RESTRICTED

SERIAL Nº 3266

PRELIMINARY INSTRUCTION BOOK

FOR

NAVY MODEL RBL-3 RADIO RECEIVING EQUIPMENT

FREQUENCY RANGE **15-600 KILOCYCLES**

MANUFACTURED FOR

U. S. NAVY DEPARTMENT **BUREAU OF SHIPS**

BY

WELLS-GARDNER & CO.
CHICAGO, ILLINOIS

CONTRACT NXss 21446 **DATE OF CONTRACT, JANUARY 11, 1943**

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This document contains information affecting the National Defense of the United States within the meaning of the Espionage ACT (U.S.C. 50:31, 32.) The transmission of this document or the revelation of its contents in any manner to any unauthorized person is prohibited.

This Instruction Book is furnished for the information of commissioned, warranted, enlisted and civilian personnel of the Navy and persons authorized by the Bureau of Ships whose duties involve design, manufacture, instruction, operation, and installation of radio, radar, or underwater sound equipment. The word "Restricted," AS APPLIED to THIS instruction book signifies that it is to be read only by the above personnel and that the contents should not be made known to unauthorized persons not connected with the Navy.

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CAUTION

Since the use of high voltages which are dangerous to human life is necessary to the successful operation of the equipment covered by these instructions, certain reasonable precautionary measures must be carefully observed by the operating personnel during the adjustment and operation of the equipment.

The attention of officers and operating personnel is directed to Bureau of Ships Manual of Engineering Instructions, Chapter 31 (mimeographed form) or subsequent revisions thereof on the subject of 'Radio—Safety Precautions to Be Observed.'

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GUARANTEE

All items used in this equipment, except vacuum tubes, will be guaranteed by the contractor for a period extending one year from the installation date of the equipment, provided that in no case will the guarantee extend longer than two years after the date of acceptance. This guarantee will cover items failing in normal operation and the contractor will replace these at no cost to the Government and with transportation charges prepaid to destination. If the contractor elects to have the defective unit returned to his plant for examination, he will be required to pay the transportation charges.

REPORT OF FAILURE

Report of failure of any part of this equipment, during its service life, shall be made to the Bureau of Ships in accordance with current instructions. The report shall cover all details of the failure and give the date of installation of the equipment. For procedure in reporting failures see Chapter 31 (mimeographed form) of the Manual of Engineering Instructions, or Bureau of Ships Radio and Sound Bulletin Number 7, dated July 1, 1942, or superseding instructions.

PERTINENT DATES

Contract NXss 21446 Date of Contract, January 11, 1943

Serial number of equipment.....

Date of acceptance by the Navy.....

Date of delivery to contract destination.....

Date of completion of installation.....

Date placed in service.....

Blank spaces in this book shall be filled in at time of installation. Operating personnel shall also mark the "date placed in service" on the date plate located below the model nameplate on the equipment, using suitable methods and care to avoid damaging the equipment.

REQUESTS FOR REPLACEMENT MATERIAL

All requests or requisitions for replacement material should include complete descriptive data covering the part desired, in the following form:

1. **Name of part desired.**
2. **Navy Type number (if assigned) including prefix and suffix as applicable.**
3. **Model designation (including suffix) of equipment in which used.**
4. **Navy Type designation (including prefix and suffix where applicable) of major unit in which part is used.**
5. **Symbol designation of part.**
6. **(a) Navy Drawing Number.**
   (b) Manufacturer's Drawing Number.
7. **Rating or other descriptive data.**
8. **Commercial designation.**

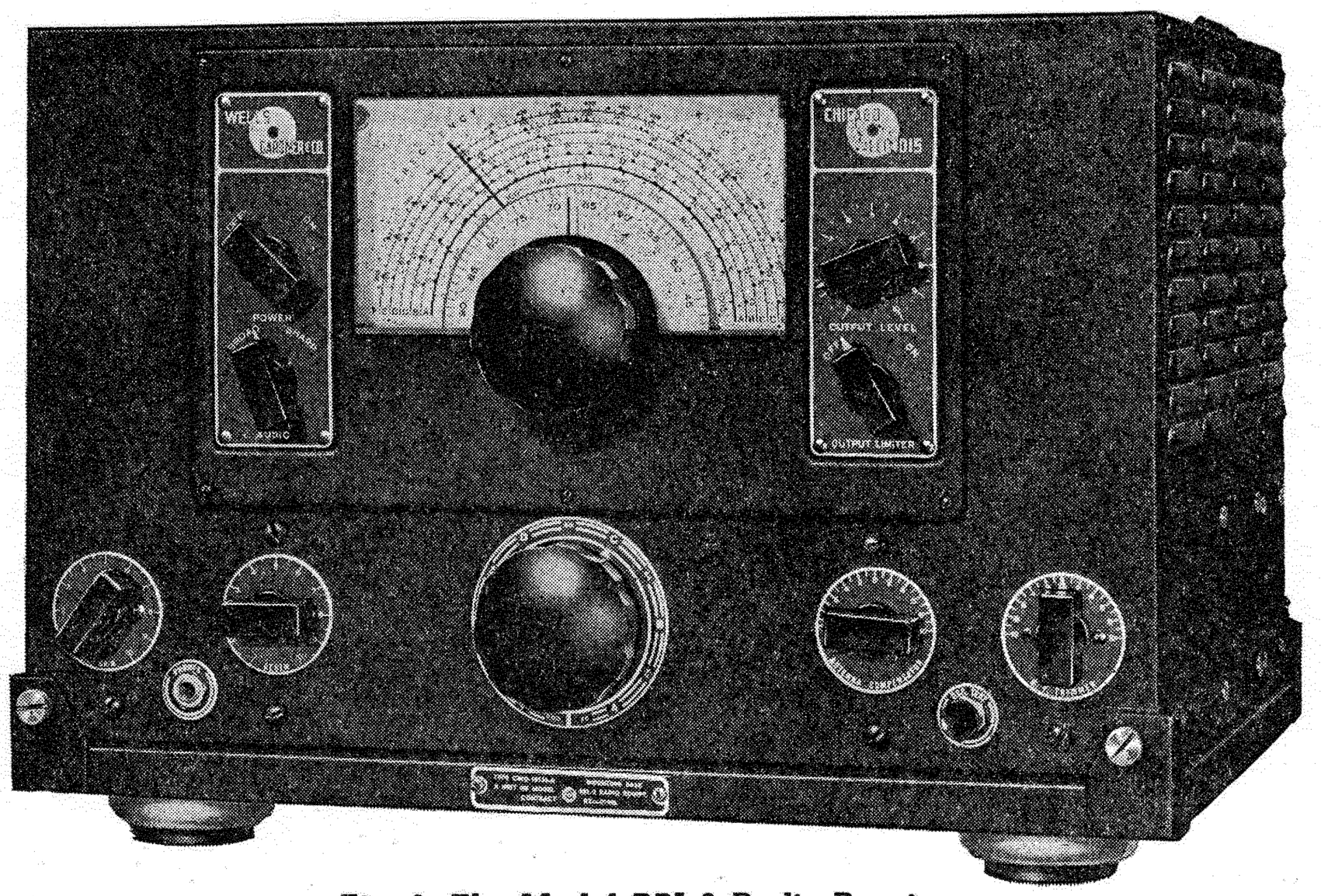


Fig. 1. The Model RBL-3 Radio Receiver

SECTION I
DESCRIPTION

SPECIAL NOTICE

Do Not Attempt to Operate the Model RBL-3 Radio Receiving Equipment Without First Reading the Following:

Power Supply Voltage and Frequency	105-125 Volts, 50-60 Cycles. See Par. 1 General (Page 1).
Connections to Power Supply	See Par. 10a Connections for AC Operation (Page 4) and Par. 10b Connections for Battery Operation (Page 4).
Antenna and Ground Connections	See Par. 12a (2) Antenna and Ground Connections (Page 7).
Antenna Connector Plug Installation	See Par. 12a (2) Antenna and Ground Connections (Page 7).

1 GENERAL

The Model RBL-3 Radio Receiver employs seven tubes in a tuned radio frequency circuit with a regenerative type detector and covers in six bands the frequency range of 15-600 kc.

The receiver is suitable for the reception of either radio telephone (MCW) or radio telegraph (C-W or ICW) signals, and may be used either at Naval Shore Stations or aboard Naval Vessels.

The receiver is designed to operate on either a 115 volt 50-60 cycle power supply, or a battery power supply. The approximate power consumption of the receiver is 45 watts when operating on a 115 volt supply and the B battery drain is approximately 27 milliamperes when operating on a 135 volt B battery power supply.

All controls, as well as an audio output jack for headphones, are located on the front panel. Power, antenna, ground and output connections are made at the rear of the receiver.

2 SHIPPING INFORMATION

The complete RBL-3 Radio Receiving equipment is packed and shipped in a single wooden crate as follows:

Size	28½" x 21½" x 17½" high
Cubic Volume	6.8 cu. ft.
Weight of Receiver with Mounting Base	84 lbs.
Shipping Weight	172 lbs.

Marking

Contract NXss 21446
Model RBL-3
Radio Receiving Equipment
with
Equipment Spare Parts
Serial No.

Lot_____ Item_____ Pty._____

Equip. No._____ of Quan._____

Wt. 172 lbs. Cu. 6.8

3 CIRCUIT DESCRIPTION

a General

The RBL-3 Radio Receiver uses two stages of R-F amplification, a regenerative detector, a stage of audio amplification, an audio limiter stage and an audio output stage. A self contained power supply provides the necessary DC voltages when the receiver is operated from a 115 volt AC power line.

b Frequency Ranges

The receiver covers the frequency range of 15-600 kc in six bands as follows:

Band	Frequency Range
A	15-25 kc
B	25-45 kc
C	45-80 kc
D	80-155 kc
E	155-310 kc
F	310-600 kc

c Antenna Circuit

The antenna circuit is suitable for use with either a single wire or a relatively high impedance unbalanced feed-line antenna. An antenna compensating control on the front panel permits adjusting the receiver to the length of antenna used. A terminal board and jumper strip is provided inside the cabinet near the right rear corner of the receiver for connections to either a short or a long antenna. Static

drain resistors, incorporated within the receiver, protect the antenna series capacitors from overloads.

d Audio Filters

Following the first stage of audio amplification are two audio filters. These filters allow a choice of two band widths, 600 or 3000 cycles at 20 db down with peak response occurring at 750 and 1000 cycles per second respectively.

e Audio Limiter

An audio limiter stage is incorporated in the receiver for the limitation of peak audio voltages and noise pulses when attempting to receive signals through interference. This stage may also be used to provide an automatic volume control action when receiving C-W signals.

f Output Connections

A phone jack is provided on the front panel for connecting headphones to the receiver's output stage. A terminal at the rear of the receiver provides an additional output connection in parallel with the jack on the front panel. The correct total output load impedance is 600 ohms.

g Power Supply

Although primarily intended for operation on a 115 volt 50-60 cycle power supply, provisions have been made for battery operation. For battery operation it is necessary to have a six volt A battery and a 135 volt B battery.

Connections for battery operation are given in Par. 10b, Connections for Battery Operation.

h Tube Complement

The tubes used in the Model RBL-3 Radio Receiver and the circuit in which each is used are are follows:

CIRCUIT	TUBE TYPES
R-F Amplifier	6SK7
Second R-F Amplifier	6SK7
Regenerative Detector	6SK7
First Audio Amplifier	6SG7
Audio Limiter	6H6
Audio Output	6K6GT/G
Rectifier	5U4G

4 CABINET

A steel cabinet with a black wrinkle finish is used to house the Model RBL-3 Radio Receiver. The cabinet is $17\frac{3}{16}$ inches wide, $10\frac{7}{16}$ inches high, and $15\frac{1}{4}$ inches deep. The top of the cabinet is hinged to give access to the tubes for servicing. A removable bottom plate enables the service man to reach the under side of the chassis.

5 DIAL

The main tuning dial is of the fixed scale moving pointer type, calibrated in six frequency bands. At the bottom of the main tuning dial is an additional small rotating dial that is divided into 100 divisions. This dial is of value when tuning in a station accurately. The drive ratio is such that the small dial revolves ten times while the tuning capacitor travels through the tuning range.

6 MOUNTING BASE

The type CWQ-10124-A Mounting Base is a metal framework with four shock absorber feet. Holes in the shock absorbers allow the Mounting Base to be bolted securely to a table or bench.

At each corner of the Mounting Base are upright corner pieces. These corner pieces position the receiver and hold slotted, knurled thumb screws that are used to fasten the receiver to the base.

Fig. 21, Drilling Plan for Mounting Base Installation (Page 50) shows the dimensions for a drilling template that may be made and used whenever a permanent receiver installation is to be made.

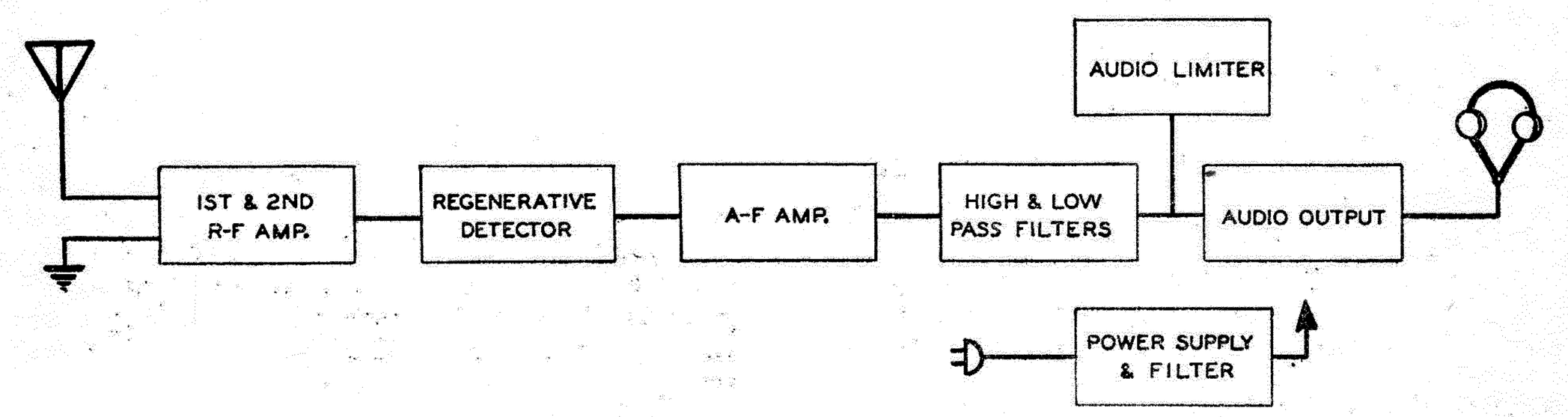


Fig. 2. Block Diagram of Model RBL-3 Radio Receiver

SECTION II
UNPACKING AND OPERATING TEST

7 EQUIPMENT

The Model RBL-3 Radio Receiving Equipment consists of the following:

1 Type CWQ-46161-A Radio Receiver
1 Type CWQ-10124-A Mounting Base
1 Set of Spare Parts and Tools
2 Preliminary Instruction Manuals

8 UNPACKING THE EQUIPMENT

The Model RBL-3 Radio Receiving Equipment is packed in a wooden box with the mounting base, spare parts and instruction manuals.
To unpack the equipment preparatory to installation, proceed as follows:

1. Clip the two metal bands binding the box.
2. Pull out the nails from the top of the box and remove the cover.
3. Remove the two cardboard fillers in the top of the packing box.
4. Tear open heavy waterproof paper.
5. Open the large cardboard box.
6. Remove the two fillers that will be seen in the top of the cardboard box.
7. Remove the one large cardboard filler.
8. Take out the two preliminary instruction manuals.
9. Pull up the handles on the top of the cabinet near each end and lift the receiver from the carton.
10. Remove the strip holding the spare parts box in place.
11. Remove the spare parts box from the packing case.

9 INSPECTION

After the Model RBL-3 Radio Receiver and spare parts have been uncrated and accounted for, check the receiver for broken dial glass, loose knobs, and other physical damage. Fig. 4, Tube Positions, shows the positions of each tube as well as the dial lights. A check should be made to ascertain that each tube and fuse is in the proper position and that the dial lights are correctly inserted. The tubes and dial lights are accessible after opening the hinged lid on the top of the cabinet.

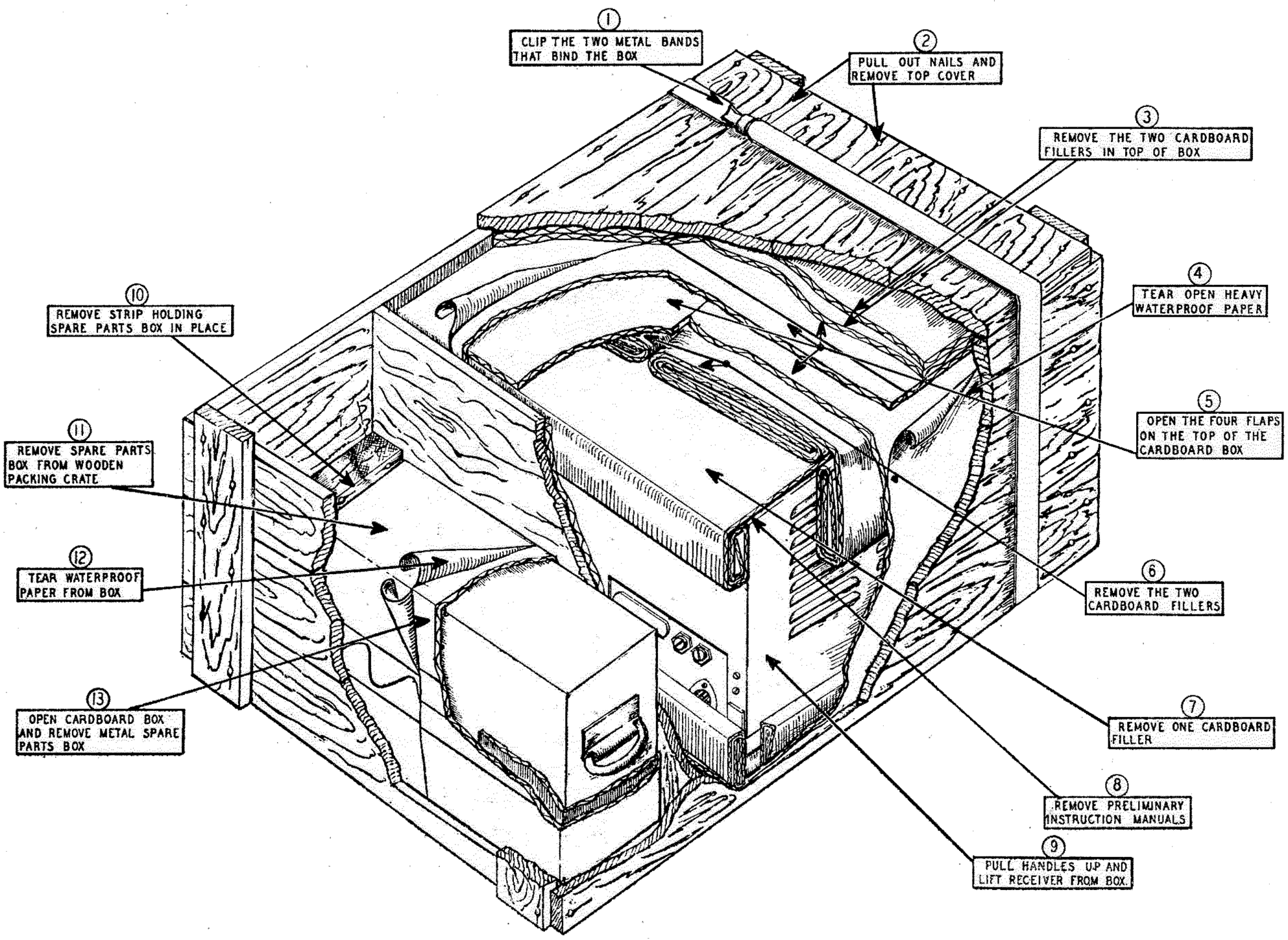


Fig. 3. Unpacking Procedure

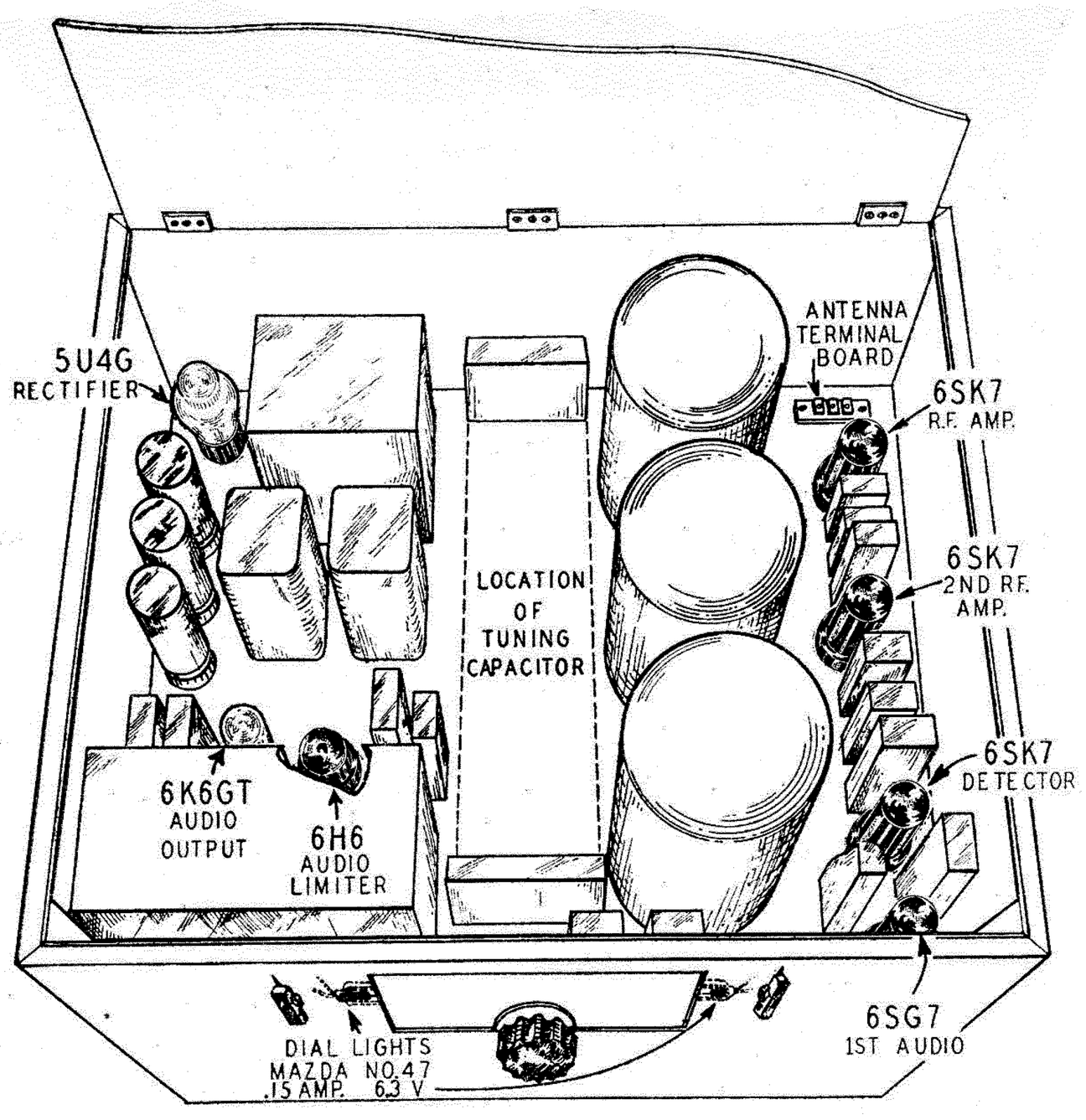


Fig. 4. Tube Positions

10 CONNECTIONS TO POWER SUPPLY

a Connections for AC Operation

The receiver is intended primarily for operation on a power supply of 105-125 volts, 50-60 cycles. Before plugging the receiver into a power supply outlet, make certain that the voltage and frequency available at the outlet is correct for the receiver.

An AC Connector Plug is supplied with the equipment. This plug is to be connected to a two-conductor cable as shown in Fig. 5, AC Connector Plug Connections. Each conductor in the cable should be of a size not smaller than #18 wire.

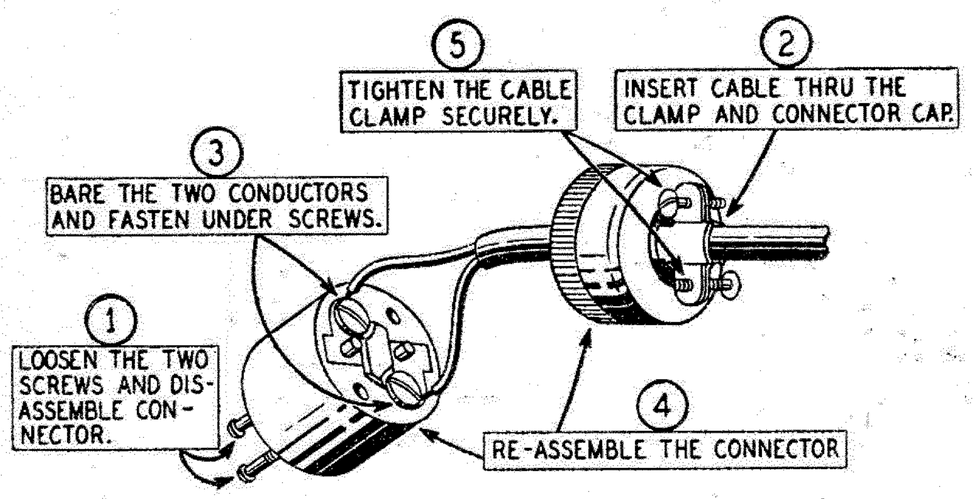


Fig. 5. AC Connector Plug Connections

For AC operation plug the AC Cord Connector Plug into the AC Power Socket P-101 at the rear of the receiver. Make certain that the AC Jumper Plug is inserted in the Battery Cable and Jumper Plug Receptacle, J-105.

Insert the two prong plug on the AC Cord into a 105-125 volt 50-60 cycle power supply outlet.

b Connections for Battery Operation

Connect a seven-prong Connector Plug to a six volt battery and a 135 volt B battery supply as follows:

Terminal No. 4, B —
Terminal No. 5, A +
Terminal No. 6, B +
Terminal No. 7, A —

Terminals, 1, 2 and 3 are to be left open. See Fig. 7, Battery Cable Plug Connections, for a view of the Battery Cable Connector Plug showing the above connections.

To operate the receiver from a battery power supply, remove the AC Jumper Plug from the Battery Cable and Jumper Plug Receptacle, J-105, and insert the Battery Cable Connector Plug.

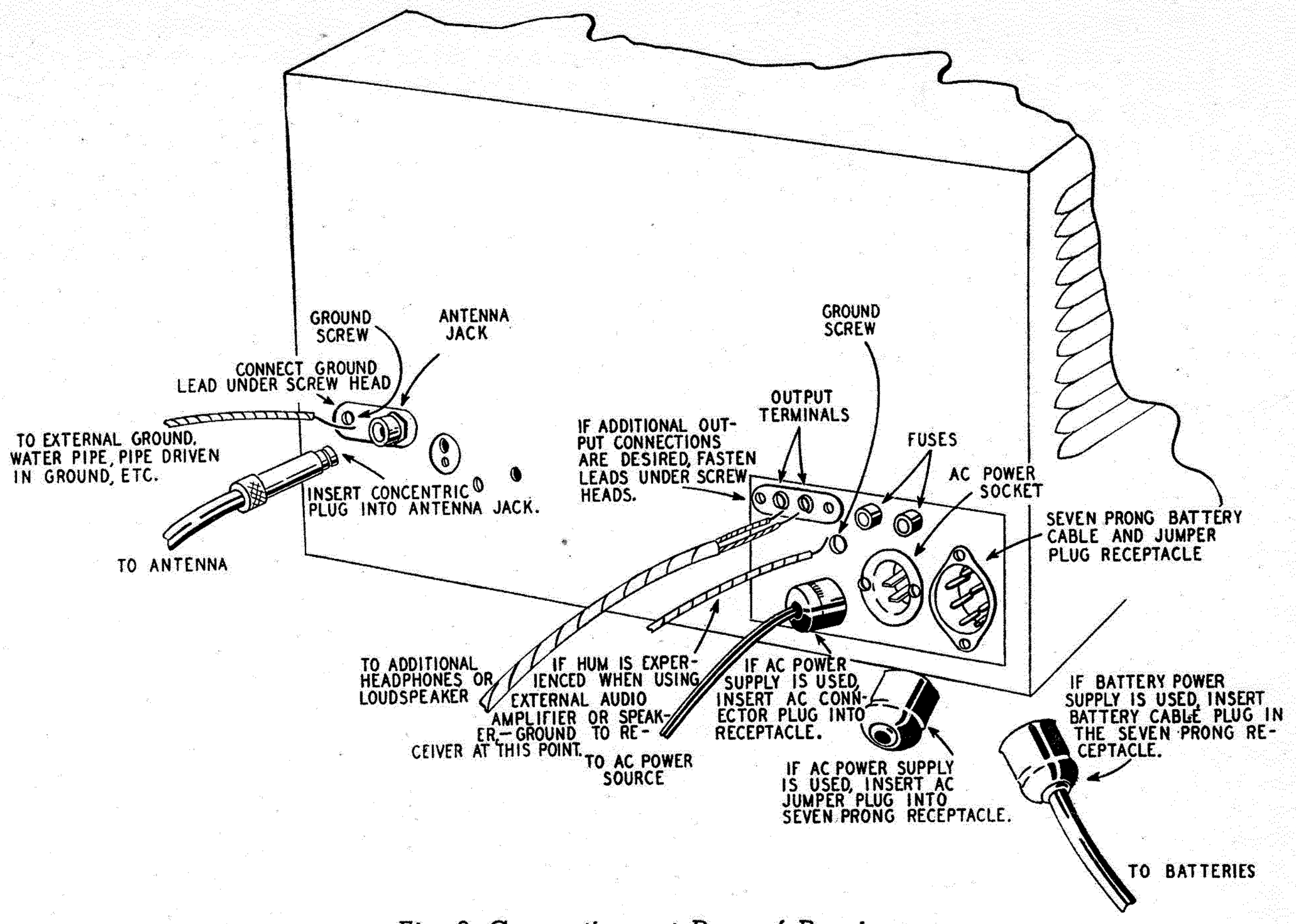


Fig. 6. Connections at Rear of Receiver

If no seven-prong plug is available for the battery cable connection, remove the AC Jumper Plug; pry off the top, remove the jumper leads and rewire as instructed above.
For AC operation it will be necessary to disconnect the Jumper Plug from the battery cable and make the original connections as shown in Fig. 8, AC Jumper Plug Connections.

11 CONTROLS

After the equipment has been inspected, the operator should become familiar with the rereceiver controls. This step should be followed by a preliminary operating test.

a Power

The Power ON-OFF control is located near the upper left corner of the front panel. This control operates two, two-position switches that turn the receiver on or off. Although the receiver is primarily intended for operation on an AC supply, the function of the power switch will be the same when the receiver is operated from a battery power supply.

b Audio

This control selects the audio band width passed by the audio filters in the receiver. When the control is in the BROAD position, the audio band width will be approximately 3000 cycles at 20 db down with peak response at 1000 cycles. A band width of 600 cycles at 20 db down may be obtained when the control is turned to the SHARP position. In this position, peak response occurs at approximately 750 cycles per second.

c Output Limiter

When this control is turned to the ON position, all peak audio voltages may be limited to a desired level by means of the Output Level control.

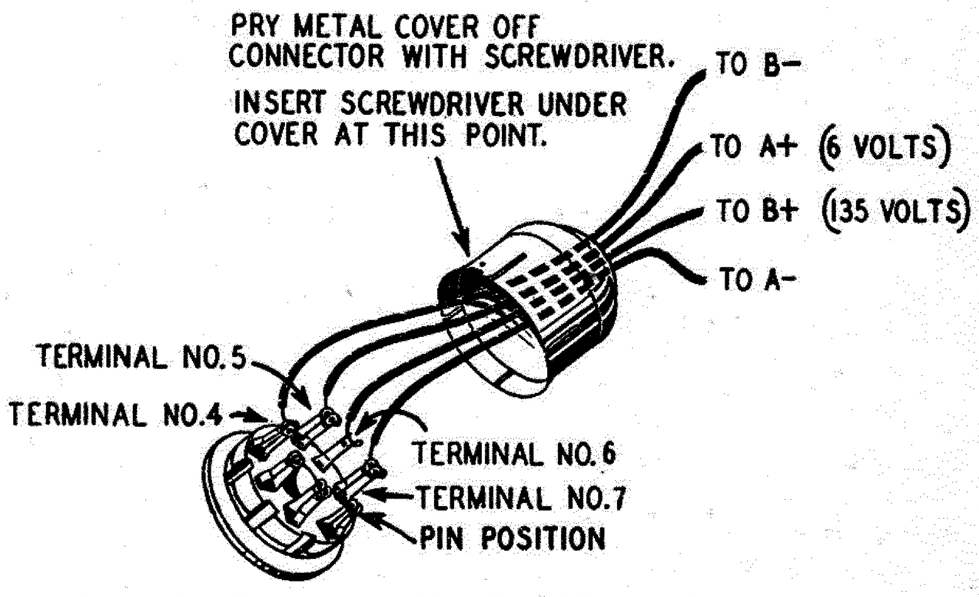


Fig. 7. Battery Cable Plug Connections

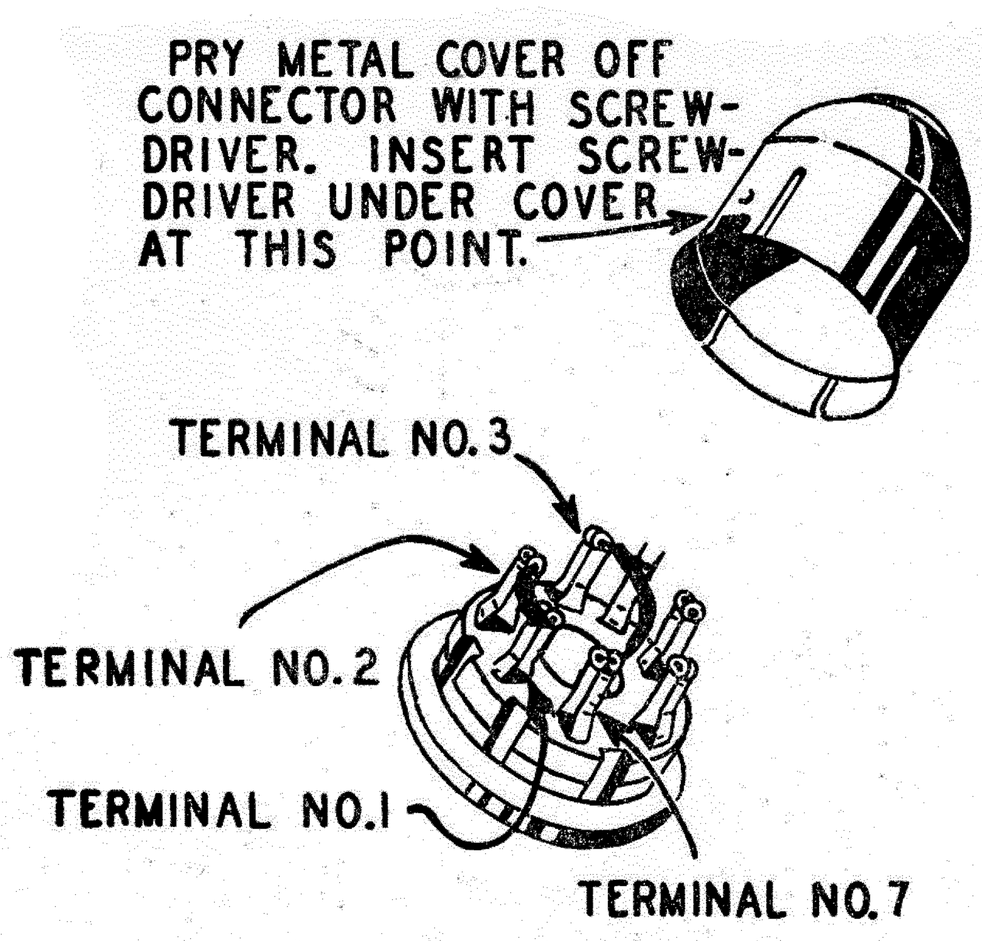


Fig. 8. AC Jumper Plug Connections

d Output Level

When the Output Limiter control is turned to ON, the Output Level control may be adjusted to limit the peak voltages and noise pulses to a level that will facilitate reception of the desired signals.

Turning the control counter-clockwise increases the limiter action. For C-W reception an automatic volume control action may be obtained by advancing the Gain control and turning the Output Level control to a position that will cause the peaks of the desired signals to be cut off slightly when the signal has faded to the lowest usable level.

e Gain

The setting of the Gain control determines the amplification of the first and second R-F stages and the sensitivity of the receiver.

Advancing the control clockwise increases the R-F amplification.

f Regen

The amount of regeneration present in the detector stage is controlled with this knob.

Advancing the control clockwise increases the regeneration. When the control is advanced approximately ⅓ of its total rotation, the detector stage will oscillate and produce a heterodyne signal suitable for the reception of C-W signals.

g Antenna Compensator

This control is a manually operated trimmer capacitor used to adjust the first R-F stage to maximum signal strength after the desired signal is tuned in.

h R-F Trimmer

This control is a manually operated trimmer capacitor used to adjust the second R-F stage to maximum signal strength after the station has been tuned in.

i Osc. Test

The Osc. Test button is for use at times when no signal is being received, in order to deter-

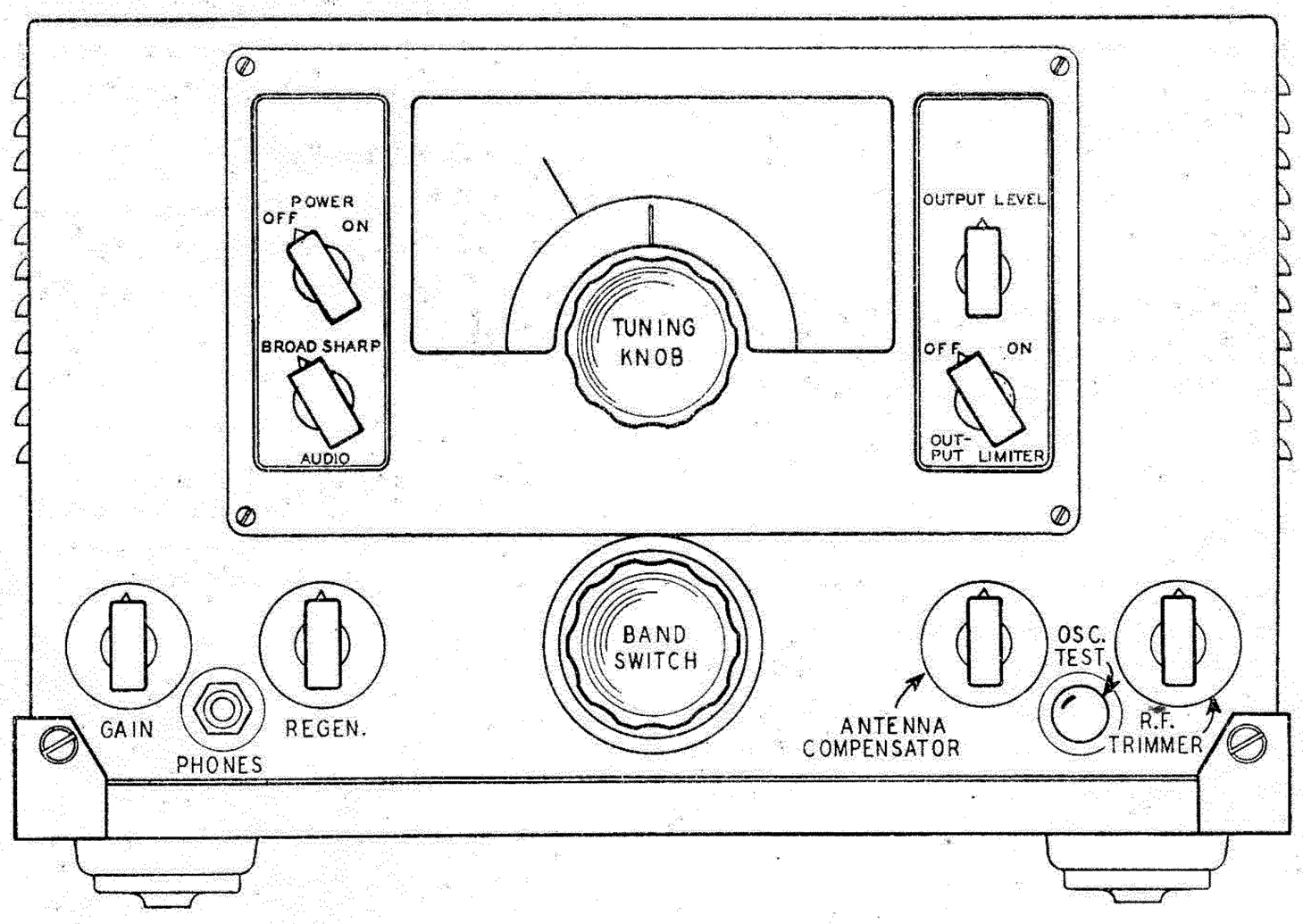


Fig. 9. Front Panel View

mine whether or not the detector is oscillating.

The detector is oscillating if a click is heard in the headphones when the button is depressed and a second click heard as the button is released.

j Tuning Knob

The tuning knob is located at the center of the front panel directly below the dial. Reception is accomplished by turning this knob until the receiver is tuned to the desired signal.

k Band Switch

The Band Switch control is in the center of the lower portion of the front panel. The receiver may be adjusted for reception in any of the six frequency bands by turning this knob until the detent mechanism is felt to click into position as the pointer on the control indicates the letter identifying the desired frequency band.

12 PRELIMINARY OPERATING TEST

A preliminary operating test may be made at the time the equipment is inspected in order to determine if the receiver is in good operating condition.

a Electrical Connections

(1) POWER CONNECTIONS

Connections for AC or battery operation are to be made as instructed in Par. 10, Connections To Power Supply.

(2) ANTENNA AND GROUND CONNECTIONS

At the rear of the receiver is the antenna jack for the antenna connection and a flat head screw for the ground connection.

A ground wire need not be connected under the screw head if a concentric cable with grounded shield is used.

A Concentric Plug connector is supplied with the receiving equipment. This Connector is to be attached to the Antenna Lead-in Cable as shown in Fig. 10, Concentric Plug Connections.

Inside the cabinet near the right rear corner of the chassis (as viewed from the front of the receiver) is a terminal board and jumper strip. The jumper strip is to be connected between the center and right terminal when the receiver is to be used with a long antenna and between the center and left terminal when a short antenna is used.

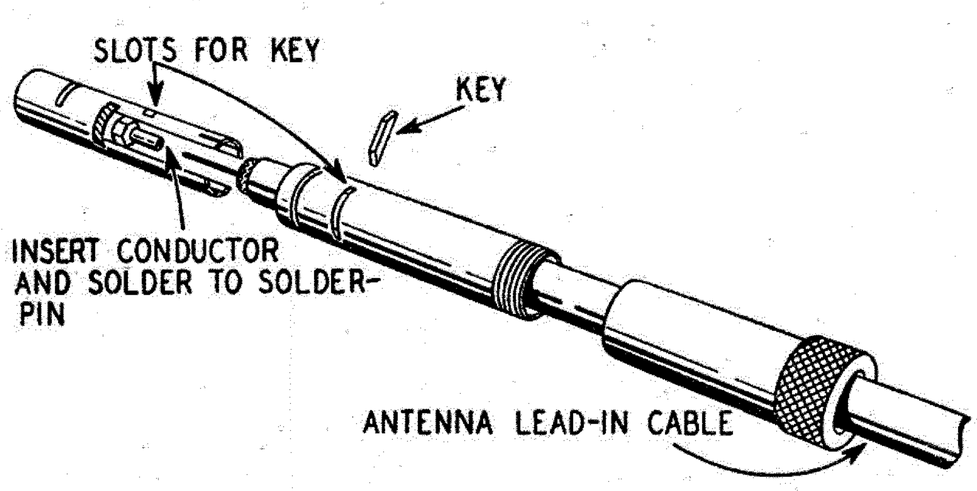


Fig. 10. Concentric Plug Connections

(3) OUTPUT CONNECTIONS

If headphones are to be used for the preliminary operating test, they may be inserted into the phone jack on the front panel. An amplifier or additional sets of headphones may be connected to the output terminals at the rear of the receiver.

The correct inpedance for the total output load is 600 ohms.

b Test Frequencies

An operating test should be made on each of the six frequency ranges. For this purpose both unmodulated and modulated signals should be used. Test signals may be derived from a signal generator or some station signal may be used for the tests.

c Test Procedure

Use an unmodulated test signal for the operating test as follows:

(1) Turn the receiver on by turning the Power control to the ON position.

(2) Turn the band switch to the band in which the test signals are transmitted.

(3) Advance the Gain control to a fairly high level (in the absence of the signal this may be judged by the loudness of the background noise).

(4) Turn the Audio control to the BROAD position.

(5) Turn the Output Limiter control to the OFF position.

(6) Advance the Regen control to a position where oscillation takes place (about No. 4 on the Regen dial or slightly beyond).

If the receiver is tuned near the test signal frequency, a beat note will be heard if the detector is oscillating.

If the receiver is not tuned to the test signal frequency, use the Osc. Test button to determine if the detector is oscillating. (A click will be heard as the Osc. Test button is depressed if the detector stage is oscillating.)

(7) Tune receiver accurately to the test frequency. As the receiver is tuned across a station, a beat note will be heard. This beat note will first be heard as a high pitched note and will gradually drop to zero beat as the receiver is tuned closer to the station.

When the receiver is tuned exactly to the station frequency, a zero beat condition will exist. As the receiver is tuned away

from the station, either above or below the signal frequency, the beat note will start at a low pitch and gradually increase to a higher frequency.

(8) Tune the receiver to the high frequency side of the zero beat point. (A beat note will be heard if the receiver is not tuned too far from the station frequency.)

(9) Adjust the Antenna Compensator and R-F Trimmer for maximum output.

(10) If the frequency of the beat note is changed when the Antenna Compensator and R-F Trimmer are adjusted, re-tune the receiver with the tuning knob in order to obtain the original beat frequency.

(11) Turn the Audio control to the SHARP position. The receiver will now tune more critically and the beat note will cut off at 900 cycles per second.

A slight retuning of the receiver may be necessary when the Audio control is turned to the SHARP position.

(12) Turn the Output Limiter control to ON.

(13) Adjust the Output Level control. As the Output Level control is turned in a clockwise direction, the level of the signal peaks will be increased in proportion to the setting of the control. (This action will be best seen if the receiver is detuned from the test frequency and the Output Level control used to control the level of noise peaks.)

(14) Turn signal generator modulation on or select a station transmitting a modulated carrier wave.

(15) Turn the Audio control to the BROAD position.

(16) Advance the Regen control to a position just short of the point where oscillation takes place.

(17) Use the Osc. Test button to determine if the detector stage is oscillating, (if oscillating, a click will be heard in the headphones as the button is depressed and again as the button is released). If the detector stage is oscillating, retard the Regen control to a point just short of where oscillation takes place.

(18) Tune the receiver with the tuning knob to the approximate frequency (as indicated on the dial) of the test signal. Rotate the Tuning control slowly back and forth until the position is found at which the signal comes in with maximum volume.

(19) Adjust the Gain control to a suitable level.

(20) Adjust the Antenna Compensator for maximum volume.

(21) Adjust the R-F Trimmer for maximum volume. (Note: When the Antenna Capacitor and R-F Trimmer are adjusted for maximum volume, it may be necessary to decrease the setting of the Gain control.)

(22) Turn the Audio control to the SHARP position. Re-tune the Receiver controls to a point where best reception is obtained. (Note: It will be found that the receiver tunes much more critically when the Audio control is turned to the SHARP position.)

(23) Repeat steps one through ten on each frequency band.

SECTION III
INSTALLATION AND OPERATION

13 RECEIVER LOCATION

The Model RBL-3 Radio Receiver is to be fastened to the type CWQ-10124-A Mounting Base at the time of installation. The Mounting Base may be mounted on any flat surface that is near the antenna lead-in and power supply outlet. If a permanent or secure mounting is desired, the Mounting Base may be bolted to the table or bench with four 3/8" dia. bolts. The Mounting Base may be installed from the dimensions given in Fig. 21, Drilling Plan for Mounting Base Installation.

Sufficient clearance must be allowed between the rear of the receiver and the wall to allow for the Concentric Plug and the curvature of the Antenna Lead-in Cable. The amount of space to be allowed will depend upon the type of Antenna Lead-in Cable used.

The receiver is to be placed on the Mounting Base and then fastened securely by means of the four slotted thumbscrews near the corners of the Mounting Base.

14 Electrical Connections

a Antenna and Ground

Connect the antenna lead-in to the antenna jack and connect the jumper on the antenna terminal board to the proper terminal.

In order to determine the correct terminal to use with a particular antenna, proceed as follows: Connect the antenna to the antenna jack and connect the jumper on the antenna terminal board to either terminal. Tune in a station as instructed in Par. 12c, Test Procedure. Adjust the Antenna Compensator for maximum signal strength.

A point should be found where a definite increase in signal strength will be noted. Repeat this procedure on each frequency band. Should it be impossible to find a point of maximum signal strength on all bands, connect the Jumper on the antenna terminal board to the other terminal and repeat the check. Use the terminal on the antenna terminal board that allows the Antenna Compensator to tune the 1st R-F stage to resonance on all bands.

Connect the receiver to a good ground such as a cold water pipe or a pipe driven into the ground.

b Power Connections

The receiver may be operated from either a 105-125 volt 50-60 cycle AC supply, or from

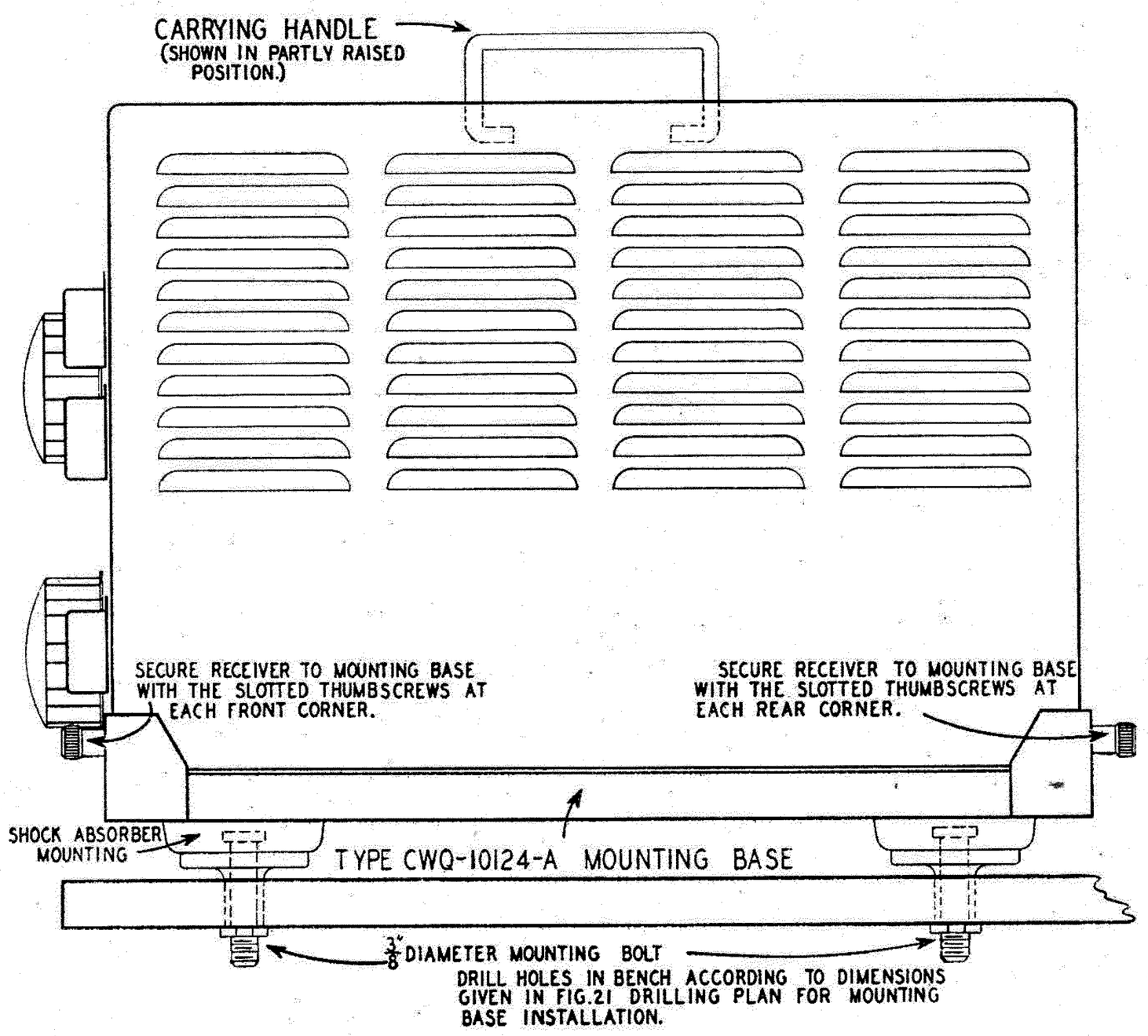


Fig. 11. Mounting the Model RBL-3 Radio Receiver

a battery power supply. Information concerning the proper connections at the receiver for either type power supply is given in Par. 10, Connections To Power Supply.

Do not connect the receiver to a power supply outlet unless certain that the voltage and frequency available are correct for the operation of the receiver.

15 INSTALLATION INSPECTION

After the completion of the receiver and antenna installation, a thorough check of the installation should be made in order to insure the proper and secure fastening of the receiver and electrical connections.

16 OPERATION

a C-W Reception

The procedure for operating the Model RBL-3 Radio Receiver is similar to that described for the operating test in Par. 12, Preliminary Operating Test.

To receive C-W signals turn the Power control to ON. Turn the Audio switch to the BROAD position. Turn the Band switch to the proper frequency range. Advance the Gain control to a suitable level. This may be determined by the loudness of the background noise. Set the Regen control to a point where the detector will oscillate. (In the absence of a signal, the Osc. Test button may be used to determine if the detector stage is oscillating. A click will be heard in the headphones when the Osc. Test button is depressed and released if the detector is oscillating.)

Set the Antenna Compensator and R-F Trimmer for maximum background noise. Tune the desired station in by means of the tuning knob.

As the receiver is tuned across a station with the detector stage oscillating, a beat note will be heard both above and below the station frequency. This beat note will first be heard as a high pitched note and will gradually drop to zero beat as the receiver is tuned closer to the station.

Tune the receiver to the point of maximum signal strength at the high frequency side of the station frequency. Adjust the Antenna Compensator and R-F Trimmer for maximum signal strength. If the beat note frequency is changed, readjust the Tuning, Antenna Compensator and R-F Trimmer controls.

If sharp tuning is necessary to cut thru interference, the Audio control may be turned to the SHARP position. The receiver will now tune more sharply and may have to be retuned to the signal.

The Antenna Compensator and R-F Trimmer controls should be readjusted whenever the position of the Tuning control is changed.

If objectionable noise interference is encountered while attempting to receive transmissions, the Output Limiter control may be turned to the ON position and the level of the noise peaks may be lowered by turning the Output Level control counter-clockwise until the interfering noise is lowered to a level that will permit reception.

An Automatic Volume control action may be obtained by advancing the Gain control and adjusting the Output Level control until the peaks of the Audio Signals are cut off slightly when the signal has faded to its lowest useable level. This will result in a slight decrease in the quality of the received signal.

b MCW Reception

To receive MCW Signals set the controls as follows: Turn the Audio control to the BROAD position and turn the band switch to the frequency range in which the signals are transmitted. Advance the Gain control to a suitable position as determined by the background noise. Set the Regen control to a point just short of where oscillation starts (this point may be determined by the use of the Osc. Test button; see Par. 11-i). Adjust both the Antenna Compensator and the R-F Trimmer for maximum background noise. The receiver may now be tuned to the frequency of the transmitting station with the tuning knob. Adjust the Antenna Compensator and R-F Trimmer for maximum signal strength.

Normally, the Output Limiter control will be left in the OFF position; however, if undesirable noise interference is encountered, this control may be turned on and the Output Level control used to suppress the noise peaks.

The Output Limiter control cannot be used to provide an AVC action for voice reception, as excessive distortion will result.

SECTION IV
MAINTENANCE

NOTE: Service, either electrical or mechanical, should be attempted only by qualified personnel authorized for such work.

Operation of this equipment involves the use of high voltages. Operating personnel must at all times observe all safety regulations.

Always disconnect equipment from power supply before changing tubes or attempting service.

17 PERIODIC INSPECTIONS

To insure the proper operation of the equipment, periodic inspections should be made as follows:

Daily; Check operation. Turn on the receiver and tune in a station on each frequency band. Weekly; Repeat above. Check the antenna and power connections.

Tube Testing: The tubes should be removed for checking only when the operation of the receiver causes doubt concerning their condition. When replacing a tube that has been removed, be certain that it is reinserted in the socket in which it was originally. This will prevent possible mis-alignment and poor operation of the receiver.

18 FIELD TROUBLE SHOOTING

Trouble-free reception resulting from the proper installation and operation of the Model RBL-3 Radio Receiver will usually be insured by the periodic inspections detailed in Par. 17, Periodic Inspections. Troubles developing suddenly during operation are usually of a minor nature that may be corrected as follows:

a Set Dead—Dial and Panel Lights Out

(1) Check the power cord connections at the receiver and outlet box.

(2) Check the fuses located at the rear of the receiver cabinet.

b Set Dead—Dial Lights On

(1) Check for burned out tubes.

Live glass tubes will glow faintly and live metal tubes will be warm when touched. If in doubt concerning the condition of a tube, replace it with a known good tube and note any change in the receiver's operation.

(2) Check headphone connections. Make certain that the headphone plug is properly inserted and that the leads in the flexible cord are unbroken.

The headphone leads may be checked for continuity by momentarily touching the cord tips across a 1½ volt flashlight battery while listening for a click in the headphones.

19 GENERAL TROUBLE LOCATION

When servicing a receiver, as a rule the first step should be a careful check for defective tubes. To do this, turn on the receiver and replace the tubes one at a time with known good tubes. Be certain that all good tubes are returned to the sockets that they originally occupied.

If no defective tubes are found, visual inspection of the parts and connections should follow.

Resistors or other parts with charred or discolored surfaces indicate a part that has been overheated due to excessive current passing through it.

This condition is often caused by shorted bypass or filter capacitors. All associated capacitors should be checked for shorts or low resistance.

Open filter or bypass capacitors will often cause oscillation, a loss of sensitivity or other troubles. Suspected capacitors may be quickly checked by shunting them temporarily with a known good capacitor of the same size.

Unsoldered terminals, loose wires or grounds caused by hidden solder may also be found and quickly corrected.

Should such an inspection disclose no faults, the next step should be to tap the various parts, pull the wires at the connections, jar the chassis, etc. This procedure will often result in crackles, squeals, fading or distortion that will show in which circuit or part the trouble lies. If nothing is found by this procedure, voltage and current measurements followed by resistance and continuity measurements should be made as described in the following paragraphs:

20 VOLTAGE MEASUREMENTS

a General

Table A, Socket Voltages, shows voltage measurements made from the chassis ground to the more important tube socket terminals. These measurements are made with a 1000 ohm per volt meter and are readings that will be obtained when using a similar meter on receivers in good condition.

b Procedure

(1) Remove the bottom plate from the cabinet. Supply power to the Radio Receiver and turn the Radio Receiver on. Place the controls in the positions indicated in Table A, Socket Voltages.

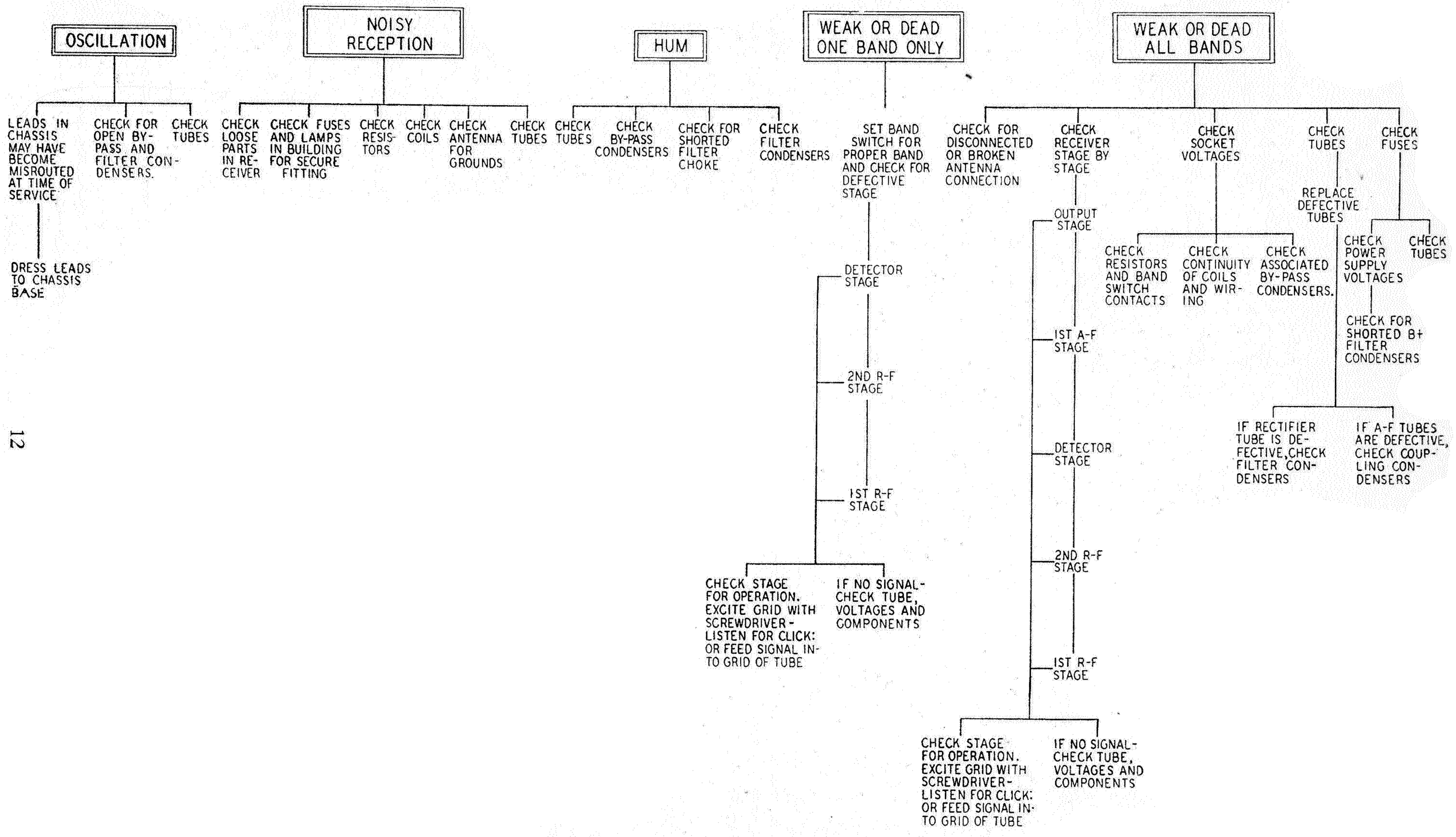


Fig. 12. Trouble Location Chart

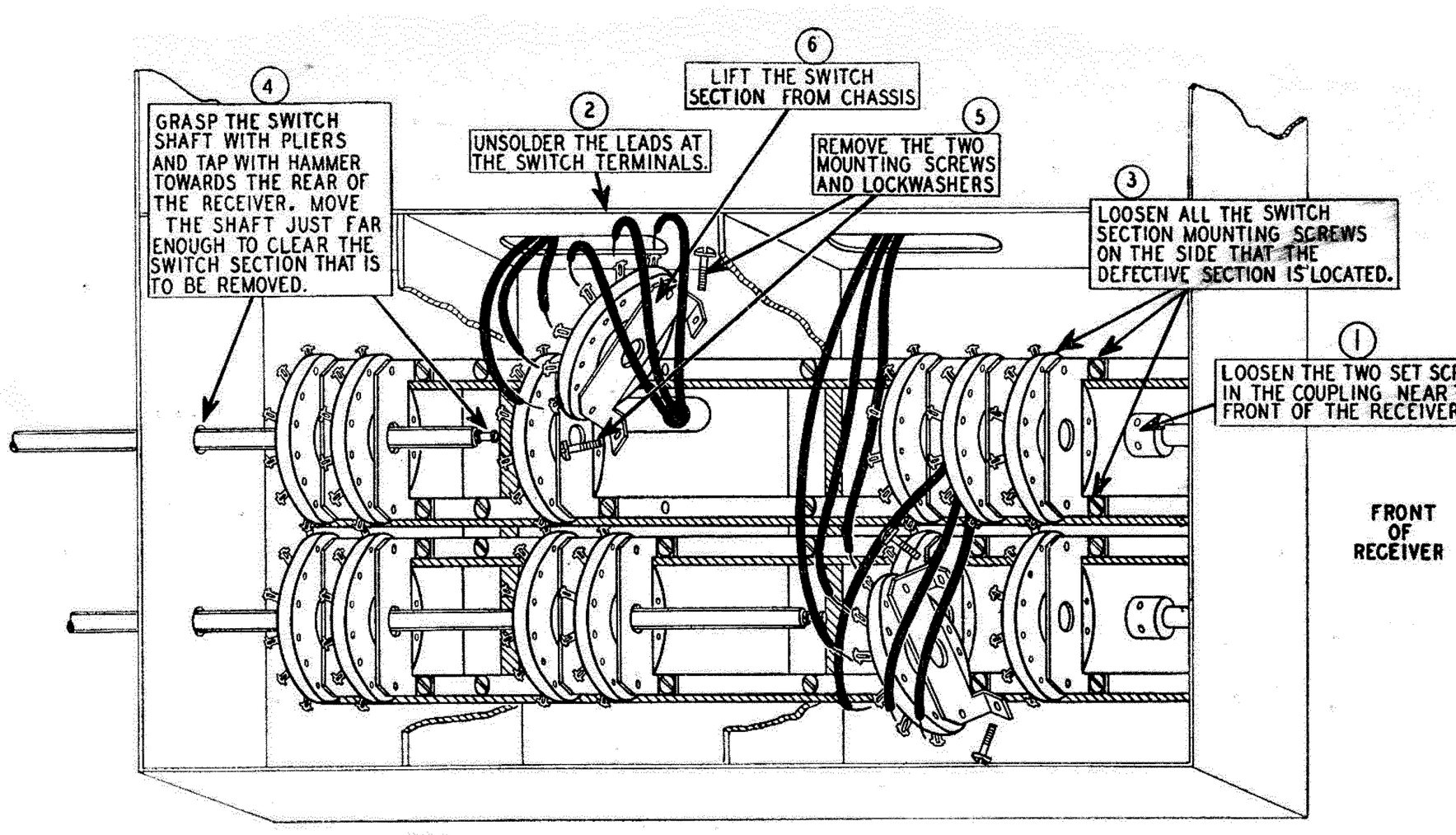


Fig. 13. Removal of Band Switch Section

(2) Use the voltmeter ranges indicated in the table and make the desired readings between the terminals shown on the voltage table and ground.

21 RESISTANCE AND CONTINUITY MEASUREMENTS

a General

In Table B, Coil Resistances, are shown the resistance readings of the coils and transformers. These measurements are to be made with test prods at the coil terminals or other points shown in the table. Whenever possible, use an ohmmeter range that will allow the readings to be made on the 0 to 50 portion of the ohmmeter scale.

b Procedure

(1) Remove the bottom plate from the cabinet and disconnect the power cord from the power supply.

(2) Use the proper ohmmeter scale and adjust the meter to zero ohms. Proceed to make the desired readings.

22 REPLACEMENT OF A BAND SWITCH SECTION

A defective section of the band switch may be changed without changing the entire band switch assembly. Fig 13, Removal of Band Switch Section, shows the procedure to follow for such a replacement. Care must be taken, when rewiring the replaced switch section, that the wires are correctly connected to the terminal lugs.

When replacing the switch section, do not tighten the mounting screws securely until after the switch shaft has been reconnected and the band switch operated several times. This action will position the switch correctly and prevent binding during operation.

23 ALIGNMENT

a General

Correct alignment is extremely important for the proper operation of the RBL-3 Receiver; however, re-alignment should not be attempted unless it is certain that the receiver is misaligned and then, only after all other possible causes of faulty operation have been fully investigated.

The correct step-by-step alignment procedure is given here and should be followed whenever aligning the receiver. Fig. 17, Trimmer Positions, shows the position of each Trimmer Capacitor.

b Preliminary Adjustments

Before beginning the alignment of the Model RBL-3 Radio Receiver, the position of the dial pointer should be checked with reference to the tuning capacitor.

The dial pointer should indicate zero on the 0-1000 scale of the main dial when the corners of the stator and rotor plates of the tuning

capacitor (the corner farthest from the shaft) line up with the plates in the meshed position. If the pointer is incorrectly positioned, the knobs, cover plate and dial glass may be re-

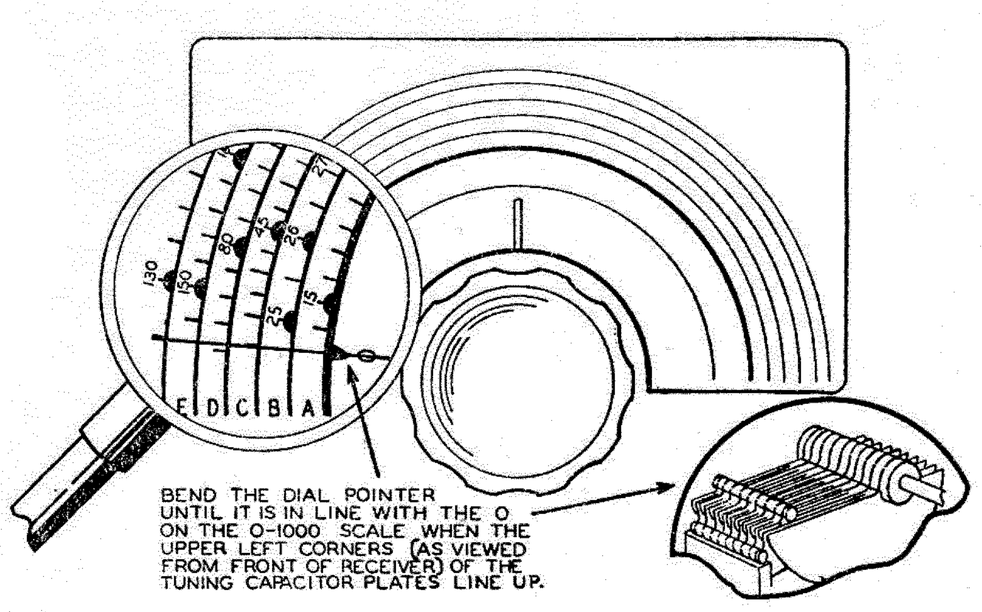


Fig. 14. Dial Pointer Adjustment

moved and the pointer bent slightly in order to correct the calibration.

c Control Positions

When aligning the receiver, the controls on the front panel should be positioned as follows:

CONTROLS	POSITION
Power	On
Audio	Broad
Output Limiter	Off
Gain	8 to 9 on Dial Scale
Regen	See Step-by-Step Procedure Below
Antenna Compensator	See Step-by-Step Procedure Below
R-F Trimmer	See Step-by-Step Procedure Below
Band Switch	See Step-by-Step Procedure Below
Tuning Knob	See Step-by-Step Procedure Below

d Alignment for D, E and F Bands

1. Adjust the signal generator to 600 kc and connect to the antenna input terminal on the receiver through a standard RMA antenna. (See Fig. 16, Schematic Diagram Standard RMA Dummy Antenna.) Feed a signal of 1 to 5 Microvolts into the receiver.
2. Connect an output meter to the output terminals at the rear of the receiver.

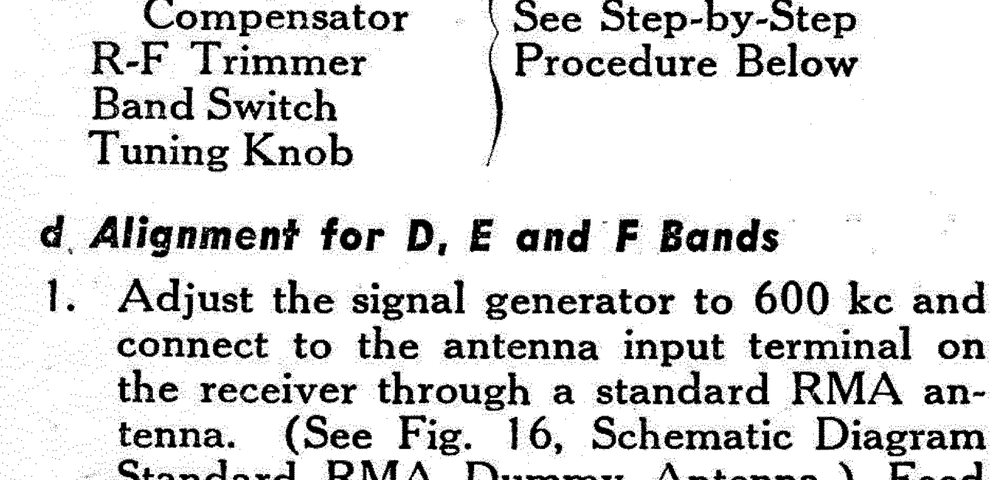


Fig. 15. Block Diagram, Equipment and Connections for Alignment

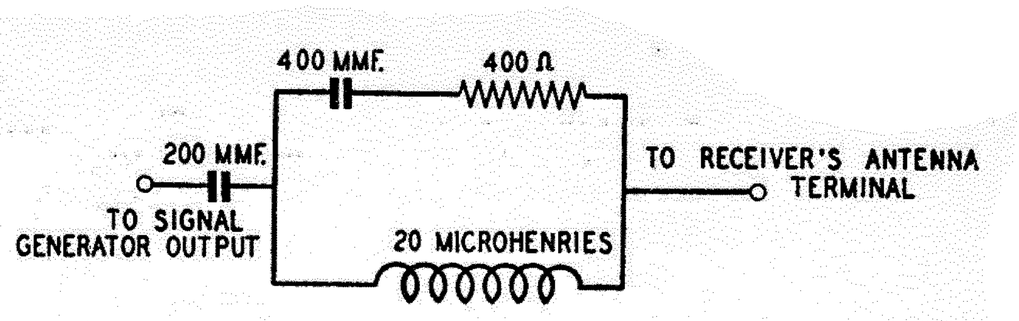


Fig. 16. Schematic Diagram, Standard RMA Dummy Antenna

3. Adjust the receiver band switch to the F Band.
4. Make certain the detector stage is oscillating. This may be done by means of the Osc. Test button on the front panel (See Par. 11-i, Osc. Test).
5. Tune the receiver to the point of peak response on the high frequency side of the alignment frequency.
   Set the Antenna Compensator and R-F Trimmer controls for maximum signal.
6. Tune the receiver across 600 kc on the dial. When the receiver is tuned near 600 kc, a beat note should be heard either side of the 600 kc position. At 600 kc a zero beat condition should exist. The receiver will be correctly aligned when the two points of peak response, above and below the 600 kc position, are an equal number of dial divisions either side of the 600 kc dial position. This may be measured on the small rotating dial at the bottom of the large dial.

   If the two points of peak response are not an equal number of dial divisions above and below 600 kc, tune in the point of peak response on the high frequency side of 600 kc. Adjust the trimmer C-106 until the high frequency point of peak response is such that both points of peak response are an equal distance from the 600 kc dial position.
7. Adjust the R-F Trimmer control to zero. Set the tuning dial at the point of peak response on the high frequency side of the 600 kc position. Adjust the trimmer C-102 for maximum output.

e Alignment for C Band

1. Adjust the signal generator to 80 kc.
2. Adjust the receiver band switch to the C Band.
3. Make certain that the detector stage is oscillating. This may be done by means of the Osc. Test button on the front panel (See Par. 11-i, Osc. Test).
4. Tune the receiver to the point of peak response on the high frequency side of the alignment frequency. Set the Antenna Compensator and R-F Trimmer controls for maximum signal.

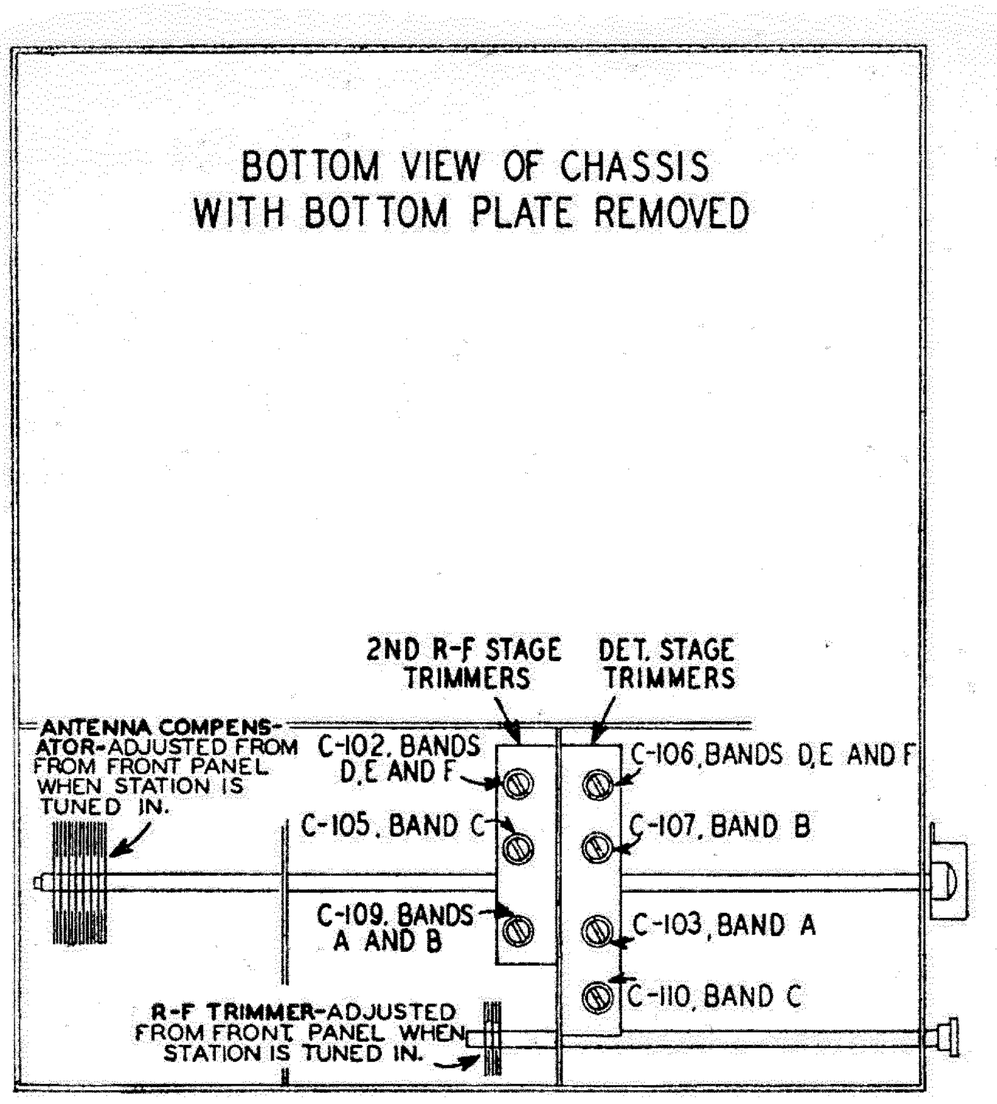


Fig. 17. Trimmer Positions

5. Tune the receiver across 80 kc on the dial. Re-tune the receiver to the point of peak response on the high frequency side of the 80 kc position. Adjust the trimmer C-110 until the two points of peak response (above and below the 80 kc position) are an equal number of dial divisions either side of the 80 kc dial position. See Par. 23d(6) for exact procedure.
6. Adjust the R-F Trimmer control to zero. Set the tuning dial at the point of peak response on the high frequency side of the 80 kc position. Adjust the trimmer C-105 for maximum output.

f Alignment for B Band

1. Adjust the signal generator to 43 kc.
2. Adjust the receiver band switch to the B Band.
3. Make certain that the detector stage is oscillating. This may be done by means of the Osc. Test button on the front panel (See Par. 11-i, Osc. Test).
4. Tune the receiver to the point of peak response on the high frequency side of the alignment frequency. Set the Antenna Compensator and R-F Trimmer controls for maximum signal.
5. Tune the receiver across 43 kc on the receiver dial. Re-tune the receiver to the point of peak response on the high frequency side of the 43 kc position. Adjust the trimmer C-107 until the two points of peak response (above and below the 43 kc position) are an equal number of dial divisions either side of the 43 kc dial position. See Par. 23d(6) for exact procedure.
6. Adjust the R-F Trimmer control to zero. Set the tuning dial at the point of peak response on the high frequency side of the 43 kc position. Adjust the trimmer C-109 for maximum output.

g Alignment for A Band

1. Adjust the signal generator to 25 kc.
2. Adjust the receiver band switch to the A Band.
3. Make certain that the detector stage is oscillating. This may be done by means of the Osc. Test button on the front panel (See Par. 11-i, Osc. Test).
4. Tune the receiver to the point of peak response on the high frequency side of the alignment frequency. Set the Antenna Compensator and R-F Trimmer controls for maximum signal.
5 Tune the receiver across 25 kc on the receiver dial. Re-tune the receiver to the point of peak response on the high frequency side of the 25 kc position. Adjust the trimmer C-103 until the two points of peak response (above and below the 25 kc position) are an equal number of dial divisions either side of the 25 kc dial position. See Par. 23d(6) for exact procedure.

TABLE A—SOCKET VOLTAGES

All voltages are approximate and are read between the socket terminals and ground with a 1,000 ohm-per-volt meter under the following conditions:

Line Voltage 115 Volts

Plate and Screen Voltages Read on 250 Volt Scale

Cathode Voltage Read on Highest Scale That Permits Value to Be Read Easily

Power Control—ON

Tuning Knob—Dial Pointer at Extreme Left of Dial

Gain Control—See Column Heading

Regen Control—See Column Heading

Audio Control—BROAD

Output Limiter—OFF

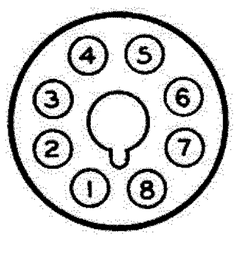
Band Switch—F Band

R-F Trimmer Control—0

Antenna Compensator Control—0

Tube & Function	Voltages Read With Gain Control Set at 10 Regen Control at 0.			Voltages Read With Gain Control Set at 0, Regen Control at 10.		
	Plate Volts & Term. No.	Screen Volts & Term. No.	Cathode Volts & Term. No.	Plate Volts & Term. No.	Screen Volts & Term. No.	Cathode Volts & Term. No.
6SK7 1st R-F	155 No. 8	77.5 No. 6	5.5 No. 5	187 No. 8	93 No. 6	46.0 No. 5
6SK7 2nd R-F	118 No. 8	78 No. 6	4.75 No. 5	170 No. 8	92 No. 6	47.5 No. 5
6SK7 Det.	110 No. 8	0 No. 6	0 No. 5	*50 No. 8	*25 No. 6	0 No. 5
6SG7 1st A-F	62 No. 8	22 No. 6	0.4 Nos. 3 & 5			
6H6 Limiter	37.5 Nos. 3 & 5		37.5 Nos. 4 & 8			
6K6GT Output	180 No. 3	190 No. 4	12.2 No. 8			
5U4G Rect.	Filament — 203 Volts Nos. 2 & 8					

*Voltages read with tube in oscillating condition. Readings may be found to vary with tube age.



OCTAL SOCKET
BOTTOM TERMINAL NUMBERING

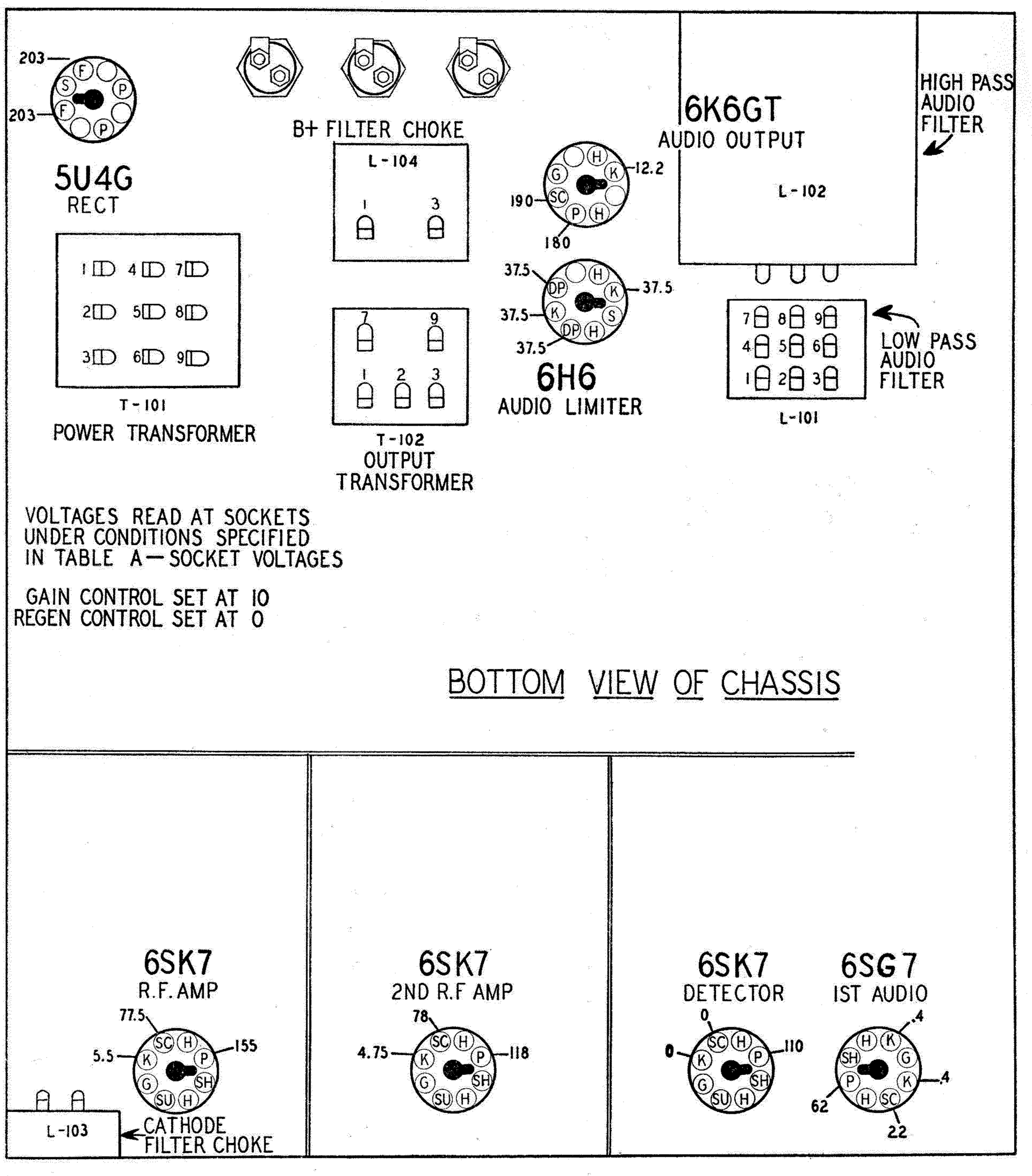


Fig. 18. Bottom Socket View

TABLE B—COIL RESISTANCES

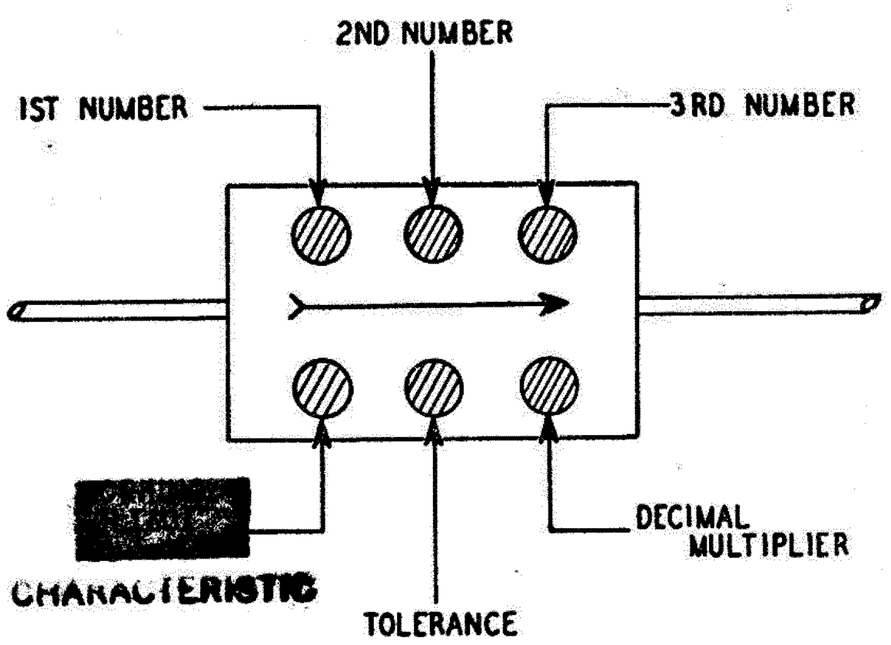
Resistances shown are approximate resistance value of coils and transformers.
Colors shown in the column "Terminals Resistance is Measured Across" are colors appearing on the coil lugs.

Symbol Desig.	Name of Part	Winding	Terminals Resistance Is Measured Across	DC Resistance in Ohms
L-101	Low Pass Filter Assembly	Three Chokes in Series	1—3	800.
L-102	High Pass Filter Assembly	Resistance Not Measurable at External Terminals		
L-103	Cathode Filter Choke			500.
L-104	B+ Filter Choke			300.
T-101	Power Transformer	Primary	1—4	9.05
		H.V. Secondary	7—9	439.
		6.3 V. Secondary	3—6	.075
		5 V. Secondary	2—5	.101
T-102	Output Transformer	Primary	7—9	438.
		Secondary	1—3	18.
Z-101	1st R-F Coil, Low Frequency	No. 1	Black—Red	110.
		No. 2	Red—Yellow	62.
		No. 3	Yellow—Blue	50.
Z-102	2nd R-F Coil, Low Frequency	No. 1	Black—Red	110.
		No. 2	Red—Yellow	62.
		No. 3	Yellow—Blue	50.
Z-103	Detector Coil, Low Frequency	No. 1	Red, Blue—White	5.
		No. 2	Black—Red	102.
		No. 3	Red—Yellow	62.
		No. 4	Yellow—Blue	50.
		No. 5	Red, Blue—Red, Black	1.4
Z-104	1st R-F Coil, High Frequency	No. 1 & No. 2	Black—Red	17.
		No. 3	Red—Yellow	8.
		No. 4	Yellow—Blue	5.
Z-105	2nd R-F Coil, High Frequency	No. 1 & No. 2	Black—Red	17.
		No. 3	Red—Yellow	8.
		No. 4	Yellow—Blue	6.
Z-106	Detector Coil, High Frequency	No. 1 & No. 2	Black—Red	17.0
		No. 3	Red—Yellow	8.0
		No. 4	Yellow—Blue	6.0
		No. 5	Red, Blue—White	—

TABLE C—COLOR CODING

COLOR CODE FOR CAPACITORS

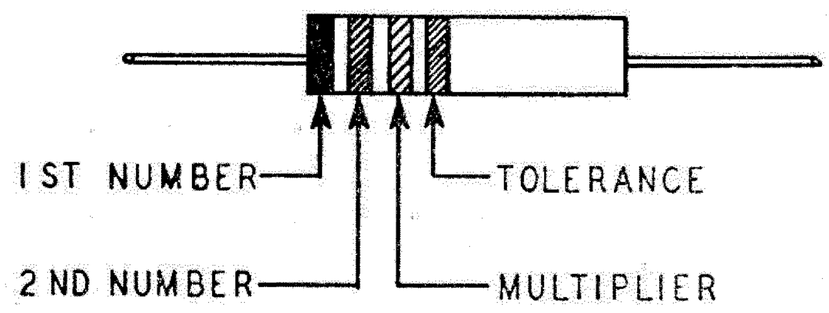
Color	Numerals	Multiplier	Volts	Tolerance
Black	0	1		
Brown	1	10	100	1%
Red	2	100	200	2%
Orange	3	1,000	300	3%
Yellow	4	10,000	400	4%
Green	5	100,000	500	5%
Blue	6	1,000,000	600	6%
Violet	7	10,000,000	700	7%
Gray	8	100,000,000	800	8%
White	9	1,000,000,000	900	9%
Gold		0.1	1000	5%
Silver		0.01	2000	10%
No Color			500	20%



COLOR CODE FOR RESISTORS

Color	1st Number	2nd Number	Multiplier
Black		0	1
Brown	1	1	10
Red	2	2	100
Orange	3	3	1,000
Yellow	4	4	10,000
Green	5	5	100,000
Blue	6	6	1,000,000
Violet	7	7	
Gray	8	8	
White	9	9	

Tolerance Color Code Values
Gold 5% Silver 10%



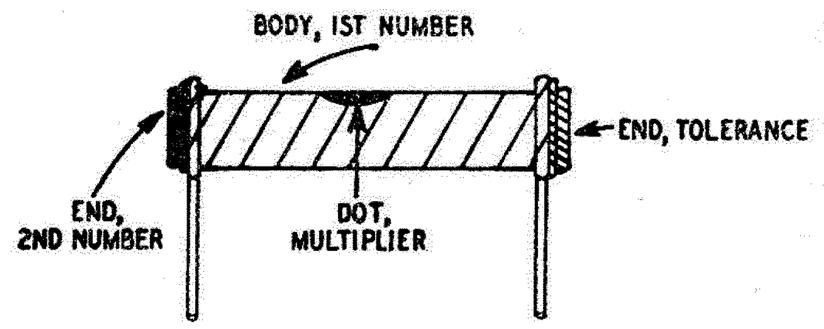


TABLE D—LIST OF MAJOR UNITS

NAVY TYPE DESIGNATION	NAME OF MAJOR UNIT	SYMBOL GROUP	ASSEMBLY DRAWING NUMBER
CWQ—46161-A	Radio Receiver	101 and up	25A543
CWQ—10124-A	Mounting Base	301 and up	25A558

TABLE E—PARTS LIST BY SYMBOL DESIGNATION

*One asterisk in the Symbol Designation column identifies parts NOT included in the Stock Spare Parts. (The Stock Spare Parts are those supplied as spare parts but not shipped to the same destination as the receiving equipment.)

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		STRUCTURAL PARTS						
*A-101	Chassis Mounting	Cabinet, C.R. Steel, Overall 17.125″ x 15.000″ x 10.468″, Front and Side Panels. Black Wrinkle Finish			21			34X386
*A-102	Cabinet Back Cover Plate	Back Cover, C.R. Steel, 17.109″ x 10.468″ x .045″ Thick, With Cutouts. Black Wrinkle Finish			21			34X387
*A-103	Cabinet Top Cover Plate	Top Cover Assembly, .045″ C.R. Steel, 15.781″ x 13.672″, With 3 Hinges Spotwelded to Rear of Plate. Black Wrinkle Finish			47			25A676
*A-104	Dial Opening Cover Plate	Escutcheon, .032″ C.R. Steel, 11.750″ x 6.687″. Dial Opening 6.625″ x 3.500″. 1.312″ R. Arc at Bottom Center, With 1.250″ Dia. Drive Shaft Opening at Center. Two .500″ Dia. Control Openings Each Side. Black Wrinkle Finish			16			4X769
*A-105	Dial Window	Dial Window, Cellulose Acetate, Water Clear. 7.000″ x 4.000″ x .093″. 1.000″ R. Arc Cutout Bottom Center			8			17X79
*A-106	Dial Scale N-101 Mtg.	Dial Bracket, .031″ ¼ Hard C.R. Steel, Z Type Angle, Cadmium Plated and Clear Lacquer Finish			39			25X1274
*A-108	Potentiometer R-145 Mtg.	Bracket, .078″ C.R. Steel, 2.265″ x 1.500″ Width at Base, .625″ Top Width. 2 Openings .500″ Dia. Centered 1.140″ and 1.890″ From Base. Base Width .515″. 2 Extruding 6-32 Tap Mtg. Holes in Base, Each .500″ From Center. Cadmium Plated			39			25X1191
*A-109	Same as A-110 and A-111	Bottom Plate Assembly, Includes A-110 to A-114 Inclusive			47			25A674
*A-110	Receiver Bottom Cover	Bottom Plate, .062″ C.R. Steel, 17.000″ x 14.875″. Cadmium Plated, Clear Lacquer Finish			1			34X390
*A-111 to A-114 Incl.	Receiver Mounting Foot	Glider, Stainless Steel, Overall .312″ x .750″ Dia. .562″ R. Base			43			20X1013
*A-115 to A-128 Incl.	Band Switch Wafer Mounting	Rotary Switch Bracket, Half Hard Brass, 1.812″ x .375″ x .0641″ Thick. .375″ Dia. Center Hole, One #4-40 Tap Hole Near Each End. 45° Angle Cutoff Two Corners. Two .312″ x .250″ Mtg. Flanges With #31 D.S. Hole			39			25X1204
*A-301 to A-304 Incl.	Cradle Mounting	Lord Mount, C.R. Steel Frame 3.000″ Square, Cadmium Plated. Rubber Floating Mount With Metal Insert. Mtg. Opening .381″ Dia.			30	200PH-20		8X145
*A-305	Receiver Mounting	Cradle Assembly, Includes Symbol Designations A-301, A-302, A-303, A-304, A-306 and Hardware			47			25A558
*A-306	Same as A-305	Cradle and Hub Assembly, C.R. Steel. Overall 17.500″ x 15.312″. Reinforced Corners			47			25A675

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		CAPACITORS						
*C-101A *C-101B *C-101C	Ant. Tuning R-F Tuning Det. Tuning	Capacitor, Variable, 3 Section, Range Each Section, 0.0 mmf. to 444.3 mmf.			38	819-6-31		14A165
*C-102	2nd R-F Trimmer, D, E and F Band	Capacitor, Air Trimmer, Range 5 to 55 mmf., 500 V. Screw Driver Adjustment Slot. All Parts to Withstand 200 Hr. Salt Spray Test	481556		38	747-AT		17A212
*C-103	Det. Trimmer, A Band	Same as C-102						
*C-104	R-F Compensator	Capacitor, Variable Compensator, Range 6 to 37 mmf. Breakdown Test at 1000 Volts R.M.S. 60-600 Cycles. .937" x .249" Dia. Knob Adjustment Shaft. All Metal Parts to Withstand 200 Hr. Salt Spray Test	481554		38	757-AT		17A216
*C-105	2nd R-F Trimmer, C Band	Capacitor, Air Trimmer, Range 6 to 75 mmf., 500 V. Screw Driver Adjustment Slot. All Parts to Withstand 200 Hr. Salt Spray Test	481557		38	749-AT		17A213
*C-106	Det. Trimmer, D, E and F Bands	Same as C-105						
*C-107	Det. Trimmer, B Band	Same as C-105						
*C-108	Ant. Compensator	Capacitor, Variable Compensator, Range 8 to 95 mmf. Breakdown Test of 1000 Volts R.M.S. 60-600 Cycles. .937" x .249" Dia. Knob Adjustment Shaft. All Metal Parts to Withstand 200 Hr. Salt Spray Test	481555		38	756-AT		17A215
*C-109	2nd R-F Trimmer, A and B Bands	Capacitor, Air Trimmer, Range 8 to 100 mmf., 500 V. Screw Driver Adjustment Shaft. All Parts to Withstand 200 Hr. Salt Spray Test	481558		38	748-AT		17A214
*C-110	Detector Trimmer, C, D, E and F Bands	Same as C-109						
C-111	Antenna Coupling, D, E and F Bands	Capacitor, Molded Mica, 45 mmf. ±5%, 500 V. Low Loss Case	481559		40	K-1445		47X358
C-112	Detector Padder, B Band	Capacitor, Molded Mica, 50 mmf. ±10%, 500 V. Low Loss Case	481279		40	K-1450		47X331
C-113	Antenna Coupling, C Band	Capacitor, Molded Mica, 60 mmf. ±5%, 500 V. Low Loss Case	481065		40	K-1460		47X337
C-114	*Antenna Compensator Padder	Capacitor, Molded Mica, 100 mmf. ±10%, 500 V. Low Loss Case	48843		40	K-1310		47X359
C-115	Detector Padder, A Band	Same as C-114						
C-116	Short Antenna Circuit	Capacitor, Molded Mica, 300 mmf. ±10%, 500 V. Low Loss Case	48854		40	K-1330		47X334

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
C-117	Low Pass Filter Circuit	Capacitor, Molded Mica, 350 mmf. ±10%, 500 V. Low Loss Case	48676		40	K-1335		47X336
C-118	Same as C-117	Same as C-117						
C-119	R-F Grid Coupling	Capacitor, Molded Mica, 500 mmf. ±10%, 500 V. Low Loss Case	48691		40	K-1350		47X335
C-120	Det. Grid Coupling	Same as C-119						
C-121	Antenna Coupling, A Band	Capacitor, Molded Mica, 800 mmf. ±10%, 500 V. Low Loss Case	481428		40	C-1380		47X339
C-122	Det. Compensating Capacitor, E Band	Capacitor, Molded Mica, 900 mmf. ±10%, 500 V. Low Loss Case	481098		40	C-1390		47X344
C-123	Same as C-117	Same as C-122						
C-124	Same as C-117	Same as C-122						
C-125	Antenna Coupling, B Band	Capacitor, Molded Mica, 1,000 mmf. ±10%, 500 V. Low Loss Case	48983		40	C-1210		47X340
C-126	2nd R-F Filament Filter	Same as C-125						
C-127	Det. Plate Filter Circuit	Same as C-125						
C-128	Det. Plate Filter Circuit	Same as C-125						
C-129	Output Transformer Filter	Capacitor, Molded Mica, 2,500 mmf. ±10%, 500 V. Low Loss Case	481089		40	C-1225		47X347
C-130	Same as C-117	Capacitor, Molded Mica, 4,000 mmf. ±10%, 300 V. Low Loss Case	48929		40	C-1240		47X342
C-131	Same as C-117	Same as C-130						
C-132	Same as C-117	Capacitor, Molded Mica, 5,000 mmf. ±10%, 300 V. Low Loss Case	481037		40	C-1250		47X343
C-133	Same as C-117	Same as C-132						
C-134	High Pass Filter Circuit	Same as C-132						
C-135	Same as C-134	Same as C-132						
C-136	Same as C-134	Capacitor, Molded Mica, 6,000 mmf. ±10%, 300 V. Low Loss Case	48847		40	C-1260		47X345
C-137	Same as C-134	Same as C-136						
C-138	Same as C-134	Capacitor, Molded Mica, 8,000 mmf. ±10%, 300 V. Low Loss Case	481560		40	C-06280		47X346
C-139	Same as C-134	Same as C-138						

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*C-143	1st Audio Grid Coupling	Capacitor, Tubular, .01 mf. ±10%, 400 V. .937" x .437" Dia. Metal Case Covered with Transparent Vinylite Tubing. 2.000" Leads		RE-13A-488	19	7707		46X366
*C-144	Audio Output Grid Coupling	Same as C-143						
*C-145	Same as C-117	Same as C-143 except .013 mf.		RE-13A-488	19	7708		46X365
*C-146	Same as C-117	Same as C-145						
*C-147	Cathode Filter, R-F Stage	Capacitor, Tubular, .1 mf. ±10%, 400 V. 1.687" x .703" Dia. Metal Case Covered with Impregnated Kraft Tubing. 2.375" Leads	481073-10	RE-13A-488	19	7653		46X364
*C-148	Output Limiter Filter	Same as C-147						
*C-149	1st R-F Cathode Resistor Bypass	Capacitor, Paper, Oil Filled, 0.5 mf. ±10%, 600 V.	481549	RE-13A-488	19	7667		48X250
*C-150	1st R-F Screen Resistor Bypass	Same as C-149						
*C-151	2nd R-F Cathode Resistor Bypass	Same as C-149						
*C-152	2nd R-F Screen Resistor Bypass	Same as C-149						
*C-153	Filter Coupling	Same as C-149						
*C-154	Output Limiter Filter	Same as C-149						
*C-155	AC Line Filter	Same as C-149						
*C-156	Same as C-155	Same as C-149						
*C-157	2nd R-F Plate Bypass	Capacitor, Paper, Oil Filled, 0.8 mf. ±10%, 600 V.		RE-13A-488	19	7669		48X252
*C-158	1st Audio Plate Filter	Same as C-157						
*C-159	R-F Plate Bypass	Capacitor, Paper, Oil Filled, 1.0 mf. ±10%, 600 V.	481550	RE-13A-488	19	7668		48X251
*C-160	2nd R-F Plate Bypass	Same as C-159						
*C-161	Det. Screen Bypass	Same as C-159						
*C-162	Det. Screen Bypass	Same as C-159						
*C-163	Det. Plate Hum Filter Circuit	Same as C-159						
*C-164	1st Audio Cathode Bypass	Same as C-159						
*C-165	1st Audio Screen Bypass	Same as C-159						

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*C-166	Audio Output Cathode Bypass	Same as C-159						
*C-167	Power Supply Filter	Capacitor, Paper, Oil Filled, 4.0 mf. ±10%, 600 V.	481080	RE-13A-488	19	7670		48X249
*C-168	Power Supply Filter	Same as C-167						
*C-169	Power Supply Filter	Same as C-167						
		MISCELLANEOUS ELECTRICAL PARTS						
*E-101	Connection Insulator	Terminal Board Assembly, Bakelite, Two Terminals. .750" x .375" x .062" Thick. Right Lug Mtg. Extension. Wax Impregnated. All Parts to Withstand 200 Hr. Salt Spray Test			12	6464W1		4A277
*E-102	Same as E-101	Same as E-101						
*E-103	Same as E-101	Same as E-101						
*E-104	Same as E-101	Same as E-101 Except Left Lug Mtg. Extension			12	6465W1		4A278
*E-105	Resistor, R-136 Mounting	Same as E-104						
*E-106	Same as E-101	Same as E-104						
*E-107	Same as E-101	Same as E-104						
*E-108	Resistor, R-115 Mounting	Terminal Board Assembly, Bakelite, Three Terminals. 1.125"x .375" x .062". Center Lug Mtg. Extension. Wax Impregnated. All Parts to Withstand 200 Hr. Salt Spray Test			12	6468W1		4A276
*E-109	Same as E-101	Same as E-108						
*E-110	Same as E-101	Same as E-108						
*E-111	Same as E-101	Same as E-108 Except Right Lug Mtg. Extension			12			4A281
*E-112	Same as E-101	Same as E-111						
*E-114	Same as E-101	Same as E-108 Except Left Lug Mtg. Extension			12			4A282
*E-115	Same as E-101	Same as E-114						
*E-116	Same as E-101	Same as E-114						
*E-117	Same as E-101	Same as E-114						
*E-146	Speaker Connections	Panel Terminal, .062" Bakelite, Two Screw and Lug Type Terminals. .687" Wide x 1.687" Length Between Mtg. Holes. Lettering Above Screws to be OUTPUT. All Parts to Withstand 200 Hr. Salt Spray Test			12	1720	Marked OUTPUT	4A273

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*E-147 to E-150 Incl.	Tuning Capacitor C-101 and Selectivity Control R-145 Leads Protection	Insulator Panel, L.E. Bakelite, Overall 1.374" x .562" x .062". .562" Dia. Opening in Center. Two .144" Dia. Mtg. Holes. Syncera or Cerese Mineral Wax Finish			47			1X239
*E-151	Selectivity Control R-145 Mounting Insulator	Insulator Panel, L.E. Bakelite, 1.500" x .750" x .062". Two .149" Dia. Holes with Cutout at Side of Hole. Syncera or Cerese Mineral Wax Finish			47			1X236
*E-152	Same as E-151	Same as E-151						
*E-153 to E-158 Incl.	Coil Leads Insulation	Insulator Panel, L.E. Bakelite, Overall 2.125" x .750" x .062". Two .375" Dia. Openings and Two .144" Dia. Mtg. Holes. Syncera or Cerese Mineral Wax Finish			47			1X240
*E-159	Tuning Capacitor Rear Mounting Insulator	Grommet, Rubber, .312" Thick, .625" O.D., .265" I.D. Groove .062" x .468" Dia.			7	#1240		6X41
*E-160 to E-162 Incl.	High Frequency Coil Mounting Insulator	Spacer, Hard Maple, .312" High, .375" O.D., .180" I.D. Impregnated with Light Oil			36			2X399
*E-163 to E-165 Incl.	Low Frequency Coil Mounting Insulator	Same as E-160 Except .375" High			36			2X420
*E-166 to E-193 Incl.	Band Switch Leafs Mtg. Insulator	Spacer, Fibre, .062" Thick, .250" O.D., .125" I.D.			45			2X396
*E-194	Phone Jack Mounting Insulator	Shoulder Washer Hard Black Fibre. Washer .047" Thick, .875" O.D., Shoulder .046" Thick, .495" O.D., .380" I.D.			27			2X394
*E-195	Panel E-151 and E-152 Spacer	Locating Washer, L.E. Bakelite, .046" Thick, .468" O.D., .144" I.D. Syncera or Cerese Mineral Wax Finish			45			2X398
*E-196	Same as E-195	Same as E-195						
*E-197	Phone Jack Mounting Insulator	Washer, Hard Black Fibre, .032" Thick, .625" O.D., .380" I.D.			27			2X395
*E-198	Antenna Lead-in Connector	Terminal Strip Assembly, L.E. Bakelite, 3 Screw and Lug Type Terminals, 2.500" x .750" x .093". Wax Impregnated. All Parts to Withstand 200 Hr. Salt Spray Test. Movable Connector on Center Lug			47			4A296
*E-199 to E-201 Incl.	H-F Coils Z-104, Z-105 and Z-106 Shield	Shield Can, .019" Copper, 3.000" x 4.000" O.D. Closed End With Four .187" Dia. Vents Equidistant 1.250" From Center. Other End With 3 Full Mtg. Threads, 10 Threads Per Inch, Cadmium Plated			4	W-04431		32X314
*E-202 to E-204 Incl.	L-F Coils Z-101, Z-102 and Z-103 Shield	Same as E-199 Except 5.250" Long and Clear Lacquer Finish			4	W-04429		32X312
*E-205 to E-210 Incl.	Cover and Mtg. for Shields E-199 to E-204 Inclusive	Shield Can Cover, .018" Copper, .750" x 4.125" O.D. 3 Complete Thds., 10 Thds. per Inch. Clear Lacquer Finish			4	W-04430		32X313

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*E-211	Power OFF-ON Control	Bar Knob, Black Bakelite, 1.250" x .500" x .625" High, With .375" R. At Long Side Centers. Pointer Plate Attached to Bottom. Two #6-32 Tap Mounting Holes			47			10A487
*E-212	Audio Band Width Control	Same as E-211						
*E-213	R-F Gain Control	Same as E-211						
*E-214	Regeneration Control	Same as E-211						
*E-215	Output Level Control	Same as E-211						
*E-216	Output Limiter Control	Same as E-211						
*E-217	Antenna Compensator Control	Same as E-211						
*E-218	Antenna Trimmer Control	Same as E-211						
*E-219	Tuning Control	Knob, Black Blakelite, Fluted Edge, Rounded Front. Overall Dia. 2.375" x 1.187" Thick. Two #8-32 Tap Mounting Holes			10			10A485
*E-220	Band Switch Control	Knob Assembly, Same as E-219 Except with Pointer Plate Attached			47			10A491
		FUSES						
*F-101	Receiver Protection	Fuse, 2 Amp. 250 V., Type 3 AG, 1.187" x .250" Dia. All Parts to Withstand 200 Hr. Salt Spray Test			29	1040		16X87
*F-102	Same as F-101	Same as F-101						
		HARDWARE						
*H-101	Phone Jack Mounting	Hex Nut, Brass, .375"-32, .500" Across. Dull White Nickel Finish			9			20X520
*H-102	Oscillator Test Switch Mounting	Same as H-101						
*H-103	R-F Compensator Mounting	Same as H-101						
*H-104	Same as H-103	Same as H-101						
*H-105	Manual Gain Control, R-146, Mounting	Same as H-101						
*H-106	Output Level Control, R-147, Mounting	Same as H-101						

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*H-107	Regeneration Control, R-148, Mounting	Same as H-101						
*H-108	Audio Band Width Control, S-107, Mounting	Same as H-101						
*H-109	Same as H-103	Lockwasher, Steel, 3/8". Ext. Teeth, Cadmium Plated			42			20X556
*H-110	Same as H-105	Same as H-109						
*H-111	Same as H-106	Same as H-109						
*H-112	Same as H-107	Same as H-109						
*H-113	Same as H-108	Same as H-109						
*H-114	Detent Mechanism O-101 to Shaft O-108 Mtg.	Set Screw, Allen Hd., Steel, 6-32 x 3/16" (.062" across Flats of Hex)			41			20X903
*H-115	Same as H-114	Same as H-114						
*H-116	Detent Mechanism O-102 to Shaft O-109 Mtg.	Same as H-114						
*H-117	Same as H-116	Same as H-114						
*H-118	Collar O-120 Mtg.	Same as H-114						
*H-119	Same as H-118	Same as H-114						
*H-120 to H-127 Incl.	Bar Knobs Mtg. (Side)	Same as H-114						
*H-128	Drive Gear O-105 Mtg.	Set Screw, Allen Hd., Steel, 8-32 x .250" (.078" across Flats of Hex)			41			20X933
*H-129	Same as H-128	Same as H-128						
*H-130	Drive Gear O-106 Mtg.	Same as H-128						
*H-131	Same as H-130	Same as H-128						
*H-132	Drive Gear O-103 Mtg.	Same as H-128						
*H-133	Same as H-132	Same as H-128						
*H-134 to H-141 Incl.	Bar Knobs Mtg. (Long End)	Same as H-114 Except .500" Length			41			20X1002
*H-142	Tuning Knob Mtg.	Same as H-128 Except .500" Length			41			20X1003
*H-143	Same as H-142	Same as H-142						
*H-144	Band Switch Knob Mtg.	Same as H-142						

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*H-145	Same as H-144	Same as H-142						
*H-146	Ant. Compensator C-108 Mtg.	Machine Screw, Binding Head, Brass, 6-32 x 5/16". Dull White Nickel Finish			32			20X545
*H-147	Same as H-146	Same as H-146						
*H-148	Same as H-146	Lockwasher, Steel, Ext. Teeth, #6, Cadmium Plated			42			20X550
*H-149	Same as H-146	Same as H-148						
*H-301 to H-304 Incl.	Receiver to Cradle Mounting	Special Screw, Stainless Steel, Overall Length 1.062". .312" x #12-24 Thd. at End. Remainder Stem .500" x .162" Dia. Head: .250" x .500" Dia., Slotted with Knurled Edge			23			20X851
		INDICATING DEVICES						
*I-101	Dial Illumination	Dial Lamp, 6.3 V, .15 Amp.			48	Mazda #47		7A103
*I-102	Same as I-101	Same as I-101						
*I-103	Frequency Indicator	Pointer, .025" C.R. Steel, 3.125" From Center of Mtg. Hole x .078". Mtg. Section .280" Dia. with .116" Dia. Hole. 90° Twist 1.250" from Center of Mtg. Hole to Tip. Width Tapering to .046" at Tip. Smooth Black Finish			24			15X210
*I-104	Vernier Dial Indicator	Pointer, .015" C.R. Steel. Overal Length 1.218". Pointer .562" x .062", 90° Twist From Mtg. Section, .625" x .375", with One .098" and One .126" Dia. Mtg. Hole. Smooth Black Finish			24			15X209
		JACKS AND RECEPTACLES						
*J-101	Headphone Connector	Telephone Jack, Single Circuit. All Parts to Withstand 200 Hr. Salt Spray Test			46	IJ-101		3A365
*J-102	Fuse Receptacle	Fuse Extractor Post, Screwdriver Operated Plug Knob. All Parts to Withstand 200 Hr. Salt Spray Test			29	#1075		16X84
*J-103	Fuse Receptacle	Same as J-102						
*J-104	Antenna Connector	Concentric Jack, Overall Length 1.312". .500" x .875" Hex Body. Remainder 3/4-20 Thd.; With Mtg. Hex Nut	49120	RA-49F-215	37			3A375
*J-105	Power Supply Connector	Socket, 7 Prong, Ceramic. Two Large Prongs. 1.187" Deep. All Parts to Withstand 200 Hr. Salt Spray Test	49201		5	61CP75		3A363
*J-106	AC Power Cord Connector	Cord Connector, Bakelite, 1.187" x .968" Dia. With Steel Clamp Cord Grip			22	7464 Twist-lock Midget with Cord Grip		3A374

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		INDUCTORS						
L-101	Low Pass Filter, 1st Audio Tube to L-102 Coupling. Capacitor Network Switched In, Sharp Tuning; Out, Broad Tuning	Low Pass Filter, Three Coil Windings Connected in Series. 9 Terminals. Inductance of Coils Terminating at Terminals 3-5 and 1-8, 4.7 Henries Each; at 5-8, 7.7 Henries; Measured With 1.5 Volts R.M.S., 1000 Cycles Applied Across Each Coil, and Before Assembling Capacitors and Resistor. Includes Sym. Desigs. C-117, C-118, C-123, C-124, C-130, C-131, C-132, C-133, C-145, C-146 and R-113	53108		33	C1953		52X65
L-102	High Pass Filter, L-101 to Limiter and Audio Output Tubes Coupling	High Pass Filter, Three Coil Windings Connected in Series. Three Terminals. Inductance of Input-Output Windings 18 Henries, ±10%; Intermediate 10.8 Henries ±10%; with 1.5 Volts R.M.S. 1000 Cycles Applied Across Each Winding, Measured Before Assembling Capacitors. Includes Sym. Desigs. C-134, C-135, C-136, C-137, C-138 and C-139	53109		33	C1952		52X64
*L-103	Cathode Filter, R-F Stage	Filter Choke, Single Winding, Two Terminals. Inductance to Exceed 17 Henries at an Impressed Potential of 1.5 Volts R.M.S. 1000 Cycles with No DC Through Winding. Must Withstand Breakdown Test of 2000 Volts R.M.S. 60-500 Cycles From Winding to Core and Between Winding Terminals	47352		33	C1958		52X63
L-104	B+ Filter	Filter Choke, Single Winding, Two Terminals. Inductance to Exceed 17 Henries at an Impressed Potential of 1.5 Volts R.M.S., 1000 Cycles, With No DC Through Winding. Must Withstand Breakdown Test of 2000 Volts R.M.S. 60-500 Cycles From Winding to Core and Between Winding Terminals	30931		33	C1955		52X62
		NAMEPLATES						
*N-101	Frequency Reading	Tuning Dial, Brass, 7.187" x 4.562" x .028". Six Bands, Complete Range 15 to 600 KC. Band A, 15 to 25 KC; Band B, 25 to 45 KC; Band C, 45 to 80 KC; Band D, 80 to 155 KC; Band E, 155 to 310 KC; Band F, 310 to 600 KC. Calibrations and Characteristics Dull Black, Cream Colored Etched Background			16			58X579
*N-102	Split Frequency Reading	Vernier Dial Assembly, Brass, 4.000" Dia., With Centered .500 Mtg. Opening. 100 Calibrations to 360°. Dull Black Calibrations and Numerals on Cream Colored Background			16			25A607
*N-103	Mounting Base Identification	Nameplate, Graphic Laminated Bakelite, 3.052" x .562" x .045" Black Background With White Letters. Lettering as Specified Laminated into Material			34			4X800
*N-104	Stamping Plate for Date of Naval Acceptance and Installation	Same as N-103 Except for Printing			34			4X799

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*N-105	Radio Receiver Identification	Same as N-103 Except for Size, 3.062" x 2.062" x .040", and Printing			34			4X798
*N-106	Complete Unit Identification	Same as N-103 Except for Size, 4.062" x 3.312" x .040", and Printing			34			4X797
*N-107	R-F Gain Control Identification	Control Plate, Zinc, 1.750" Dia., .030" Thick. Center Opening .500" Dia. Calibrated 300° 0 to 10. Lettering to be GAIN. Clear Lacquer Finish			18	17533		4X775
*N-108	Regeneration Control Identification	Same as N-107 Except Lettering to be REGEN.			18	17533		4X776
*N-109	R-F Trimmer Control Identification	Same as N-107 Except Calibrations to be 180° 10-0-10 and Lettering R-F TRIMMER			18	17532		4X778
*N-110	Antenna Compensator Identification	Same as N-109 Except Lettering to be ANTENNA COMPENSATOR			18	17532		4X777
*N-111	Oscillator Test Button Identification	Osc. Test Plate, Zinc, .875" Dia., .025" Thick. Center Opening .380" Dia. Lettering at Top to be OSC. TEST. Clear Lacquer Finish			18	17531		4X781
*N-112	Head Phone Jack Indicator	Same as N-111 Except Lettering to be PHONES			18	17531		4X782
*N-113	Band and Range Indicator	Range Indicator Plate, Zinc, 3.000" Dia., .038" Thick. Center Opening .750". Clear Lacquer Finish			18	17536		4X780
*N-114	Power Switch and Audio Control Identification	Control Plate, 5.125" x 1.843" x .060" Thick. Two .500" Dia. Openings Centered .921" and 2.671" From Bottom. Lettering Below, Top Opening POWER, Above OFF. On Lower Opening Above BROAD SHARP, Below AUDIO. Clear Lacquer Finish			20			4X771
*N-115	Output Level and Limiter Controls Identification	Same as N-114 Except Lettering Below Top Opening OUTPUT LEVEL, Below Lower Opening OUTPUT LIMITER			20			4X772
		MECHANICAL PARTS						
*O-101	Band Switch Setting	Detent Mechanism, 6 Positions, .438" Shaft. Must Withstand 200 Hr. Salt Spray Test			38			25A555
*O-102	Band Switch Setting	Same as O-101						
*O-103	Band Change Gear Drive	Drive Gear, Doler Zinc #3, 1.083" O.D. 24 Teeth, 24 Pitch, Pitch Dia. 1.000", 14½° Pressure Angle, Involute Tooth Form. Hub .500" O.D., .251" I.D. With Two 8-32 Tap Holes. Chromate Dip Finish			17			24X525
*O-104	Drive Gear and Stop	Spur Gear, Doler Zinc #3, 2.083" O.D. 48 Teeth, 24 Pitch, 2.000" Pitch Dia., 14½° Pressure Angle, Involute Tooth Form. Hub .687" O.D., .251" I.D. Chromate Dip Finish			17			24X528

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*O-105	Band Switch Shaft Drive	Same as O-103 Except Two 8-32 Tap Mtg. Holes in Hub			17			24X524
*O-106	Same as O-105	Same as O-105						
*O-107	Band Change Knob Mtg.	Band Change Shaft. 18-8 Stainless Steel Bar, 3.000" x .250". Two Flat Milled Surfaces .312" x .032" Deep; .187" and 2.062" From End			28			26X437
*O-108	Band Switch Drive	Rotary Switch Shaft, Brass, 9.875" x .250" Dia., Two Opposite Surfaces Flat Milled to .184" Dia. Undercut One End .250" x .156" Dia., .046" From End			38			26X434
*O-109	Same as O-108	Same as O-108						
*O-110	Antenna Compensator Drive Shaft and Knob Mtg.	Shaft, Brass, 1.687" x .248". .187" x .012" Deep Undercut .046" From One End. .204" x .012" Deep Undercut .187" From Other End. Dull White Nickel Finish			23	17280		26X422
*O-111	R-F Trimmer Capacitor Drive Shaft and Knob Mtg.	Same as O-110						
*O-112	R-F Trimmer Drive Shaft	Shaft, Brass, 4.062" x .249". .187" x .012" Deep Undercut .046" From Each End. Dull White Nickel Finish			35			26X424
*O-113	Antenna Compensator Drive Shaft	Same as O-112 Except 8.812" Length			35			26X423
*O-114	Same as O-113	Shaft, Fabric Base Bakelite, 1.375" x .249" Dia. .187" x .012" Deep Undercut .046" From Each End. Wax Impregnated Finish			35			26X421
*O-115	Shafts O-110 and O-113 Connector	Shaft Coupling, Two .4375" O.D., .252" I.D. Brass Hubs Assembled to 1.093" O.D. x .718" I.D. x .008" Spring Brass Ring. Two #8-32 x .187" Allen Hd. Cup Point Set Screws in Each Hub. Dull White Nickel or Cadmium Plated			38	6422-008-21		25A546
*O-116	Shafts O-113 and O-114 Connector	Same as O-115						
*O-117	Shaft O-114 and Control Shaft of Capacitor C-108 Connector	Same as O-115 except Connecting Ring to be .016" Phosphor Bronze			38			25A681
*O-118	Shafts O-111 and O-112 Connector	Same as O-117						
*O-119	Shaft O-112 and Control Shaft of Capacitor C-104 Connector	Shaft Coupling, Brass, .625" x .457" O.D., .251" I.D. Four #6-32 Tap Mtg. Holes. Dull White Nickel Finish			23	16243		29X354
*O-120	Shaft O-107 Coupling	Coupling Collar, Brass, .250" x .500" O.D., .251" I.D. Two #6-32 Tap Mtg. Holes. Dull White Nickel Finish			28			29X376

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		PLUGS						
*P-101	AC Power Connector	Flush Motor Plug, Twist Lock Type, Male Base. Length Under Panel .875". Mounting Flange 1.625" O.D. With Two .156" Dia. Mtg. Holes			22	#7466		6A266
*P-102	AC Jumper Plug	Plug With Cap, 7 Contact Female Type, Overall 1.093" x 1.187" O.D. Wired by W-G & Co. as Follows: Terms. 1 to 2 and 3 to 7 With #18 Bare Copper Wire. All Parts to Withstand 200 Hr. Salt Spray Test	49202		5	#PF7S		3A369
*P-103	Antenna Connector	Concentric Plug, Overall 2.875" x .812" O.D. Female Contact	49121-A	RA-49F-216	37			6A267
		RESISTORS						
*R-101	1st R-F Cathode Biasing Resistor	Resistor, Carbon, 350 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94351
*R-102	2nd R-F Cathode Biasing Resistor	Same as R-101						
*R-103	1st Audio Cathode Resistor	Resistor, Carbon, 500 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94501
*R-104	1st R-F Screen Limiting Resistor	Resistor, Carbon, 10,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94103
*R-105	1st R-F Plate Limiting Resistor	Same as R-104						
*R-106	2nd R-F Screen Resistor	Same as R-104						
*R-107	2nd R-F Plate Limiting Resistor	Same as R-104						
*R-108	Det. Screen Resistor	Same as R-104						
*R-109	Detector Plate Hum Filter Circuit	Same as R-104						
*R-110	1st Audio Plate Filter	Resistor, Carbon, 20,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94203
*R-111	Output-Limiter Filter	Same as R-110						
*R-112	Detector Plate Filter Circuit	Resistor, Carbon, 25,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94253
*R-113	Low Pass Filter Circuit	Same as R-112						
*R-114	Output Limiter Filter	Resistor, Carbon, 50,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94503

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*R-115	Same as R-114	Same as R-114						
*R-116	Detector Plate Hum Filter Circuit	Resistor, Carbon, 70,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94703
*R-117	1st Audio Plate Filter	Resistor, Carbon, 100,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94104
*R-118	Limiter Plate Resistor	Same as R-117						
*R-119	Limiter Cathode Resistor	Same as R-117						
*R-120	Short Antenna Circuit	Resistor, Carbon, 250,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94254
*R-121	Limiter Plate Resistor	Same as R-120						
*R-122	Short Antenna Circuit	Resistor, Carbon, 500,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94504
*R-123	1st Audio Screen	Same as R-122						
*R-124	1st Audio Grid	Same as R-122						
*R-125	Audio Output Grid	Same as R-122						
*R-126	Grid Resistor, Detector Stage	Resistor, Carbon, 2.5 Megohm ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94255
*R-127	2nd R-F Grid	Resistor, Carbon, 5.0 Megohm ±10%, 0.5 W. Pigtail Type Terminals	63360		3	Type E		B94505
*R-135	Audio Output Cathode	Resistor, Carbon, 500 Ohms ±10%, 2 W. Pigtail Type Terminals			3	Type F		D94501
*R-136	Screen Limiting, Antenna Stage	Resistor, Carbon, 5,000 Ohms ±10%, 2 W. Pigtail Type Terminals			3	Type F		D94502
*R-137	Plate Limiting Resistor	Resistor, Carbon, 10,000 Ohms ±10%, 2 W. Pigtail Type Terminals			3	Type F		D94103
*R-138	Regeneration Control Limiting	Resistor, Carbon, 100,000 Ohms ±10%, 2 W. Pigtail Type Terminals			3	Type F		D94104
*R-140	Screen Limiting, Antenna Stage	Resistor, Carbon, 10,000 Ohms ±10%, 3 W. Pigtail Type Terminals			3	Type F		E94103
*R-145	Sensitivity Control	Potentiometer, Wire Wound, Total Resistance 750 Ohms ±10%. Linear Taper. Screw Driver Slot Shaft. All Parts to Withstand 200 Hr. Salt Spray Test	631284	RE-13A-492	11	25, Wire Wound		43X154
*R-146	Manual Gain Control	Resistor, Variable, Wire Wound. Resistance 5,000 Ohms ±10%, 4 Watt. Linear Taper. Knob Shaft .500" x .250" Dia. All Parts to Withstand 200 Hr. Salt Spray Test	631285	RE-13A-492	11	25, Wire Wound		43X155

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*R-147	Output Level Control	Resistor, Variable, Wire Wound. Split Winding Element. Resistance First 50% Clockwise Rotation 7,800 Ohms ±10%, Total Resistance 10,000 Ohms ±10%, Rating 4 Watt Approx. Linear Taper. .500" x .250" Dia. Shaft. All Parts to Withstand 200 Hr. Salt Spray Test	631286	RE-13A-492	11	25, Wire Wound		43X157
*R-148	Regeneration Control	Resistor, Variable, Wire Wound, Resistance 25,000 Ohms ±10%, 4 Watts. Linear Taper. .500" x .250" Dia. Knob Shaft. All Parts to Withstand 200 Hr. Salt Spray Test	631287	RE-13A-492	13			43X156
		SWITCHES						
*S-101	AC Power Control	Toggle Switch, S.P.S.T. One Break Per Circuit. 3 Amp., 125 V. All Parts to Withstand 200 Hr. Salt Spray Test	24146		6	80993	E	2A279
*S-102	DC Power Control	Toggle Switch, D.P.S.T. 3 Amp., 125 V. All Parts to Withstand 200 Hr. Salt Spray Test	24147		6	81009	AB	2A280
*S-103	Output Audio Limiter Control	Toggle Switch, S.P.D.T. 3 Amp., 125 V. All Parts to Withstand 200 Hr. Salt Spray Test	24148		6	81021	AE	2A281
*S-104	AC and DC Power Control	Power Supply Switch Assembly, Includes S-101 and S-102 Both Simultaneously Thrown by Operation of Rotary Shaft. All Parts to Withstand 200 Hr. Salt Spray Test			6	1570	NP	2A278
*S-105	Same as S-103	Audio Limiter Switch Assembly, Includes S-103 Thrown by Operation of Rotary Shaft. All Parts to Withstand 200 Hr. Salt Spray Test			6	81021	VA	2A275
*S-106	Oscillating Test	Push Button Switch, S.P., Make Contact. All Parts to Withstand 200 Hr. Salt Spray Test	24047		31	B-116291 Special #2001	Steel Parts Cadmium Plated	2A277
*S-107	Audio Band Width Switch	Switch, Rotary, Ceramic, Wafer Type. One Section Two Position, 4 Pole. All Parts to Withstand 200 Hr. Salt Spray Test			38			2A276
*S-108 to S-121	Band Change Switch	Switch, Rotary Type, S.P. Six Position. Wiping Contacts. Rolled Silver Spring Brass Contacts			38	#22511-H7C		2A274
		TRANSFORMERS						
T-101	Power Transformer	Transformer, 9 Terminals, 4 Windings. Exciting Current .075 Amps.; Exciting Power 3 Watts. Primary: (Terms. 1-4), 115 V. 50-60 Cycles, 600 T. #25 E. Wire. DC Resistance 9.05 Ohms. S. Shield 1T. .002" Cop. Secondary #1: (7-9), 424 V. Total AC Voltage, .045 Amps. 225 V. DC, 2,350 T. #35 E. Wire, DC Resistance 439 Ohms, Center Tapped (Term. 8) Secondary #2: (3-6), 6.3 V., 2.2 Amps., 28 T. #16 E. Wire, DC Resistance .075 Ohms. Secondary #3: (2-5), 5.0 V., 3 Amps., 35 T. #16 E Wire, DC Resistance .101 Ohms. Primary Rated 48 Watts	30930		33	P-1954		53X270

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
*T-102	Audio Output Transformer	Transformer, 2 Windings, 5 Terminals, Secondary Center Tapped. Source Imp. 36,000 Ohms. Load Imp. 600 Ohms. Turns Ratio Full Primary to Secondary 7.2 to 1. Primary 3,280 T. #36 E. Wire, DC Resistance 438 Ohms. Shield 1 Layer #36 E. Wire. Secondary 414 T. #30 E. Wire. DC Resistance 18 Ohms. Pri. Imp. at 10 Volts 60 Cycles 28 MA. DC 5,500 Ohms Min.	30392		33	A-1957		51X110
		VACUUM TUBES						
*V-101	1st R-F Amplifier	Vacuum Tube, Receiving Type, Metal, R-F Amplifier. Heater 6.3 Volts, 0.30 Amps.	6SK7	RE-13A-600E	26	6SK7		6SK7
*V-102	2nd R-F Amplifier	Same as V-101						
*V-103	Regenerative Detector	Same as V-101						
*V-104	First Audio Amplifier	Vacuum Tube, Receiving Type, Metal, R-F Amplifier Pentode. Heater 6.3 Volts, 0.30 Amps.	6SG7	RE-13A-600E	26	6SG7		6SG7
*V-105	Audio Limiter	Vacuum Tube, Receiving Type, Duo Diode. Heater 6.3 Volts 0.30 Amps.	6H6	RE-13A-600E	26	6H6		6H6
*V-106	Power Audio Amplifier	Vacuum Tube, Receiving Type, Glass, Power Amplifier Pentode. Heater 6.3 Volts, 0.40 Amps.	6K6GTG	RE-13A-600E	26	6K6GTG		6K6GT/G
*V-107	Rectifier	Vacuum Tube, Receiving Type, Glass, Full Wave Rectifier. Heater 5.0 Volts, 0.30 Amps.	5U4G	RE-13A-600E	26	5U4G		5U4G
		SOCKETS						
*X-101 to X-107 Incl.	Tube Mounting	Vacuum Tube Sockets, Receiving Type, Octal, Ceramic, Assembled With Mounting Plate and Retaining Ring. All Parts to Withstand 200 Hr. Salt Spray Test	49373	RE-49A-300B	5			3A364
*X-108	Dial Lamp Sockets and Leads	Pilot Lamp Lead Assembly. Miniature Bayonet Type Socket With External Fibre Insulation and Spring Mtg. Clamp. Leads: #22 Stranded, 12.750" Black Wire to Center Contact; 12.250" Yellow Wire to Socket Shell. All Parts to Withstand 200 Hr. Salt Spray Test			2	85UL		7A171
*X-109	Same as X-108	Same as X-108 Except Black Wire 6.500", Yellow Wire 12.250"			2	85UL		7A172

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		FILTERS						
Z-101	Antenna to 1st R-F Tube Coupling	1st R-F Coil, Low Frequency. 3 Windings Connected in Series .250" Apart, Wound in Same Direction. Winding #1 (Black to Red) 1,565 T. Winding #2 (Red to Yellow) 915 T. Winding #3 (Yellow to Blue), 782 T. 10-41 D. S. E. Litz Wire on 4.750" x 1.250" O. D., 1.000" I. D. Bakelite Form. Inductance Measured at Terminals Black and Blue, Shorting Lugs Black and Yellow, 25.33 MH. Shorting Black and Red 81.27 MH, No Lugs Shorted 256.7 MH. All Measurements at 1,000 Cycles. Tolerances ± 0.5% DC Resistance Measured at Black and Red, 110.0 Ohms; Red and Yellow, 62.0 Ohms; Yellow and Blue, 50.0 Ohms. Resistance Tolerances ± 10%. Wax Coating	47250		44			9A1672
Z-102	1st R-F to 2nd R-F Tube Coupling	2nd R-F Coil, Low Frequency, 3 Windings Connected in Series .250" Apart Wound in Same Direction. Winding #1 (Black to Red) 1,515 T. Tapped at 425 T. (Brown); Winding #2 (Red to Yellow) 900 T. Tapped at 250 T. (Orange); Winding #3 (Yellow to Blue) 777 T. Tapped at 160 T. (Green), 10-41 D. S. E. Litz Wire, on 4.750" x 1.250" O. D., 1.000" I. D. Bakelite Form. Inductance Measured at Terminals Black and Blue, Shorting Lugs Black and Yellow, 25.05 MH; Shorting Black and Red, 77.3 MH; No Lugs Shorted, 245.3 MH. All Measurements at 1,000 Cycles, Tolerance ± 0.5%. DC Resistance Measured at Black and Red, 110.0 Ohms; Red and Yellow, 62.0 Ohms; Yellow and Blue, 50.0 Ohms; Black and Brown, 23.0 Ohms; Red and Orange, 13.0 Ohms; Yellow and Green, 8.0 Ohms. DC Resistance Tolerances ±10%. Wax Coating.	47251		44			9A1674
Z-103	2nd R-F Tube to Det. Tube Coupling	Detector Coil, Low Frequency, 5 Windings Connected in Series, Wound in Same Direction. Winding #1 (Red-Blue to White) 120 T.; Winding #5 (Red-Blue to Red-Black) 35 T. Tapped at 17 T. (Red-Yellow), #30 S. S. E. Wire. Winding #2 (Black to Red) 1,355 T. Tapped at 525 T. (Brown); Winding #3 (Red to Yellow) 847 T. Tapped at 325 T. (Orange); Winding #4 (Yellow to Blue) 756 T. Tapped at 200 T. (Green) 10-41 D. S. E. Litz Wire. Inductance Measured at Terminals Black and Blue, Shorting Black and Yellow 24.0 MH; Shorting Black and Red 72.37 MH; No Lugs Shorted 204.2 MH. All Measurements at 1,000 Cycles, Tolerances ± 0.5%. DC Resistance Measured at Black and Brown, 27.0 Ohms; Black and Red, 102.0 Ohms; Red and Orange, 18.0 Ohms; Red and Yellow, 62.0 Ohms; Yellow and Green, 11.0 Ohms; Yellow and Blue, 50.0 Ohms; White and Red-Blue, 5.0 Ohms; Red-Black and Red-Blue, 1.4 Ohms; Red-Yellow and Red-Blue, 0.7 Ohms, DC Resistance Tolerances ±10%. Wax Coating	47249		44			9A1676

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
Z-104	Same as Z-101	1st R-F Coil, High Frequency, 4 Windings Connected in Series, .125" Apart, Wound in Same Direction. Windings #1 and #2 (Black to Red) Each 174 T.; Winding #3 (Red to Yellow) 167 T.; Winding #4 (Yellow to Blue) 118 T., 10-41 D. S. E. Litz Wire on 2.625" x 1.000" O. D., .750" I. D. Bakelite Coil Form. Inductance Measured at Black and Blue, With Black and Yellow Shorted, .550 MH; With Black and Red Shorted 2.36 MH; No Lugs Shorted 8.58 MH. All Measurements at 1000 Cycles, Tolerance ± 0.5%. DC Resistances Measured at Black and Red, 17.0 Ohms; Red and Yellow, 8.0 Ohms; Yellow and Blue, 5.0 Ohms; Yellow and Blue 5.0 Ohms. DC Resistance Tolerances ± 10%. Wax Coating	47247		44			9A1666
Z-105	Same as Z-102	2nd R-F Coil, High Frequency, 4 Windings Connected in Series, .125" Apart, Wound in Same Direction. Winding #1 and #2 (Black to Red) Each 177 T.; Winding #3 (Red to Yellow) 165 T.; Winding #4 (Yellow to Blue) 119 T.; Tapped at 50 T. (Green), 10-41 D. S. E. Litz Wire on 2.625" x 1.000" O. D., .750" I.D. Bakelite Form. Inductance Measured at Terminals Black and Blue, With Black and Yellow Shorted, .548 MH; With Black and Red Shorted 2.32 MH; With No Terminals Shorted 8.57 MH. All Measurements at 1,000 Cycles, Tolerance ± 10%. DC Resistance Measured at Terminals Black and Red, 17.0 Ohms; Red and Yellow, 8.0 Ohms; Yellow and Blue, 6.0 Ohms; Green and Blue, 2.2 Ohms. DC Resistance Tolerance ± 10%. Wax Coating	47248		44			9A1668
Z-106	Same as Z-103	Detector Coil, High Frequency. 5 Windings Connected in Series, .125" Apart, Wound in Same Direction. Windings #1 and #2 (Black to Red) Each 171 T., Winding #1 Tapped at 54 T. (Brown); Winding #3 (Red to Yellow) 166 T., Tapped at 54 T. (Orange); Winding #4 (Yellow to Blue) 119 T., Tapped at 54 T. (Green), 10-41 D.S.E. Litz Wire. Winding #5 (Red-Blue to White) 20 T., Tapped at 10 T. (Red-Yellow), and 15 T. (Red-Black) #30 S.S.E. Wire. All Windings on 2.625" x 1.000" O.D., .750" I.D. Bakelite Form. Inductance Measured at Black and Blue, With Terminals Black and Yellow Shorted, .543 MH; With Black and Red Shorted, 2.28 MH; With No Lugs Shorted, 8.24 MH. All Measurements at 1,000 Cycles, Tolerance ±0.5%. DC Resistances Measured at Black and Red, 17.0 Ohms; Red and Yellow, 8.0 Ohms; Yellow and Blue, 6.0 Ohms; Red and Orange, 2.0 Ohms; Yellow and Green, 2.0 Ohms. DC Resistance Tolerance ±10%. Wax Coating	47246		44			9A1670

Symbol Desig.	FUNCTION	DESCRIPTION	Navy Type Number	Navy Specification or Drawing Number	Mfr.	Mfr. Desig.	Special Tolerance Rating or Modification	Contractor's Drawing and Part No.
		MISCELLANEOUS						
	Replacement Contacts for Tube Sockets	Contact Lug, Phosphor Bronze, Overall Length .750". Silver Plated to Withstand 200 Hr. Salt Spray Test			5	9-17F		30X378
	Maintenance Tool	Wrench, Allen Type, Steel, 1.750" x .562" x .062" Across Flats, to Fit Allen Hd. Set Screw #6. Cadmium Plated			41			67X8
	Maintenance Tool	Wrench, Allen Type, Steel, 1.750" x .562" x .062" Across Flats, to Fit Allen Hd. Set Screw #6. Cadmium Plated			41			67X8
	Maintenance Tool	Wrench, Allen Type, Steel, 2.125" x .750" x .078" Across Flats, to Fit Allen Hd. Set Screw #8. Cadmium Plated			41			67X9
	Maintenance Tool	Wrench, Coil Can, .250" Dia., C.R. Steel, U-Shaped. 2,500" Spread U Ends. Length 2.062" with .652" x .156" Dia. Ends			15			67X6

TABLE F—EQUIPMENT SPARE PARTS LIST BY NAVY TYPE NUMBER FOR NAVY MODEL RBL-3 RADIO RECEIVER

Box No.	Qty.	Navy Type Number	All Symbol Desigs. Involved	DESCRIPTION	Navy Drawing or Specification	Mfr.	Mfr. Desig.	Special Tolerance or Modification	Contractor's Drawing and Part Number
				STRUCTURAL PARTS					
1	1		A-108	Bracket, .078″ C.R. Steel, 2.265″ x 1.500″ Width at Base, .625″ Top Width, 2 Openings .500″ Dia. Centered 1.140″ and 1.890″ from Base. Base Width .515″. 2 Extruding 6-32 Tap Mtg. Holes in Base Each .500″ from Center. Cadmium Plated.		39			25X1191
				CAPACITORS (Class 48)					
1	1	481556	C-102, C-103	Capacitor, Air Trimmer, Range 5 to 55 mmf., 500 V. DC. Screw Driver Adjustment Slot		38	747-AT		17A212
1	1	481554	C-104	Capacitor, Variable Compensator, Range 6 to 37 mmf. Knob Adjustment Shaft		38	757-AT		17A216
1	2	481557	C-105, C-106, C-107	Capacitor, Air Trimmer, Range 6 to 75 mmf. 500 V. Screw Driver Adjustment Shaft		38	749-AT		17A213
1	1	481555	C-108	Capacitor, Variable Compensator, Range 8 to 95 mmf. Breakdown Test of 1000 Volts R.M.S. 60-600 Cycles. Knob Adjustment Shaft		38	756-AT		17A215
1	1	481558	C-109, C-110	Capacitor, Air Trimmer, Range 8 to 100 mmf., 500 V. Screw Driver Adjustment Shaft		38	748-AT		17A214
1	1		C-143, C-144	Capacitor, Tubular, .01 mf. ± 10%, 400 V. DC. .937″ x .437″ Dia. Metal Case Covered with Transparent Vinylite Tubing. 2.000″ Leads	RE-13A-488	19	7707		46X366
1	1		C-145, C-146	Same as C-143 except .013 mf.	RE-13A-488	19	7708		46X365
1	1	481073-10	C-147, C-148	Capacitor, Tubular, .1 mf. ± 10%, 400 V. DC. 1.687″ x .703″ Dia. Metal Case Covered with Impregnated Kraft Tubing. 2.375″ Leads	RE-13A-488	19	7653		46X364
1	4	481549	C-149, C-150, C-151, C-152, C-153, C-154, C-155, C-156	Capacitor, Paper, Oil Filled, .05 mf. ±10%, 600 V.	RE-13A-488	19	7667		48X250
1	1		C-157, C-158	Capacitor, Paper, Oil Filled, 0.8 mf. ±10%, 600 V.	RE-13A-488	19	7669		48X252
1	4	481550	C-159, C-160, C-161, C-162, C-163, C-164, C-165, C-166	Capacitor, Paper, Oil Filled, 1.0 mf. ±10%, 600 V.	RE-13A-488	19	7668		48X251
1	2	481080	C-167, C-168, C-169	Capacitor, Paper, Oil Filled, 4.0 mf. ±10%, 600 V.		19	7670		48X249

Box No.	Qty.	Navy Type Number	All Symbol Desigs. Involved	DESCRIPTION	Navy Drawing or Specification	Mfr.	Mfr. Desig.	Special Tolerance or Modification	Contractor's Drawing and Part Number
				MISCELLANEOUS ELECTRICAL					
1	2		E-101, E-102, E-103	Terminal Board Assembly, Bakelite, Two Terminals. .750" x .375" x .062" Thick. Right Lug Mtg. Extension. Wax Impregnated		12	6464 W1		4A277
1	2		E-104, E-105, E-106, E-107	Same as E-101 Except Left Lug Mtg. Extension		12	6465 W1		4A278
1	2		E-108, E-109, E-110	Terminal Board Assembly. Bakelite, Three Terminals. 1.125"x .375" x .062". Center Lug Mtg. Extension Wax Impregnated		12	6468 W1		4A276
1	2		E-111, E-112	Same as E-108 Except Right Lug Mtg. Extension		12	6466 W1		4A281
1	2		E-114, E-115, E-116, E-117	Same as E-108 Except Left Lug Mtg. Extension		12	6469 W1		4A282
1	2		E-151, E-152	Insulating Panel, L.E. Bakelite, 1.500" x .750" x .062". Two .149" Dia. Holes with Cutout Side of Each Hole. Syncera or Cerese Mineral Wax Finish		47			1X236
1	2		E-195, E-196	Locating Washer, L.E. Bakelite, .046" Thick, .468" O.D., .144" I.D. Syncera or Cerese Mineral Wax Finish		45			2X398
				FUSES					
1	2		F-101, F-102	Fuse, 2 Amp. 250 V. Type 3 AG, 1.187" x .250" Dia.		29	1042		16X87
				HARDWARE					
1	2		H-146, H-147	Machine Screw, Binding Head, Brass, 6-32 x 5/16". Dull White Nickel Finish		32			20X545
1	2		H-148, H-149	Lockwasher, Steel, Ext. Teeth, #6, Cadmium Plated		42			20X550
				INDICATING DEVICES					
1	2		I-101, I-102	Dial Lamp, 6.3 V., .15 Amp.		48	Mazda #47		7A103
				INDUCTORS					
1	1	47252	L-103	Filter Choke, Single Winding, Two Terminals. Inductance to Exceed 17 Henries at an Impressed Potential of 1.5 Volts R.M.S. 1000 Cycles with no DC. Through Winding. Must Withstand Breakdown Test of 2000 Volts R.M.S. 60-500 Cycles from Winding to Core and Between Winding Terminals		35	C-1958		52X63

Box No.	Qty.	Navy Type Number	All Symbol Desigs. Involved	DESCRIPTION	Navy Drawing or Specification	Mfr.	Mfr. Desig.	Special Tolerance or Modification	Contractor's Drawing and Part Number
				RESISTORS (Class 63)					
1	1	63360	R-101, R-102	Resistor, Carbon, 350 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94351
1	1	63360	R-103	Resistor, Carbon, 500 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94501
1	3	63360	R-104, R-105, R-106, R-107, R-108, R-109	Resistor, Carbon, 10,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94103
1	1	63360	R-110, R-111	Resistor, Carbon, 20,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94203
1	1	63360	R-112, R-113	Resistor, Carbon, 25,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94253
1	1	63360	R-114, R-115	Resistor, Carbon, 50,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94503
1	1	63360	R-116	Resistor, Carbon, 70,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94703
1	2	63360	R-117, R-118, R-119	Resistor, Carbon, 100,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94104
1	1	63360	R-120, R-121	Resistor, Carbon, 250,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94254
1	2	63360	R-122, R-123, R-124, R-125	Resistor, Carbon, 500,000 Ohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94504
1	1	63360	R-126	Resistor, Carbon, 2.5 Megohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94255
1	1	63360	R-127	Resistor, Carbon, 5.0 Megohms ±10%, 0.5 W. Pigtail Type Terminals		3	Type E		B94505
1	1	63474	R-135	Resistor, Carbon, 500 Ohms ±10%, 2 W. Pigtail Type Terminals		3	Type F		D94501
1	1	63474	R-136	Resistor, Carbon, 5,000 Ohms ±10%, 2 W. Pigtail Type Terminals		3	Type F		D94502
1	1	63474	R-137	Resistor, Carbon, 10,000 Ohms ±10%, 2 W. Pigtail Type Terminals		3	Type F		D94103
1	1	63474	R-138	Resistor, Carbon, 100,000 Ohms ±10%, 2 W. Pigtail Type Terminals		3	Type F		D94104
1	1	63289	R-140	Resistor, Carbon, 10,000 Ohms ±10%, 3 W. Pigtail Type Terminals		3	Type F		E94103
1	1	631284	R-145	Potentiometer, Wire Wound, Total Resistance 750 Ohms ±10%. Linear Taper. Screw Driver Slot Shaft	RE-13A-492	11	25, Wire Wound		43X154

Box No.	Qty.	Navy Type Number	All Symbol Desigs. Involved	DESCRIPTION	Navy Drawing or Specification	Mfr.	Mfs. Desig.	Special Tolerance or Modification	Contractor's Drawing and Part Number
1	1	631285	R-146	Resistor, Variable, Wire Wound. Resistance 5,000 Ohms ±10%, 4 Watt. Linear Taper. Knob Shaft .500" x .250" Dia.	RE-13A-492	11	25, Wire Wound		43X155
1	1	631286	R-147	Resistor, Variable, Wire Wound. Split Winding Element. Resistance First 50% Clockwise Rotation 7,800 Ohms ±10%, Total Resistance 10,000 Ohms ±10%, Rating 4 Watts Approx. Linear Taper. .500" x .250" Dia. Shaft	RE-13A-492	11	25, Wire Wound		43X157
1	1	631287	R-148	Resistor, Variable, Wire Wound, Resistance 25,000 Ohms ±10%, 4 Watts, Linear Taper. .500" x .250" Dia. Knob Shaft	RE-13A-492	13			43X156
				SWITCHES (Class 24)					
1	1	24146	S-101	Toggle Switch, S.P.S.T. One Break Per Circuit. 3 Amp. 125 V.		6			2A279
1	1	24147	S-102	Toggle Switch, D.P.S.T. 3 Amp. 125 V.		6			2A280
1	1	24148	S-103	Toggle Switch, S.P.D.T. 3 Amp. 125 V.		6			2A281
				TRANSFORMERS (Class 30)					
1	1	30392	T-102	Transformer, 2 Windings, 5 Terminals, Secondary Center Tapped. Source Imp. 36,000 Ohms. Load Imp. 600 Ohms. Turns Ratio Full Primary to Secondary 7.2 to 1. Primary. 3280 T. #36 E. Wire, DC Resistance 438 Ohms. Shield 1 Layer #36 E. Wire. Secondary. 414 T. #30 E. Wire. DC Resistance 18 Ohms. Pri. Imp. at 10 Volts 60 Cycles 28 MA. DC 5,500 Ohms Min.		33	A-1957		51X110
				VACUUM TUBES					
1	3	6SK7	V-101, V-102, V-103	Vacuum Tube, Receiving Type, Metal, R-F Amplifier. Heater 6.3 Volts, 0.30 Amps.	RE-13A-600E	26	6SK7		6SK7
1	1	6SG7	V-104	Vacuum Tube, Receiving Type, Metal, R-F Amplifier Pentode. Heater 6.3 Volts, 0.30 Amps.	RE-13A-600E	26	6SG7		6SG7
1	1	6H6	V-105	Vacuum Tube, Receiving Type, Metal, Duo Diode. Heater 6.3 Volts, 0.30 Amps.	RE-13A-600E	26	6H6		6H6
1	1	6K6GT/G	V-106	Vacuum Tube, Receiving Type, Glass, Power Amplifier Pentode. Heater 6.3 Volts, 0.40 Amps.	RE-13A-600E	26	6K6GT/G		6K6GT/G
1	1	5U4G	V-107	Vacuum Tube, Receiving Type, Glass, Full Wave Rectifier. Heater 5.0 Volts, 3.0 Amps.	RE-13A-600E	26	5U4G		5U4G
				SOCKETS (Class 49)					
1	2	49373	X-101, X-102, X-103, X-104, X-105, X-106, X-107	Vacuum Tube Socket, Receiving Type, Octal, Ceramic. Assembled with Mounting Plate and Retaining Ring	RE-49A-300B	5	RSS8M		3A364

Box No.	Qty.	Navy Type Number	All Symbol Desigs. Involved	DESCRIPTION	Navy Drawing or Specification	Mfr.	Mfr. Desig.	Special Tolerance or Modification	Contractor's Drawing and Part Number
				MISCELLANEOUS					
1	28			Socket Contacts		5			30X378
1	1			Coil Can Wrench		15			67X6
1	1			Allen Wrench for #6 Screw		41			67X8
1	1			Allen Wrench for #8 Screw		41			67X9

TABLE G — PARTS LIST BY NAVY TYPE NUMBER

STRUCTURAL PARTS

Quantity	Navy Type Number	All Symbol Designations Involved
1		A-101
1		A-102
1		A-103
1		A-104
1		A-105
2		A-106, A-107
1		A-108
1		A-109
1		A-110
4		A-111 to A-114 Inclusive
14		A-115 to A-128 Inclusive
4		A-301 to A-304 Inclusive
1		A-305
1		A-306

CAPACITORS

Quantity	Navy Type Number	All Symbol Designations Involved
2	48676	C-117, C-118
2	48691	C-119, C-120
2	48843	C-114, C-115
2	48847	C-136, C-137
1	48854	C-116
2	48929	C-130, C-131
4	48983	C-125, C-126, C-127, C-128
4	481037	C-132, C-133, C-134, C-135
1	481065	C-113
2	481073	C-147, C-148
3	481080	C-167, C-168, C-169
1	481089	C-129
3	481098	C-122, C-123, C-124
1	481279	C-112
1	481428	C-121
8	481549	C-149, C-150, C-151, C-152, C-153, C-154, C-155, C-156
8	481550	C-159, C-160, C-161, C-162, C-163, C-164, C-165, C-166
1	481554	C-104
1	481555	C-108
2	481556	C-102, C-103
3	481557	C-105, C-106, C-107
2	481558	C-109, C-110
1	481559	C-111
2	481560	C-138, C-139
2		C-143, C-144
2		C-145, C-146
2		C-157, C-158

MISCELLANEOUS ELECTRICAL PARTS

Quantity	Navy Type Number	All Symbol Designations Involved
3		E-101, E-102, E-103
4		E-104, E-105, E-106, E-107
3		E-108, E-109, E-110
2		E-111, E-112
4		E-114, E-115, E-116, E-117
1		E-146
4		E-147 to E-150 Inclusive
2		E-151, E-152
6		E-153 to E-158 Inclusive
1		E-159
3		E-160 to E-162 Inclusive
3		E-163 to E-165 Inclusive
28		E-166 to E-193 Inclusive
1		E-194
2		E-195, E-196
1		E-197
1		E-198
3		E-199 to E-201 Inclusive
3		E-202 to E-204 Inclusive
6		E-205 to E-210 Inclusive
8		E-211, E-212, E-213, E-214, E-215, E-216, E-217, E-218
1		E-219
1		E-220

FUSES

Quantity	Navy Type Number	All Symbol Designations Involved
2		F-101, F-102

HARDWARE

Quantity	Navy Type Number	All Symbol Designations Involved
8		H-101, H-102, H-103, H-104, H-105, H-106, H-107, H-108
5		H-109, H-110, H-111, H-112, H-113
14		H-114 to H-127 Inclusive
6		H-128 to H-133 Inclusive
8		H-134 to H-141 Inclusive
4		H-142 to H-145 Inclusive
2		H-146, H-147
2		H-148, H-149
4		H-301 to H-304 Inclusive

INDICATING DEVICES

Quantity	Navy Type Number	All Symbol Designations Involved
2		I-101, I-102
1		I-103
1		I-104

JACKS AND RECEPTACLES

Quantity	Navy Type Number	All Symbol Designations Involved
1	49120	J-104
1		J-101
2		J-102, J-103
1		J-105
1		J-106

INDUCTORS

Quantity	Navy Type Number	All Symbol Designations Involved
1	30931	L-104
1	47352	L-103
1	53108	L-101
1	53109	L-102

NAMEPLATES

Quantity	Navy Type Number	All Symbol Designations Involved
1		N-101
1		N-102
1		N-103
1		N-104
1		N-105
1		N-106
1		N-107
1		N-108
1		N-109
1		N-110
1		N-111
1		N-112
1		N-113
1		N-114
1		N-115

Quantity	Navy Type Number	All Symbol Designations Involved
MECHANICAL PARTS		
2		O-101, O-102
1		O-103
2		O-104, O-106
1		O-105
2		O-107, O-109
1		O-108
2		O-110, O-111
1		O-112
1		O-113
1		O-114
4		O-115, O-116, O-117, O-118
1		O-119
1		O-120
PLUGS		
1	49121-A	P-103
1	49202	P-102
1		P-101

Quantity	Navy Type Number	All Symbol Designations Involved
RESISTORS		
1	631284	R-145
1	631285	R-146
1	631286	R-147
1	631287	R-148
27	63360	R-101 to R-127 Inclusive
1		R-135
1		R-136
1		R-137
1		R-138
1		R-140
SWITCHES		
1	24047	S-106
1	24146	S-101
1	24147	S-102
1	24148	S-103
1		S-104
1		S-105
1		S-107
14		S-108 to S-121 Inclusive
TRANSFORMERS		
1	30392	T-102
1	30930	T-101

Quantity	Navy Type Number	All Symbol Designations Involved
VACUUM TUBES		
1	5U4G	V-107
1	6H6	V-105
1	6K6GT1G	V-106
1	6SG7	V-104
3	6SK7	V-101, V-102, V-103
SOCKETS		
7	49373	X-101 to X-107 Inclusive
1		X-109
1		X-109
FILTERS		
1	47246	Z-106
1	47247	Z-104
1	47248	Z-105
1	47249	Z-103
1	47250	Z-101
1	47251	Z-102
MISCELLANEOUS		
1		30X378
1		67X6
1		67X9
1		67X8

TABLE H — LIST OF MANUFACTURERS

Code No.	Mfr. Prefix	Name	Address
1		Acme Metal Products Corp.	1845 W. 74th, Chicago, Ill.
2		Alden Products Co.	Brockton, Mass.
3	CBZ	Allen-Bradley Co.	Milwaukee, Wisc.
4		Aluminum Goods Mfg. Co.	Manitowoc, Wisc.
5	CPH	American Phenolic Corporation	1830 S. 54th Ave. (Cicero P.O.) Chicago, Ill.
6		Arrow Electric Division, The Arrow-Hart & Hegeman Electric Co.	103 Hawthorn St., Hartford, Conn.
7		Atlantic India Rubber Works, Inc.	1453 W. Van Buren St., Chicago, Ill.
8		J. B. Carroll Co.	Carroll & Albany Aves., Chicago, Ill.
9		Central Screw Company	3501 Shields Ave., Chicago, Ill.
10		Chicago Die Mold Mfg. Co.	4001 W. Wrightwood Ave., Chicago, Ill.
11	CTC	Chicago Telephone Supply Co.	Elkhart, Ind.
12		Cinch Manufacturing Corporation	2335-47 W. Van Buren St., Chicago, Ill.
13	CMC	Clarostat Manufacturing Company, Inc.	285 N. Sixth St., Brooklyn, N. Y.
14		Crescent Tool & Die Co.	4140-50 Belmont Ave., Chicago, Ill.
15		C. Cretors & Co.	Cermak Road & Jefferson St., Chicago, Ill.
16		Crowe Name Plate & Manufacturing Co.	3701 Ravenswood Ave., Chicago, Ill.
17		Doehler Die Casting Co.	386 Fourth Ave., New York 16, N. Y.
18		Etching Company of America	1520 Montana St., Chicago, Ill.
19	CBV	John E. Fast & Co.	3123 N. Crawford Ave., Chicago, Ill.
20		General Etching & Mfg. Co.	3070-82 W. Grand Ave., Chicago, Ill.
21		Grand Sheet Metal Works	2501 W. 24th St., Chicago, Ill.
22		Harvey Hubbell, Inc.	1930 Thomas St., Bridgeport, Conn.
23		Hudson Screw Machine Products Co.	4500 W. Augusta Blvd., Chicago, Ill.
24		International Spring Company	222 N. Washtenaw Ave., Chicago, Ill.
25		Howard B. Jones	2300 Wabansia Ave., Chicago, Ill.
26	CKR	Ken-Rad Tube & Lamp Corporation	Owensboro, Kentucky
27		Lamicoid Fabricators, Inc.	3600-10 Potomac Ave., Chicago, Ill.
28		Lemke Screw Products Company	1913 N. LeClaire Ave., Chicago, Ill.
29	CLF	Littlefuse Incorporated	4757 Ravenswood Ave., Chicago, Ill.
30		Lord Manufacturing Company	Erie, Pa.
31	CMA	P. R. Mallory & Co., Inc.	3029 E. Washington St., Indianapolis, Ind.
32		Manufacturers Screw Products	216-222 W. Hubbard St., Chicago, Ill.
33		Merit Coil & Transformer Corp.	311 N. DesPlaines Ave., Chicago, Ill.
34		Metal Decorating & Mfg. Co.	4633 Gladys Ave., Chicago, Ill.
35		Metal & Glass Products Company	165 N. Morgan St., Chicago, Ill.
36		Harry Meyer's Wood Products	1652 W. Hubbard St., Chicago, Ill.
37	CN	National Electrical Machine Shops, Inc.	2014 Fifth St., N.E., Washington, D.C.
38	COC	Oak Manufacturing Company	1260 Clybourn Ave., Chicago, Ill.
39		Olson Manufacturing Co.	1820-22 W. Grand Ave., Chicago, Ill.
40	CAN	Sangamo Electric Company	Springfield, Ill.
41		Set Screw & Mfg. Company	Bensenville, Ill.
42		Shakeproof, Inc.	2501 N. Keeler Ave., Chicago, Ill.
43		Slingerland Banjo & Drum Co.	1325 Belden Ave., Chicago, Ill.
44		Sonora Radio & Television Corporation	325 N. Hoyne Ave., Chicago, Ill.
45		Spaulding Fibre Company, Inc.	4757 Ravenswood Ave., Chicago, Ill.
46	CRA	Utah Radio Products Co.	812-20 Orleans St., Chicago, Ill.
47	CWQ	Wells-Gardner & Co.	2701 N. Kildare Ave., Chicago, Ill.
48	CAY	Westinghouse Electric Mfg. Co., Lamp Division	20 N. Wacker Drive, Chicago, Ill.

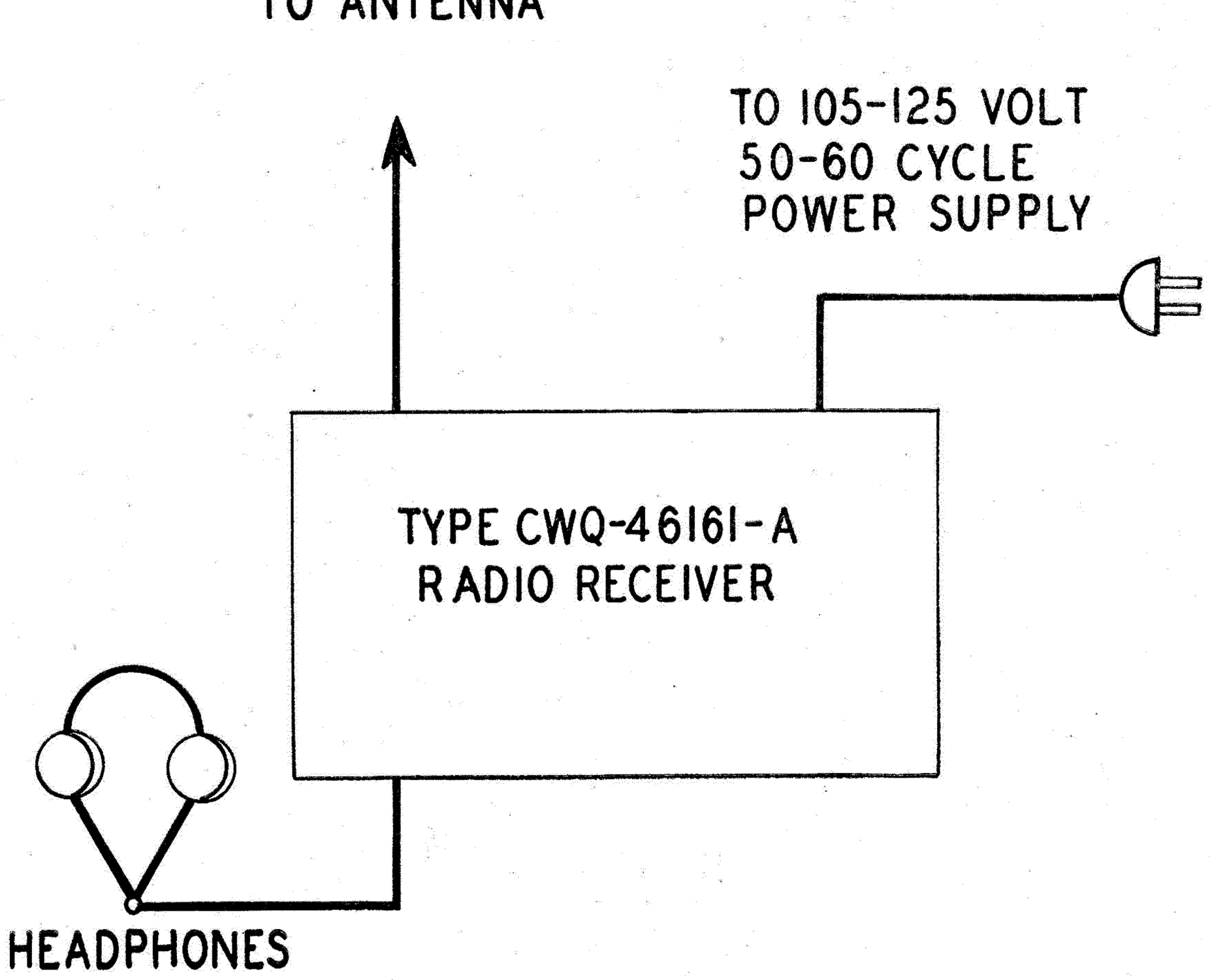


Fig. 19. Block Diagram, Receiver Connections

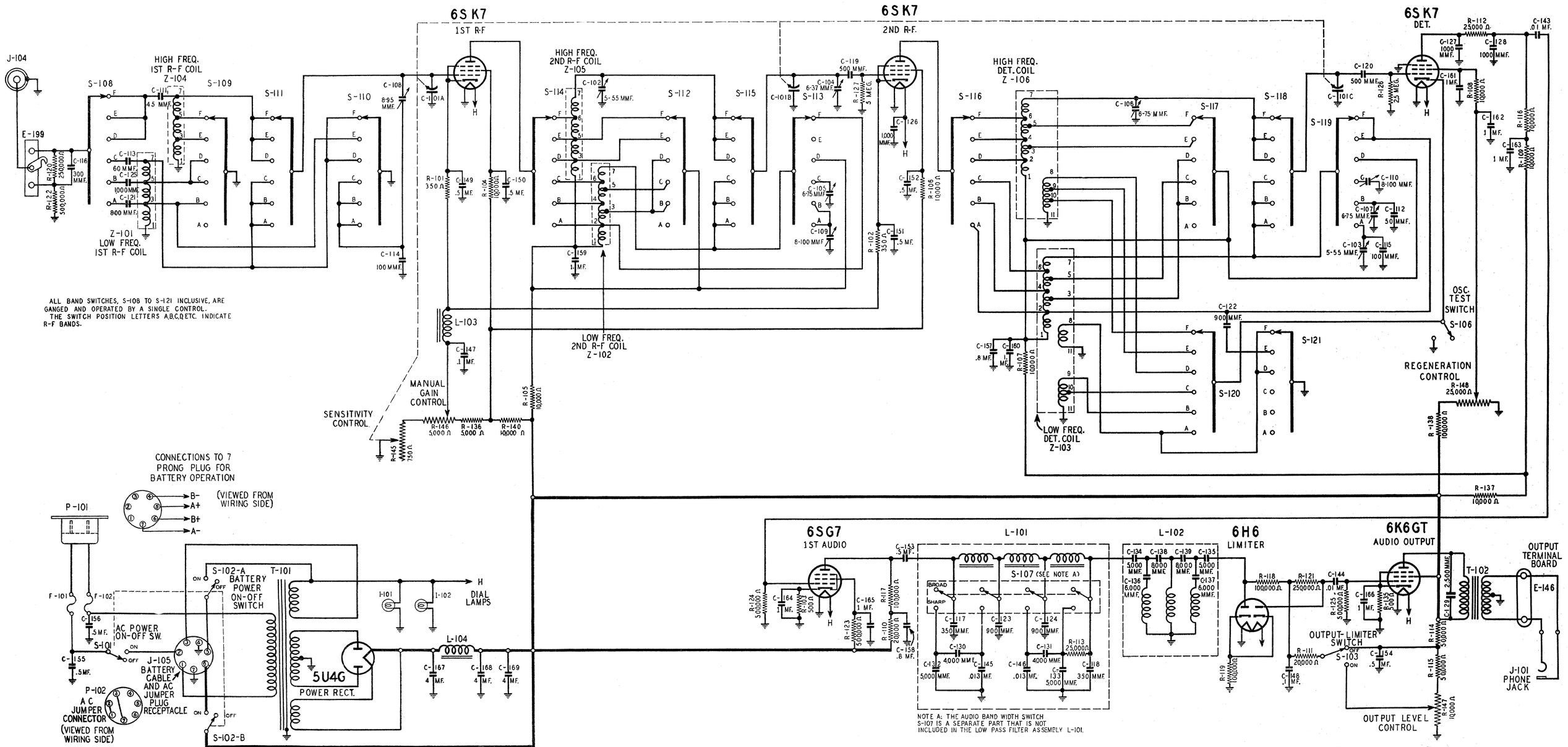


Fig. 20. Schematic Diagram

NOTE:
PROVIDE SUFFICIENT CLEARANCE BETWEEN THE REAR OF THE RECEIVER CABINET AND THE WALL TO ALLOW FOR THE CURVATURE OF THE CABLES USED FOR ANTENNA AND POWER CONNECTIONS.

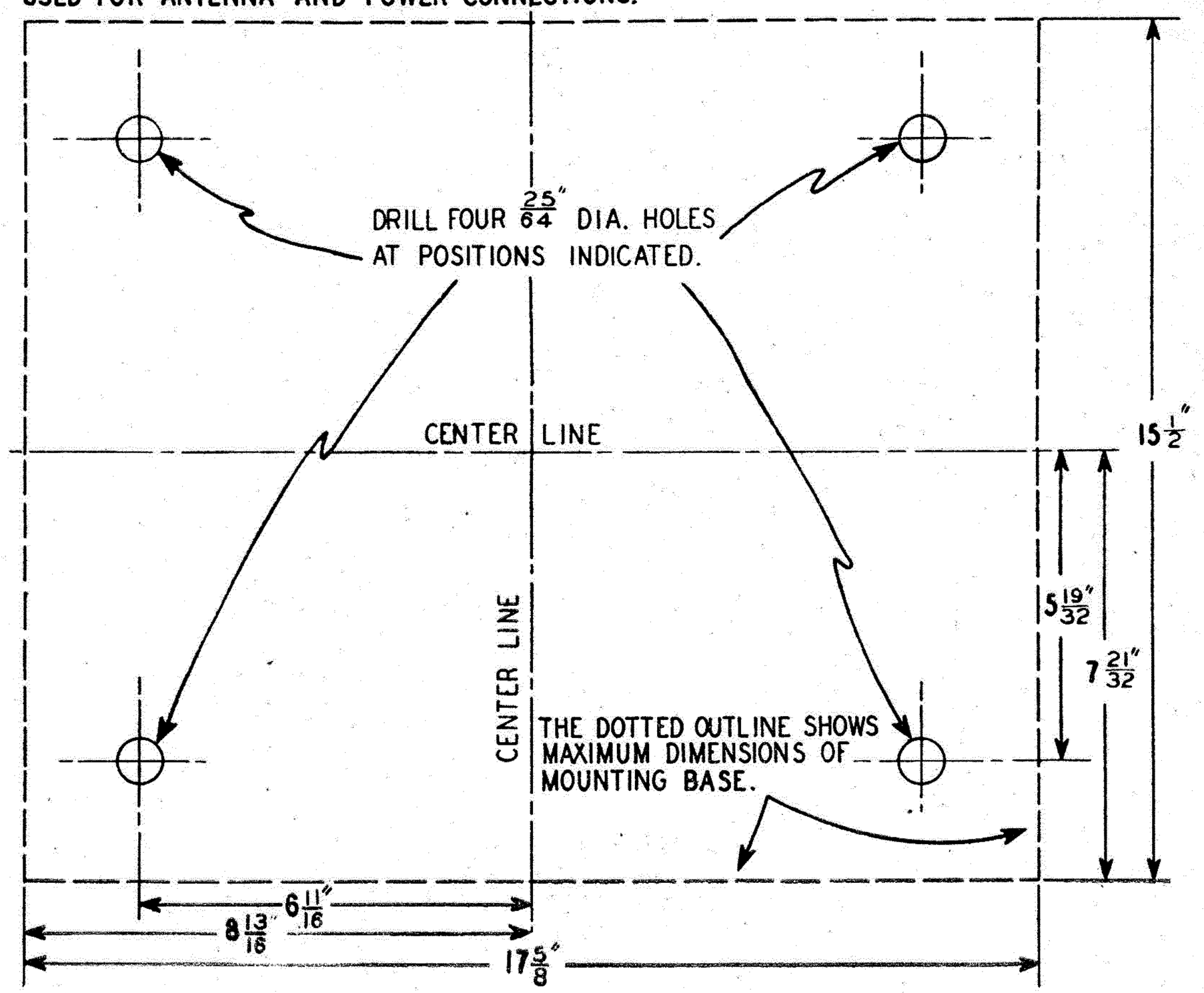


Fig. 21. Drilling Plan for Mounting Base Installation

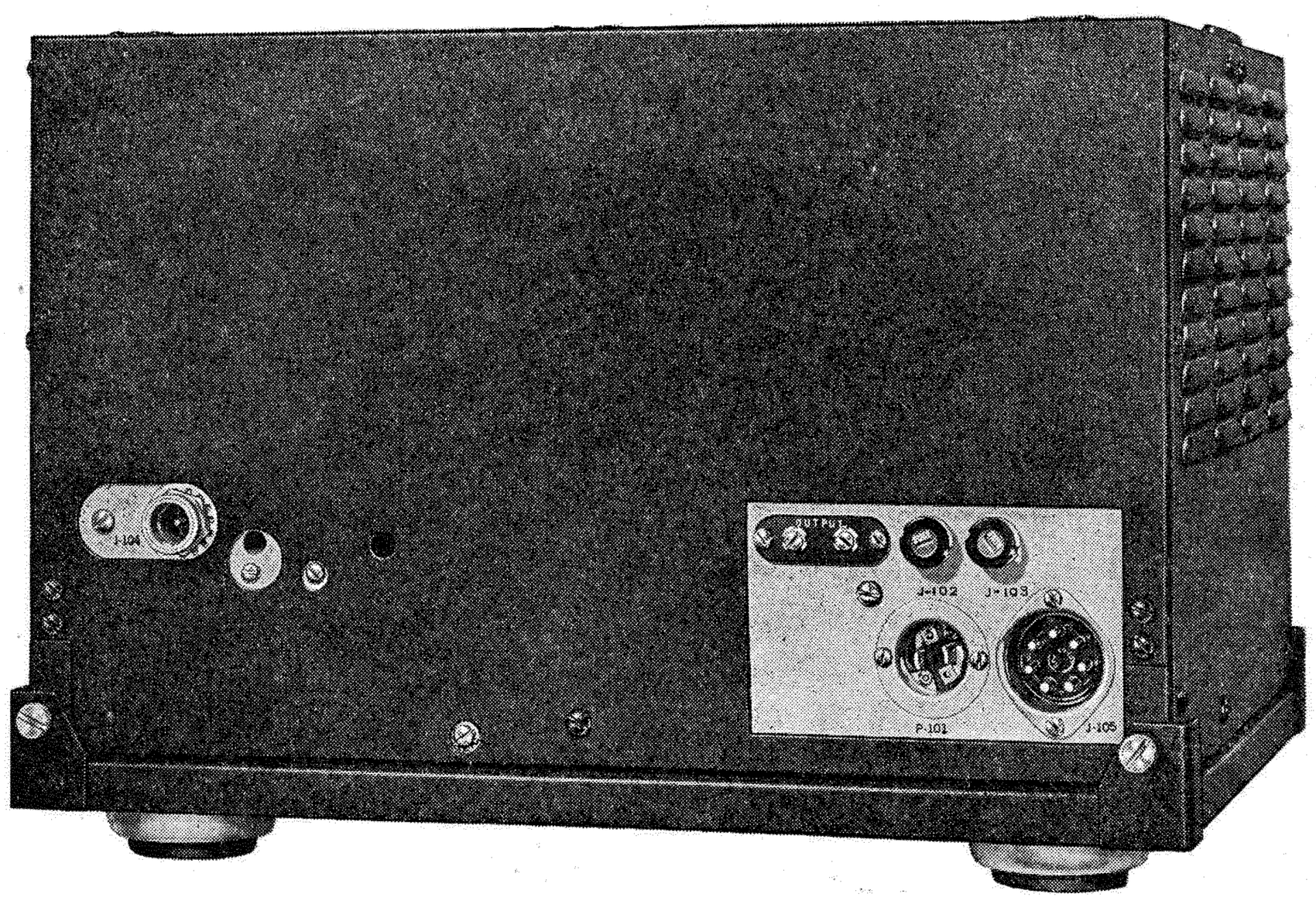


Fig. 23. Rear View of Model RBL-3 Radio Receiver

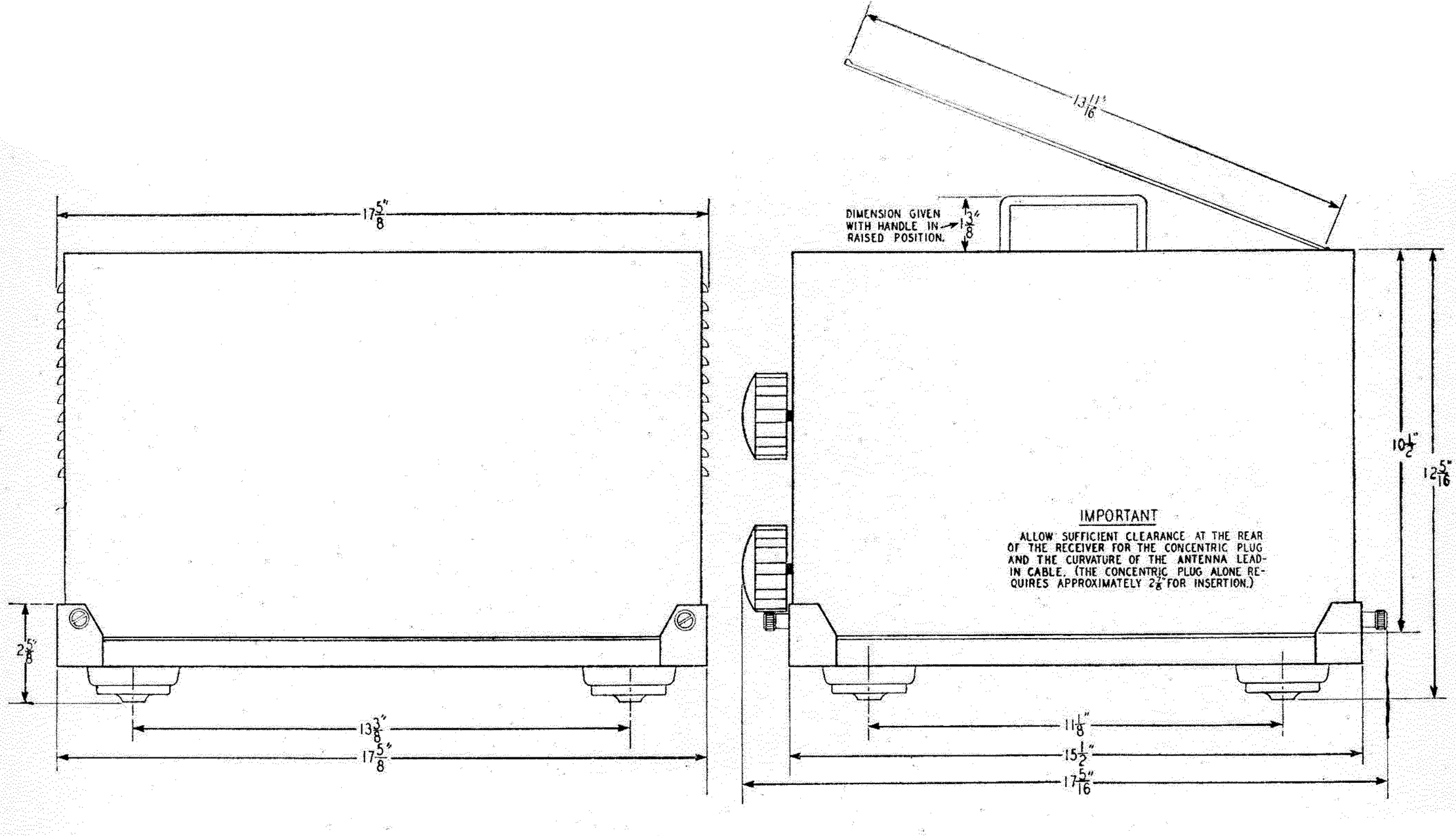


Fig. 22. Outline Dimensions

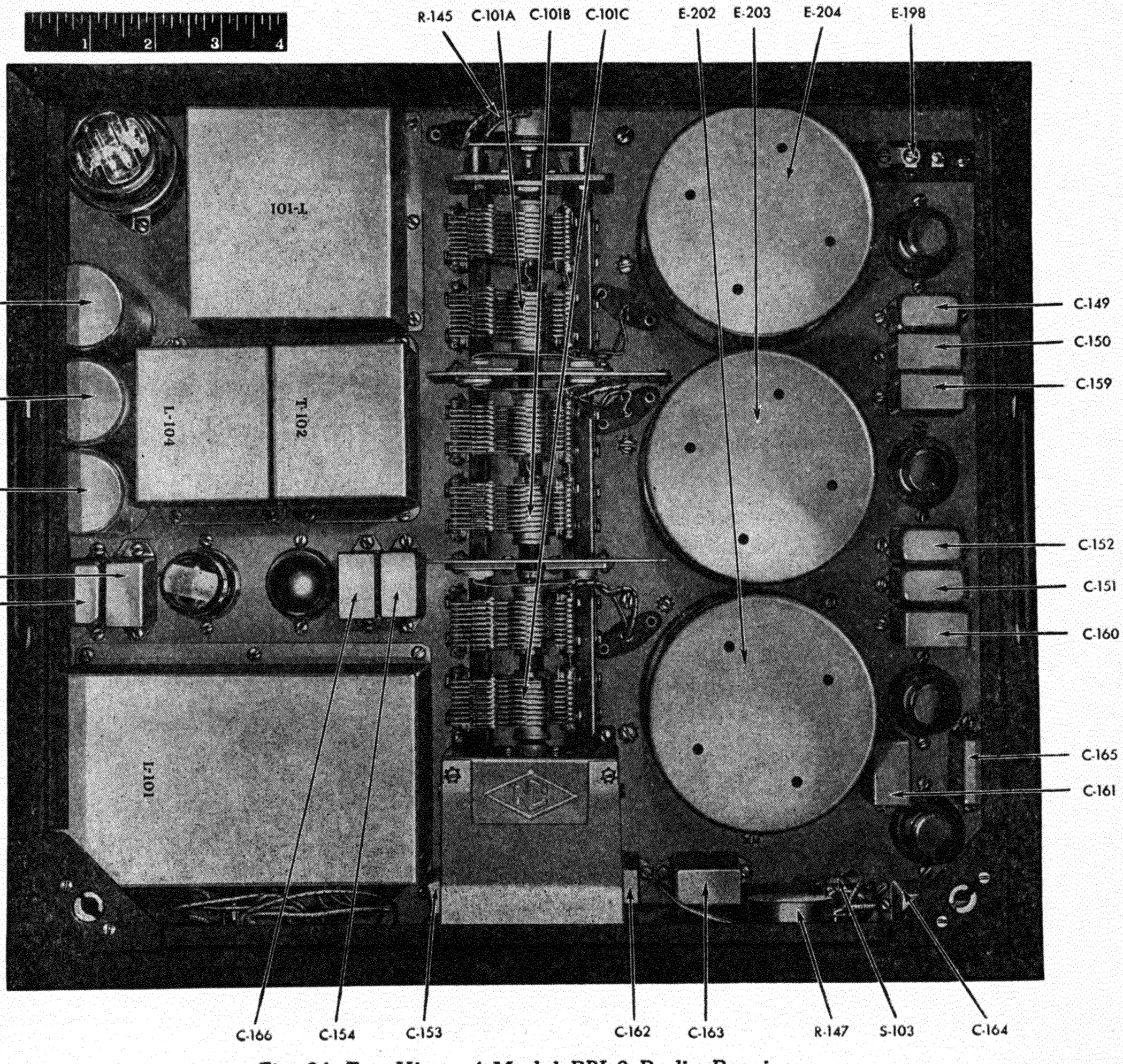


Fig. 24. Top View of Model RBL-3 Radio Receiver

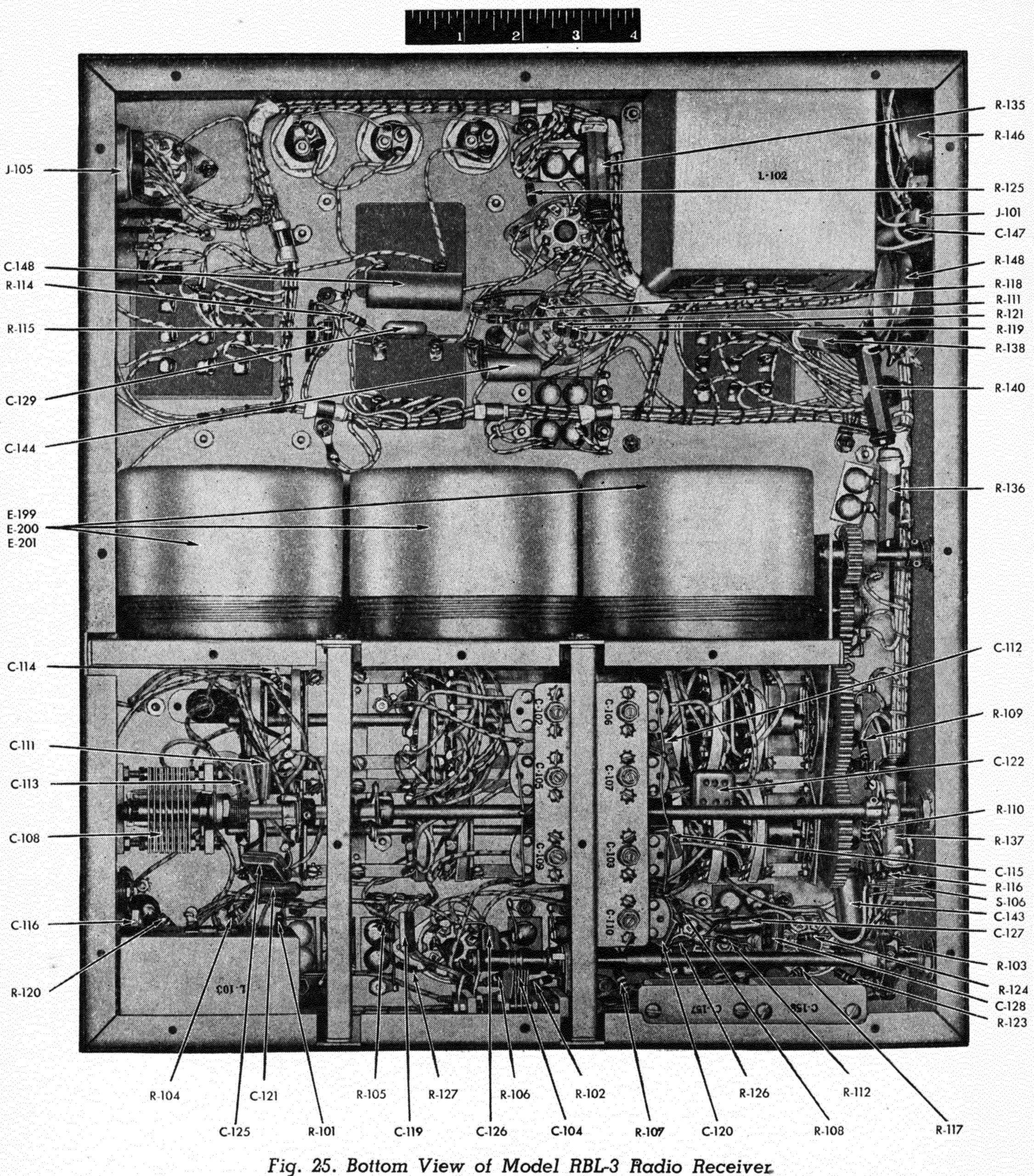


Fig. 25. Bottom View of Model RBL-3 Radio Receiver