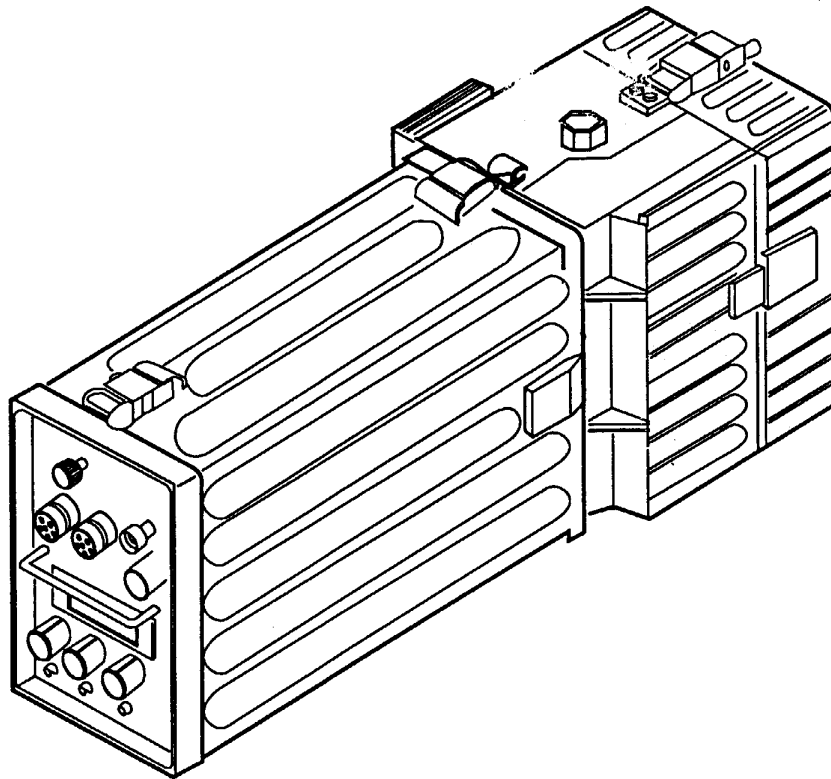


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**OPERATOR'S AND UNIT MAINTENANCE MANUAL**



**RADIO SET - AN/PRC-132**

consisting of

**RECEIVER-TRANSMITTER, RADIO - RT-1648/PRC-132**

and

**BATTERY BOX - CY-8629/PRC-132**  
**NSN 6160-01-322-9366**

**WARNING**

**INJURY CAN OCCUR IF THE FOLLOWING ARE NOT OBSERVED  
WHEN USING THE RADIO SET.**

**KEEP AWAY FROM LIVE CIRCUITS:** The antenna is a source of electrical and radio frequency energy. NEVER TOUCH THE ANTENNA WHEN THE RADIO SET IS IN USE. An RF burn may occur as a result of contact with an active antenna system.

**RF VOLTAGE WARNING:** Exposed metal transceiver parts can assume an RF potential to ground when antenna is tuned without grounding transceiver. To avoid potential RF burns, tie transceiver GND stud to ground.

**DO NOT OPEN TRANSCEIVER CASE:** Operator personnel must not remove the transceiver case.

**WARNING**

A lithium-sulfur dioxide (Li-SO<sub>2</sub>) battery used with the AN/PRC-132 contains pressurized sulfur dioxide (SO<sub>2</sub>) gas. The gas is toxic, and the battery MUST NOT be abused in any way which may cause the battery to rupture.

DO NOT heat, short circuit, crush, puncture, mutilate, or disassemble batteries.

DO NOT USE any battery which shows signs of damage, such as bulging, swelling, disfigurement, a brown liquid in the plastic wrap, a swollen plastic wrap, etc.

DO NOT test Li-SO<sub>2</sub> batteries for capacity.

DO NOT recharge Li-SO<sub>2</sub> batteries.

DO NOT dispose of lithium batteries with ordinary trash/refuse.

**WARNING**

If the battery compartment becomes hot to the touch, if you hear a hissing sound (i.e., battery venting), or smell irritating sulfur dioxide gas, IMMEDIATELY Turn Off the equipment and leave the area.

1. Allow the equipment to cool at least one hour.
2. Remove and replace battery after the equipment has cooled to the touch.

003-0435-001 REV B00

**WARNING**

DO NOT use a Halon type fire extinguisher on a lithium battery fire.

In the event of a fire, near a lithium battery(ies), rapid cooling of the lithium battery(ies) is important. Flood the equipment with water or use a carbon dioxide (CO<sub>2</sub>) extinguisher. Control of the equipment fire, and cooling, may prevent the battery from venting and potentially exposing lithium metal. In the event that lithium metal becomes involved in fire, the use of a graphite based Class D fire extinguisher is recommended, such as Lith-X or Met-L-X.

**WARNING**

DO NOT store batteries in unused equipment.

DO NOT store lithium batteries with other hazardous materials and keep them away from open flame or heat.

**WARNING**

Operator must replace both BA-5590/U with completely new batteries at the same time. Do not mix partially used batteries with new batteries.

If possible, the operator should use two BA-5590 batteries manufactured by the same vendor with the same date code.

**WARNING**

Do not attempt to transmit when charging batteries.

**WARNING**

Circuit card A13 contains BERYLLIUM OXIDE (BeO) CERAMICS. The dust or fumes from BERYLLIUM OXIDE CERAMICS are HIGHLY TOXIC and breathing them can result in personal injury.

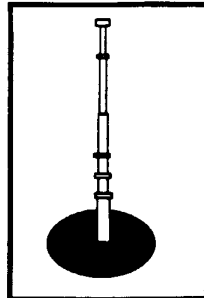
**WARNING**

For immersion greater than 3 feet, the rear cover must be removed from the transceiver and the battery box attached in its place. This is to prevent battery box leakage. Be sure to leave the front cover attached to the transceiver.

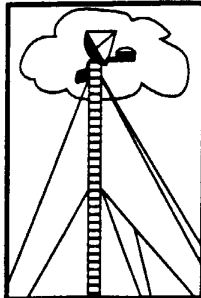
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**FIXED OPERATION WITH LONG RANGE ANTENNAS**

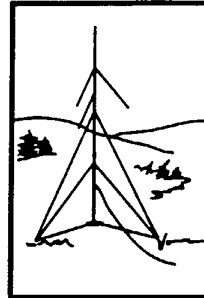
**WARNING**



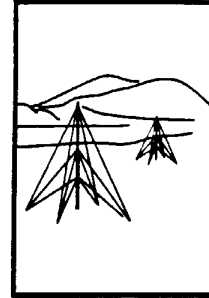
TELESCOPING  
ANTENNA MAST



TYPICAL TOWER



EXTENDED RANGE  
ANTENNA



DOUBLET  
ANTENNA

**NEVER ERECT THESE LONG RANGE ANTENNAS DIRECTLY UNDER POWERLINES**

If you must erect these long range antennas near powerlines, powerline poles or towers, or buildings with overhead powerline connections, never put the antenna closer than two times the antenna height from the base of the powerline, pole, tower or buildings.

**NEVER ATTEMPT TO ERECT ANY LONG RANGE ANTENNA WITHOUT A FULL TEAM**

Before erecting any long range antenna, inspect all the parts making up the antenna kit. Do not erect the antenna if any parts are missing or damaged.

Do as much of the assembly work as possible on the ground.

When erecting the antenna, allow only team personnel in the erection area.

Make sure that the area for the anchors is firm. If the ground is marshy or sandy, get specific instructions from your supervisor as to what clearance your guy wires and ropes must have over the traveled areas and road.

Clearly mark all guy wires and ropes with warning flags or signs. In an emergency, use strips of white cloth as warning streamers.

If you suspect that powerlines have made accidental contact with your antenna, stop operating, rope off the antenna area, and notify your superiors.

If the weather in your area can cause ice to form on your long range antenna and its guy wires and ropes, add extra guys to support the system. Rope off the area and post it with warning signs like "Beware of Falling Ice".

Do not try to erect any antenna during an electrical storm.

Keep a sharp eye on your anchors and guys. Check them daily and immediately before and after bad weather.

**003-0435-001 REV B00**

### **HOW TO USE THIS MANUAL**

This manual describes the set-up and operation of the AN/PRC-132 radio set.

This manual is arranged in three chapters containing: an introduction to the equipment (Chapter 1), operating instructions (Chapter 2), and maintenance procedures (Chapter 3).

Manual text is divided into primary and subordinate paragraph structure. Some paragraphs may also be divided into procedural steps.

Throughout the manual there are illustrations that will help you determine how to set-up, operate, and maintain your radio set.

While using this manual, remember that your mission and the situation you may be involved in will determine the type of radio operations you select.

This manual also describes possible trouble situations and the actions you can take to solve a potential radio set problem.

d.

**OPERATOR'S MANUAL  
RADIO SET - AN/PRC-132**

**consisting of**

**RECEIVER-TRANSMITTER, RADIO - RT-1648/PRC-132**

**and**

**BATTERY BOX - CY-8629/PRC-132**

**NSN 6160-01-322-9366**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your comments to:

ATTN: Technical Publications  
Loral TerraCom  
9020 Balboa Ave.  
San Diego, CA 92123

A reply will be furnished to you.

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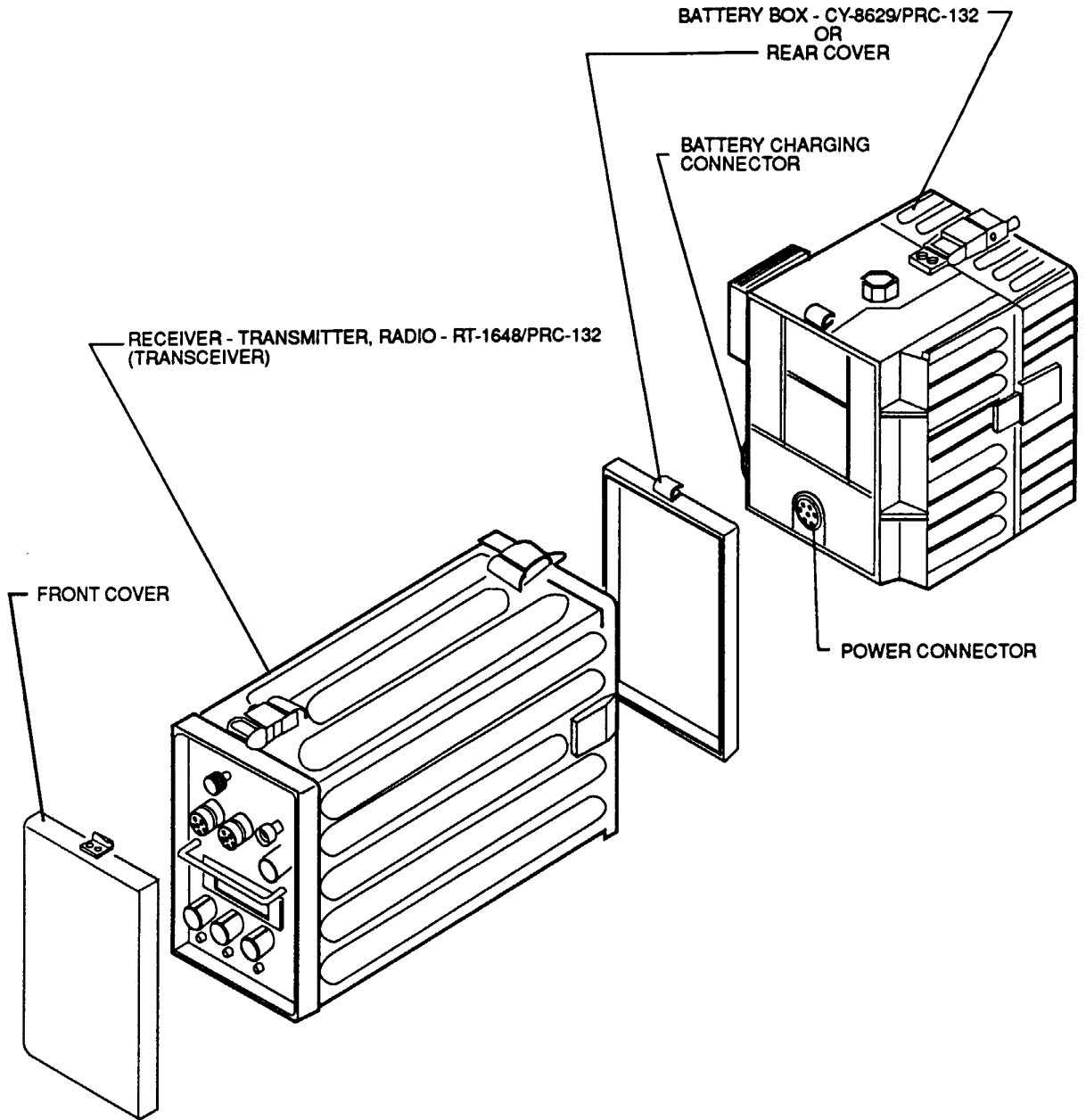
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Radio Set - AN/PRC-132

## CHAPTER 1 - INTRODUCTION

### SECTION I - GENERAL INFORMATION

#### 1-1 SCOPE.

- a. Type of Manual. Operator's Manual.
- b. Model Number and Equipment Name. AN/PRC-132 Radio Set.
- c. Purpose of Equipment. The AN/PRC-132 manpack HF/VHF (SSB/AM) radio set is designed to provide data, voice, and CW communications.

#### 1-2 EQUIPMENT IMPROVEMENT RECOMMENDATIONS.

If your AN/PRC-132 Radio Set needs improvement, let us know. You, the user, are the only one who can tell us what you don't like about your equipment. Tell us why you don't like the design or performance. Tell us why a procedure is hard to perform. Mail to us at:

ATTN: Technical Publications  
Loral TerraCom  
9020 Balboa Avenue  
San Diego, CA 92123

#### 1-3 NOMENCLATURE CROSS-REFERENCE LIST.

| <u>Common Name</u> | <u>Official Nomenclature</u>                  |
|--------------------|---|
| Radio Set          | Radio Set - AN/PRC-132                        |
| Transceiver        | Receiver-Transmitter, Radio - RT-1648/PRC-132 |
| Battery Box        | Battery Box - CY-8629/PRC-132                 |

#### 1-4 PREPARATION FOR STORAGE OR SHIPMENT.

Typically, preventive maintenance is performed prior to equipment storage. Preventive maintenance should be performed when removing the equipment from storage to ensure operational readiness. Refer to paragraph 2-6 (Preparation for Movement).

#### 1-5 WARRANTY INFORMATION.

The AN/PRC-132 radio set is warranted by Loral TerraCom for a period of 12 months from the date found on the equipment warranty plate.

## SECTION II - EQUIPMENT DESCRIPTION AND DATA

### 1-6 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

The radio set consists of a transceiver with front and rear covers, and a battery box that is installed in place of the rear cover.

The radio set has a frequency range of 1.6 to 49.9999 MHz. It provides half-duplex operation in Upper Sideband (USB), Lower Sideband (LSB), and Amplitude Modulation Equivalent (AME) modes. Voice, data, and CW operation are available in all modes. 100 receive and 100 transmit frequencies can be preprogrammed as channels 0 - 99. Channels are field programmable, with battery backup to prevent loss of memory. Up to 11 channels can be scanned, and receive frequencies can be scanned in 100 Hz increments. A receive only mode of operation can be selected. Four levels of transmit power are available: 5, 10, 20, and 50 watts. All transceiver memory can be cleared by the operator.

Secure lighting allows the illumination of display LCD for night operations.

The radio set will operate with dipole or tuned antennas capable of handling 50 watts of RF power. An unbalanced 50-ohm BNC-type antenna connector is provided on the front panel. A BNC-to-binding post adapter is also provided for connection to wire antennas. The radio set can be used with an untuned longwire antenna, although performance will be degraded.

The radio set can interface with a variety of auxiliary equipment necessary for mission performance.

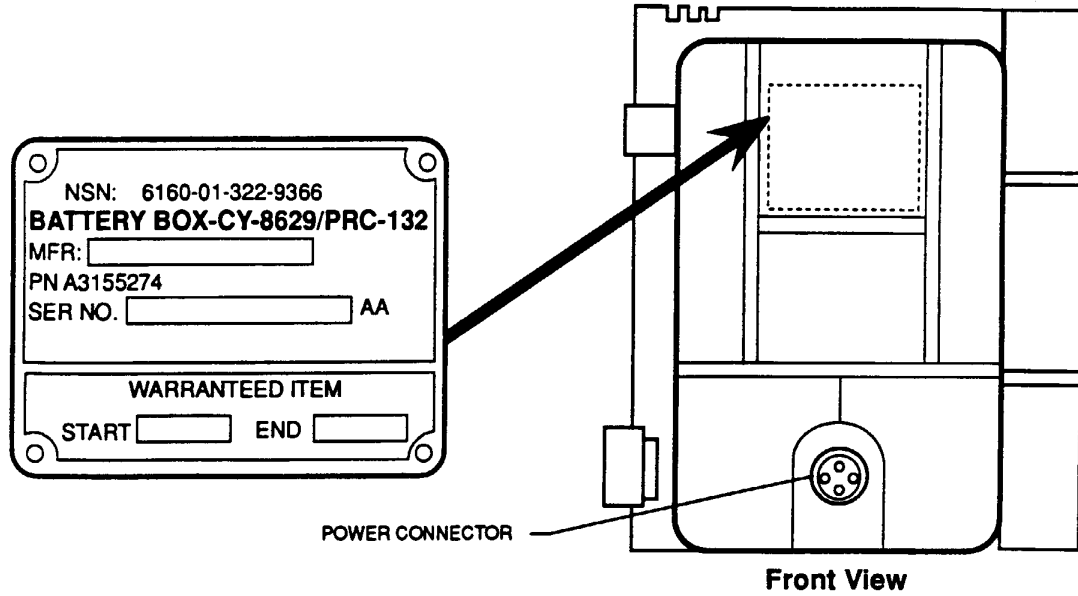
### 1-7 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

Refer to Figure 1-1 for location and contents of identification plates.

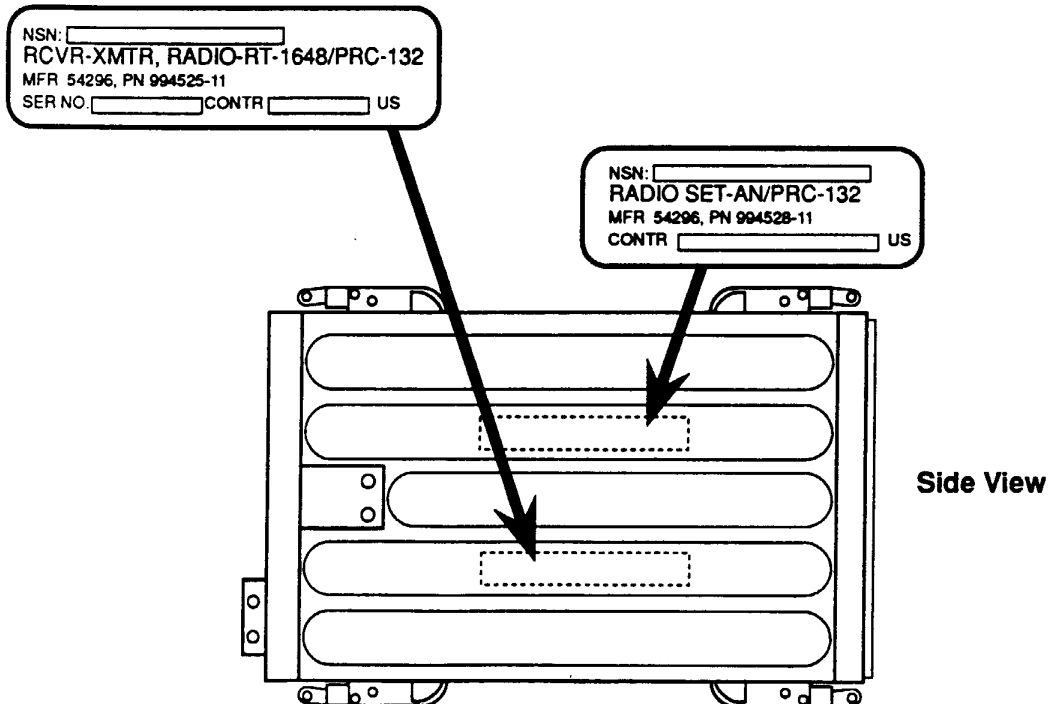
a. External Components. Refer to Figure 1-2. The AN/PRC-132 radio set consists of a transceiver (1) with front and rear covers (2 & 3), and a battery box (4). The transceiver front panel contains operating controls, indicators, and connectors described in Chapter 2.

When in operational mode, the battery box is installed in place of the rear cover.

A battery charging connector (5) is provided on the battery box.



Battery Box Identification Plate



Transceiver Identification Plate

FIGURE 1-1. RADIO SET - AN/PRC-132 IDENTIFICATION PLATE LOCATIONS

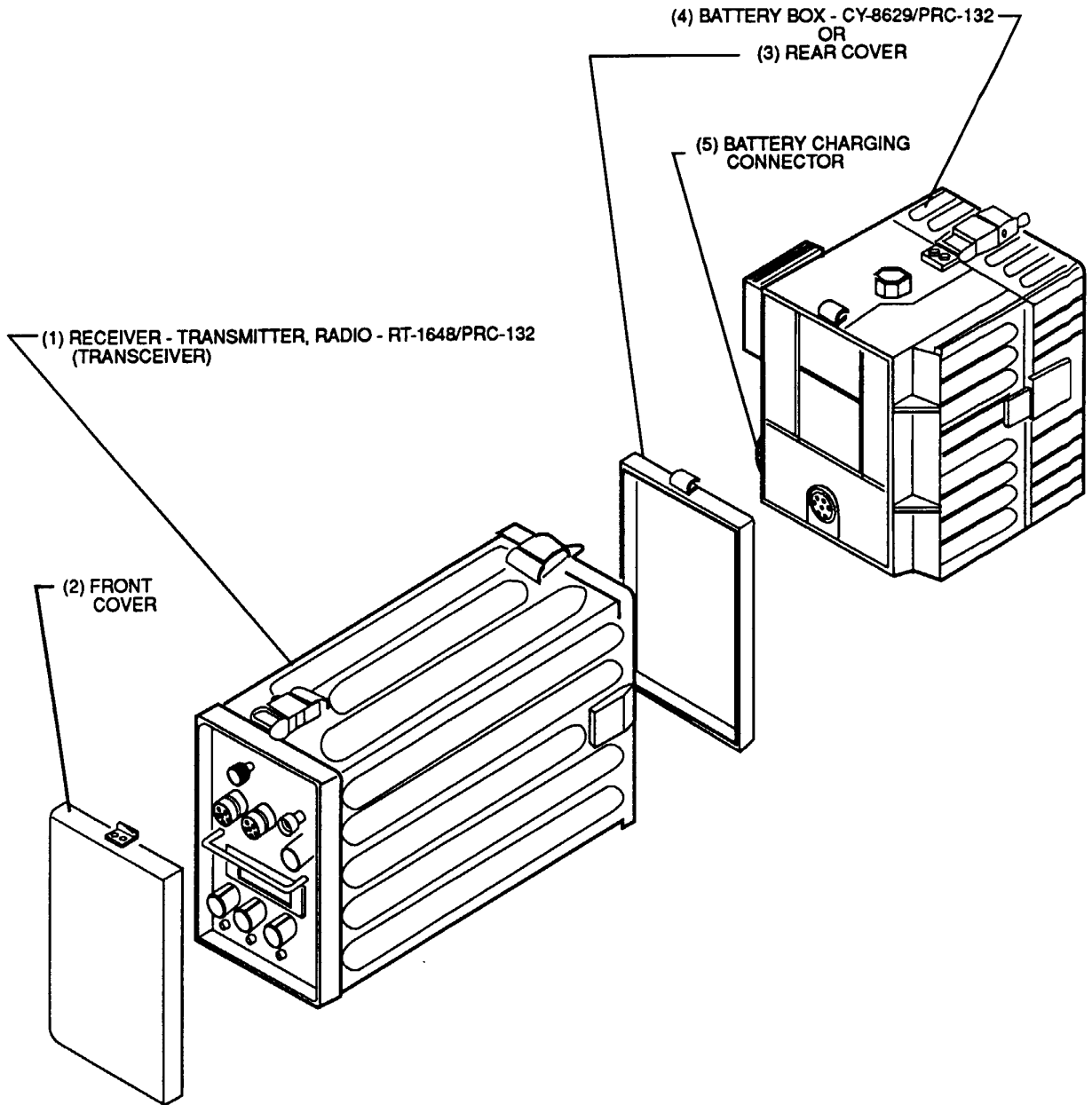


FIGURE 1-2. Radio Set - AN/PRC-132 external components

**b. Auxiliary Equipment.** Refer to Figure 1-3. The radio set is capable of interfacing with the following auxiliary equipment items:

- (1) Telegraph key KY-116/U (with cable assembly CX-13031 or KY-872/PRC-104 for keying transceiver at connector pin E): The telegraph key is used to send Continuous Wave (CW) messages.
- (2) Handset H-189 or H-250: The handset is used to send and receive voice messages.
- (3) Headset H-251: The headset is used to receive voice messages.
- (4) Handheld Data Terminal OA-8990/G DMDG: The data terminal is used to send and receive messages. It also:
  - o Stores information
  - o Permits burst communication
  - o Minimizes transmission time
  - o Reduces the risk of being located by radio direction-finding
  - o Assures messages are authentic
- (5) Hand crank generator G-76/U: The hand crank generator can be used to charge batteries and for transceiver receive operations.
- (6) SORAK (Special Operations Radio Antenna Kit): Contains a variety of antennas for use with the AN/PRC-132.

Auxiliary equipment is interfaced to the transceiver through adapter/interface cabling.

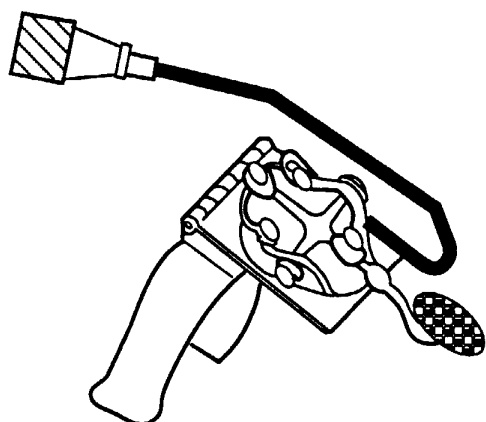
Interface cabling is attached at either the AUDIO 1 or AUDIO 2 connector(s) on the transceiver front panel. Interface cabling is provided with the applicable auxiliary equipment.

The hand crank generator interconnects to the battery box charging connector.

SORAK antennas are connected to the transceiver front panel at the ANT BNC-type connector. Longwire antennas are connected to the ANT BNC-to-binding post adapter (which is connected to the ANT connector) and to the GND binding post for grounding or counterpoise. Refer to Figure 1-4.

**c. Accessories.** AN/PRC-132 accessories include the transceiver front and rear covers for use in the transport configuration.





(a) TELEGRAPH KEY, KY-116/U  
(with cable assembly CX-13031  
or KY-872/PRC-104 for keying  
transceiver at connector pin E)



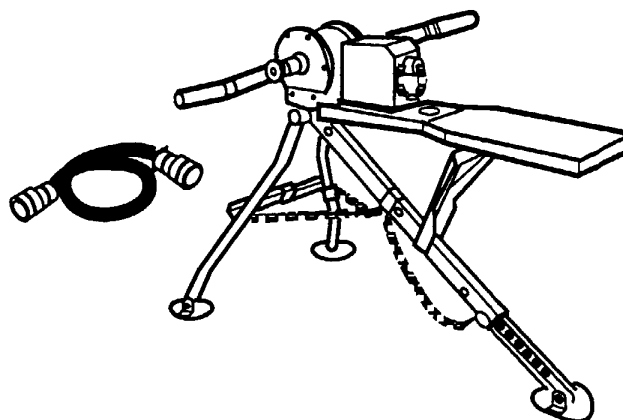
(b) HANDSET, H-250



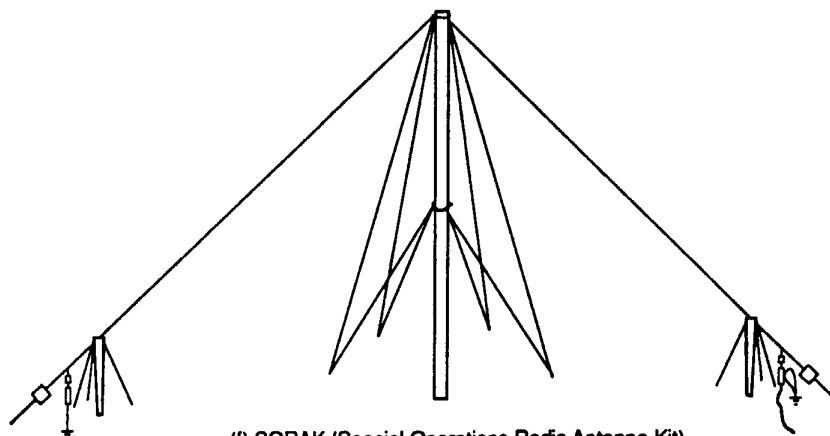
(c) HEADSET, H-251



(d) HANDHELD DATA TERMINAL, OA-8990/G DMDG



(e) HANDCRANK GENERATOR, G-76/U



(f) SORAK (Special Operations Radio Antenna Kit)

**FIGURE 1-3. Radio Set - AN/PRC-132 auxiliary equipment**

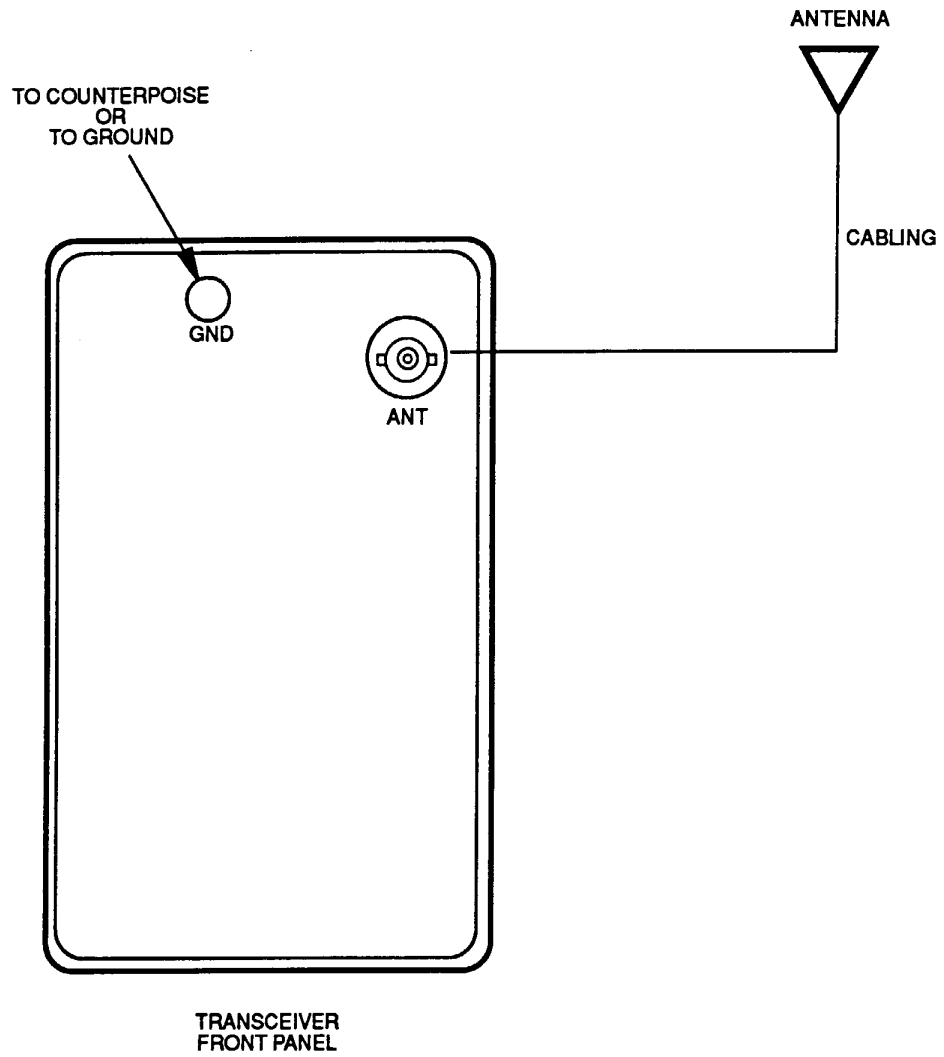


FIGURE 1-4. Radio Set - AN/PRC-132 typical antenna attachment

1-8 EQUIPMENT DATA.

a. Performance Specifications.

|                                    |   |
|------------------------------------|---|
| Frequency range:                   | 1.6 to 49.9999 MHz.   |
| Frequency steps:                   | 100 Hz increments.  |
| Channels:                          | 484,000, synthesized.   |
| Operating modes:                   | LSB, USB, AME (CW and voice in all modes).  |
| Audio input:                       | 150 ohm impedance with VOGAD for constant audio level.  |
| Duty Cycle:                        | 1:20 transmit to receive. 1 minute maximum continuous transmit time.                          |
| Input voltage:                     | 12 VDC nominal.   |
| Battery Life (BB-590)<br>(1 each)  | 2 hours receive, 6 one-minute transmissions minimum between recharge; at 50 watts.            |
| Battery Life (BA-5590)<br>(2 each) | 8 hours receive, 24 one-minute transmissions minimum before battery replacement; at 20 watts. |

b. Microprocessor Capability.

|   |  |
|---|--|
| Operation:                                      | Simplex, half-duplex.  |
| Number of channels<br>(preprogrammable) stored: | 100 transmit, 100 receive.   |
| Scanning:                                       | Up to 11 channels may be scanned manually.                           |
| Up-down tuning:                                 | Continuous synthesized tuning in increments of 100 Hz, receive only. |

**c. Transmitter.**

|                   |   |
|-------------------|---|
| Power output:     | Selectable 5, 10, 20, or 50 watts.  |
|                   | NOTE: Transmit power is limited to a maximum of 20 watts when operating with two BA-5590 batteries. |
| Impedance:        | 50 ohms.  |
| Audio bandwidth:  | 2.4 kHz, -6 dB bandwidth.   |
| Antenna mismatch: | Protected against mismatch, including open and short circuits.                                      |

**d. Receiver.**

|                     |   |
|---------------------|---|
| Sensitivity:        | -117 dBm maximum for 10 dB SINAD                        |
| Selectivity:        | 6 dB bandwidth, 2400 Hz; 50 dB bandwidth, 5 kHz.        |
| Audio output power: | 10 mW minimum into 500 ohms at less than 5% distortion. |

**e. Mechanical.**

|  |                            |
|--|----------------------------|
| Weight with battery box and cover (with one BB-590 or two BA-5590 batteries) | 16 pounds max (7.264 kg).  |
| Displacement volume (with battery box)                                       | 350 cubic inches, maximum. |

**1-9 SAFETY, CARE, AND HANDLING.**

During normal operation, the only exposed voltage exceeding 30 volts rms is the antenna voltage during transmit. This voltage is a maximum of 50 volts rms when operating into a 50 ohm antenna. All external surfaces of the radio set other than the antenna terminal are at ground potential when the transceiver GND stud is tied to ground.

It is the operator's responsibility to understand and apply the following safety precautions during all phases of equipment operation, service, and repair. Failure to comply with these precautions, or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use.

**KEEP AWAY FROM LIVE CIRCUITS:** The antenna is a source of electrical and radio frequency energy. NEVER TOUCH THE ANTENNA WHEN THE RADIO SET IS IN USE. An RF burn may occur as a result of contact with an active antenna system.

**RF VOLTAGE WARNING:** Exposed metal transceiver parts can assume an RF potential to ground when antenna is tuned without grounding transceiver. To avoid potential RF burns, tie transceiver GND stud to ground.

**DO NOT OPEN TRANSCEIVER CASE:** Operator personnel must not remove the transceiver case.

**WARNING**

A lithium-sulfur dioxide (Li-SO<sub>2</sub>) battery used with the AN/PRC-132 contains pressurized sulfur dioxide (SO<sub>2</sub>) gas. The gas is toxic, and the battery MUST NOT be abused in any way which may cause the battery to rupture.

DO NOT heat, short circuit, crush, puncture, mutilate, or disassemble batteries.

DO NOT USE any battery which shows signs of damage, such as bulging, swelling, disfigurement, a brown liquid in the plastic wrap, a swollen plastic wrap, etc.

DO NOT test Li-SO<sub>2</sub> batteries for capacity.

DO NOT recharge Li-SO<sub>2</sub> batteries.

DO NOT dispose of lithium batteries with ordinary trash/refuse.

**WARNING**

If the battery compartment becomes hot to the touch, if you hear a hissing sound (i.e., battery venting), or smell irritating sulfur dioxide gas, IMMEDIATELY Turn Off the equipment and leave the area.

1. Allow the equipment to cool at least one hour.
2. Remove and replace battery after the equipment has cooled to the touch.

**WARNING**

DO NOT use a Halon type fire extinguisher on a lithium battery fire.

In the event of a fire, near a lithium battery(ies), rapid cooling of the lithium battery(ies) is important. Flood the equipment with water or use a carbon dioxide (CO<sub>2</sub>) extinguisher. Control of the equipment fire, and cooling, may prevent the battery from venting and potentially exposing lithium metal. In the event that lithium metal becomes involved in fire, the use of a graphite based Class D fire extinguisher is recommended, such as Lith-X or Met-L-X.

**WARNING**

Operator must replace both BA-5590/U with completely new batteries at the same time. Do not mix partially used batteries with brand new batteries.

If possible, the operator should use two BA-5590 batteries manufactured by the same vendor with the same date code.

**WARNING**

Do not attempt to transmit when charging batteries.

**WARNING**

For immersion greater than 3 feet, the rear cover must be removed from the transceiver and a battery box qualified for immersion greater than 3 feet attached in its place. This is to prevent battery box leakage. Be sure to leave the front cover attached to the transceiver.

### SECTION III - PRINCIPLES OF OPERATION

#### 1-10 GENERAL OPERATION.

Refer to Figure 1-5.

The battery box provides power to the transceiver via a power connector that mates with an external connector located at back of transceiver. Connection is made automatically when battery box is attached to transceiver. The battery box is held onto rear of transceiver with latches attached to the transceiver housing. To preserve battery life, the battery box is disconnected from the transceiver when not in use.

On the transceiver front panel, there are two connections marked AUDIO 1 and AUDIO 2 for auxiliary input/output devices. Operator handsets, headsets, or other applicable devices can be attached at these points to provide operator interface to the transceiver. Refer to paragraph 1-7b for a full listing of auxiliary equipment.

Also located on the transceiver front panel is a BNC-type connector marked ANT for use in connecting dipoles and other antennas that use an interconnecting coaxial cable. Antenna signal flow both to and from the transceiver is through this BNC-type connector. For connection to longwire and other antennas with open terminations, a BNC-to-binding post adapter is provided as a standard accessory. A grounded binding post marked GND is also provided on the front panel for attachment to system ground or antenna counterpoise, if required.

#### 1-11 INTERFACES AND CONTROL.

All controls, connectors, and indicators are located on the transceiver front panel. A connector is located on the battery box for interconnection of battery charging equipment. Transceiver functions controlled by the operator include: operating frequency, channel selection, mode, volume, and transmit power output.

Power is applied to the transceiver by setting the POWER switch to the RX position for receive only operation, or to the 5, 10, 20, or 50 positions for transmit/receive operations.

Frequency control capabilities include: half duplex operation with separate receive and transmit frequencies, channel programming with memory for up to 100 separate receive and transmit frequencies, channel scanning, and receiver frequency scanning.

Frequency control and display functions are accomplished using the rotary select switch and three push-button switches (ENTER, FREQ SEL, and CHAN). A Liquid Crystal Display (LCD) displays frequency and channel information. In addition, the LCD will display a "T" when transceiver is transmitting or when a transmit frequency is displayed.

Mode is controlled by the MODE switch.

Transmit power output is controlled by the POWER switch.

Volume is controlled by the VOLUME control. Volume increases with clockwise rotation.

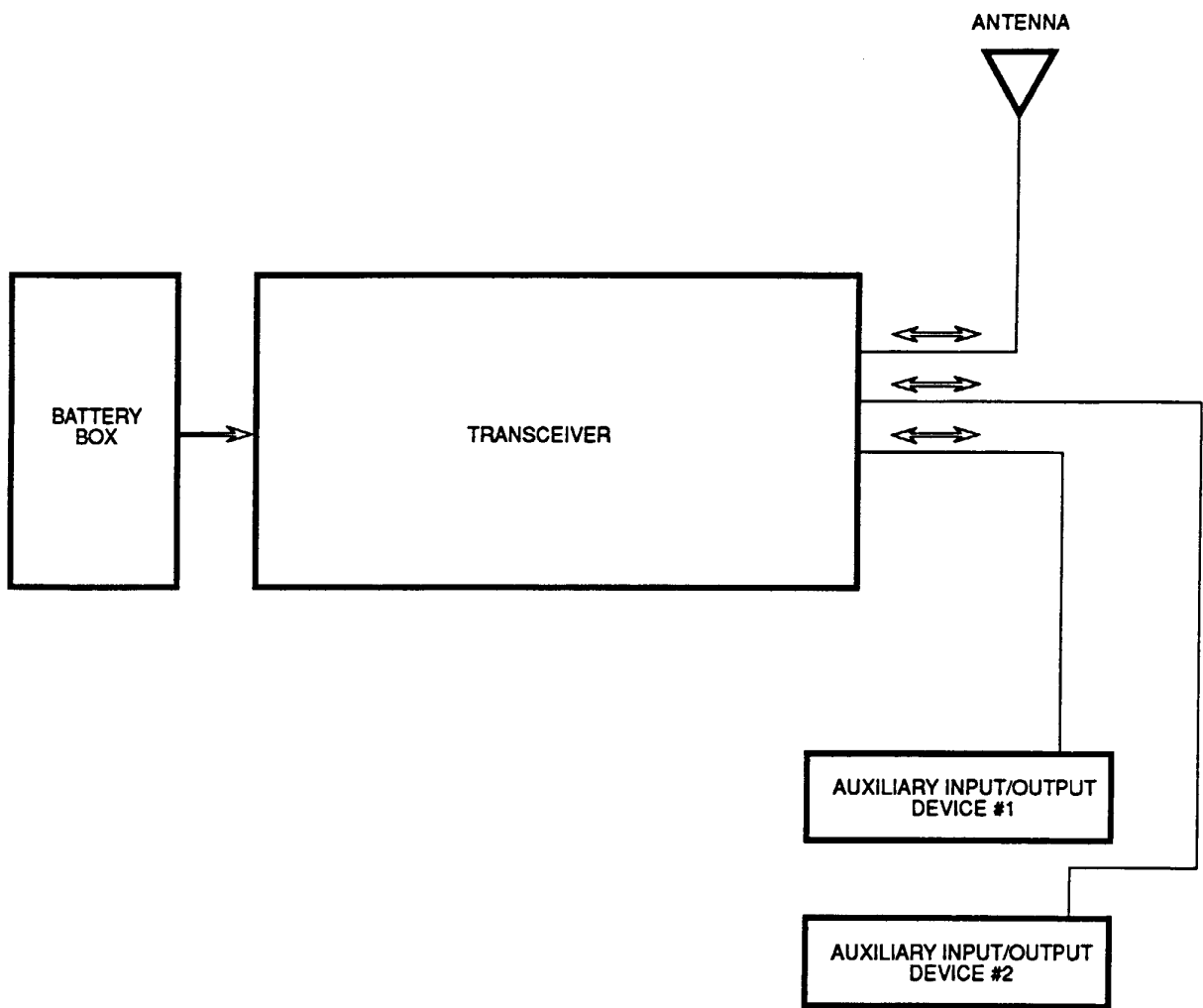


FIGURE 1-5. Radio Set - AN/PRC-132 functional block diagram



The front panel includes connectors for auxiliary equipment interface and antenna connection. Two audio connectors are provided for audio and keying accessories.

Refer to Table 2-1 for a full description of front panel controls, indicators, and connectors.

Secure lighting is provided for the LCD and is operator controlled. Secure lighting is not used during daylight hours since the LCD is easily read in normal lighting.

#### 1-12 OPERATION IN RECEIVE.

During receive operations, incoming RF signals are picked up by the antenna and channeled to the transceiver. The transceiver processes the signals and sends them to the AUDIO 1 or AUDIO 2 connector and to whatever auxiliary equipment the operator happens to be using.

#### 1-13 OPERATION IN TRANSMIT.

During transmit operations, operator information is channeled into the transceiver from the AUDIO 1 or AUDIO 2 connectors. The transceiver processes the message traffic and passes outgoing RF signals to the antenna for transmission.

## CHAPTER 2 - OPERATING INSTRUCTIONS

### SECTION I - DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

#### 2-1 CONTROLS, INDICATORS, AND CONNECTORS.

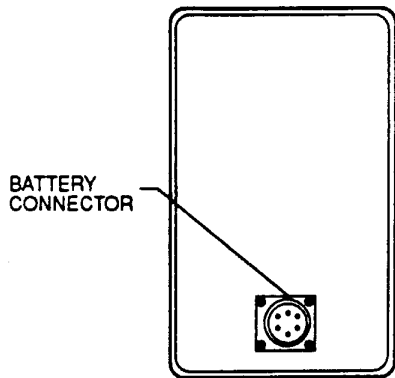
Figure 2-1 shows the location of each transceiver control, indicator, and connector. Table 2-1 lists their function.

Front panel control knobs are secured to flatted control shafts by set screws.

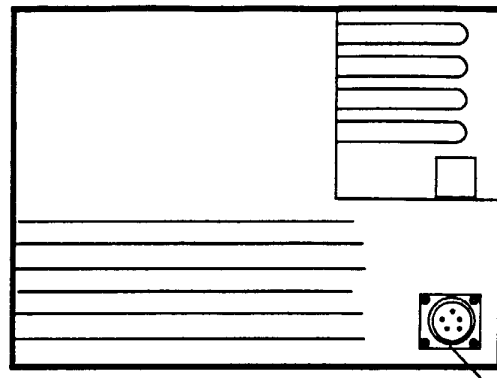
Mechanical stops are provided on all controls.

For VOLUME and POWER controls, clockwise rotation increases output levels.

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REAR PANEL VIEW



BATTERY BOX SIDE VIEW

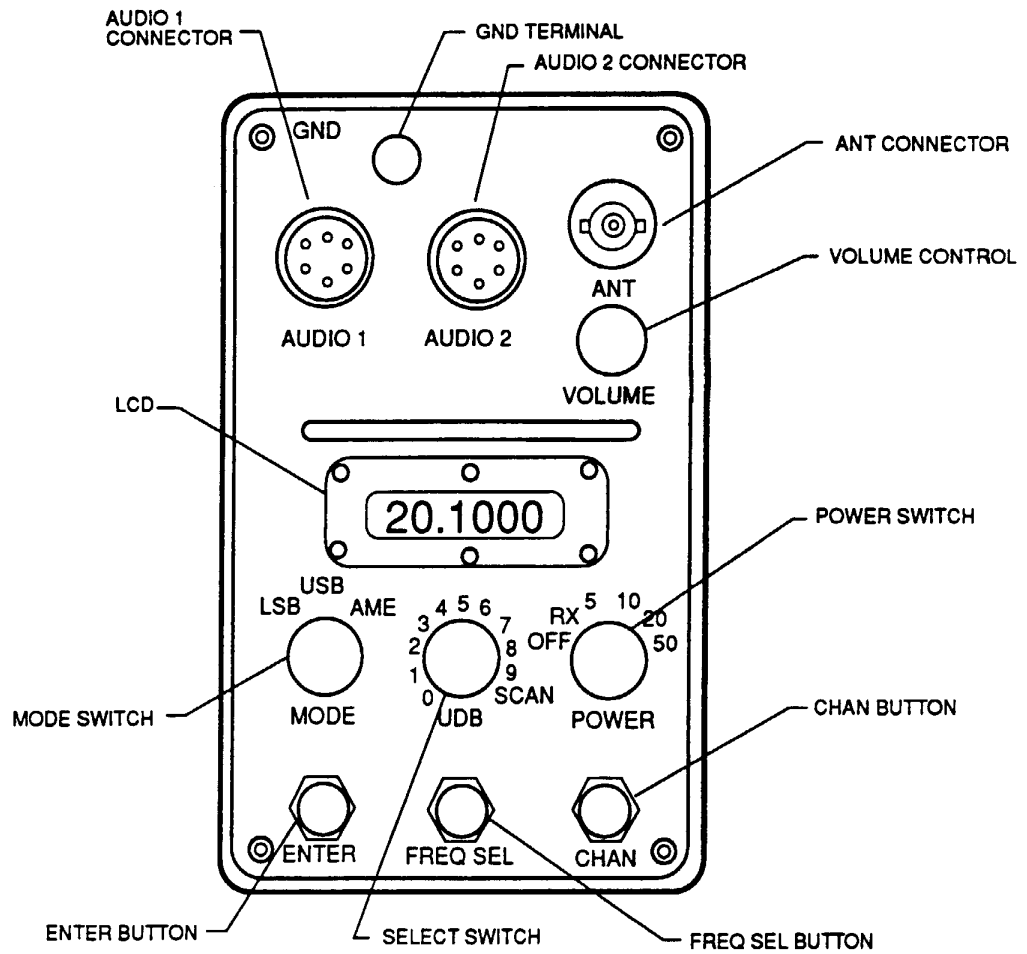


FIGURE 2-1. Controls, Indicators and connectors

TABLE 2-1. Controls, Indicators, and Connectors

| NAME                              | FUNCTION  | GND |
|-----------------------------------|---|-----|
| terminal                          | Ground connection.  |     |
| AUDIO 1 and<br>AUDIO 2 connectors | Parallel audio input/output connectors. Can also be used for voice, data, and CW inputs.  |     |
| ANT connector                     | 50-ohm antenna connector.   |     |
| VOLUME control                    | Adjusts receive audio volume.   |     |
| LCD                               | Depending upon operator selection, displays channel, receive frequency, or transmit frequency. Also displays a "T" to indicate transmit frequency operation.  |     |
| MODE switch                       | Selects LSB, USB, or AME mode of operation.   |     |
| Select switch                     | Allows selection of a channel number or frequency, one digit at a time. Used with FREQ SEL and ENTER buttons. Also used to select SCAN or UDB (Up/Down) functions.  |     |
| POWER switch                      | Powers transceiver on and off. Selects receive only operation, or transmit power level for transmit/receive operations.   |     |
| ENTER button                      | Performs three functions: <ul style="list-style-type: none"> <li>o Displays frequencies currently in memory.</li> <li>o Enters new frequencies into memory.</li> <li>o Used to scan frequencies down in 100 Hz increments.</li> </ul> |     |
| FREQ SEL button                   | Performs three functions: <ul style="list-style-type: none"> <li>o Causes selected digit to be displayed on the LCD.</li> <li>o Used to scan channels.</li> <li>o Used to scan frequencies up in 100 Hz increments.</li> </ul>        |     |
| CHAN button                       | Performs three functions: <ul style="list-style-type: none"> <li>o Displays current channel.</li> <li>o Enables channel selection.</li> <li>o Turns LCD sidelighting on and off.</li> </ul>   |     |
| Battery connector                 | Allows interconnection to battery pack.   |     |
| Battery charging<br>connector     | Located on battery box. Allows connection of hand crank generator.  |     |

## SECTION II - OPERATION UNDER USUAL CONDITIONS

### 2-2 ASSEMBLY AND PREPARATION FOR USE.

The AN/PRC-132 radio set requires a power source (battery box), an antenna, and either a voice, CW, or data input/output device. Refer to paragraph 2-5 for information on your particular auxiliary equipment.

In general, use the following guidelines to prepare the radio set for use:

- o Inspect all equipment and accessories for damage and cleanliness.
- o Inspect connector pins for straightness and cleanliness.
- o Inspect all screws for tightness.
- o Verify that front and rear cover O-rings are in place and lubricated with silicone or an equivalent lubricant. Verify that battery box charging connector cap gasket is in place and lubricated.
- o Ensure that battery box to be used and spare batteries are fully charged.
- o Connect battery box to transceiver. Power connection is made automatically when battery box is attached.
- o Connect antenna to transceiver.
- o Connect auxiliary equipment to transceiver per mission requirements.
- o Perform initial adjustments.

### 2-3 INITIAL ADJUSTMENTS.

Initial transceiver adjustments consist of the following steps:

- o Check secure lighting.
- o Set receive and transmit frequencies for each channel to be used.
- o (Clear channels as necessary.)

#### CAUTION

If the LCD shows a single letter "H" or series of the letter "H" when you press the **FREQ SEL** button, the transceiver is in the memory clear sequence. Press **CHAN** or turn the transceiver off to abort the clear operation. Then restart the procedure you were performing.

Secure Lighting. The CHAN button is used to turn LCD secure lighting on or off. Press CHAN button twice to turn lighting on. Press CHAN button twice to turn lighting off. Be sure to turn secure lighting off when it is not needed to prolong battery life.

**NOTE**

Leading zeros must be entered. Trailing zeros must be entered for channel. Leading zeros are displayed for channel.

Setting Channels. Perform the following sequence for each channel to be set.

a. Set POWER switch to RX position.

(1) Press CHAN to display current channel in the following format: "HL XX" (XX = two-digit channel number). If channel is correct, press enter.

(2) Perform the following to program a new channel.

(a) Turn select switch to the first digit of the desired channel number. Examples: To set channel 10, turn switch to 1. To set channel 09, turn switch to 0.

(b) Press FREQ SEL to display digit selected.

(c) Turn select switch to the second digit of the channel number. Examples: To set channel 10, turn switch to 0. To set channel 09, turn switch to 9.

(d) Press FREQ SEL to display selected channel.

(e) If the channel displayed is not correct, go back to step a(2)(a).

(f) Press ENTER to display current receive frequency for selected channel.

**NOTE**

Leading zeros must be entered. Trailing zeros need not be entered for frequency. Leading zeros are not displayed for frequency.

b. Program receive frequency as follows:

(1) If frequency shown on LCD is the desired receive frequency, press ENTER. Go to step c.

(2) If frequency shown is not the desired receive frequency, proceed as follows:

(a) Turn select switch to the first digit of the receive frequency. Examples: To set 20 MHz, turn switch to 2. To set 9.9999 MHz, turn switch to 0. In this second example, you are really setting 09.9999 MHz.

(b) Press **FREQ SEL** to display digit selected. If display is incorrect, press **CHAN**, then **ENTER**, and go back to step b(2)(a).

(c) Turn select switch to the next digit of the receive frequency and press the **FREQ SEL** button. LCD will show digit selected. Repeat this step until the required digits have been entered. If any entries are incorrect, press **CHAN**, then **ENTER**, and go back to step b(2)(a).

(d) When you have entered the required digits, press **ENTER** to store receive frequency in memory.

**NOTE**

At this point, LCD shows a small "T" above the decimal point of the frequency display. This indicates that frequency shown is the transmit frequency.

c. Program transmit frequency as follows:

(1) If frequency shown on LCD is the desired transmit frequency, press **ENTER**.

(2) If frequency shown is not the desired transmit frequency, enter a new transmit frequency in the same manner as you would a new receive frequency. When you have entered transmit frequency, press **ENTER**. Transmit frequency is now stored in memory.

Checking a Channel. To check the receive and transmit frequencies programmed for a channel, proceed as follows.

a. With transceiver in any operating position, select a channel as follows:

(1) Press **CHAN** to display current channel in the following format: "HL XX" (XX = two-digit channel number). If channel is correct, press **ENTER**.

(2) If you want to check a channel other than the current channel:

(a) Turn the select switch to the first digit of the desired channel number. Examples: To set channel 10, turn switch to 1. To set channel 09, turn switch to 0.

(b) Press **FREQ SEL** to display digit selected.

- (c) Turn the select switch to the second digit of the channel number. Examples:  
To set channel 10, turn switch to 0. To set channel 09, turn switch to 9.
- (d) Press **FREQ SEL** to display selected channel.
- (e) If channel displayed is not correct, go back to step a(2)(a).
- b. Press **ENTER** to display the receive frequency for the selected channel.
- c. Press **ENTER** again to display the transmit frequency for the selected channel.
- d. Press **ENTER** to return to the receive frequency display.

Clearing All Channels. To clear all channels to the default of 10.0000 MHz set in memory, proceed as follows.

- a. Turn **POWER** switch to **OFF**, then to **RX**. This clears any functions in progress.
- b. Set select switch to any number.

**CAUTION**

The following step clears all channels in memory. Ensure that this is your intention before pressing **FREQ SEL** the sixth time. To abort the operation, press **CHAN** button or turn **POWER** switch **OFF**.

- c. Press **FREQ SEL** six times. LCD will show an "H" each time **FREQ SEL** is pressed. After the sixth time **FREQ SEL** is pressed, all frequencies of all channels are reset to 10 MHz.

Clearing a Single Channel. Single channels are cleared by setting them to the default frequency of 10.0000 MHz.

**2-4 OPERATING PROCEDURE.**

During setup, the operator must:

- o Select power setting
- o Select mode
- o Select channel
- o Adjust volume



**CAUTION**

If LCD shows a single letter "H" or series of the letter "H" when you press the **FREQ SEL** button, the transceiver is in the memory clear sequence. Press **CHAN** or turn the transceiver off to abort the clear operation. Then restart the procedure you were performing.

Radio operations consist of the following procedures:

- o Powering up
- o Selecting operating mode
- o Selecting a channel
- o Scanning frequencies
- o Scanning channels
- o Going to standby
- o Shutdown

Powering Up. For receive only operation, set **POWER** switch to **RX**. For transmit/receive operations and corresponding transmit power in watts, set **POWER** switch to 5, 10, 20, or 50.

Selecting Operating Mode. Set **MODE** switch to:

- o **LSB** - for lower sideband operation.
- o **USB** - for upper sideband operation.
- o **AME** - for amplitude modulation equivalent operation.

Any setting may be used for voice, data, or CW operation.

Selecting a Channel. Select a channel as follows.

a. Press **CHAN** to display current channel in the following format: "HL XX" (XX = two-digit channel number).

b. If a different channel is required, proceed as follows:

(1) Turn select switch to the first digit of the desired channel number. Examples: To set channel 10, turn switch to 1. To set channel 09, turn switch to 0.

(2) Press **FREQ SEL** to display digit selected.

(3) Turn select switch to the second digit of the channel number. Examples: To set channel 10, turn switch to 0. To set channel 09, turn switch to 9.

(4) Press **FREQ SEL** to display the channel selected. If channel displayed is not correct, go back to step b(1).

- c. Press ENTER to display the receive frequency.

**NOTE**

To display the transmit frequency, press ENTER again. Transmit frequency is also displayed when transmitter is keyed. A small "T" above the decimal point indicates transmit frequency.

Scanning Frequencies. To scan receive frequencies in steps of 100 Hz, proceed as follows.

- a. Set POWER switch to any operating position and select operating mode.
- b. Turn select switch to UDB position.
- c. Press **FREQ SEL** to display the current channel in the following format: "PL XX" (XX = two-digit channel number).
- d. If a different channel is required, proceed as follows:
  - (1) Turn select switch to the first digit of the desired channel number. Examples: To set channel 10, turn switch to 1. To set channel 09, turn switch to 0.
  - (2) Press **FREQ SEL** to display the digit selected.
  - (3) Turn select switch to the second digit of the channel number. Examples: To set channel 10, turn switch to 0. To set channel 09, turn switch to 9.
  - (4) Press **FREQ SEL** to display channel selected. If channel displayed is not correct, go back to step d(1).
- e. Press ENTER to display the receive frequency.
- f. At this point, frequency scan operation is enabled. To increase frequency, press **FREQ SEL**. To decrease frequency, press ENTER.
- g. To exit frequency scan, turn select switch to any number and press **CHAN**.

Scanning Channels. To scan through 11 channels, proceed as follows.

- a. Set POWER switch to any operating position and select operating mode.
- b. Press **CHAN** to display current channel in the following format: "HL XX" (XX = two-digit channel number).

**NOTE**

Receive frequency, not channel number, is displayed during scan.

c. If a different starting channel is required, proceed as follows:

(1) Turn select switch to the first digit of the desired channel number. Examples: To set channel 10, turn switch to 1. To set channel 09, turn switch to 0.

(2) Press **FREQ SEL** to display the digit selected.

(3) Turn select switch to the second digit of the channel number. Examples: To set channel 10, turn switch to 0. To set channel 09, turn switch to 9.

(4) Press **FREQ SEL** to display both digits selected. If the channel displayed is not correct, go back to step c(1).

d. Press **ENTER**. The receive frequency will be displayed.

e. Turn select switch to **SCAN**.

f. At this point, channel scan is enabled. Press **FREQ SEL** to increase the channel.

**NOTE**

Channel scan cycles through 11 channels. Each time **FREQ SEL** is pressed, one is added to the current channel until the eleventh channel is reached. After the eleventh channel, the scan returns to the first channel. For example, if the starting channel is 10, scan will be as follows: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 10, 11, etc.

Scanning stops at channel 99 even if fewer than eleven channels have been scanned. For example, if the starting channel is 95, scan will be as follows: 95, 96, 97, 98, 99, 95, 96, etc.

g. To exit channel scan, turn select switch to any number and press **CHAN**.

Going To Standby. There is no standby operation for the AN/PRC-132. Turn **POWER OFF** when radio set is not in use.

Shutdown. To shut down the AN/PRC-132, turn **POWER** switch to the **OFF** position. The radio set can now be disassembled for movement or left as is for use at a later time.

**NOTE**

Shutdown does not clear channels or frequencies programmed in memory.

## 2-5 OPERATION OF AUXILIARY EQUIPMENT.

For auxiliary equipment operations, refer to the applicable manual(s) for equipment to be used with the radio set.

## 2-6 PREPARATION FOR MOVEMENT.

Typically, the battery box is removed from the transceiver and front and rear panels are attached to the transceiver for transport and storage.

To prepare radio set for movement, first shut down transceiver. Remove antenna and other attached auxiliary equipment. Latch transceiver front cover in place. Remove battery box. Latch rear cover in place.

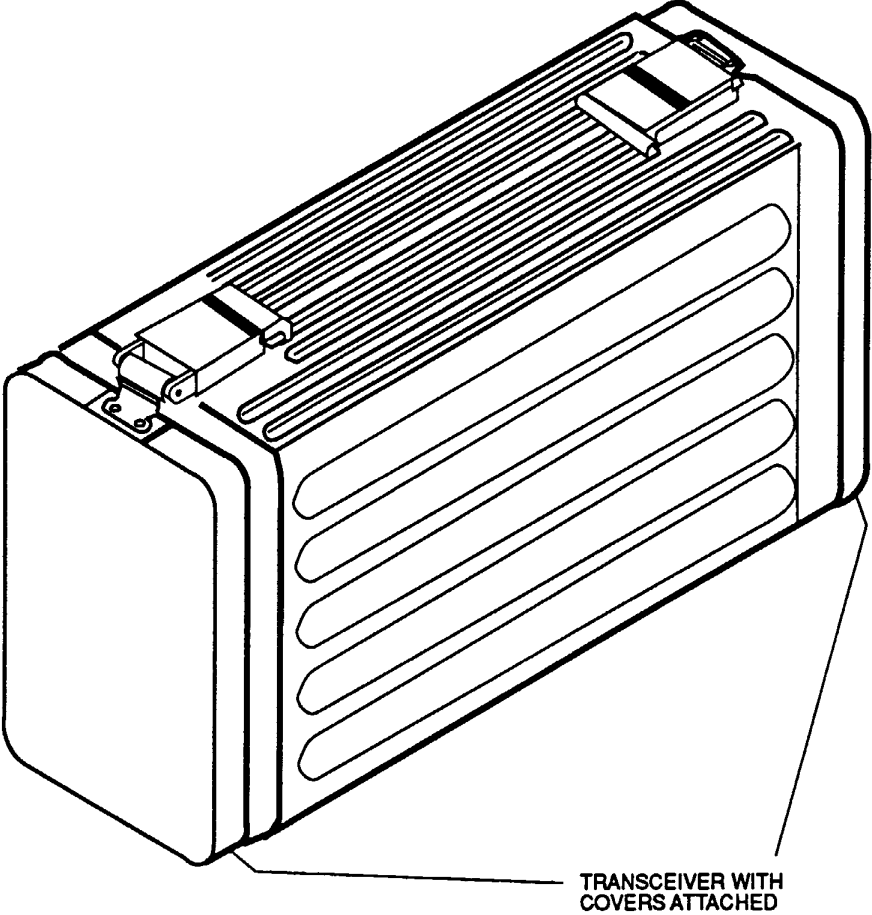
Front and rear panel covers attach to the transceiver and provide protection for the transport configuration. Figure 2-2 illustrates the transport configuration.

Before subjecting the radio set to extreme environmental conditions such as caching or immersion, ensure that front and rear cover O-rings are in place and lubricated, and install front and rear covers.

Ensure battery box O-ring is lubricated and in place.

### **WARNING**

For immersion greater than 3 feet, the rear cover must be removed from the transceiver and a battery box qualified for immersion greater than 3 feet attached in its place. This is to prevent battery box leakage. Be sure to leave the front cover attached to the transceiver.



**FIGURE 2-2. Transceiver transport configuration**

### SECTION III - OPERATION UNDER UNUSUAL CONDITIONS

The AN/PRC-132 radio set is designed to operate in all types of weather and terrain, and to withstand exposure to severe environmental extremes. The radio set can withstand shock and vibration.

#### 2-7 OPERATION IN UNUSUAL WEATHER.

There are no special procedures for operations in unusual weather.

The AN/PRC-132 radio set can withstand the following conditions for limited periods of time:

**HUMIDITY:** The radio set can withstand (with seals opened) exposure to constant high humidity conditions such as those found in tropical areas, and cyclical high humidity conditions such as those found in open tropical areas where solar radiation is a factor. The radio set will resist fungus growth.

**TEMPERATURE:** The radio set will operate over a temperature range of -30 to +65 degrees C (-22 to +149 degrees F), and can withstand storage over a temperature range of -40 to +85 degrees C (-40 to +185 degrees F). The LCD may respond sluggishly in extremely cold temperatures. Most LCDs exhibit sluggish response times at lower temperatures, some taking up to .5 second to respond to a change at -30 degrees C (-22 degrees F). If this does occur, it is a normal response.

**SALT AIR:** The radio set can resist the effects of exposure to marine atmosphere.

**DUST and SAND:** The radio set can withstand the effects of blowing dust and sand. The LCD window is made of a high strength polycarbonate. Skirted knobs or boots are used on front panel controls to protect seals and moving parts. All mating surfaces are sealed to prevent sand or dust from penetrating into the equipment.

**ALTITUDE:** The radio set will operate at ground elevation sites up to 15,000 feet (4572 meters), and can be stored at elevations up to 30,000 feet (9144 meters). The radio set can be air-transported in non-pressurized cabins. In addition, the radio set was designed to survive rapid decompression without damage or degradation in performance.

#### 2-8 FORDING AND SWIMMING.

When fording or swimming, configure the transceiver for transport.

The transceiver can be immersed to depths up to 3 feet. Note that front and rear covers must be on for any immersion of the transceiver.

Sealing of the transceiver in the transport configuration is accomplished with front and rear panel covers. Each cover contains a groove for an O-ring. The O-ring mates with the edges of the front and rear of the transceiver housing. Latches are provided on the housing to pull the covers tight and form a high pressure seal.

The CY-8629/PRC-132 battery box is waterproof to depths up to 3 feet. Other battery boxes are available for immersion depths greater than 3 feet.

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**WARNING**

For immersion greater than 3 feet, the rear cover must be removed from the transceiver and a battery box qualified for immersion greater than 3 feet attached to its place. This is to prevent battery box leakage. Be sure to leave the front cover attached to the transceiver. Ensure battery box O-ring is lubricated and in place.

**2-9 JAMMING AND ECM PROCEDURES.**

Follow current guidelines for operation in an environment where jamming and ECM may be present.

## CHAPTER 3 - UNIT MAINTENANCE

### SECTION I - REPAIR PARTS AND SPECIAL TOOLS

#### 3-1 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools or equipment are required.

### SECTION II - SERVICE UPON RECEIPT

#### 3-2 CHECKING UNPACKED EQUIPMENT.

- a. Inspect the equipment for damage incurred during shipment.
- b. Check the equipment against the packing slip to see if the shipment is complete.

#### 3-3 INSTALLATION.

a. Tools and Materials Required for Installation. No tools, test equipment, or special materials are required for installation.

b. Assembly of Equipment. The AN/PRC-132 radio set is shipped fully assembled. The only initial action necessary before installing the radio set in its operational configuration is to put batteries in the CY-8629/PRC-132 battery box.

The CY-8629/PRC-132 battery box includes a rear cover and a housing with mating connectors for BB-590 or BA-5590 batteries. Performance is obtained with the following configurations:

- o A single BB-590 battery (50 watts transmit power).
- o Two BB-590 batteries (50 watts transmit power).
- o Two BA-5590 batteries (20 watts transmit power).
- o A combination of one BB-590 and one BA-5590 battery may also be used.

When used in combination, the BA-5590 will tend to keep the BB-590 charged, whether the radio is in operation or not. Only the BB-590 nickel cadmium battery is rechargeable.

Transmit operation with BB-590 and BA-5590 batteries used in combination may result in reduced transmit power output.



### 3-4 PRELIMINARY SERVICING AND ADJUSTMENT OF EQUIPMENT.

Preliminary actions include:

- o Verify that battery box will accept batteries.
- o Verify that battery box will attach to transceiver.
- o Verify that transceiver will power on.
- o For transport configuration, verify that front and rear cover O-rings are in place and lubricated with silicon or an equivalent lubricant. Verify that transceiver front and rear covers fit and latch properly.
- o Verify that all external connectors and connector pins are in good condition and that no pins are bent or broken.
- o Verify that all switches and controls are present and function properly.

## SECTION III - PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

### 3-5 GENERAL.

Preventive Maintenance Checks and Services are essential to the efficient operation of the system and to prevent possible damage that might occur through neglect or failure to observe warning symptoms in a timely manner.

a. Routine Checks. Routine checks such as cleaning, dusting, washing, stowing items not in use, covering unused receptacles, and checking for damage are not covered in the PMCS checks. They are things which should be done any time they are noticed. Ensure all discrepancies are noted and corrected.

b. PMCS. Unit maintenance PMCS are the required periodic inspections and actions necessary to keep the equipment in good operating condition.

c. System Readiness Criteria. System Readiness Criteria are those standard, specified requirements the system must meet to be mission-capable.

### 3-6 PMCS TABLE.

PMCS Table 3-1 lists all the scheduled maintenance tasks required for the radio set. The columns of the table are as follows:

- a. Item No. This column contains a number for each procedure to be performed.
- b. Interval. These columns tell when to do a procedure. A letter in a column tells which procedures apply. Some procedures will have more than one letter.
- c. Item To Be Inspected/Procedure. This column has the name of the item to be inspected and tells how to do the required checks and services on it. Carefully perform these instructions in the order listed.
- d. Equipment Is Not Ready/Available If: This column tells the conditions which will cause the equipment not to be ready.

### 3-7 PMCS PROCEDURES.

#### NOTE

Within designated intervals, these checks are to be performed in the order listed. If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

- a. Before You Operate. Always keep in mind and observe the WARNINGS and CAUTIONS contained in this technical manual and plates installed on the equipment. Perform the before (B) PMCS from Table 3-1.
- b. While You Operate. Always keep in mind and observe the WARNINGS and CAUTIONS contained in this technical manual and plates installed on the equipment. Perform the during (D) PMCS from Table 3-1.
- c. After You Operate. Perform the after (A) PMCS from Table 3-1.
- d. Weekly. Perform the Weekly (W) PMCS from Table 3-1.
- e. Monthly. Perform the monthly (M) PMCS from Table 3-1.
- f. If Something Doesn't Work. Troubleshoot with the instructions in this manual and notify the supervisor.
- g. Order. Always do the preventive maintenance in the same order.

h. Reporting. If anything goes wrong that cannot be fixed, report it to the next highest maintenance level IMMEDIATELY.

#### WARNINGS

**KEEP AWAY FROM LIVE CIRCUITS:** The antenna is a source of electrical and radio frequency energy. NEVER TOUCH THE ANTENNA WHEN THE RADIO SET IS IN USE. An RF burn may occur as a result of contact with an active antenna system.

**RF VOLTAGE WARNING:** Exposed metal transceiver parts can assume an RF potential to ground when antenna is tuned without grounding transceiver. To avoid potential RF burns, tie transceiver GND stud to ground.

**DO NOT OPEN TRANSCEIVER CASE:** Operator and unit maintenance personnel must not remove the transceiver case.

#### WARNING

A lithium-sulfur dioxide (Li-SO<sub>2</sub>) battery used with the AN/PRC-132 contains pressurized sulfur dioxide (SO<sub>2</sub>) gas. The gas is toxic, and the battery MUST NOT be abused in any way which may cause the battery to rupture.

DO NOT heat, short circuit, crush, puncture, mutilate, or disassemble batteries.

DO NOT USE any battery which shows signs of damage, such as bulging, swelling, disfigurement, a brown liquid in the plastic wrap, a swollen plastic wrap, etc.

DO NOT test Li-SO<sub>2</sub> batteries for capacity.

DO NOT recharge Li-SO<sub>2</sub> batteries.

DO NOT dispose of lithium batteries with ordinary trash/refuse.

#### WARNING

If the battery compartment becomes hot to the touch, if you hear a hissing sound (i.e., battery venting), or smell irritating sulfur dioxide gas, IMMEDIATELY Turn Off the equipment and leave the area.

1. Allow the equipment to cool at least one hour.
2. Remove and replace battery after the equipment has cooled to the touch.

**WARNING**

DO NOT use a Halon type fire extinguisher on a lithium battery fire.

In the event of a fire, near a lithium battery(ies), rapid cooling of the lithium battery(ies) is important. Flood the equipment with water or use a carbon dioxide (CO<sub>2</sub>) extinguisher. Control of the equipment fire, and cooling, may prevent the battery from venting and potentially exposing lithium metal. In the event that lithium metal becomes involved in fire, the use of a graphite based Class D fire extinguisher is recommended, such as Lith-X or Met-L-X.

**WARNING**

DO NOT store batteries in unused equipment for more than 30 days.

DO NOT store lithium batteries with other hazardous materials and keep them away from open flame or heat.

**WARNING**

Operator must replace both BA-5990/U with completely new batteries at the same time. Do not mix partially used batteries with brand new batteries.

If possible, the operator should use two BA-5590 batteries manufactured by the same vendor with the same date code.

**WARNING**

Do not attempt to transmit when charging batteries.

TABLE 3-1. Unit Preventive Maintenance Checks and Services

## NOTE

For interval; B = before, D = during, A = after, W = weekly, and M = monthly.

| Item No. | Interval<br>B D A W M | Item to be Inspected<br>Procedure  | Equipment is not<br>Ready/Available if:                    |
|----------|-----------------------|--|--|
| 1        | B A                   | Check for cleanliness.   |  |
| 2        | B A                   | Check all knobs and controls for damage and correct freedom of movement. All hardware should be checked for tightness.   | Knobs missing or broken, or incorrect freedom of movement. |
| 3        | B A                   | Check front panel lens to be sure it has not been cracked.   | Lens cracked.  |
| 4        | B A                   | Check all connectors for damaged pins.   | Bent or missing pins.                                      |
| 5        | B A                   | Check for broken latches or latch hooks.   |  |
| 6        | M                     | Check for O-ring and its lubrication.  |  |
| 7        | B                     | Be sure that transceiver and battery box mate properly.  | Transceiver and battery box do not mate.                   |
| 8        | A                     | Be sure that transceiver front and rear covers mate properly.  |  |
| 9        | B D A                 | Check screws for tightness.  |  |
| 10       | B D A                 | Check battery box vent to be sure it is not clogged with mud or dirt.  | Unable to clean vent.                                      |
| 11       | B D A                 | Check hexseal on ENTER, FREQ SEL, and CHAN buttons for tears, cracks, or holes. Forward transceiver to next higher maintenance facility for repair if damaged. | Boots torn.  |

## NOTE

Spot paint as necessary.

## SECTION IV - TROUBLESHOOTING

Refer to Table 3-2. The component most likely to cause a given failure is listed first and should be substituted first. If the replacement does not correct the failure, leave it attached to the transceiver and substitute the next component on the list. Continue substitution, in the order listed in Table 3-2, until failure is corrected.

When a substitution corrects a failure, assume the component replaced is defective and set it aside for repair, leaving the substituted component in the system. Replace previously substituted components one at a time, in reverse order of removal.

After each replacement, recheck the radio set to ensure that the original failure has not returned.

After completion of this procedure, perform general operational tests before returning the radio set to service.

### 3-8 TROUBLESHOOTING PROCEDURE.

If the AN/PRC-132 radio set fails any of the following tests, refer to Table 3-2 for replacement sequence.

#### NOTE

No operator maintenance is to be performed internal to the AN/PRC-132. The only authorized operator maintenance is listed in Section V of this chapter.

Internal maintenance is to be performed by an authorized maintenance facility. The unit contains components that are sensitive to Electrostatic Discharge (ESD) ESD precautions must be observed when opening the radio or battery box during repair.

TABLE 3-2 Symptom Index

| FAILED TEST                                      | REPLACEMENT SEQUENCE | TROUBLESHOOTING PROCEDURE (para.) |
|--|----------------------|-----------------------------------|
| Unable to power on transceiver.                  | Batteries            | 4-12a                             |
| Unable to power on transceiver.                  | Battery Box          | 4-12a                             |
| Unable to power on transceiver.                  | Transceiver          | 4-12a                             |
| Unable to program frequencies.                   | Transceiver          | 4-12b                             |
| Unable to scan.                                  | Transceiver          | 4-12b                             |
| Unable to communicate with known good radio set. | Transceiver          | 4-12c                             |
| Unable to communicate with known good radio set. | Auxiliary equipment  | 4-12c                             |
| Unable to communicate with known good radio set. | Antenna              | 4-12c                             |

## 3-9 GENERAL OPERATIONAL TESTS.

a. Power On Test. Ensure that transceiver will power on.

b. Programming Test. Ensure that receive and transmit frequencies can be programmed and that frequency scan and channel scan work correctly.

c. Operational Test. Attempt communications with a known good radio set.

Perform all communications operations (both transmit and receive) to verify that radio set under test is fully operational.

## SECTION V - MAINTENANCE PROCEDURES

## 3-10 AN/PRC-132 UNIT MAINTENANCE.

Radio set unit maintenance includes:

- o Inspection
- o Service
- o Test

a. AN/PRC-132 Inspection. After each use, perform an external visual inspection of the radio set. Refer to the PMCS chart.

b. AN/PRC-132 Service. The only service required is to maintain cleanliness of the radio set, replace batteries when necessary, lubricate O-rings, and repair when damaged.

The radio set and its accessories should be cleaned as required. Remove dust and dirt from surfaces with a cloth or a soft bristle brush. Isopropyl alcohol or mild soapy water may be used as required. Rinse by wiping with a clean cloth moistened in water. Dry using a cloth.

Remove dust and dirt from connectors with a soft, dry, bristle brush.

Lubrication applies to the transceiver front and rear cover O-rings which must be lubricated as required to maintain watertight integrity.

- o Check front and rear cover O-rings for damage or dirt. Clean or replace as required. Coat O-rings with silicon or an equivalent lubricant.
- o Check battery box charging connector cap gasket for proper lubrication.

c. AN/PRC-132 Test. Radio set testing is limited to a functional verification that transceiver and battery box work together, and that all transceiver functions can be performed. Refer to paragraphs 3-9a and 3-9b for functional testing.

## 3-11 CY-8629/PRC-132 UNIT MAINTENANCE.

Battery box unit maintenance includes:

- o Inspection
- o Service
- o Test
- o Repair



a. CY-8629/PRC-132 Inspection. After each use, perform an external visual inspection of the battery box. Refer to PMCS chart.

b. CY-8629/PRC-132 Service. The only service required is to maintain battery box cleanliness, change batteries when necessary, and repair when damaged.

The battery box should be cleaned as required. Remove dust and dirt from surfaces with a cloth or a soft bristle brush. Isopropyl alcohol or mild soapy water may be used as required. Rinse by wiping with a clean cloth moistened in water. Dry using a cloth.

Use a dry bristle brush to remove mud or dirt from the vent screen.

Remove dust and dirt from connectors with a soft, dry, bristle brush.

c. CY-8629/PRC-132 Test. Battery box testing is limited to a functional verification that transceiver and battery box work together, and that all transceiver functions can be performed.

Refer to paragraph 3-9 for functional and performance testing.

d. CY-8629/PRC-132 Repair. Battery box repair is limited to battery replacement.

The battery box does not have to be separated from the transceiver during battery replacement. Batteries can be installed or replaced by disengaging latches that hold rear cover of battery box to the battery box housing. Ensure transceiver is in OFF position. Remove cover. Grasp exposed batteries and remove them from battery box. Refer to Figure 3-1. Turn batteries so battery connectors will mate with connectors in the battery box housing. Install batteries. Within battery box housing, guide pins will position batteries for proper connector alignment. Mating connectors inside housing will engage battery connectors as batteries are installed. Replace battery box cover and latch in place.

e. CY-8629/PRC-132 Battery Charging. BB-590 batter(ies) can be recharged with the handcrank generator. The generator interconnection cable is connected to the battery box battery charging connector. Fully discharged batteries take approximately 6 hours to recharge.

**WARNING**

Do not attempt to transmit when charging batteries.

3-12 RT-1648/PRC-132 UNIT MAINTENANCE.

Transceiver unit maintenance includes:

- o Inspection
- o Repair
- o Test

a. RT-1648/PRC-132 Inspection. After each use, perform an external visual inspection of the transceiver. Refer to PMCS chart.

b. RT-1648/PRC-132 Repair. Transceiver repair is limited to the replacement of knobs.

To remove knobs: Rotate knob (or shaft if knob is missing) fully counterclockwise (CCW). Use an allen wrench to loosen set screw. Remove knob.

To install knobs: Replace knob, being careful to align knob marker with appropriate markings on transceiver front panel. Use an allen wrench to tighten set screw.

c. RT-1648/PRC-132 Test. Transceiver testing covers both functional and performance testing. Refer to paragraph 3-9.

#### SECTION VI - PREPARATION FOR STORAGE OR SHIPMENT

Refer to paragraph 2-6 to prepare the AN/PRC-132 radio set for storage or shipment.

#### NOTE

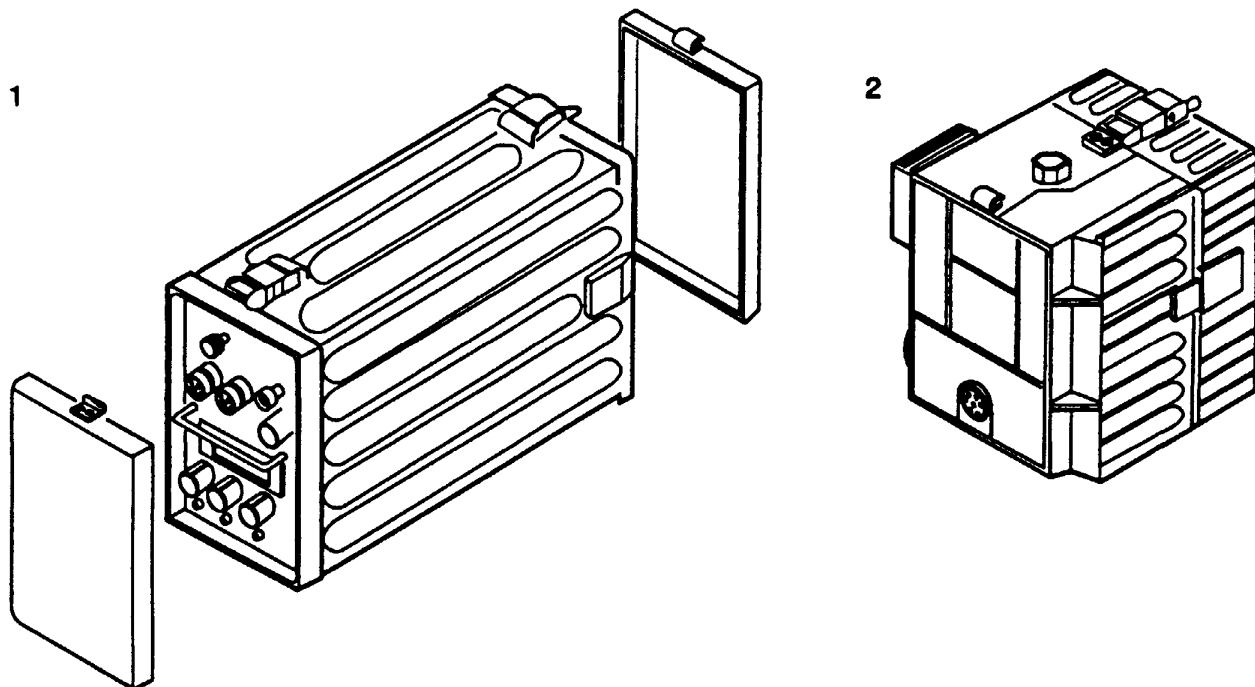
Clear radio memory before storage or shipment.

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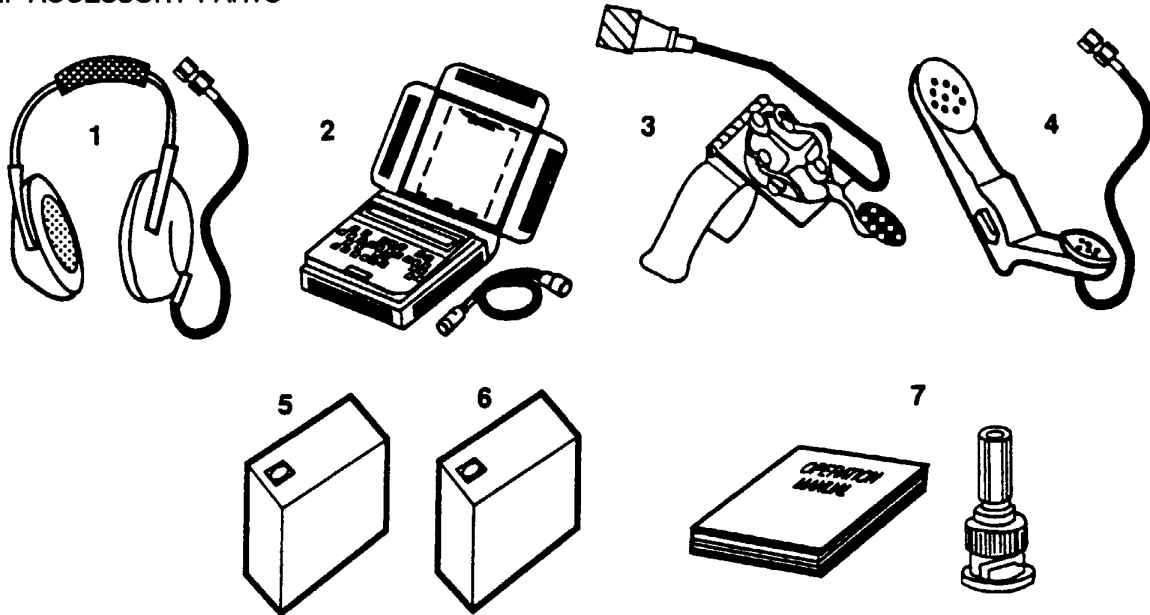
## APPENDIX A - REPAIR AND ACCESSORY PARTS LISTING

## A-1. REPAIR PARTS



| <u>Illus. Number</u> | <u>Description</u>           | <u>Part Number</u> | <u>National Stock Number</u> |
|----------------------|------------------------------|--------------------|------------------------------|
| 1                    | Transceiver, RT-1648/PRC-132 | 994525-10          | ----                         |
| 2                    | Battery Box, CY-8629/PRC-132 | A3155274           | 6160-01-322-9366             |
| 3                    | Front Cover                  | 994519-10          | ---                          |
| 4                    | Rear Cover                   | 994529-10          | ----                         |
| 5                    | Knob                         | 818015-00          | ----                         |

A-2. ACCESSORY PARTS



| <u>Illus. Number</u> | <u>Description</u>   | <u>Part Number</u> | <u>National Stock Number</u> |
|----------------------|--|--------------------|------------------------------|
| 1                    | Headset, Electrical, H-251/U   | ---                | 5965-00-043-3460             |
| 2                    | Digital Message Device Group, OA-8990/G                                  | ---                | 5820-01-102-3921             |
| 3                    | Telegraph Key, KY-116/U (with cable assembly CX-13031 or KY-872/PRC-104) | ---                | 5805-00-503-3395             |
| 4                    | Handset, H-250/U   | ---                | 5965-00-043-3463             |
| 5                    | Battery, BB-590  | ---                | 6140-01-063-3918             |
| 6                    | Battery, BA-5590   | ---                | 6135-01-036-3495             |
| 7                    | Accessory Kit, (Loral TerraCom) with BNC-to-Binding Post Connectors      | 994526-10          | ---                          |
|                      | TK-101/G Tool Kit  | ---                | 5180-00-064-5178             |
|                      | Attenuator, 30 dB  | ---                | 5985-00-831-5991             |
|                      | Attenuator, 100 dB   | ---                | 6625-01-136-3170             |

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**APPENDIX B**  
**WARRANTY PLAN**

**LORAL TERRACOM**

San Diego, California

**PROPRIETARY RIGHTS**

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\* \* \*

LORAL TERRACOM

San Diego, California

WARRANTY and CERTIFICATION

**WARRANTY**

**WARRANTY.** Loral TerraCom warrants products manufactured by it to be free from defective material and factory workmanship and will repair such products under which normal use and service disclose the defect to be the fault of its manufacturing. The Loral TerraCom obligation under this warranty is for the original user only. Warranty is limited to repairing or replacing, at Loral TerraCom option, any such product that proves to be so defective upon its examination when returned to the factory, with shipping prepaid by purchaser. The warranty period is twelve (12) months, with period commencing with installation date or 90 days after date of original shipment, whichever is earlier. This warranty does not include fuses, meters, lamps or connectors.

Accessories supplied by, but not manufactured by, Loral TerraCom shall provide only such manufacturer's standard warranty, and are expressly and specifically excluded from this Loral TerraCom warranty. Such accessories include, but are not limited to, antennas, antenna feeds, cabling, multiplexing equipment, waveguide and RF transitions.

Loral TerraCom products that have been repaired, worked upon or altered so as to compromise the stability or reliability of such product, or that have been subject to misuse, negligence or accident, are not covered by this warranty. Neither does this warranty apply to Loral TerraCom products that have been installed, used, connected or adjusted other than in accordance with the furnished manufacturer's instructions. Loral TerraCom does not assume any liability for consequential damage, and no liability shall exceed the original purchase price of the defective product.

The Loral TerraCom product will be accepted for replacement or return upon the written authorization and instructions of Loral TerraCom. The product will be shipped prepaid to the San Diego manufacturing plant. Shipment to the purchaser of replacement or repaired product will be prepaid by Loral TerraCom. For equipment located outside of the United States, transportation costs from U.S. port of exit to or from foreign destination will be borne by the Buyer. Import/export fees, customs and brokerage charges for equipment operated outside the United States will be paid by the Buyer.

This warranty is in lieu of, and excludes, all other implied or expressed warranty on Loral TerraCom products.

**CERTIFICATION**

Loral TerraCom certifies that this product was tested and inspected and found to meet its published specifications when shipped. All instruments used to test this product are systematically calibrated. The calibration measurements are traceable to the US National Bureau of Standards calibration facility.



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# LORAL

TerraCom

## CUSTOMER SERVICE

### Service Repair Tags

Please use these tags whenever necessary to Return Material for Repair.

1. Obtain Return Material Authorization (RMA) number from:

**LORAL TERRACOM**  
Customer Repair Service  
Phone: (619) 268-2240  
FAX: (619) 292-1140  
TLX: ASDG 18-2774

2. Attach one tag to each unit.
3. Enter the following information on each tag:

- A. Model number
- B. Serial number
- C. A brief description of the problem:  
"low power out"  
"intermittent operation" etc.

4. Customer name and address.

- A. Phone number

5. Purchase order number.

6. RMA number (Obtain from Step 1.)

7. Ship all equipment PREPAID to:

**LORAL TERRACOM**  
Customer Service Department  
9020 Balboa Avenue,  
San Diego, California 92123

Loral TerraCom maintains a well-staffed and equipped repair facility. Repaired units receive inspection and operational tests to the same specifications as new products. Your cooperation in providing complete information on the service tag will assist us in giving you prompt and effective repair service.

Additional quantities of these tags are available upon request.

Customer assistance may be obtained by calling (619) 268-2240, during normal working hours. After normal work hours (nights, weekends & holidays) call (619) 268-8622 for 24-hour emergency assistance.

Form No. 003-0163B

# LORAL

TerraCom

## REPAIR SERVICE TAG

|                             |            |               |
|-----------------------------|------------|---------------|
| MODEL NUMBER OR DESCRIPTION |            | SERIAL NUMBER |
| FAILURE SYMPTOMS            |            |               |
| PURCHASE ORDER NO.          | RMA NUMBER |               |
| CUSTOMER NAME _____         |            |               |
| LOCATION _____              |            |               |
| PHONE NUMBER _____          |            |               |
| AUTHORIZED RETURN           | TITLE      | DATE          |

# LORAL

TerraCom

## REPAIR SERVICE TAG

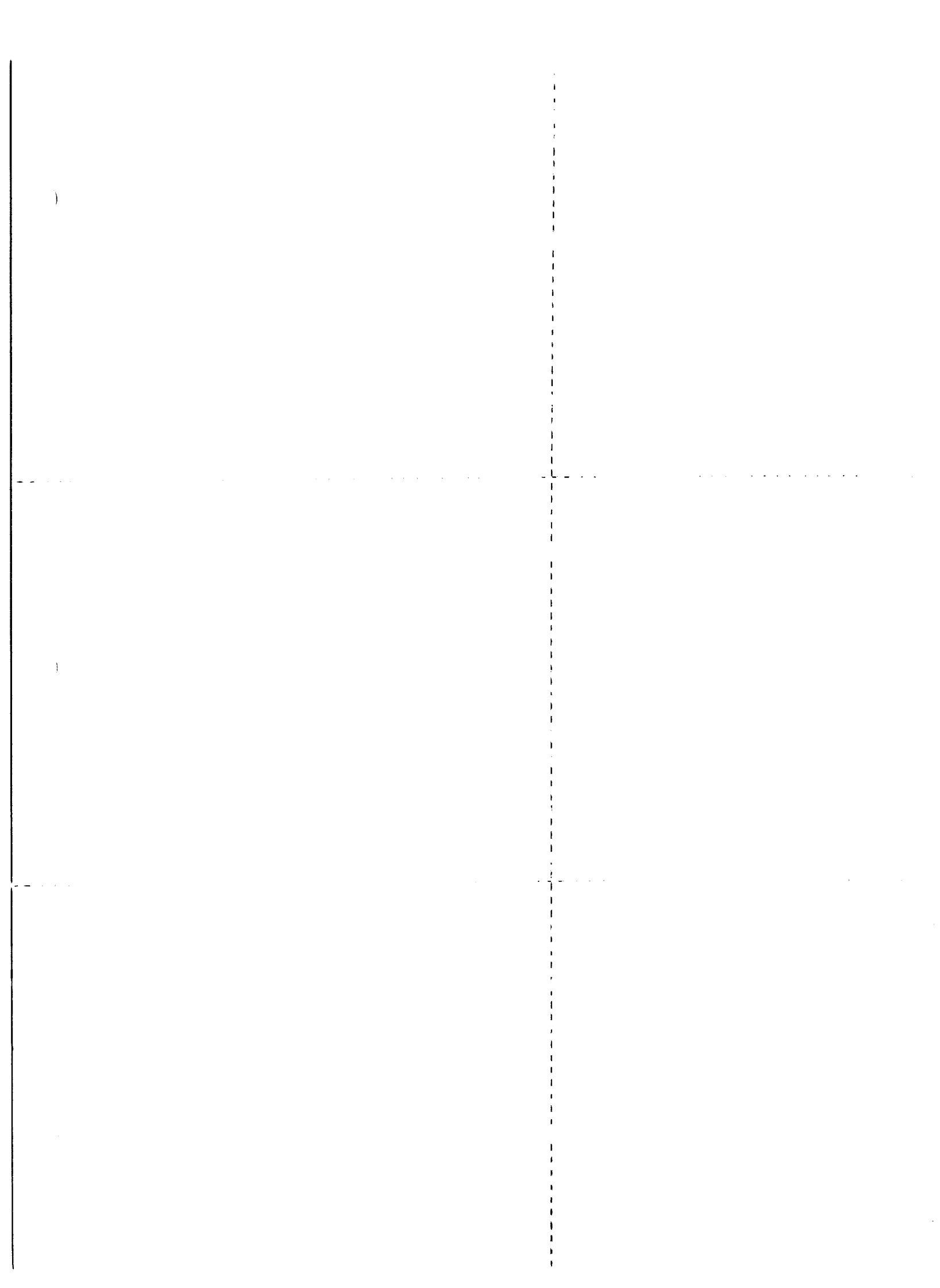
|                             |            |               |
|-----------------------------|------------|---------------|
| MODEL NUMBER OR DESCRIPTION |            | SERIAL NUMBER |
| FAILURE SYMPTOMS            |            |               |
| PURCHASE ORDER NO.          | RMA NUMBER |               |
| CUSTOMER NAME _____         |            |               |
| LOCATION _____              |            |               |
| PHONE NUMBER _____          |            |               |
| AUTHORIZED RETURN           | TITLE      | DATE          |

# LORAL

TerraCom

## REPAIR SERVICE TAG

|                             |            |               |
|-----------------------------|------------|---------------|
| MODEL NUMBER OR DESCRIPTION |            | SERIAL NUMBER |
| FAILURE SYMPTOMS            |            |               |
| PURCHASE ORDER NO.          | RMA NUMBER |               |
| CUSTOMER NAME _____         |            |               |
| LOCATION _____              |            |               |
| PHONE NUMBER _____          |            |               |
| AUTHORIZED RETURN           | TITLE      | DATE          |



## GLOSSARY

### Section I. ABBREVIATIONS

|        |                                       |
|--------|---------------------------------------|
| AM     | Amplitude Modulation                  |
| AME    | Amplitude Modulation Equivalent       |
| ANT    | Antenna                               |
| CW     | Continuous Wave                       |
| ECM    | Electronic Counter Measures           |
| GND    | Ground (electrical)                   |
| HF/VHF | High Frequency/Very High Frequency    |
| LCD    | Liquid Crystal Display                |
| LSB    | Lower Sideband                        |
| RF     | Radio Frequency                       |
| rms    | root-mean-square                      |
| SOF    | Special Operations Forces             |
| TBD    | To Be Determined                      |
| UDB    | Up/Down Button                        |
| USB    | Upper Sideband                        |
| VOGAD  | Voice Operated Gain Adjustable Device |

### Section II. DEFINITION OF UNUSUAL TERMS

|                |  |
|----------------|--|
| Counterpoise - | A system of wires or other conductors, elevated above and insulated from ground, forming a lower system of conductors of an antenna. |
|----------------|--|

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