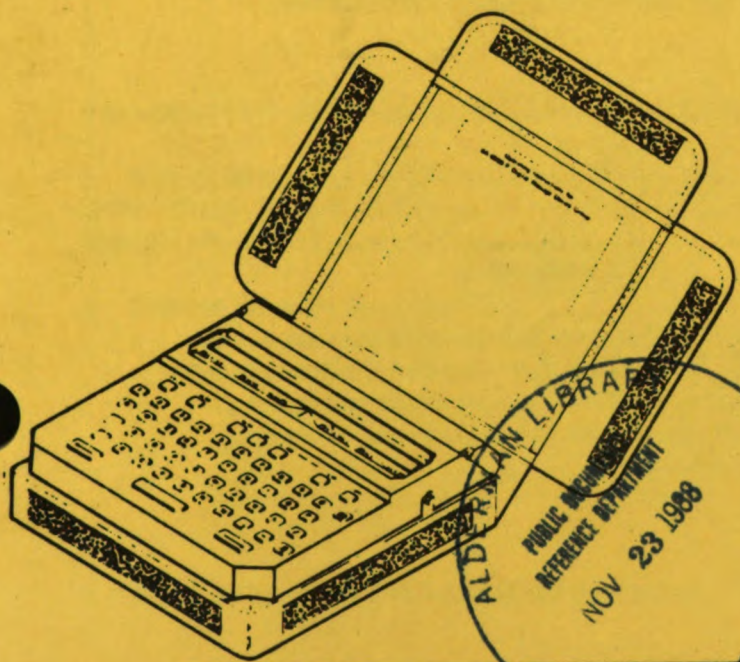
TM 11-5820-887-10

TECHNICAL MANUAL

OPERATOR'S MANUAL



This copy is a reprint which includes current pages from Change 1.

DIGITAL MESSAGE DEVICE GROUP OA-8990/P (5820-01-102-3921)

HEADQUARTERS, DEPARTMENT OF THE ARMY

WARNING

Do not transmit messages from the device while the main battery is being charged. The charging cable is *not* EMI shielded and EMI radiations will occur. The EMI radiations can be intercepted by hostile DF monitoring stations which could result in revealing your position to the enemy.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 24 OCTOBER 1983

OPERATOR'S MANUAL
DIGITAL MESSAGE DEVICE GROUP
OA-8990/P (NSN 5820-01-102-3921)

TM 11-5820-887-10, 20 August 1982, is changed as follows:

1. New or revised material is indicated by a vertical bar in the margin. Where an entire chapter, section, or illustration is added or revised, the vertical bar is placed opposite the identification number and title.

2. Remove old pages and insert new pages as follows:

Remove pages	*Insert pages*
i and ii	i and ii
1-3 and 1-4	1-3 and 1-4
1-7 through 1-10	1-7 through 1-11/(1-12 blank)

3. File this change sheet in front of the publication.

By Order of the Secretary of the Army:

JOHN A. WICKHAM JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with special list.

TECHNICAL MANUAL

No. 11-5820-887-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 20 August 1982

Operator's Manual
DIGITAL MESSAGE DEVICE GROUP
OA-8990/P

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 letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. In either case, a reply will be furnished direct to you.

HOW TO USE THIS MANUAL

The front cover index will assist you in quickly locating information. It identifies information frequently used by the operator. Each item appearing on the front cover is boxed and identified by topic with the page number in the manual where the information is located. The page in the manual used in conjunction with the front cover has a black box on the edge of the page. Bend the manual in half and follow the margin index to the page with the black edge marker.

Entries within the table of contents which duplicate the entries on the front cover index are highlighted with a box.

A complete, alphabetical, subject index is located in the back of the manual and separate alphabetical indexes appear before each chapter. These indexes should help you in locating information under names most likely to be looked for.

CHAPTER 1
INTRODUCTION

CHAPTER INDEX

CHAPTER INDEX – Continued

DIGITAL MESSAGE DEVICE GROUP

Section I. GENERAL INFORMATION

SCOPE

Technical manual TM 11-5820-887-10 covers operator instructions for use and maintenance of Digital Message Device Group OA-8990/P (DMDG). The DMDG consists of:

- Carrying case
- Portable alphanumeric message entry/readout device (Keyer-Message Device KY-879/P)
- Connecting cables (signal and charging)

The DMDG is ancillary equipment and is part of the Special Forces Burst Communications System. It is used with HF radios AN/PRC-70, AN/PRC-74 and Satellite Communications Set AN/PSC-3 to send and receive messages.

MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, the Army Maintenance Management System (TAMMS).

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's)

If your equipment needs improvement, let us know. Send us an EIR. You, the user are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

WARRANTY INFORMATION

This equipment is under warranty from RACAL Communications, INC., for 12 months. Warranty starts on the date stamped on metal label located at bottom of case. Report all defects in material or workmanship to your supervisor.

NOMENCLATURE CROSS REFERENCE LIST

Common Name	*Official Nomenclature*
Device	Keyer-Message Device KY-879/P
Charging adaptor cable	Adapter, Battery MX-18208/PRC-74
Charging cable	Cable Assembly, Special Purpose Electrical CX-13158/GR
Signal cable	Cable Assembly, Special Purpose Electrical CX-13156/GR
Carrying case	Case, Carrying CY-7922/P

LIST OF ABBREVIATIONS

Abbreviation	*Explanation*
DMDG	Digital Message Device Group
EMI	Electro-magnetic interference
HF	High frequency
KBD	Keyboard
LCD	Liquid crystal display
LED	Light-emitting diode
RX	Receive
SAT	Satellite
⊠	Delete key
≡	New line key
⌐	Cursor (indexing/reference line)
>	Through

HAND RECEIPT

There is no hand receipt manual for this equipment.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

The DMDG will be destroyed in accordance with TM 750-244-2 to prevent enemy use.

Section II. EQUIPMENT DESCRIPTION

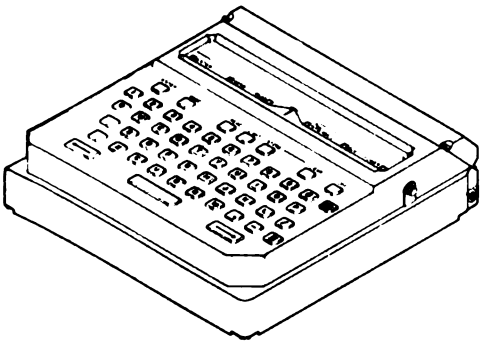
PURPOSE AND USE OF DIGITAL MESSAGE DEVICE GROUP OA-8990/P

- Store information
- Permits burst communications
- Minimizes transmission time
- Reduces the risk of being located by radio direction-finding
- Assures message is authentic

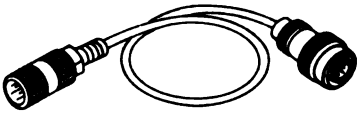
CAPABILITIES AND FEATURES

Components of the DMDG.

- One Keyer-Message Device KY-879/P
- One cover for storage and protection
- One signal cable
- One charging cable
- Lightweight and man transportable
- Self powered (battery operated)

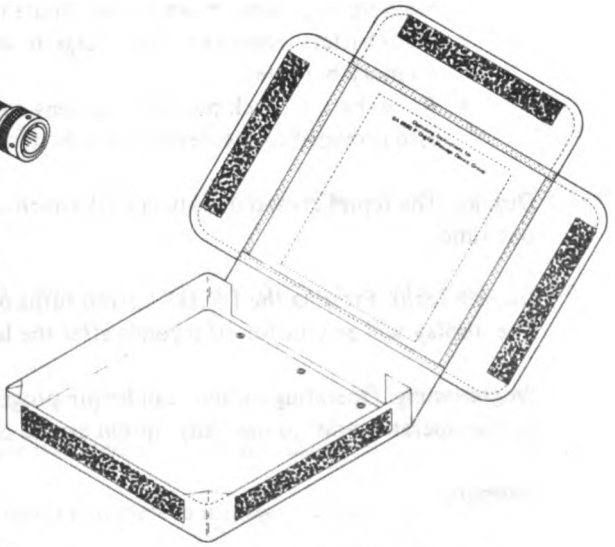


KEYER-MESSAGE DEVICE
KY-879/P



CABLE ASSEMBLY
CX-13156/GR

CABLE ASSEMBLY
CX-13158/GR



CARRYING CASE WITH
OPERATING INSTRUCTIONS

OPERATOR'S MANUAL
TM 11-5820-887-10

BATTERY ADAPTER
MX-18208/PRC-74

CAPABILITIES AND FEATURES – Continued

- One charging adaptor cable
- Operator instructions in cover
- Operator's manual

Equipment Used in Conjunction.

- HF radio AN/PRC-70
- HF radio AN/PRC-74
- Satellite Communications Set AN/PSC-3

Power Source.

- Main battery provides up to four hours use when fully charged
- Main battery supplies trickle charge to separate internal receive/transmit memory batteries
- Radio battery pack provides charging source for main battery. Power is also provided to the device while battery pack is connected.

Display. The liquid crystal display (LCD) screen can display up to 32 characters at one time.

Display Light. Pressing the LIGHT button turns on the light for the display screen. The display will stay lit for 10 seconds after the last key is pressed.

Programming. Operating options can be pre-programmed into the option memory by the operator prior to use. Any option can be changed as necessary.

Formats.

- *Fixed format* – limits preparation of messages to five-character (alpha or numeric) groups to a maximum 166 groups. Normally used to send messages of coded groups.
- *Free format* – allows unrestricted formatting of clear text messages.

Printing. A 75 baud add-on printer will make a hard copy of received and transmitted messages.

Memory Capacity.

- Receive memory – stores maximum of eight messages or 2,000 characters.
- Transmit memory – stores maximum of 1,000 characters.

Memory Retention. The memories are maintained by separate internal batteries when the device is shut down. However, these batteries can maintain the memories for up to 22 days. If the batteries are not recharged every 22 days, the

CAPABILITIES AND FEATURES – Continued

information in the Transmit and/or Receive memory will be lost. These batteries have a shelf life of two years.

Transmission Speed.

- 300 baud (low speed) or 1200 baud (high speed), selectable, with Satellite Communication Sets.
- 266.6 baud, non-selectable, with HF radio sets. For example, 266.6 baud rate means the device can transmit 266.6 bits per second. It takes 9.8 bits to make one character. Consequently you can transmit 27 characters a second. It will take approximately 38 seconds to send a complete 1000 character, or 166 group, message. The 38 seconds includes startup time, preamble, and postamble time.

Error Detection.

- An "E" displayed at the beginning of a received message indicates the message contains errors.
- When an "E" is not displayed at the beginning of a received message, the message is error free.

Edit Function. Provides a means for making corrections or deletions to messages in the transmit memory.

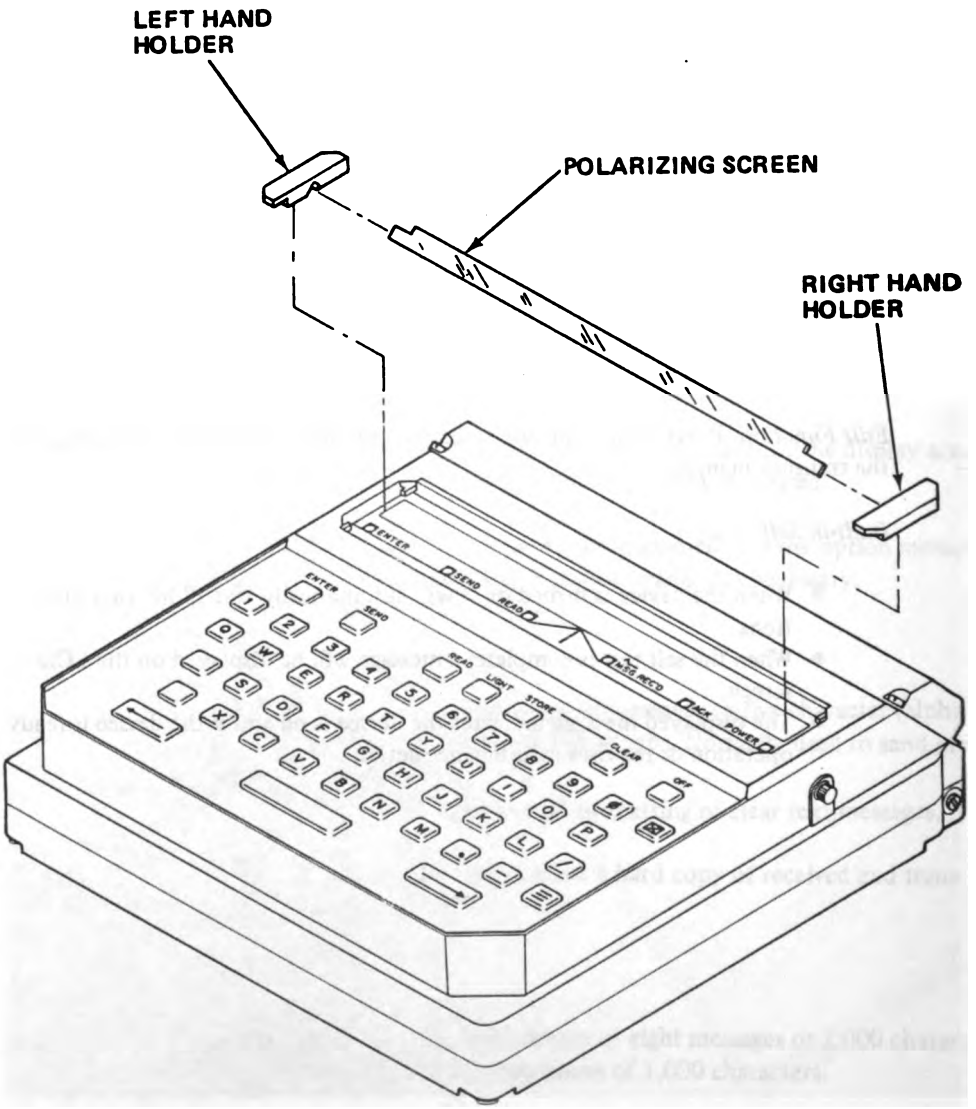
Built-in Self Test.

- When the device is turned on it will automatically test all internal functions.
- When the self test is complete, a message will be displayed on the LCD screen.
- The displayed message indicates the device is on and if the device is ready for operation or requires maintenance action.

CAPABILITIES AND FEATURES – Continued

Polarizing Screen Assembly.

- Eliminates glare from LCD screen when device is operated under bright lights or in sunlight.
- Clean polarizing screen with clean cloth.



EQUIPMENT DATA

WEIGHTS AND DIMENSIONS

Weight with cables, adaptor, and cover	8.77 lb.(3.91 Kg)
Height	3.0 in. (7.62 cm)
Width	10.0 in. (25.4 cm)
Depth	10.0 in. (25.4 cm)
Volume	300.0 cubic in. (4916.12 cubic cm)

POWER REQUIREMENTS

Main battery	6.25 Vdc
External power source	11.32 Vdc 100 ma (1 Amp when charging)

SERVICE CONDITIONS

Storage

Temperature	-40° to +125° F
Humidity	0% to 100%, relative
Altitude	Up to 50,000 ft above sea level

Operation

Temperature	0° to +125°F
Humidity	0% to 100%, relative
Altitude	Up to 10,000 ft above sea level
Water immersion	Watertight to 3 ft depth

CAUTION

Do not scuba dive with the device. Pressure will cause the keyboard to compress and the window to shatter, making the device inoperable.

Section III. TECHNICAL PRINCIPLES OF OPERATION

GENERAL OPERATION

A message is typed into the device at the keyboard. As the message is being typed it is displayed on a display screen and also put into the transmit memory. When the message is ready to be sent, the operator selects the proper mode of operation and presses the appropriate key on the keyboard. At that time the device converts the message into digital blocks of information. Each block of information represents 13 characters. When all characters have been converted, the entire message is sent to the radio set and transmitted. At the receiving station the message is received by the radio set and sent to the device. The device then converts the digital blocks of information and puts the message into the receive memory. The message is then ready to be recalled from the receive memory and read on the display screen.

OPTIONS

Several options are offered which can be pre-programmed into the device to meet your mission requirements. Once the options have been programmed they remain in the device until changed by you. Any option may be changed without affecting the other options previously selected.

Select Format Option. When "SELECT FORMAT ∅> 2, ≡" appears on the display, you have three choices:

- ∅ ≡ – Enter option mode
- 1 ≡ – Enter free format mode - no limits on format
- 2 ≡ – Enter fixed format mode - five character code groups

Speed Option. The device can send a message at two different speeds if the Satellite Communications Set AN/PSC-3 is used:

- Low speed – 300 baud
- High speed – 1200 baud

NOTE

The device *always* transmits at 266.6 bauds when connected to an HF radio set regardless of speed selected.

OPTIONS – Continued

Print Option. The device can receive messages with or without a printer attached. You can select:

- STORE & PRINT – The received message will be printed on the connected printer and stored in the receive memory. A message in receive memory cannot be recalled onto the printer, but can be recalled onto display.
- PRINT ONLY – The received message will be printed but not stored in receive memory. If no printer is connected, the received message automatically enters receive memory.

RX Error Mask or Accept Option. The device can be programmed to display either 13 Q's or substitute characters when the received message contains errors. If the received message has errors, the first character displayed will be an E.

- RX ERROR MASK option. – The device will show where errors occur. When the device cannot correct errors in a block of information, 13 Q's will be displayed. See page 2-40 for sample.

- RX ERROR ACCEPT option – The device will display a substitute character for every character in error. In fixed format the substitute characters can be letters A through Z, numbers Ø through 9 or a space. In free format the substitute characters can be letters A through Z, numbers Ø through 9, a space, printed characters for a period, dash, colon, equal sign, slash mark, question mark or the new line symbol.

Unit Address Option. You will be assigned a two-digit (numerical) unit address to be programmed into the memory. Each time a message is sent from your device the unit address will automatically be sent as part of the message. At the receiving station, your unit address will be printed or displayed as a two-digit number preceding the text of the message. It will be separated from the text by a space before and after the two-digit unit address.

NOTE

- The device will not accept a ØØ unit address or any unit address beginning or ending with the numbers 8 or 9.
- There are a maximum of 63 two-digit numbers that may be selected for unit addresses.

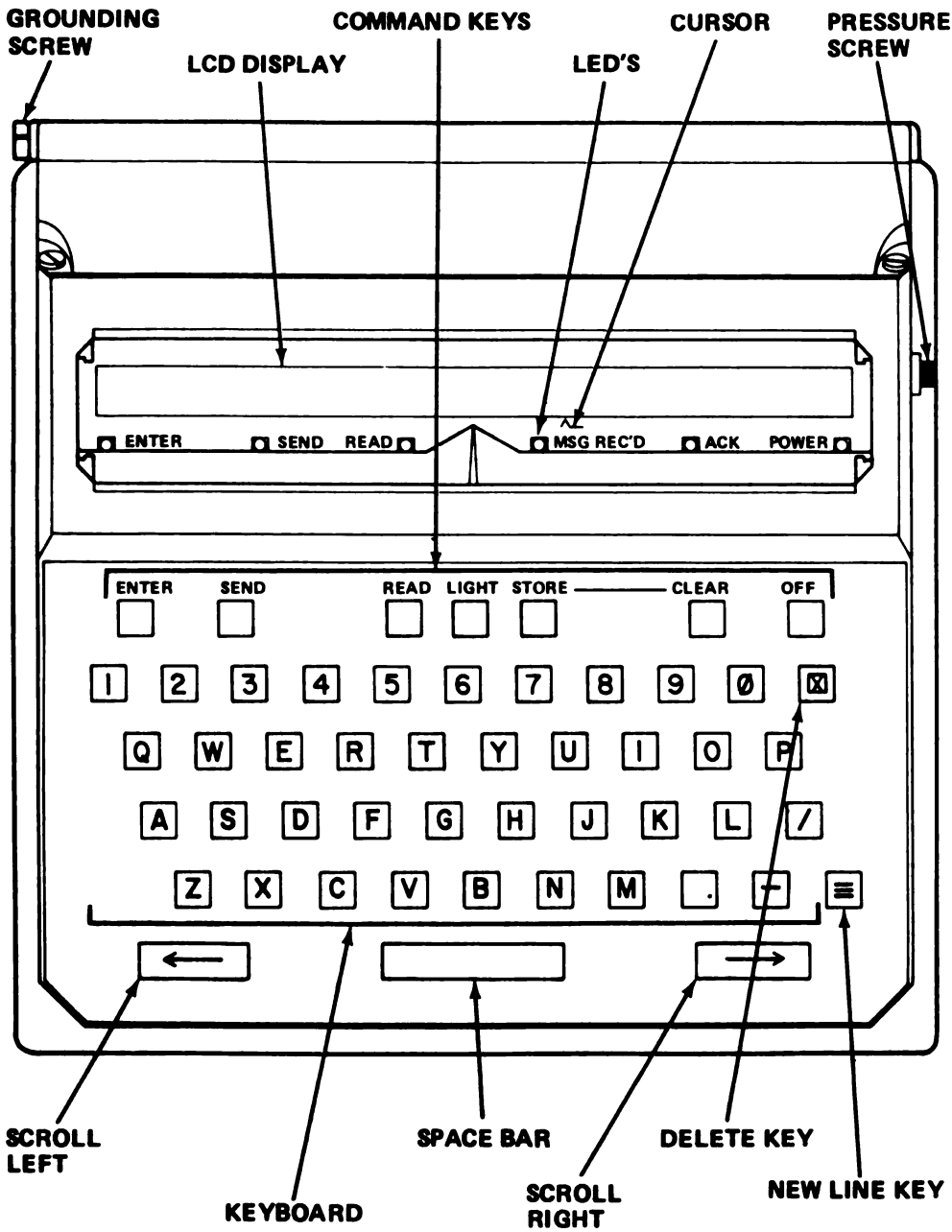
CHAPTER 2
OPERATING INSTRUCTIONS

CHAPTER INDEX

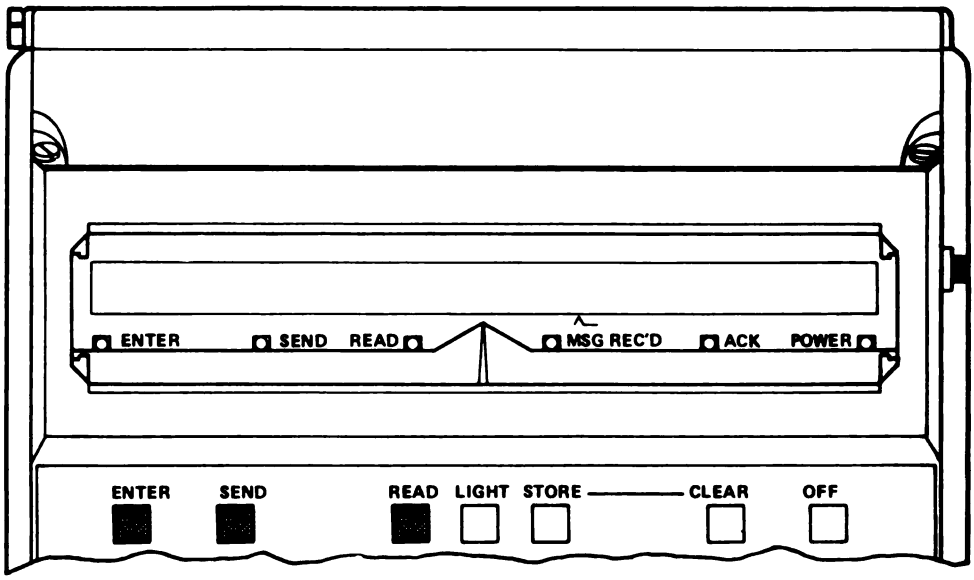
CHAPTER INDEX – Continued

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

COMMAND KEYS



COMMAND KEYS—Continued



ENTER Key.

- Turns device on and starts built-in self test. Display will read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."
- Starts message entering sequence. Device will request format selection.
- Recalls message from transmit memory onto display.

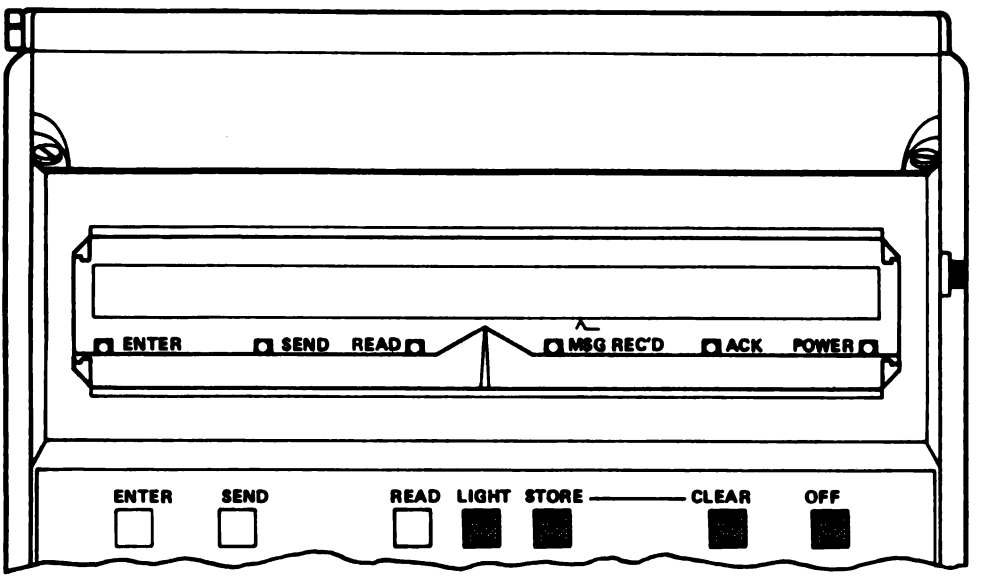
SEND Key.

- Turns device on and starts built-in self test. Display will read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."
- Entering send mode causes:
  "SELECT ADDRESS: _ ØØ > 77, ≡" to be displayed.

READ Key.

- Turns device on and starts built-in self-test. Display will read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."
- Causes received message to be displayed on screen. Successive pressing causes successive messages to be brought onto display.
- If receive memory is empty, causes display to read "NO MESSAGES IN RX MEMORY."

COMMAND KEYS – Continued



LIGHT Key.

- Turns on display light for night and low light level use.
- Light cannot be turned off manually.
- Light will remain on while typing.
- When typing stops for 10 seconds, light will go out automatically.

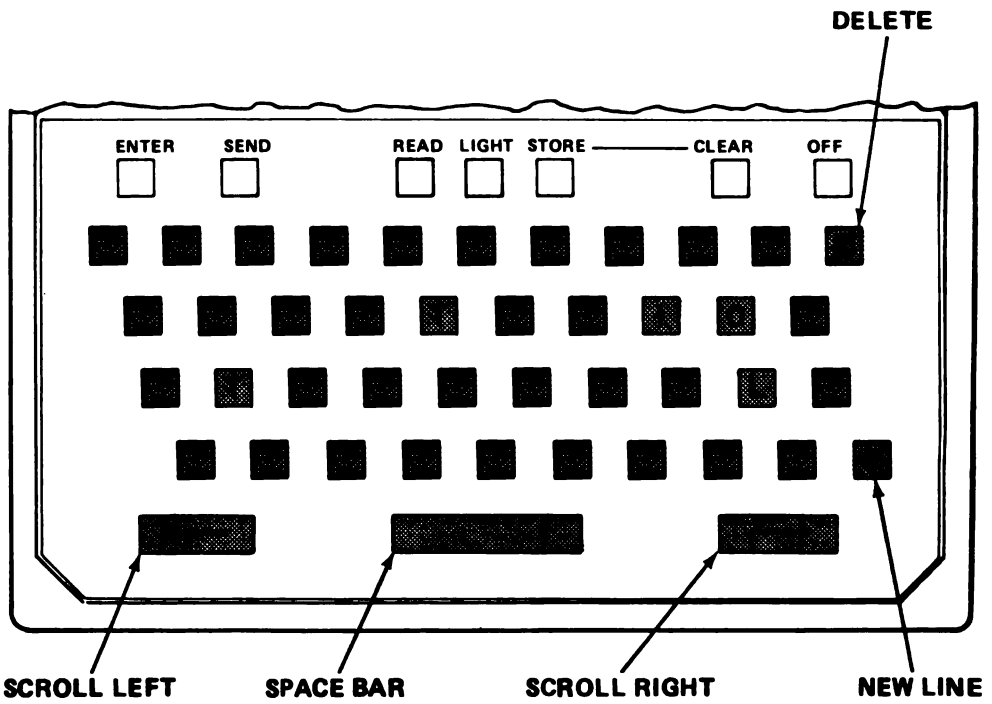
STORE—CLEAR Keys.

- Pressed at the same time, clear entire transmit memory when in ENTER mode.
- Pressed at the same time, clear only the message in display when in READ mode (other messages in receive memory are kept).
- Device will not respond if keys are pressed separately.

OFF Key.

- Turns device off when using main battery.
- Will not turn device off when connected to radio battery pack.
- Will not erase memories when device is turned off.

COMMAND KEYS – Continued



Alphabetic, Numeric, Punctuation, and Space Keys. Used for writing and editing messages.

Space Bar. Inserts a blank character (space) when preparing or editing messages.

Delete. Erases the character directly over the cursor in display when in free or fixed format.

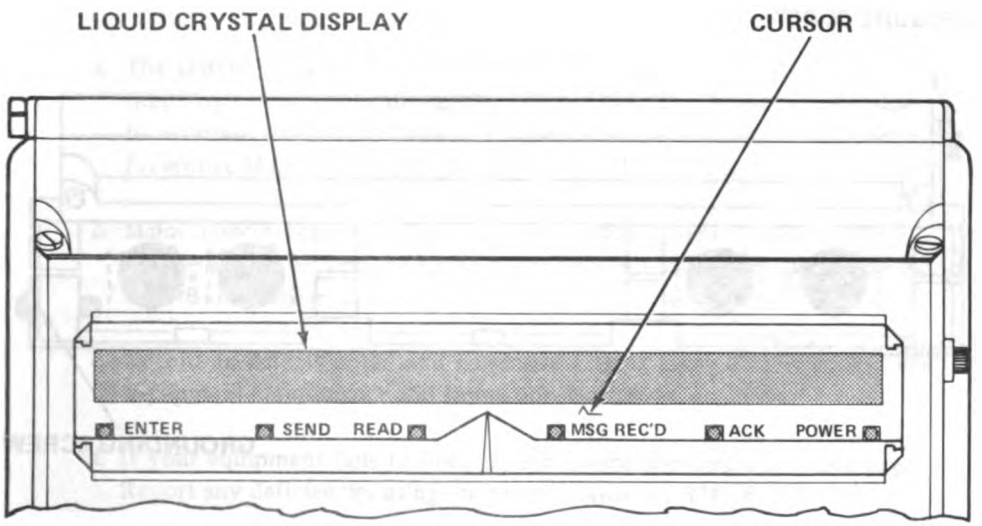
New Line Key:

- Triggers recycling of options when in option mode.
- Begins transmission when pressed after entering two-digit address code of unit to receive message when in SEND mode.
- Executes the change when selecting options in the left of the display.
- Indicates acceptance of SELECT FORMAT number indicated.

Scroll Left Bar. When pressed once, moves message in display to left one character at a time. Holding bar down moves message 12 characters at a time to left.

Scroll Right Bar. When pressed once, moves message in display to the right one character at a time. Holding bar down moves message 12 characters at a time to right.

INDICATORS



LCD. Displays messages up to 32 characters at a time.

NOTE

The LCD may appear to darken when using device in direct sunlight. If this happens, shade the LCD with the carrying case cover.

ENTER LED. When lit, indicates device is in ENTER mode.

SEND LED. When lit, indicates device is in SEND mode.

READ LED. When lit, indicates device is in READ mode.

MSG REC'D LED. When lit, indicates a message has been received and stored in the receive memory.

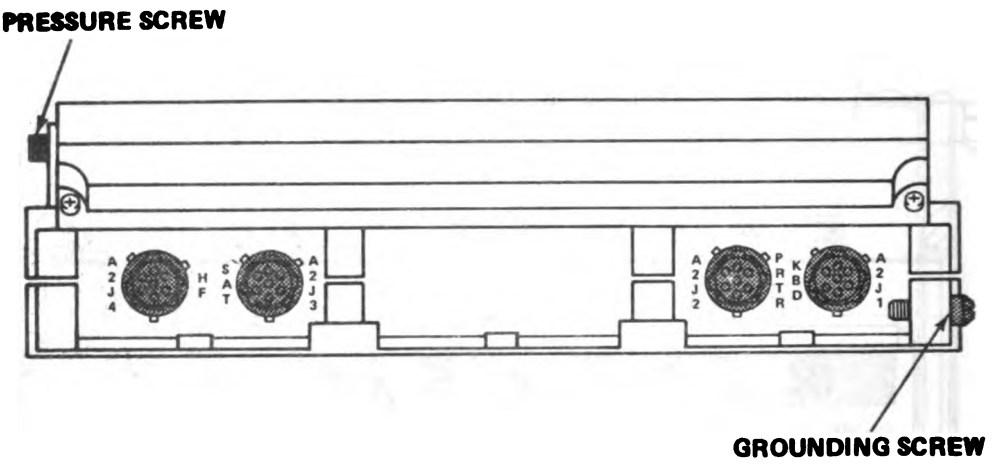
ACK LED. No function on this model.

POWER LED.

- When lit, indicates main battery is charging from radio battery pack. LED goes out when main battery is fully charged.
- When flashing, indicates main battery needs charging.

Cursor. Indicates the place where corrections can be made when editing *only*.

CONNECTORS



HF (A2J4-HF) Connector.

- Connects device to HF radio.
- Connects to radio battery pack if device is connected to SAT radio and main battery needs to be charged.

SAT (SAT-A2J3) Connector.

- Connects device to Satellite Communication Set AN/PSC-3.
- Connects to radio battery pack if device is connected to HF radio and main battery needs to be charged.

Printer (A2J2-PRTR) Connector. Connects device to hard-copy printer.

Keyboard (KBD-A2J1) Connector. Not used in this model.

Pressure Screw.

CAUTION

Do not try to remove the pressure screw. Removing it could allow dirt and moisture to enter the device causing damage to the internal circuits.

Used by maintenance personnel in pressurizing the device.

Grounding Screw. No function on this model.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

GENERAL

a. The DMDG must be inspected periodically to discover and correct defects that may cause serious damage or failure. The checks and services necessary to maintain the DMDG for proper operation are listed and described in the Preventive Maintenance Checks and Services (PMCS) chart.

b. Major defects, equipment failures, and problems noted during the conduct of PMCS that are beyond the scope of the operator should be referred to organizational maintenance.

c. Record all defects noted and corrective actions taken on DA Form 2404, Equipment Maintenance and Inspection Worksheet.

d. If your equipment fails to operate, use troubleshooting chart. See page 3-1. Report any deficiencies using the proper forms, see TM 38-750.

ROUTINE CHECKS

Routine checks like equipment inventory, cleaning, dusting, checking for frayed cables, stowing items not in use, covering unused receptacles, and checking for loose nuts and bolts are not listed on PMCS checks. They are things you should do anytime you see they must be done. If you find a routine check like one of those listed in your PMCS, it was listed because other operators reported problems with this item.

PMCS CHART

The PMCS chart lists the preventive maintenance checks and services you should perform to keep the device in good working condition. Perform your PMCS in the order listed.

NOTE

- Within a designated interval, these checks are to be performed in the order listed.
- Perform weekly as well as before operations PMCS if:

  (1) You are the assigned operator and have not operated the item since the last weekly.

  (2) You are operating the item for the first time.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) – Continued

Preventive Maintenance Checks and Services

B – Before Operation ***W – Weekly*** ***S – Semiannual***

Item No.	Interval B	Interval W	Interval S	Item to be Inspected	Procedures Check for and have repaired as necessary	Equipment is not ready/available if:
1	●			Built-in self test	Press ENTER, SEND or READ key causing device to perform built-in self test.	Display gives error message (e.g., ERROR 1, 2, 3, 4, 5 or 6)
				CAUTION Charge main battery fully. Nickel/Cadmium (NiCad) cells develop charge level memories and failure to charge fully could result in reduced performance.		
2	●	●		Battery charge	Fully charge main battery. Refer to Chapter 3.	Battery will not hold a charge
3			●	Battery cover EMI gasket	Check for breaks, tears, and proper seating.	EMI gasket is damaged

Section III. OPERATION UNDER USUAL CONDITIONS

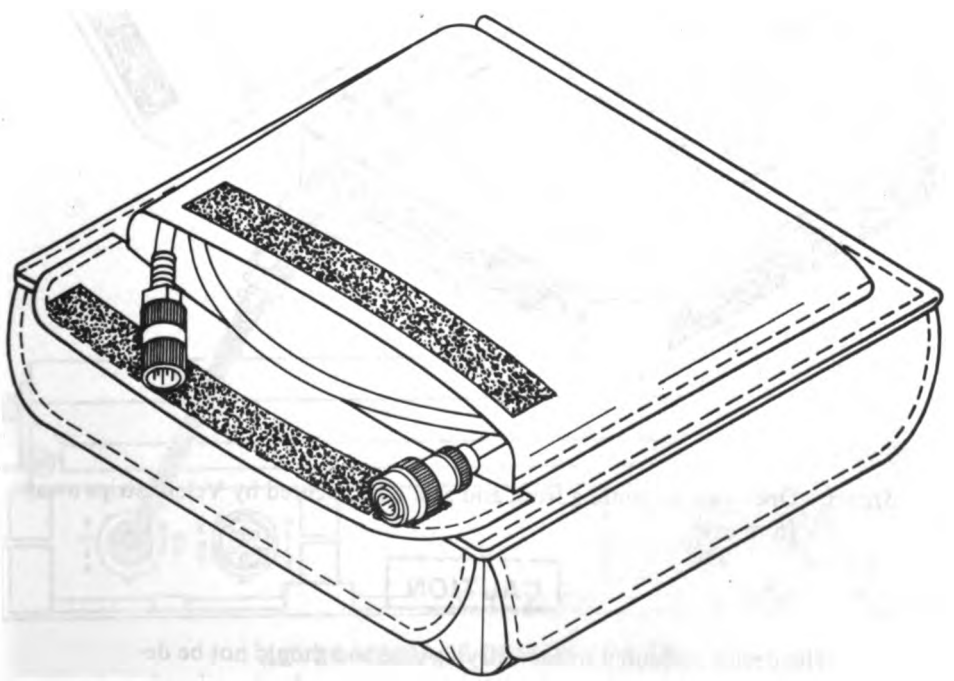
UNPACKING AND ASSEMBLY.

No special unpacking or assembly is required.

NOTE

If the main battery is received separately, see page 3-6 for battery installation procedures.

PREPARATION FOR USE



Step 1. Pull pocket flap secured by Velcro strips away from pocket.

Step 2. Remove cables and charging adaptor from pocket.

PREPARATION FOR USE – Continued

Step 3. Open case by pulling front and side flaps secured by Velcro strips away from case.

CAUTION

The device is secured to the carrying case and should not be detached. The carrying case is a protection for the keyboard and LCD window and prevents the device from being turned on accidently and draining the battery.

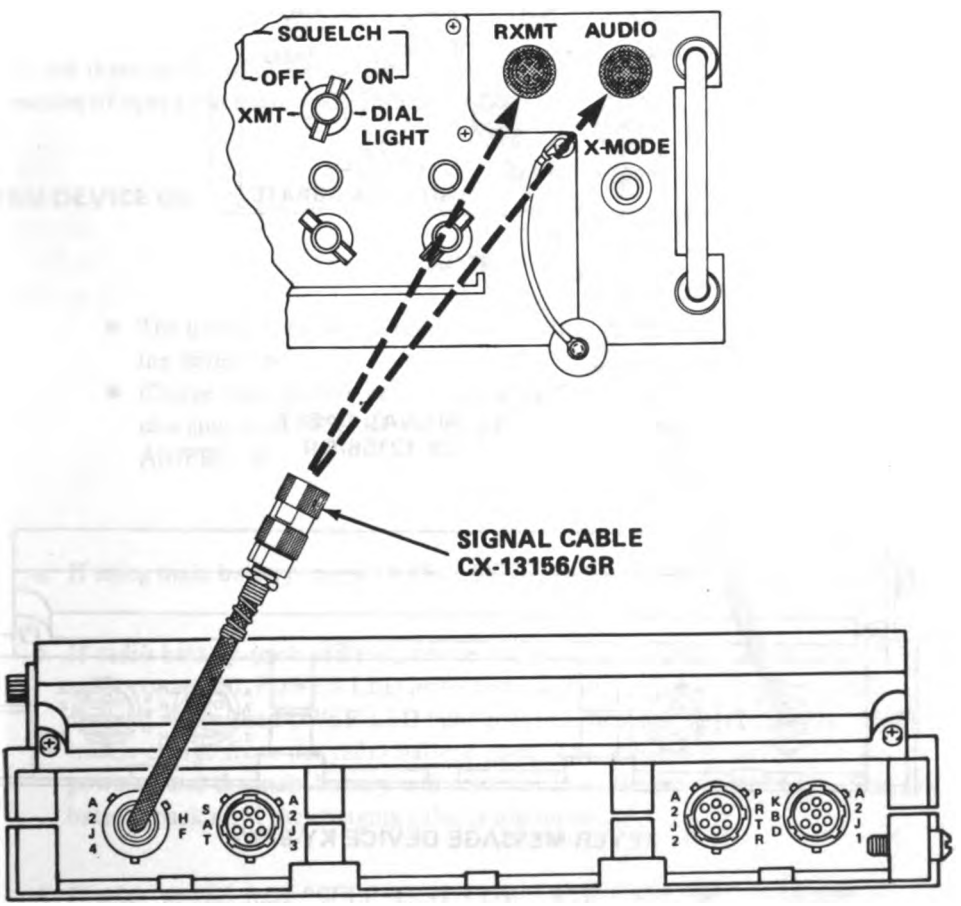
Step 4. Turn device on and test device by pressing either ENTER, SEND or READ key. The LCD should read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE." Device is now on and self test completed. Press OFF key to turn off power.

SIGNAL CABLE CONNECTIONS

Procedures for connecting the signal cable CX-13156/GR to Radio Set AN/PRC-70, Radio Set AN/PRC-74, and Satellite Communications Set AN/PSC-3 follows:

Connection with Radio Set AN/PRC-70.

RADIO SET AN/PRC-70



KEYER-MESSAGE DEVICE KY-879/P

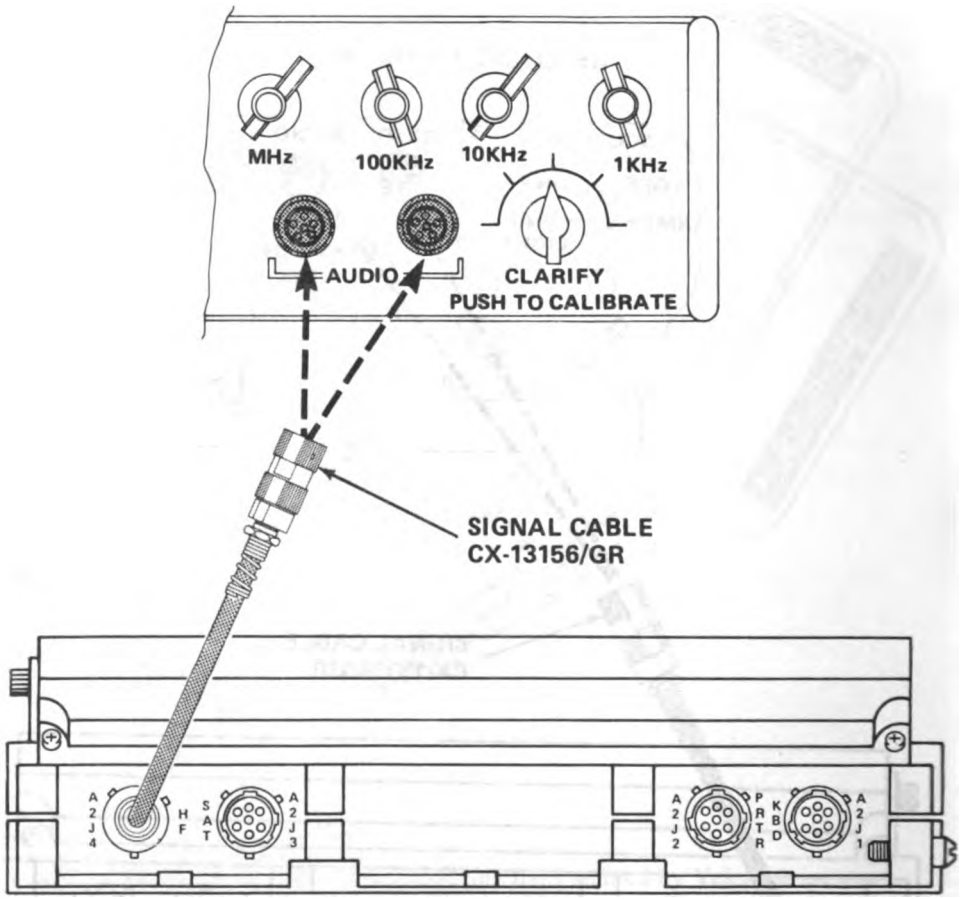
Step 1. Connect pin connector of signal cable CX-13156/GR to A2J4 HF connector on rear of device.

Step 2. Connect the other end of signal cable to RXMT or AUDIO connector on AN/PRC-70 radio.

SIGNAL CABLE CONNECTIONS – Continued

Connection with Radio Set AN/PRC-74.

RADIO SET AN/PRC-74



KEYER-MESSAGE DEVICE KY-879/P

Step 1. Connect pin connector of signal cable to A2J4 HF connector on rear of device.

Step 2. Connect other end of signal cable to either AUDIO connector on AN/PRC-74 radio.

SIGNAL CABLE CONNECTIONS – Continued

Connection with Satellite Communications Set AN/PSC-3

Step 1. Connect pin connector of signal cable to SAT A2J3 connector on rear of device.

Step 2. Connect other end of signal cable to audio connector on AN/PSC-3.

OPERATING PROCEDURES

There are three modes of operation for the device: enter/option, send, and receive/read. All modes of operation begin with turning the device on.

TURN DEVICE ON

NOTE

- The device need not be connected to the radio set when turning device on.
- Charge main battery prior to using the device. See page 3-4 for charging with AN/PRC-70 or page 3-5 for charging with AN/PRC-74.

a. If using main battery, press ENTER, SEND, or READ key.

b. If radio battery pack utilized, device comes on immediately when charging cable connected. POWER LED lights and stays on until main battery is fully charged. When the POWER LED light goes out the main battery then receives a trickle charge from the radio battery pack. The device will continue to be powered and the main battery will continue to be trickle charged from the radio battery pack until the charging cable is disconnected.

c. Display should read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

NOTE

- "SELF TEST COMPLETE UNIT OK" means the device is on, the device has automatically checked all functions, and the device is ready to operate.

TURN DEVICE ON – Continued

- "LAST 5 CHAR GROUP INCOMPLETE" means the device is on, the device has automatically checked all functions, and the device is ready to operate. This display is only to remind you that a fixed format message with an incomplete five character group is in transmit memory.

d. Enter desired mode by pressing ENTER, SEND or READ key. "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE" displayed will go out.

- If ENTER key pressed, display will read "SELECT FORMAT:_Ø > 2, ≡"
- If SEND key pressed, display will read "SELECT ADDRESS:_ØØ>NN,≡"
- If READ key pressed, display should read "NO MESSAGES IN RX MEMORY" or display the first 32 characters of first message in receive memory.

NOTE

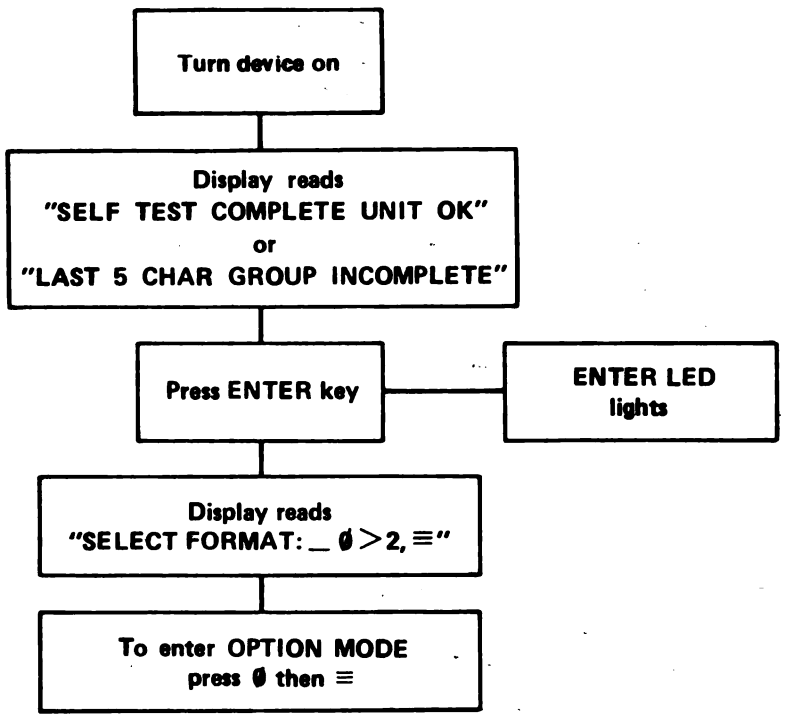
When the device is on, an incoming message will override any operation except sending a message or a message being printed on the printer. All operations prior to interruption will be retained in memory. You can start again after the prompt "RECEIVED MESSAGE IN MEMORY" is displayed.

ENTER OPTION MODE AND SELECT OPTIONS

NOTE

The device need not be connected to a radio set when selecting and programming options.

ENTER OPTION MODE AND SELECT OPTIONS – Continued



a. Turn device on. Display reads "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

b. Press ENTER key. ENTER LED lights. Display reads "SELECT FORMAT: _Ø > 2, ≡."

c. To enter Option mode, press Ø then ≡.

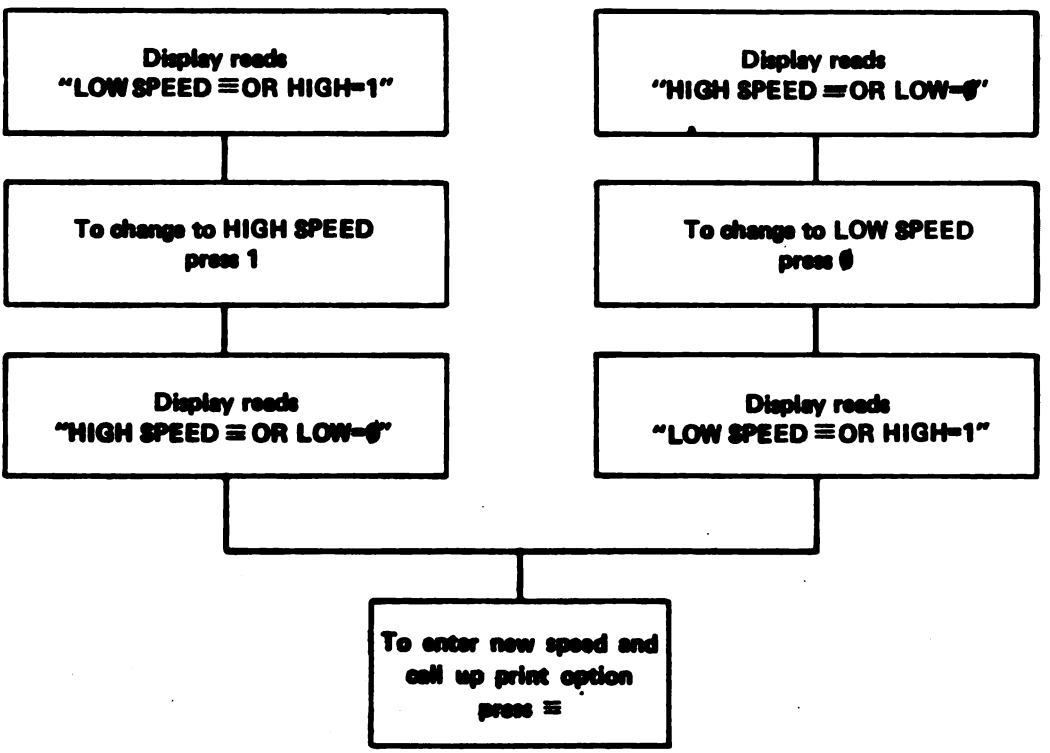
NOTE

When any of the options are selected, they will not be stored in the memory until the ≡ key is pressed.

SPEED OPTION (SATELLITE ONLY)

NOTE

This option applies *only* when device is connected to satellite equipment. When connected to HF equipment the device will automatically send at the required speed.



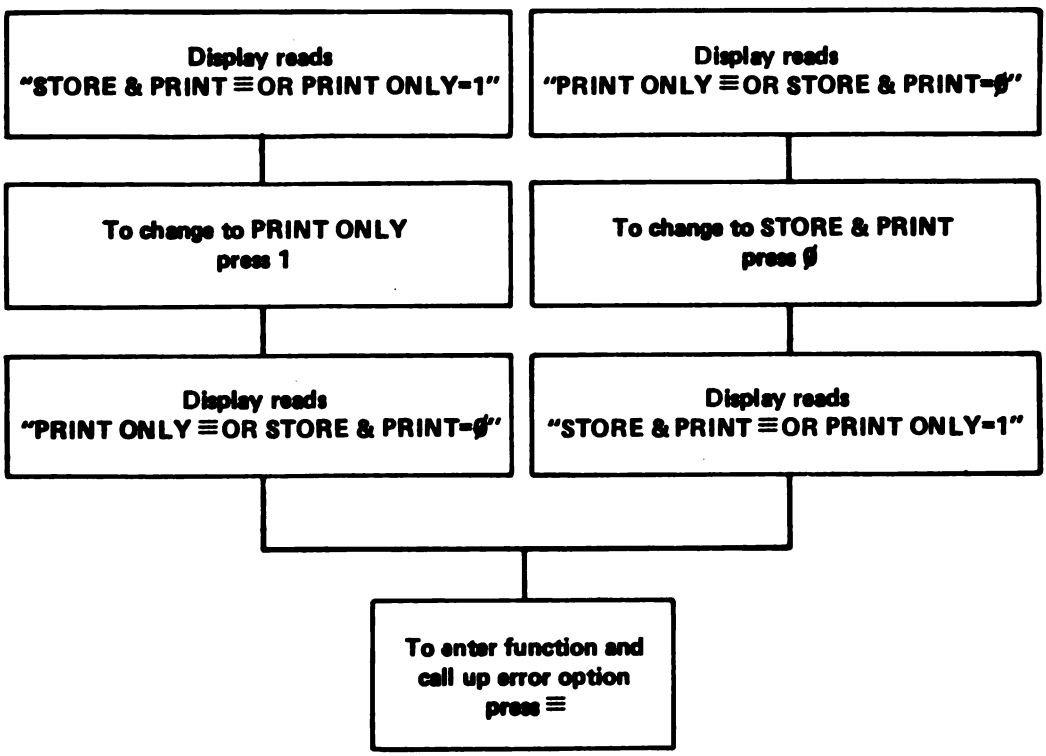
a. Display will read either "LOW SPEED ≡ OR HIGH = 1" or "HIGH SPEED ≡ OR LOW = Ø."

b. The speed now in memory is to the left of the ≡ in the display.

c. If the speed you want is to the right of ≡, press the number shown to right of =. Displayed message will now reverse, with the desired speed to the left.

d. To enter new speed and call up print option, press ≡.

PRINT OPTION



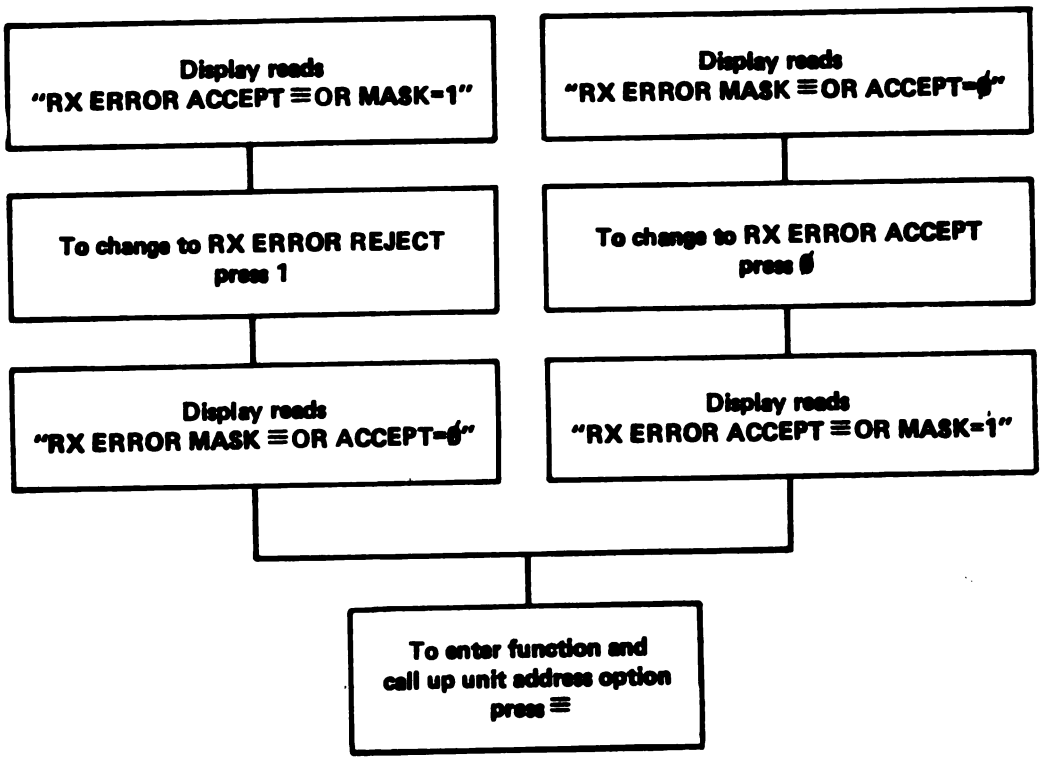
a. Display will read either "STORE & PRINT ≡ OR PRINT ONLY = 1" or "PRINT ONLY ≡ OR STORE & PRINT = ø."

b. The function in memory is to the left of the ≡ in the display.

c. If you want to change the function, press the number shown to the right of =. Displayed message will now reverse with the desired function to the left.

d. To enter the function into memory and call up the error option, press ≡.

RX ERROR ACCEPT OR MASK OPTION



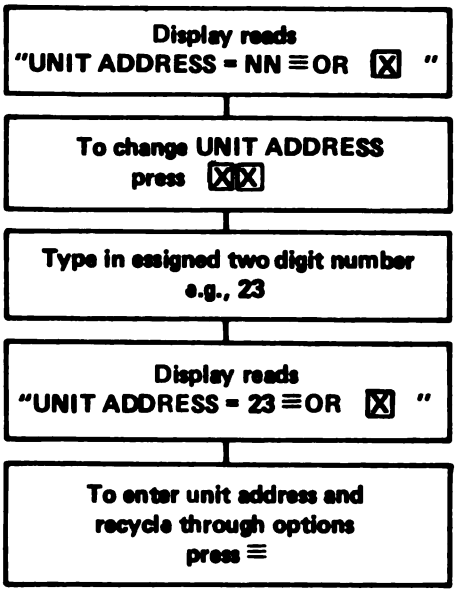
a. Display will read either "RX ERROR ACCEPT ≡ OR MASK = 1" or "RX ERROR MASK ≡ OR ACCEPT = ϕ."

b. The function in memory is to the left of the ≡ in the display.

c. If you want to change the function, press the number shown to the right of =. Displayed message will now reverse with the desired function to the left.

d. To enter the function into memory and call up the unit address option, press ≡.

UNIT ADDRESS OPTION



a. Display will read "UNIT ADDRESS = NN ≡ OR ☒ ."

NOTE

NN represents previous unit address programmed into this option.

b. The two-digit number to the left of the ≡ reflects the UNIT ADDRESS presently programmed in the memory.

c. If the two-digit number in the display is not correct for this mission, press ☒ ☒ which will delete the two digits displayed. Type in the assigned two-digit number for the device, for example, 23.

d. The display will read "UNIT ADDRESS = 23 ≡ or ☒ ."

e. To enter new unit address into memory, press ≡.

NOTE

This completes options selections. While in this mode, each time ≡ is pressed the options will cycle one step in sequence starting with the Speed Option through the Unit Adress Option. Cycle through the options once to ensure all chosen options appear to the left of the ≡ and the unit address is correct.

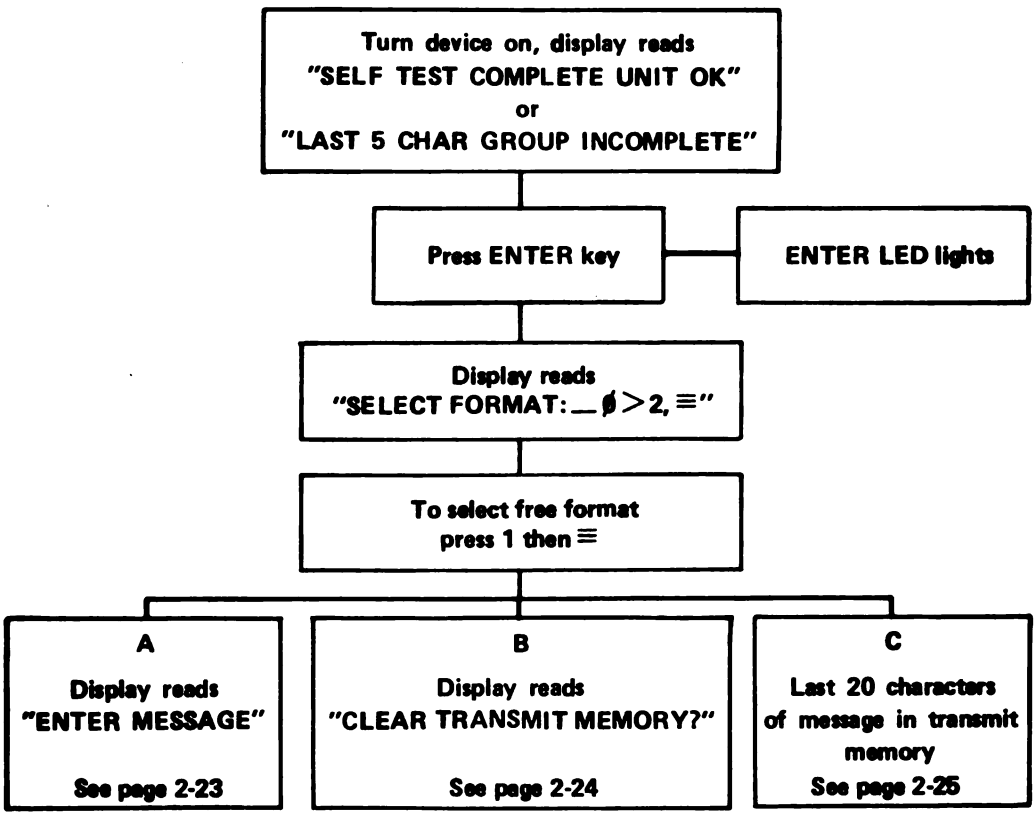
EXIT OPTION MODE

To exit option mode at any time, press ENTER, SEND, READ, or OFF key.

SELECT FREE FORMAT AND PREPARE TO ENTER MESSAGE

NOTE

The device need not be connected to the radio set when entering, editing or correcting a message. Charge the main battery before using the device. See page 3-4 for charging with AN/PRC-70 or page 3-5 for charging with AN/PRC-74.



SELECT FREE FORMAT AND PREPARE TO ENTER MESSAGE – Continued

Free Format Selection.

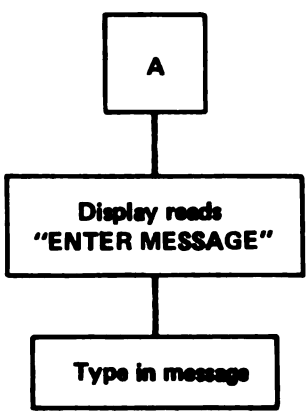
a. Turn device on. Display reads "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

b. Press ENTER key. ENTER LED lights. Display reads "SELECT FORMAT: _Ø > 2, ≡."

c. To select free format, press 1, then ≡.

d. One of three conditions will be displayed. See A, B, and C.

Display condition A – memory clear.

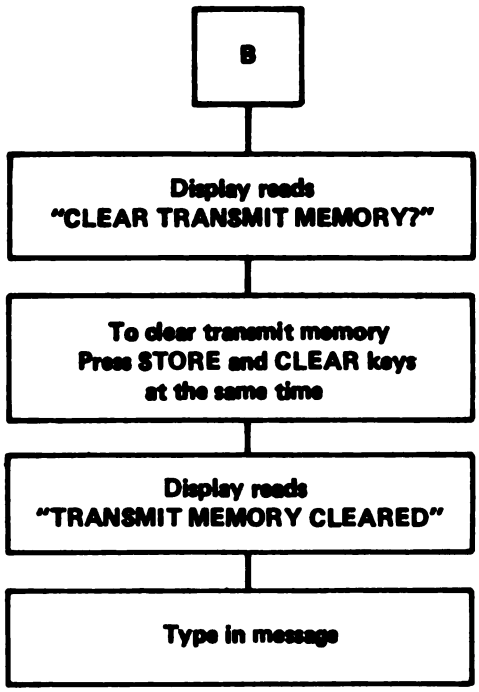


a. No messages in transmit memory; display reads "ENTER MESSAGE."

b. Type message into transmit memory.

SELECT FREE FORMAT AND PREPARE TO ENTER MESSAGE – Continued

Display condition B – prior fixed format message in memory.



a. If prior fixed format message(s) are stored in transmit memory, the display will read "CLEAR TRANSMIT MEMORY?" The transmit memory will hold messages in fixed format or free format, but not both at the same time.

NOTE

When STORE and CLEAR keys are pressed at same time, the *entire* transmit memory will be cleared.

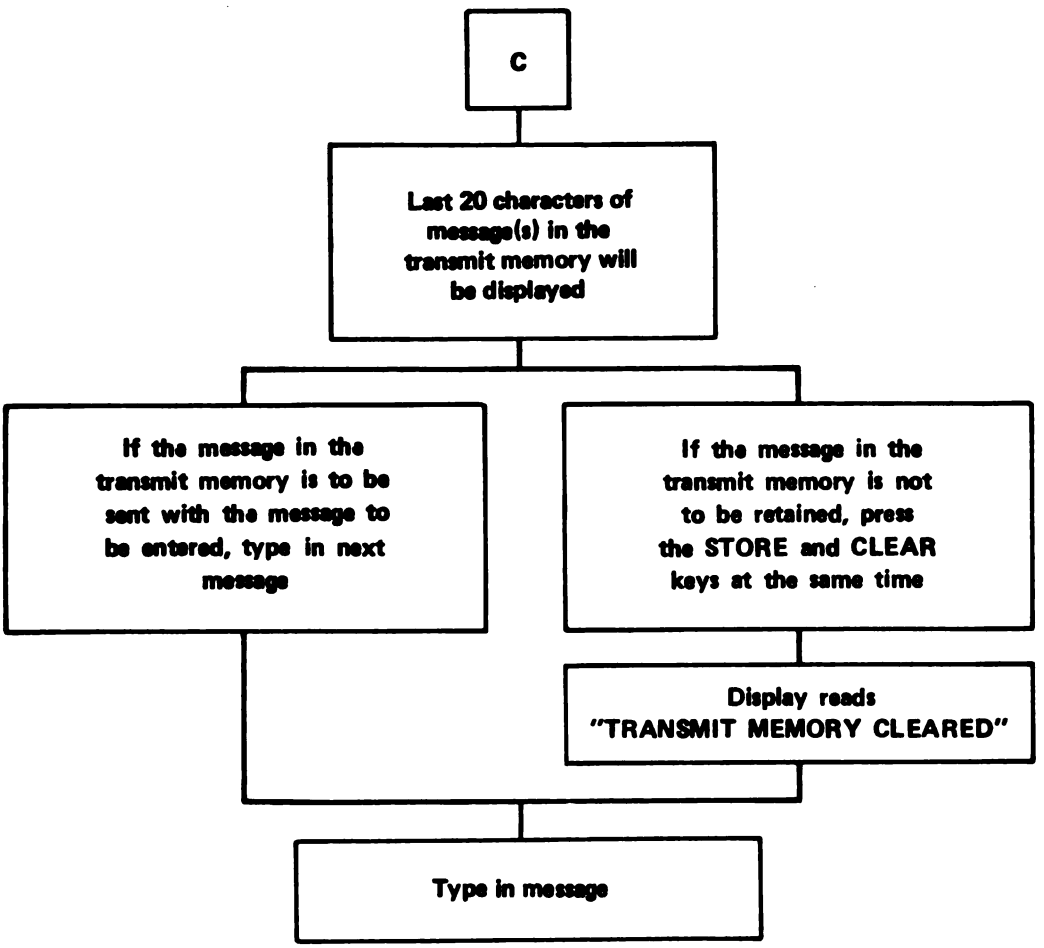
b. To clear the transmit memory, press the STORE and CLEAR keys at the same time.

c. Display will read "TRANSMIT MEMORY CLEARED."

d. Type message into transmit memory.

SELECT FREE FORMAT AND PREPARE TO ENTER MESSAGE – Continued

Display condition C – prior free format message in memory.



a. The last 20 characters of message(s) in memory will be displayed.

b. If the message still in the transmit memory is to be sent with the message to be entered, type in next message.

NOTE

When STORE and CLEAR keys are pressed at same time, the *entire* transmit memory will be cleared.

SELECT FREE FORMAT AND PREPARE TO ENTER MESSAGE – Continued

c. If the message in the transmit memory is not be be sent with the message to be entered, press STORE and CLEAR keys at the same time.

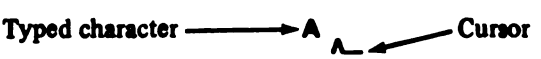
d. Display will read "TRANSMIT MEMORY CLEARED."

e. Type message into transmit memory.

ENTER FREE FORMAT MESSAGE

a. As each character is typed it is displayed immediately to the left of the cursor and automatically put into the transmit memory.

EXAMPLE:



b. The LCD screen displays the last 20 typed characters (maximum) of the message to the left of the cursor.

EDIT FREE FORMAT MESSAGE

NOTE

- Correction procedures are not the same for the free and fixed formats.
- In free format, a character cannot be changed. It must first be deleted, then correct character inserted.

a. Editing may be done while entering messages or while reviewing messages stored in the transmit memory.

b. All corrections must be made at the cursor.

c. To delete a character in a word, press the scroll right or scroll left bar until the character to be deleted is over the cursor. Press the [X] key. The character over the cursor will be deleted and the characters to the right of the cursor will shift left. To continue typing, scroll the characters to the left until the last character is to the left of the cursor.

EDIT FREE FORMAT MESSAGE – Continued

EXAMPLE:

Display reads WORLLD. Shift message until unwanted "L" is over cursor.

```
WORLLD
     ^
```

Press ☒ . Second "L" will drop out and "D" will shift over cursor.

```
WORLD
     ^
```

Shift message until last character is to left of cursor and resume typing message.

```
WORLD
     ^
```

d. To insert a character, shift message until place where character to be inserted is over the cursor. Type in character. The characters to the left of the cursor will move to the left one space and the inserted character will appear just to the left of the cursor. The characters over the cursor and those to the right will not move. Scroll message left until last character is just to the left of the cursor and resume typing.

EXAMPLE:

Display reads WORD. Shift message until "D" is over cursor point.

```
WORD
   ^
```

Type in "L."

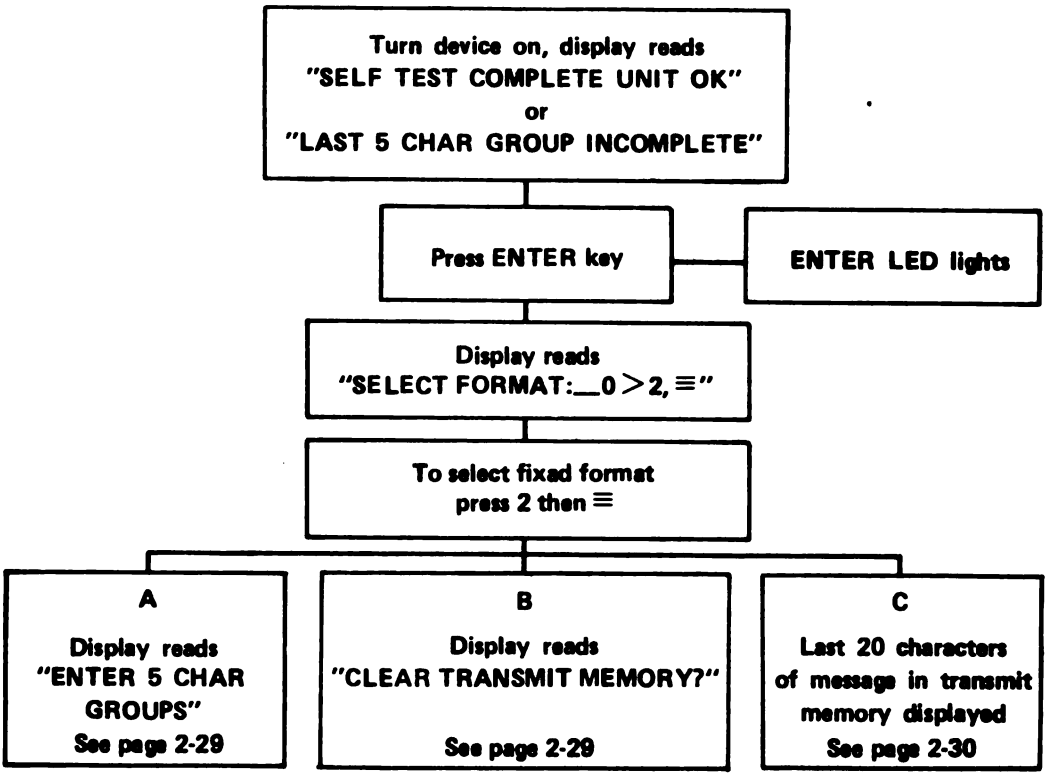
```
WORLD
     ^
```

Shift message until last character is to left of cursor. Resume typing message.

```
WORLD
     ^
```

SELECT FIXED FORMAT AND PREPARE TO ENTER MESSAGE

Fixed Format Selection.



a. Turn device on. Display reads "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

b. Press ENTER key. ENTER LED lights.

c. Display will read "SELECT FORMAT: _Ø > 2, ≡."

d. To select fixed format, press 2, then ≡.

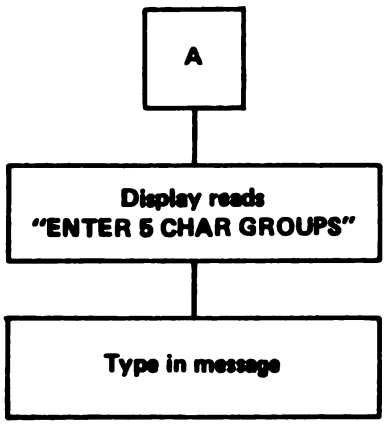
e. One of three conditions will be displayed. See A, B, and C.

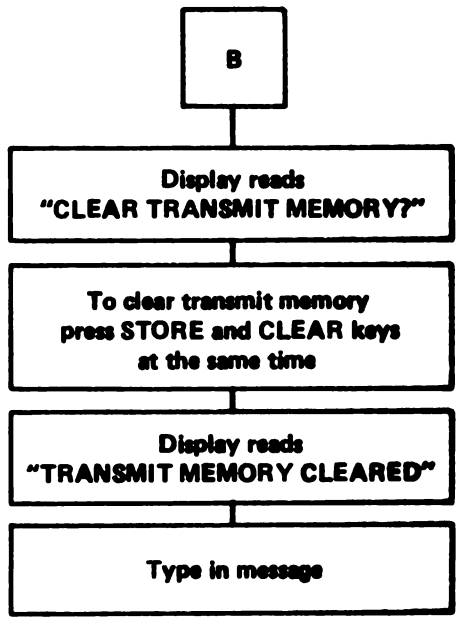
SELECT FIXED FORMAT AND PREPARE TO ENTER MESSAGE – Continued

Display condition A – memory clear.

a. No messages in transmit memory; display reads "ENTER 5 CHAR GROUPS."

b. Type message into transmit memory.





Display condition B – prior free format message in memory.

a. If prior free format message(s) is stored in transmit memory, the display will read "CLEAR TRANSMIT MEMORY?" The transmit memory will hold messages in fixed format or free format, but not both at the same time.

NOTE

When STORE and CLEAR keys are pressed at the same time, the *entire* transmit memory will be cleared.

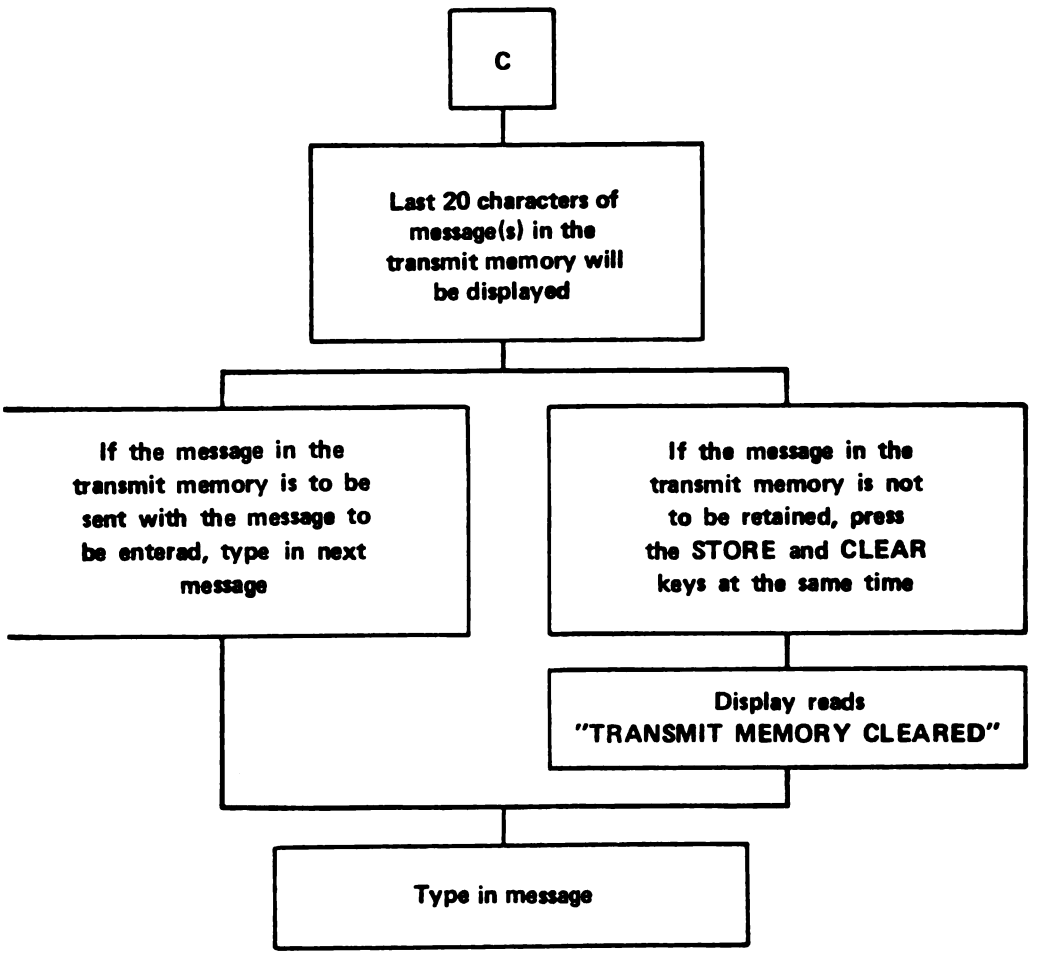
b. To clear the transmit memory, press the STORE and CLEAR keys at the same time.

c. Display will read "TRANSMIT MEMORY CLEARED."

d. Type message into transmit memory.

SELECT FIXED FORMAT AND PREPARE TO ENTER MESSAGE – Continued

Display condition C – prior fixed format message in memory.



a. The last 20 characters of the message will be displayed.

b. If the message still in the transmit memory is to be sent with the message to be entered, type in next message.

NOTE

When STORE and CLEAR keys are pressed at the same time, the *entire* transmit memory will be cleared.

SELECT FIXED FORMAT AND PREPARE TO ENTER MESSAGE – Continued

c. If the message in the transmit memory is not to be sent with the message to be entered, press STORE and CLEAR keys at the same time.

d. Display will read "TRANSMIT MEMORY CLEARED."

e. Type message into transmit memory.

ENTER FIXED FORMAT MESSAGE

a. When a character is entered into the device, it enters the transmit memory and appears on the display screen. The character appears on the screen one space to the left of the cursor, shifting the entire message one space to the left.

b. The LCD screen displays the last 20 typed characters (maximum) of the message to the left of the cursor.

c. In fixed format the device will only respond to 5 alphanumeric characters (coded groups) then a space.

EDIT FIXED FORMAT MESSAGE

NOTE

Procedures for making corrections are not the same for the fixed and free formats.

a. Editing may be done while entering messages or while reviewing messages in the transmit memory.

b. Deletions in fixed format can only be made from the end of the message. Scroll the message until the last typed character is over the cursor. If any character other than the last one is over the cursor and the [X] key is pressed, the device will not respond. When the last typed character is places over the cursor and the [X] key is pressed, the last typed character is deleted.

NOTE

- If the device does not respond when the last visible character is over the cursor try advancing the message one space. The last typed character could be a space, which would not be visible.

EDIT FIXED FORMAT MESSAGE – Continued

- When the character is deleted, the message will be automatically shifted one space to the right. Continue pressing the ⌧ key until the last deletion is complete. Retype the portion of the message deleted.

c. To replace one character with another character, move the wrong character over the cursor and type the correct one. The new character will appear to the left of the cursor point, the old character will be gone, and the balance of the message displayed to the right of the cursor point will shift to the left.

EXAMPLE:

Display reads:

NDYCK ONLDJ
^

The character "L" should have been an "H". Move the "L" over the cursor point using the scroll bar. Display now reads:

NDYCK ONLDJ
^

Type in character H. Display reads:

NDYCK ONHDJ
^

The "L" was deleted. The "H" entered to the left of the cursor point. The characters "D" and "J" automatically closed to the left.

SEND MODE

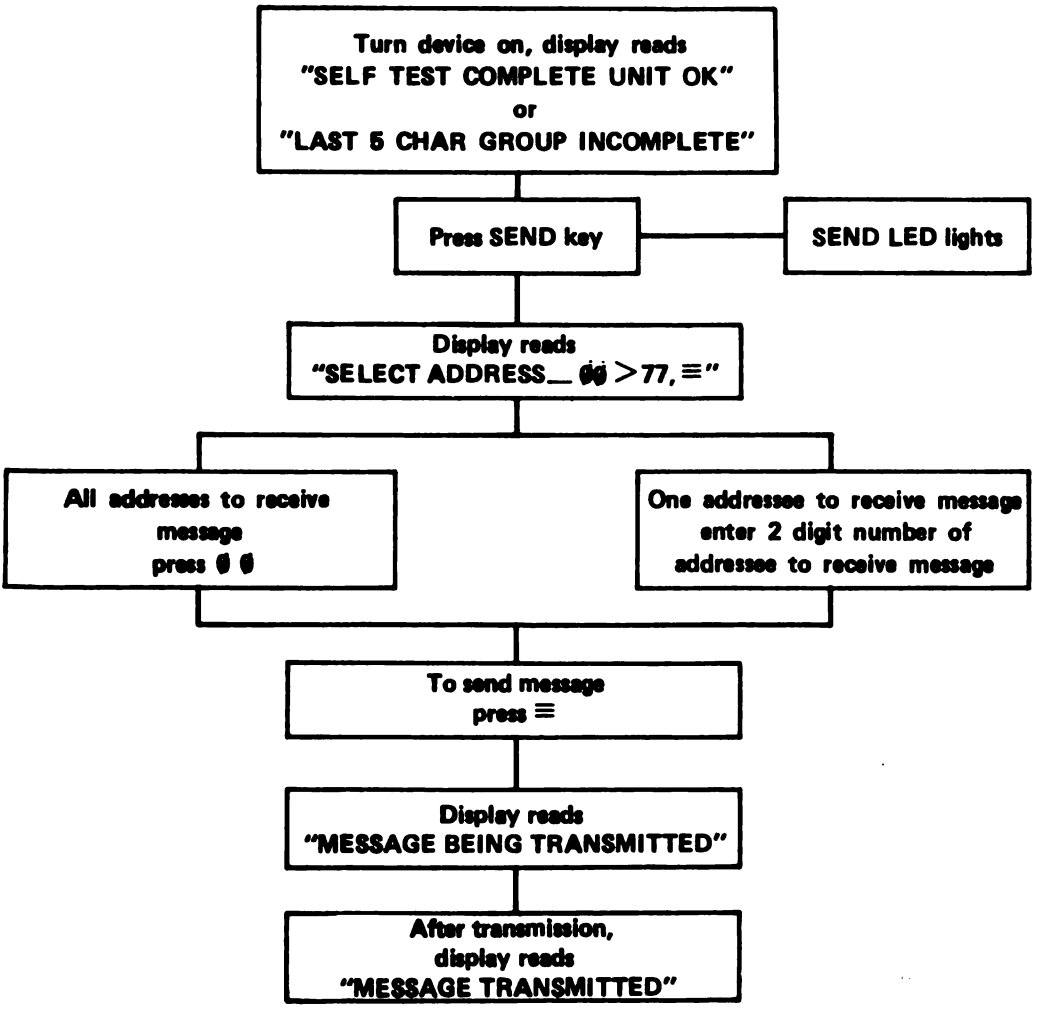
WARNING

Do not transmit messages from the device while the main battery is being charged. The charging cable is not EMI shielded and EMI radiations will occur. The EMI radiations can be intercepted by hostile DF monitoring stations which could result in revealing your position to the enemy.

NOTE

The signal cable must be connected to the device and radio set to send a message. See page 2-13 when using AN/PRC-70, page 2-14 for AN/PRC-74 or page 2-15 for AN/PSC-3.

SELECT ADDRESS



a. Turn device on. Display reads "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

b. Press SEND key. SEND LED lights. Display reads "SELECT ADDRESS _ØØ >77, ≡."

c. If all addressees are to receive the message, press ØØ. If only one address is to receive the message, enter two-digit number of addressee.

d. To send message, press ≡.

e. Display will read "MESSAGE BEING TRANSMITTED."

SELECT ADDRESS – Continued

NOTE

No message can be received while the device is sending.

f. After transmission, display will read "MESSAGE TRANSMITTED."

g. Messages are retained in the transmit memory after the message is transmitted.

h. If printer connected, message will be printed out.

i. If the message is to be transmitted to two or more addressees a new two-digit address must be entered. Repeat steps b through d as needed.

NOTE

You must wait a minimum of 50 seconds before retransmitting the same message to the same addressee.

RECEIVE/READ MODE

The receive/read mode procedures cover receiving messages, entering the READ MODE, and reading and deleting messages in the receive memory.

NOTE

- The device must be turned on and the signal cable connected to a radio set or receiver to receive a message.
- The battery should be charged for at least one hour before use. See page 3-4 when charging from AN/PRC-70 or page 3-5 when charging from AN/PRC-74.
- The device cannot receive a message if it is printing out a message, processing another message, or transmitting a message.

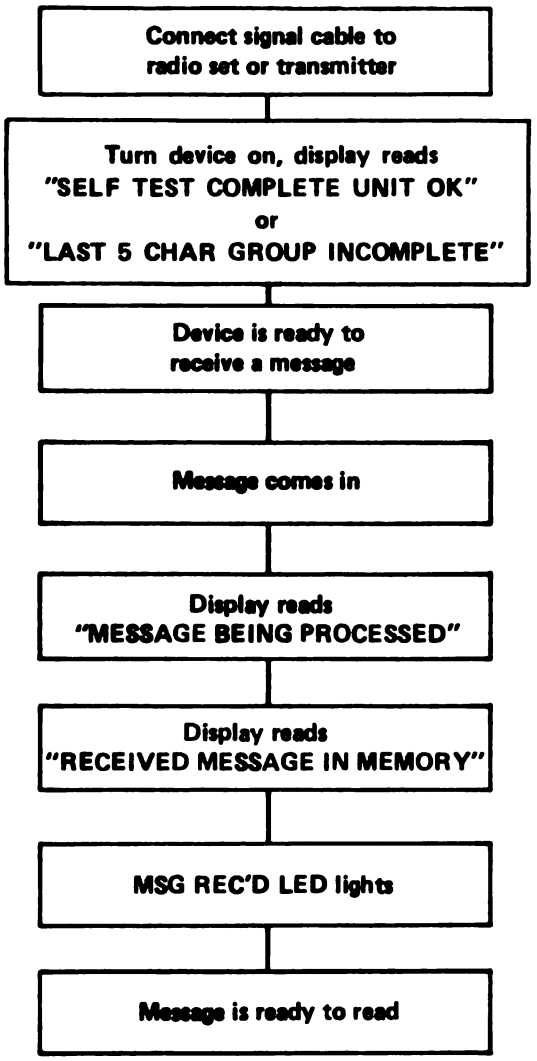
RECEIVING MESSAGES

a. Connect signal cable to device and radio set. See page 2-13 for AN/PRC-70, page 2-14 for AN/PRC-74, or page 2-15 for AN/PSC-3.

b. Turn device on.

c. Display will read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

RECEIVING MESSAGES – Continued



d. Device is ready to receive a message provided the receive memory is not full. If status of receive memory is not known, see procedures for reading messages.

e. When message comes in, display reads "MESSAGE BEING PROCESSED."

f. After device processes message received, display will read "RECEIVED MESSAGE IN MEMORY" and MSG REC'D LED will light.

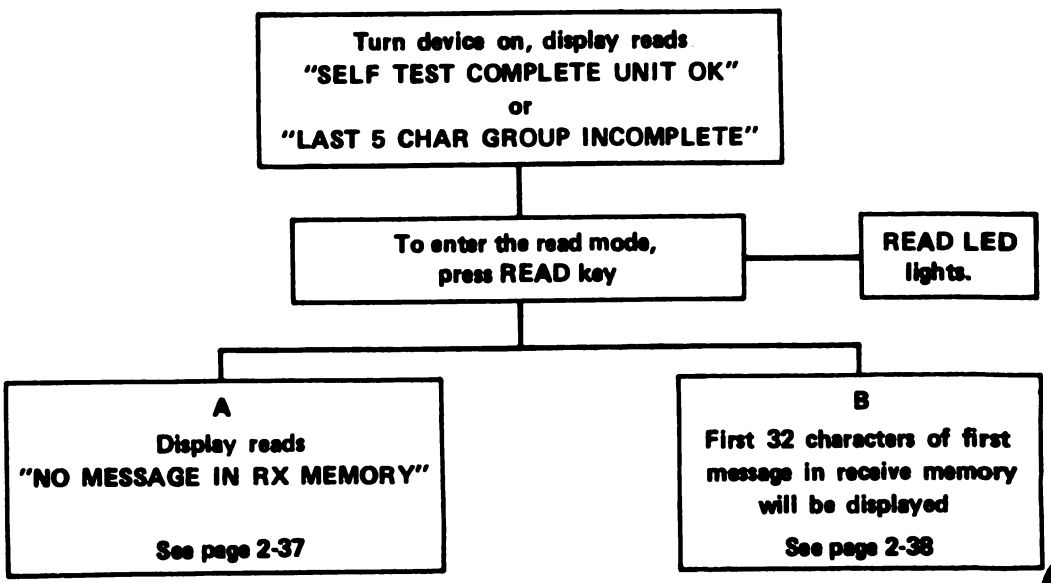
g. Message is in the receive memory ready to be read.

RECEIVING MESSAGES – Continued

NOTE

- "MESSAGE REJECTED 8 RX MESSAGES" will be displayed when there are 8 messages in the receive memory and another comes in. Message will be rejected and not placed in memory.
- "MESSAGE REJECTED MEMORY FULL" will be displayed when the receive memory is full and a message comes in. Message will be rejected.
- "MESSAGE REJECTED MEMORY FULL" will be displayed when the receive memory is partially full and a message comes in which will exceed the 2000 character capability of the receive memory. Message will be rejected.
- If printer is connected and the "PRINT ONLY" option selected, the message will print on the printer, message will not be stored in receive memory, and the prompt "CONTINUE" will be displayed on the LCD.
- While the device is printing out a message on a printer, it cannot receive another message.
- A received message cannot be retransmitted. It must be manually entered in the transmit memory to send it.

READ RECEIVED MESSAGE



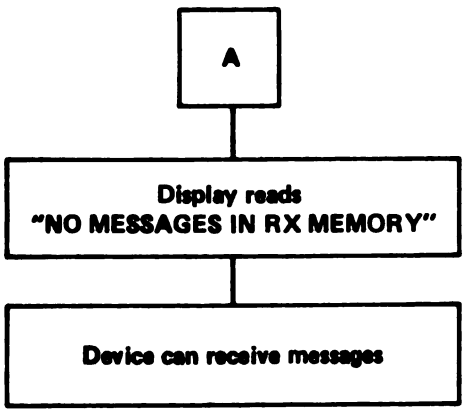
READ RECEIVED MESSAGE – Continued

a. Turn device on. Display reads "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE."

b. To enter the read mode, press READ key. READ LED lights.

c. One of two receive memory conditions will be displayed. See A and B.

Display condition A – receive memory clear.



a. Display reads "NO MESSAGES IN RX MEMORY", receive memory clear.

b. Message can be received.

Display condition B – message(s) in receive memory.

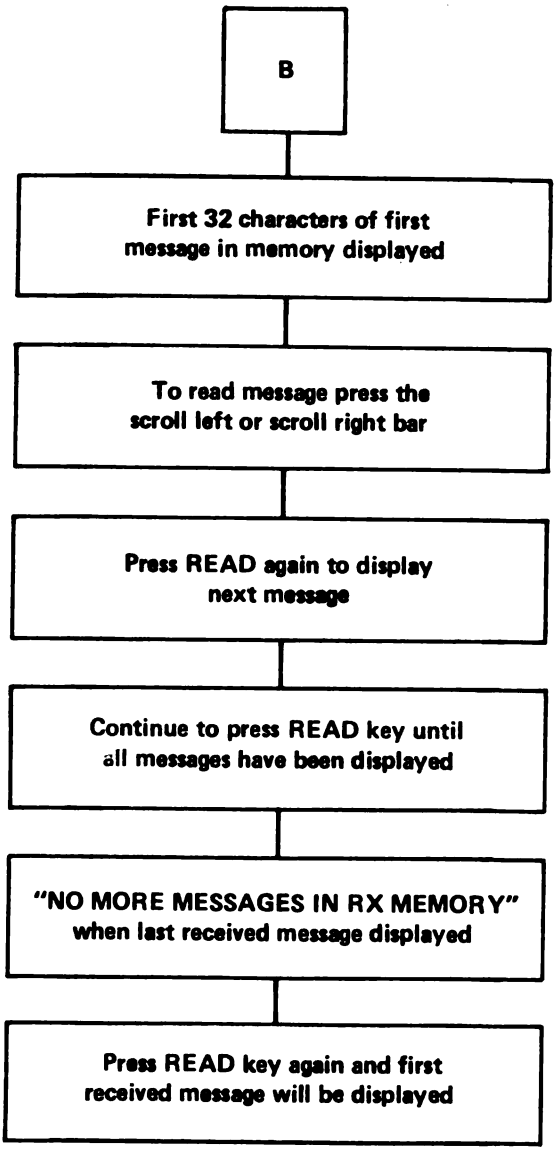
NOTE

The first character to the extreme left of the display will be either an "E" if error in message or, if no error in message, a space, followed by the two-digit address of the sender, then a space followed by text.

EXAMPLE:

NO ERROR	43 (TEXT)
MSG ERROR	E43 (TEXT)

READ RECEIVED MESSAGE – Continued



a. First 32 characters of the first message in the receive memory are displayed.

b. To read messages:

(1) Press and hold the scroll left bar. Scrolling will stop when the bar is released or when the last 32 characters of the message are in the display.

READ RECEIVE MESSAGE – Continued

(2) Press and hold the scroll right bar. Scrolling will stop when the bar is released or when the first 32 characters of the message are in the display.

c. Press READ again and the second message received will be displayed.

d. Continue to press READ until all messages have been displayed.

e. When all messages have been displayed, "NO MORE MESSAGES IN RX MEMORY" will be displayed.

f. Press READ key again and first received message will be displayed. To continue to cycle through messages received, continue to press READ key.

NOTE

When the device is on with messages stored in the receive memory and a message comes in, pressing the READ key will cause the *last message* received to be displayed. After reading the last received message and the READ key is pressed, "NO MORE MESSAGES IN RX MEMORY" will be displayed. Pressing the READ key again will cause the first message in the receive memory to be displayed. Continuing to press the READ key will cause the messages in the receive memory to be displayed in the order received.

DELETE MESSAGES IN RECEIVE MEMORY

Pressing the STORE and CLEAR keys at the same time when any portion of the message is displayed, will cause the entire message to be deleted. Other messages in the receive memory not being displayed will not be affected.

EXAMPLES OF MESSAGES WITH ERRORS

Free Format – RX ERROR MASK.

Message as Prepared.

NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THEIR COUNTRY.

Message Received.

E56 NOW IS THQQQQQQQQQQQQQL GOOD MEN TO COME TO THE AID OF THEIR COUNTRY.

EXAMPLES OF MESSAGES WITH ERRORS – Continued

Free Format – RX ERROR ACCEPT.

Message as Prepared.

NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THEIR COUNTRY.

Message Received.

E56N??W IS THE T9??. FOR ALL G??.MEN TO CO=??UO THE AID8??.THEIR COU.??Y.

Fixed Format – RX ERROR MASK.

Message as Prepared.

DFGHJ	VCFRG	TYUMN	JKDYD	HKCUD
HCGEE	WOTTO	GLYUK	HWWHV	MFMJJ
RTEQZ	VCCFN	NMDJG	UTOPR	MTJIO
SRETQ	SPFVX	SGGDD	DHHFH	DGGTR

Message Received.

E56	DFGHJ	VCFRQ	QQQQQ	QQQQQ	CUD
	HCGEE	WOTTO	GLYUK	HWWHV	MFM
	QQQQQ	QQQQQ	MDJG	UTOPR	MTJIO
	SRETQ	SFDVX	SGGDD	DHHFH	DGGTR

Fixed Format–RX ERROR ACCEPT.

Message as Prepared.

DFGHJ	VCFRG	TYUMN	JKDYD	HKCUD
HCGEE	WOTTO	GLYUK	HWWHV	MFMJJ
TREQZ	VCCFN	NMDJG	UTOPR	MJIDJ
SRETZ	SFDVX	SGGDD	DHHFH	DGGTR
DHEEJ	JGKGI			

Message Received.

E56	DFQQQ	VCFRG	TYUMN	QQQYD	HCCUD
	HCGEE	WOTTO	GLYUK	HQZMV	MFMJJ
	TRETZ	VCCFN	NMDJG	UTQQQ	MJIOJ
	SRETZ	3HQVX	SGGDD	DHH6Q	7GGTR
	DHEEJ	JGKGI			

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

OPERATION IN UNUSUAL WEATHER.

The device is fully weather insulated. Operation in extreme moist heat, extreme dry heat, salt air, sea spray, dust or sand storms, high altitudes, and other adverse weather is the same as under usual conditions. However, in extreme cold conditions, take care when handling the cables to avoid damage to insulation and wires. Do not sharply bend or kink the cables. Also, extreme cold conditions will cause the liquid crystal display to respond slower than normal.

EMERGENCY PROCEDURES

a. Power reduction. The main battery gives an advance warning of low power by a flashing POWER LED before shutdown. External power from the radio battery pack should then be applied.

b. Operating while charging main battery. Voltage from the radio battery pack provides both charging voltage to the main battery and operating voltage to the device. The device may be operated normally while the main battery is being charged with one exception. Messages are not to be sent from the device because the charging cable is not EMI shielded.

c. Failure of a portion of the equipment. Some of the send and receive functions of the device are separate. If the send portion should fail, you may still be able to receive messages. If the receive portion should fail, you may still be able to compose and store messages for future transmission. You may also be able to read messages in the receive memory received before the receive portion failed.

d. Failure of a character in the Keyboard. If a character key should fail, you may still be able to compose messages and indicate in your message that you have a failed character key. If you can't approximate the shape of the character (such as ∅ for O or 5 for S), spell out the sound of the character and indicate a substitute. For example, you could type into your message, "LETTER SEE FAILED, USING LETTER Z INSTEAD" and then program your message accordingly.

e. Failure of a command key. Failure of a command key destroys your ability to use that function. You can continue to use the rest of the device as well as possible.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

CHAPTER INDEX

Section I. LUBRICATION INSTRUCTIONS

No lubrication required.

Section II. TROUBLESHOOTING PROCEDURES

GENERAL

The troubleshooting chart lists the common malfunctions which you may find during the operation or maintenance of the Digital Message Device Group or its components. You should perfrom the tests/inspections and corrective actions in the order listed. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective action, notify your supervisor.

Troubleshooting Chart

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

1. UNIT TOTALLY DEAD: NO DISPLAY, NO LED's LIGHT.

Step 1. Check if battery installed.

Install battery.

Step 2. Check if battery installed correctly (i.e., red to red, black to black).

Install battery correctly.

2. UNIT DOES NOT COME ON WHEN RADIO BATTERY PACK IS ATTACHED.

Step 1. Radio battery pack defective.

Replace defective radio battery pack.

Step 2. Defective charging cable.

Replace charging cable.

3. UNIT FAILS TO KEY RADIO SETS.

Step 1. Check signal cable tightness.

Tighten signal cable.

Step 2. Check for dirt on signal cable pins.

Clean signal cable pins.

Step 3. Signal cable defective.

Replace signal cable.

4. UNIT DOES NOT RECEIVE MESSAGES.

Step 1. Check signal cable tightness.

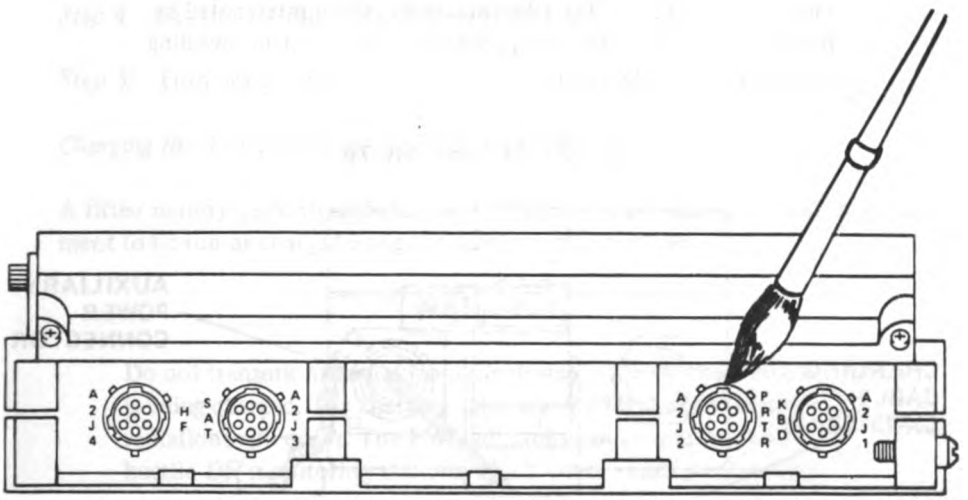
Tighten signal cable.

Step 2. Signal cable defective.

Replace signal cable.

Section III. MAINTENANCE PROCEDURES

CLEANING INSTRUCTIONS



Exterior.

- Dust exterior with a lint-free cloth.
- Use a dampened cloth to clean excessively dirty spots.

Connectors. Clean connectors using a small brush.

MAIN BATTERY CHARGING

The main battery may be charged through either the A2J4HF or SATA2J3 radio connectors. This allows the device to be used while charging the main battery if emergency conditions require. Device should be used for receive only under emergency conditions because charging may interfere with incoming signal. Never use the device to transmit messages while battery is being charged.

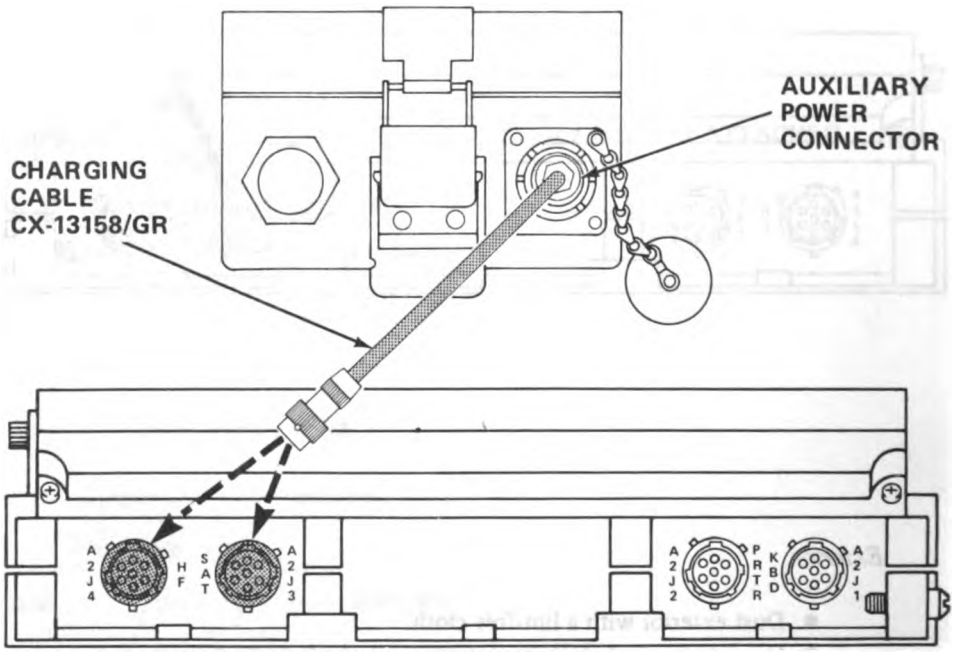
MAIN BATTERY CHARGING – Continued

Charging the device using the AN/PRC-70 radio.

WARNING

Do not transmit messages from the device while the main battery is being charged. The charging cable is *not* EMI shielded and EMI radiations will occur. The EMI radiations can be intercepted by hostile DF monitoring stations which could result in revealing your position to the enemy.

RADIO SET AN/PRC-70



KEYER-MESSAGE DEVICE KY-879/P

Step 1. Connect charging cable, CX-13158/GR, to A2J4 HF or SAT A2J3 connector, whichever is not in use, at device.

Step 2. Connect opposite end of charging cable to auxiliary power connection on side of battery pack.

NOTE

POWER LED on device should light and display should read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR

MAIN BATTERY CHARGING – Continued

GROUP INCOMPLETE." If this does not happen, see the troubleshooting chart.

Step 3. Charge device until POWER LED goes out but not more than two hours. If more than two hours required to charge battery, it should be replaced.

Step 4. Disconnect cable from device and battery.

Step 5. Turn device off.

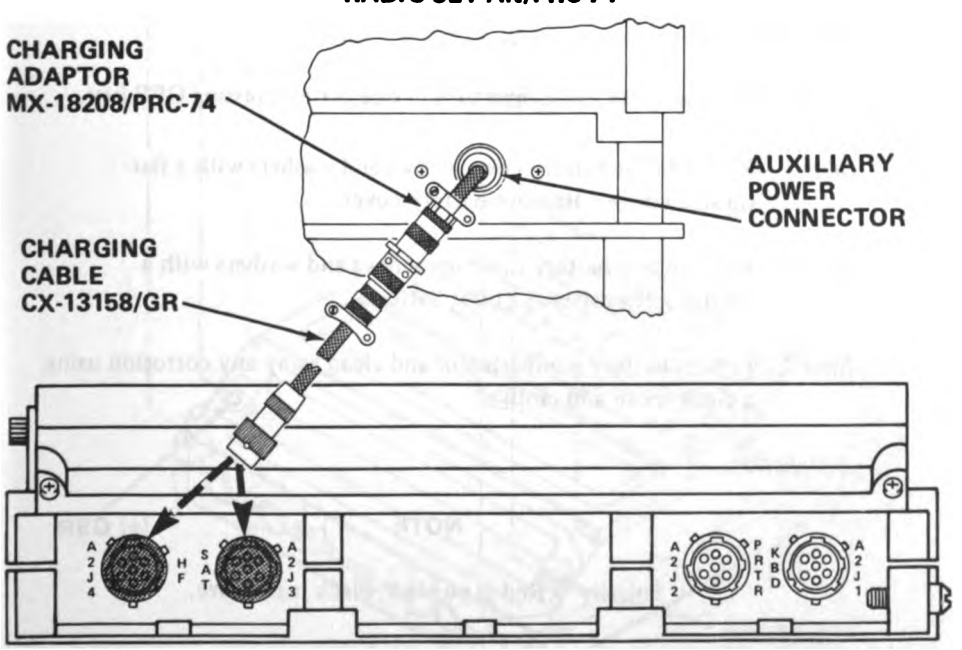
Charging the device using the AN/PRC-74 radio.

A fitted battery pack attaches to the AN/PRC-74 radio allowing auxiliary equipment to be run or charged using the auxiliary power outlet.

WARNING

Do not transmit messages from the device while the main battery is being charged. The charging cable is *not* EMI shielded and EMI radiations will occur. The EMI radiations can be intercepted by hostile DF monitoring stations which could result in revealing your position to the enemy.

RADIO SET AN/PRC-74



KEYER-MESSAGE DEVICE KY-879/P

MAIN BATTERY CHARGING – Continued

Step 1. Connect CX-13158/GR cable to A2J4 HF or SAT A2J3 connector, whichever is not in use, at device.

Step 2. Connect other end of CX-13158/GR cable to Charging Adaptor MX-18208/PRC-74.

Step 3. Connect the other end of the charging adaptor to the connector marked POWER on the battery pack.

NOTE

POWER LED on device should light and display should read "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE." If this does not happen, see the troubleshooting chart.

Step 4. Charge device until POWER LED goes off but no more than two hours.

Step 5. Disconnect cable from device and battery.

Step 6. Turn device off.

MAIN BATTERY REMOVE/INSTALL

Removal.

Step 1. Disconnect all cables and turn device off by pressing OFF key.

Step 2. Remove four battery cover screws and washers with a flat-tip screwdriver. Remove battery cover.

Step 3. Remove two battery retaining screws and washers with a flat-tip screwdriver. Lift out battery.

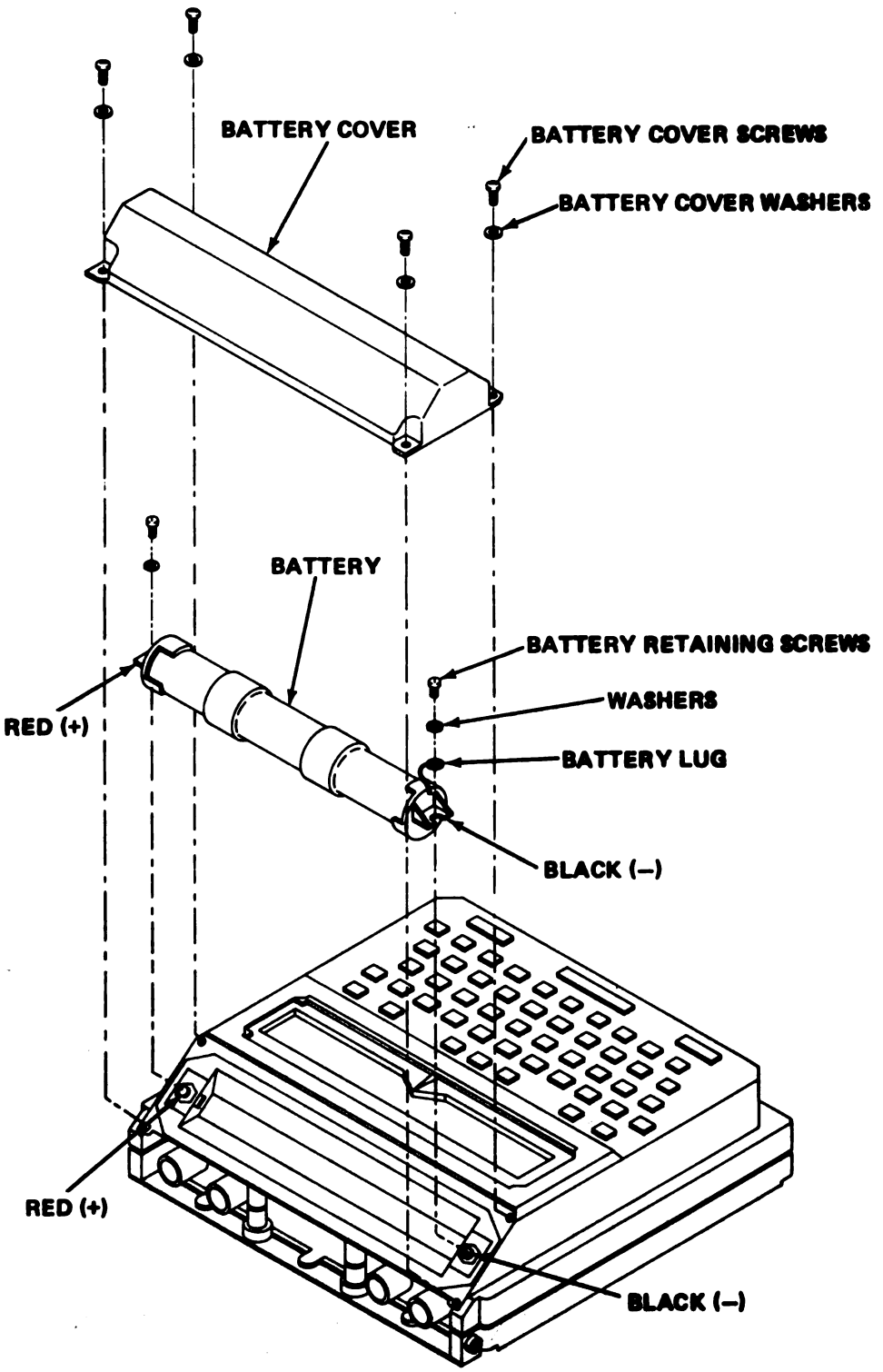
Step 4. Inspect battery compartment and clean away any corrosion using a clean brush and cloth.

Installation.

NOTE

Polarity – Red is positive, black is negative.

Step 1. Install battery observing proper polarity.



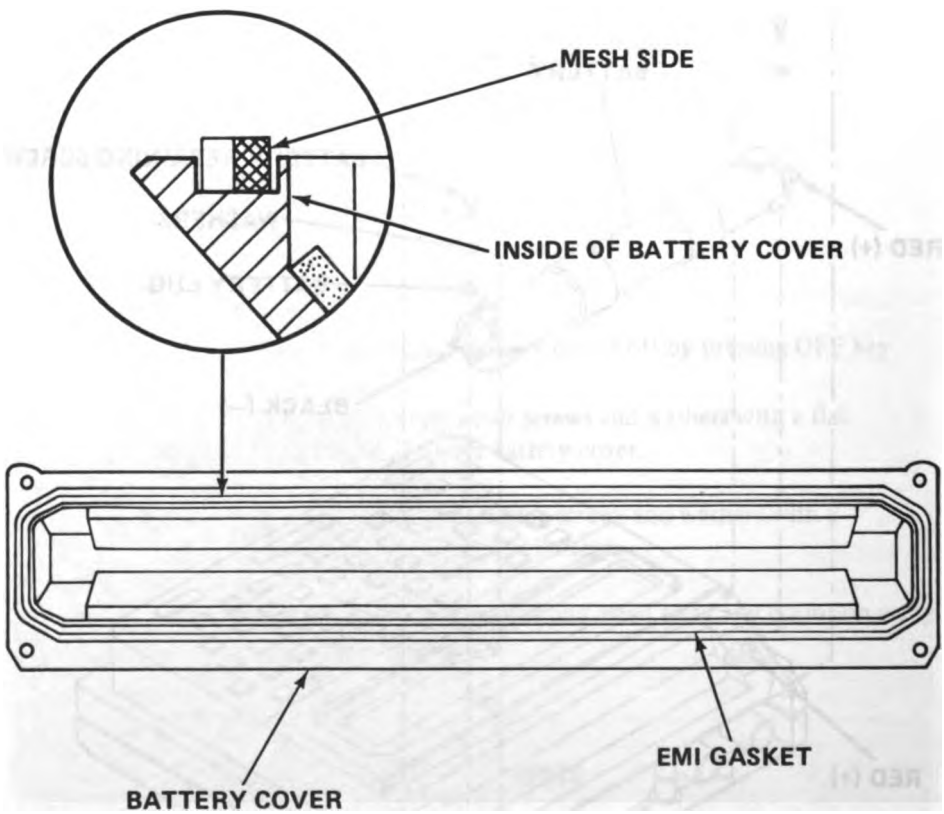
MAIN BATTERY REMOVE/INSTALL – Continued

Step 2. Install two screws with washers through eyelets of battery connector lugs into battery posts.

Step 3. Tighten battery screws using flat-tip screwdriver.

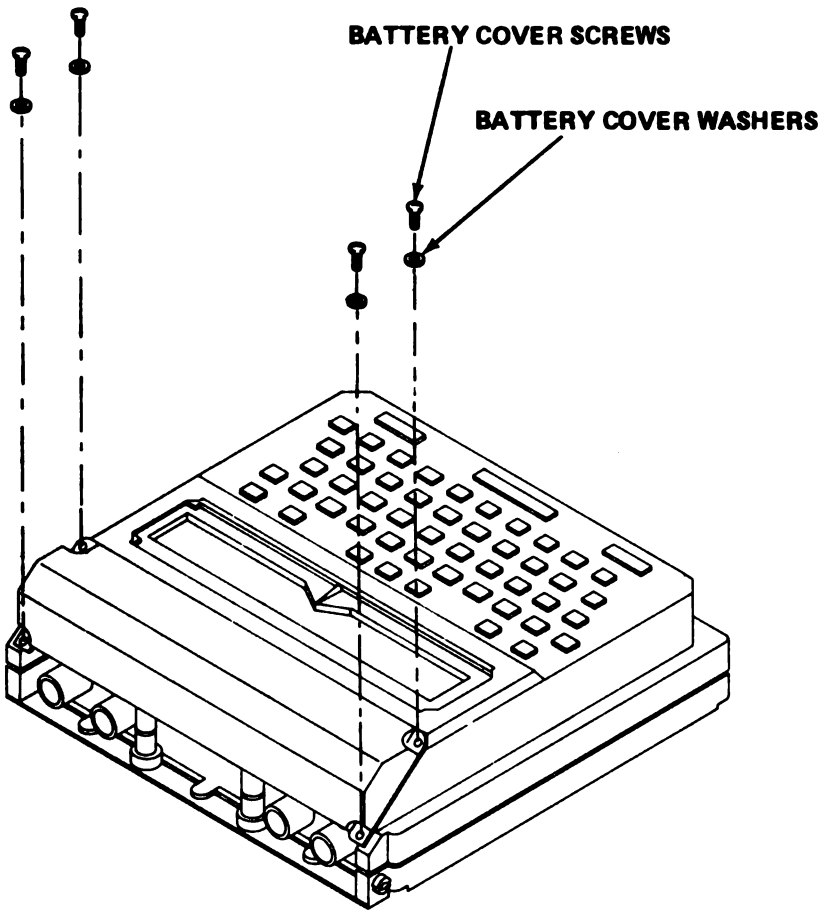
NOTE

- The EMI gasket may fall out when you remove the battery cover. The gasket must be reinstalled properly to ensure EMI and weather protection.
- Reinstall the gasket with the mesh side facing the inside of the battery cover.



Step 4. Inspect EMI gasket for breaks, tears and proper seating. If damage is noted, do not use. Refer device to maintenance.

MAIN BATTERY REMOVE/INSTALL – Continued



Step 5. Place battery cover in position and hand tighten four screws and washers.

Step 6. Tighten battery cover screws using flat-tip screwdriver.

Step 7. Charge battery. See page 3-4 for charging with AN/PRC-70 or page 3-5 for battery charging with AN/PRC-74.

Step 8. Test battery by pressing ENTER key. Device should display "SELF TEST COMPLETE UNIT OK" or "LAST 5 CHAR GROUP INCOMPLETE." If it does not, notify your supervisor.

Step 9. Turn device off.

APPENDIX A
REFERENCES

A-1. SCOPE.

This appendix list all forms, technical manuals, and miscellaneous documents referenced in this manual.

A-2. FORMS.

Equipment Control . . . . . DA Form 2408-9
Quality Deficiency Report . . . . . SF 368

A-3. MANUALS.

Destruction of Electronic Materiel to Prevent
Enemy Use (Electronics Command) . . . . . TM 750-244-2
The Army Maintenance Management
System (TAMMS) . . . . . TM 38-750

A-4. MISCELLANEOUS DOCUMENTS.

Expendable Items (Except: Medical, Class V, Repair
Parts and Heraldic Items) . . . . . CTA 50-970

APPENDIX B
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

B-1. SCOPE.

This appendix lists components of end item and basic issue items for the Digital Message Device Group OA-8990/P to help you inventory items required for safe and efficient operation.

B-2. GENERAL.

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item (COEI). This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items (BII). These are the minimum essential items required to place the device in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the device during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings:

a. Column (1) – Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

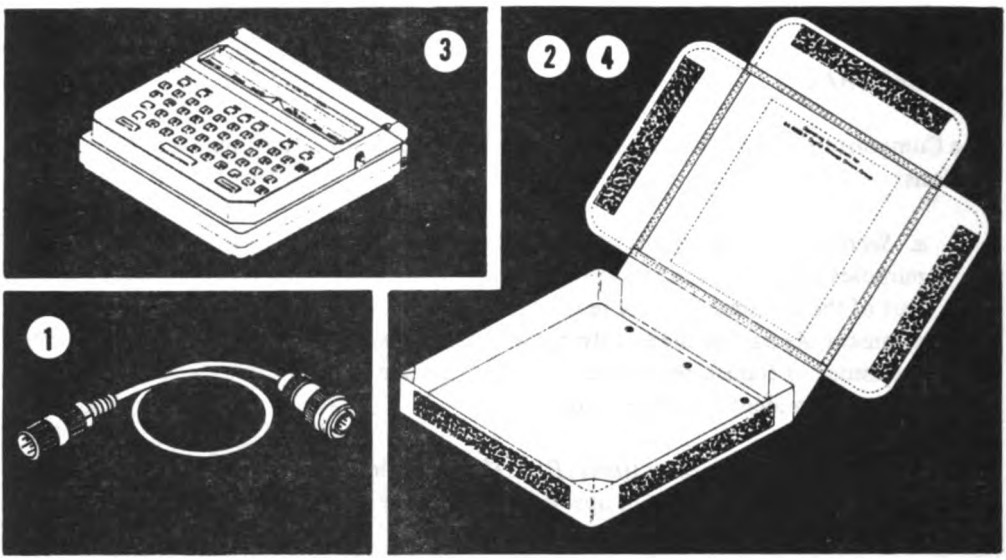
b. Column (2) – National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) – Description. Indicates the National item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4) – Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

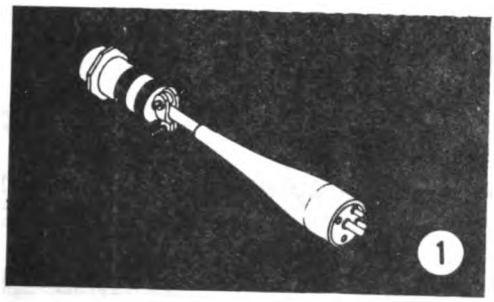
e. Column (5) – Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

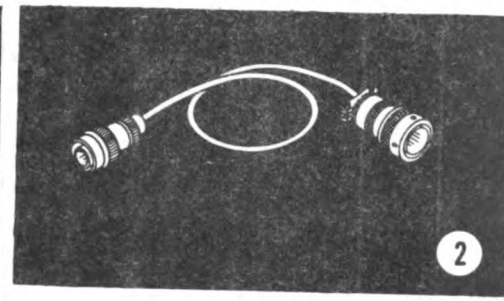
Section II. COMPONENTS OF END ITEM



(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part No.	Usable On Code	(4) U/M	(5) Qty rqr
1	5995-01-100-8254	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-13156/GR (23388) 09102		EA	1
2	5820-01-100-3193	CASE, CARRYING CY-7922/P (23388) 09149		EA	1
3	5820-01-100-3194	KEYER MESSAGE DEVICE KY-879/P (23388) 09999		EA	1
4		OPERATING INSTRUCTIONS (23388) 09417		EA	1

Section III. BASIC ISSUE ITEMS





(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part No.	Usable On Code	(4) U/M	(5) Qty rqr
1	PENDING	ADAPTER, BATTERY MX-18208/PRC-74 (23386) 09105		EA	1
2	5995-01-100-6253	CABLE ASSEMBLY SPECIAL PURPOSE ELECTRICAL CX-13158/GR (23386) 09103		EA	1

APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. SCOPE.

This appendix lists additional items authorized for support of Digital Message Device Group OA-8990/P.

C-2. GENERAL.

This list identifies items that do not have to accompany the device and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-3. EXPLANATION OF LISTING.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorized the item(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NO. USABLE ON CODE	(3) U/M	(4) QTY AUTH
	BATTERY, MAIN (23386) 88997	EA	1
5120-00-236-2127	SCREWDRIVER, FLAT HEAD (81348) GGG-S-121	EA	1

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain Digital Message Device Group OA-8990/P. These items are authorized to you by CTA 50-970, Expendable Items (Except: Medical, Class V, Repair Parts and Heraldic Items).

D-2. EXPLANATION OF COLUMNS.

a. Column (1) – Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, Appendix D").

b. Column (2) – Level. This column identifies the lowest level of maintenance that requires the listed item.

C – Operator/Crew
O – Organizational Maintenance
F – Direct Support Maintenance
H – General Support Maintenance

c. Column (3) – National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) – Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column (5) – Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	8305-00-205-3496	CLOTH, CHEESECLOTH (81348) CCCC440	YD

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None

R

S

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DATE SENT
12 October 1982

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TM 11-5820-887-10	20 August 1982	Digital Message Device Group OA-8990/P

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PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
36	--	--	--

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

STEP 2 of the procedures is not clear. Rewrite to include exact location of connector.

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GREG A. HUGHES, SP/4AV827-3142

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Greg A. Hughes

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