

# RADIO RECEIVER & TRANSMITTER BC-669-(\*)

Part of: SCR-543-(\*)

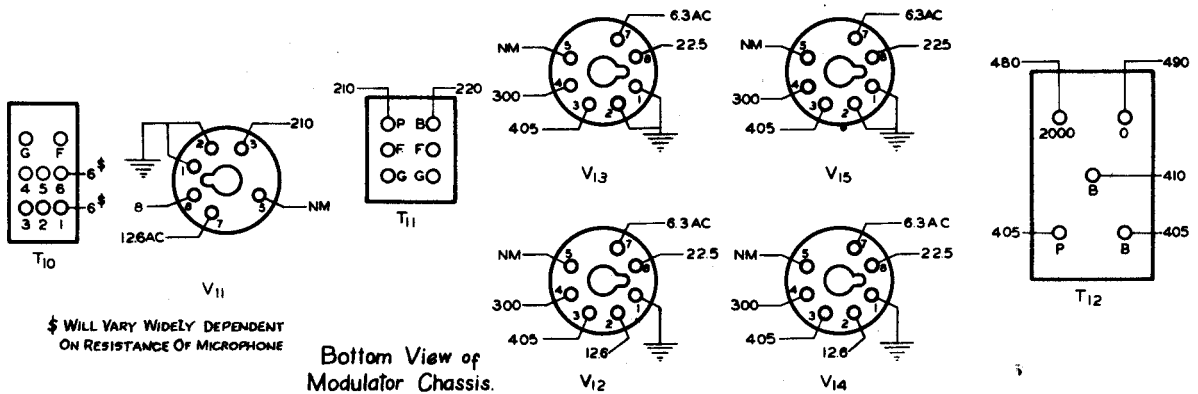
BC-669-(\*)=BC-669-A, BC-669-B

Reference:  
TM 11-625B

## VOLTAGE MEASUREMENTS OF MODULATOR SECTION

All tubes of 9C-669-(\*) in place.  
All cording properly connected.  
SPEAKER ON.  
Power supply connected.  
PE-110-(\*) power switch ON.  
If transmitter is operable, tune and load it.  
Push press-to-talk switch momentarily to make d-c voltage measurements.  
A-c filament voltage available without operating press-to-talk switch.

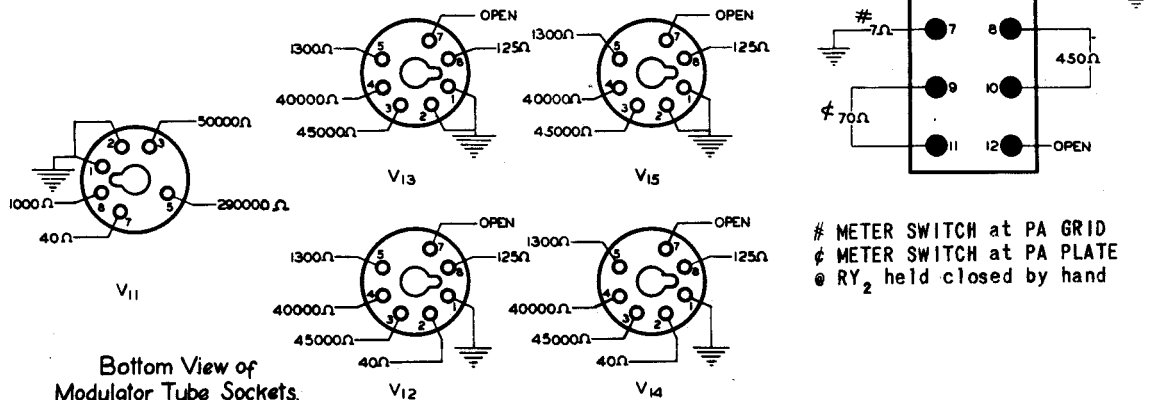
Measurements from tube socket terminals and transformer terminals to chassis.  
All values indicated are positive volts.  
Values marked AC are a-c voltages; all others are d-c voltages.  
Use 1000 ohms/volt meter to read d-c volts.  
All values are average, actual readings may vary.  
NM -- Not measured.



## RESISTANCE MEASUREMENTS OF MODULATOR SECTION

SIDETONE VOLUME CONTROL full on.  
All tubes removed from sockets.  
All cording disconnected.  
PL<sub>1</sub> disconnected from SO<sub>1</sub>.  
Measurements from tube sockets to chassis.  
All values are average, actual readings may vary.

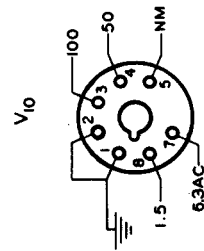
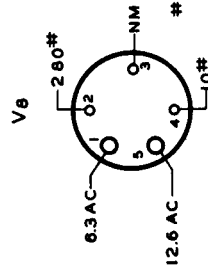
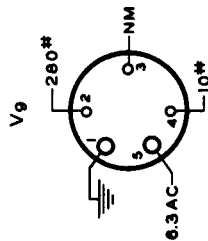
Resistance measurements from PL<sub>1</sub> to points indicated



VOLTAGE MEASUREMENTS OF RECEIVER AND TRANSMITTER R-F SECTION

TRANSMITTER R-F SECTION ( $V_8$ ,  $V_9$ ,  $V_{10}$ )

Connect to 110-volt supply.  
PE-110-(\*) power switch ON.  
If transmitter is operable, tune and load it.  
Push press-to-talk switch momentarily for d-c measurements.  
A-c filament voltage available without operating press-to-talk switch.

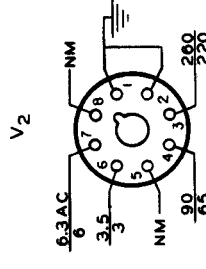
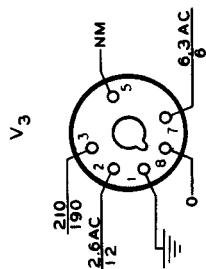
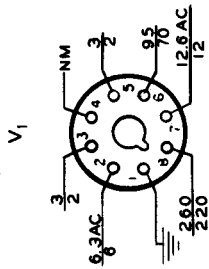


# AVERAGE VALUES; FOR FULLY LOADED ANTENNA CONDITION MAY BE CONSIDERABLY LESS FOR UNLOADED CONDITION

BOTTOM VIEW  
REAR OF CHASSIS

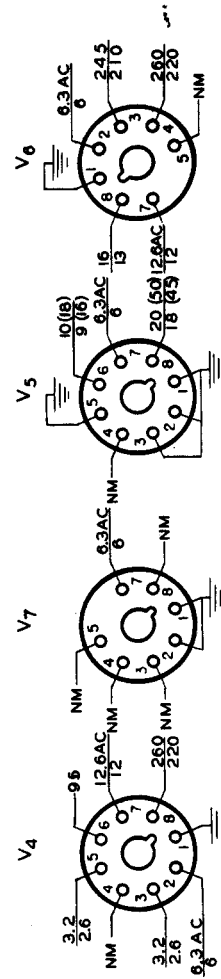
PRELIMINARY INSTRUCTIONS

All tubes of 8C-669-(\*) in place.  
All cording properly connected.  
SPEAKER ON.  
Measurements made from tube socket terminals to chassis.  
All values indicated are positive volts.  
Values suffixed AC are a-c voltages, all others are d-c voltages.  
Use 1000 ohms/volt meter to read voltages.  
All values are average.  
NM -- Not measured.



RECEIVER SECTION ( $V_1$ ,  $V_2$ ,  $V_3$ ,  $V_4$ ,  $V_5$ ,  $V_6$ ,  $V_7$ )

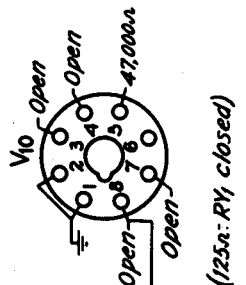
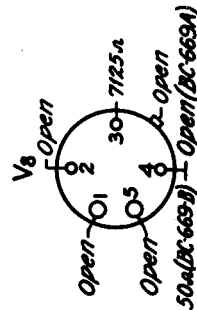
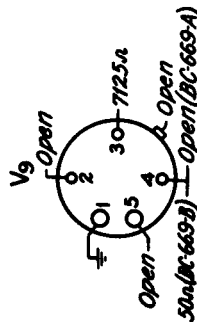
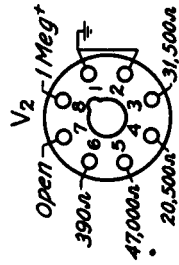
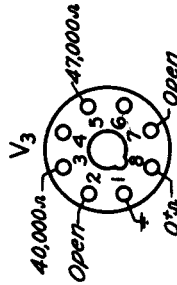
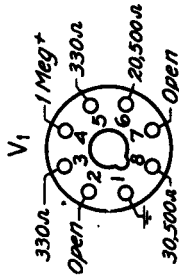
Turn PE-110-(\*) power switch ON.  
Values above line indicate average, voltages for 110-volt a-c operation.  
Values below line indicate average voltages for 12-volt battery operation. Voltage of battery to be 12 volts under load



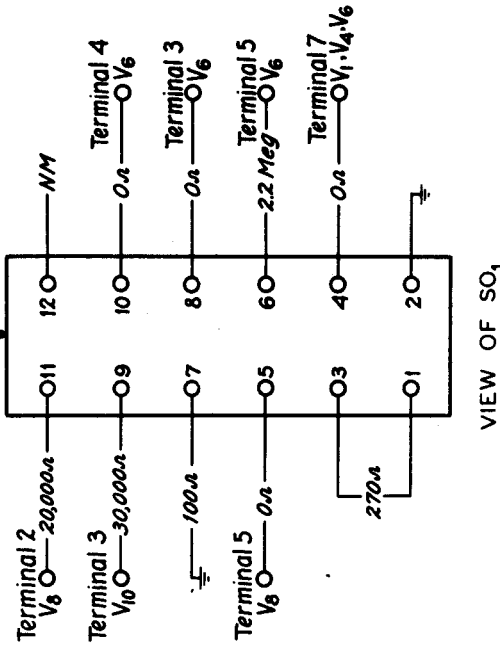
VALUES IN ( ) ARE VTVM READINGS

RESISTANCE MEASUREMENTS OF RECEIVER AND TRANSMITTER R-F SECTION

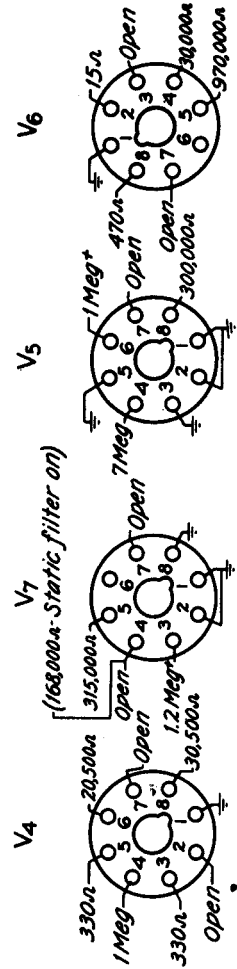
A.F. GAIN control full on.  
 RECEIVER BAND SWITCH on MANUAL 1.  
 R.F. GAIN CONTROL or NOISE CONTROL full on.  
 STATIC FILTER OFF  
 All tubes removed from sockets.  
 All cording disconnected.  
 PL<sub>1</sub> disconnected from SO<sub>1</sub>.  
 Measurements from socket terminals to chassis.  
 All values are average.  
 NM -- Not measured.



Measurements from SO<sub>1</sub> to points indicated



VIEW OF SO<sub>1</sub>

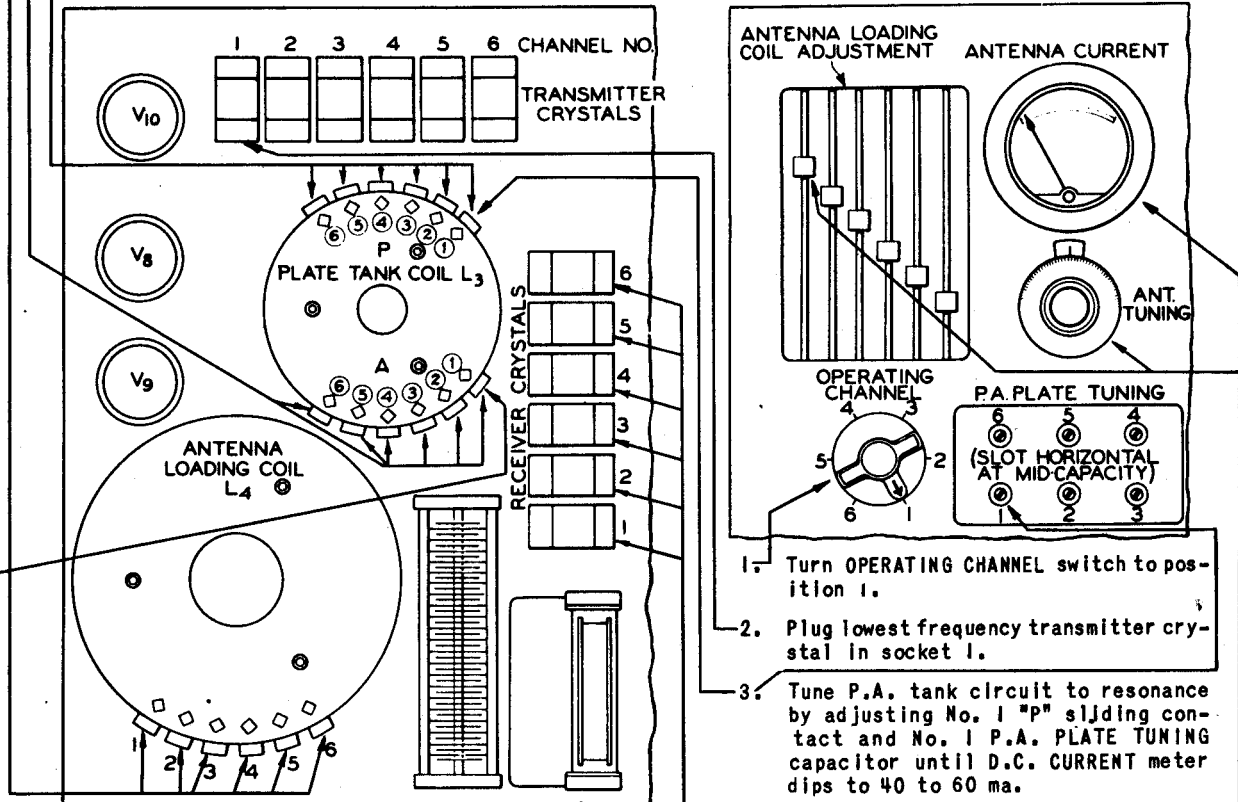


BOTTOM VIEW  
 REAR OF CHASSIS

**RADIO RECEIVER & TRANSMITTER BC-669-(\* )**

**TRANSMITTER PRESETTING**

- Remove plate under P.A. PLATE TUNING; connect antenna.
- Remove plate over METER SWITCH and set to P.A. PLATE.
- Open ANTENNA LOADING COIL ADJUSTMENT door.
- Set all ANTENNA LOADING COIL sliding contacts to mid-position.
- Set all "A" sliding contacts to bottom position.
- Set all "P" sliding contacts to mid-position.



4. Repeat 1 to 3 above for channels 2 to 6, turn OPERATING CHANNEL switch to corresponding positions in turn.
5. Reset OPERATING CHANNEL switch to position 1.
6. Set No. 1 "A" sliding contact 5 turns up from bottom.
7. Tune antenna circuit to resonance, by adjusting ANTENNA TUNING knob and No. 1 sliding contact on antenna loading coil until maximum ANTENNA CURRENT meter reading is obtained.
8. If necessary adjust No. 1 "A" sliding contact and retune antenna circuit as

1. Turn OPERATING CHANNEL switch to position 1.
2. Plug lowest frequency transmitter crystal in socket 1.
3. Tune P.A. tank circuit to resonance by adjusting No. 1 "P" sliding contact and No. 1 P.A. PLATE TUNING capacitor until D.C. CURRENT meter dips to 40 to 60 ma.

**CAUTION:** Make sure sliding contacts do not short-circuit turns. Erratic behavior indicates improper sliding contact setting.

in 7 above until D.C CURRENT meter reads between 150 to 210 ma. ANTENNA CURRENT meter should read from 1.2 to 1.5 amperes.

9. Repeat 5 to 8 above for channels 2 to 6, turn OPERATING CHANNEL switch to corresponding positions in turn.
10. Repeat 3 through 8 on all channels making slight readjustments where necessary.

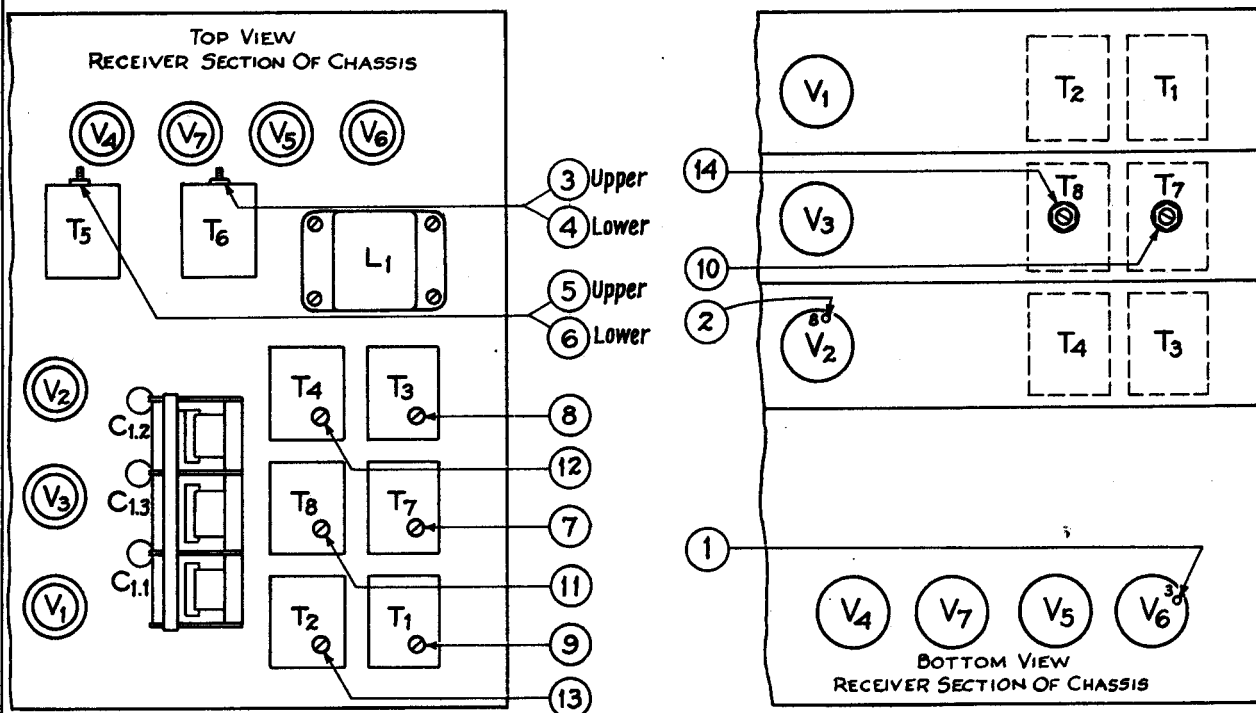
**RECEIVER PRESETTING**

Plug receiving crystals into receiving crystal sockets. This is all that is required for operation on CRYSTAL 1 or CRYSTAL 2.

Each receiving crystal is 385 kc higher than the corresponding transmitting crystal of the same channel number.

## RECEIVER ALIGNMENT

All frequencies set on sig gen are to be checked with freq meter.  
 Sig gen is modulated.  
 A.F. GAIN control full on.  
 SPEAKER ON.  
 STATIC FILTER OFF.  
 R.F. GAIN or NOISE CONTROL full on.  
 Connect "low" side sig gen to chassis.  
 Connect output meter through series capacitor to  $V_6$  plate ① and chassis.



## I-F ALIGNMENT

1. Set sig gen to 385 kc.
  2. Connect "high" side sig gen to grid  $V_2$  ②. Use 0.001  $\mu$ f capacitor in series.
  3. Adjust sec ③ and pri ④ of  $T_6$  for maximum output.
  4. Adjust sec ⑤ and Pri ⑥ of  $T_5$  for maximum output.
  5. Repeat 3 and 4.
- I-F is now aligned.

## 1700 - 2700 kc R-F ALIGNMENT

6. Set RECEIVER BAND SWITCH on MANUAL I. Tuning dial at 2700 kc.
7. Set sig gen to 2700 kc and connect high side to antenna post with 150- $\mu$ f capacitor in series.
8. Adjust  $C_{27}$  in  $T_7$  ⑦,  $C_{10}$  in  $T_3$  ⑧, and  $C_9$  in  $T_1$  ⑨ for maximum output.
9. Set sig gen to 1700 kc and receiver tuning dial to 1700 kc.
10. Check receiver calibration and sensitivity

If there is appreciable loss of sensitivity or miscalibration follow steps 11 and 12.

11. Adjust slug  $T_7$  ⑩ for maximum output.
12. Repeat steps 6 to 8 and then steps 9 to 11 if necessary.

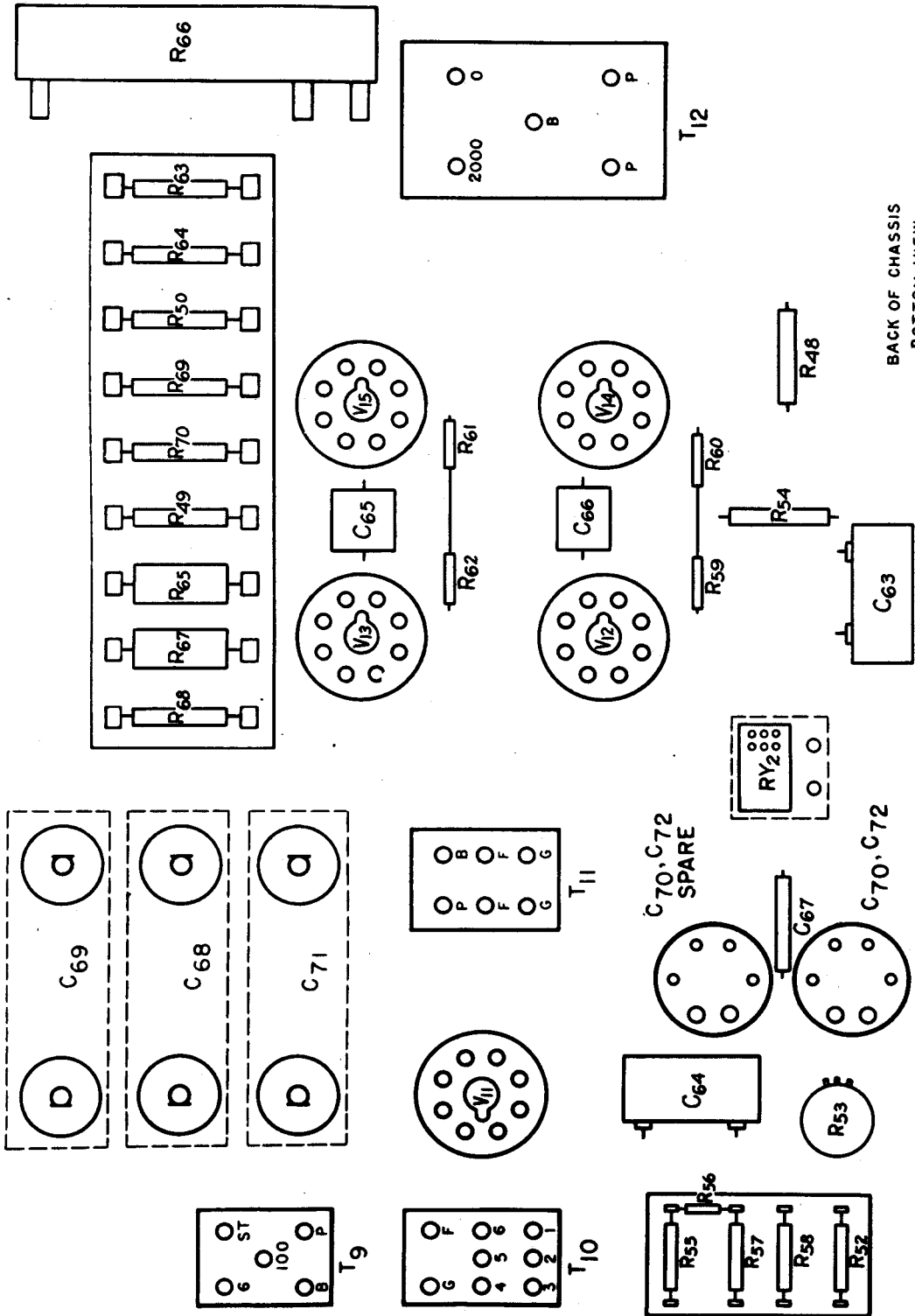
The 1700 - 2700 kc band is now aligned.

## 2700 - 4400 kc R-F ALIGNMENT

13. Set RECEIVER BAND SWITCH on MANUAL 2, the tuning dial to 4400 kc, and sig gen to 4400 kc.
14. Adjust  $C_{39}$  in  $T_8$  ⑪,  $C_{11}$  in  $T_4$  ⑫, and  $C_5$  in  $T_2$  ⑬ for maximum output.
15. Set receiver tuning dial to 2700 kc and the sig gen to 2700 kc.
16. Check receiver calibration and sensitivity. If there is appreciable loss of sensitivity or miscalibration, follow steps 17 and 18.
17. Adjust slug in  $T_8$  ⑭, for maximum output.
18. Repeat steps 13 to 15 and 16 to 17 if necessary.

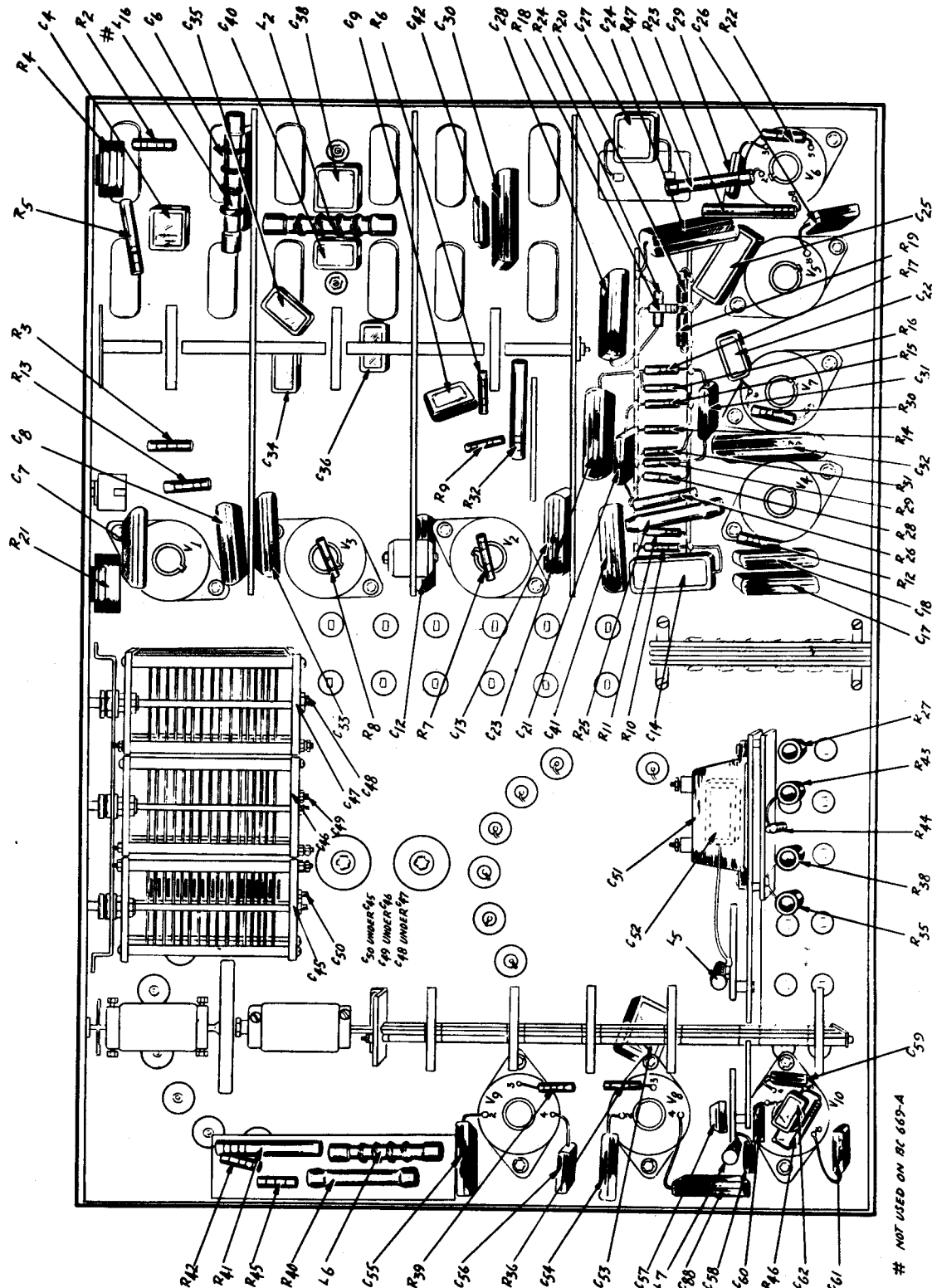
The receiver is now aligned.

PARTS LAYOUT OF MODULATOR



BACK OF CHASSIS  
BOTTOM VIEW

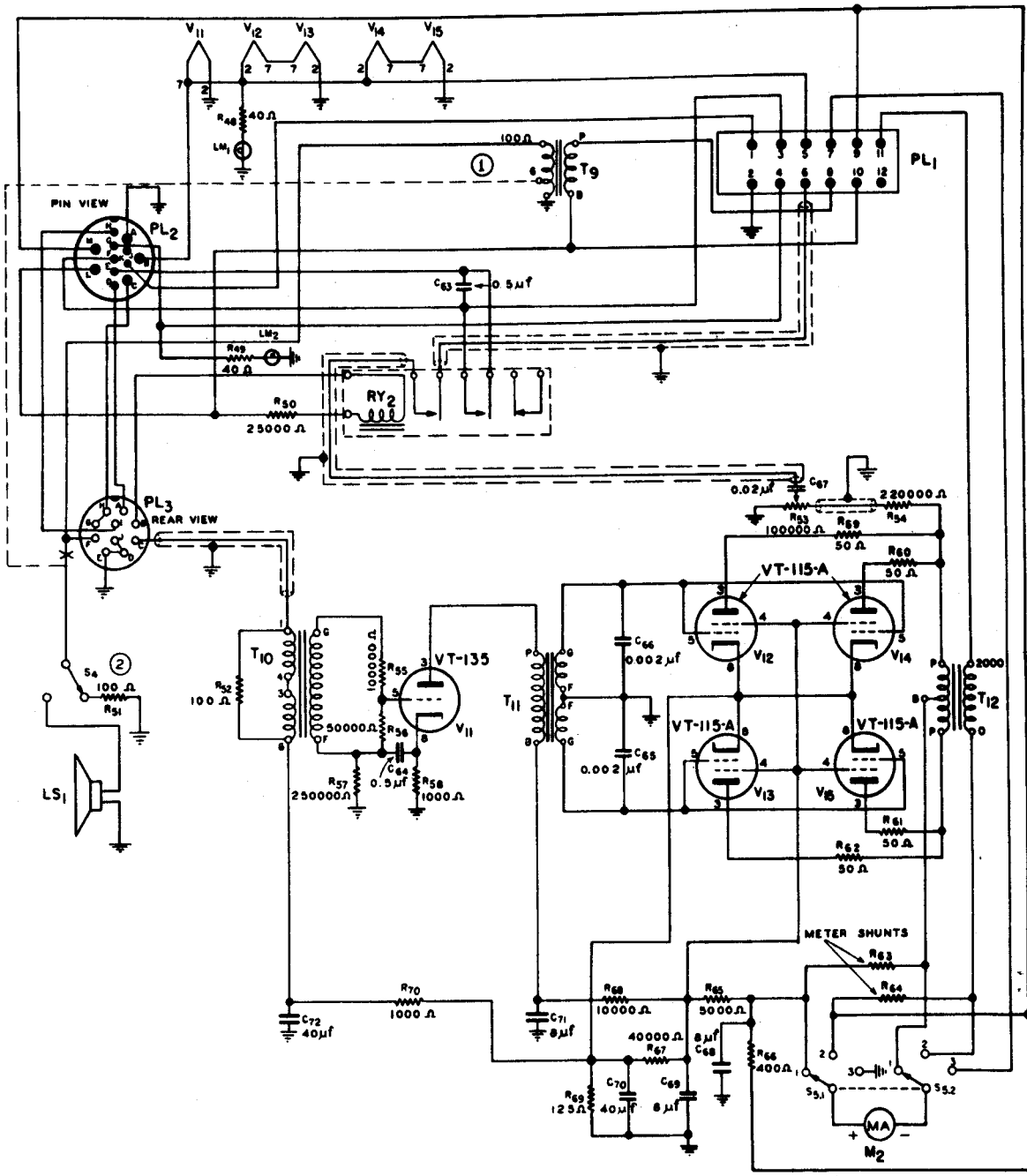
PARTS LAYOUT OF RECEIVER AND TRANSMITTER R-F SECTION



BOTTOM VIEW OF CHASSIS

# NOT USED ON BC 669-A

SCHEMATIC OF MODULATOR



① ON BC-669-B 60HM TAP ON T<sub>9</sub> IS ADDED AND CONNECTED AS SHOWN BY DASHED LINE. \* INDICATES WHERE CIRCUIT IS BROKEN TO ACCOMMODATE ABOVE CONNECTION.

② ON BC-669-B R<sub>51</sub> IS 60HMS.



VT-135  
RMA TYPE  
12J5-GT

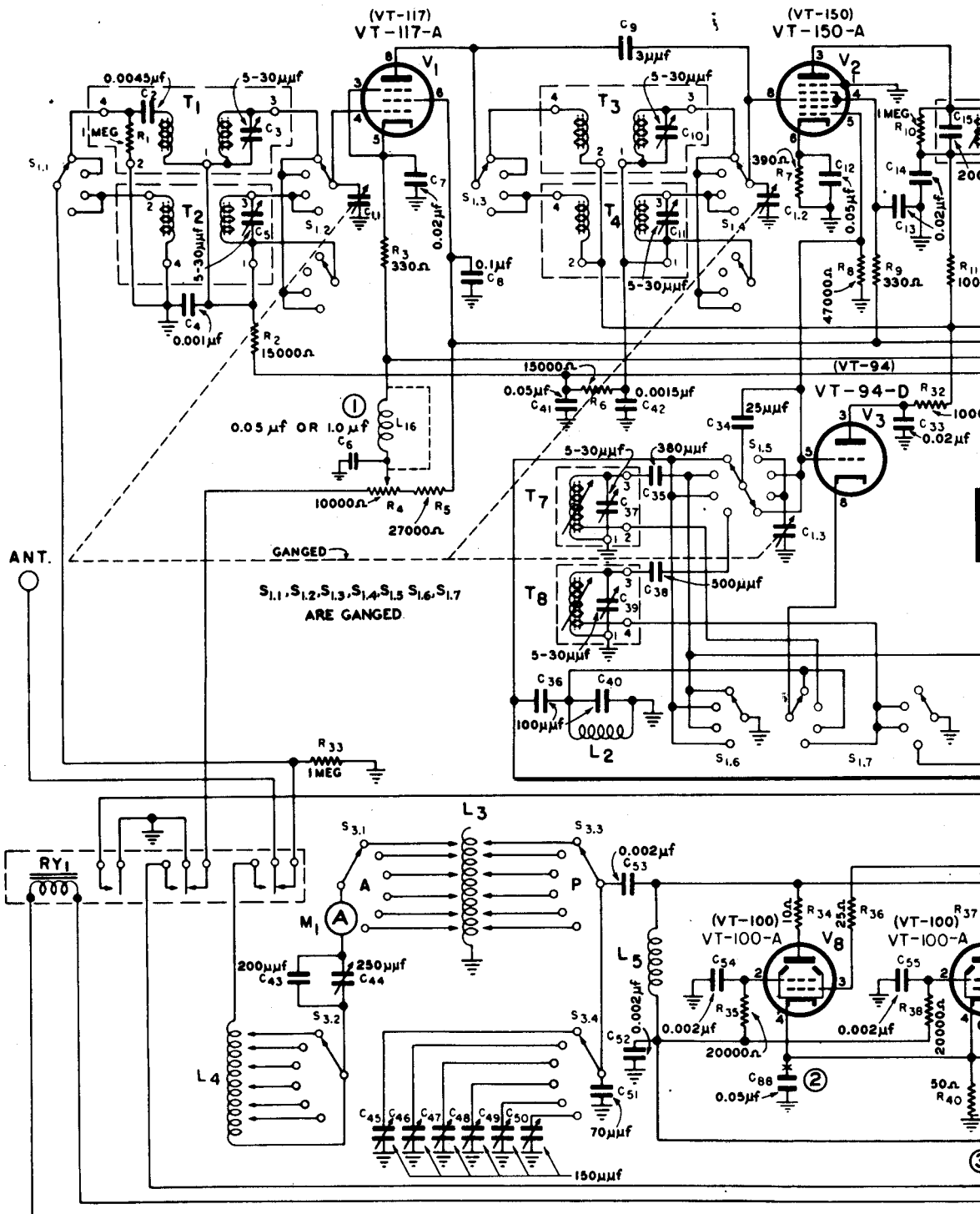


VT-115A  
RMA TYPE  
6L6-G

S<sub>51</sub>, S<sub>52</sub>:  
POSITION 1 - MODULATOR  
PLATE CURRENT.  
POSITION 2 - PA. PLATE  
CURRENT.  
POSITION 3 - PA GRID  
CURRENT.

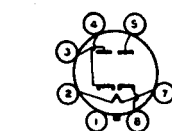


SCHMATIC OF RECEIVER AND T

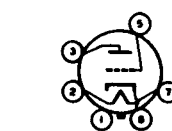


- ① ON BC-669-A, L16 IS NOT USED. DASHED LINE SHOWS THE CONNECTION.
- ② ON BC-669-A, C88 IS NOT USED.
- ③ ON BC-669-A, R40 IS DISCONNECTED FROM GROUND AND CONNECTED TO R45 AS SHOWN BY DASHED LINE.

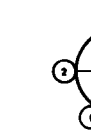
TUBES DESIGNATED IN ( ) ARE USED IN BC-669-A ONLY.



VT-90  
RMA TYPE  
6H6.



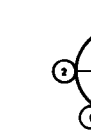
VT-90-A  
RMA TYPE  
6H6-GT



VT-94  
RMA TYPE  
6J5



VT-94-D  
RMA TYPE  
6J5-GT



VT-100  
RMA TYPE  
6H6-GT

