

JOHNSON HAND-CARRIED RADIO UNIT

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1. GENERAL

1.01 This section describes the Johnson Hand-Carried Radio Unit 106, a transistorized two-way AM radiotelephone designed for use on either of the two low-band telephone maintenance frequencies, 35.16 mc or 43.16 mc.

1.02 In areas where low-band telephone maintenance vehicular systems are currently in operation, use of the 43.16 mc units is recommended in order to minimize possible interference.

1.03 Depending upon the terrain, ranges of approximately 3 to 4 miles might be expected between two of these units in open country and up to 1 or 2 miles in built-up areas. It has a limited range inside of buildings depending on type of construction, use of building, etc.

1.04 Since these units employ AM (amplitude modulation), they will not perform on FM (frequency modulation) mobile systems such as are currently employed in the Telephone Maintenance Service.

1.05 This unit should be licensed for Telephone Maintenance Service and must meet the requirements of Part 91 of the FCC Rules.

1.06 Some of the more important FCC rules are as follows:

- An unlicensed person may operate the unit after being authorized to do so by the station licensee.
- A transmitter identification card (FCC Form 452-C) or metal plate with call sign and name and address of licensee must be

attached to each unit. Form E-4973, Radio Transmitter Identification Plate, may be used for this purpose.

- Each unit must transmit its call sign at the end of each transmission or exchange of transmissions or once every 15 minutes of the operating period.

- A record must be kept of transmitter frequency measurements giving results, date, and name of person making measurements. When maintenance is performed on the unit, the operator shall sign and date the the entry.

- All transmitter adjustments, servicing, or maintenance of the unit which may affect its operation must be made by or under the immediate supervision of a person holding a first- or second-class commercial operator license.

1.07 This unit is to be used as an aid in constructing new plant, removal of old plant or maintaining existing plant. THE ONLY EXCEPTION TO THIS USAGE SHALL BE TRANSMISSIONS RELATING TO IMMEDIATE EMERGENCIES ENDANGERING LIFE OR PROPERTY.

2. DESCRIPTION

2.01 The Johnson Hand-Carried Radio Unit (Fig. 1) is an all transistor battery-powered radio transceiver. The unit weighs 1-1/2 pounds and is housed in a high impact plastic case approximately 8 inches high, 3-1/2 inches wide, and 2 inches deep. It is equipped with an on-off volume control switch (OFF-VOLUME), an adjustable noise quieting control (QUIET), a 12-inch loaded fiberglass collapsible antenna, a 50-ohm external antenna jack, and an external speaker jack (EXT SPKR). The 50-ohm jack is used with one of two remote antennas which are available and the speaker jack may be used with an earphone for private listening.

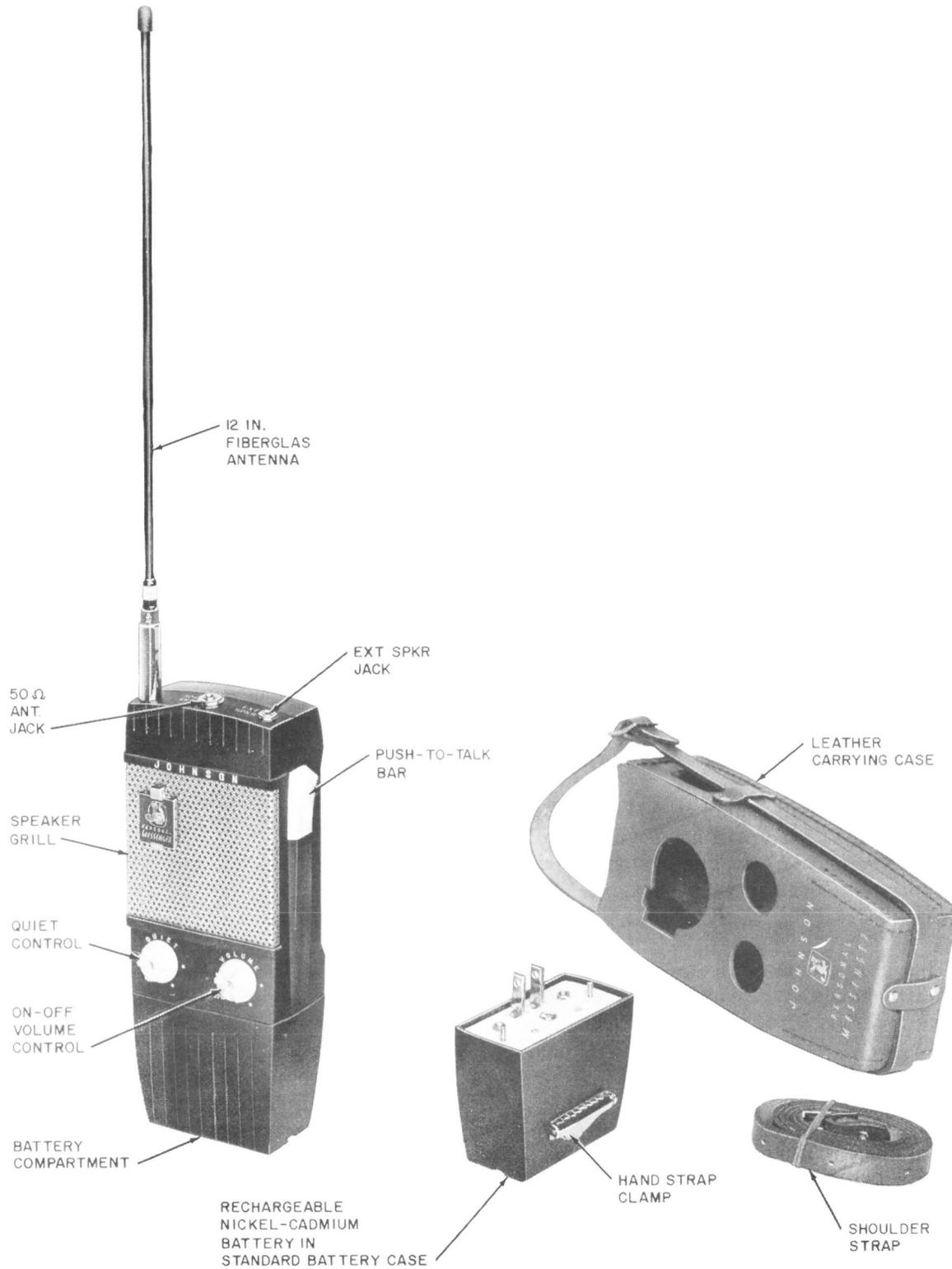
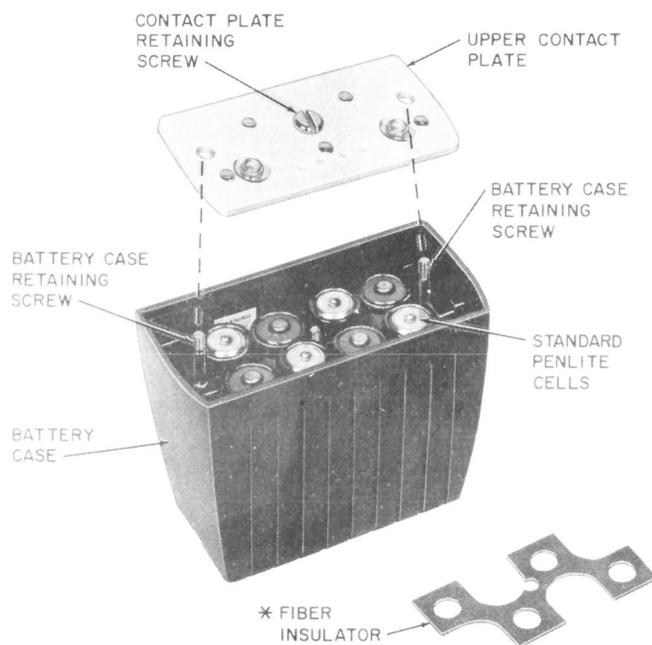


Fig. 1 — Johnson Hand-Carried Radio Unit

2.02 Battery power is furnished by either eight penlight cells (dry cell or mercury) housed in a plug-in battery case, (Fig. 2), or by a rechargeable nickel-cadmium battery (Fig. 1). The nickel-cadmium battery has a built-in charger in a standard battery case. To ensure that the nickel-cadmium batteries are always fully charged, the battery case should be plugged into a 115 volt AC outlet whenever the set is not in use.

2.03 A clamp-on antenna (Fig. 3), which has a 25-foot lead, may be used in place of the built-in antenna. The antenna lead plugs into the 50-ohm jack. The antenna is for use on vehicles, on a manhole guard at a manhole, or on a short pole or mast when there is a need for additional range. See Fig. 4 for examples of clamp-on antenna installed.

2.04 A leather carrying case (Fig. 1) with shoulder strap is available as an accessory. This case protects the unit when in field service and makes it easier to carry and handle.



* USED IN BOTTOM OF BATTERY COMPARTMENT WITH STANDARD CELLS. REMOVED AND STORED ALONG INSIDE BACK OF COMPARTMENT WHEN USING MERCURY CELLS.

Fig. 2 — Battery Case

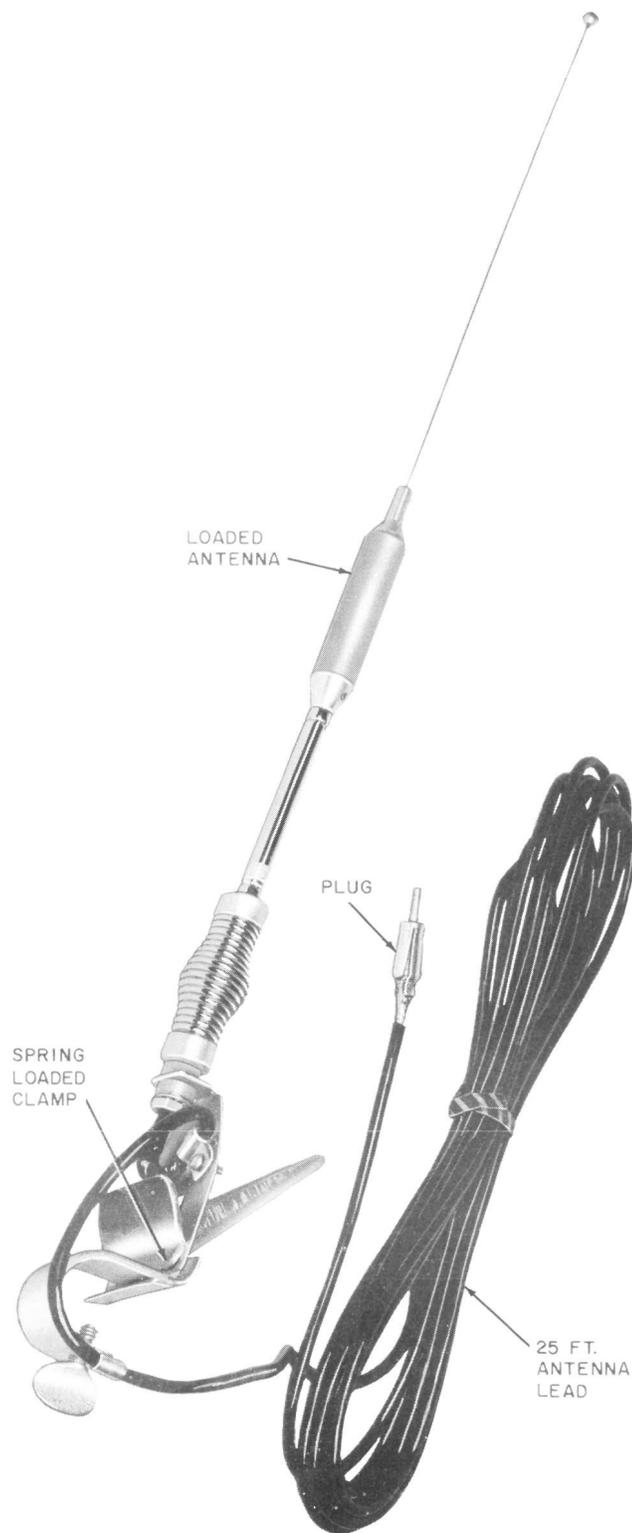


Fig. 3 — Clamp-On Antenna Assembly

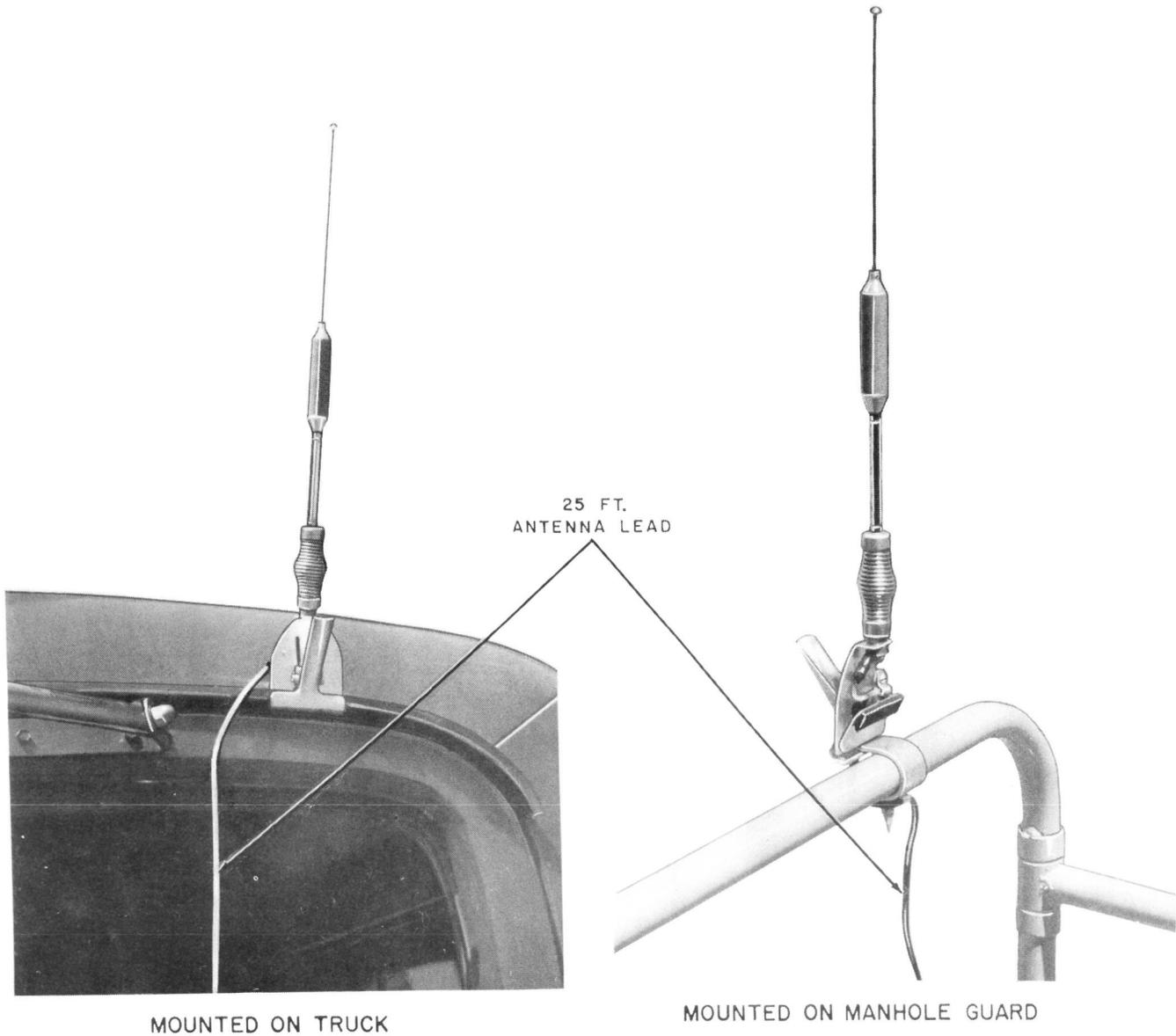


Fig. 4 — Clamp-On Antenna Installed

2.05 A heavy duty carrying kit case for storing three hand units and accessories is also available. This case is illustrated in Fig. 5.

3. USE

3.01 Handle the unit with reasonable care and protect it from rain and snow.

3.02 A unit should be checked for operating condition before taking to the work location. A second unit will be needed to make this check. To do this, operators should take up locations about 10 feet apart and within sight of each other. With antenna fully extended, turn the on-off volume switch to about half volume. While listening to the speaker-mike, adjust the QUIET control to a setting just below noise. Then with one operator speaking into one of the units, the other operator should listen for proper reception. Check both units for transmitting and receiving.



Fig. 5 — Carrying Kit Case With Three Units

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3.03 The push-to-talk button must be depressed all the way to transmit and must be released to listen. For best transmission, the lips should be about 1 inch from the grill and the speech at normal conversational level.

3.04 When in use, the antenna should be fully extended and in the clear. **DO NOT USE THIS UNIT IN CLOSE PROXIMITY TO POWER WIRES WHERE POSSIBLE CONTACT BETWEEN ANTENNA AND POWER WIRES MIGHT OCCUR.** When not in use, the antenna should be collapsed and the switch turned off.

3.05 This unit can be used in a manhole by using the clamp-on antenna. When this antenna is used the regular antenna should be collapsed. When the lead-in from the remote antenna is connected to the 50-ohm jack, the built-in antenna is electrically disconnected, placing the transceiver circuit on the external antenna.

4. MAINTENANCE

4.01 No maintenance except the replacement of penlight cells or the changing of the battery case containing the nickel-cadmium batteries

shall be performed in the field. Batteries should be replaced when they begin to weaken as evidenced by decreased volume, range, or background noise. Freshly charged nickel-cadmium batteries in good condition should give about eight hours of service. If not, return them in accordance with local instructions.

4.02 To replace penlight cells, loosen two screws on the bottom of the battery case and pull the case from the transceiver. These screws are captive screws and will not fall out of the battery case. Remove the contact plate retaining screw (Fig. 2) and lift the plate from the case. Install the batteries in the proper order as shown in Fig. 2. Replace contact plate and tighten screw firmly but do not force. Push battery case into transceiver and tighten the two bottom screws firmly.

4.03 Note that mercury-type cells have the opposite polarity arrangement of the dry cells and when they are used they must be placed in the battery compartment observing proper polarity. See Fig. 2.

4.04 For all other repairs, the unit should be returned in accordance with local instructions.