

**RADIO RECEIVING SET R-390A/URR ANTENNA CONNECTIONS**

The Operational Test and Evaluation Force, Pacific Projects Division, has reported that many R-390A/URR Receivers, on ships they have visited, are connected to the coaxial antenna cables in such a manner as to impair performance substantially. It is possible that the original yard installation may have been incorrectly made, and the situation may be similar in other ships using these receivers.

There are two antenna input terminals on the back of the receiver; one, J103 marked "WHIP-UNBALANCED" and a second, J104, marked "125 OHM-BALANCED." On all the receivers inspected, the coaxial cable from the antenna patch panel was connected to terminal J103, perhaps the logical place to connect it since the antennas themselves are whip antennas or unbalanced wire antennas. However, this input terminal J103 is intended to be used only where a **very short** wire or cable runs from the antenna to receiver, such as in a vehicular or jeep installation. In the average shipboard installation, the coaxial cable length from antenna to receiver is many feet. Under these conditions the coaxial cable from the antenna should be connected to terminal J104 using an UG-970/U adapter-connector. This connector is built so that it grounds one side of the input terminal J104, adapting it for use with unbalanced coaxial cables. Figure 10, on page 17, of the **Technical Manual TM 11-856A**, illustrates this connector and page 13, paragraph 15 b(2) discusses this point.

Incorrect installation can make a very substantial difference in receiver performance. Tests made at 55-spaced frequencies, between 2 and 30 MC on an R-390A/URR Receiver have shown that the average audio output voltage due to signals picked up by a receiving antenna was 123 times, or 42 decibels, greater with the antenna cable connected through a UG-970/U adapter to input terminal J104 than with the cable connected to terminal J103. At ten of the 55 frequencies the audio output voltage was in excess of 500 times greater.

The reconnection is extremely simple to make. Detach the antenna cable from input terminal J103, fit adapter-connector UG-970/U to the coaxial antenna cable, and connect the combination to antenna input terminal J104. Refer to FC 5-R-390A/URR, NAVSHIPS 0967-063-2140.

**R-390/URR, AVAILABILITY OF TRANSMISSION LINE RADIO INTERFERENCE FILTERS**

See article in AN/SRR-11 section under the same title.

**TUNING RADIO RECEIVERS USING A FREQUENCY COUNTER**

To set the frequency of a receiver with an electronic counter, the following system can be used effectively to better than one part in  $10^5$ .

Example: Tuning a high frequency receiver:

CAQI-524D	AN/URM-25	R-390/URR
or	Series	Receiver
AN/USM-26	Signal	Antenna
	Generator	

Connect the RF OUTPUT X 20,000 jack of the AN/URM-25 signal generator to the input of the 100 megacycle head of the counter. Adjust the AN/URM-25 MULTIPLIER dial to maximum attenuation and connect the RF OUTPUT X MULT jack output to the antenna input of the R-390/URR receiver in place of the antenna.

Then:

1. Place MOD SELECTOR switch of AN/URM-25 on OFF.
2. Place METER READS switch of AN/URM-25 on RF.
3. Vary carrier control until the meter of AN/URM-25 reads approximately full scale.
4. Vary the frequency of the AN/URM-25 until the desired frequency is read on the counter.
5. Turn receiver frequency dial to desired frequency reading.
6. Adjust the receiver for wide-band reception.
7. Vary the output attenuator of the AN/URM-25 until a voltage registers on the receiver output meter.
8. Decrease the receiver bandwidth to .1kc while varying the receiver frequency dial to obtain maximum signal strength reading on the receiver output meter.
9. The receiver will then be set on the frequency which is indicated on the counter. Verify receiver dial reading.

NOTE: On some models of AN/URM-25 the RF OUTPUT X 20,000 is designated HIGH RF and the MULTIPLIER dial is designated ATTENUATOR and reads in microvolts full scale.

**R390A/URR MAINTENANCE NOTES-REPLACEMENT OF DEFECTIVE CERAMIC FILTERS**

Serial numbers 1 through 413 of the R390A/URR Radio Receiver manufactured by the Electronics Assistance Corp. under contract No. 22137-PC-60 used ceramic filters in lieu of mechanical filters in the IF Amplifier Assembly. When the ceramic filters fail they should be replaced with the mechanical filters listed in the equipment APL. It should be noted that additional circuit changes are required to return equipment to operating condition. This is necessary since equipments having ceramic filters do not utilize the capacitors shown in figure 15 of NAVSHIPS 93053, Volume III. When replaced by mechanical filters, the capacitors are required. These capacitors were physically installed but not connected in equipments utilizing ceramic filters. This provided means for future mechanical filter replacement.

The following notes will be helpful when replacement is required: Refer to NAVSHIPS 0967-063-2030, Volume III.

1. Ceramic filters have 2 terminals while mechanical filters have 3 terminals at each end. The ground terminal at each end of the mechanical filter should not be used.
2. Excessive heat during soldering may damage filters.
3. The capacitor assembly at the top and bottom may be removed to provide additional space for soldering.