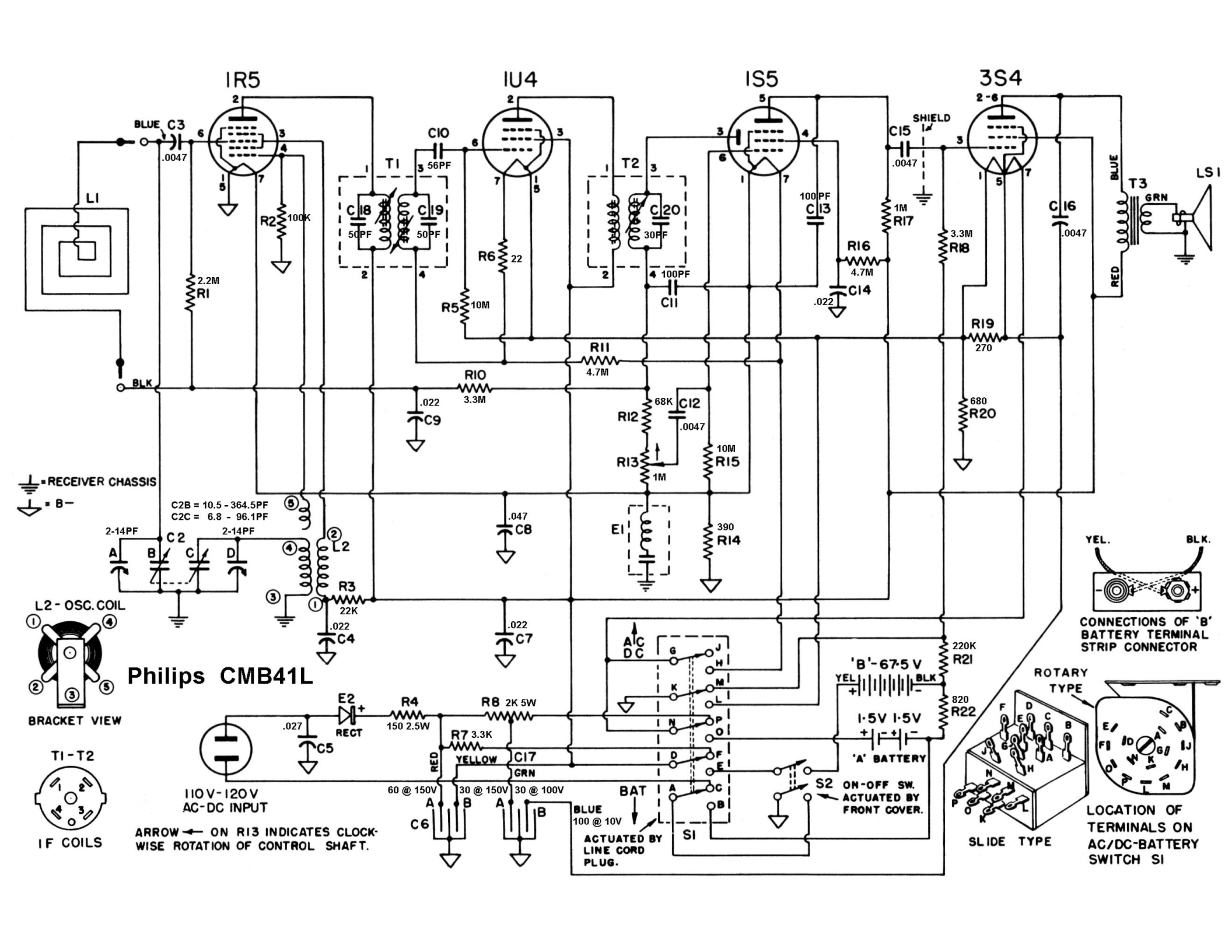
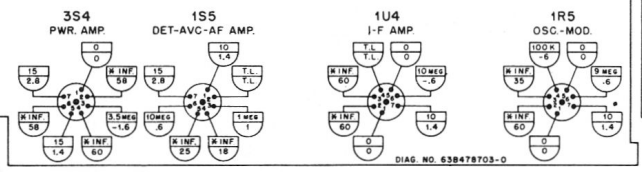

1R5
1U4
1S5
3S4
BLUE
C3
.0047
L1
R2 100K
2.2M
R1
BLK
T1
C18
50PF
C19
50PF
C10
56PF
R6 22
R5 10M
T2
C20
30PF
C11
100PF
R11
4.7M
R10
3.3M
.022
C9
C13
100PF
R16
4.7M
C14
.022
C15
.0047
SHIELD
R17
1M
R18
3.3M
R19
270
R20
680
C16
.0047
T3
BLUE
GRN
RED
LS1
R12
68K
C12
.0047
R13
1M
R15
10M
E1
R14
390
.047
C8
.022
C7
.022
C4
R3
22K
C2B = 10.5 - 364.5PF
C2C = 6.8 - 96.1PF
2-14PF
C2
2-14PF
A
B
C
D
L2
= RECEIVER CHASSIS
= B-
L2 - OSC. COIL
BRACKET VIEW
Philips CMB41L
T1 - T2
IF COILS
110V-120V
AC-DC INPUT
E2
RECT
.027
C5
R4
150 2.5W
R8 2K 5W
R7 3.3K
RED
YELLOW
GRN
C17
60 @ 150V
30 @ 150V
30 @ 100V
C6
BLUE
100 @ 10V
BAT
ACTUATED BY LINE CORD PLUG.
S1
A C
D C
S2 ON-OFF SW. ACTUATED BY FRONT COVER.
'B'-67.5 V
YEL
BLK
1.5V 1.5V
'A' BATTERY
220K
R21
820
R22
ARROW ← ON R13 INDICATES CLOCK-WISE ROTATION OF CONTROL SHAFT.
YEL.
BLK.
CONNECTIONS OF 'B' BATTERY TERMINAL STRIP CONNECTOR
ROTARY TYPE
SLIDE TYPE
LOCATION OF TERMINALS ON AC/DC-BATTERY SWITCH S1

BOTTOM VIEW OF CHASSIS

= VOLTAGE MEASUREMENTS.
= RESISTANCE MEASUREMENTS.
T.L. = TIE LUG.
* = MEASUREMENTS MAY VARY DEPENDING ON CONDITION OF ELECTROLYTIC CAPACITORS.

CONDITIONS OF MEASUREMENTS.

A VTVM WAS USED TO MAKE ALL VOLTAGE MEASUREMENTS.
LOOP IS DISCONNECTED AND NO STATION IS TUNED IN.
MEASUREMENTS ARE MADE FROM TUBE BASE PIN TO B- (⏚)
SET IS OPERATED FROM FRESH BATTERIES DURING VOLTAGE MEASUREMENTS.
SET IS IN BATTERY POSITION AND BATTERIES ARE REMOVED DURING RESISTANCE MEASUREMENTS.
VOLTAGE TOLERANCE ±10%. RESISTANCE TOLERANCE ±20%.



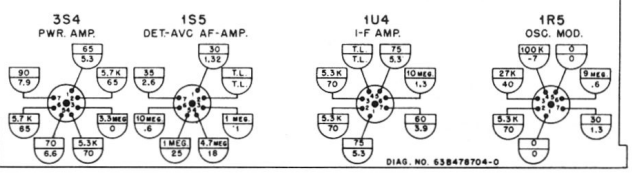
DIAG. NO. 638478703-0

BOTTOM VIEW OF CHASSIS

= VOLTAGE MEASUREMENTS.
= RESISTANCE MEASUREMENTS.
T.L. = TIE LUG.

CONDITIONS OF MEASUREMENTS

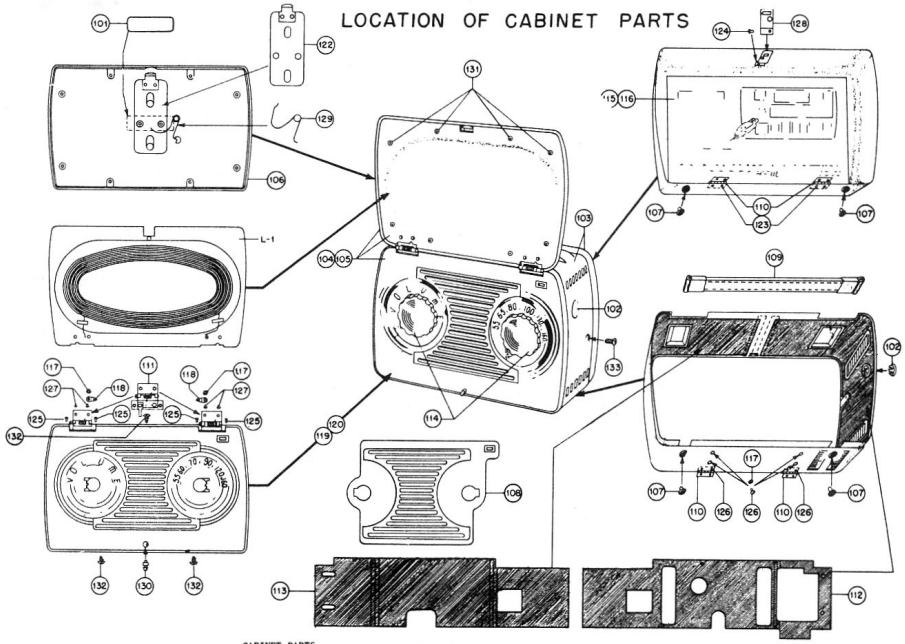
A VTVM WAS USED TO MAKE ALL VOLTAGE MEASUREMENTS.
LOOP IS DISCONNECTED AND NO STATION TUNED IN.
MEASUREMENTS ARE MADE FROM TUBE BASE PINS TO B- (⏚)
SET IS OPERATED FROM 117 V. AC DURING VOLTAGE MEASUREMENTS.
SET IS IN AC/DC POSITION AND BATTERIES ARE REMOVED DURING RESISTANCE MEASUREMENTS.
VOLTAGE TOLERANCE ±10%. RESISTANCE TOLERANCE ±20%.



DIAG. NO. 638478704-0

VOLTAGE AND RESISTANCE VALUES FOR BATTERY OPERATION VOLTAGE AND RESISTANCE VALUES FOR 115 V. AC-DC OPERATION

LOCATION OF CABINET PARTS

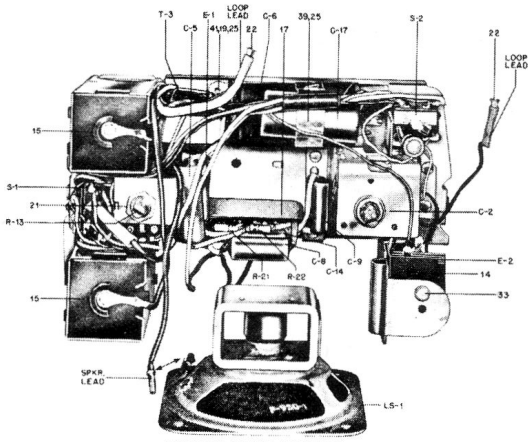


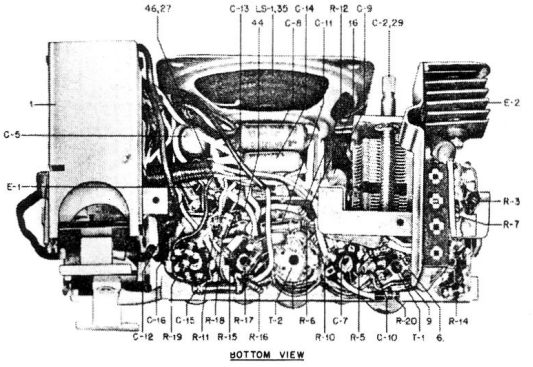
CABINET PARTS

101	Button, loop cover, maroon plastic
101A	Button label (Philips)
101Y	Button, loop cover, black plastic
101XA	Button label (Philips)
102	Button, plug, wrinkle maroon
102X	Button, plug, wrinkle black
103	Cabinet, Maroon, loop and front cover ass'y
103A	Cabinet Housing, painted maroon
103X	Cabinet, Black, loop and front cover ass'y
103XA	Cabinet Housing, painted black
105	Cover, loop and Front Panel Ass'y, Maroon
105A	Loop and front panel ass'y, Maroon and Chrome
105B	Stud Trimount (for on-off switch) Bronze
105XB	Stud Trimount (Black)
105Y	Cover, loop and front panel ass'y, Black
105XA	Loop and front panel ass'y, Black and Brass
106	Cover and latch assembly, front, Maroon
106A	Cover only, moulded, Maroon
106X	Cover and latch assembly, front, Black
106XA	Cover only, moulded Black
107	Foot, felt
108	Grille, speaker, maroon plastic
108X	Grille, Speaker, black plastic
109	Handle, maroon, carrying complete
109X	Handle, black, carrying complete
110	Hinge, back cover
111	Hinge & insulator assembly (front cover)Nickel
111X	Hinge & Insulator Assembly (Black)
111A	Hinge, Front cover (Nickel)
111XA	Hinge, Front Cover (Black)
111B	Hinge, Mounting Insulator
111C	Pin, Loop Contact
112	Insulator, Inner housing, right Hand
113	Insulator, Inner housing, left hand
114	Knob, control, maroon plastic
114X	Knob, Control, black plastic
116	Label, operating instructions
117	Lockwasher #2 Internal
118	Lug, soldering #3
119	Name Plate on front panel
120	Panel, front metal chrome
120X	Panel, front metal, brass finish
122	Plate and latch assembly, Nickel
122X	Plate and Latch Assembly (Black)
122A	Plate, Door latch mounting
122B	Latch, Retainer (Nickel)
122XB	Latch, Retainer (Brass)
123	Rivet, .088 x 3/32" Steel (nickel)
124	Rivet, .088 x 3/32" Steel (bronze)
125	Rivet, .088 x 1/4" Steel (bronze)
126	Rivet, .088 x 5/32" Steel (nickel)
127	Rivet, .088 x 5/32" Steel (bronze)
128	Spring & Button assembly (rear cover) Nickel
128X	Spring & Button Assembly (Black)
129	Spring, Loop door catch
130	Stud, latch retainer (Nickel)
130X	Stud, Latch Retainer (Brass)
131	Screw, #2 x 1/4" P.H. S.W. S.
132	Screw #4 x 7/16" S.H. S.W. S.
133	Screw #4-40 x 1/4" B.H. M.S.

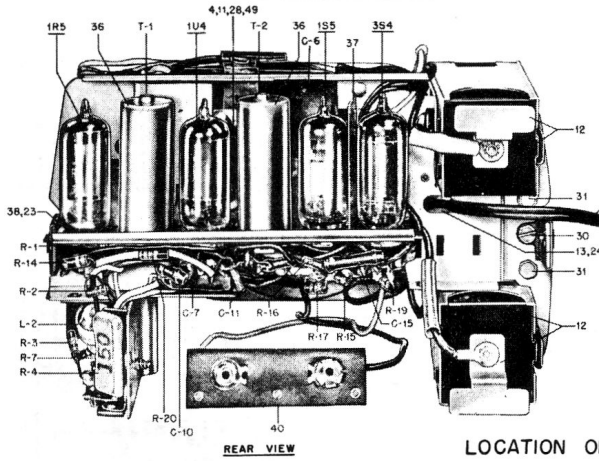
MISCELLANEOUS PARTS

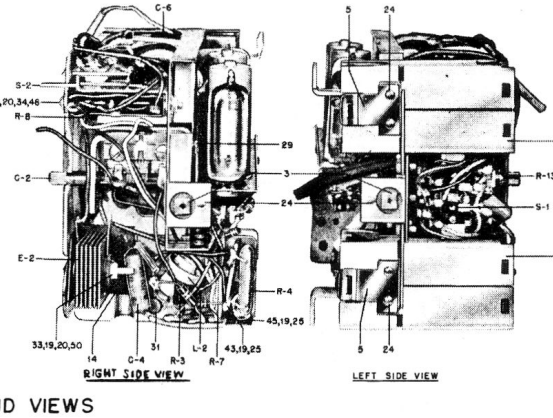
LS1	Speaker, 3½ P.M. 3.2 ohms V.C.
	Speaker Cone & Voice Coil Assembly
E1	455 kc Resonant Capacitor (.025 uF)
E2	Half Wave Selenium Rectifier
S1	AC/DC/Battery Change over switch (slide type)
S1	AC-DC/Battery Change over switch (rotary)
S2	On-Off Switch
	Base, Chassis
	Base, Sub Chassis
1	Battery Box & Bracket Assembly
1a	Battery Contact Insulator
1b	Cord Clamp (Moulded)
1c	Battery Retainer Box
1d	Battery Box Mounting Bracket
1e	Battery Contact Spring
2	Bracket, Speaker Mounting
	Bracket, Gang Mounting
	Bracket, Volume Control Mounting
	Bracket, Rectifier Mounting
3	Bushing and Insulator Assembly
3a	Bushing, Threaded (Chassis Mtg.)
3b	Bushing, Insulator
4	Bushing, Brass, (Sub Chassis Mtg.)
5	Catch, Battery Insulator
7	Clip, Tuning, Core retainer of I.F. Trans.
8	Cord, Line and Plug 5 ft.
9	Core, Iron for I.F. Transformers
10	Cover, Chassis (bottom cover)
11	Grommet, sub chassis mounting
12	Insulator, A+ lead and lug assembly
13	Insulator, Line cord lock, fibre
14	Insulator, Rectifier, Armite
15	Insulator, A- Spring, lead & lug assembly
16	Insulator, terminal strip, Armite small
17	Insulator, terminal strip, Armite large
	Insulator (C.T. Resistor)
	Insulator (3-lug terminal panel)
	Insulator (1-lug terminal panel)
	Insulator (5/8" x 1¼")
18	Lockwasher #6 external (resistor mtg.)
19	Lockwasher #6 external (rectifier mtg.)
20	Nut, #6-32 x 1/4" Hex.
21	Nut, 3/8-32 x 1/2" Hex. (Palnut)
22	Receptacle, Loop lead
23	Rivet, .088 x 3/32" Steel
24	Rivet, .088 x 5/32" Steel
25	Rivet, .122 x 1/8" Steel
26	Rivet, .122 x 5/32" Steel
27	Rivet, .122 x 3/16" Steel
28	Screw, 4 x 3/8" F.H. S.T.S.
29	Screw, #6-32 x 3/16" H.H. L.W. S.
30	Screw, #6 x 3/16" H.H. S.T. S.
31	Screw, #6 x 1/4" H.H. S.M. S.
32	Screw, #6 x 1/4" B.H. S.T. S.
33	Screw, #6-32 x 1-1/8" R.H.W.S.
34	Screw, #6-32 x 2" R.H.W.S.
35	Screw, #8-32 x 1/4" H.H. L.W.S.
36	Shield & Sleeve Assembly
37	Shield Tube
38	Socket, Tube, Miniature 7-Prong
39	Strap, Electrolytic retainer
40	Strip, "B" Battery terminal
41	Strip, Terminal, 1-lug
43	Strip, Terminal, 2-lug 3/8"
44	Strip, Terminal, 2-lug 1/4"
45	Strip, Terminal, 3-lug
46	Strip, Terminal, 5-lug
48	Washer, Insulating, 3/8" res. mtg.
49	Washer, 5/16" sub chassis mtg.





LOCATION OF PARTS - FRONT AND BOTTOM VIEWS





LOCATION OF PARTS - REAR AND END VIEWS

SPECIFICATIONS

TUNING RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

AUDIO POWER OUTPUT: 0.1 watt undistorted, 0.15 watt maximum.

LOUDSPEAKER: 3.5" permanent magnet dynamic type. Impedance of voice coil 3.2 ohms.

CONTROLS: Volume Control (Left hand knob).
Tuning Control (Right hand knob).
On-Off Switch actuated by front cover.
AC/DC-Battery Switch actuated when the line cord is inserted into the two slots between the battery boxes.

ANTENNA: A loop antenna is built into the front cover. The loop is connected to the receiver via the cover hinges.

LINE VOLTAGE: 115 volts AC, 25 to 60 cycles, or 115 volts DC.

BATTERY VOLTAGE: "A" Battery requirements - 3.0 volts derived from two flashlight cells. (Eveready #950 or equivalent). It is recommended that the "A" battery be replaced when the operating voltage drops below 2 volts.

"B" Battery requirements - 67.5 volts derived from one 67.5 volt battery. (Eveready #467 or equivalent). It is recommended that the "B" battery be replaced when the operating voltage drops below 47 volts.

CURRENT DRAIN: On 115 volts AC/DC - .15 amperes.
On Batteries; 3.0 volt "A" Battery - 150 milliamperes.
67.5 volt "B" Battery - 8.5 milliamperes.

CABINET DIMENSIONS: Width - 7¾ inches.
Height - 5 inches.
Depth - 4½ inches.

SERVICE DATA

Placement of the four tubes (1R5, 1U4, 1S5 and 3S4) is such that they may be easily removed for servicing by opening the back cover of the set. To reduce microphonic howl, rubber shock mounting is provided for the small chassis holding the tubes and coils. A thin piece of braid serves to bond the two chassis. This braid as well as all leads connecting the small chassis wiring to the large chassis, should be carefully dressed and free in movement to insure a good floating action of the small chassis.

Insulation between the cabinet (front, back and wrap-around) and chassis is provided for by the bakelite bushing mountings on the sides and by a wrap of armite riveted to the inside of the cabinet.

The chassis itself is isolated from the line and power circuit by a resonant capacitor which eliminates shock hazard. To further guarantee any annoyance from a minor shock the chassis is insulated from the cabinet.

To remove the chassis from the cabinet, remove the two 4-40 screws (one on each side of the cabinet), pull off the tuning knobs, remove the front panel, disconnect the two loop leads from the pin receptacles, and slide the chassis out of the cabinet.

To remove the chassis cover plate, remove the two slotted screws holding the plate to the edge of the large chassis and with the set lying with the speaker cone down, lift the plate up from the chassis.

To remove the gang condenser, the screws holding the small chassis to the large chassis should be removed. This makes it possible to pull the small chassis strip out of the way so that access can be had to the screws holding the gang.

For access to some of the wiring, the "A" battery boxes may have to be removed. To do this, remove the two hex-headed screws over the changeover switch, leaving the center screw in. The two boxes and the connecting bracket may now be separated from the chassis. The bottom plates of the battery boxes are wired to the set, but the plates may be removed by bending the ears on the boxes outward.

The speaker is held in place by one screw located behind the 1S5 tube and a locating ear under the diode coil can. To replace the speaker, remove the 8-32 hex-headed screw, unsolder the voice coil lead from the speaker and pull the speaker out from the front of the set.

Turning the set on or off is accomplished by opening or closing the front cover which actuates a push rod connected to a switch. Overthrow has been provided in the switch so that the switch is open circuited before the cover is completely closed. This prevents tolerance between the cover and front panel from causing switch failure. Inserting the line cord plug into the two slots between the battery boxes operates a switch which changes the circuit wiring to battery operation.

The oscillator coil and tuning capacitor leads should be dressed close to the chassis. This will minimize shifting of oscillator frequency when chassis is installed in its cabinet.

ALIGNMENT PROCEDURE CHART

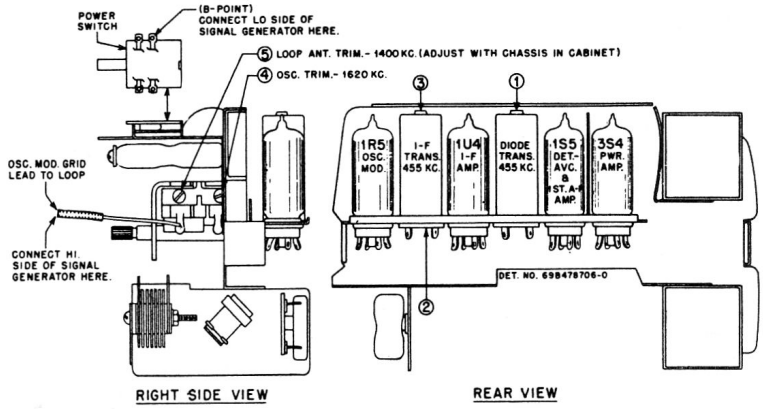
OPERATION STEPS	SIGNAL GENERATOR		RECEIVER		
	Connections to Receiver	Frequency	Tuning Capacitor	See Notes	Adjust in Stated Order for Maximum Output
1	To stator of C2B through a .05 uF Capacitor	455 kc	Fully Open	A	① Inductance of T2 ②③ Inductance of T1
2	To stator of C2B through a .05 uF Capacitor	1620 kc	Fully Open	B	④ Osc. Trimmer C2D
3	-	-	-	C	-
4	None	1400 kc	1400 kc	D	⑤ Ant. Trimmer C2A

Note A: After adjusting T1, it may be necessary to reajust T2.

Note B: This adjustment sets oscillator to dial scale.

Note C: Install chassis in cabinet, leaving output meter connected to speaker.

Note D: Connect output of signal generator to a 5" diameter, 3 turn loop and bring loop close enough to receiver loop to obtain output of 50 milliwatts (0.40 volts) on output meter. Vary distance between loops to maintain this output during alignment. Minimum distance between loops should never be less than 12 inches.



TUBE LOCATION AND ALIGNMENT POINTS

The following table shows the Manufacturer's Part Numbers of batteries that may be used with this receiver.

Type	Burgess	Eveready	General	Ray-o-Vac
A	2	950	D	2
B	XX45	467	W4BA	P4367

ALIGNMENT OF RECEIVER

EQUIPMENT REQUIRED

Signal Generator: Capable of supplying modulated frequencies from 450 to 1700 kc.

Output Meter: A high resistance AC voltmeter, or a low range output meter.

Isolating Transformer: A 115 volt 25/60 cycle, 1 to 1 ratio transformer.

ALIGNMENT OF RECEIVER

Signal Generator: Always be sure to use the specified capacitor in series with the signal generator output lead connections, as listed in the alignment procedure chart. Connect the return lead of the generator to the B- of the receiver through a .05 uF capacitor. The rear left hand lug of the power switch serves as a convenient B- point. Do not connect a grounded lead to this receiver when aligning on 115 volts AC, unless a line isolating transformer is used.

Output Indicator: If a power output meter is used, adjust it for 4 ohms impedance and connect across the secondary of the output transformer in place of the speaker voice coil. Do not exceed .05 watt during alignment. If an AC voltmeter is used connect it across the voice coil (speaker connected) and do not exceed an 0.4 volt output. As the reading on the test meter increases with alignment, regulate the signal generator attenuator to keep the output within the limits specified above.

Receiver: Turn the volume control to the maximum (full clockwise) position. The I. F. and diode transformer tuning cores are slotted for a small size fibre screwdriver. Do not press hard on the fibre screwdriver during alignment as damage to the coil forms or tuning cores may result.