

TM 11-5820-357-20

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

RADIO RECEIVER R-390/URR



*HEADQUARTERS DEPARTMENT OF THE ARMY
23 MARCH 1961*

Technical Manual }
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HEADQUARTERS
DEPARTMENT OF THE ARMY
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RADIO RECEIVER R-390/URR

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*This manual supercedes so much of TM 11-856, 11 January 1955, as pertains to organizational maintenance.

CHAPTER 1

INTRODUCTION

1. Scope

This manual covers the installation and second echelon maintenance of Radio Receiver R-390/URR. The operating instructions for this equipment are contained in TM 11-5820-357-10.

2. Forms and Records

Forward comments concerning this manual to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d,, Fort Monmouth, N. J.

Note. For applicable forms and records, 11-6820-357-10.

CHAPTER 2

INSTALLATION

3. Unpacking

a. Packaging Data (fig. 1). When packed for shipment, the components of Radio Receiver R-390/URR are placed in a carton which is packed in a wooden shipping crate (fig. 1). The wooden shipping crate is 21 inches high, 32 inches wide, and 32 inches deep. Its volume is approximately 12.4 cubic feet and the total packed weight is approximately 83 pounds.

b. Removing Contents. Perform all the steps outlined below when unpacking the equipment.

Caution: Be careful when uncrating, unpacking, and handling the equipment because it is easily damaged.

- (1) Place the crate as near the operating position as is convenient.
- (2) Cut and fold back the metal straps.
- (3) Remove nails from the top of the crate. Do not attempt to pry it off because the equipment may become damaged.
- (4) Remove the technical manuals and the paperboard carton containing the spare parts.
- (5) Slit open the fiberboard carton and fold the flaps back.
- (6) Remove the protective plywood panel.
- (7) Grasp the carrying handles of the receiver and carefully withdraw the receiver from the fiberboard padding which is between the receiver and the fiberboard carton. Place the receiver on a bench or near its final location.

4. Checking Unpacked Equipment

a. Check the contents of the cartons against the master packing slip.

b. Check the front panel of the receiver for damage to the knobs or to the glass windows of the meters and frequency indicator dial.

c. Operate the control knobs; examine them for looseness.

(1) Operate the MEGACYCLE CHANGE and KILOCYCLE CHANGE knobs throughout their ranges. Rough operations or binding may indicate a damaged tuning system.

(2) Do not operate the KILOCYCLE CHANGE knob past the point where a red+ or - sign appears on the frequency indicator.

d. Remove the top and bottom dust covers by removing the 16 screws (TM 5820-357-10) and lockwashers that secure the covers to the main frame. Replace the screws and lockwashers that hold the dust covers in their positions so that they are available when the dust covers are reinstalled.

e. Inspect the subchassis on the upper and lower decks of the receiver for loose tube shields and broken tubes.

f. If the receiver is to be used in a fixed installation, remove the shields from all tubes (fig. 8 and 9), except through V505, and

g. Unless extremely dusty conditions are expected, do not replace the dust covers.

h. Do not replace the dust covers if the receiver is to be installed in Cabinet, Electrical Equipment CY-979/URR or URR. Securely wrap the tube shields and the dust covers. Mark the nomenclature and the serial number of the receiver from which they were removed on the cover of the package. Store them for future use. Reinstall the tube shields and dust covers when the receivers are stored or shipped.

i. See that all connectors are seated firmly and are in their respective sockets. Loose or improperly seated connectors are a common cause of faulty operation of radio equipment.

j. Remove the three fuses from the rear panel (TM 11-5820-357-10). Check to see that they are of the proper rating. Make sure that the fuses are firmly seated after replacing them.

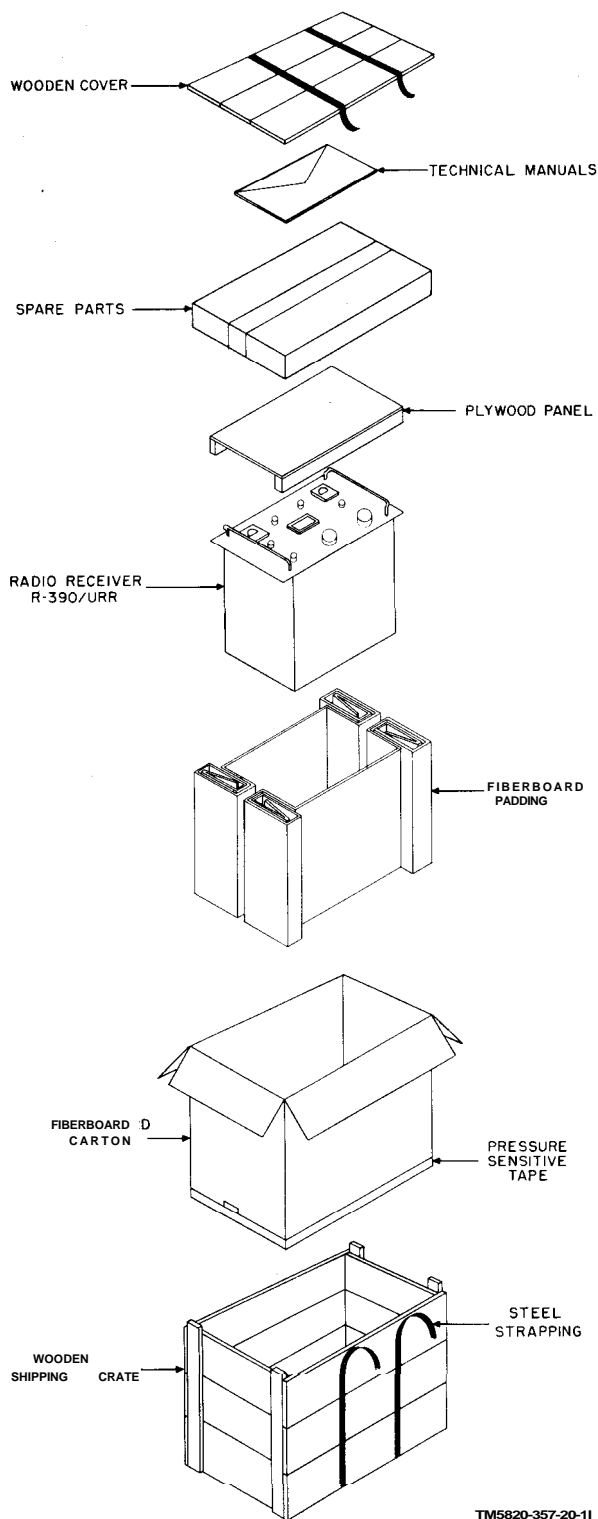


Figure 1. Unpacking.

k. Inspect for bent or broken connectors and terminals on the rear panel. See that

the special tools are placed in their holders (TM 11-5820-357-10).

l. Remove the small cover (TM 11-5820-357-10) at the lower right-hand corner of the rear panel. See that the spare fuses are of the proper ratings and are in place.

m. Check the contents of the box that contains the running spares for damaged parts.

n. Perform the installation and connection procedures given in paragraphs 5 and 6.

Caution: To avoid serious damage to the receiver, do not use any fuse other than the value specified,

5. Installation Requirements

If the receiver is used as a part of a system, refer to the technical manual for that system. Instructions for installing the receiver for fixed and mobile use are listed in a through d below.

Note. The receiver is frequently used with rhombic, doublet, or double-doublet receiving-type antennas. For information on the rhombic and doublet antennas, refer to TM 11-666. For information on the double-doublet antenna, refer to TM 11-2629.

a. Fixed tabletop Installation. When housed in cabinet CY-917/URR or a similar well-ventilated case for fixed operation, the receiver can be placed on any sturdy bench, table, or desk.

b. Fixed Cabinet Installation. To install the receiver in a standard cabinet, such as Cabinet, Electrical Equipment CY-1119/U, remove the top and bottom dust covers to increase ventilation. Remove one of the blank panels from the cabinet and install the receiver. Secure the front panel to the cabinet with the bolts removed from the blank panel. Insert them in the elongated holes along the vertical edges of the receiver front panel.

c. Mobile, Tabletop Installation. When the receiver is housed in Cabinet, Electrical Equipment CY-979/URR for mobile operation, the cabinet must be securely bolted to a table or bench. Allow enough room for ventilation, access to the connections on the back panel, and withdrawal of

the receiver from the cabinet for servicing. Adequate lighting facilities must be provided to permit reading the control names and positions during day and night operation.

d. Mobile, Cabinet, or Rack Installation. When the receiver is installed in Cabinet, Electrical Equipment CY-1216/U for mobile operation, the cabinet must be securely bolted to the vehicle body, Allow enough room for access to back panel connections and for the withdrawal of the receiver for servicing. Provision for lighting must be made to permit reading control names and positions during day and night operation.

Caution: When the receiver is installed in any cabinet other than described above, adequate ventilation must be provided. For

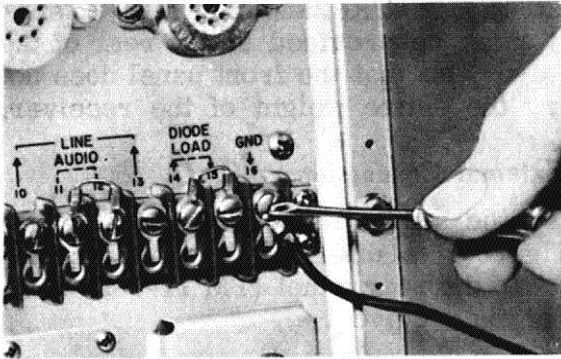
mobile applications of the receiver in cabinets other than Cabinets, Electrical Equipment CY-979/URR and CY-1216/U, support must be provided at the rear of the receiver, so that the front panel does not carry the entire weight of the receiver.

6. External Connections

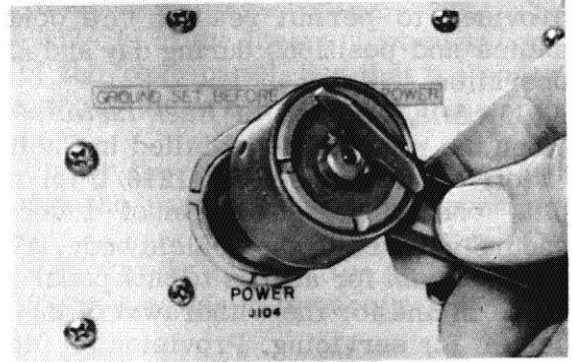
Use the step-by-step procedure shown in figure 2 to make the external connections to the rear panel (TM 11-5820-357-10) of the receiver.

7. Remote Control Receptacle

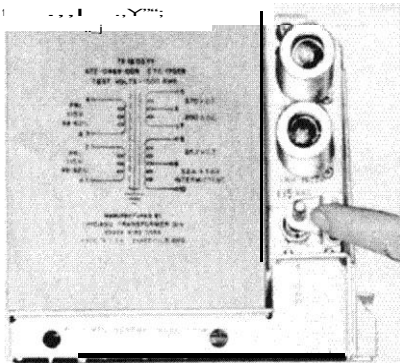
Several terminals on terminal boards TB101 and TB102 are connected inparallel with REMOTE CONTROL 5105 receptacle. This receptacle is not ordinarily used.



1 Connect GND terminal 16 to the same ground used with associated equipment.

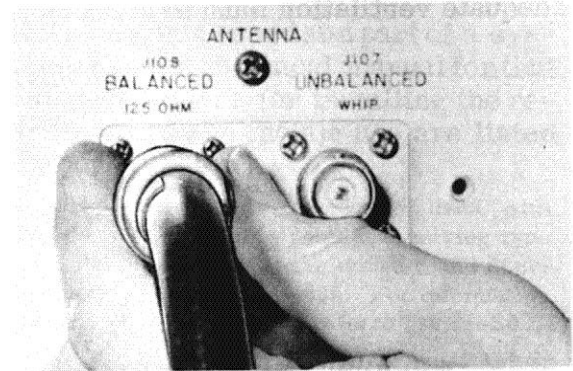


3 Connect Power Cable Assembly 1358/U between the power source and the POWER receptacle J104.



2 Determine whether the power source is 115 vac or 230 vac then check to see that 115/230 volt switch S801 on Power Supply PP-621 /URR is in the proper position for operation of the receiver from the available power source.

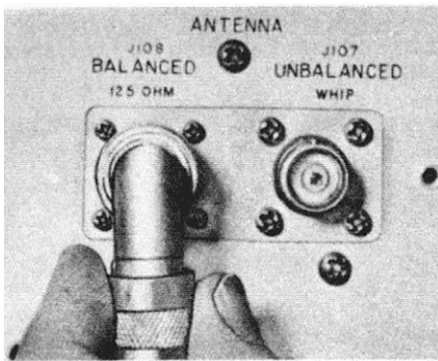
Caution: If the receiver is to be operated from a 230 volt ac source, change the fuse marked AC3A from a 3 ampere, 125 volt type MS F02D3RB to a 1 1/2 ampere, 250 volt type MS F02G3ROOA.



4 To connect the receiver to a 50 to 200 ohm balanced antenna, such as a balanced doublet, to the BALANCED ANTENNA Connector, use Radio Frequency Cable RG-22/U with Connector Plug UG-421/U or use Radio Frequency Cable RG-B6/U with Connector Plug UG-969/U.

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Figure (1). Connecting procedures (part 1 of 4).

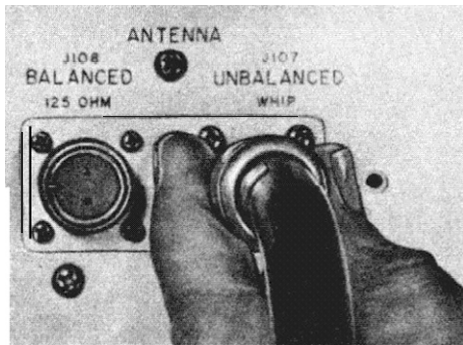


5 To adopt unbalanced coaxial lead-in cable to the BALANCED ANTENNA CONNECTOR use Adaptor Connector UG-971/U when lead-in is terminated in Connector Plug UG-573/U.

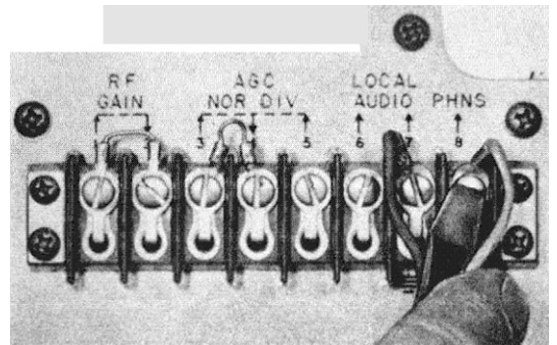
Note: Use Connector Plug UG-970/U when coaxial cable is terminated in Connector Plug PL-259.



7 Plug the 600 ohm headset into the PHONES Jack if the headset is to be connected to the rear panel terminal board perform step 8.



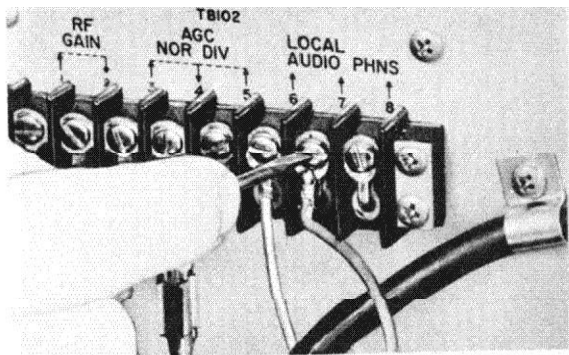
6 use connector Plug UG-573/U to connect the unbalanced ANTENNA CONNECTOR to a whip antenna or to a random-length single-wire antenna. The whip lead-in should be as short a length as possible of Radio Frequency Cable RG-8/U or RG-11 /U.



8 Connect the headset to the PHNS terminal 8 and terminal 7 (ground).

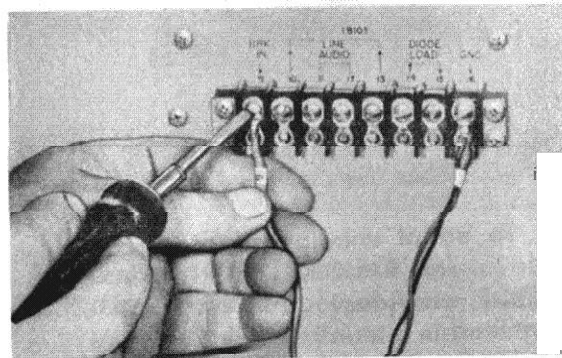
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Figure 2(1)Connecting procedure (part 1 of 4)

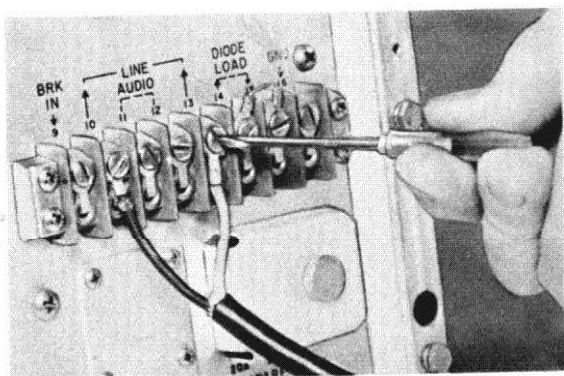


9 Connect the loudspeaker (if used) to LOCAL AUDIO terminals 6 and 7.

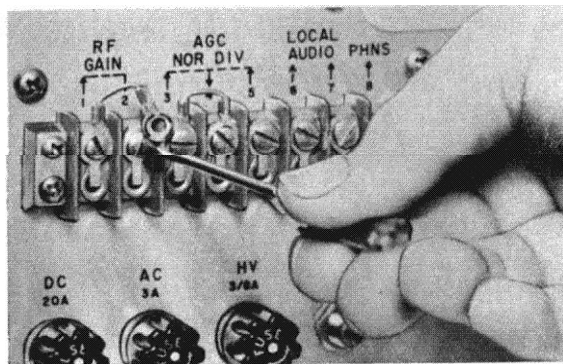
12 Connect the balancing bridge between terminals 11 and 12, (see step 11).



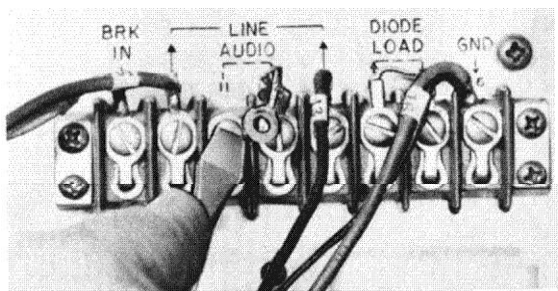
13 If a transmitter is being used with the receiver in break-in operation, connect the control lines from the transmitter to BRK-IN terminal 9 and GND terminal 16.



10 For balanced line audio output operation, connect the balanced line to LINE AUDIO terminals 10 and 13. If a balancing bridge is to be used for remote applications perform steps 11 and 12.



14 For external rf gain control, remove the jumper between RF GAIN terminals 1 and 2 and perform step 15.

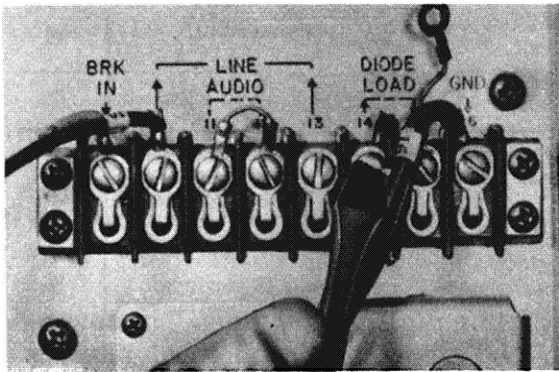


15 Connect an external 5,000-ohm potentiometer to RF GAIN terminal 1 and to terminal 7 ground, (see step 14).

11 Remove the jumper from terminals 11 and 12.

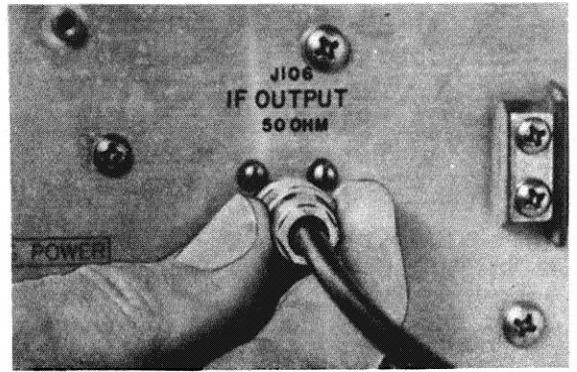
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Figure 2(4). Connecting procedures (part 3 of 4).

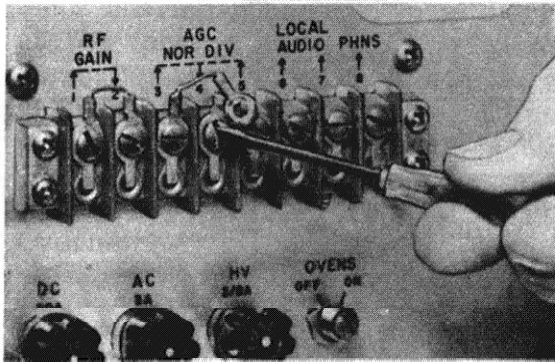


16 To use an external diode load, remove jumper from DIODE LOAD terminals 14 and 15 and perform step 17.

17 Connect the lines from the external diode load to terminals 14 and 15. (see step 16).

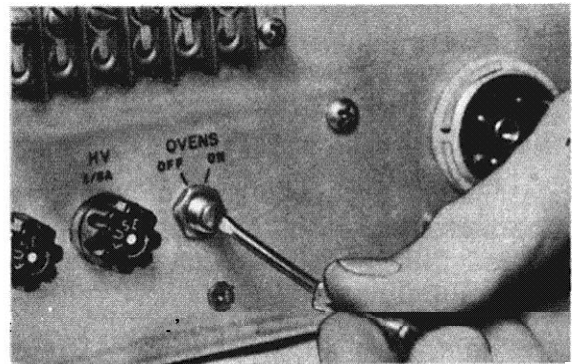


20 Connect coaxial transmission cable terminated in Radio Frequency Plug UG-88/U to IF OUTPUT receptacle J106 when it is necessary to use the IF output of the receiver.



18 For external agc., remove the jumper from AGC NOR terminals 3 and 4 and perform step 19.

19 Connect the negative terminal of the external age source to terminal 4 and the positive terminal of the age source to terminal 7 (ground) (see step 18).



21 If wide variations in temperature are likely to be encountered, turn the OVENS heater switch to ON.

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Figure 2(4).. Connecting procedures (part 4 of 4).