARIATIONS CHART
BETWEEN POINTS X - Y
MODELS
VARIATIONS
548 & 5484
598
518
R14 47K
PHONO INPUT SOCKET
CLOCK UNIT
VOLUME
APPLIANCE OUTLET ON 5484 MODELS ONLY
SPEAKER
TOP
BOTTOM
DET-AVC 1st AF
OUTPUT
IF AMP
OSC./MIXER
RECT.
POWER CORD
STATION SELECTOR
C2 ANT.
C5 OSC.
AUDIO OUTPUT
VOLUME CONTROL
PRINTED CIRCUIT C7,C8,C9,C10,C11, R6,R7,R8
L2 OSC. COIL
VARIABLE CAPACITOR PULLEY
POINTER PULLEY
POINTER
OVERALL LENGTH OF STRING 29"
STATION SELECTOR

VOLTAGES MEASURED WITH A SYLVANIA POLYMETER TO NEGATIVE "B" AT LINE VOLTAGE 117 V. AC WITH NO SIGNAL IMPUT.

COIL RESISTANCES ARE AVERAGE VALUES.

VOLTAGES OR RESISTANCES NOT SHOWN WHERE TOO SMALL OR WIDELY VARIABLE.

INTERMEDIATE FREQUENCY IS 455 KC.

* COMBINED VALUE OF C9 AND C11 EQUALS 250 MMFD.

⏚ DESIGNATES CONNECTION TO CHASSIS.

DIAGRAM-MODELS 518, 548, 5484 and 598

Model 518 Dial Stringing

PARTS LAYOUT-MODELS 548 and 5484

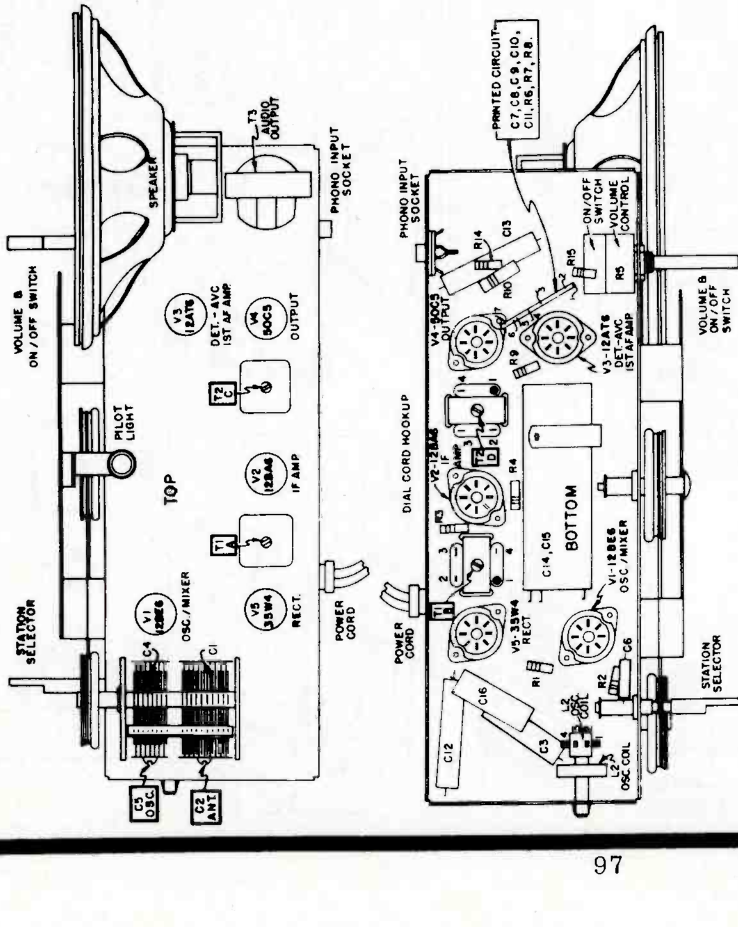
SYLVANIA Chassis 1-602-4, 1-602-5, 1-602-6, 1-602-7, used in Models 548, 518, 598, 5484 (Continued from previous page.)

ALIGNMENT PROCEDURE

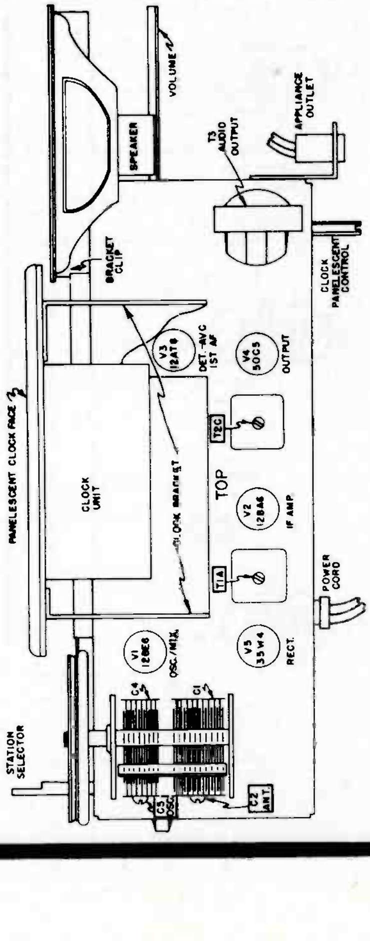
Set generator for an RF output signal amplitude modulated (AM) with 400 cycles.

Use either an audible check or connect an AC voltmeter across speaker voice coil to indicate volume.

STEP	ALIGNMENT SETUP NOTES	TEST EQUIPMENT HOOKUP	ADJUST
1.	Set radio variable tuning capacitor to minimum capacity (tuning capacitor plates fully open).	SIGNAL GENERATOR-"hot" lead through .01 mfd. capacitor to pin 7 of V1, 12BE6: ground lead to negative "B" in receiver. Set generator to 455 KC. AC VOLTMETER - across radio speaker voice coil.	T2-D for **MAXIMUM** output. T2-C for **MAXIMUM** output. T1-B for **MAXIMUM** output. T1-A for **MAXIMUM** output. Repeat for optimum performance.
2.	Set radio variable tuning capacitor to minimum capacity (tuning capacitor plates fully open).	SIGNAL GENERATOR - radiate signal to receiver through a loop of several turns of wire. Set generator to 1650 KC. AC VOLTMETER - across radio speaker voice coil.	C5 trimmer for **MAXIMUM** output.
3.	Set radio variable tuning capacitor so plates are meshed approximately 3/16 inch. Adjust this setting slightly to eliminate any interfering signals.	SIGNAL GENERATOR - radiate signal to receiver through a loop of several turns of wire. Set generator to a frequency corresponding to receiver tuning capacitor setting or until signal is heard through radio speaker. AC VOLTMETER - across radio speaker voice coil.	C2 trimmer for **MAXIMUM** output.


SPEAKER
T3 AUDIO OUTPUT
PHONO INPUT SOCKET
VOLUME & ON/OFF SWITCH
V3 12AT6 DET.-AVC 1ST AF AMP
V4 50C5 OUTPUT
T2 C
PILOT LIGHT
TOP
V2 12BA6 IF AMP
T1 A
V1 12BE6 OSC/MIXER
V5 35W4 RECT.
POWER CORD
STATION SELECTOR
C4
C1
C5 OSC
C2 ANT
PRINTED CIRCUIT- C7, C8, C9, C10, C11, R6, R7, R8.
PHONO INPUT SOCKET
ON/OFF SWITCH
VOLUME CONTROL
R14
C13
R15
R5
R10
R9
V4-50C5 OUTPUT
V3-12AT6 DET.-AVC 1ST AF AMP
VOLUME & ON/OFF SWITCH
DIAL CORD HOOKUP
V2-12BA6 IF AMP
T2 D
R4
R3
BOTTOM
C14, C15
V1-12BE6 OSC/MIXER
T1 B
V5-35W4 RECT.
POWER CORD
C6
R1
R2
C16
L2 OSC COIL
C12
C3
STATION SELECTOR

PARTS LAYOUT - MODEL 518

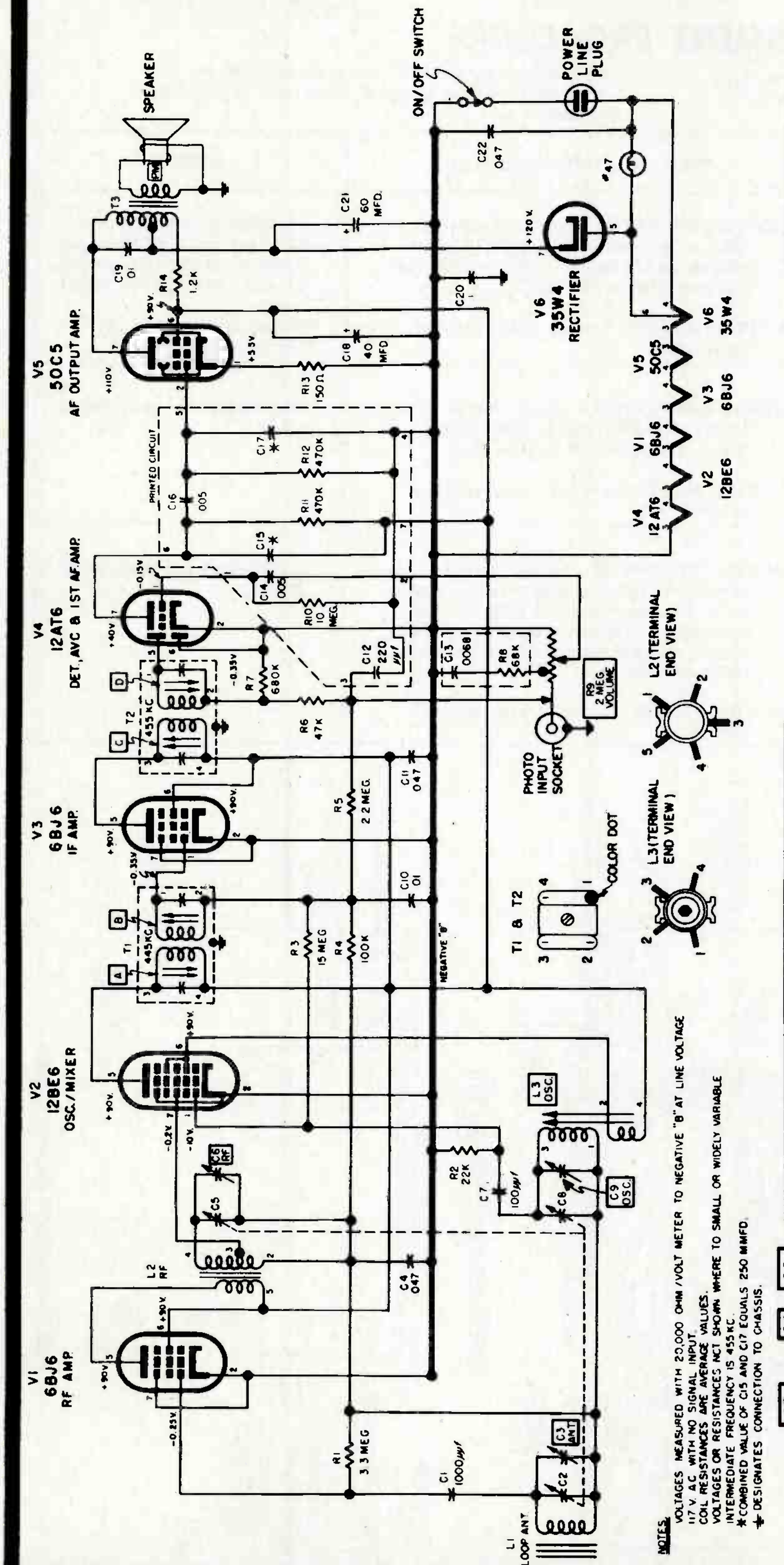

SPEAKER
VOLUME
APPLIANCE OUTLET
T3 AUDIO OUTPUT
BRACKET CLIP
CLOCK PANELESCENT CONTROL
V3 12AT6 DET.-AVC 1ST AF
V4 50C5 OUTPUT
PANELESCENT CLOCK FACE
CLOCK UNIT
CLOCK BRACKET
T2C
TOP
V2 12BA6 IF AMP.
T1A
POWER CORD
V1 12BE6 OSC./MIX.
V5 35W4 RECT.
STATION SELECTOR
C4
C1
C5 OSC
C2 ANT

PARTS LAYOUT - MODEL 598

SYLVANIA

RADIO & TELEVISION

CHASSIS 1-605-1
MODEL 614


V1
6BJ6
RF AMP
V2
12BE6
OSC./MIXER
V3
6BJ6
IF AMP.
V4
12AT6
DET., AVC & 1ST AF AMP.
V5
50C5
AF OUTPUT AMP.
V6
35W4
RECTIFIER
SPEAKER
T3
ON/OFF SWITCH
POWER LINE PLUG
#47
+120 V.
C21 60 MFD.
C22 .047
C20 .1
C19 .01
R14 1.2K
C18 40 MFD.
R13 150 Ω
PRINTED CIRCUIT
C17 ✱
R12 470K
C16 .005
R11 470K
C15 ✱
C14 .005
R10 10 MEG.
C12 220 μμf
C13 .0068
R8 68K
R9 2 MEG. VOLUME
R7 680K
R6 47K
T2 455 KC
T1 455 KC
PHOTO INPUT SOCKET
R5 2.2 MEG.
C11 .047
C10 .01
R3 15 MEG.
R4 100K
NEGATIVE "B"
T1 & T2
COLOR DOT
L2 (TERMINAL END VIEW)
L3 (TERMINAL END VIEW)
L3 OSC
C9 OSC
C8
C7 100 μμf
R2 22K
C6 RF
C5
L2 RF
C4 .047
R1 3.3 MEG
C1 1000 μμf
C3 ANT
C2
L1 LOOP ANT
+90V
+110V
+35V
-0.15V
+40V
-0.33V
-0.35V
-0.2V
-10V
-0.25V

NOTES.

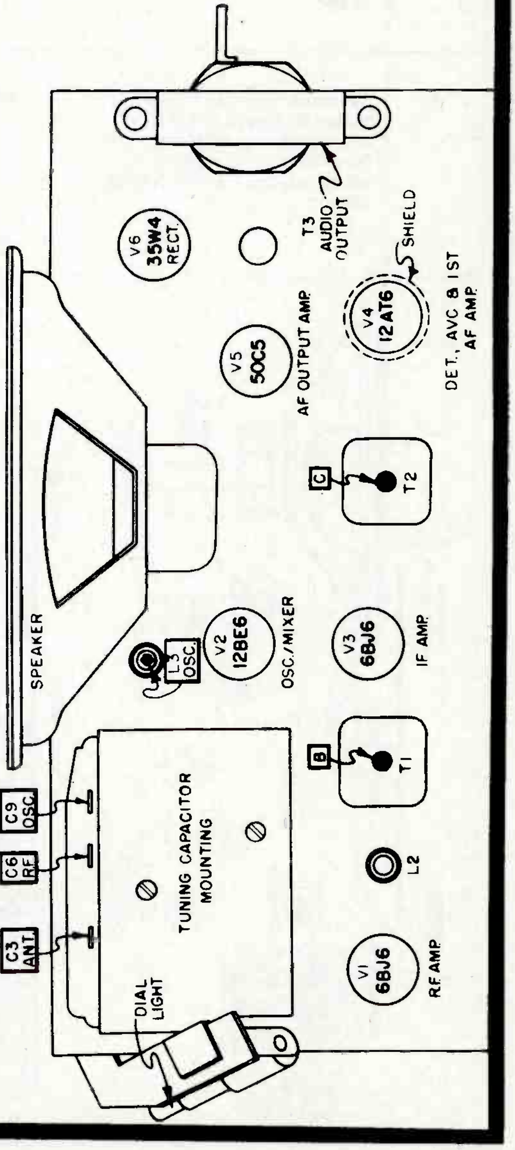
VOLTAGES MEASURED WITH 20,000 OHM/VOLT METER TO NEGATIVE "B" AT LINE VOLTAGE
117 V. AC WITH NO SIGNAL INPUT.
COIL RESISTANCES ARE AVERAGE VALUES.
VOLTAGES OR RESISTANCES NOT SHOWN WHERE TO SMALL OR WIDELY VARIABLE.
INTERMEDIATE FREQUENCY IS 455 KC.
✱ COMBINED VALUE OF C15 AND C17 EQUALS 250 MMFD.
⏚ DESIGNATES CONNECTION TO CHASSIS.

SPECIFICATIONS

Power Supply....	25 to 60 Cycle AC, 117 Volts or DC, 117 Volts
Power Consumption........	30 Watts
Frequency Range........	540 KC to 1650 KC
Intermediate Frequency........	455 KC
Loudspeaker........	5" P. M.

TUBE COMPLEMENT

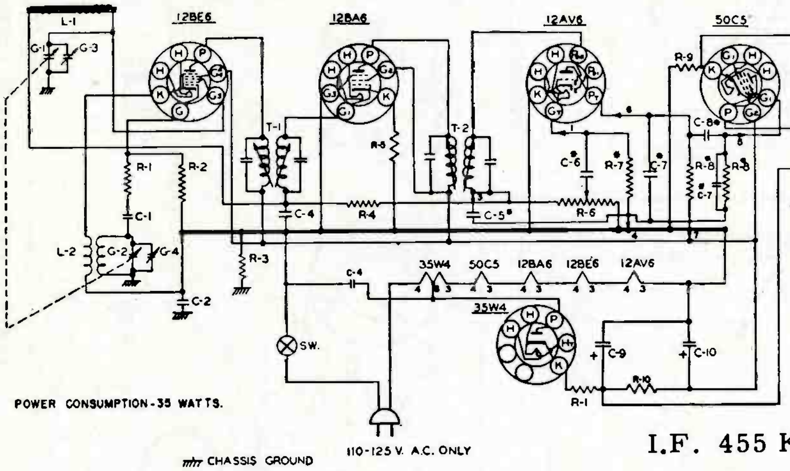
V1	RF Amplifier	6BJ6
V2	Oscillator/Mixer	12BE6
V3	IF Amplifier	6BJ6
V4	Detector, AVC & 1st AF Amp.	12AT6
V5	Audio Output Amplifier	50C5
V6	Rectifier	35W4

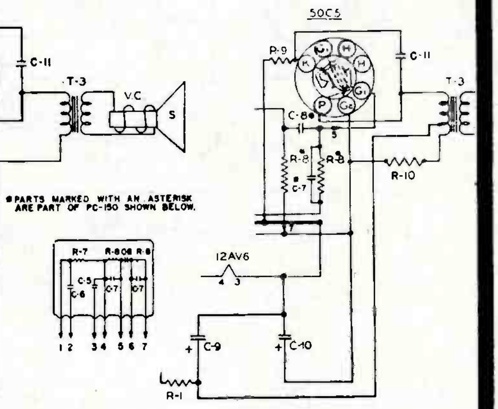

T3
AUDIO OUTPUT
SHIELD
V6
35W4
RECT.
V5
50C5
AF OUTPUT AMP.
V4
12AT6
DET., AVC & 1ST AF AMP.
SPEAKER
C
T2
B
T1
L3
OSC.
V2
12BE6
OSC./MIXER
V3
6BJ6
IF AMP.
L2
V1
6BJ6
RF AMP.
C9
OSC
C6
RF
C3
ANT.
TUNING CAPACITOR MOUNTING
DIAL LIGHT

TRAVLER

Models 55-37, 55-38, 55-39.

Schematic diagram below is exact for Model 55-37. Filter circuit with tapped output transformer used in Models 55-38 and 55-39 is shown in part at the right.

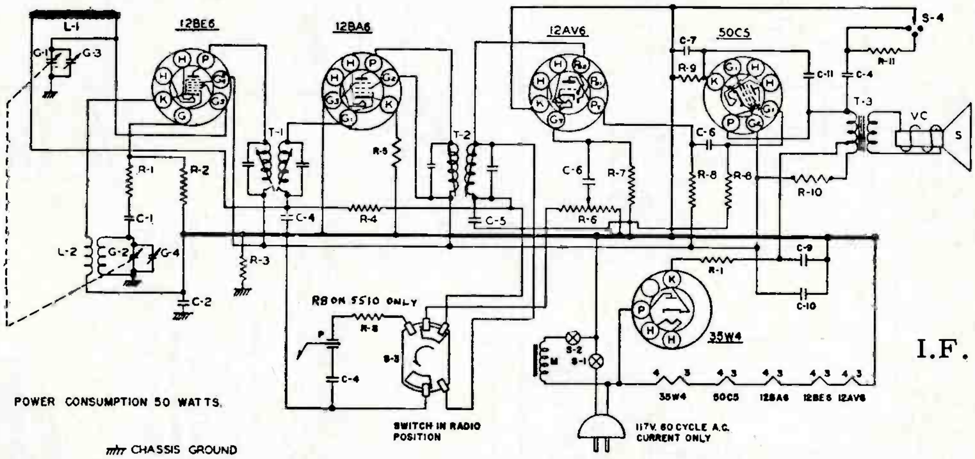

12BE6
12BA6
12AV6
50C5
35W4
L-1
G-1
G-3
L-2
G-2
G-4
T-1
T-2
T-3
V.C
S
R-1
R-2
R-3
R-4
R-5
R-6
R-7
R-8
R-9
R-10
C-1
C-2
C-4
C-5
C-6
C-7
C-8
C-9
C-10
C-11
SW.
POWER CONSUMPTION-35 WATTS.
CHASSIS GROUND
110-125 V. A.C. ONLY


*PARTS MARKED WITH AN ASTERISK ARE PART OF PC-150 SHOWN BELOW.
50C5
12AV6
R-9
C-11
T-3
C-8
R-8
R-10
C-7
C-9
C-10
R-1
R-7
R-8
C-5
C-6
1 2 3 4 5 6 7

I.F. 455 KC.

PART NO.		DESCRIPTION	PART NO.		DESCRIPTON	PART NO		DESCRIPTION
IR-17	R-1	33Ω RESISTOR 1/2W. 20%	CC-12	C-1	47 MMFD CERAMIC CONDENSER		S	4" PM. SPEAKER
IR-9	R-2	22MΩ RESISTOR 1/2W. 20%	PC-8	C-2	1MFD. CONDENSER 400 V.	SPK-37	V.C.	VOICE COIL
IR-20	R-3	220MΩ RESISTOR 1/2W 20%					T-3	OUTPUT TRANSFORMER
IR-23	R-4	3.3MEG.RESISTOR 1/2W. 20%	PC-5	C-4	05MFD CONDENSER 400 V.	LL-38	L-1	FERRAMIC ROD ANTENNA
IR-97	R-5	47Ω RESISTOR 1/2 W. 10%	MC-19	C-5*	220 MMFD.	LO-21	L-2	OSC. COIL
	R-6	1 MEG. VOLUME CONTROL		C-6*	.002 MFD.			
MC-19	R-7*	6.8 MEG.		C-7*	250 MMFD.			
	R-8*	470MΩ		C-8*	.005 MFD.			
IR-114	R-9	220Ω RESISTOR 1/2W. 20%	EC-33	C-9	50 MFD. – 150W.V.D.C. ELECTROLYTIC			
IR-25	R-10	2200Ω RESISTOR 1W 10%		C-10	50 MFD –			
				C-11	.005 MFD. CONDENSER			
LI-13	T-1	INPUT I.F. TRANSFORMER	GC-15	G-1	TUNING CONDENSER			
	T-2	OUTPUT I.F TRANSFORMER		G-2				

Models 521R90 - 521R91 - 5510


12BE6
12BA6
12AV6
50C5
35W4
L-1
G-1
G-3
L-2
G-2
G-4
T-1
T-2
T-3
VC
S
S-4
R-1
R-2
R-3
R-4
R-5
R-6
R-7
R-8
R-9
R-10
R-11
C-1
C-2
C-4
C-5
C-6
C-7
C-9
C-10
C-11
R8 ON 5510 ONLY
P
M
S-1
S-2
S-3
SWITCH IN RADIO POSITION
35W4 50C5 12BA6 12BE6 12AV6
117V. 60 CYCLE A.C. CURRENT ONLY
POWER CONSUMPTION 50 WATTS.
CHASSIS GROUND

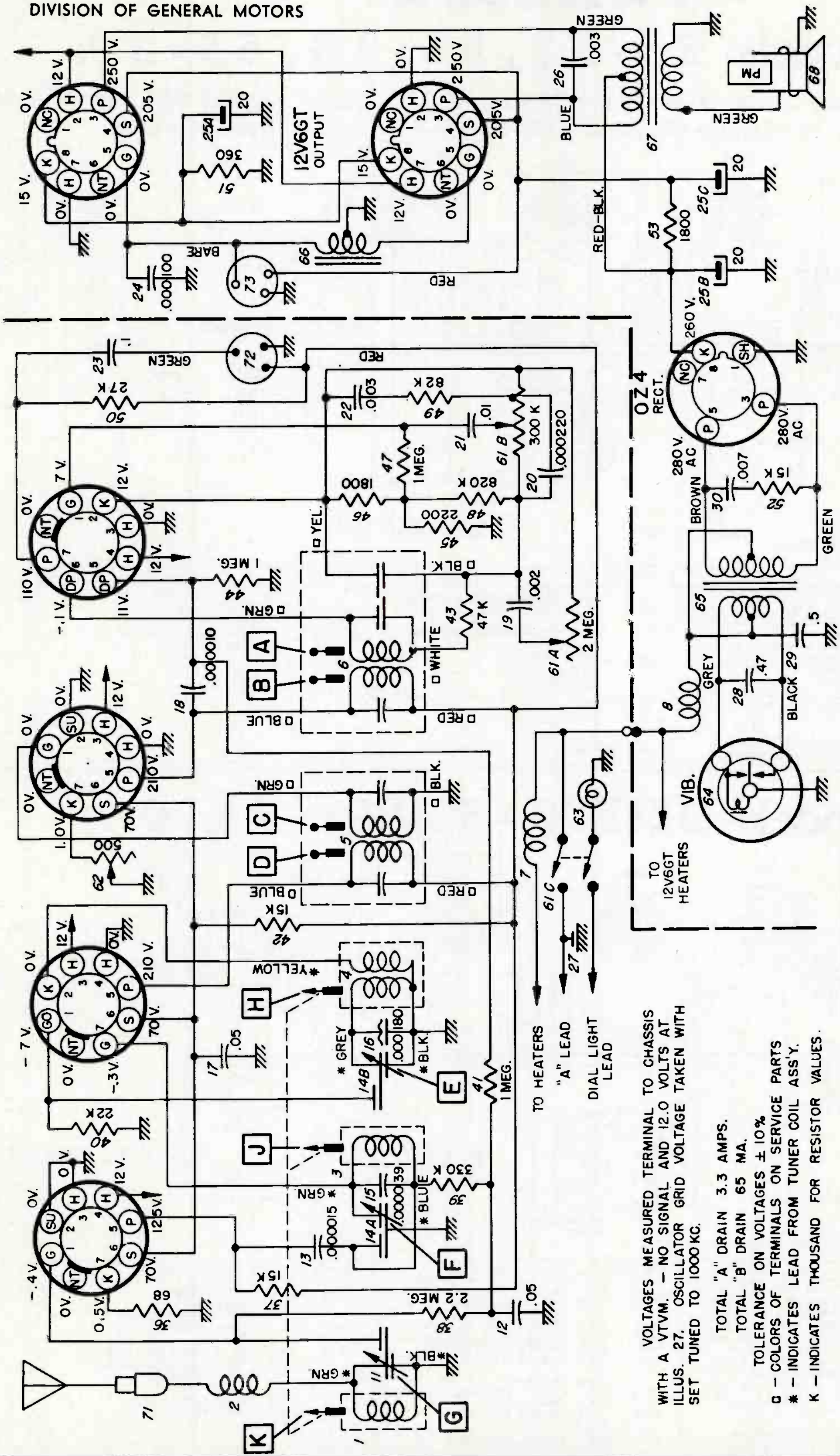
I.F. 455 KC.

PART NO		DESCRIPTION	PART NO.		DESCRIPTON	PART NO		DESCRIPTION
IR-17	R-1	33Ω RESISTOR 1/2W. 20%	CC-12	C-1	47 MMFD CERAMIC CONDENSER		S	4" P.M. SPEAKER
IR-9	R-2	22MΩ RESISTOR 1/2W. 20%	PC-8	C-2	.1MFD. CONDENSER 400 V.	SPK-38	V.C	VOICE COIL
IR-20	R-3	220MΩ RESISTOR 1/2W 20%				AT-14	T-3	OUTPUT TRANSFORMER
IR-23	R-4	3.3MEG.RESISTOR 1/2W. 20%	PC-5	C-4	.05MFD. CONDENSER 400 V.	LL-39	L-1	FERRAMIC ROD ANTENNA
IR-114	R-5	220Ω RESISTOR 1/2 W. 0%	CC-5	C-5	100 MMFD CERAMIC CONDENSER	LO-21	L-2	OSC. COIL
VC-4	R-6	1 MEG. VOLUME CONTROL	PC-7	C-6	.01 MFD. CONDENSER 400V.		S-1	SWITCH ON VOLUME CONTROL
IR-13	R-7	2.2MEG.RESISTOR 1/2W 20%	EC-34	C-7	5 MFD. @ 25 W.V.D.C. ELECTROLYTIC	RC-14	S-2	SWITCH ON RECORD CHANGER
IR-11	R-8	470MΩ RESISTOR 1/2W 20%					P	PICKUP CARTRIDGE
IR-114	R-9	220Ω RESISTOR 1/2W. 20%	EC-33	C-9	50 MFD. – 150W.V.D.C. ELECTROLYTIC		M	CHANGER MOTOR
IR-42	R-10	1000Ω RESISTOR 1W 10%		C-10	50 MFD –	SW-1	S-3	RADIO-PHONO SWITCH
IR-18	R-11	4700Ω RESISTOR 1/2W 20%	GC-3	C-11	.005MFD. CONDENSER	SW-2	S-4	TONE CONTROL SWITCH
LI-13	T-1	INPUT I.F. TRANSFORMER	GC-18	G-1	TUNING CONDENSER			
	T-2	OUTPUT I.F TRANSFORMER		G-2				

UNITED MOTORS

DIVISION OF GENERAL MOTORS

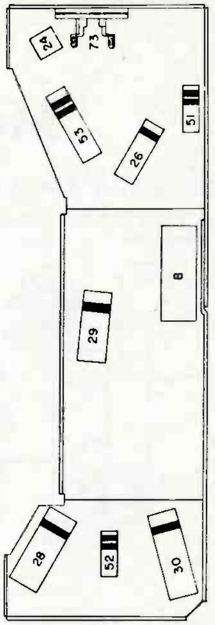
Chevrolet Model 987087
(Alignment on next page at right)


12V6GT
OUTPUT
12V6GT
OUTPUT
12BF6
DET. – 1st AUDIO
12BA6
I.F. AMP.
12BE6
OSC – MOD.
12BA6
R.F. AMP.
0Z4
RECT.
VIB.
PM
TO HEATERS
"A" LEAD
DIAL LIGHT LEAD
TO 12V6GT HEATERS
250 V.
205 V.
260 V.
280 V. AC
210 V.
125 V.
GREEN
BLUE
RED-BLK.
BROWN
GREY
BLACK
BARE
RED
YELLOW
WHITE
1 MEG.
2 MEG.
2.2 MEG.
300 K
820 K
82 K
47 K
27 K
22 K
15 K
330 K
A
B
C
D
E
F
G
H
J
K

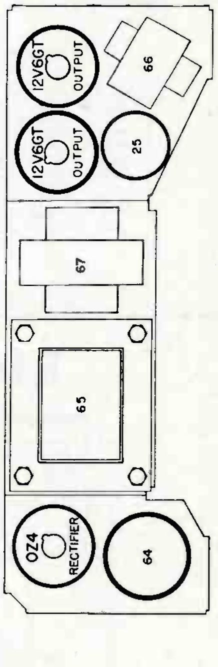
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM. — NO SIGNAL AND 12.0 VOLTS AT ILLUS. 27. OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.

TOTAL "A" DRAIN 3.3 AMPS.
TOTAL "B" DRAIN 65 MA.
TOLERANCE ON VOLTAGES ± 10%

□ – COLORS OF TERMINALS ON SERVICE PARTS
* – INDICATES LEAD FROM TUNER COIL ASS'Y.
K – INDICATES THOUSAND FOR RESISTOR VALUES.


24
73
53
26
51
8
29
28
52
30

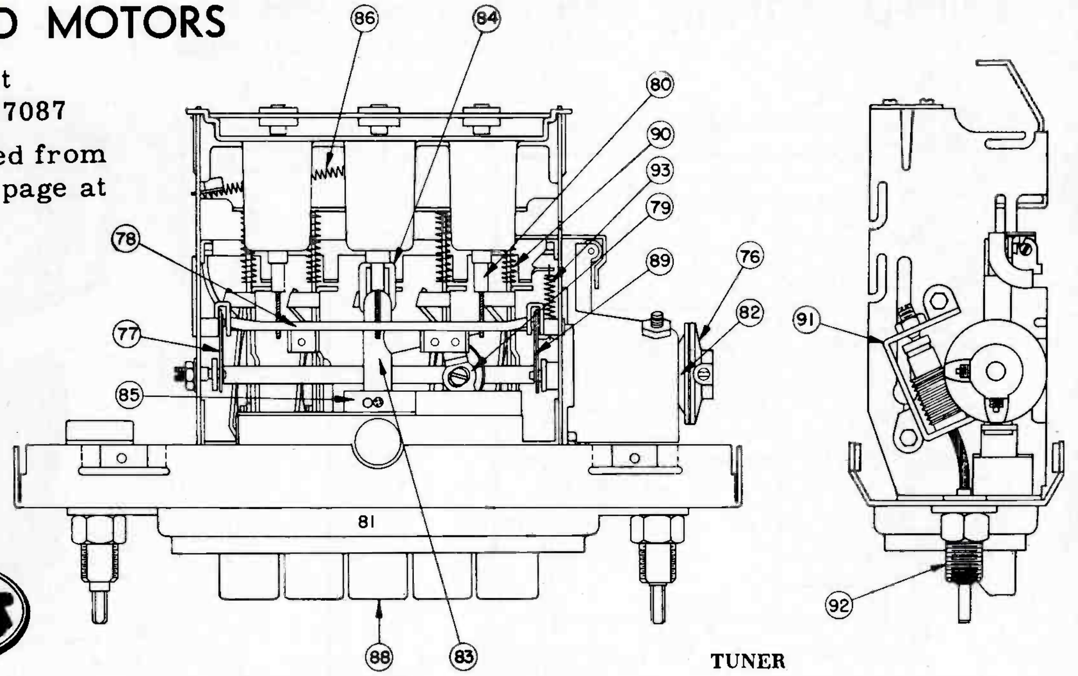
PARTS LAYOUT — CHASSIS VIEW (POWER SUPPLY)


12V6GT OUTPUT
12V6GT OUTPUT
66
25
67
65
0Z4 RECTIFIER
64

PARTS LAYOUT — TUBE VIEW (POWER SUPPLY)

UNITED MOTORS

Chevrolet
Model 987087
(Continued from
adjacent page at
left).


86
84
80
90
93
79
89
76
82
91
78
77
85
81
88
83
92

TUNER

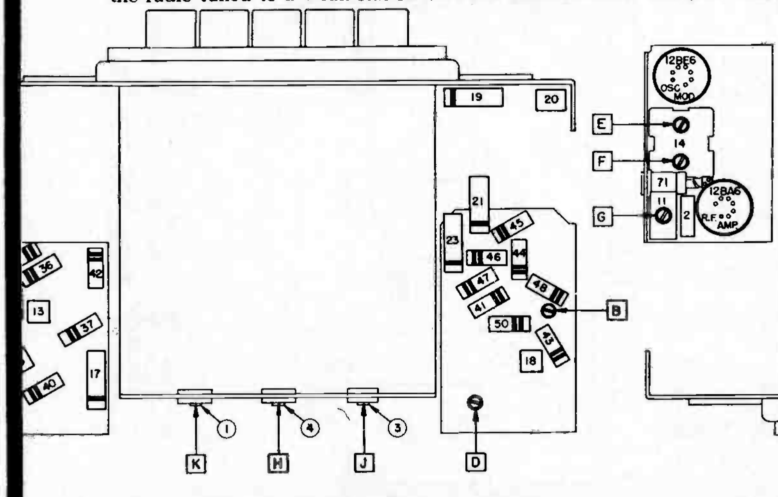
ALIGNMENT PROCEDURE

Steps	Series Capacitor or Dummy Antenna	Connect Signal Generator to	Signal Generator Frequency	Tune Receiver to	Adjust in Sequence For Max. Output
1	0.1 Mfd.	12BE6 Grid (Pin #7)	262 KC	High Frequency Stop	A, B, C, D
2	0.000082 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	*E, F, G
3	0.000082 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	J, K
4	0.000082 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	F, G
5	0.000082 Mfd.	Antenna Connector	900 KC	Signal Generator Signal	L**

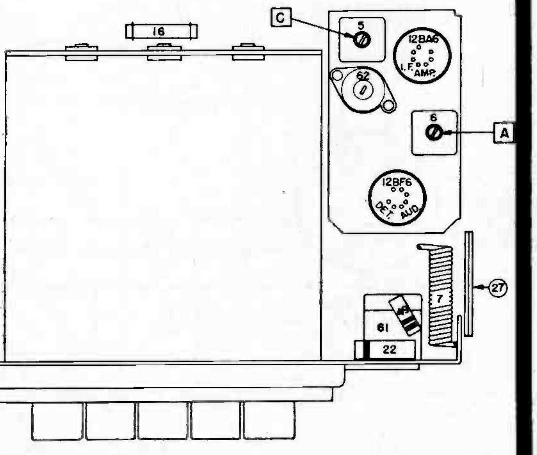
*Before making this adjustment check mechanical setting of oscillator core "H." The rear of the core should be $1\frac{25}{32}$" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form.) Core adjustment should be made with an insulated screw driver.

**L is the pointer adjustment screw which is on the connecting link, between the pointer assembly and core guide bar (See tuner Dwg.). It should be adjusted so that when looking directly at the dial the pointer is on the 900 KC mark. This setting is to give the correct relationship between the pointer and the dial when the radio is installed in a car.

With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC (see sticker on case.)


19
20
12BE6
OSC MOD
E
14
F
71
G
11
2
12BA6
R.F. AMP.
21
23
45
46
44
47
48
41
B
50
43
18
36
42
13
37
17
40
1
4
3
K
H
J
D

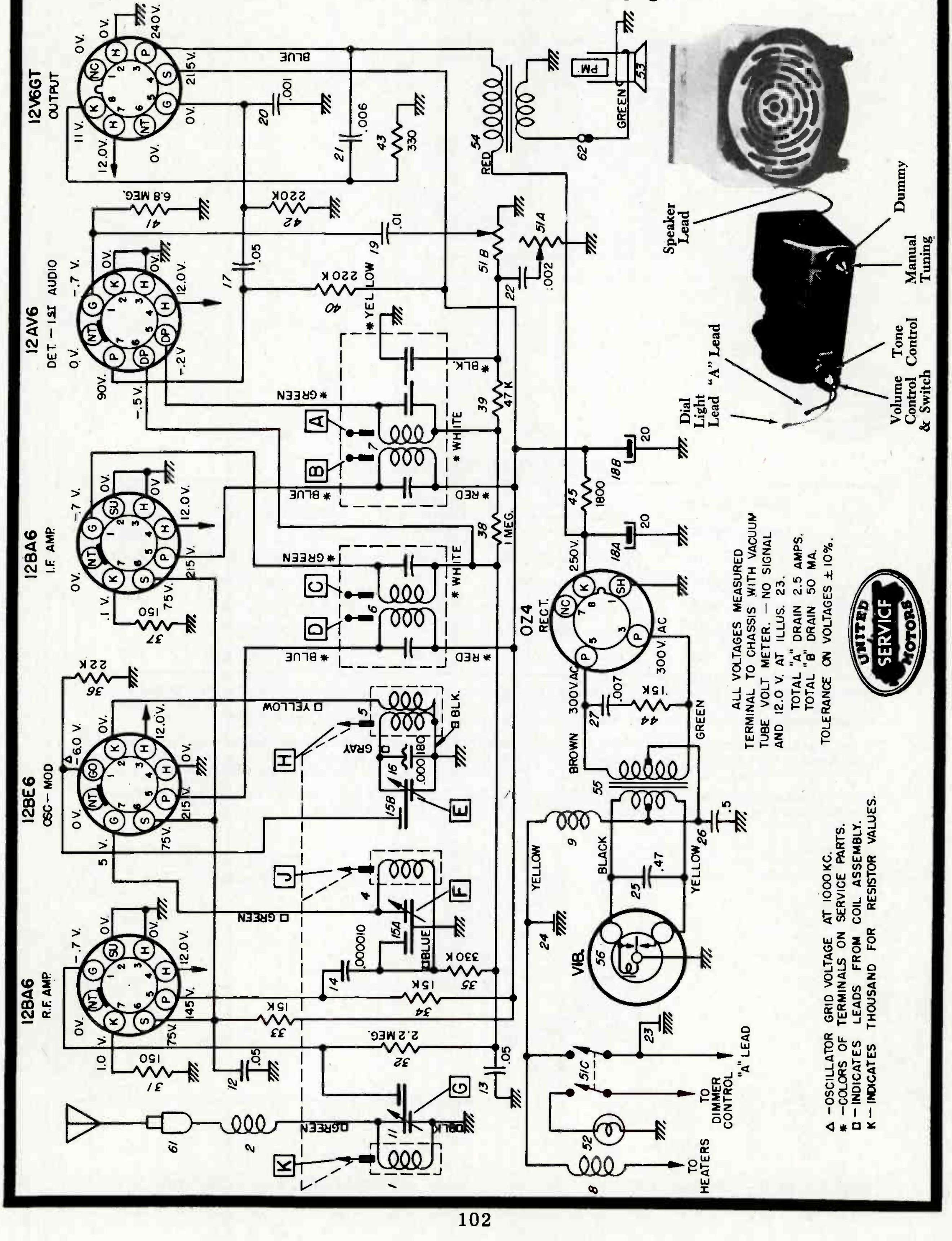
PARTS LAYOUT — CHASSIS VIEW


16
C
5
12BA6
I.F. AMP.
62
6
A
12BF6
DET. AUD.
27
7
61
22

PARTS LAYOUT — TUBE VIEW

UNITED MOTORS

Chevrolet Model 987088
(Alignment on the next page)

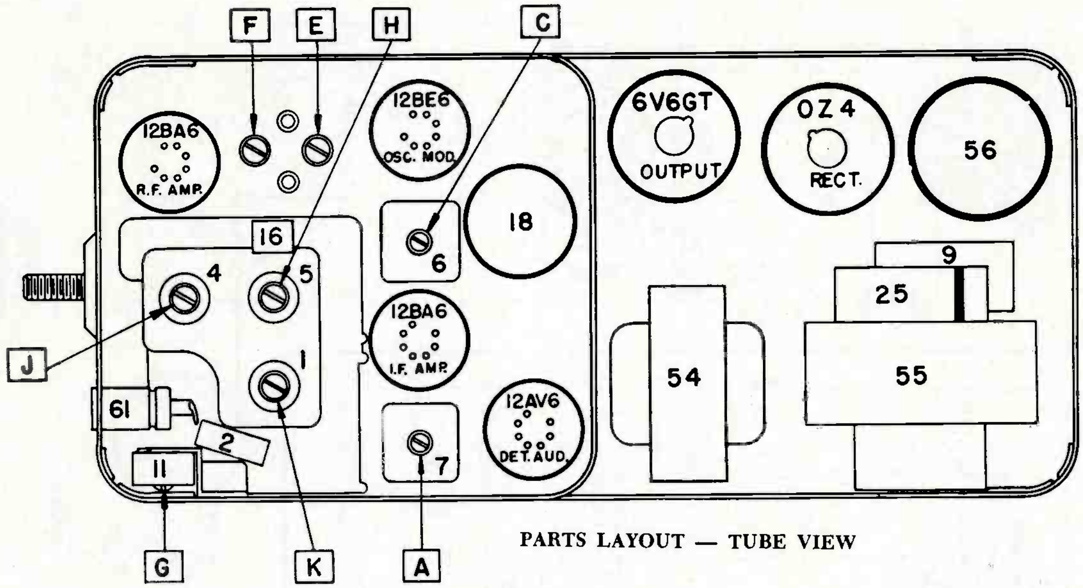

12V6GT OUTPUT
12AV6 DET. – 1st AUDIO
12BA6 I.F. AMP.
12BE6 OSC – MOD
12BA6 R.F. AMP.
OZ4 RECT.
VIB.
PM.
BLUE
GREEN
RED
YELLOW
WHITE
BLK.
GRAY
BROWN
BLACK
A
B
C
D
E
F
G
H
J
K
TO DIMMER CONTROL
"A" LEAD
TO HEATERS
240 V.
215 V.
12.0 V.
300 V. AC
250 V.
6.8 MEG.
220 K
2.2 MEG.
1 MEG.
47 K
1800
15 K
330 K
22 K
150
330
Speaker Lead
Dummy
Manual Tuning
Tone Control
Volume Control & Switch
"A" Lead
Dial Light Lead

ALL VOLTAGES MEASURED TERMINAL TO CHASSIS WITH VACUUM TUBE VOLT METER. — NO SIGNAL AND 12.0 V. AT ILLUS. 23.
TOTAL "A" DRAIN 2.5 AMPS.
TOTAL "B" DRAIN 50 MA.
TOLERANCE ON VOLTAGES ± 10%.

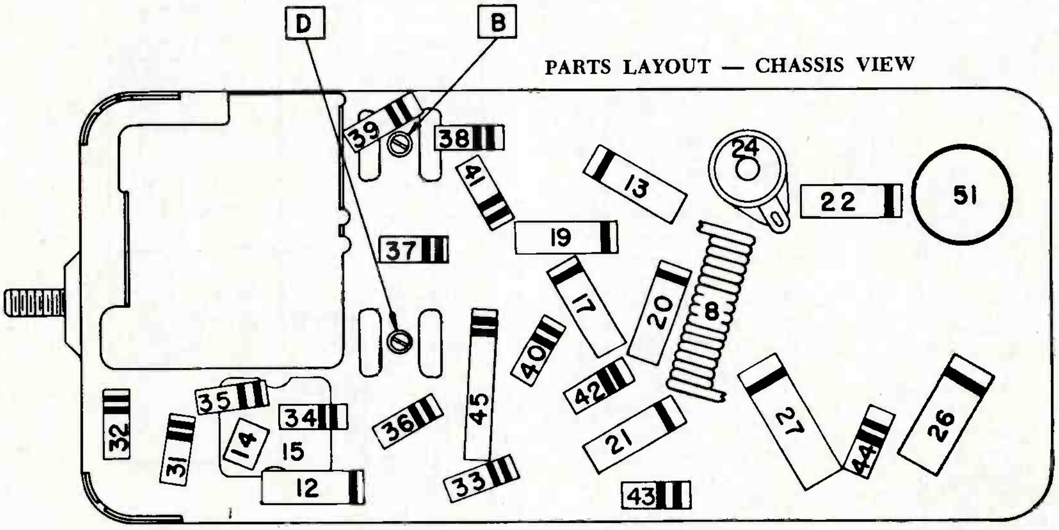
Δ – OSCILLATOR GRID VOLTAGE AT 1000 KC.
* – COLORS OF TERMINALS ON SERVICE PARTS.
□ – INDICATES LEADS FROM COIL ASSEMBLY.
K – INDICATES THOUSAND FOR RESISTOR VALUES.

UNITED MOTORS

Chevrolet Model 987088
(Continued from page at left)


F
E
H
C
12BA6
R.F. AMP.
12BE6
OSC. MOD.
6V6GT
OUTPUT
OZ4
RECT.
56
18
16
4
5
6
1
9
25
55
54
12BA6
I.F. AMP.
12AV6
DET. AUD.
7
J
61
2
11
G
K
A

PARTS LAYOUT — TUBE VIEW


D
B
39
38
41
13
24
22
51
19
37
17
20
8
40
42
45
27
26
44
21
43
33
36
35
34
15
14
12
32
31

PARTS LAYOUT — CHASSIS VIEW

ALIGNMENT PROCEDURE

Steps	Series Capacitor or Dummy Antenna	Connect Signal Generator to	Signal Generator Frequency	Tune Receiver to	Adjust in Sequence For Max. Output
1	0.1 Mfd.	12BE6 Grid (Pin #7)	262 KC	High Frequency Stop	A, B, C, D
2	0.000082 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	*E, F, G
3	0.000082 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	J, K
4	0.000082 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	F, G
5	0.000082 Mfd.	Antenna Connector	900 KC	Signal Generator Signal	**

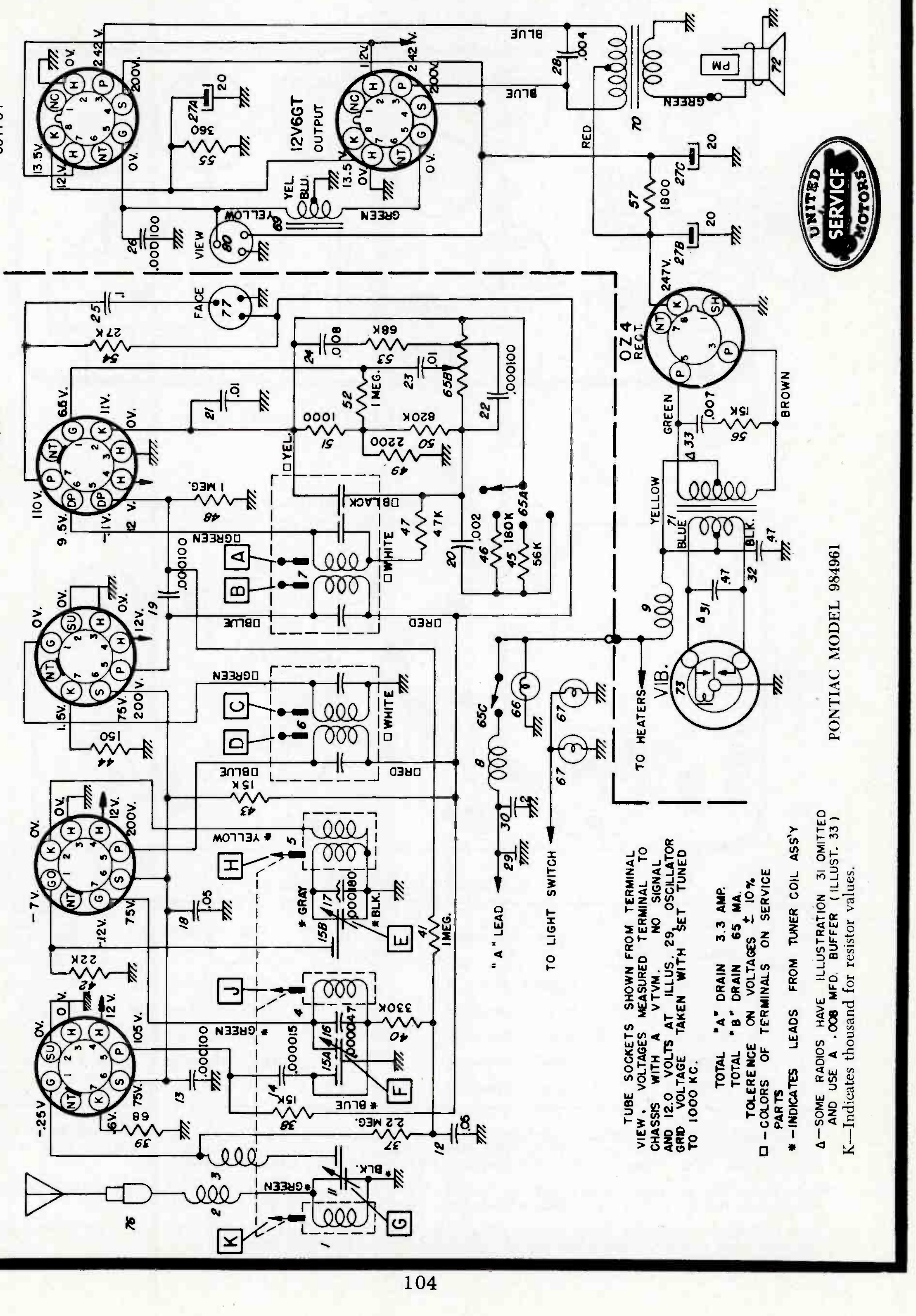
*Before making this adjustment check mechanical setting of oscillator core "H." The rear of the core should be 1$\frac{25}{32}$" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form.) Core adjustment should be made with an insulated screw driver.

**Tune in 900 KC signal and adjust pointer on the dial cord so that the pointer is on the 900 KC mark of the dial. This setting is to give the correct relationship between the pointer and dial when the radio is installed in a car.

With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC (see sticker on case.)

UNITED MOTORS

Pontiac Model 984961
(Alignment on the next page)


12BA6
R.F. AMP.
12BE6
OSC.-MOD.
12BA6
I.F. AMP.
12BF6
DET.-1ST AUDIO
12V6GT
OUTPUT
12V6GT
OUTPUT
0Z4
RECT.
VIB.
FACE
VIEW
PM
BLUE
RED
GREEN
YELLOW
BROWN
BLK.
TO HEATERS
"A" LEAD
TO LIGHT SWITCH
A
B
C
D
E
F
G
H
J
K

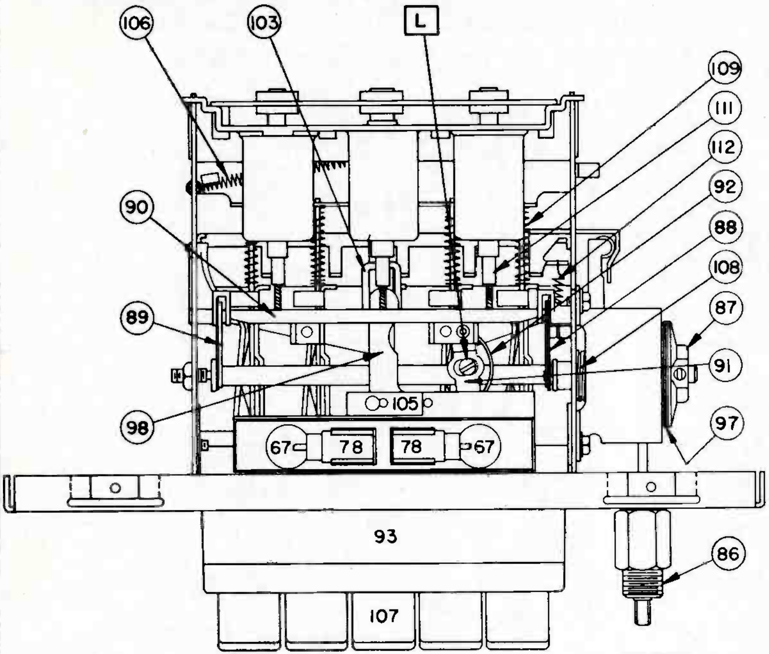
TUBE SOCKETS SHOWN FROM TERMINAL VIEW, VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM. NO SIGNAL AND 12.0 VOLTS AT ILLUS. 29, OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.

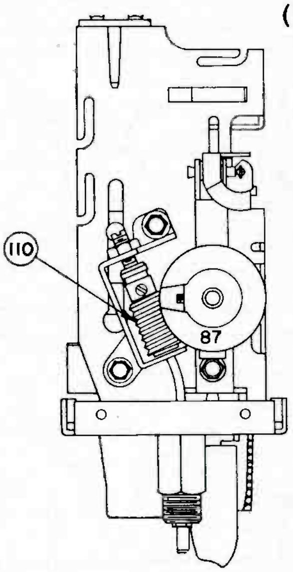
TOTAL "A" DRAIN 3.3 AMP.
TOTAL "B" DRAIN 65 MA.
TOLERENCE ON VOLTAGES ± 10%
□ -COLORS OF TERMINALS ON SERVICE PARTS
* -INDICATES LEADS FROM TUNER COIL ASS'Y

Δ -SOME RADIOS HAVE ILLUSTRATION 31 OMITTED AND USE A .008 MFD. BUFFER (ILLUS. 33)
K—Indicates thousand for resistor values.

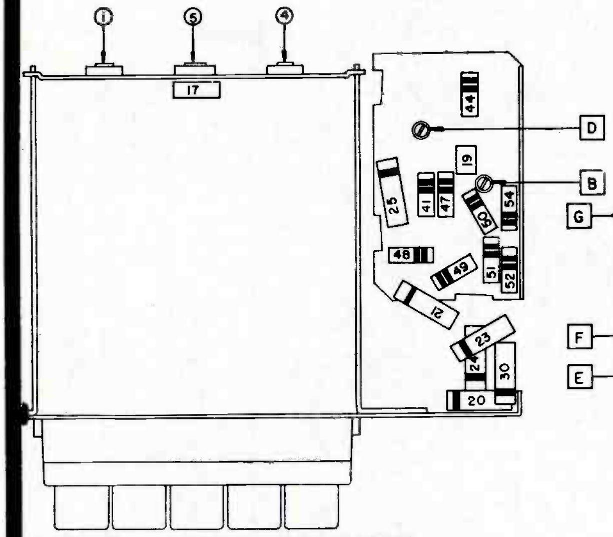
PONTIAC MODEL 984961

UNITED MOTORS
Pontiac Model 984961
(Continued)

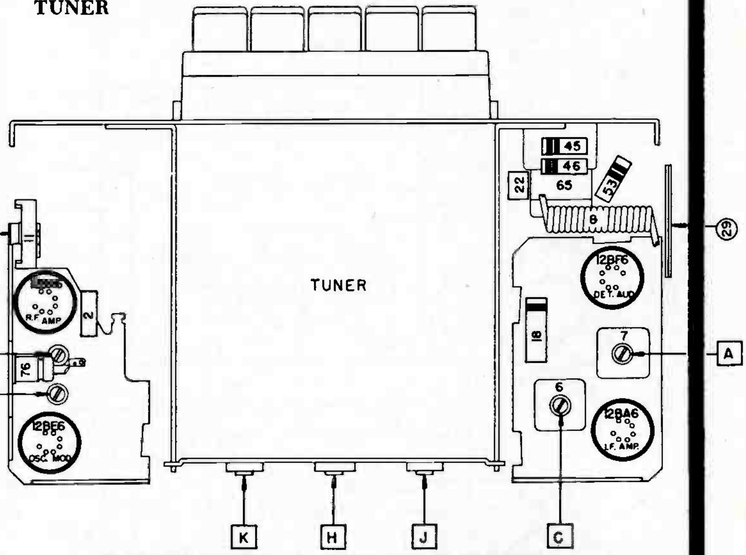

106
103
L
109
111
112
92
88
108
87
91
97
90
89
98
105
67
78
78
67
93
107
86



TUNER


1
5
4
17
44
D
19
B
G
25
41
47
50
54
48
49
51
52
12
23
21
30
20

LAYOUT — CHASSIS VIEW (RADIO)


R.F. AMP
2
F
76
E
12BE6
OSC. MOD.
TUNER
45
46
65
22
53
8
29
12BF6
DET. AUD.
18
7
A
6
12BA6
I.F. AMP.
K
H
J
C

PARTS LAYOUT — TUBE VIEW (RADIO)

Steps	Series Capacitor or Dummy Antenna	Connect to	Signal Generator Frequency	Tune Receiver to	Adjust in Sequence For Max. Output
1	0.1 Mfd.	12BE6 Grid (Pin # 7)	262 KC	High Frequency Stop	A, B, C, D
2	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	*E, F, G
3	0.000068 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	J, K
4	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	F, G
5	0.000068 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	**L

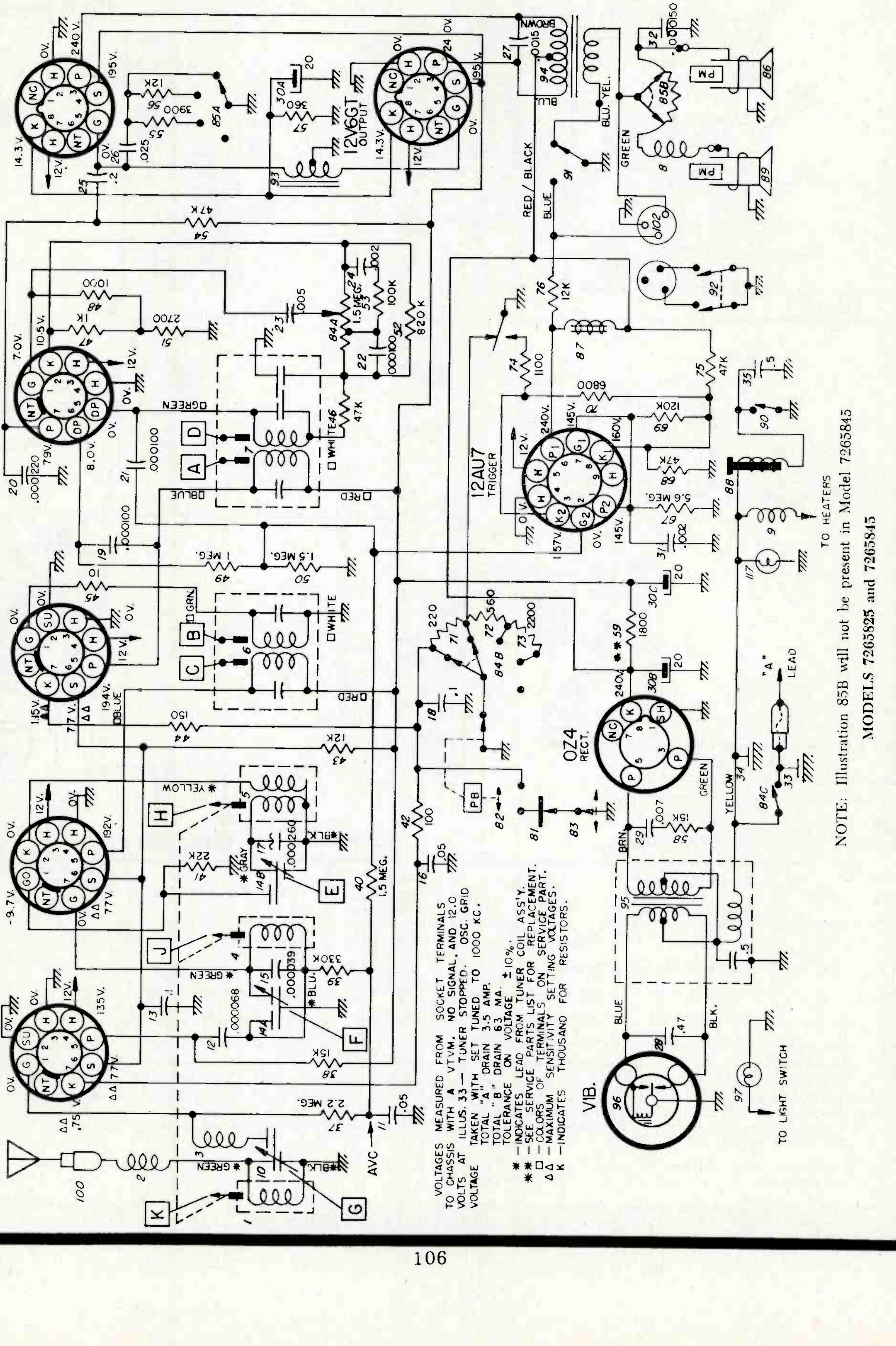
*Before making this adjustment check the mechanical setting of the oscillator core "H." The slotted end of core should be $1\frac{3}{32}$" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form.) If adjustment is necessary, first dissolve the glyptal seal on the studs. Core adjustment should be made with an insulated screwdriver and core studs should be re-sealed in place with glyptal or household cement after alignment.

**"L" is the pointer adjustment screw which is on the pointer connecting link (see tuner drawing) and should be adjusted so the pointer reads 1000 KC. (Dot between 9 and 11.)

With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC. (See sticker on case.)

MOTORS SERVICE

Cadillac Models 7265825 and 7265845
(Alignment on the next page at right)


12V6GT OUTPUT
12V6GT OUTPUT
12BF6 DET. AUD.
12BA6 I.F. AMP.
12BE6 OSC. MOD.
12BA6 R.F AMP.
12AU7 TRIGGER
0Z4 RECT.
VIB.
PM
PM
AVC
TO HEATERS
"A" LEAD
TO LIGHT SWITCH
RED / BLACK
BLUE
GREEN
YELLOW
BRN.
BLK.
BROWN
BLU. YEL.
A
B
C
D
E
F
G
H
J
K
PB

VOLTAGES MEASURED FROM SOCKET TERMINALS
TO CHASSIS WITH A VTVM, NO SIGNAL, AND 12.0
VOLTS AT ILLUS. 33 — TUNER STOPPED. OSC. GRID
VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.
TOTAL "A" DRAIN 3.5 AMP.
TOTAL "B" DRAIN 63 MA.
TOLERANCE ON VOLTAGE ± 10%.

✱ — INDICATES LEAD FROM TUNER COIL ASS'Y.
✱✱ — SEE SERVICE PARTS LIST FOR REPLACEMENT.
□ — COLORS OF TERMINALS ON SERVICE PART.
ΔΔ — MAXIMUM SENSITIVITY SETTING VOLTAGES.
K — INDICATES THOUSAND FOR RESISTORS.

NOTE: Illustration 85B will not be present in Model 7265845

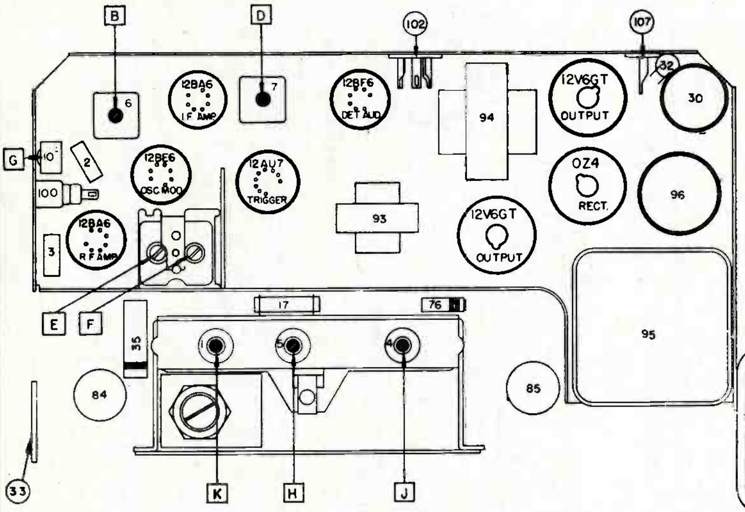
MODELS 7265825 and 7265845

UNITED MOTORS
DIVISION OF GENERAL MOTORS

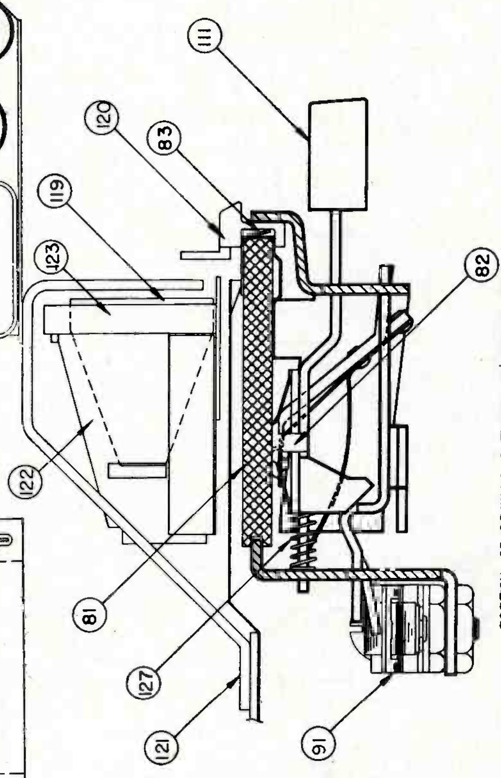
Cadillac Models 7265825 and 7265845
(Continued from adjacent page at left).

SIGNAL SEEKING TUNER ALIGNMENT PROCEDURE:

Output Meter Connection .... VTVM From AVC Line To Chassis (see parts layout)
Generator Return .... Receiver Chassis
Dummy Antenna .... In Series With Generator
Volume Control .... Maximum Volume
Sensitivity Control .... Maximum Sensitivity

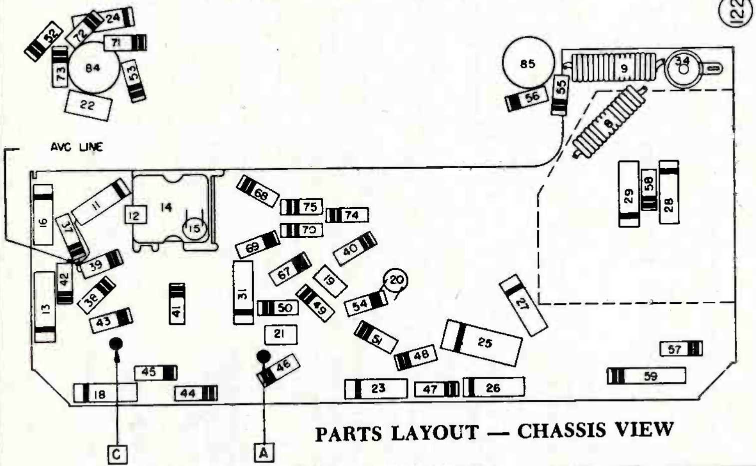

B
D
102
107
6
12BA6
I F AMP
7
12BF6
DET AUD
94
12V6GT
OUTPUT
32
30
G
10
2
100
12BE6
OSC MOD
12AU7
TRIGGER
0Z4
RECT.
96
12BA6
R F AMP
3
93
12V6GT
OUTPUT
E
F
17
76
35
95
5
4
84
85
33
K
H
J

PARTS LAYOUT — TUBE VIEW


111
120
83
119
123
82
122
81
127
121
91

PORTION OF DRAWING OUTLINED IN HEAVY LINES IS THE BUTTON AND SLIDE ASS'Y, ILLUS III.

TUNER BUTTON MECHANISM — CROSS SECTION


32
72
24
71
73
84
53
22
85
56
55
9
34
8
AVC LINE
16
11
12
14
15
68
75
74
70
29
58
28
37
69
40
67
19
20
42
39
13
38
41
31
50
49
54
27
43
21
51
48
25
57
45
46
18
44
23
47
26
59
C
A

PARTS LAYOUT — CHASSIS VIEW

UNITED SERVICE MOTORS

Step	Dummy Antenna	Connect To	Signal Generator Frequency	Tune Receiver To	Adjust in Sequence for Output Indicated
1	0.1 mfd	12BE6 Grid (Pin 7)	262 KC	*High Frequency Stop	A, B, C (Max.)
2	0.1 mfd	12BE6 Grid (Pin 7)	262 KC	High Frequency Stop	D (Min.)
3	0.000068 mfd	Antenna Connector	1615 KC	High Frequency Stop	**E, F, G (Max.)
4	0.000068 mfd	Antenna Connector	600 KC	Signal Gen. Signal	J, K (Max.)
5	0.000068 mfd	Antenna Connector	1615 KC	Signal Gen. Signal	F, G (Max.)
6	0.000068 mfd	Antenna Connector	1000 KC	Signal Gen. Signal	***L

*To tune to high frequency, put a 0.070" feeler gauge (or bare # 13 wire) in slot against the high frequency stop. Depress station selector bar and allow the planetary arm to run against the feeler gauge. Turn the radio off and then on.

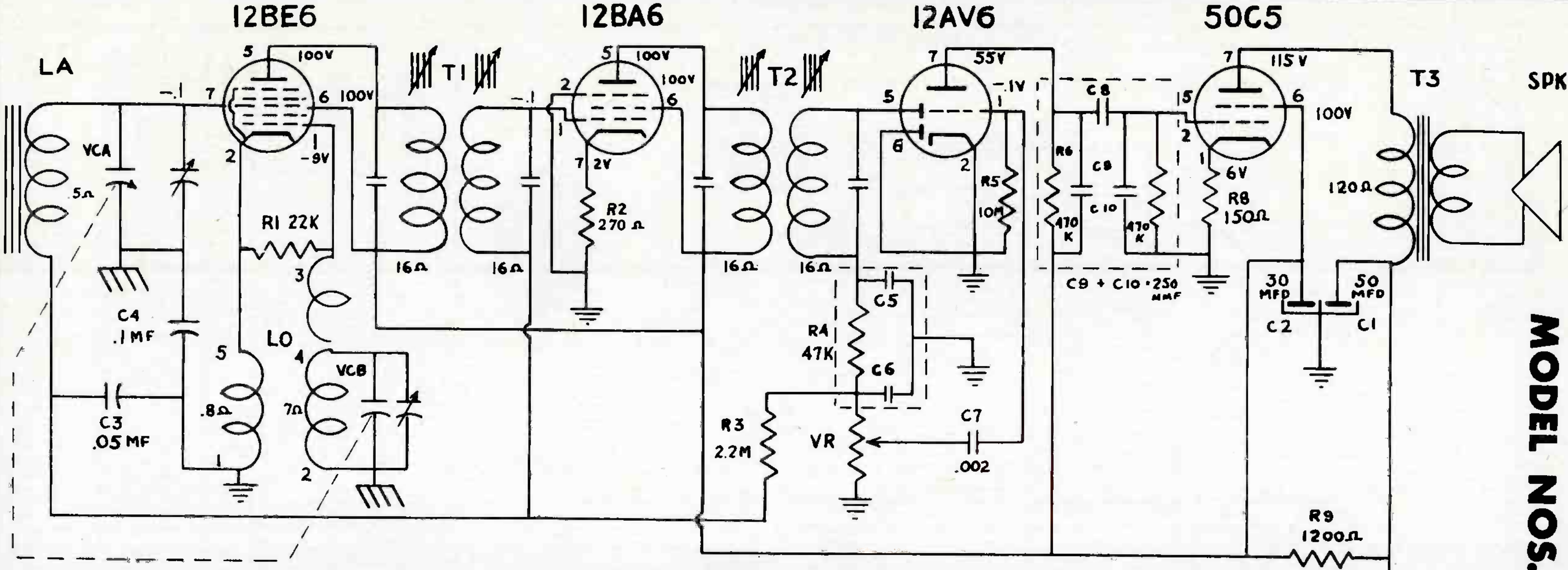
**Before making this adjustment, check the setting of oscillator core "H." The rear of the core should be 1$\frac{3}{32}$" from the mounting end of the coil form. This measurement is readily made by inserting a suitable plug in the mounting end of the coil form. The core adjustment is made from the mounting end of the coil form with an insulated screwdriver. (It will be necessary to steady the core guide bar by applying a downward pressure at the antenna core end of the bar while making these adjustments.) If this adjustment is necessary, first dissolve the glyptal seal on the core stud and be sure to re-seal after making the adjustment.

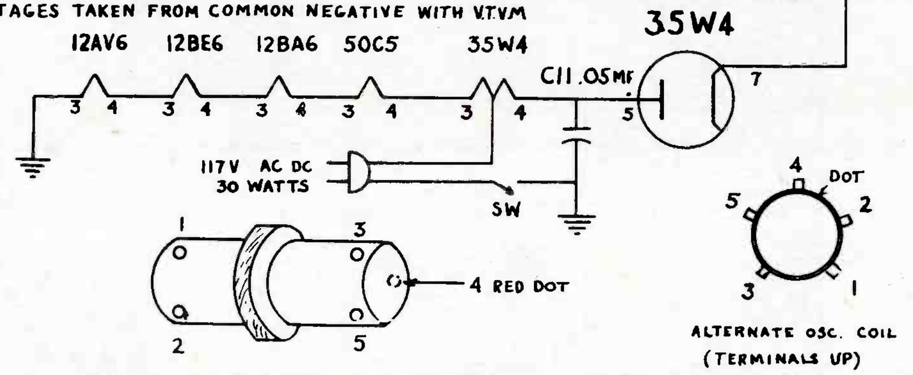
***"L" is the pointer adjustment screw on the end of the core guide bar—adjust so pointer reads 1000 KC.

With the radio installed and the antenna plugged in, adjust antenna trimmer "G" (See sticker on case) for maximum volume with the radio tuned to a weak station between 600 and 1000 KC.

Western Auto Supply Company

MODEL NOS. D2562A, D2563A


12BE6
12BA6
12AV6
50C5
LA
VCA
.5Ω
C4
.1 MF
C3
.05 MF
-.1
7
5
100V
6 100V
2
1
-9V
R1 22K
3
LO
4
5
.8Ω
1
VCB
7Ω
2
T1
16Ω
16Ω
-.1
2
5 100V
100V
6
7 2V
R2
270 Ω
T2
16Ω
16Ω
7
55V
5
-.1V
1
6
2
R5
10M
C5
R4
47K
C6
R3
2.2M
VR
C7
.002
C8
R6
470 K
C8
C10
470 K
C9 + C10 · 250 MMF
7
115 V
15
2
6
1
6V
R8
150Ω
100V
120Ω
30 MFD
C2
50 MFD
C1
T3
SPK
R9
1200Ω


VOLTAGES TAKEN FROM COMMON NEGATIVE WITH V.T.V.M
12AV6
12BE6
12BA6
50C5
35W4
3
4
3
4
3
4
3
4
3
4
35W4
C11 .05 MF
5
7
117V AC DC
30 WATTS
SW
1
3
2
5
4 RED DOT
4
DOT
5
2
3
1
ALTERNATE OSC. COIL
(TERMINALS UP)

ALIGNMENT PROCEDURE

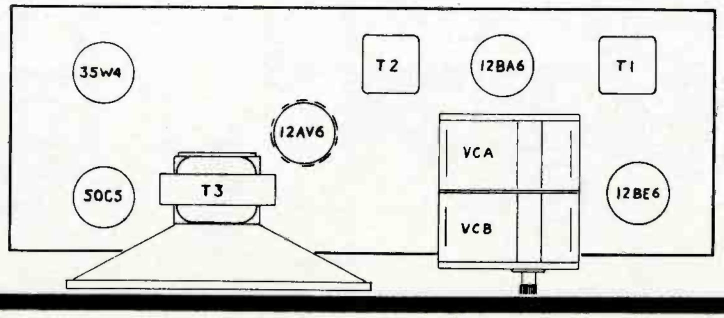
The alignment should be made with volume control fully on, and the output from the signal generator as low as possible, to prevent AVC action from interfering with proper alignment.

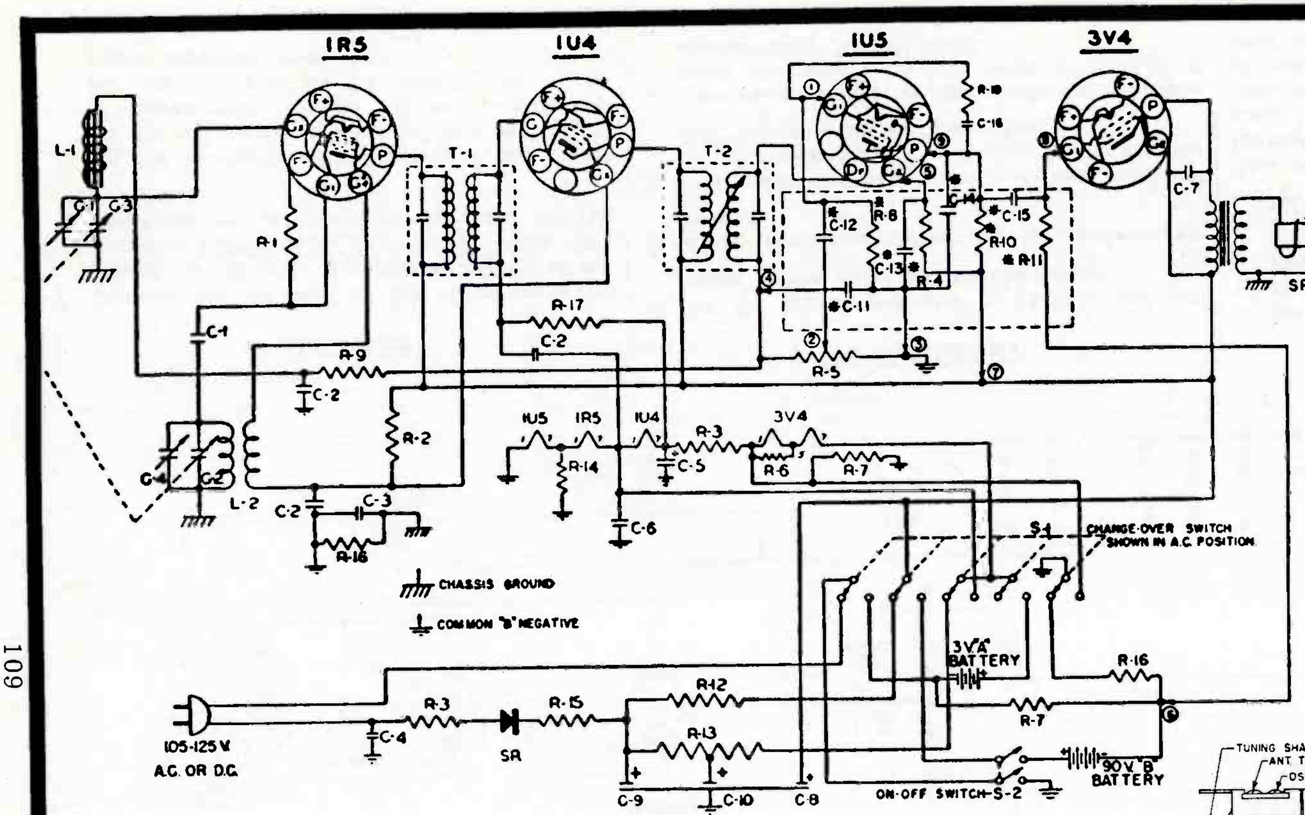
With the output meter connected across the voice coil of the speaker, the output meter reading for 50 milliwatts is 0.4 volts, using a signal which is modulated 400 c.p.s.

Adjust all trimmers for maximum output. Repeat the alignment procedure given below as a final check.

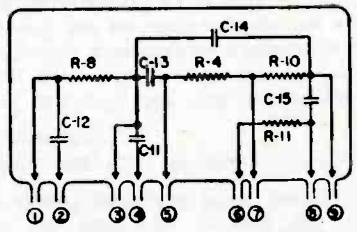
CAUTION: This is an AC/DC receiver, and when aligning the set it is necessary to isolate the signal generator or the receiver from the line by use of a transformer, or to place a .2 MFD condenser in each test lead of the signal generator.

SIGNAL GENERATOR			POSITION OF VARIABLE	ADJUST FOR MAXIMUM OUTPUT
Frequency	Dummy Antenna	Connection to Radio		
455 KC	.1 MFD	12BE6 Grid Stator VCA	Fully Open	T2 & T1
1625 KC		12BE6 Grid Stator VCA	Fully Open	VCB Oscillator
1400 KC		Loosely Coupled to Loop	Tune in Signal Generator	VCA Antenna


35W4
T2
12BA6
T1
12AV6
VCA
50C5
T3
VCB
12BE6

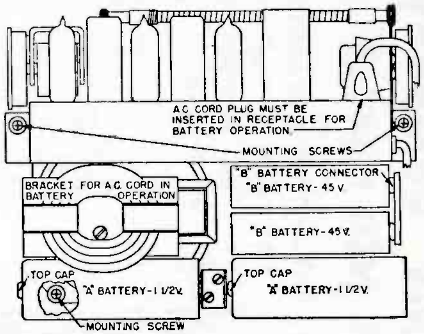

1R5
1U4
1U5
3V4
L-1
C-1
C-3
G-4
G-2
L-2
C-2
C-3
R-16
R-1
R-9
R-2
T-1
R-17
C-2
T-2
R-5
C-11
C-12
C-13
R-8
R-4
C-14
C-15
R-10
R-11
R-18
C-16
C-7
SPK.
1U5
1R5
1U4
R-3
3V4
R-6
R-7
R-14
C-5
C-6
S-1
CHANGE-OVER SWITCH SHOWN IN A.C. POSITION
CHASSIS GROUND
COMMON "B" NEGATIVE
3V "A" BATTERY
R-16
R-12
R-13
R-7
R-3
R-15
SR
C-4
105-125 V. A.C. OR D.C.
C-9
C-10
C-8
ON-OFF SWITCH-S-2
90 V. "B" BATTERY

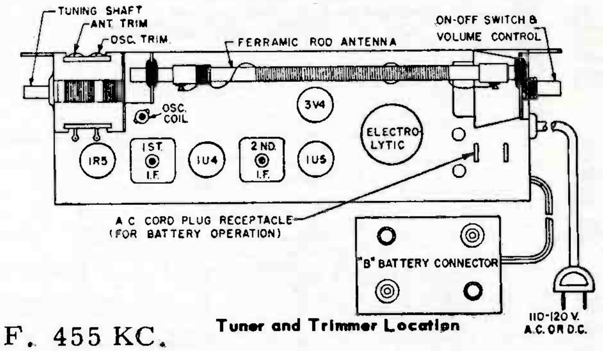
* PART OF PRINTED CIRCUIT PC-165 TRAVLER PART NO. MC-18, SHOWN BELOW


C-14
R-8
C-13
R-4
R-10
C-15
C-12
C-11
R-11
①
②
③
④
⑤
⑥
⑦
⑧
⑨

C-12 = .002 MFD
C-11 = 150 MMFD
C-13 = .01 MFD
C-14 = 150 MMFD.
C-15 = .005 MFD

R-8 = 10 MEGOHM
R-4 = 4.7 MEGOHM
R-10 = 1.0 MEGOHM
R-11 = 3.3 MEGOHM


A.C. CORD PLUG MUST BE INSERTED IN RECEPTACLE FOR BATTERY OPERATION
MOUNTING SCREWS
BRACKET FOR A.C. CORD IN BATTERY OPERATION
"B" BATTERY CONNECTOR
"B" BATTERY-45 V.
"B" BATTERY-45 V.
TOP CAP
"A" BATTERY-1 1/2 V.
TOP CAP
"A" BATTERY-1 1/2 V.
MOUNTING SCREW


TUNING SHAFT
ANT. TRIM
OSC. TRIM
FERRAMIC ROD ANTENNA
ON-OFF SWITCH & VOLUME CONTROL
OSC. COIL
3V4
ELECTROLYTIC
1R5
1ST. I.F.
1U4
2ND. I.F.
1U5
A.C. CORD PLUG RECEPTACLE (FOR BATTERY OPERATION)
"B" BATTERY CONNECTOR
110-120 V. A.C. OR D.C.

Tuner and Trimmer Location

I.F. 455 KC.

PART NO.	SYMBOL	DESCRIPTION
IR-43	R-1	100 K 1/2 W. 10% Resistor
IR-63	R-2	15 K 1/2 W. 10% Resistor
IR-17	R-3	33 1/2 W. 20% Resistor
VC-47	R-5	1 MEGOHM Volume Control
IR-33	R-6	270 1/2 W. 10% Resistor
IR-39	R-7	620 1/2 W. 5% Resistor
IR-3	R-17	10 MEGOHM 1/2 W. 20% Resistor
IR-25	R-12	2200 1 W. 10% Resistor
WR-7	R-13	2100 10 W. 5% Wirewound Resistor
IR-1	R-14	470 1/2 W. 20% Resistor
IR-41	R-15	47 1 W. 10% Resistor
IR-23	R-9	33 MEGOHM 1/2 W. 20% Resistor
IR-20	R-16	220 K 1/2 W. 20% Resistor
CC-5	C-1	100 MMFD Condenser, 500 V.
CC-4	C-2	.01 MFD Ceramic Condenser, 500 V.
PC-8	C-3	.1 MFD Paper Condenser, 400 V.
PC-5	C-4	.05 MFD x 400 V. Paper Condenser
EC-6	C-5	70 MFD @10 W.V. Electrolytic Condenser
PC-3	C-6	.1 MFD x 200 V. Paper Condenser
CC-20	C-7	1500 MMFD x 500 V. Ceramic Condenser

PART NO.	SYMBOL	DESCRIPTION
EC-32	(C-8 (C-9 (C-10	40 MFD) 40 MFD) 150 V. Electrolytic Condenser 20 MFD)
LO-18	L-2	Oscillator Coil
LL-30	L-1	Ferramic Rod Antenna
LI-10	T-1	Input I.F. Transformer
LI-11	T-2	Output I.F. Transformer
GC-12	(G-1	Antenna Section)
GC-12	(G-2 (G-3	Oscillator Section) Tuning Capacitor Antenna Trimmer)
	(G-4	Oscillator Trimmer)
SW-18	(S-1 (S-2	6 Pole, 2 Position Switch 2 Pole, 1 Position Switch on Volume Control
SR-2	SR	75 MIL Gelenium Rectifier
SPK-29	SPK	4" P.M. Speaker with Output Transformer
IR-13	R-18	2.2 MEGOHM 1/2 W. 20% Resistor
CC-33	C-16	220 MMFD 500 V. 20% Ceramic Condenser
CA-155		Cabinet - Complete
K-153		Volume Knob
K-154		Tunnel Knob

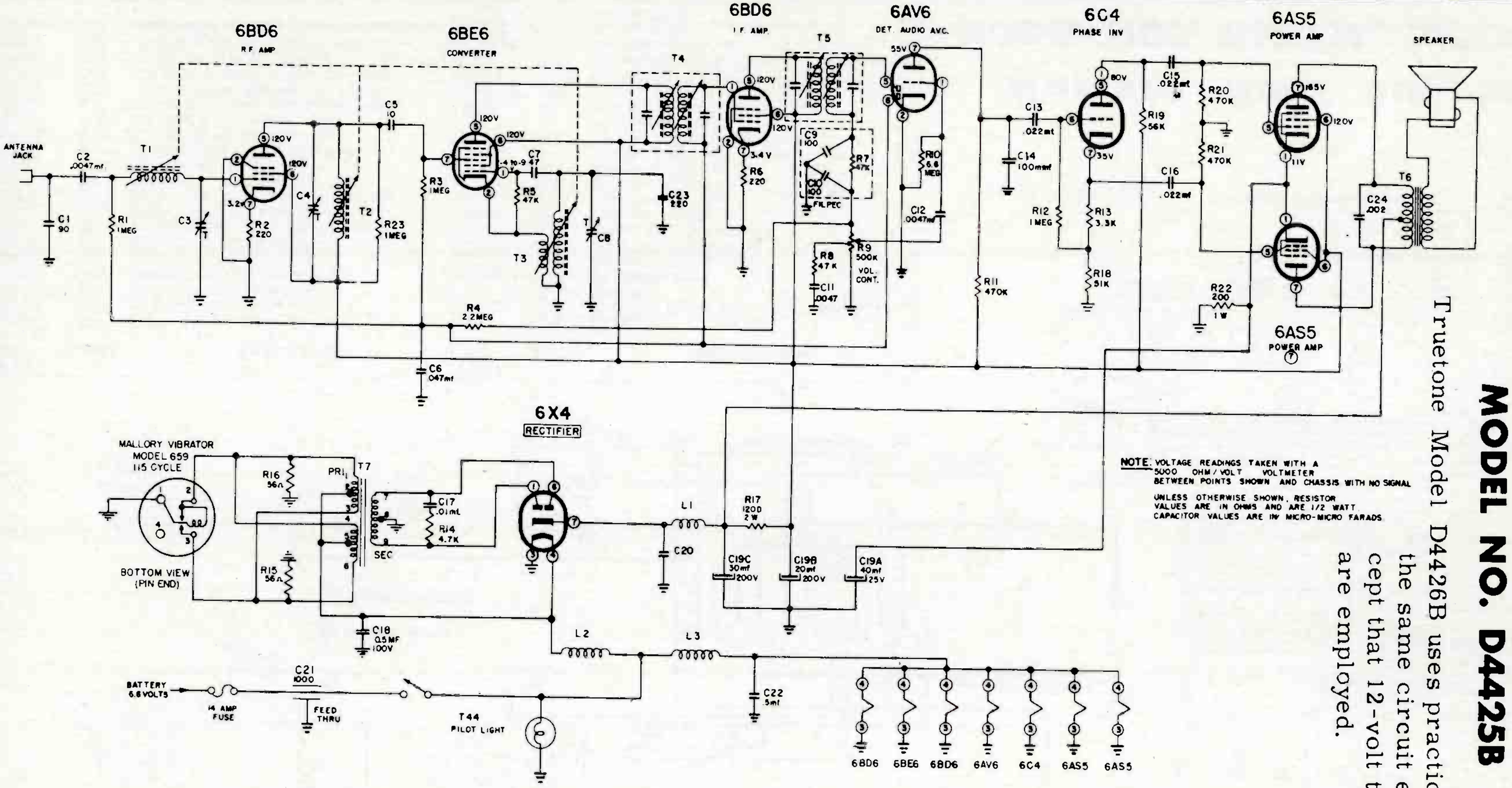
Western Auto Supply
MODEL NOS. D3503A, D3504A

MANUAL OF 1955 MOST-OFTEN-NEEDED

Western Auto Supply Company

MODEL NO. D4425B

Truetone Model D4426B uses practically the same circuit except that 12-volt tubes are employed.



6BD6
R.F. AMP
6BE6
CONVERTER
6BD6
I.F. AMP
6AV6
DET. AUDIO AVC.
6C4
PHASE INV
6AS5
POWER AMP
6AS5
POWER AMP
SPEAKER
ANTENNA JACK
C1 90
C2 .0047mf
T1
R1 1MEG
C3
R2 220
C4
T2
R23 1MEG
C5 10
R3 1MEG
C7 47
R5 47K
T3
C8
C6 .047mf
R4 2.2MEG
T4
C23 220
R6 220
T5
C9 100
R7 47K
FIL.PEC
R8 47K
C11 .0047
R9 500K
VOL. CONT.
R10 6.6 MEG
C12 .0047mf
R11 470K
C13 .022mf
C14 100mmf
R12 1MEG
R13 3.3K
R18 51K
C15 .022mf
R19 56K
C16 .022mf
R20 470K
R21 470K
R22 200 1W
C24 .002
T6
120V
80V
35V
55V
185V
11V
3.4V
3.2V
6X4
RECTIFIER
MALLORY VIBRATOR MODEL 659 115 CYCLE
BOTTOM VIEW (PIN END)
R16 56Ω
R15 56Ω
PRI
T7
SEC
C17 .01mf
R14 4.7K
L1
C20
R17 1200 2W
C19C 30mf 200V
C19B 20mf 200V
C19A 40mf 25V
C18 0.5MF 100V
L2
L3
C22 5mf
BATTERY 6.6 VOLTS
14 AMP FUSE
C21 1000
FEED THRU
T44 PILOT LIGHT
6BD6
6BE6
6BD6
6AV6
6C4
6AS5
6AS5

NOTE: VOLTAGE READINGS TAKEN WITH A 5000 OHM/VOLT VOLTMETER BETWEEN POINTS SHOWN AND CHASSIS WITH NO SIGNAL

UNLESS OTHERWISE SHOWN, RESISTOR VALUES ARE IN OHMS AND ARE 1/2 WATT

CAPACITOR VALUES ARE IN MICRO-MICRO FARADS

IF ALIGNMENT

1. Connect the hot lead of the signal generator through a .10 mfd. capacitor to Pin 7 of the converter (6BE6) tube. Apply a 400 cycle, 30% modulated carrier of 455 KC at about 150 microvolts.
2. Set the volume control at maximum and adjust the top and bottom cores of the first and second IF transformers (T4 and T5) for maximum output, as indicated on the output meter. Keep signal generator level low.

RF ALIGNMENT

1. Set the signal generator to 1620KC and turn tuning control fully counter-clockwise.
2. Adjust oscillator trimmer C8 for maximum deflection.
3. Disconnect the hot signal generator lead and .10 mfd. capacitor and reconnect to the antenna jack through a 50 mmf capacitor.
4. Turn volume control counter-clockwise to reduce noise indicated on output meter to a level of approximately 50 milliwatts.
5. Set the signal generator to 1400 KC and tune in the receiver for maximum reading on output meter. Keep signal generator level low.
6. Adjust antenna and R.F. trimmers C3 and C4 for maximum reading.

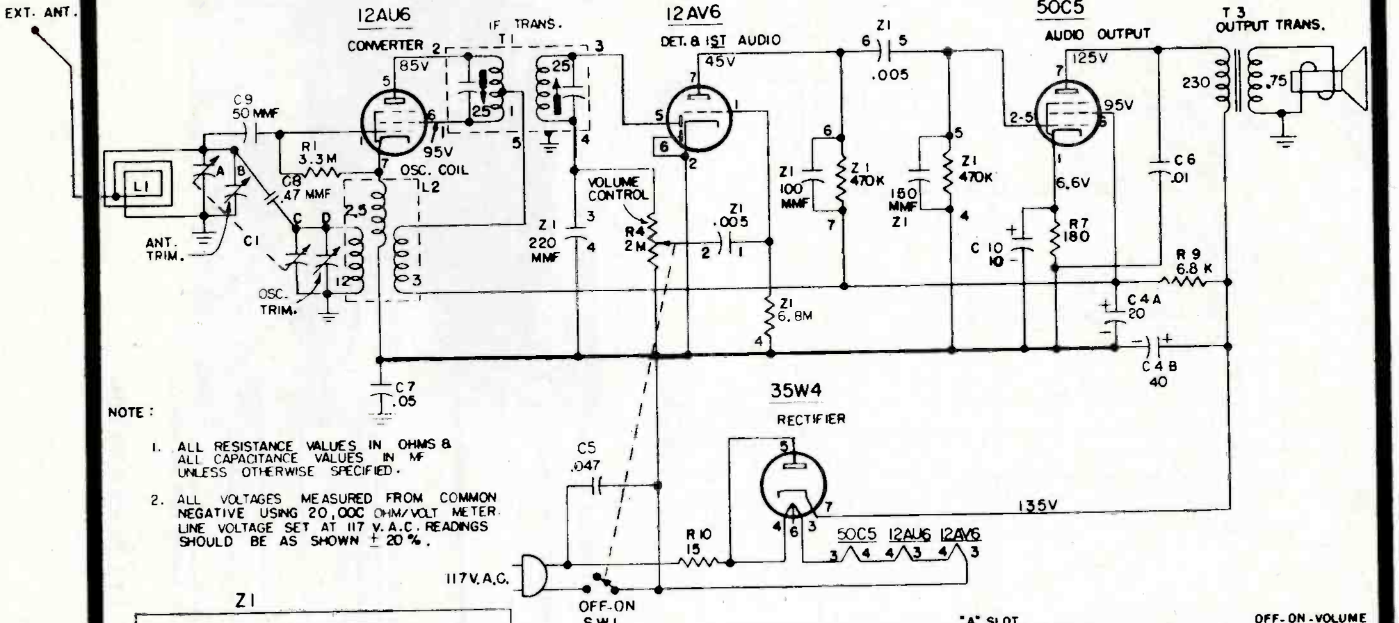
The tuner cores are adjusted and sealed at the factory, therefore core adjustments are not necessary. The entire tuning assembly is a complete unit. Individual parts will not be available as the entire assembly should be replaced as a unit, if replacement is necessary.

Westinghouse

TELEVISION RADIO

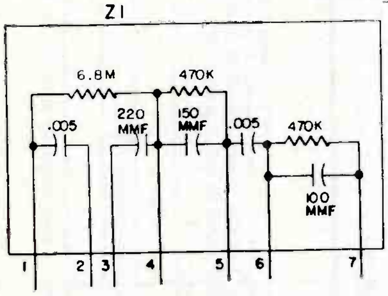
CHASSIS V-2184-4

MODELS H-447T4, H-448T4 AND H-449T4


EXT. ANT.
12AU6
CONVERTER
IF TRANS. T1
12AV6
DET. & 1ST AUDIO
50C5
AUDIO OUTPUT
T3
OUTPUT TRANS.
85V
45V
125V
95V
C9 50 MMF
R1 3.3M
C8 .47 MMF
OSC. COIL L2
L1
ANT. TRIM.
C1
OSC. TRIM.
VOLUME CONTROL
R4 2M
Z1 220 MMF
Z1 .005
Z1 6.8M
Z1 100 MMF
Z1 470K
150 MMF Z1
Z1 .005
C10 10
R7 180
6.6V
C6 .01
R9 6.8 K
C4A 20
C4B 40
230
.75
C7 .05
35W4
RECTIFIER
C5 .047
R10 15
135V
117V.A.C.
OFF-ON SW1
50C5 12AU6 12AV6

NOTE:

1. ALL RESISTANCE VALUES IN OHMS & ALL CAPACITANCE VALUES IN MF UNLESS OTHERWISE SPECIFIED.
2. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING 20,000 OHM/VOLT METER. LINE VOLTAGE SET AT 117 V.A.C. READINGS SHOULD BE AS SHOWN ± 20%.


Z1
6.8M
470K
.005
220 MMF
150 MMF
.005
470K
100 MMF
1
2
3
4
5
6
7

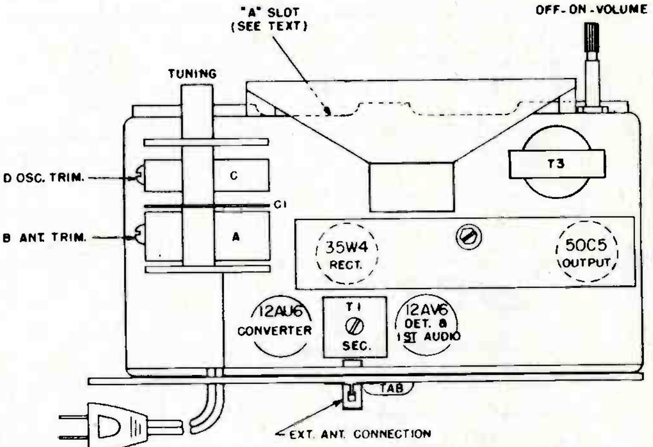

"A" SLOT (SEE TEXT)
OFF-ON-VOLUME
TUNING
D OSC. TRIM.
B ANT. TRIM.
C
C1
A
T3
35W4 RECT.
50C5 OUTPUT
12AU6 CONVERTER
T1 SEC.
12AV6 DET. & 1ST AUDIO
TAB
EXT. ANT. CONNECTION

FIG 2 Chassis Layout

REMOVING COVER With the right hand, insert a screwdriver into the slot marked "A" (see Fig 2). With the left hand, grasp the chassis so that the thumb is on the speaker magnet and the second finger is pressing forward slightly on the tab (see Fig. 2). Then with a slight turn of the screwdriver the bottom cover will unlock from the chassis.

ALIGNMENT

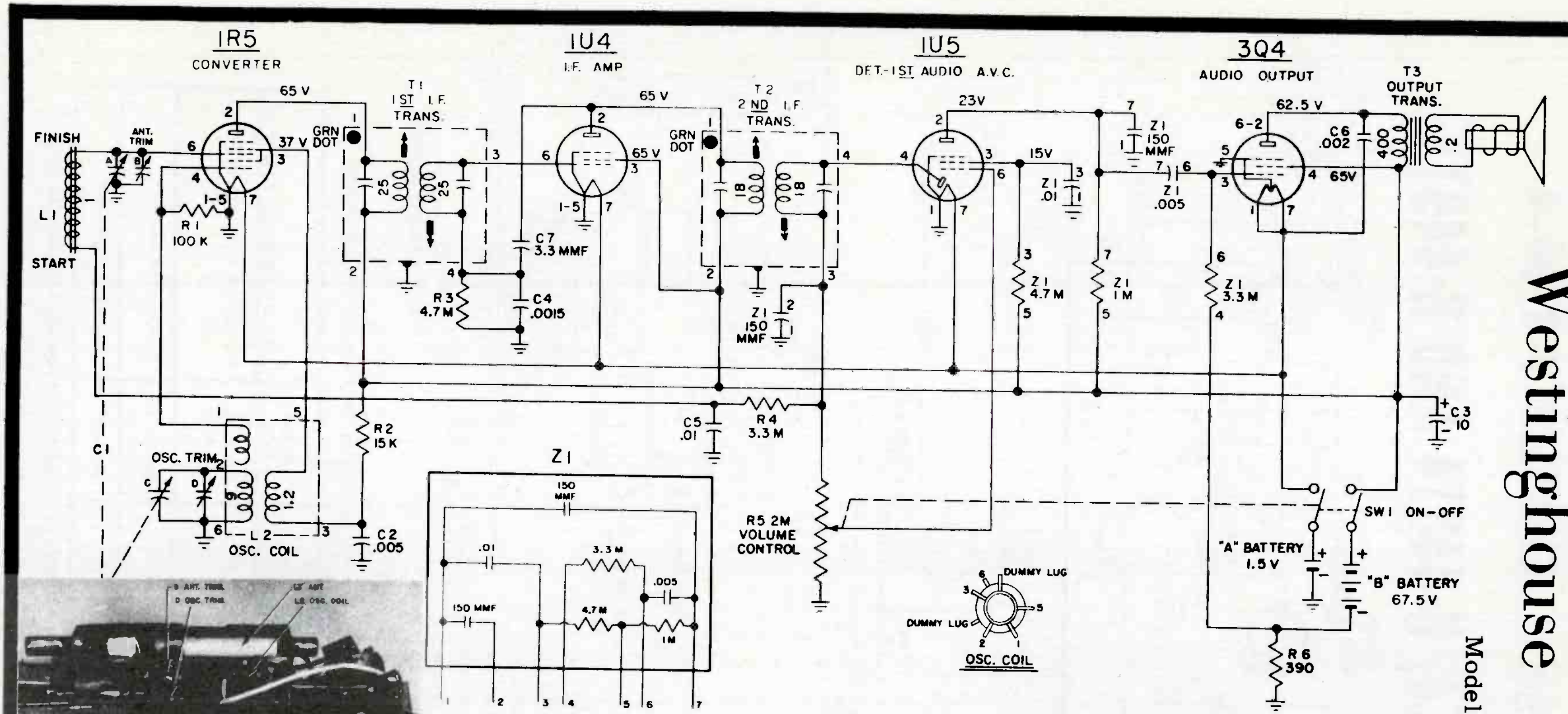
While making the following adjustments, keep the volume control set for maximum output and the signal generator output attenuated to avoid AVC action.

Step	*Connect Signal Generator to –*	*Signal Generator Frequency*	*Radio Dial*	*Adjust for Maximum Output –*
1	Stator of ant. tuning capacitor (A) through a 200 mmf capacitor	455 kc.	Minimum capacity	Bottom and top slugs of T1 *
2	Same as step 1	1625 kc.	Minimum capacity	Oscillator trimmer (D)
3	Radiated signal	1400 kc.	1400 kc.	Antenna trimmer (B)

* *It is recommended that a fiber aligning tool that snugly fits the slot in the powdered iron core be used to prevent chipping of the slot.*

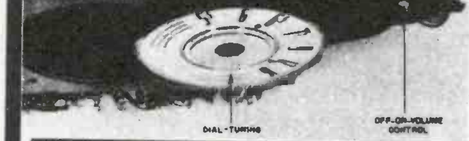
Westinghouse CHASSIS V-2185-2

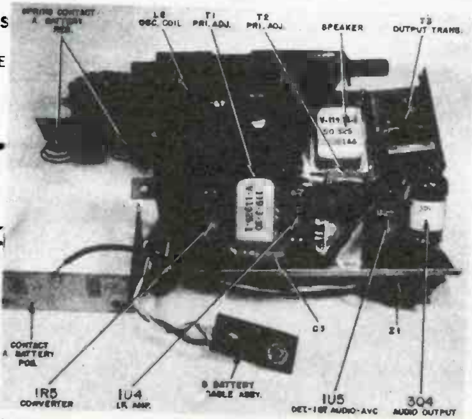
Models H-494P4, H-495P4, H-496P4


1R5
CONVERTER
1U4
I.F. AMP
1U5
DFT.-1ST AUDIO A.V.C.
3Q4
AUDIO OUTPUT
T3
OUTPUT
TRANS.
T1
1ST I.F.
TRANS.
T2
2ND I.F.
TRANS.
FINISH
START
L1
ANT. TRIM
GRN DOT
65 V
37 V
23V
15V
62.5 V
65V
R1
100 K
R2
15 K
R3
4.7 M
R4
3.3 M
C7
3.3 MMF
C4
.0015
C5
.01
C2
.005
C6
.002
C3
10
OSC. TRIM
OSC. COIL
L 2
C1
Z1
150 MMF
4.7 M
3.3 M
1 M
.005
.01
R5 2M
VOLUME
CONTROL
SW1 ON-OFF
"A" BATTERY
1.5 V
"B" BATTERY
67.5 V
R6
390
DUMMY LUG
OSC. COIL

ALL CAPACITANCE VALUES IN MFD. AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.

ALL VOLTAGES MEASURED FROM CHASSIS (GND) USING A V.T.V.M. VOLUME MINIMUM, TUNING OFF STATION


DIAL-TUNING
OFF-ON-VOLUME CONTROL


SPRING CONTACT A BATTERY NEG.
L2 OSC. COIL
T1 PRI. ADJ.
T2 PRI. ADJ.
SPEAKER
T3 OUTPUT TRANS.
CONTACT A BATTERY POS.
1R5 CONVERTER
1U4 I.F. AMP.
B BATTERY CABLE ASSY.
C3
Z1
1U5 DET-1ST AUDIO-AVC
3Q4 AUDIO OUTPUT

ALIGNMENT

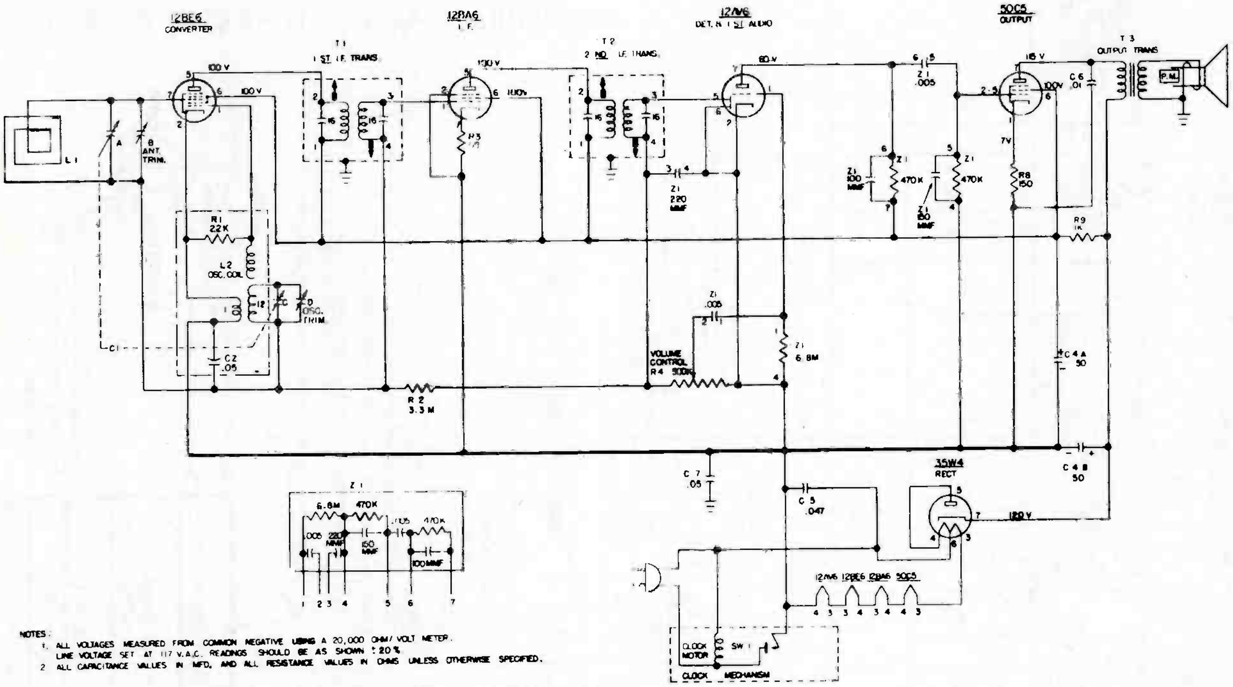
Step	*Connect Signal Generator to —*	*Signal Generator Frequency*	*Radio Dial*	*Adjust for Maximum Output —*
1	Stator of RF section of tuning capacitor C1 through a .01 mfd capacitor	455 kc.	Minimum capacity	Top and bottom slugs of 2nd and 1st IF transformers in order given. SEE NOTE.
2	Radiated signal	1625 kc.	1625 kc.	Osc. trimmer "D"
3	Radiated signal	1400 kc.	1400 kc.	Ant. trimmer "B"
4	Repeat steps 2 and 3			

NOTE: When adjusting the IF transformers, it is recommended that a fiber aligning tool which snugly fits the slot in the powdered iron core be used to prevent chipping of the slot.

TO REMOVE BACK COVER — Insert the edge of a coin into the slot in the top of the cabinet, and twist the coin.

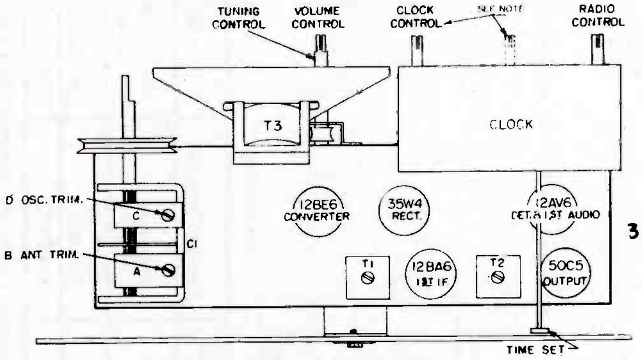
Westinghouse CHASSIS V-2189-4

Models H-443T5, H-444T5, -A, H-445T5, -A, H-446T5, -A

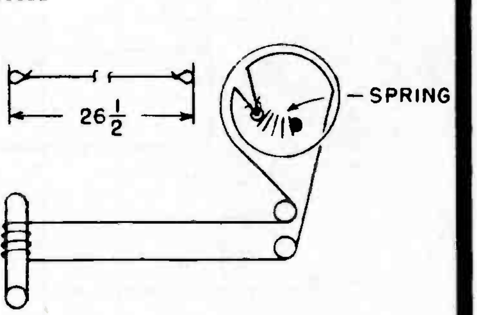

12BE6 CONVERTER
12BA6 I.F.
12AV6 DET. & 1ST AUDIO
50C5 OUTPUT
T1 1 ST I.F. TRANS
T2 2 ND I.F. TRANS
T3 OUTPUT TRANS
P.M.
L1
A
B ANT. TRIM.
R1 22K
L2 OSC. COIL
D OSC. TRIM.
C
C1
C2 .05
R2 3.3 M
R3 47
VOLUME CONTROL R4 500K
Z1 220 MMF
Z1 .005
Z1 6.8M
Z1 100 MMF
Z1 470K
Z1 150 MMF
R8 150
R9 1K
C6 .01
C4A 50
C4B 50
C7 .05
C5 .047
35W4 RECT
100 V
90 V
60 V
115 V
120 V
7V
12AV6 12BE6 12BA6 50C5
CLOCK MOTOR
SW 1
CLOCK MECHANISM
Z1
6.8M
470K
.005
220 MMF
150 MMF
470K
100MMF
1 2 3 4 5 6 7

NOTES:

1. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING A 20,000 OHM/VOLT METER. LINE VOLTAGE SET AT 117 V.A.C. READINGS SHOULD BE AS SHOWN ± 20%.
2. ALL CAPACITANCE VALUES IN MFD. AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.


TUNING CONTROL
VOLUME CONTROL
CLOCK CONTROL
SEE NOTE
RADIO CONTROL
T3
CLOCK
D OSC. TRIM.
C
B ANT. TRIM.
A
C1
12BE6 CONVERTER
35W4 RECT.
12AV6 DET. & 1ST AUDIO
T1
12BA6 1ST IF
T2
50C5 OUTPUT
TIME SET

NOTE: SOME CHASSIS WILL INCLUDE CLOCKS USING THREE KNOBS; LABELED AS FOLLOWS ALARM CONTROL, SLEEP CONTROL AND RADIO CONTROL.


26 1/2
SPRING
3 1/2 TURNS

ALIGNMENT

It is recommended that the chassis be isolated from the power line by means of an isolation transformer.

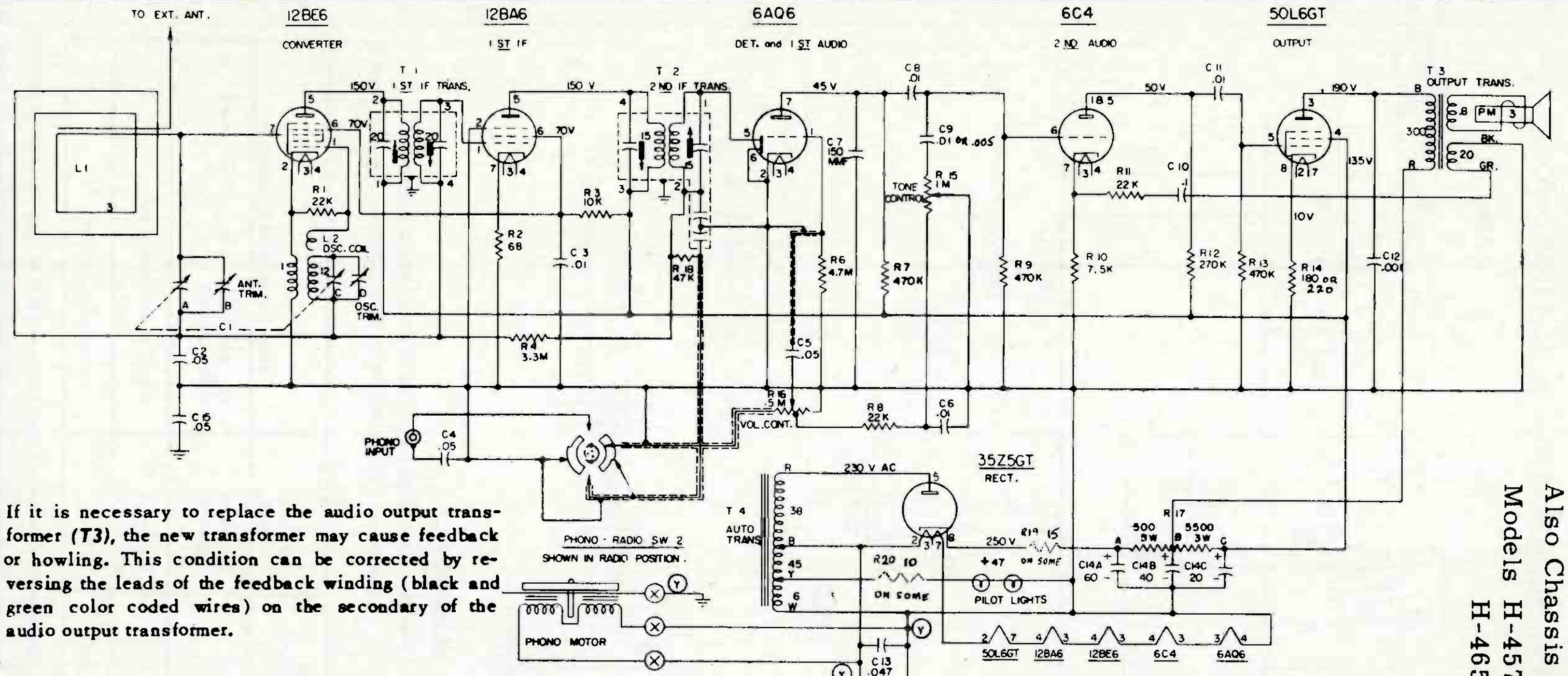
While making the following adjustments, keep the volume control set for maximum output and the signal generator output attenuated to avoid AVC action.

Step	*Connect Signal Generator to –*	*Signal Generator Frequency*	*Radio Dial*	*Adjust for Maximum Output –*
1.	Stator of ant. tuning capacitor (A) through a 200 mmf capacitor	455 kc.	Minimum capacity	Top and bottom slugs of T2 and T1 in order given *
2.	Same as step 1	1625 kc.	Minimum capacity	Oscillator trimmer (D)
3.	Radiated signal	1400 kc.	1400 kc.	Antenna trimmer (B)

* *It is recommended that a fiber aligning tool that snugly fits the slot in the powered iron core be used to prevent chipping of the slot.*

Westinghouse CHASSIS ASSEMBLY V-2229-1

Also Chassis V-2229-2 and V-2229-3,
Models H-457T6, H-458T6, H-459T6, H-460T6,
H-465R6, H-466R6, H-467R6, H-468R6.


TO EXT. ANT.
12BE6
CONVERTER
12BA6
1 ST IF
6AQ6
DET. and 1 ST AUDIO
6C4
2 ND AUDIO
50L6GT
OUTPUT
T 1
1 ST IF TRANS.
T 2
2 ND IF TRANS.
T 3
OUTPUT TRANS.
L1
150V
70V
150 V
45 V
50V
190 V
135V
10V
R1 22K
L2 OSC. COIL
ANT. TRIM.
OSC. TRIM.
C1
C2 .05
C15 .05
R2 68
R3 10K
C3 .01
R4 3.3M
R18 47K
C4 .05
PHONO INPUT
C7 150 MMF
C8 .01
C9 .01 OR .005
R15 1M
TONE CONTROL
R6 4.7M
C5 .05
R16 .5M
VOL. CONT.
R7 470K
R8 22K
C6 .01
R9 470K
R10 7.5K
R11 22K
C10
C11 .01
R12 270K
R13 470K
R14 180 OR 220
C12 .001
PM
BK.
GR.
300
20
35Z5GT
RECT.
230 V AC
T 4
AUTO TRANS.
38
45
6
R17
500 5W
5500 3W
250 V
R19 15 ON SOME
R20 10 ON SOME
+47
PILOT LIGHTS
C14A 60
C14B 40
C14C 20
PHONO - RADIO SW 2
SHOWN IN RADIO POSITION.
PHONO MOTOR
50L6GT
12BA6
12BE6
6C4
6AQ6
C13 .047

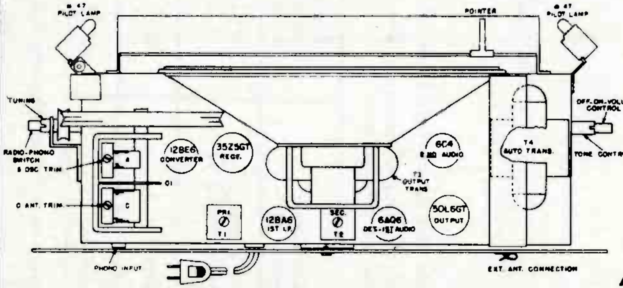
SW 1
ON-OFF SWITCH
ON VOL. CONTROL

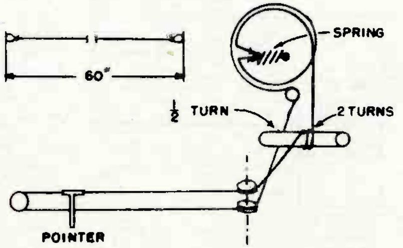
117 V
AC ONLY

If it is necessary to replace the audio output transformer *(T3)*, the new transformer may cause feedback or howling. This condition can be corrected by reversing the leads of the feedback winding (black and green color coded wires) on the secondary of the audio output transformer.

NOTES:

1. CONNECTION Ⓨ Ⓨ Ⓨ FOR V-2229-2 CHASSIS ONLY.
2. PLUG CONNECTION ⊗⊗⊗ FOR V-2229-3 CHASSIS ONLY.
3. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING A V.T.V.M. LINE VOLTAGE SET FOR 117 V A.C. READINGS SHOULD BE AS SHOWN ± 20 %.
4. ALL CAPACITANCE VALUES IN MFD AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.


# 47 PILOT LAMP
POINTER
# 47 PILOT LAMP
TUNING
OFF-ON-VOLUME CONTROL
TONE CONTROL
RADIO-PHONO SWITCH
B OSC TRIM
D ANT. TRIM
12BE6 CONVERTER
35Z5GT RECT.
6C4 2 ND AUDIO
T4 AUTO TRANS.
T3 OUTPUT TRANS
PRI. T1
12BA6 1ST I.F.
SEC. T2
6AQ6 DET-1ST AUDIO
50L6GT OUTPUT
PHONO INPUT
EXT. ANT. CONNECTION


SPRING
60"
½ TURN
2 TURNS
POINTER

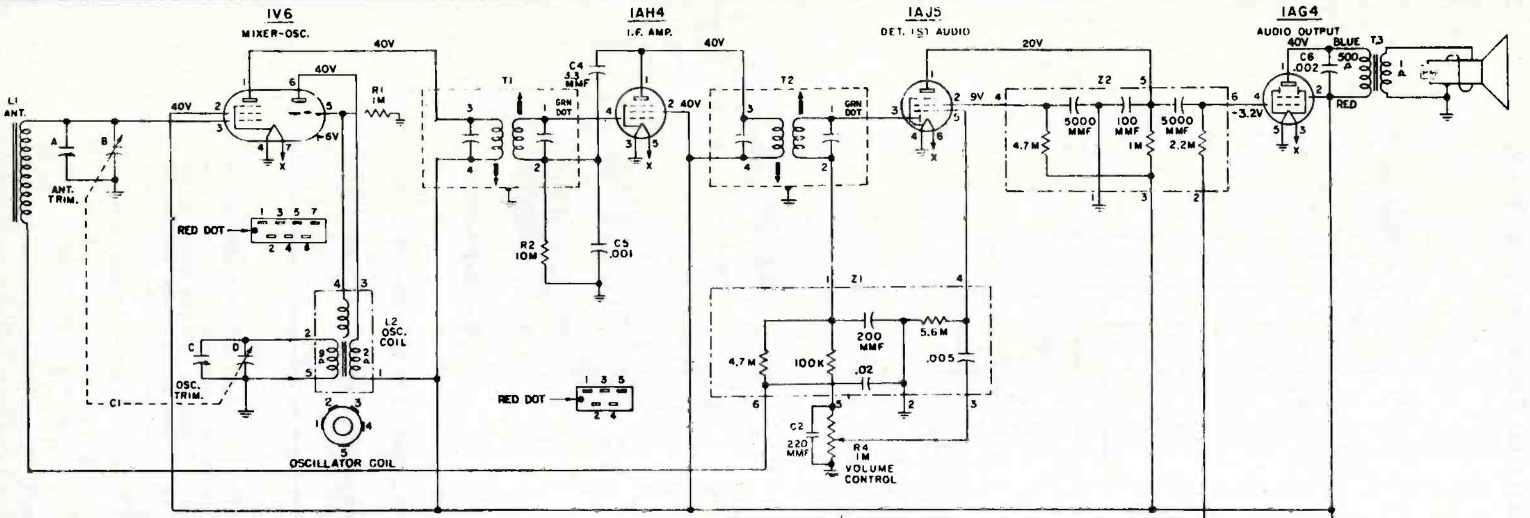
ALIGNMENT

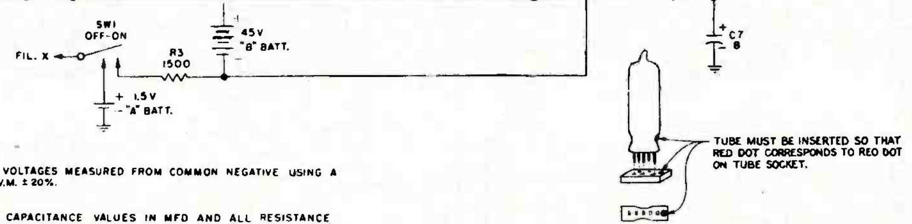
Step	Connect Signal Generator to –	Signal Generator Frequency	Tuning Capacitor	Adjust for Maximum output
1	Stator of Ant. Tuning Capacitor (A) through A 200 mmf. capacitor	455KC	Minimum Capacity	Top and Bottom Slugs of T2 and T1 in given order*
2	Same as step 1	1,625KC	Minimum Capacity	Oscillator Trimmer (D)
3	Radiated Signal	1,400KC	1,400KC	Antenna Trimmer (B)

* It is recommended that a fiber aligning tool that snugly fits in the powdered iron core be used to prevent chipping of the slot.

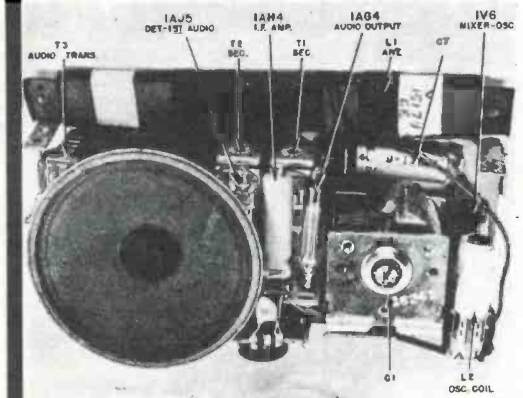
Westinghouse CHASSIS ASSEMBLY V-2234-1

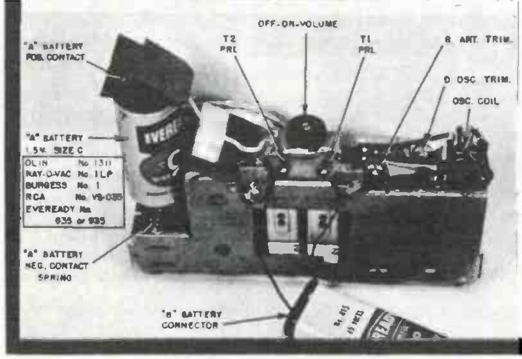
Models H-490P4, H-491P4, H-492P4, H-493P4, H-508P4


IV6
MIXER-OSC.
IAH4
I.F. AMP.
IAJ5
DET. 1ST AUDIO
IAG4
AUDIO OUTPUT
L1
ANT.
ANT. TRIM.
40V
6V
R1
1M
RED DOT
1 3 5 7
2 4 6
L2
OSC. COIL
OSC. TRIM.
C1
OSCILLATOR COIL
T1
GRN DOT
C4
3.3 MMF
R2
10M
C5
.001
T2
Z1
4.7M
100K
200 MMF
5.6M
.02
.005
C2
220 MMF
R4
1M
VOLUME CONTROL
1 3 5
2 4
20V
9V
Z2
5000 MMF
100 MMF
1M
2.2M
-3.2V
C6
.002
BLUE
T3
500
A
RED


SW1
OFF-ON
FIL. X
R3
1500
45V
"B" BATT.
+ 1.5V
- "A" BATT.
C7
8
TUBE MUST BE INSERTED SO THAT RED DOT CORRESPONDS TO RED DOT ON TUBE SOCKET.

NOTES:
1. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING A V.T.V.M. ± 20%.
2. ALL CAPACITANCE VALUES IN MFD AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.


IAJ5
DET-1ST AUDIO
T3
AUDIO TRANS.
T2
SEC.
IAH4
I.F. AMP.
T1
SEC.
IAG4
AUDIO OUTPUT
L1
ANT.
C7
IV6
MIXER-OSC
C1
L2
OSC. COIL


OFF-ON-VOLUME
T2
PRI.
T1
PRI.
B ANT. TRIM.
D OSC TRIM.
OSC. COIL
"A" BATTERY
POS. CONTACT
"A" BATTERY
1.5V. SIZE C
OLIN No. 1311
RAY-O-VAC No. 1LP
BURGESS No. 1
RCA No. VS-035
EVEREADY No. 635 or 935
"A" BATTERY
NEG. CONTACT
SPRING
"B" BATTERY
CONNECTOR

ALIGNMENT

Before beginning alignment it is necessary to remove the two screws holding the loop antenna to the chassis. The loop antenna (L1) should be folded back in order to make the secondary of T1 and T2 accessable for alignment.

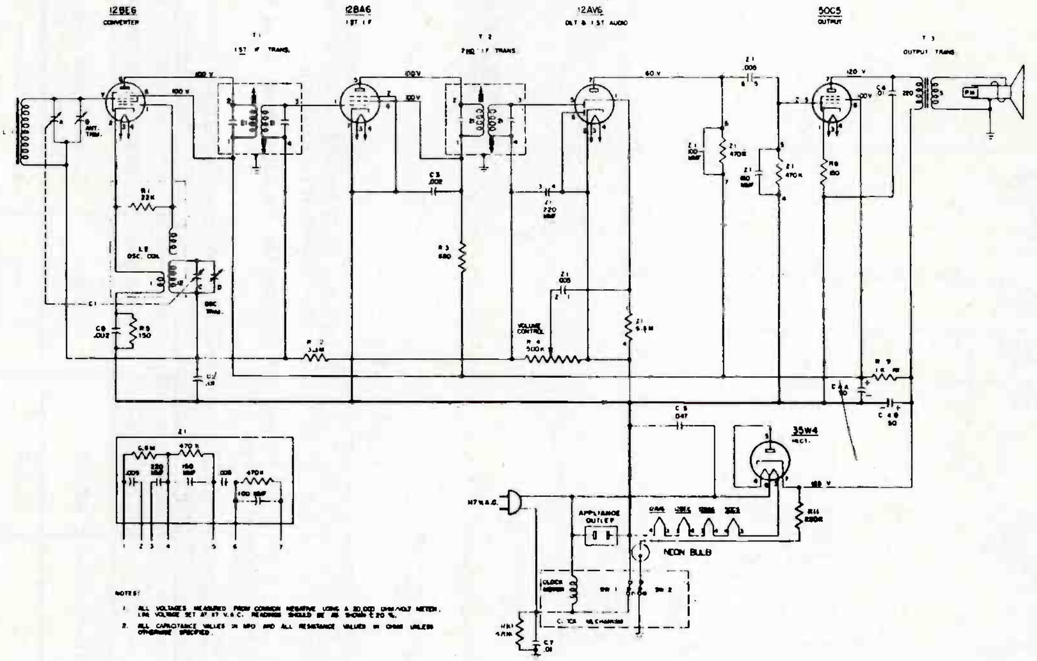
In order to make the primary of T1 and T2 accessable for alignment, it is necessary to remove the volume control knob.

While making the following adjustments, keep the volume control set for maximum output and the signal generator output attenuated to avoid AVC action.

STEP	CONNECT. SIGNAL GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RADIO DIAL	ADJUST FOR MAXIMUM OUTPUT
1	Stator of RF Section of Tuning Capacitor C1 Through a .01 mfd. Capacitor.	455 KC.	Minimum Capacity	Top and bottom slugs of 2nd and 1st IF Transformers in Order Given.
2	Radiated Signal	1625 KC.	Minimum Capacity	Oscillator Trimmer "D" (Rock-in)
3	Radiated Signal	1425 KC.	1425 KC.	Antenna Trimmer "B"
4	Radiated Signal	600 KC.	600 KC.	Slug in oscillator coil (L2) (Rock-in)
5	Repeat Steps 2 and 3			

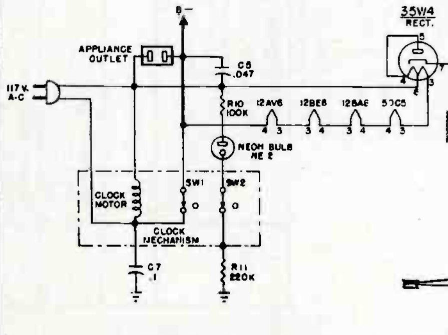
Westinghouse

Chassis V-2236-2, Models H-486T5, H-487T5, H-488T5, and H-489T5.
Chassis V-2236-1, Models H-475T5, H-476T5, H-477T5, and H-478T5
are practically identical electrically to Chassis V-2236-2.

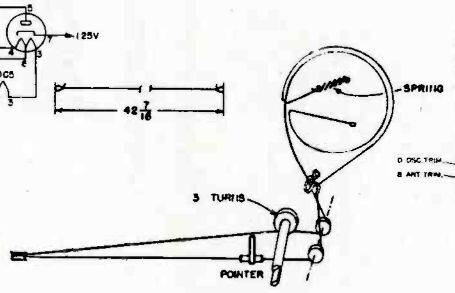

12BE6
CONVERTER
12BA6
1ST I.F.
12AV6
DET & 1ST AUDIO
50C5
OUTPUT
T1
1ST IF TRANS.
T2
2ND IF TRANS.
T3
OUTPUT TRANS.
35W4
RECT.
VOLUME CONTROL
R4 500K
NEON BULB
APPLIANCE OUTLET
CLOCK MECHANISM
117V A.C.
1 2 3 4 5 6 7

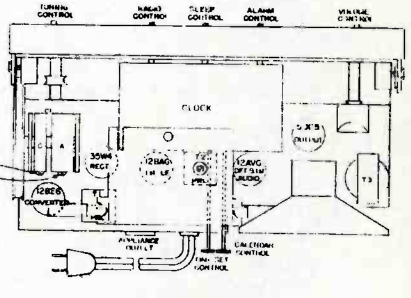
NOTES:

1. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING A 20,000 OHM/VOLT METER. LINE VOLTAGE SET AT 117 V.A.C. READINGS SHOULD BE AS SHOWN ±20%.
2. ALL CAPACITANCE VALUES IN MFD AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.


B+
APPLIANCE OUTLET
C8
.047
35W4
RECT.
125V
117V. A-C
R10
100K
12AV6
12BE6
12BAE
50C5
4 3 3 4 3 4 4 3
NEON BULB
NE 2
SW1
SW2
CLOCK MOTOR
CLOCK MECHANISM
C7
.1
R11
220K

Filament Wiring


SPRING
42 7/16
3 TURNS
POINTER


TUNING CONTROL
CLOCK
D OSC TRIM
B ANT TRIM
35W4 RECT
12BA6 1st I.F.
12AV6 DET & 1ST AUDIO
12BE6 CONVERTER
APPLIANCE OUTLET
CALENDAR CONTROL

Chassis Layout

ALIGNMENT

It is recommended that the chassis be isolated from the power line by means of an isolation transformer.

While making the following adjustments, keep the volume control set for maximum output and the signal generator output attenuated to avoid AVC action.

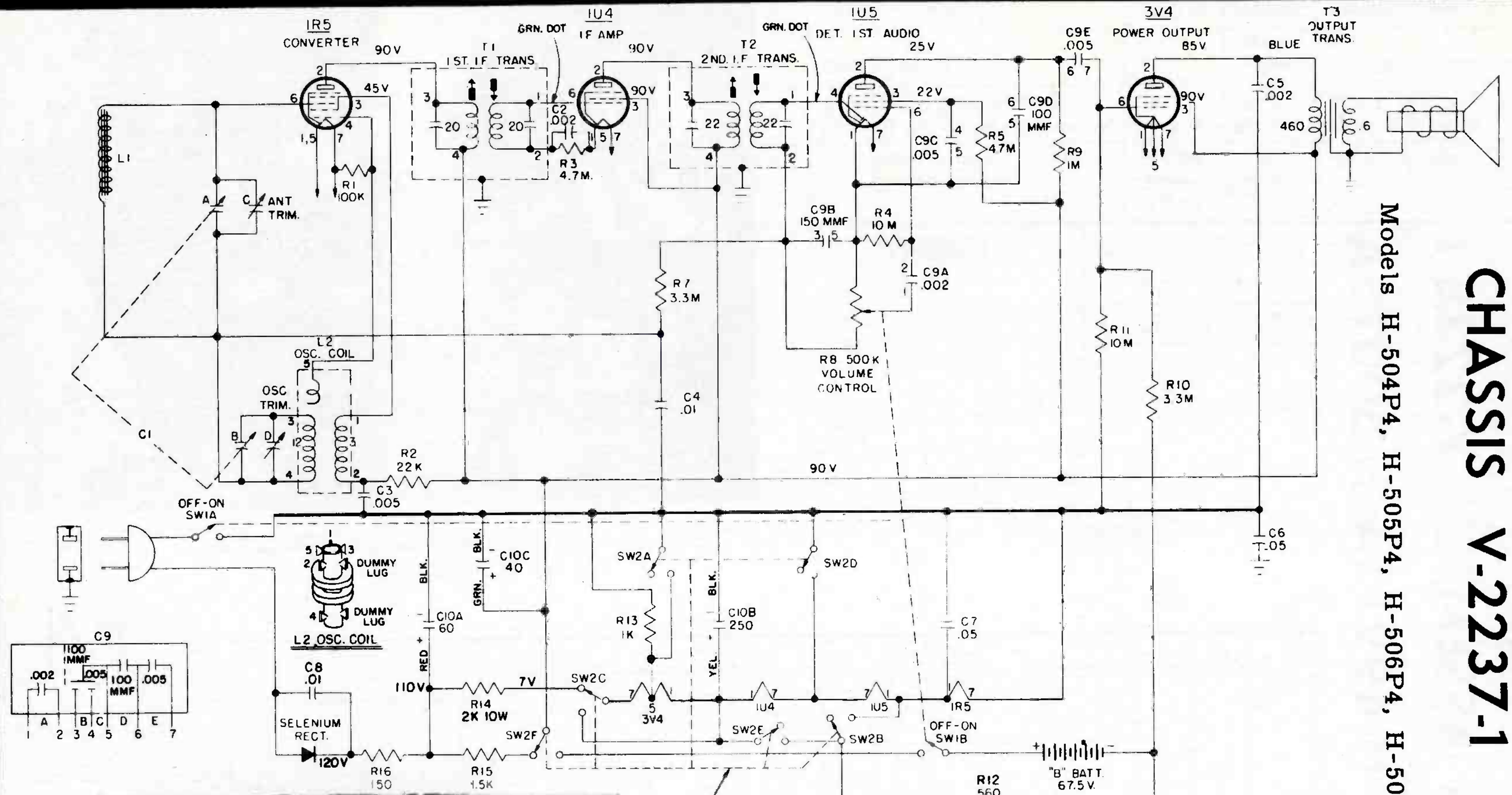
Step	*Connect Signal Generator to -*	*Signal Generator Frequency*	*Tuning Capacitor*	*Adjust for Maximum Output -*
1	Stator of ant. tuning capacitor (A) through a 200 mmf capacitor	455 kc.	Minimum capacity	Bottom and top slugs of T2 and T1 in order given*
2	Same as step 1	1625 kc.	Minimum capacity	Oscillator trimmer (D)
3	Radiated signal	1400 kc.	1400 kc.	Antenna trimmer (B)

**It is recommended that a fiber aligning tool that snugly fits the slot in the powdered iron core be used to prevent chipping of the slot.*

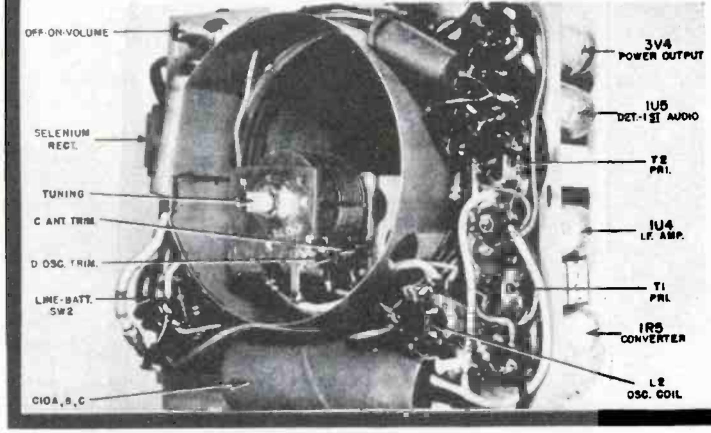
Westinghouse Electric Corporation

CHASSIS V-2237-1

Models H-504P4, H-505P4, H-506P4, H-507P4


IR5
CONVERTER
90V
45V
GRN. DOT
T1
1ST. I.F. TRANS.
1U4
I.F. AMP
90V
C2
.002
R3
4.7M.
GRN. DOT
T2
2ND. I.F. TRANS.
1U5
DET. 1ST AUDIO
25V
22V
C9E
.005
3V4
POWER OUTPUT
85V
90V
BLUE
T3
OUTPUT
TRANS.
C5
.002
460
6
L1
ANT
TRIM.
R1
100K
C9B
150 MMF
R4
10 M
C9A
.002
C9C
.005
R5
4.7M
C9D
100
MMF
R9
1M
R11
10M
R10
3.3M
R7
3.3M
C4
.01
R8 500K
VOLUME
CONTROL
L2
OSC. COIL
OSC
TRIM.
C1
R2
22K
C3
.005
90V
C6
.05
OFF-ON
SW1A
DUMMY
LUG
L2 OSC. COIL
BLK.
C10C
40
GRN.
C10A
60
RED
SW2A
R13
1K
C10B
250
YEL.
SW2D
C7
.05
C9
1100
1MMF
.002
.005
100
MMF
.005
C8
.01
SELENIUM
RECT.
120V
110V
R14
2K 10W
7V
SW2C
3V4
1U4
1U5
1R5
SW2F
SW2E
SW2B
OFF-ON
SW1B
R16
150
R15
1.5K
"B" BATT.
67.5V.
R12
560
"A" BATT.
1.5V

SW2, IS CONTROLLED BY LINE PLUG-SHOWN IN NON-ACTUATED (PLUG OUT) POSITION.


OFF-ON-VOLUME
SELENIUM
RECT.
TUNING
C ANT TRIM.
D OSC. TRIM.
LINE-BATT.
SW2
C10A, B, C
3V4
POWER OUTPUT
1U5
DET.-1ST AUDIO
T2
PRI.
1U4
I.F. AMP.
T1
PRI.
1R5
CONVERTER
L2
OSC. COIL

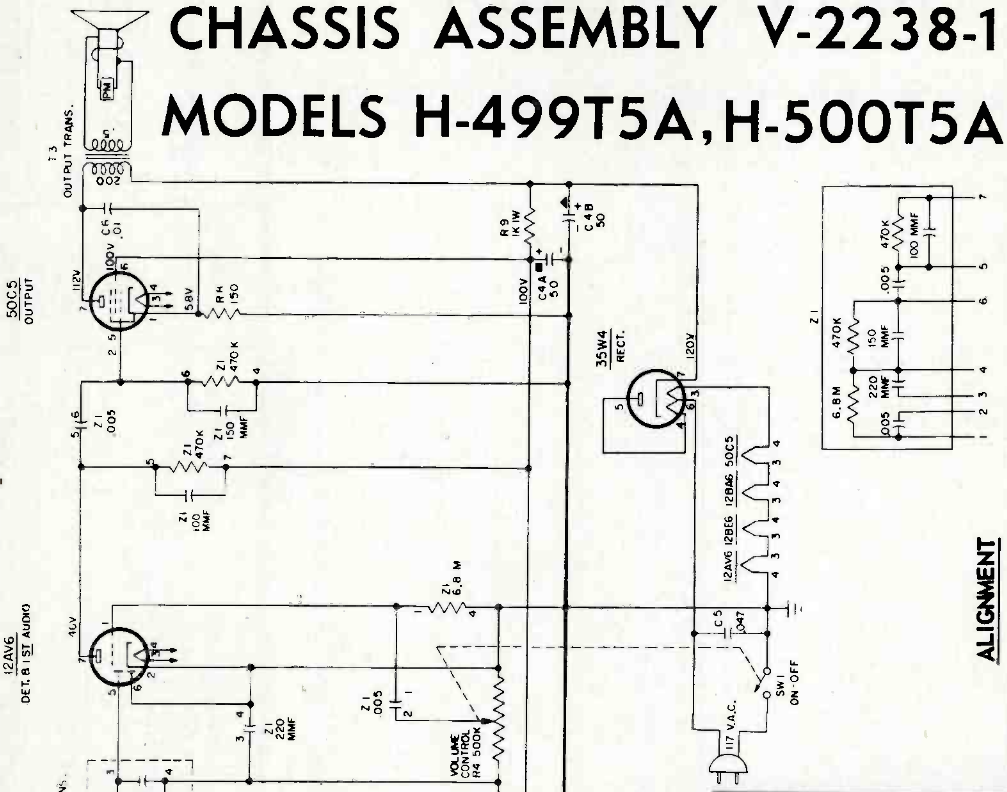
ALIGNMENT

Step	*Connect Signal Generator –*	*Signal Generator Frequency*	*Radio Dial*	*Adjust for Maximum Output*
1	Between Stator of R-F tuning capacitor (A), and (B), through a 0.1 mfd. capacitor	455 kc.	minimum capacity	Top and bottom slugs in 2nd and 1st I-F trans. in order given
2	Radiated Signal	1625 kc.	minimum capacity	Osc. trimmer (D)
3	Radiated Signal	1400 kc.	1400 kc.	Ant. trimmer (C)

Westinghouse

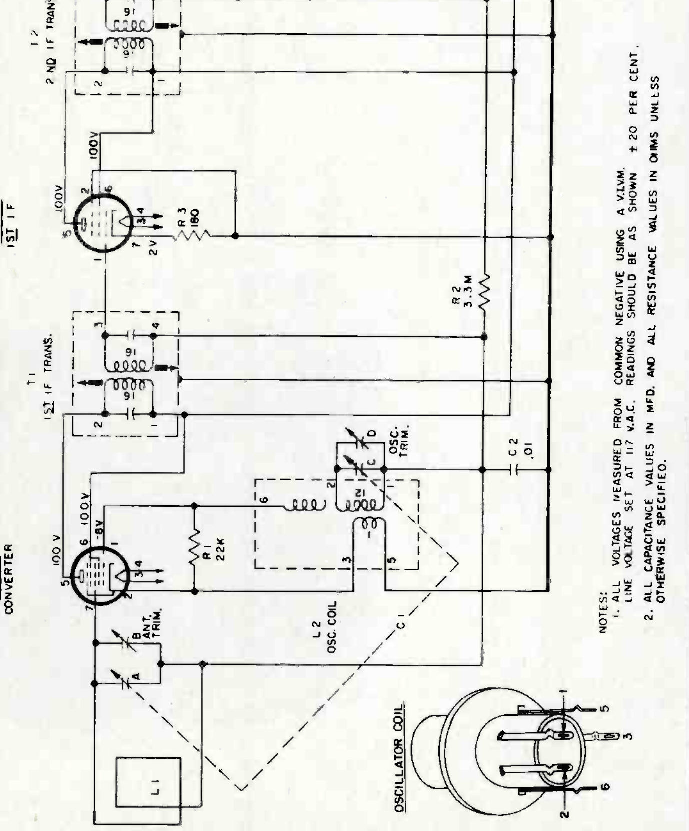
CHASSIS ASSEMBLY V-2238-1

MODELS H-499T5A, H-500T5A

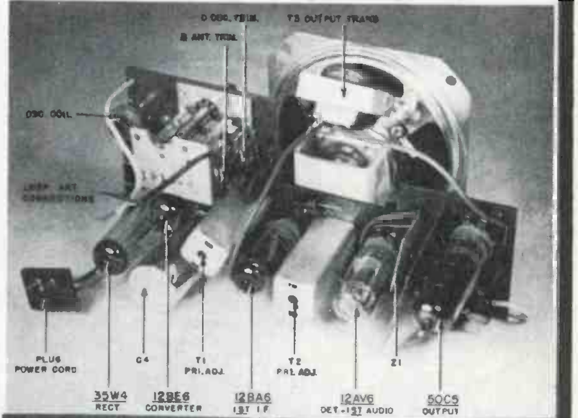

T3 OUTPUT TRANS.
PM
50C5 OUTPUT
C6 .01
112V
100V
58V
R4 150
Z1 470K
Z1 150 MMF
Z1 .005
Z1 470K
Z1 100 MMF
R9 1K 1W
C4A 50
C4B 50
100V
35W4 RECT.
120V
12AV6 12BE6 12BA6 50C5
C5 .047
SW1 ON-OFF
117 V.A.C.
12AV6 DET. & 1ST AUDIO
40V
Z1 6.8 M
Z1 .005
Z1 220 MMF
VOLUME CONTROL R4 500K
Z1
6.8M
470K
150 MMF
220 MMF
.005
470K
100 MMF
.005

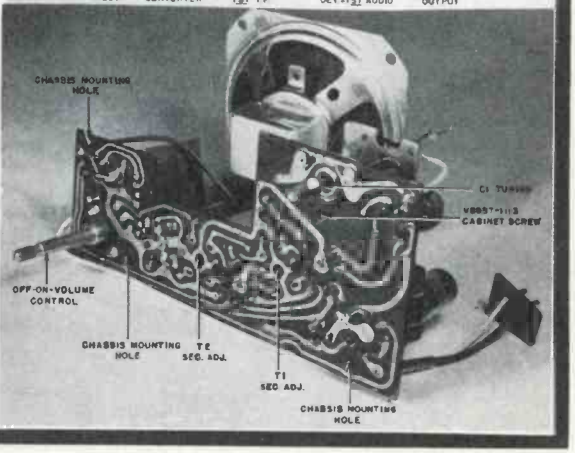
ALIGNMENT

Step	Connect Signal Generator to —	Signal Generator Frequency	Radio Dial	Adjust for Maximum Output
1.	Stator of ant. tuning capacitor (A) through a 200 mmf capacitor	455 kc.	Minimum capacity	Top and bottom slugs of T2 and T1 in order given
2.	Same as step 1	1625 kc.	Minimum capacity	Oscillator trimmer (D)
3.	Radiated signal	1400 kc.	1400 kc.	Antenna trimmer (B)


T2 2ND IF TRANS.
12BA6 1ST I.F.
100V
100V
R3 180
2V
R2 3.3M
T1 1ST IF TRANS.
C2 .01
OSC. TRIM.
D
C
12BE6 CONVERTER
100 V
100 V
-8V
R1 22K
B ANT. TRIM.
A
L2 OSC. COIL
C1
L1
OSCILLATOR COIL

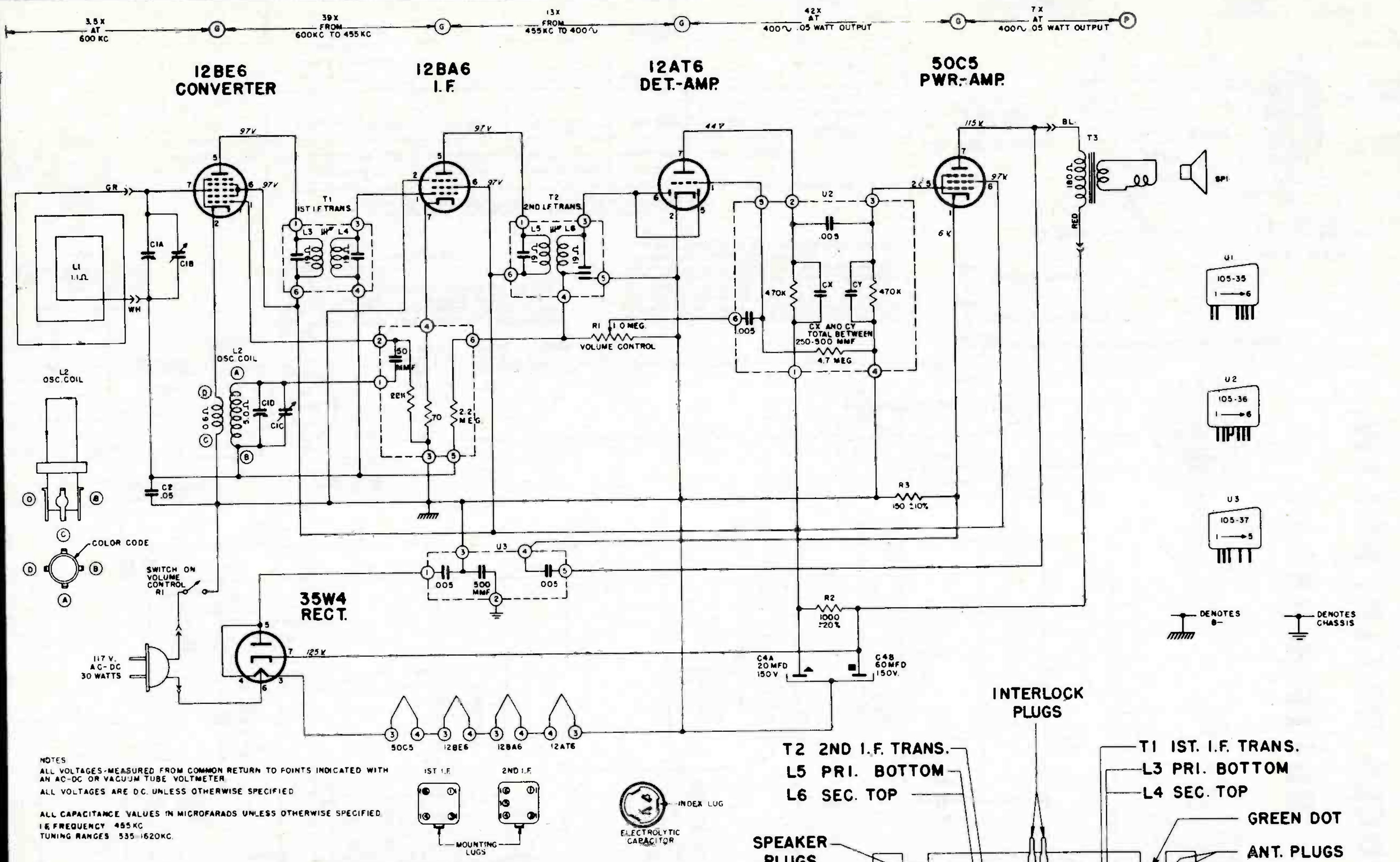
NOTES:
1. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE USING A V.T.V.M. LINE VOLTAGE SET AT 117 V.A.C. READINGS SHOULD BE AS SHOWN ± 20 PER CENT.
2. ALL CAPACITANCE VALUES IN MFD. AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.


D OSC. TRIM.
B ANT. TRIM.
T3 OUTPUT TRANS
OSC. COIL
LOOP ANT CONNECTIONS
PLUG POWER CORD
C4
T1 PRI. ADJ.
T2 PRI. ADJ.
Z1
35W4 RECT
12BE6 CONVERTER
12BA6 1ST I.F.
12AV6 DET.-1ST AUDIO
50C5 OUTPUT

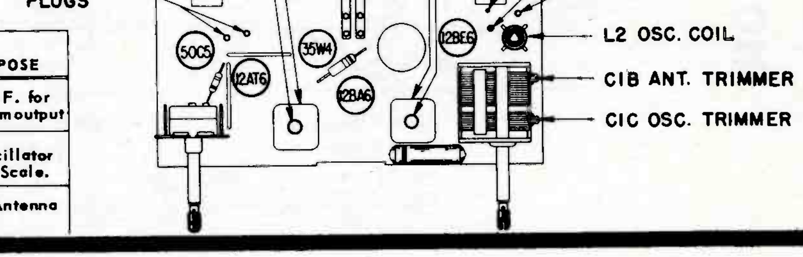

CHASSIS MOUNTING HOLE
C1 TUNING
CABINET SCREW
OFF-ON-VOLUME CONTROL
CHASSIS MOUNTING HOLE
T2 SEC. ADJ.
T1 SEC ADJ.
CHASSIS MOUNTING HOLE

ZENITH RADIO

MODEL R510Z1, CHASSIS 5M02Z1


3.5X AT 600 KC
39X FROM 600KC TO 455KC
13X FROM 455KC TO 400∿
42X AT 400∿ .05 WATT OUTPUT
7X AT 400∿ .05 WATT OUTPUT
12BE6 CONVERTER
12BA6 I.F.
12AT6 DET.-AMP.
50C5 PWR.-AMP.
35W4 RECT.
97V
44V
115V
97V
6V
125V
GR
WH
L1 1.1Ω
C1A
C1B
C1D
C1C
L2 OSC. COIL
L2 OSC. COIL
C2 .05
T1 1ST I.F. TRANS.
L3
L4
T2 2ND I.F. TRANS.
L5
L6
R1 1.0 MEG. VOLUME CONTROL
U2
.005
470K
470K
CX
CY
CX AND CY TOTAL BETWEEN 250-500 MMF
4.7 MEG
R3 150 ±10%
R2 1000 ±20%
C4A 20 MFD 150V
C4B 60 MFD 150V
U3
.005
500 MMF
.005
BL
RED
T3
180Ω
SP1
U1 105-35
U2 105-36
U3 105-37
DENOTES B-
DENOTES CHASSIS
COLOR CODE
SWITCH ON VOLUME CONTROL R1
117 V. AC-DC 30 WATTS
50C5
12BE6
12BA6
12AT6
1ST I.F.
2ND I.F.
MOUNTING LUGS
INDEX LUG
ELECTROLYTIC CAPACITOR

NOTES
ALL VOLTAGES-MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH AN AC-DC OR VACUUM TUBE VOLTMETER
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED
ALL CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED
I.F. FREQUENCY 455KC
TUNING RANGES 535-1620KC.

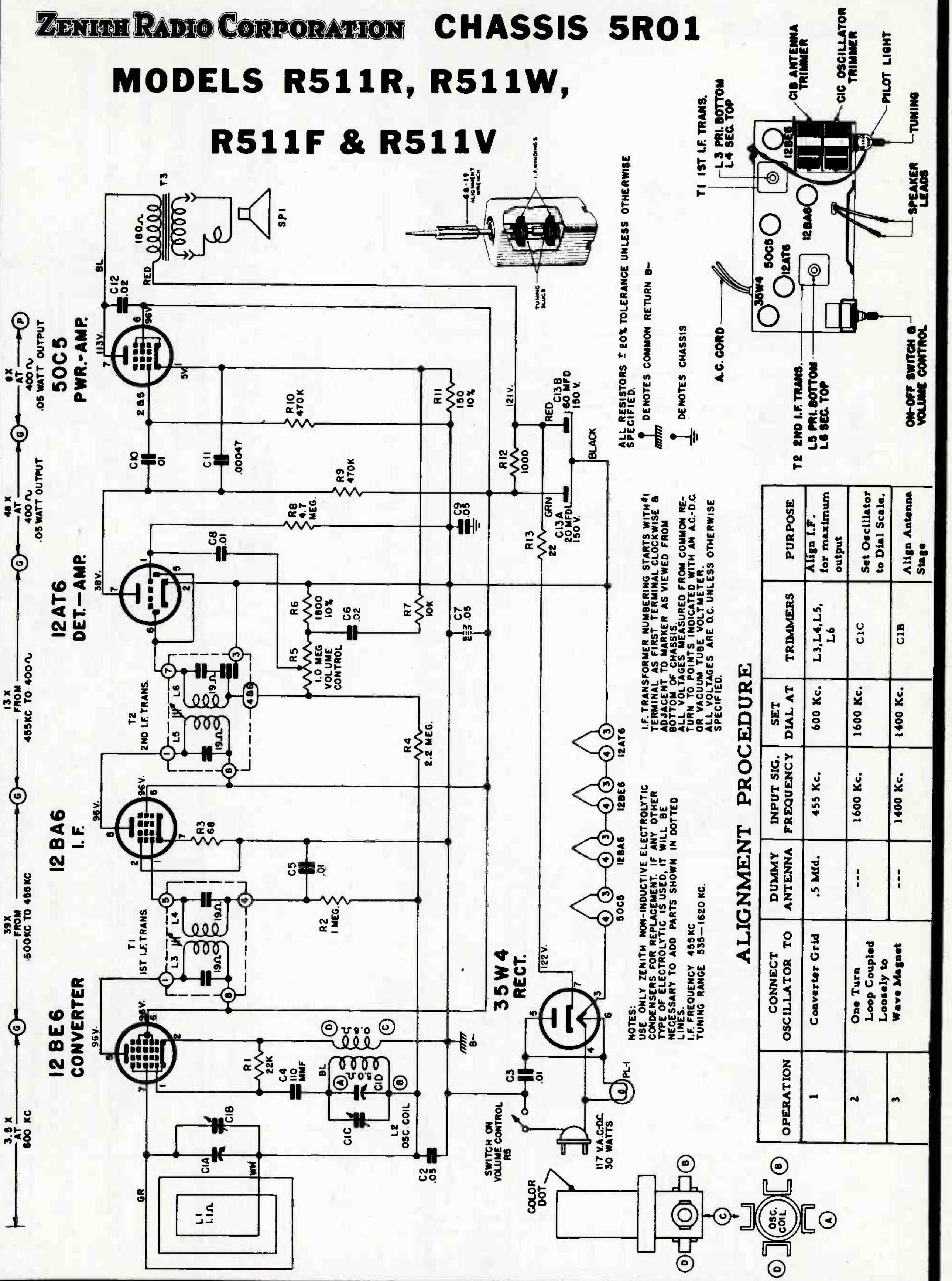

INTERLOCK PLUGS
T2 2ND I.F. TRANS.
L5 PRI. BOTTOM
L6 SEC. TOP
T1 IST. I.F. TRANS.
L3 PRI. BOTTOM
L4 SEC. TOP
GREEN DOT
ANT. PLUGS
L2 OSC. COIL
C1B ANT. TRIMMER
C1C OSC. TRIMMER
SPEAKER PLUGS
50C5
12AT6
35W4
12BA6
12BE6

ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3, L4, L5, L6	Align I.F. for maximum output
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	C1C	Set Oscillator to Dial Scale.
3		—	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage

ZENITH RADIO CORPORATION CHASSIS 5R01

MODELS R511R, R511W, R511F & R511V


12BE6 CONVERTER
12BA6 I.F.
12AT6 DET.—AMP.
50C5 PWR.-AMP.
35W4 RECT.
T1 1ST I.F. TRANS.
T2 2ND I.F. TRANS.
T3
SP1
L1 1.1Ω
L2 OSC. COIL
C1A
C1B
C1C
C1D
R5 1.0 MEG VOLUME CONTROL
SWITCH ON VOLUME CONTROL R5
117 V.A.C.-D.C. 30 WATTS
PL-1
C13A 20 MFD 150 V.
C13B 60 MFD 150 V.
3.5 X AT 600 KC
39 X FROM 600KC TO 455 KC
13 X FROM 455KC TO 400∿
48 X AT 400∿ .05 WATT OUTPUT
8 X AT 400∿ .05 WATT OUTPUT
C1B ANTENNA TRIMMER
C1C OSCILLATOR TRIMMER
PILOT LIGHT
TUNING
SPEAKER LEADS
A.C. CORD
ON-OFF SWITCH & VOLUME CONTROL
T1 1ST I.F. TRANS. L3 PRI. BOTTOM L4 SEC. TOP
T2 2ND I.F. TRANS. L5 PRI. BOTTOM L6 SEC. TOP
COLOR DOT
OSC. COIL
TUNING SLUGS
I.F. WINDINGS

ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

DENOTES COMMON RETURN B–

DENOTES CHASSIS

NOTES:
USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT. IF ANY OTHER TYPE OF ELECTROLYTIC IS USED, IT WILL BE NECESSARY TO ADD PARTS SHOWN IN DOTTED LINES.
I.F. FREQUENCY 455 KC
TUNING RANGE 535—1620 KC.

I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE & ADJACENT TO MARKER AS VIEWED FROM BOTTOM OF CHASSIS.
ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH AN A.C.-D.C. OR VACUUM TUBE VOLTMETER.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

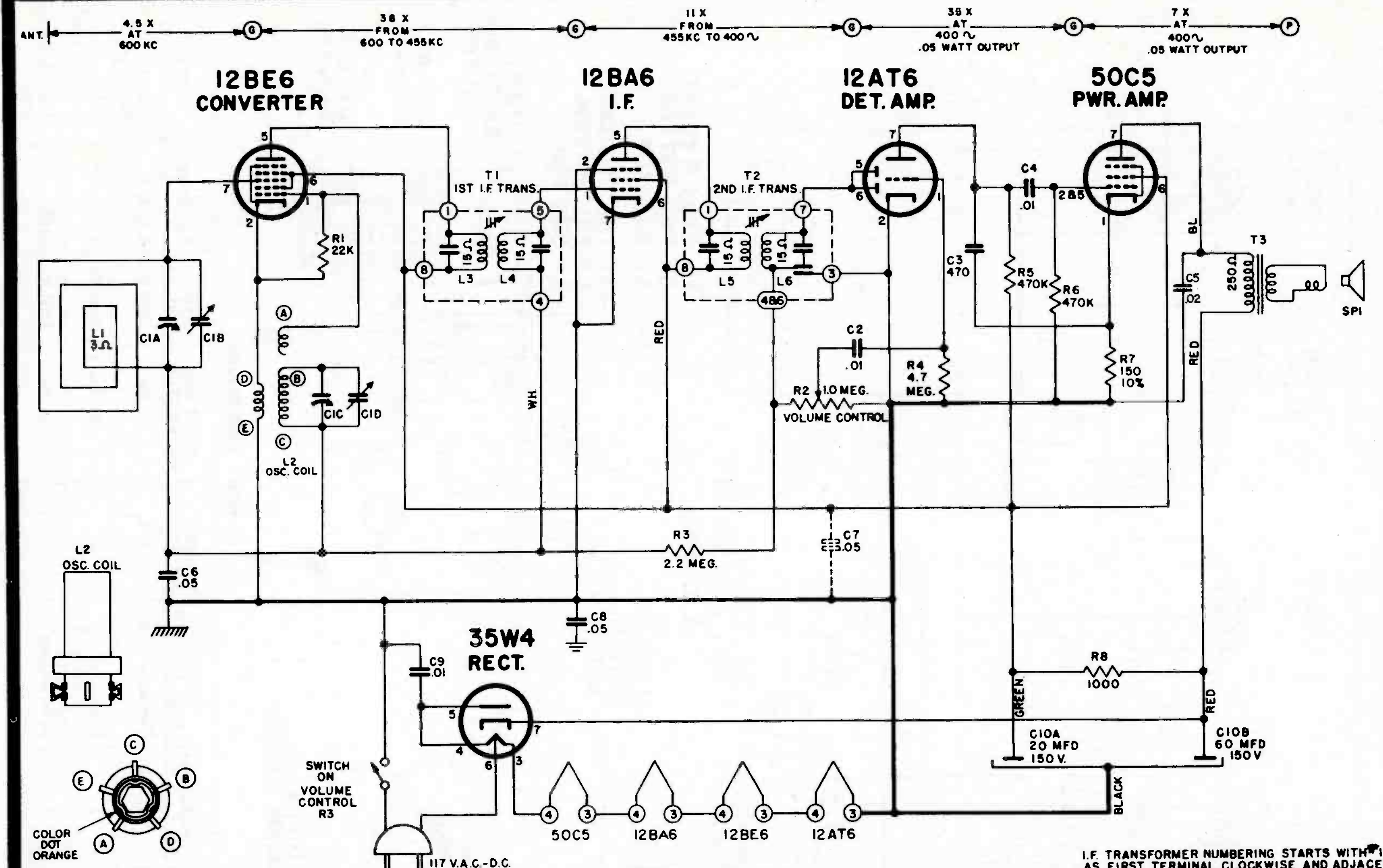
ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3, L4, L5, L6	Align I.F. for maximum output
2	One Turn Loop Coupled Loosely to Wave Magnet	---	1600 Kc.	1600 Kc.	C1C	Set Oscillator to Dial Scale.
3		---	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

ZENITH RADIO CORPORATION

MODELS R509F, R, V, W, &Y CHASSIS 5R05


ANT.
4.5 X AT 600 KC
G
38 X FROM 600 TO 455KC
G
11 X FROM 455KC TO 400 ∿
G
35 X AT 400 ∿ .05 WATT OUTPUT
G
7 X AT 400∿ .05 WATT OUTPUT
P
12BE6 CONVERTER
12BA6 I.F.
12AT6 DET. AMP.
50C5 PWR. AMP.
T1 1ST I.F. TRANS.
T2 2ND I.F. TRANS.
L3
L4
L5
L6
15 Ω
R1 22K
C1A
C1B
C1C
C1D
L1 3 Ω
L2 OSC. COIL
WH
RED
C2 .01
R2 1.0 MEG. VOLUME CONTROL
R4 4.7 MEG.
C3 470
C4 .01
2&5
R5 470K
R6 470K
R7 150 10%
C5 .02
BL
T3
250 Ω
SP1
R3 2.2 MEG.
C7 .05
C6 .05
C8 .05
C9 .01
35W4 RECT.
SWITCH ON VOLUME CONTROL R3
117 V.A.C.-D.C. 30 W.
R8 1000
GREEN
RED
C10A 20 MFD 150 V.
C10B 60 MFD 150 V
BLACK
50C5
12BA6
12BE6
12AT6
L2 OSC. COIL
COLOR DOT ORANGE
A
B
C
D
E

NOTES:

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

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C7 SHOWN IN DOTTED LINES.

I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL, AS FIRST TERMINAL CLOCKWISE AND ADJACENT TO MARKER AS VIEWED FROM BOTTOM OF CHASSIS.

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

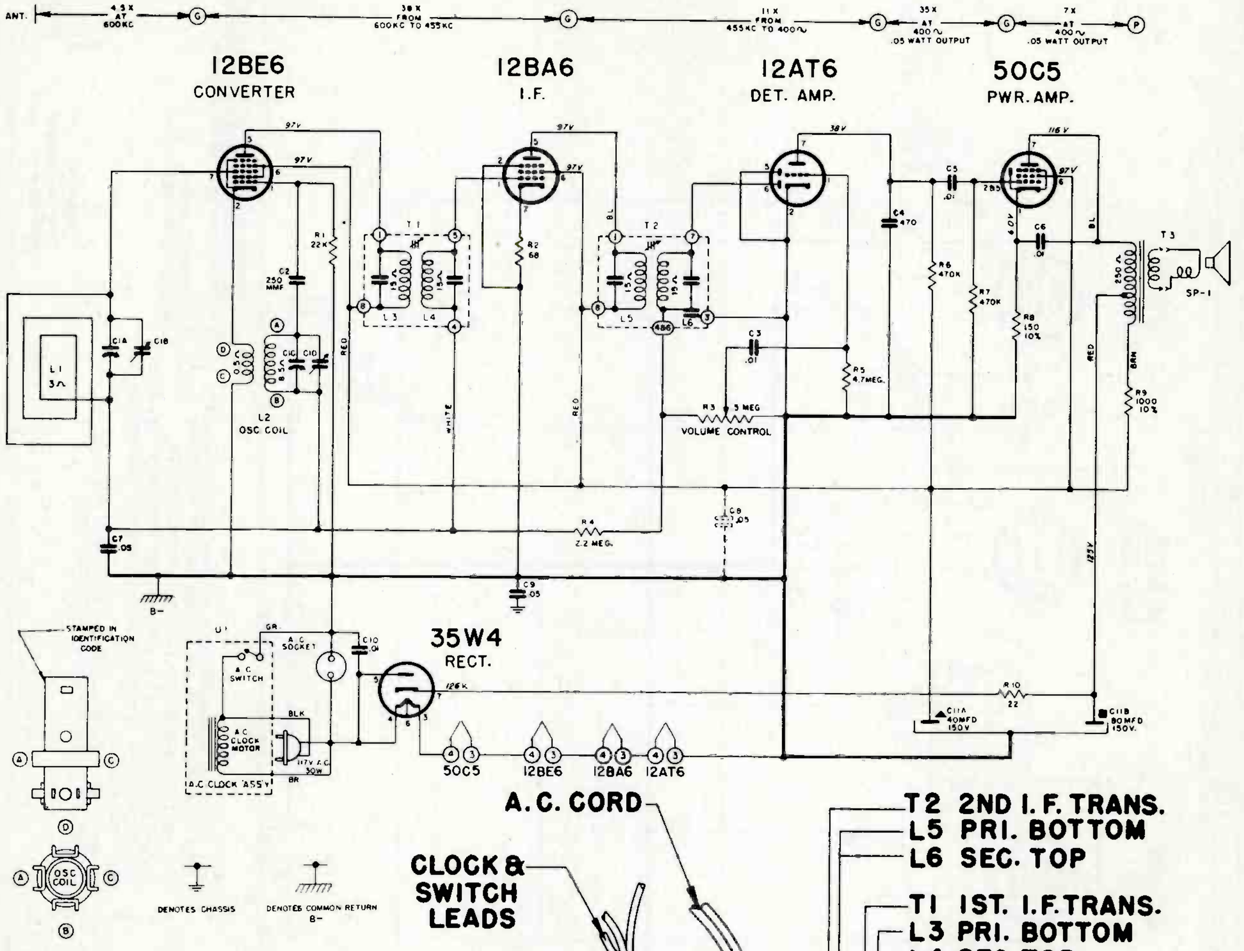
DENOTES COMMON RETURN B—

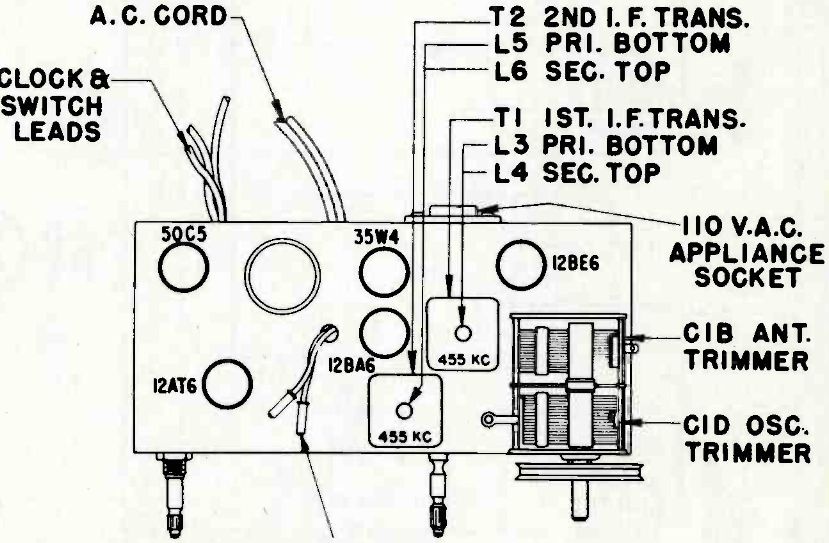
DENOTES CHASSIS

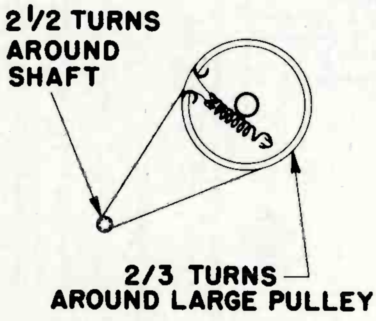
ALIGNMENT PROCEDURE

Operation	Connect Oscillator To	Dummy Antenna	Input Sig. Frequency	Set Dial At	Trimmers	Purpose
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3, L4, L5, L6	Align I.F. for Maximum output.
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	C1D	Set Oscillator to Dial Scale
3		—	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage

ZENITH RADIO Chassis 5R07, Models R519R, W, and T522F, G, R, V, W. Chassis 5R03, Models R521F, G, R, W, Y, are electrically similar to 5R07, but have clock panel dimmer controls.


ANT.
4.5 X AT 600KC
38 X FROM 600KC TO 455KC
11 X FROM 455KC TO 400~
35 X AT 400~ .05 WATT OUTPUT
7 X AT 400~ .05 WATT OUTPUT
12BE6 CONVERTER
12BA6 I.F.
12AT6 DET. AMP.
50C5 PWR. AMP.
97V
38V
116V
126V
123V
T1
L3
L4
T2
L5
L6
R1 22K
R2 68
C2 250 MMF
C1A
C1B
C1C
C1D
L1 3Ω
L2 OSC. COIL
C3 .01
R3 3 MEG VOLUME CONTROL
R4 2.2 MEG.
R5 4.7 MEG.
C4 470
C5 .01
C6 .01
R6 470K
R7 470K
R8 150 10%
R9 1000 10%
T3
SP-1
C7 .05
C8 .05
C9 .05
C10 .01
B-
35W4 RECT.
R10 22
C11A 40 MFD 150V
C11B 80 MFD 150V
U1
A.C. SOCKET
A.C. SWITCH
A.C. CLOCK MOTOR
117V A.C. 30W
A.C. CLOCK ASS'Y
BLK
GR
BR
RED
WHITE
BL
BRN
50C5
12BE6
12BA6
12AT6
STAMPED IN IDENTIFICATION CODE
OSC COIL
DENOTES CHASSIS
DENOTES COMMON RETURN B-


A.C. CORD
CLOCK & SWITCH LEADS
T2 2ND I.F. TRANS.
L5 PRI. BOTTOM
L6 SEC. TOP
T1 IST. I.F. TRANS.
L3 PRI. BOTTOM
L4 SEC. TOP
110 V.A.C. APPLIANCE SOCKET
C1B ANT. TRIMMER
C1D OSC. TRIMMER
50C5
35W4
12BE6
12BA6
12AT6
455 KC
455 KC

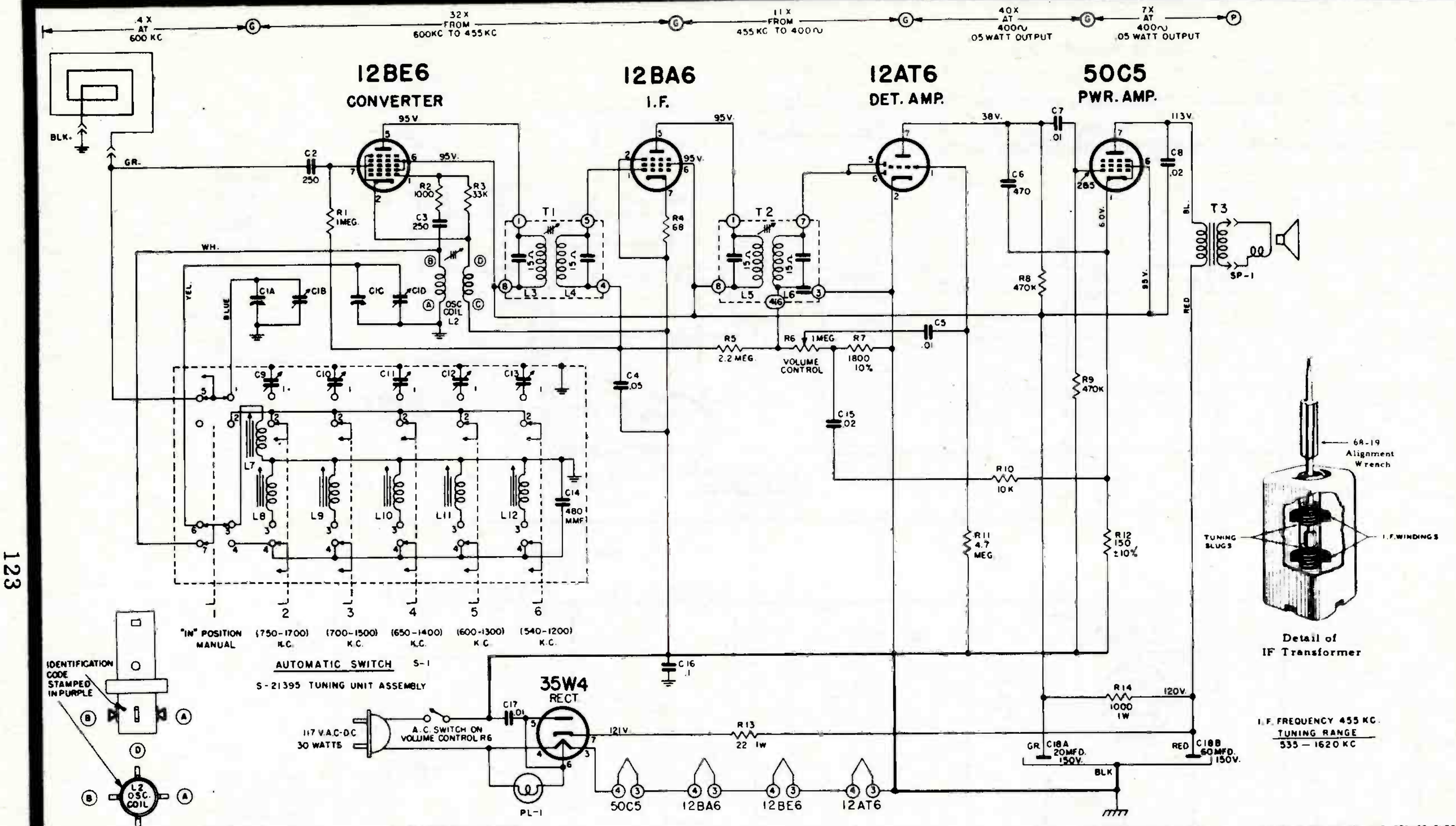

2 1/2 TURNS AROUND SHAFT
2/3 TURNS AROUND LARGE PULLEY

ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L3, 4, 5, 6	For I.F. Alignment
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	C1D	Set Oscillator to Dial Scale
3		—	1400 Kc.	1400 Kc.	C1B	Align Antenna Stage

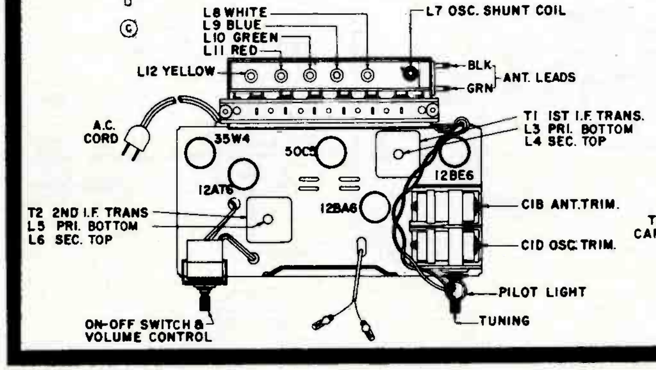
ZENITH RADIO CORPORATION CHASSIS 5R10

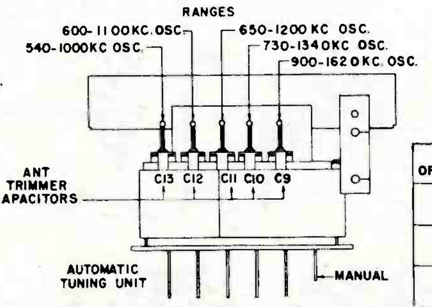
MODELS R512F, R512R, R512V & R512W


.4 X AT 600 KC
32 X FROM 600KC TO 455KC
11 X FROM 455KC TO 400∿
40 X AT 400∿ .05 WATT OUTPUT
7 X AT 400∿ .05 WATT OUTPUT
12BE6 CONVERTER
12BA6 I.F.
12AT6 DET. AMP.
50C5 PWR. AMP.
95V
95V.
38V.
113V.
6.0V.
95V.
BLK.
GR.
WH.
YEL.
BLUE
C2 250
R1 1MEG.
R2 1000
C3 250
R3 33K
C1A
C1B
C1C
C1D
OSC COIL L2
T1
L3
L4
15∧
R4 68
C4 .05
T2
L5
L6
R5 2.2 MEG
R6 1MEG VOLUME CONTROL
R7 1800 10%
C5 .01
C15 .02
R10 10K
R11 4.7 MEG
C6 470
C7 .01
R8 470K
R9 470K
R12 150 ±10%
C8 .02
265
BL.
RED
T3
SP-1
C9
C10
C11
C12
C13
C14 480 MMF
L7
L8
L9
L10
L11
L12
1 "IN" POSITION MANUAL
2 (750-1700) K.C.
3 (700-1500) K.C.
4 (650-1400) K.C.
5 (600-1300) K.C.
6 (540-1200) K.C.
AUTOMATIC SWITCH S-1
S-21395 TUNING UNIT ASSEMBLY
IDENTIFICATION CODE STAMPED IN PURPLE
L2 OSC. COIL
C16 .1
35W4 RECT
117 V.A.C-D.C 30 WATTS
A.C. SWITCH ON VOLUME CONTROL R6
C17 .01
PL-1
121V.
R13 22 1W
R14 1000 1W
120V.
GR
C18A 20MFD. 150V.
RED
C18B 60MFD. 150V.
BLK
50C5
12BA6
12BE6
12AT6
6A-19 Alignment Wrench
TUNING SLUGS
I.F. WINDINGS

Detail of IF Transformer

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


L8 WHITE
L9 BLUE
L10 GREEN
L11 RED
L12 YELLOW
L7 OSC. SHUNT COIL
BLK
GRN
ANT. LEADS
A.C. CORD
35W4
50C5
12AT6
12BA6
12BE6
T1 1ST I.F. TRANS.
L3 PRI. BOTTOM
L4 SEC. TOP
T2 2ND I.F. TRANS
L5 PRI. BOTTOM
L6 SEC. TOP
C1B ANT. TRIM.
C1D OSC. TRIM.
PILOT LIGHT
TUNING
ON-OFF SWITCH & VOLUME CONTROL


RANGES
600-1100KC. OSC.
540-1000KC OSC.
650-1200 KC OSC.
730-1340KC OSC.
900-1620KC. OSC.
C13
C12
C11
C10
C9
ANT TRIMMER CAPACITORS
AUTOMATIC TUNING UNIT
MANUAL

ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH A.C. D.C OR VACUUM TUBE VOLTMETER.

ALL VOLTAGES ARE D.C UNLESS OTHERWISE SPECIFIED.

ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED

USE ONLY ZENITH NON-INDUCTANCE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

DENOTES CHASSIS

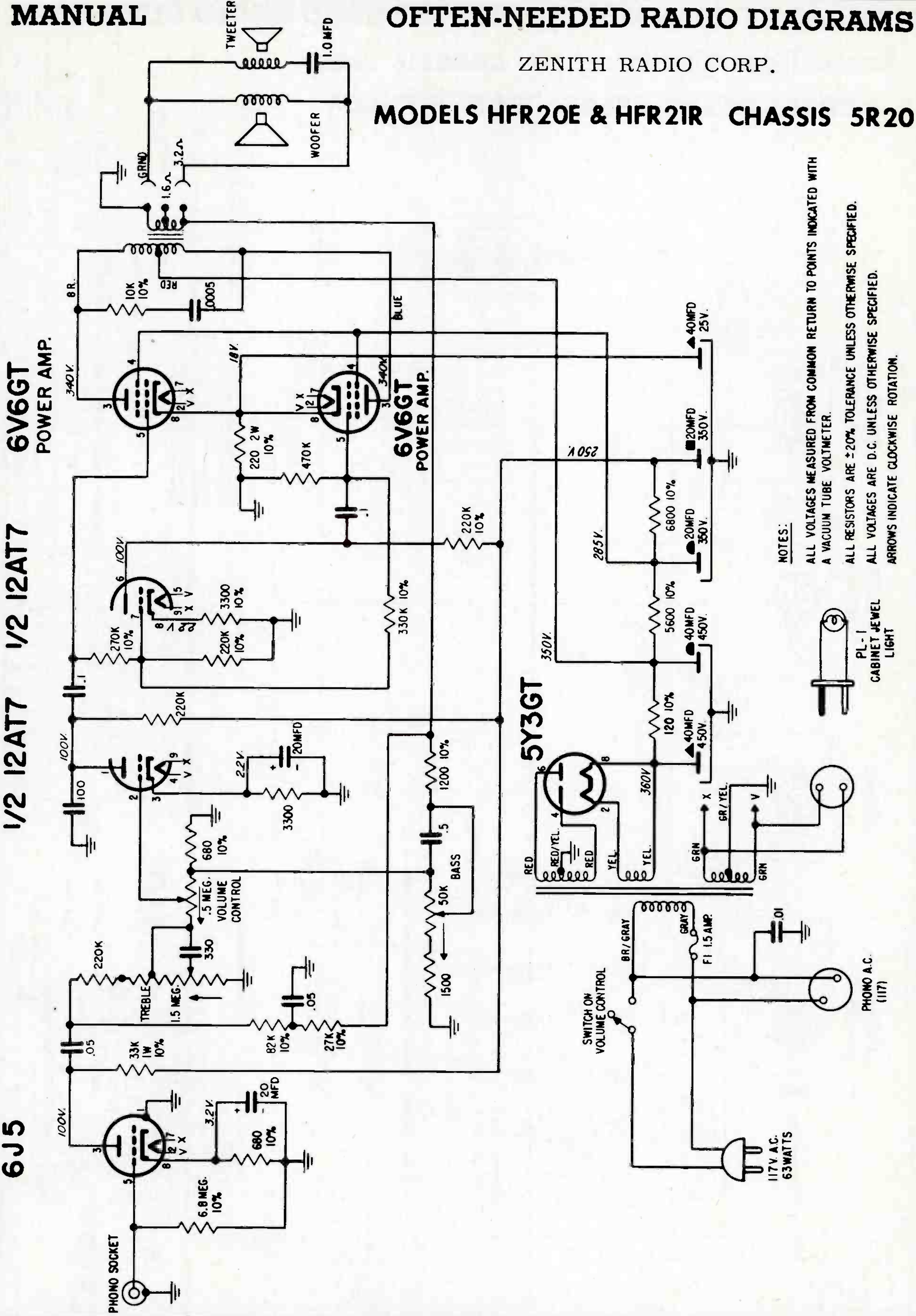
DENOTES COMMON RETURN

ALIGNMENT PROCEDURE

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

ZENITH RADIO CORP.

MODELS HFR20E & HFR21R CHASSIS 5R20


6V6GT
POWER AMP.
6V6GT
POWER AMP.
1/2 12AT7
1/2 12AT7
6J5
5Y3GT
TWEETER
WOOFER
1.0 MFD
GRND
1.6Ω
3.2Ω
8R.
RED
BLUE
10K 10%
.0005
340V.
18V.
340V.
220 2W 10%
470K
.1
100V.
220K 10%
330K 10%
270K 10%
3300 10%
220K 10%
.1
220K
100V.
100
22V.
20MFD
3300
680 10%
.5 MEG. VOLUME CONTROL
1200 10%
.5
50K BASS
1500
330
220K
TREBLE 1.5 MEG.
.05
82K 10%
27K 10%
.05
33K 1W 10%
100V.
3.2V.
20 MFD
680 10%
6.8 MEG. 10%
PHONO SOCKET
40MFD 25V.
20MFD 350V.
250V.
6800 10%
20MFD 350V.
285V.
5600 10%
40MFD 450V.
350V.
120 10%
40MFD 450V.
360V.
RED
RED/YEL.
RED
YEL.
YEL.
GRN
GR/YEL.
GRN
X
V
BR/GRAY
GRAY
F1 1.5 AMP.
.01
SWITCH ON VOLUME CONTROL
PHONO A.C. (117)
117V. A.C. 63 WATTS
PL-1 CABINET JEWEL LIGHT

NOTES:

ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER.

ALL RESISTORS ARE ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

ARROWS INDICATE CLOCKWISE ROTATION.

MANUAL OF 1955 MOST-OFTEN-NEEDED RADIO DIAGRAMS

ZENITH RADIO CORP.

MODELS R623, F, R, W, Y CHASSIS 6R03

NOTES:

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

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

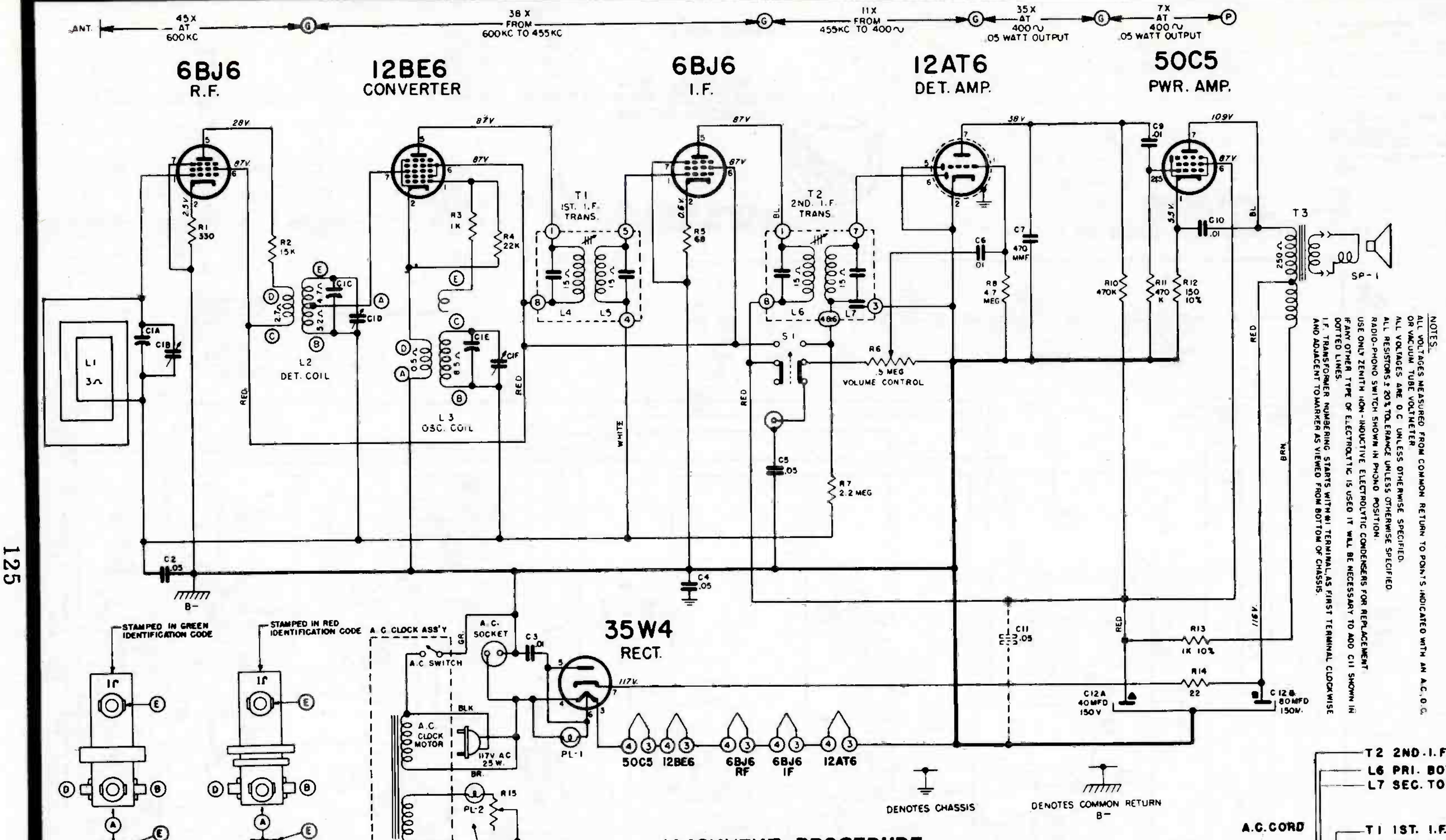
ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

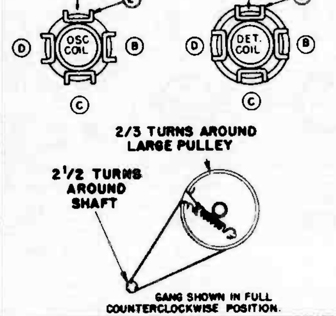
RADIO-PHONO SWITCH SHOWN IN PHONO POSITION.

USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT.

IF ANY OTHER TYPE OF ELECTROLYTIC IS USED IT WILL BE NECESSARY TO ADD C11 SHOWN IN DOTTED LINES.

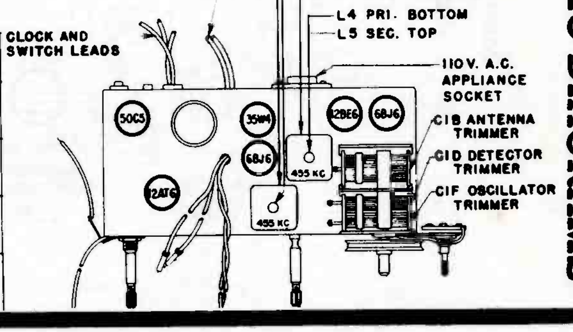
I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL, AS FIRST TERMINAL CLOCKWISE AND ADJACENT TO MARKER AS VIEWED FROM BOTTOM OF CHASSIS.


ANT.
45X AT 600KC
38X FROM 600KC TO 455KC
11X FROM 455KC TO 400~
35X AT 400~ .05 WATT OUTPUT
7X AT 400~ .05 WATT OUTPUT
G
P
6BJ6 R.F.
12BE6 CONVERTER
6BJ6 I.F.
12AT6 DET. AMP.
50C5 PWR. AMP.
28V
87V
25V
0.6V
38V
109V
55V
117V
116V
R1 330
R2 15K
R3 1K
R4 22K
R5 68
R6 .5 MEG VOLUME CONTROL
R7 2.2 MEG
R8 4.7 MEG
R10 470K
R11 470 K
R12 150 10%
R13 1K 10%
R14 22
C1A
C1B
C1C
C1D
C1E
C1F
C2 .05
C3 .01
C4 .05
C5 .05
C6 .01
C7 470 MMF
C9 .01
C10 .01
C11 .05
C12A 40MFD 150V
C12B 80MFD 150V
L1 3Ω
L2 DET. COIL
L3 OSC. COIL
T1 1ST. I.F. TRANS.
T2 2ND. I.F. TRANS.
L4
L5
L6
L7
T3
250Ω
SP-1
S1
RED
WHITE
BRN
BL
35W4 RECT.
PL-1
PL-2
R15
A.C. CLOCK ASS'Y
A.C. SWITCH
A.C. SOCKET
A.C. CLOCK MOTOR
117V AC 25W.
BLK
BR.
GR.
CLOCK
50C5
12BE6
6BJ6 RF
6BJ6 IF
12AT6
B-
DENOTES CHASSIS
DENOTES COMMON RETURN B-
STAMPED IN GREEN IDENTIFICATION CODE
STAMPED IN RED IDENTIFICATION CODE
OSC COIL
DET. COIL
T2 2ND. I.F. TRANS.
L6 PRI. BOTTOM
L7 SEC. TOP
T1 1ST. I.F. TRANS.
L4 PRI. BOTTOM
L5 SEC. TOP


2/3 TURNS AROUND LARGE PULLEY
2½ TURNS AROUND SHAFT
GANG SHOWN IN FULL COUNTERCLOCKWISE POSITION.

ALIGNMENT PROCEDURE

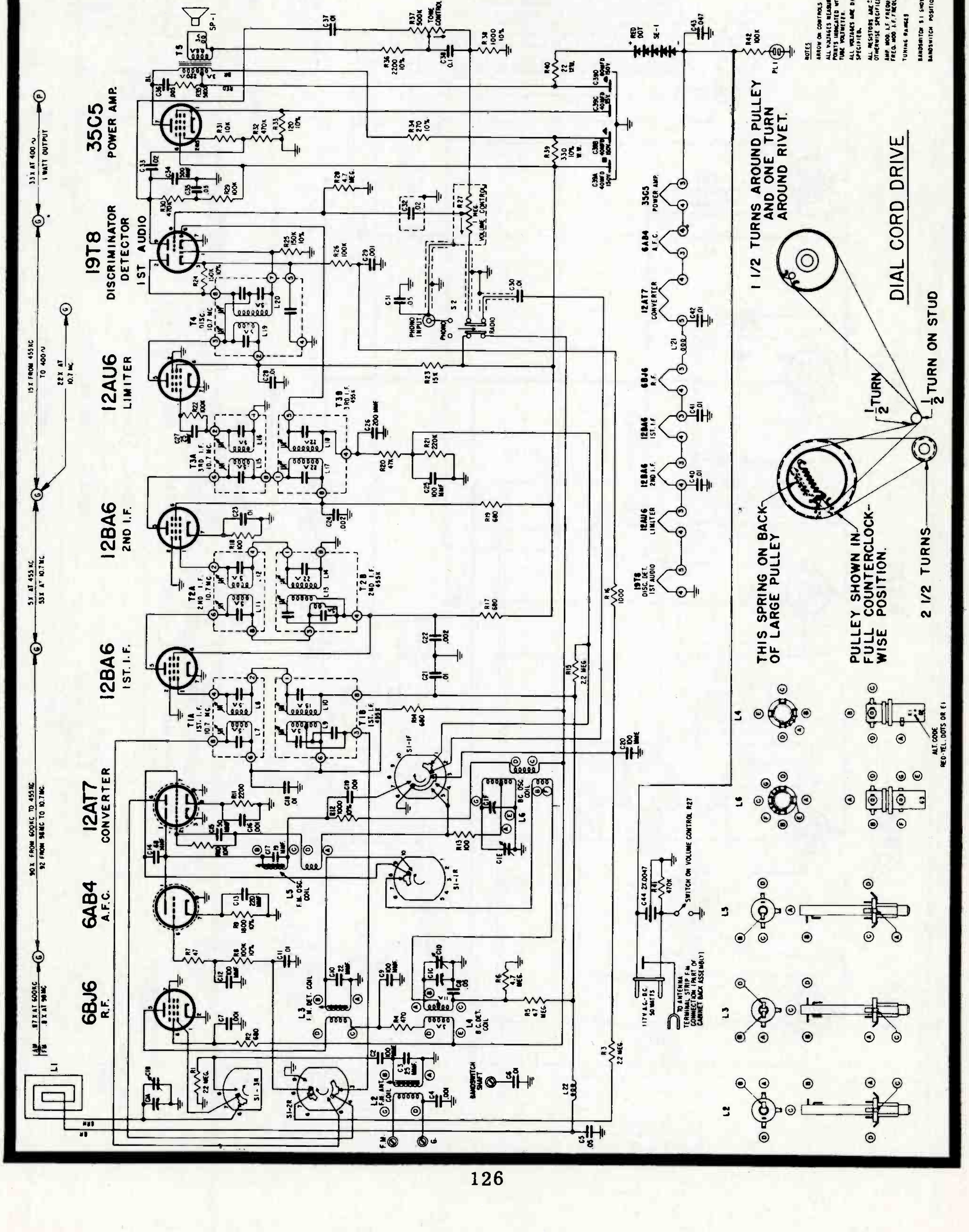
OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	L4, L5, L6, L7
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	1600 Kc.	C1F
3		—	1400 Kc.	1400 Kc.	C1D
4		—	1400 Kc.	1400 Kc.	C1B


CLOCK AND SWITCH LEADS
A.C. CORD
110V. A.C. APPLIANCE SOCKET
C1B ANTENNA TRIMMER
C1D DETECTOR TRIMMER
C1F OSCILLATOR TRIMMER
50C5
35W4
6BJ6
12AT6
12BE6
6BJ6
455 KC
455 KC

ZENITH RADIO CORP.

Models T825F, G, and R, Chassis 8T01

(See next page at right for alignment information)


6BJ6
R.F.
6AB4
A.F.C.
12AT7
CONVERTER
12BA6
1ST. I.F.
12BA6
2ND I.F.
12AU6
LIMITER
19T8
DISCRIMINATOR
DETECTOR
1ST AUDIO
35C5
POWER AMP.
SP-1
T5
TONE CONTROL
R27 VOLUME CONTROL
PHONO INPUT
PHONO
RADIO
S2
SE-1
PL1
T1A
T1B
T2A
T2B
T3A
T3B
T4
L2 F.M. ANT. COIL
L3 F.M. DET. COIL
L4 B.C. DET. COIL
L5 F.M. OSC. COIL
L6 BC OSC COIL
S1-1R
S1-1F
S1-2R
S1-3R
BANDSWITCH SHAFT
117 V.A.C.-D.C. 50 WATTS
SWITCH ON VOLUME CONTROL R27
TO ANTENNA TERMINAL STRIP F.M. CONNECTION (PART OF CABINET BACK ASSEMBLY)
F.M.
G.
AM
FM
87 X AT 600KC
8 X AT 98 MC
90 X FROM 600KC TO 455KC
92 FROM 98MC TO 10.7MC
5 X AT 455 KC
33 X AT 10.7MC
15 X FROM 455KC TO 400~
22 X AT 10.7 MC
33 X AT 400~
1 WATT OUTPUT
DIAL CORD DRIVE
1 1/2 TURNS AROUND PULLEY AND ONE TURN AROUND RIVET.
1/2 TURN
1/2 TURN ON STUD
THIS SPRING ON BACK OF LARGE PULLEY
PULLEY SHOWN IN FULL COUNTERCLOCKWISE POSITION.
2 1/2 TURNS
ALT CODE RED-YEL DOTS OR E1
L2
L3
L4
L5
L6

NOTES

ARROW ON CONTROLS INDICATE CLOCKWISE ROTATION

ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH AN A.C.-D.C. OR VACUUM TUBE VOLTMETER.

ALL VOLTAGES ARE DC UNLESS OTHERWISE SPECIFIED.

ALL RESISTORS ARE ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

AMP. MOD. I.F. FREQUENCY 455 KC.
FREQ. MOD. I.F. FREQUENCY 10.7 MC.

TUNING RANGES 540-1620KC. STD. BC
88-108 MC. FM.

BANDSWITCH S1 SHOWN IN STD BC POSITION.

BANDSWITCH POSITIONS { 1ST POS. STD BC
2ND POS FM 100MC AFC ON
3RD POS FM 100MC AFC OFF.

ZENITH RADIO Models T825F, G, and R, Chassis 8T01,

Alignment Information (Continued)

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

(a) Vacuum Tube Voltmeter Lug 7 on discriminator transformer to chassis (half discriminator load).

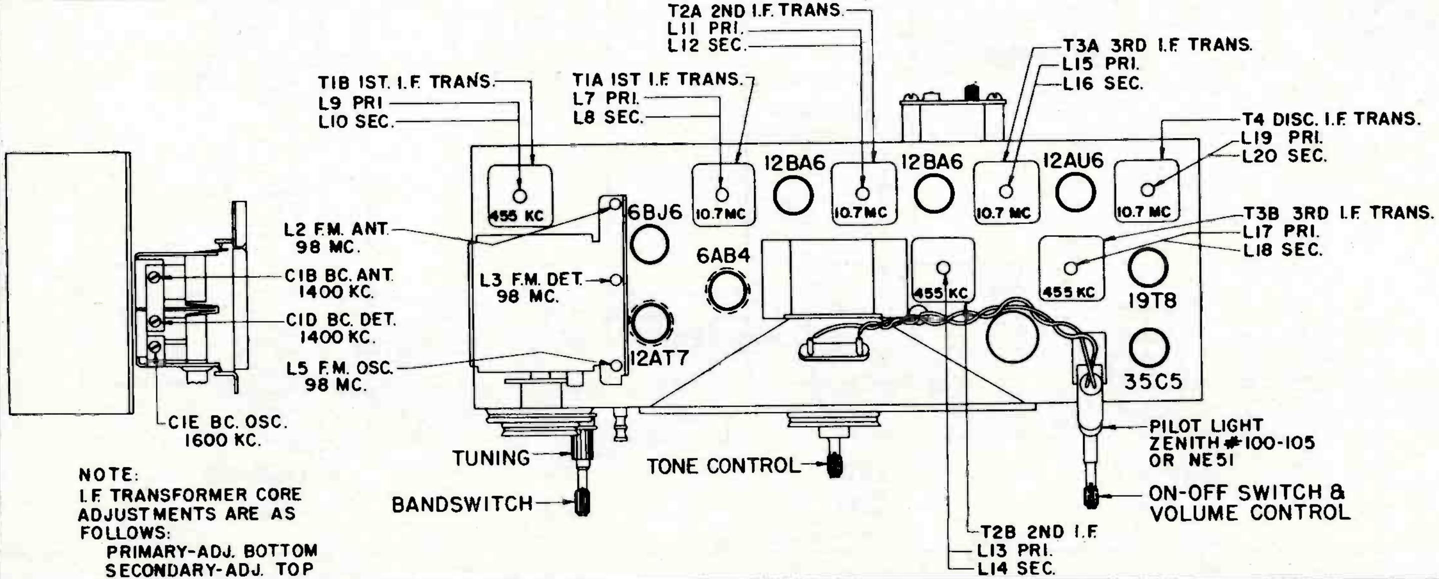
(b) Vacuum Tube Voltmeter Lug 5 on discriminator transformer to chassis (full discriminator load).

(c) Vacuum Tube Voltmeter from Limiter Grid to Chassis.

(d) Loosen Slugs by applying a hot iron to the cement.

ALIGNMENT PROCEDURE

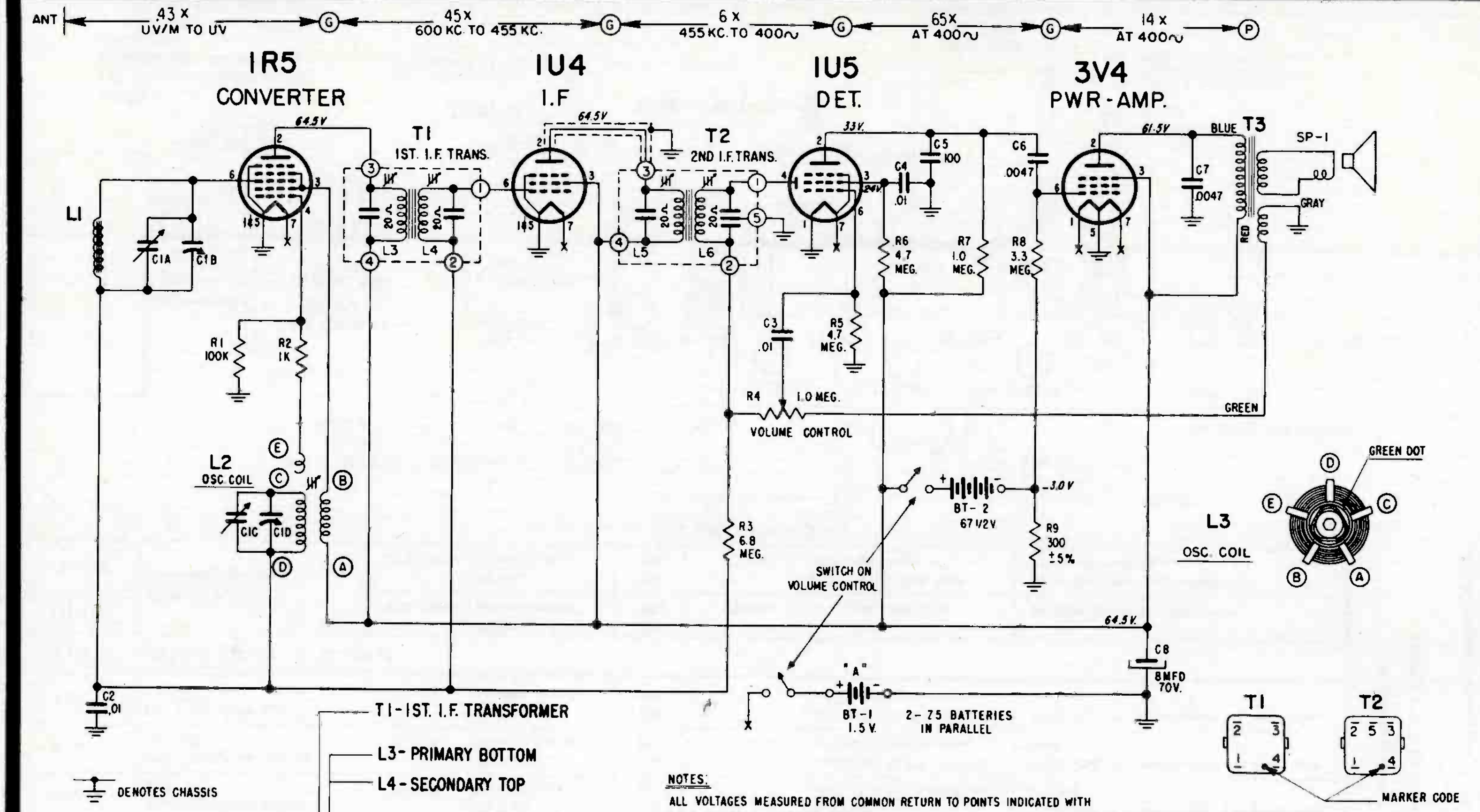
OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	BAND	SET DIAL TO	ADJ. TRIMMERS	PURPOSE
1	Pin 7 12AT7 Converter	.05 Mfd.	455Kc Modulated	BC	600 Kc	L-9, 10, 13, 14, 17 and 18.	Align I.F. channel for maximum output
2	2 turns loosely coupled to wavemagnet		1600 Kc Modulated	BC	1600 Kc	C1E	Set Oscillator to dial scale
3	2 turns loosely coupled to wavemagnet		1400 Kc Modulated	BC	1400 Kc	C1D and C1B	Align det. and ant. stages
4	IMPORTANT: Before attempting to align the FM portion of this receiver, the Band Switch must be in FM POSITION.						
5 (a)	Pin 1 (grid) on 12AU6 limiter	.05 Mfd.	10.7 Mc Unmodulated	FM 100		L 20 coil slug Primary discr.	Align primary of discriminator for maximum reading
6 (b)	Pin 1 (grid) on 12AU6 limiter	.05 Mfd.	10.7 Mc Unmodulated	FM 100		L 19 coil slug sec. of discr.	Adjust secondary of discriminator for zero reading
7 (c)	Pin 1 (grid) on 12BA6 2nd. IF.	.05 Mfd.	10.7 Mc Unmodulated	FM 100		L 15 and L 16 Pri. and Sec. of 3rd IF transformer	Align 3rd, IF transformer for maximum reading
8 (c)	Pin 1 (grid) on 12BA6 1st, IF.	.05 Mfd.	10.7 Mc Unmodulated	FM 100		L 11 and L 12 Pri. and Sec. of 2nd IF transformer	Align 2nd. IF transformer for maximum reading
9 (c)	Pin 7 (grid) on 12AT7 converter tube socket	.05 Mfd.	10.7 Mc Unmodulated	FM 100		L7 and L8 Pri. and Sec. of 1st IF transformer	Align 1st. IF transformer for maximum reading
10 (c)	REPEAT STEPS 7, 8 AND 9						
11(c)(d)	Antenna Post F (Remove line ant.)	270 Ohms	98 Mc Unmodulated	FM 100	98 Mc.	L5 Osc. Coil Slug	Set Oscillator to dial scale
12(c)(d)		270 Ohms	98 Mc Unmodulated	FM 100	98 Mc.	L3 and L2 Det. and RF coil Slugs	Align det. and ant. stages to maximum reading


T2A 2ND I.F. TRANS.
L11 PRI.
L12 SEC.
T1B IST. I.F. TRANS.
L9 PRI
L10 SEC.
T1A IST I.F. TRANS.
L7 PRI.
L8 SEC.
T3A 3RD I.F. TRANS.
L15 PRI.
L16 SEC.
T4 DISC. I.F. TRANS.
L19 PRI.
L20 SEC.
T3B 3RD I.F. TRANS.
L17 PRI.
L18 SEC.
12BA6
12BA6
12AU6
455 KC
10.7 MC
10.7 MC
10.7 MC
10.7 MC
6BJ6
6AB4
455 KC
455 KC
19T8
35C5
12AT7
L2 F.M. ANT.
98 MC.
C1B BC. ANT.
1400 KC.
C1D BC. DET.
1400 KC.
L3 F.M. DET.
98 MC.
L5 F.M. OSC.
98 MC.
C1E BC. OSC.
1600 KC.
TUNING
BANDSWITCH
TONE CONTROL
PILOT LIGHT
ZENITH #100-105
OR NE51
ON-OFF SWITCH &
VOLUME CONTROL
T2B 2ND I.F.
L13 PRI.
L14 SEC.

NOTE:
I.F. TRANSFORMER CORE ADJUSTMENTS ARE AS FOLLOWS:
PRIMARY-ADJ. BOTTOM
SECONDARY-ADJ. TOP

ZENITH RADIO CORPORATION

MODEL T402Y, F & V CHASSIS 4T42

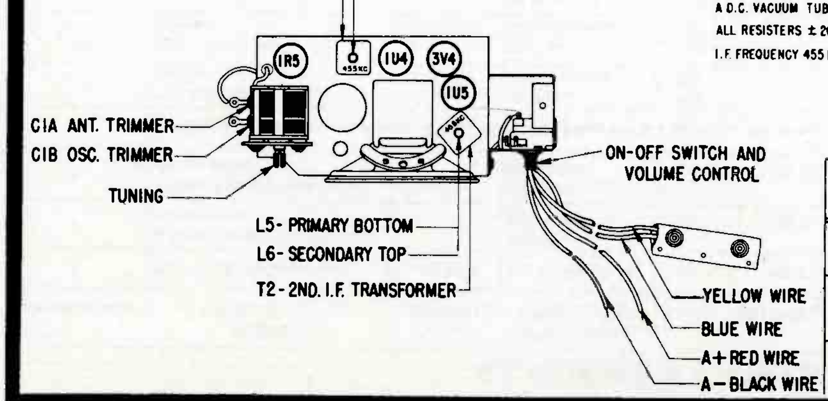

ANT
.43 X UV/M TO UV
45 X 600 KC TO 455 KC.
6 X 455 KC. TO 400~
65 X AT 400~
14 X AT 400~
G
P
1R5 CONVERTER
1U4 I.F
1U5 DET.
3V4 PWR-AMP.
T1 1ST. I.F. TRANS.
T2 2ND I.F. TRANS.
T3
SP-1
BLUE
RED
GRAY
GREEN
64.5V
33V.
61.5V
-3.0V
L1
C1A
C1B
C1C
C1D
L2 OSC COIL
L3
L4
L5
L6
R1 100K
R2 1K
R3 6.8 MEG.
R4 1.0 MEG. VOLUME CONTROL
R5 4.7 MEG.
R6 4.7 MEG.
R7 1.0 MEG.
R8 3.3 MEG.
R9 300 ±5%
C2 .01
C3 .01
C4 .01
C5 100
C6 .0047
C7 .0047
C8 8MFD 70V.
BT-1 1.5V.
"A"
BT-2 67 1/2V
2-Z5 BATTERIES IN PARALLEL
SWITCH ON VOLUME CONTROL
L3 OSC. COIL
GREEN DOT
A
B
C
D
E
T1
T2
MARKER CODE
DENOTES CHASSIS

NOTES:

ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH A D.C. VACUUM TUBE VOLTMETER.

ALL RESISTERS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

I.F. FREQUENCY 455 KC TUNING RANGE 540-1620 KC STANDARD BC.


T1-1ST. I.F. TRANSFORMER
L3-PRIMARY BOTTOM
L4-SECONDARY TOP
1R5
1U4
3V4
1U5
455KC
C1A ANT. TRIMMER
C1B OSC. TRIMMER
TUNING
ON-OFF SWITCH AND VOLUME CONTROL
L5-PRIMARY BOTTOM
L6-SECONDARY TOP
T2-2ND. I.F. TRANSFORMER
YELLOW WIRE
BLUE WIRE
A+ RED WIRE
A- BLACK WIRE

ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	455 Kc.	600 Kc.	L3, 4, 5, 6	For I.F. Alignment
2	Single Turn Loosely Coupled to Wavemagnet	1600 Kc.	1600 Kc.	C1B	Set Oscillator to Dial Scale
3		1400 Kc.	1400 Kc.	C1A	Antenna Alignment

Another

Supreme Publications

Service Manual

Supreme Publications are Available at All Leading Parts Jobbers