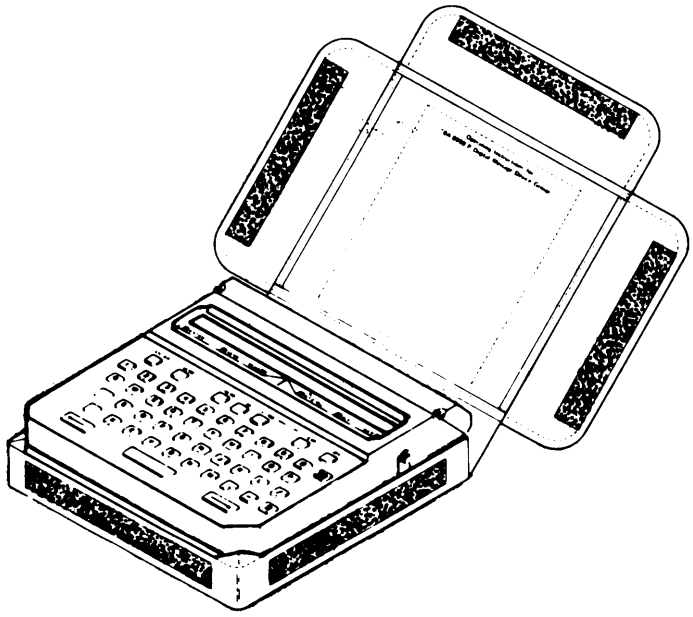
TM 11-5820-887-24

TECHNICAL MANUAL

ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

DIGITAL MESSAGE DEVICE GROUP



0A-8990/P
(5820-01-102-3921)

HEADQUARTERS, DEPARTMENT OF THE ARMY

23 FEBRUARY 1983

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 June 1988

ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

DIGITAL MESSAGE GROUP 0A-8990/P (NSN 5820-01-102-3921)

TM 11-5820-887-24, 23 February 1983, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	*Insert pages*
a/(b blank)	a/(b blank)
i and ii	i and ii
1-1 through1-11/(1-12 blank).	1-1 through 1-11/(1-12 blank)
2-1 through 2-6	2-1 through 2-6
3-5 through 3-12	3-5 through 3-12
3-31 and 3-32	3-31 and 3-32
None	3-32.1/(3-32.2 blank)
3-43 and 3-44	3-43 and 3-44
3-47 and 3-48	3-47 and 3-48
3-55 and 3-56	3-55 through 3-57/(3-58 blank)
A-1/(A-2blank)	A-l/(A-2blank)
B-5 through B-11/(B-12blank).	B-5 through B-12
C-1 and C-2	C-1and C-2
Index 1through Index 4	Index 1 through Index 4

2. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-36 literature requirements for OA-8990/P.

CAUTION

The main battery must be removed before opening the device for any reason. You can blow the fuse or short out electronic components by not following this practice.

CAUTION

Each time the device is closed, the desiccant bag must be replaced with a dry bag. Failure to replace bag can cause damage to the device from moisture.

CAUTION

Be careful when removing polarizing screen. You can scratch or crack the display window. Failure to observe this practice could cause device to fail or make it difficult to operate.

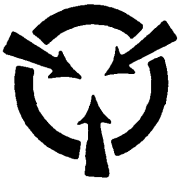
CAUTION

Be careful when lifting and turning center section. You could destroy the cable or cause wires in cable to break or short out. Failure to observe this practice could cause the device to fail.

CAUTION

All threaded hardware is in metric measurements. You can damage equipment by substituting American Standards.

CAUTION



This equipment contains certain static-sensitive solid state devices which are subject to damage from electrostatic discharge. Effective control of electrostatic discharge is maintained only through continuous strict observance of the following maintenance procedures:

- Any maintenance requiring disassembly of the equipment must be performed at an approved work station. The work station must include a grounded surface and grounded wrist strap in accordance with DOD-HDBK-263.
- All maintenance personnel must have completed training in the handling of static-sensitive devices before working on this equipment. Maintenance personnel must wear the grounded wrist strap and be at an approved work station when performing maintenance.
- The static-sensitive subassemblies or circuit cards must be stored in approved electrostatic free material when not installed in the equipment.

TECHNICAL MANUAL
NO. 11-5820-887-24

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 23 February 1983

Organizational, Direct Support, and General Support Maintenance Manual

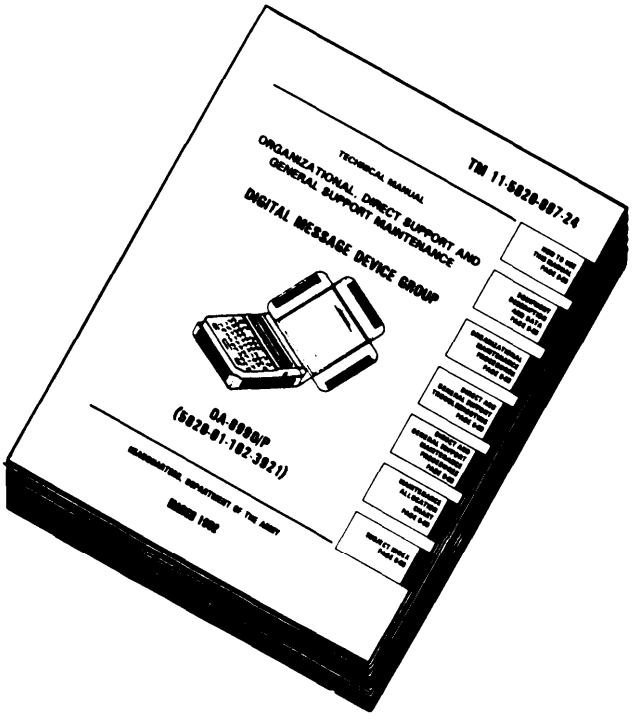
DIGITAL MESSAGE DEVICE GROUP
OA-8990/P
(NSN 5820-01-102-3921)

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 back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-)ME-MP, Fort Monmouth, New Jersey 07703-5000. A reply will be furnished 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 over 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 sequential indexes appear before each chapter. These indexes should help you in locating information under most likely looked for names.

CHAPTER 1
INTRODUCTION

CHAPTER INDEX

Section I. GENERAL INFORMATION

1-1. SCOPE

Type of Manual: Organizational, Direct Support, and General Support Maintenance

Model Numbers and Equipment Names:
OA-8990/P - Digital Message Device Group (DMDG)

Purpose of Equipment: Transmits, receives, and stores messages for the Special forces Burst Communication System (SFBCS).

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, as contained in Maintenance Management Update.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73B/AFR 400-54/MCO 4430.3H.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-3. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA PAM 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-4. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

Destruction of Army electronics material to prevent enemy use shall be in accordance with TM 750-244-2.

1-5. ADMINISTRATIVE STORAGE

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness. Prepare the DMDG storage in accordance with procedures in TM 740-90-1.

1-6. NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature	National Stock Number
Device	Keyer-Message Device KY-879/P	5820-01-100-3194
Charging adapter	Adapter, Battery MX-18208/PRC-74	
Charging cable	Cable Assembly, Special Purpose Electrical CX-13158/GR	5995-01-100-6253
Signal cable	Cable Assembly, Special Purpose Electrical CX-13156/GR	5995-01-100-6254
Carrying case	Case, Carrying CY-7922/P	5820-01-100-3193
MM1 board	Man-Machine Interface Board	
Sync I/0 board	Synchronous Input/Output Board	
Zebra Strip	Connector: A1W1, A1W2, A2W1, A2W2, A2W3, A2W4, A2W5.	

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your DMDG 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 the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send YOU a reply.

1-8. WARRANTY INFORMATION

The DMDG is warranted by Racal Communications, Inc., for 12 months. The warranty expires on the date found on the bottom casting. Report all defects in material or workmanship to your supervisor who will take appropriate action.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. GENERAL

The DMDG consists of:
- a keyer-message device
- a signal cable
- a charging cable
- a charging adaptor
- a carrying case with operating instructions.

1-10. CHARACTERISTICS

- Stores information
- Has edit capabilities
- Permits burst communications
- Provides error detection
- Minimizes transmission time
- Reduces risk of being located by radio direction-finding
- Authenticates messages
- Includes built-in self tests

1-11. CAPABILITIES AND FEATURES

- Lightweight design allows easy portability.
- Main battery provides up to ten hours use at 77° F and up to four hours use at O° F when fully charged.
- The memories are maintained by a separate internal rechargeable battery when the device is shut down. This internal battery can maintain the memory for 22 days. If the internal battery is not recharged (by the main battery) at least every 22 days, the information in the transmit and/or receive memory will be lost. This internal battery has a shelf life of five years.
- Charging cable and charging adaptor allow battery charging under field conditions from radio set battery packs.
- Receive memory stores up to eight messages or 2,000 characters.
- Transmit memory stores up to 1,000 characters.
- Built-in self test automatically checks all internal functions and displays equipment condition on liquid crystal display (LCD).

1-12. DIFFERENCES BETWEEN MODELS

The following changes have been made to DMDG units with serial numbers 1B thru 80B and 3001B and above. These changes do not effect operation of the device. However, maintenance procedures will change, in that the operator will be able to change the battery fuse when necessary.

- Dust covers have been added to protect the four rear connectors.
- Function LEDs have been changed from red to green.
- Main battery has a fuse holder installed on the positive (red) end of the battery.
- Battery fuse has been moved from inside the device to the fuse holder at the positive (red) end of the battery. The operator is now authorized to change the battery fuse.

Earlier units, serial numbers 1 thru 1886, will not be modified to reflect

these changes. Therefore, maintenance changes pertain only to units with serial numbers 1B thru 80B and 3001B and above.

1-13. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Keyer-Message Device KY-879/P - the major functional unit of the DMDG. Provides the operational interface with the user and enables the user to transmit and receive messages when connected to a radio set.

Cable Assembly CX-13156/GR - the signal cable. Provides the data transmit/receive line between the device and a radio set.

Cable Assembly CX-13158/GR - the charging cable. Allows the device to be charged from an external power source such as a radio battery pack.

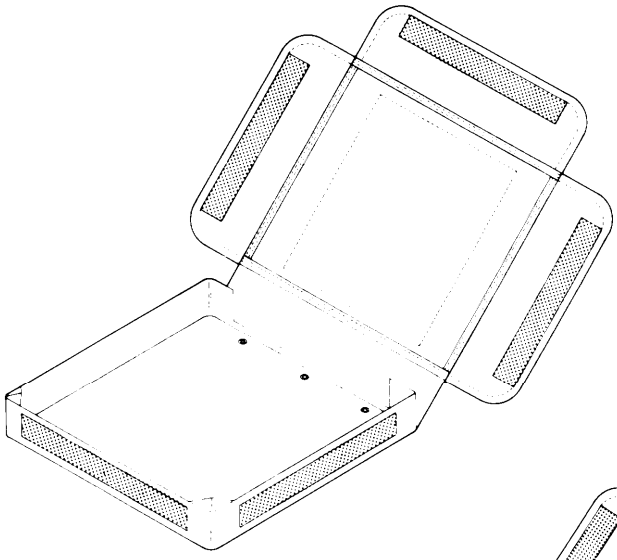
Battery Adapter MX-18208/PRC-74 - the charging adapter. Allows charging of the device from the battery pack of Radio Set AN/PRC-74.

Carrying Case with Operating Instructions CY-7922/P - the carrying case protects the device and provides a pocket for storing the cables. The operating instructions sewn into the case cover provide a quick reference for operating procedures.

Dust covers - protects the rear connectors from dirt, dust and damage. Secured between carrying case and device by screws. Provided on units with serial numbers 1B thru 80B and 3001B and above.

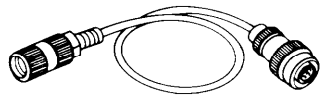
Operator’s Manual TM 11-5820-887-10 - provides detailed instructions for operating and maintaining the DMDG.

1-13. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

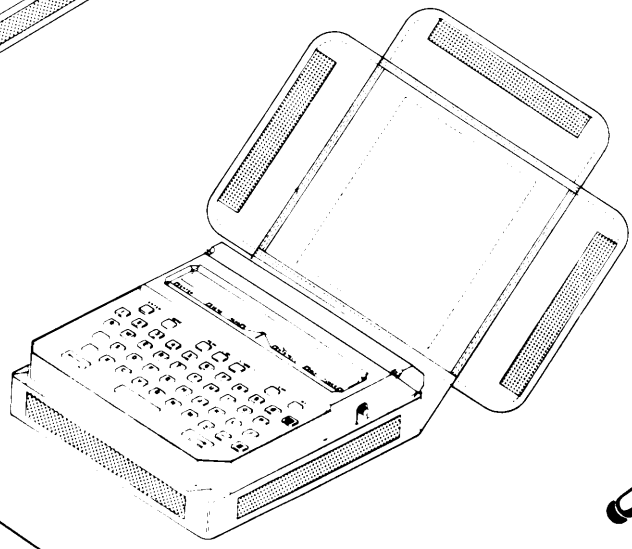


CARRYING CASE CY-7922/P

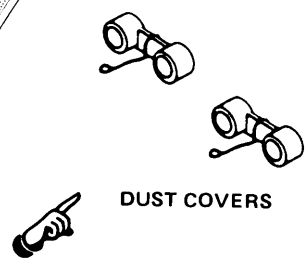
CABLE ASSEMBLY CX-13158/GR



CABLE ASSEMBLY CX-13156/GR

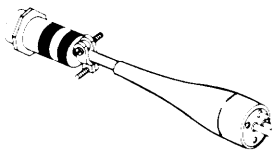


DIGITAL MESSAGE DEVICE GROUP OA-8990/P

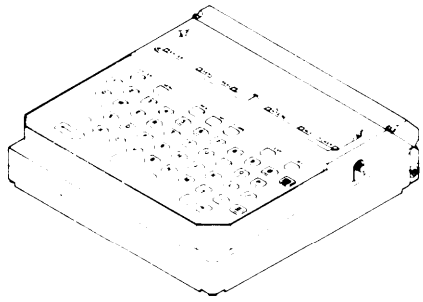


DUST COVERS

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

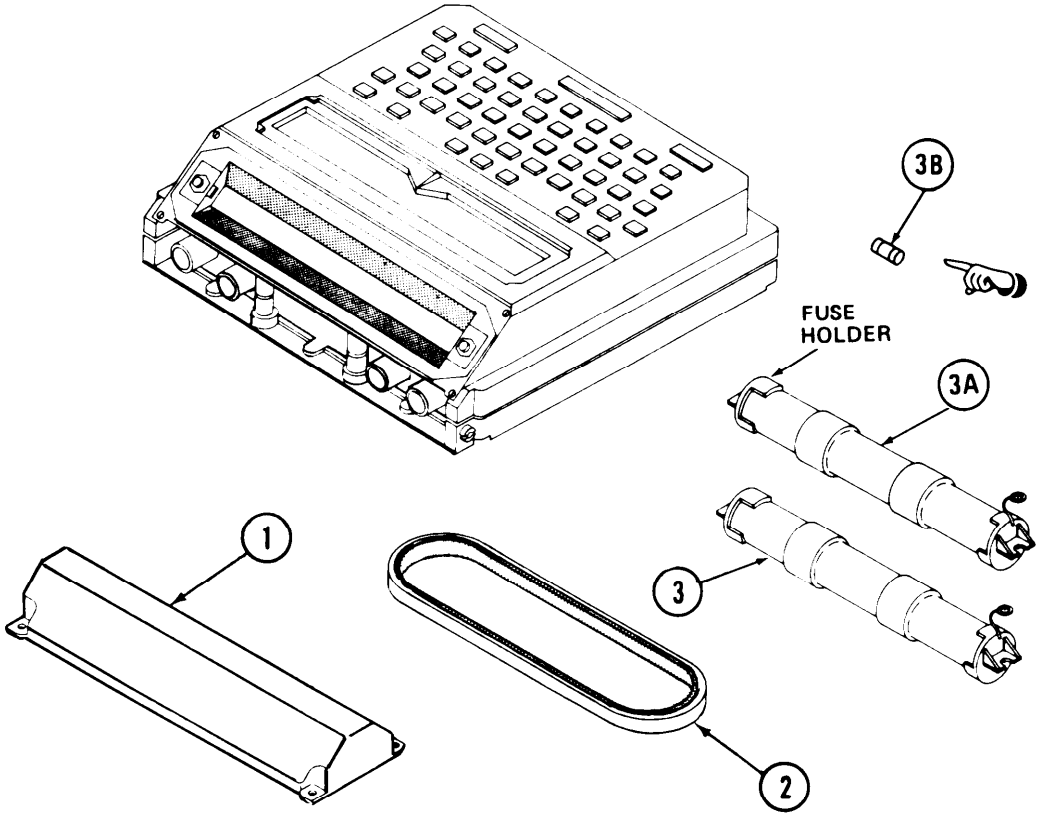


BATTERY ADAPTER MX-18208/PRC-74



KEYER-MESSAGE DEVICE KY-879/P

1-13. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



(1) Battery cover - Protects main battery compartment

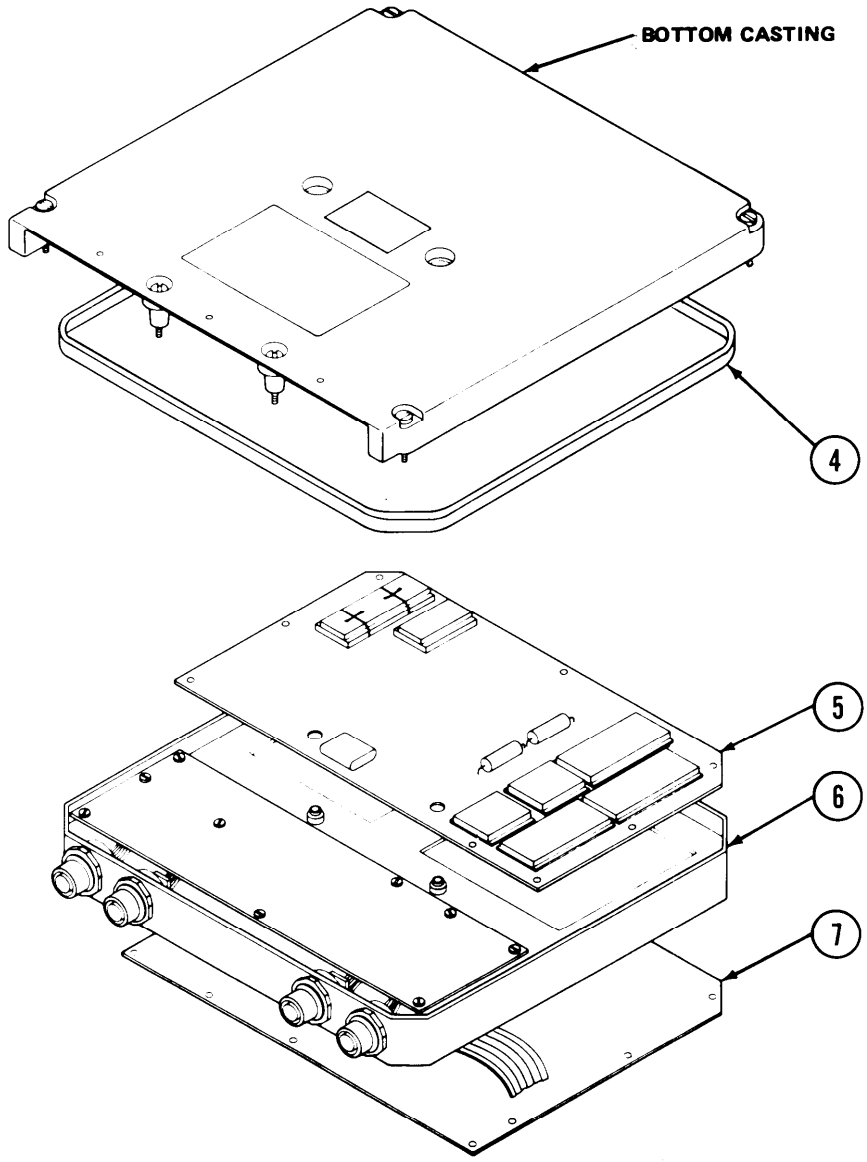
(2) EMI gasket - Seals main battery compartment and provides protection against electromagnetic interference (EMI).

(3) Main battery - Provides operating power to keyer-message device and charges the memory batteries. For serial numbers 1 thru 1886.

(3A) Main battery - Provides operating power to keyer-message device and charges the memory batteries. Fuse holder added to positive (red) end of battery. For serial numbers 1B thru 80B and 3001B and above.

(3B) Fuse (1.6 Amp) - Protects the device from over voltages when main battery is being charged. For serial numbers 1B thru 80B and 3001B and above.

1-13. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



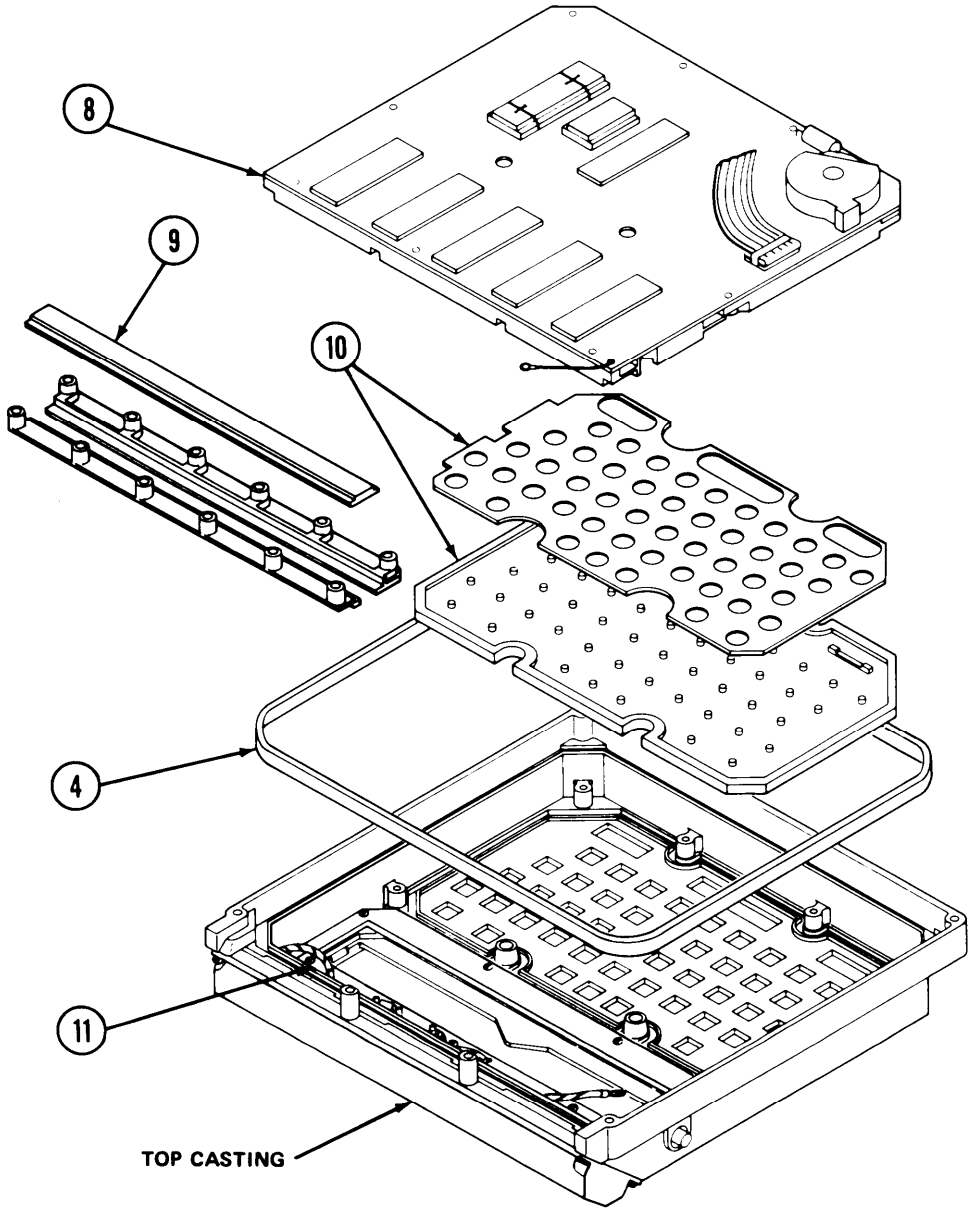
(4) Electromagnetic Interference (EMI) Gaskets - provide weatherproofing and protection from electromagnetic Interference (EMI).

(5) Synchronous Input/Output (sync I/0) Board - Provides the interface between the main processor board and the communication system.

(6) Center section with power module - Provides power to various assemblies and the interface between the main processor board and the keyboard/ display module.

(7) Main Processor Board - Maintains overall control of the system, providing for message storage and error protection/correction.

1-13. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



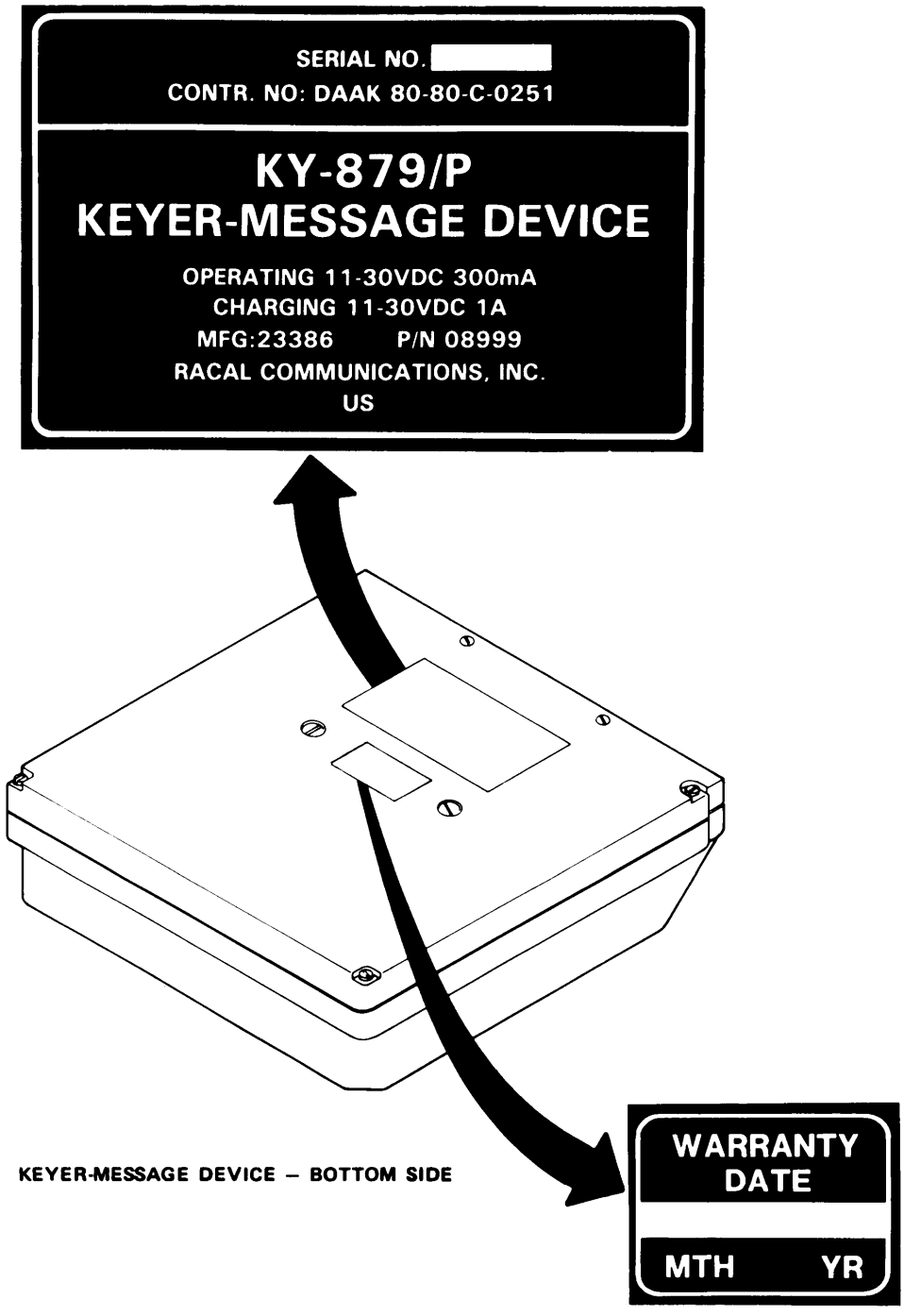
(8) Man-Machine Interface (MMI) Board - Provides the interface between the device and operator.

(9) Liquid Crystal Display (LCD) - allows the user to see what is in the transmit and receive memories without the use an external printer.

(10) Keysheet and Keysheet Support - the physical interface between the user and the keyboard/display module.

(11) Fuse Board - Protects the device from external overvoltage or power surges while main battery is being charged. Provided on units with serial numbers 1 thru 1886.

1-14. SERIAL NUMBER PLATE AND WARRANTY DATA PLATE



KEYER-MESSAGE DEVICE – BOTTOM SIDE

1-15. EQUIPMENT DATA

DMDG weight with cables, adapter and cover (serial numbers 1 thru 1886)	8.77 lb (3.91 kg)
DMDG weight with cables, adapter and cover (serial numbers 1B thru 80B and 3001B and above)	9.125 lb (4.14kg)
DMDG height	3.0 in (7.62 cm)
DMDG width	10.0 in (25.4 cm)
DMDG depth	10.0 in (25.4 cm)
Input power required for charging	11-30 Vdc, 1 Amp
Normal battery voltage	6.25 Vdc

Section III. PRINCIPLES OF OPERATION

1-16. GENERAL

The keyer-message device consists of four functional assemblies:

- Keyboard/Display Module
- Synchronous Input/Output (sync I/0) Board
- Main Processor Board
- Power Module

1-17. KEYBOARD/DISPLAY MODULE

The keyboard/display module provides the interface between the operator and the device, The module consists of a keyboard, a 32-character alphanumeric LCD, various status indications and microprocessor controlled interface circuits. The main functions of this module are:

- Scans the keyboard to detect the presence of a depressed key.
- Produces a coded character appropriate to the key pressed and transmits the coded character to the main processor memory.
- Provides memory space for character storage and selection.
- Provides drive circuits to enable any desired character to be displayed on the alphanumeric LCD.

1-18.SYNCHRONOUS INPUT/OUTPUT BOARD

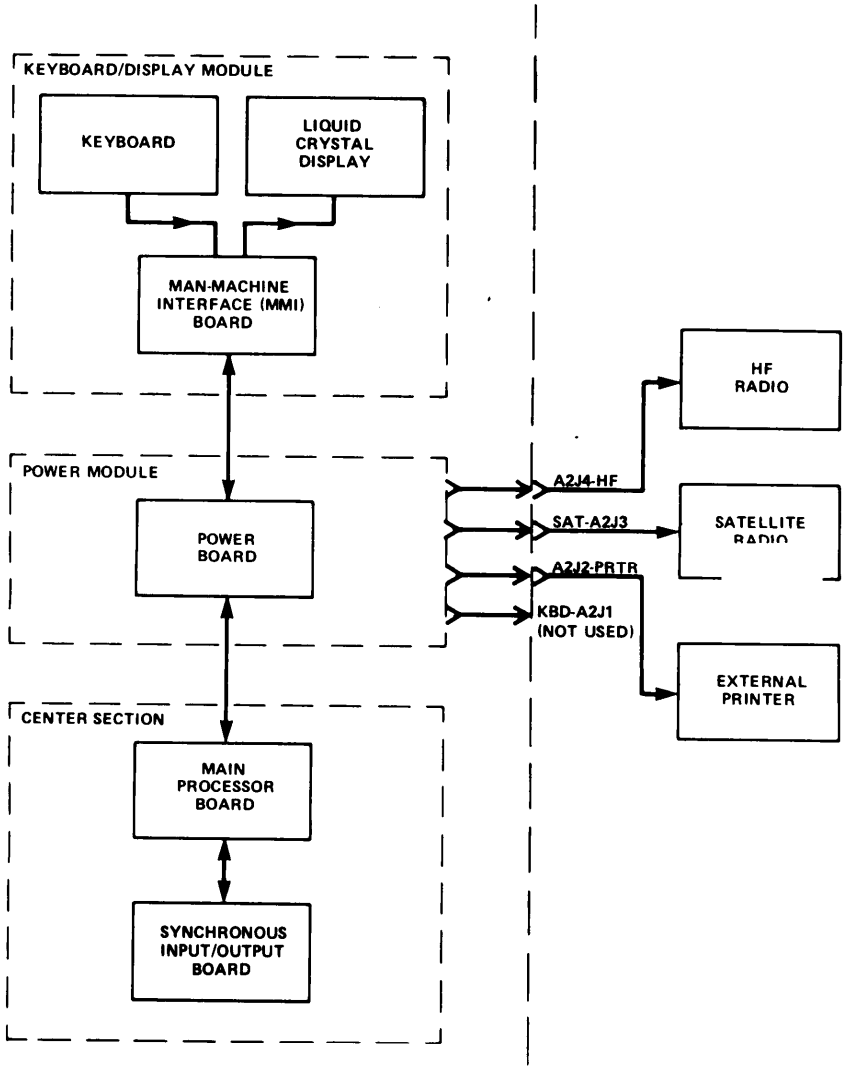
The sync I/0 board through the power module is the interface between the main processor and the radio communication system. In addition to providing modem facilities for the device, it also contains correlation logic that detects the preambles identifying a message intended for receipt by a particular system. After a preamble has been identified, the associated message is passed to the main processor storage.

1-19. MAIN PROCESSOR BOARD

Operation of the device is centered around the main processor board which provides overall control of the system and memory management. It also functions to store message data and to implement error protection and correction. It is connected to the man-machine interface board by a serial asynchronous link through the power module, and to the sync I/0 board through an eight-bit data bus.

1-20. POWER MODULE

The power module provides the charging, regulator and low-voltage detection circuits, and comprises various signal Interface circuits used to drive and receive signals to and from the radio set or printer.



CHAPTER 2
ORGANIZATIONAL MAINTENANCE

CHAPTER INDEX

Section I. REPAIR PARTS, SPECIAL TOOLS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-1l. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, see the Table of Organization and Equipment (TOE) for your unit.

2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

There are no special tools, TMDE, or support equipment required for organizational maintenance of the DMDG.

2-3. REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list, TM 11-5820-887-24P covering organizational maintenance of the DMDG.

Section II. SERVICE UPON RECEIPT

2-4. UNPACKING.

There are no special procedures for unpacking the DMDG.

2-5. CHECKING UNPACKED EQUIPMENT

a. Inspect the equipment for damage incurred durinq shipment. If the equipment has been damaged, report the damage on SF 364 (Report of Discrepancy (ROD)).

b. Check the equipment against the packing slip and Appendix B of TM 11-5820-887-10 to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

2-6. PRELIMINARY SETUP PROCEDURES

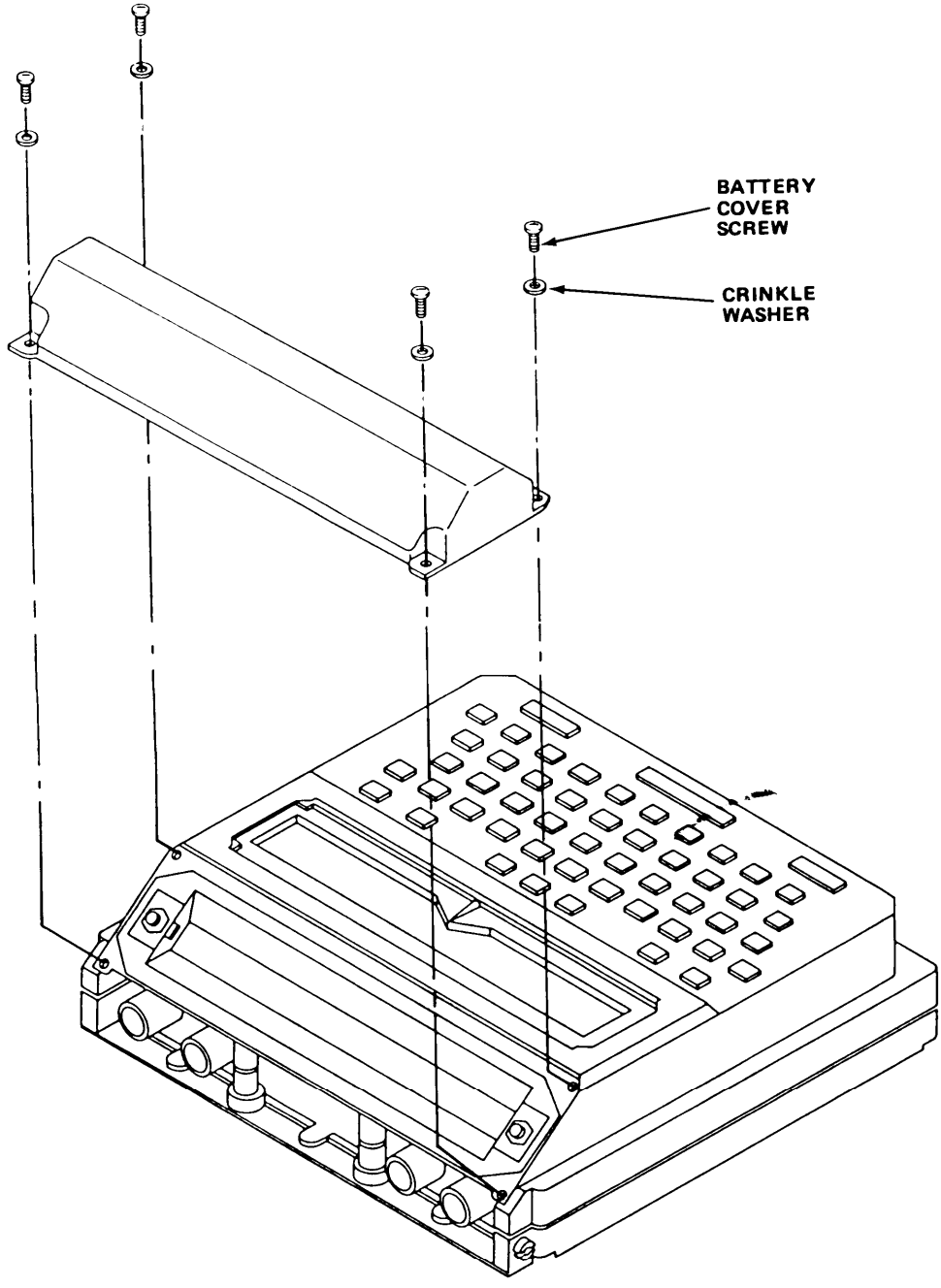
NOTE

This procedure applies only when main battery is shipped separately packaged.

REMOVE BATTERY COVER

Step 1. Remove four battery cover screws and crinkle washers.

Step 2. Remove battery cover.



2-6. PRELIMINARY SETUP PROCEDURES - Continued

INSTALL MAIN BATTERY

NOTE

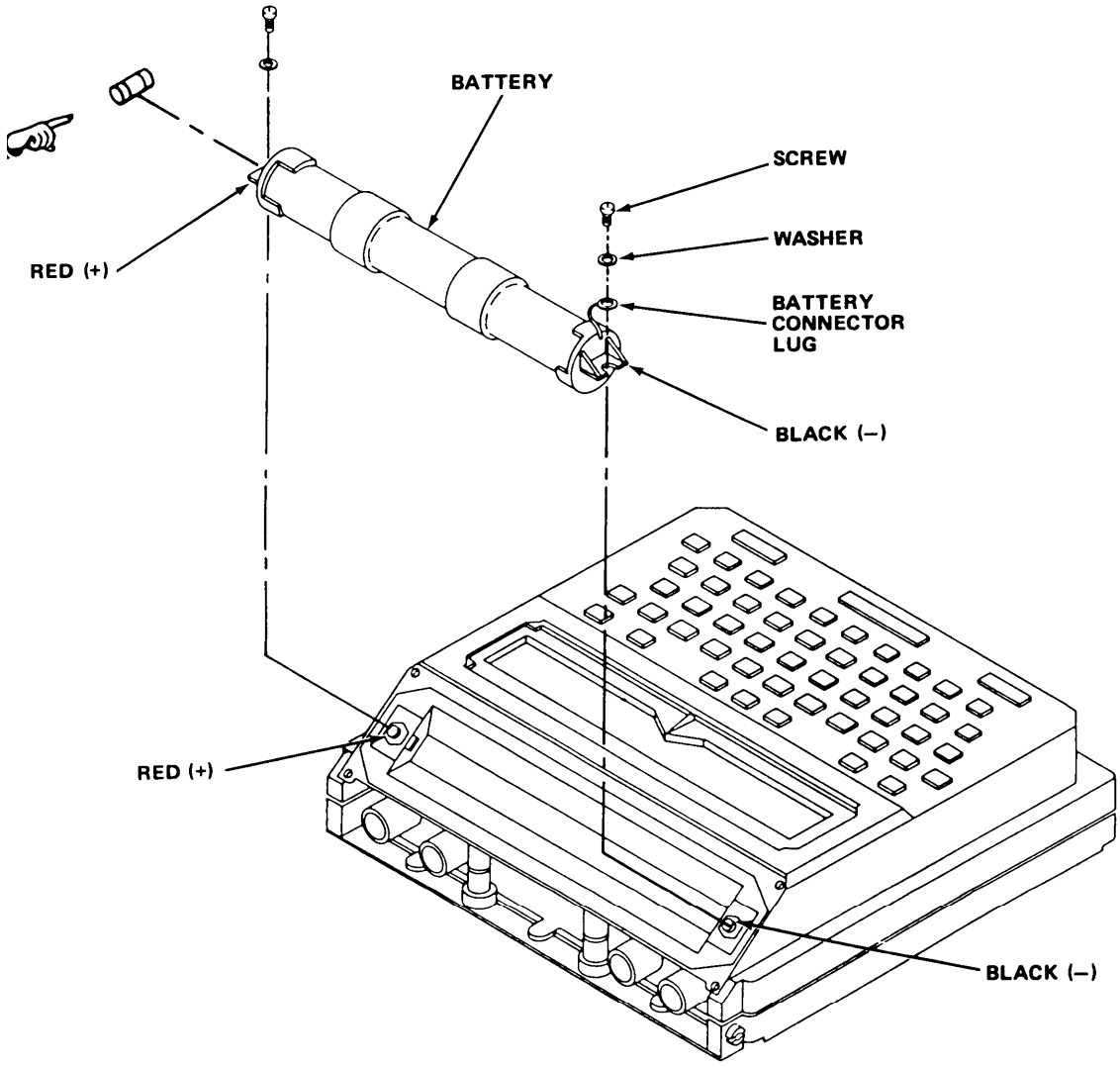
Polarity - Red is positive, black is negative.

Step 1. Install main battery observing proper polarity by connecting red to red and black to black.

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

Step 3. Tighten battery retainiq screws and apply a light coating of silicon grease to the head of each screw.

Step 4. Install fuse in fuse holder on positive (red) end of main battery. For units with serial numbers 1B thru 80B and 3001B and above.



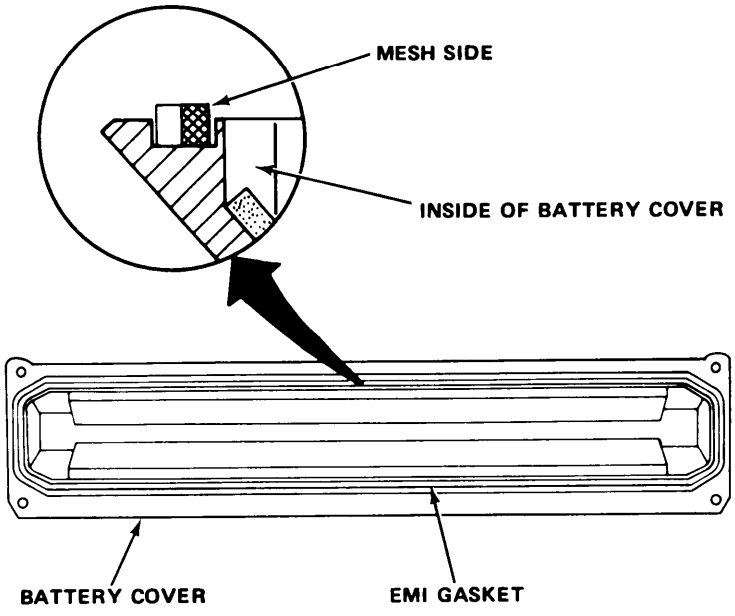
2-6. PRELIMINARY SETUP PROCEDURES - Continued

INSTALL MAIN BATTERY - Continued

NOTE

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

Step 5. Inspect EMI gasket for breaks, tears and proper seating. If damaged, replace.



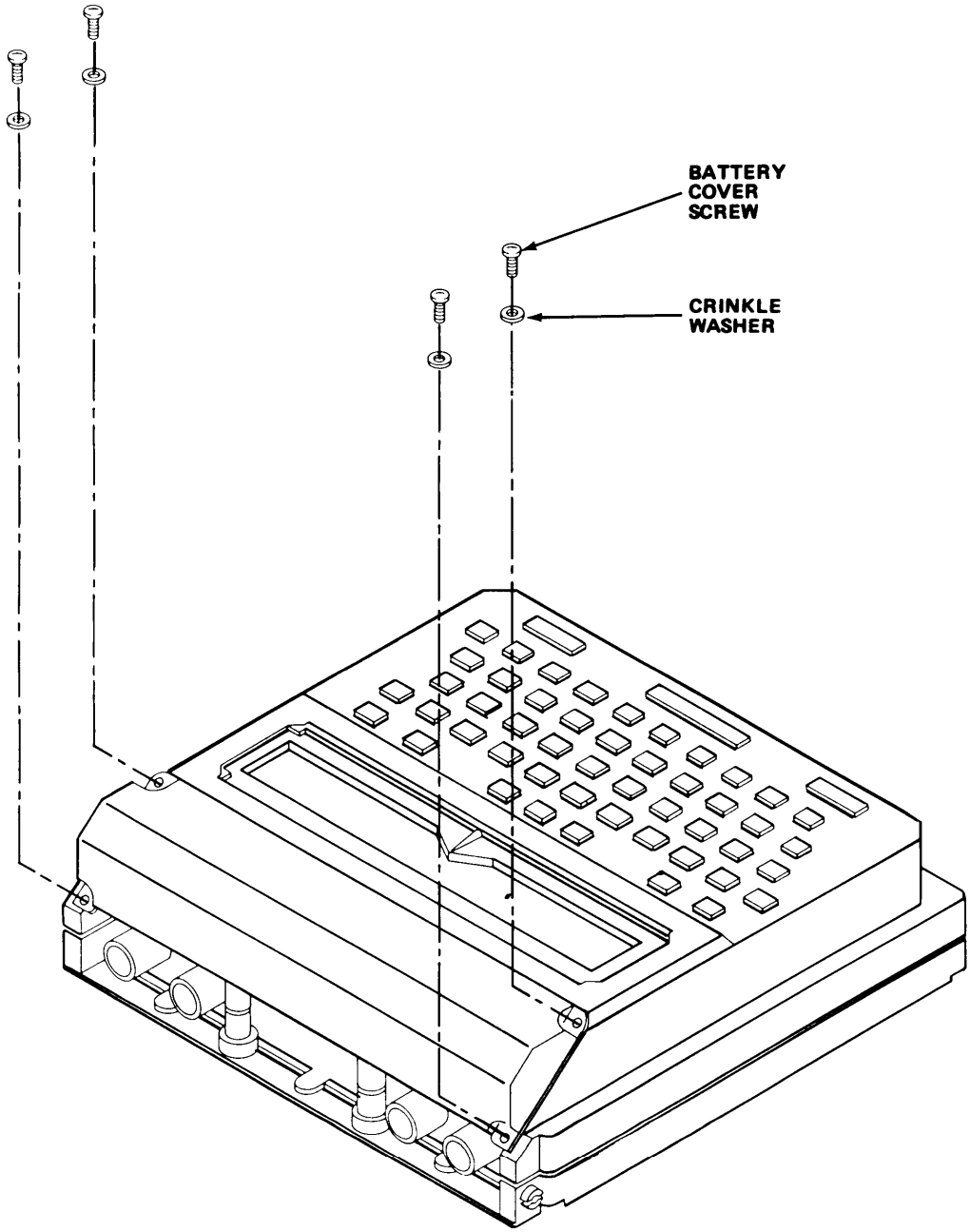
2-6. PRELIMINARY SETUP PROCEDURES - Continued

INSTALL MAIN BATTERY - Continued

Step 6. Place battery cover in position and hand tighten four battery cover screws and crinkle washers.

Step 7. Tighten battery cover screws using flat-tip screwdriver.

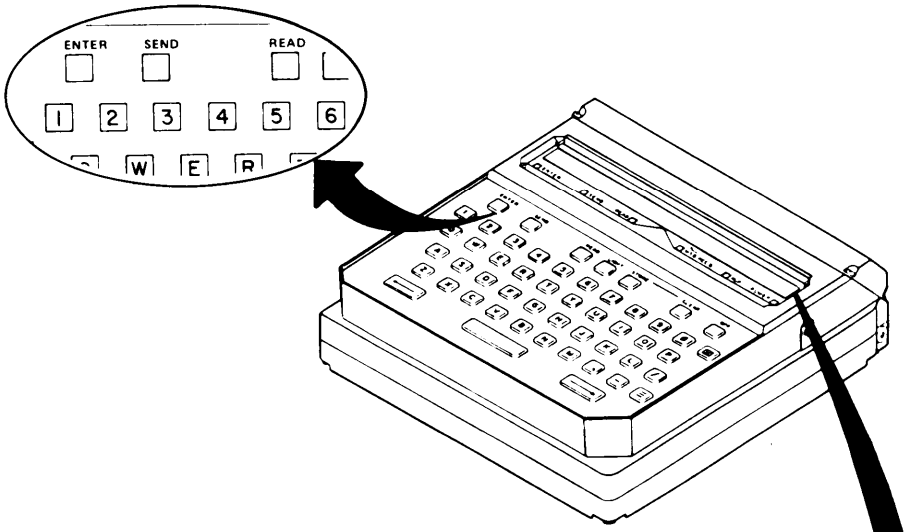
Step 8. Charge battery.



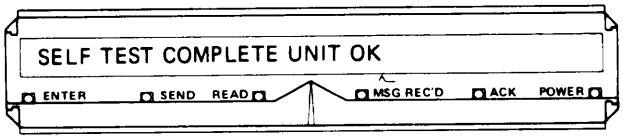
2-6. PRELIMINARY SETUP PROCEDURES - Continued

BUILT-IN SELF TEST

Turn device on by pressing the ENTER, SEND or READ key.

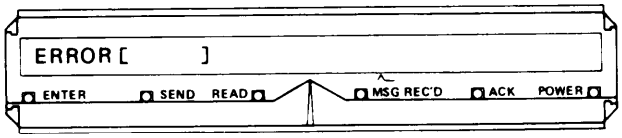


Prompt should read:



The device works properly.

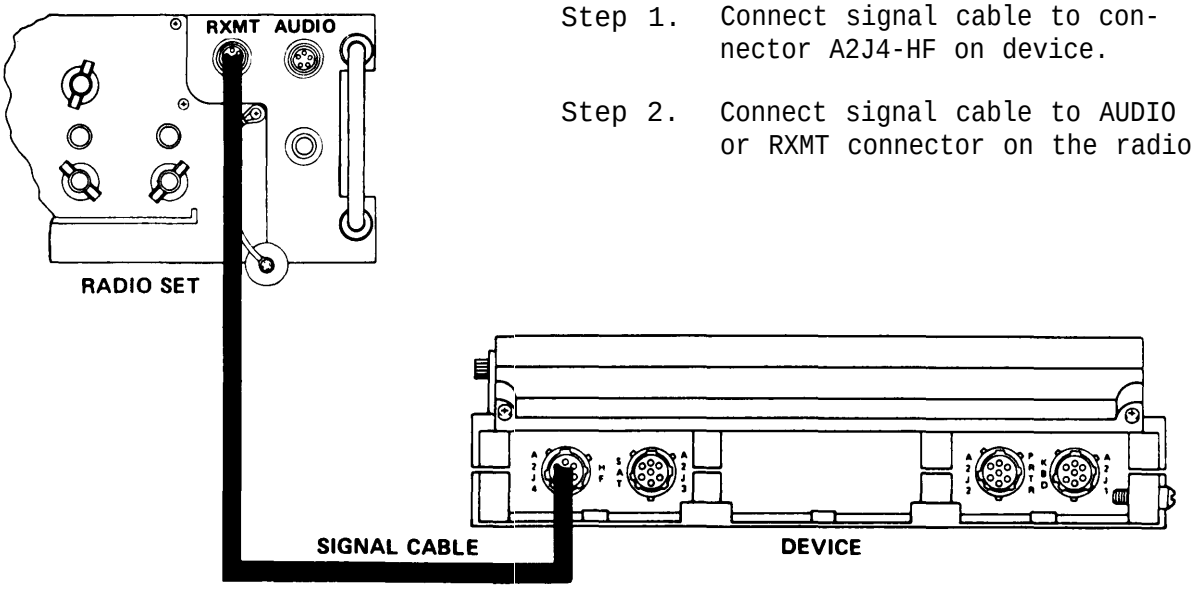
If prompt reads:



Whenever an ERROR prompt is displayed, refer device to direct support maintenance.

2-7. EXTERNAL CONNECTIONS

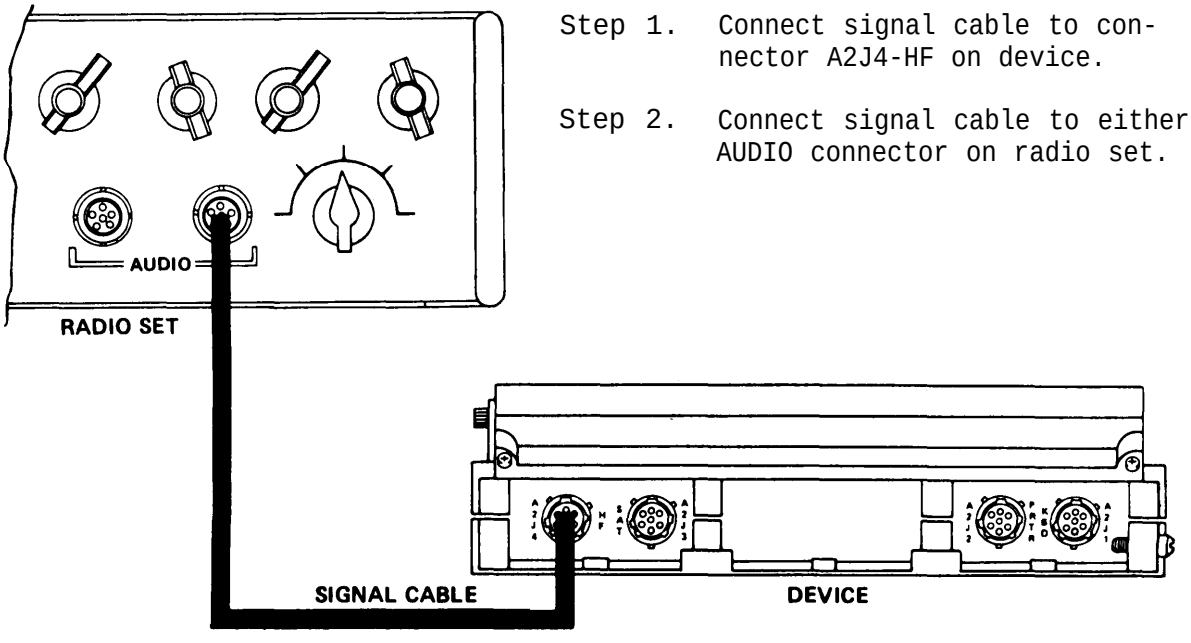
When using Radio Set AN/PRC-70



Step 1. Connect signal cable to connector A2J4-HF on device.

Step 2. Connect signal cable to AUDIO or RXMT connector on the radio

When using Radio Set AN/PRC-74



Step 1. Connect signal cable to connector A2J4-HF on device.

Step 2. Connect signal cable to either AUDIO connector on radio set.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-8. GENERAL.

There are no preventive maintenance checks or services required for the DMDG at the organizational level.

Section IV. ORGANIZATIONAL TROUBLESHOOTING

GENERAL.

Troubleshooting at the organizational level is limited to substituting a known good cable for the suspected defective cable.

Section V. ORGANIZATIONAL MAINTENANCE PROCEDURES

2-10. GENERAL.

Organizational maintenance is limited to replacing the following:

- Signal Cable CX-13156/GR
- Charging Cable CX-13158/GR
- Charging Adapter MX-18208/PRC-74
- Polarizing screen assembly

All organizational maintenance is performed by a tactical communication systems operator/mechanic, MOS 31V.

2-11. POLARIZING SCREEN ASSEMBLY REPLACEMENT.

INITIAL SET UP

Tools

3/16-inch, flat-tip screwdriver

Equipment Condition

Para | Description

None

Materials/Parts

Polarizing Screen Assembly, B4009119

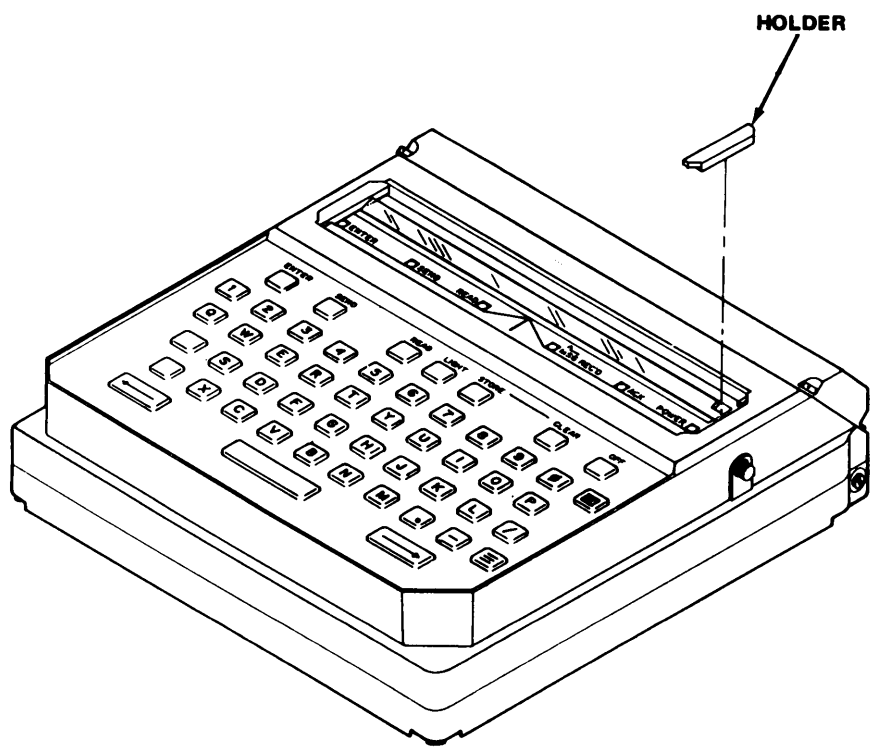
CAUTION

Be careful when removing polarizing screen. You can scratch or crack the display window. Failure to observe this practice could cause device to fail or make it difficult to operate.

REMOVE POLARIZING SCREEN ASSEMBLY

Step 1. Pry either right or left holder from case.

Step 2. Remove holder.

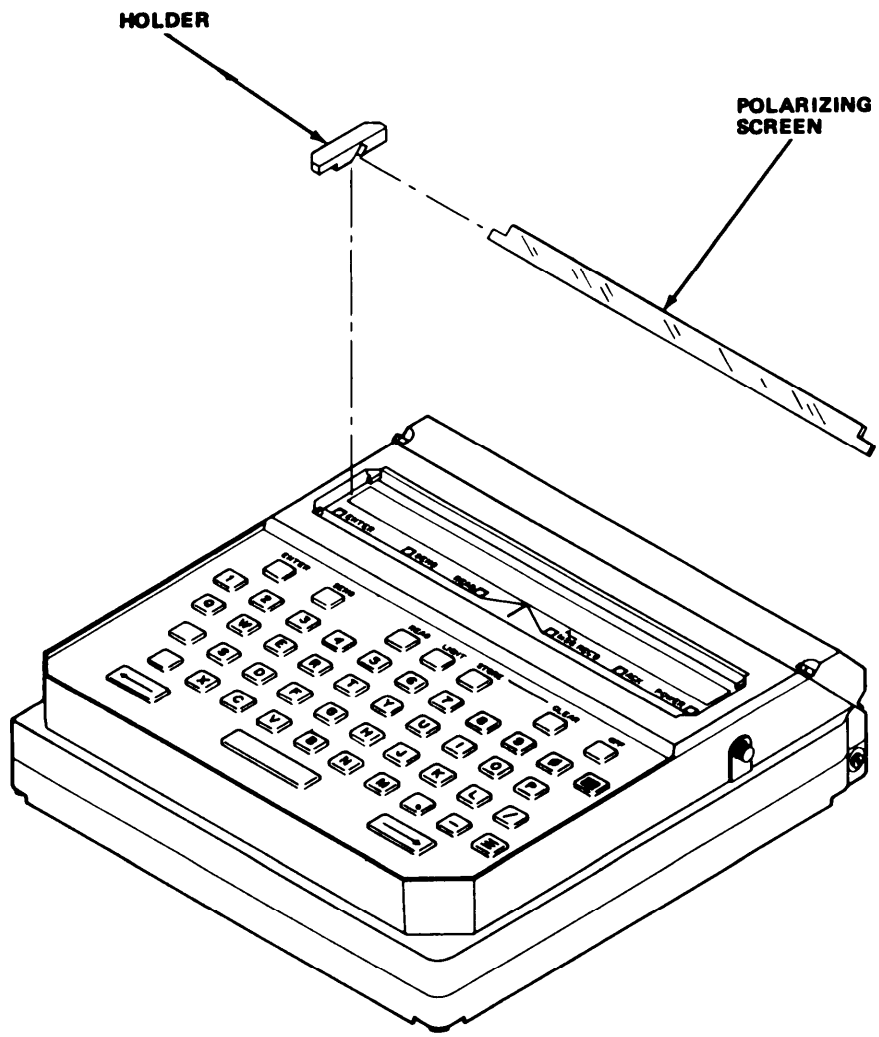


2-11. POLARIZING SCREEN ASSEMBLY REPLACEMENT - Continued

REMOVE POLARIZING SCREEN ASSEMBLY - Continued

Step 3. Remove polarizing screen.

Step 4. Remove remaining holder from case.

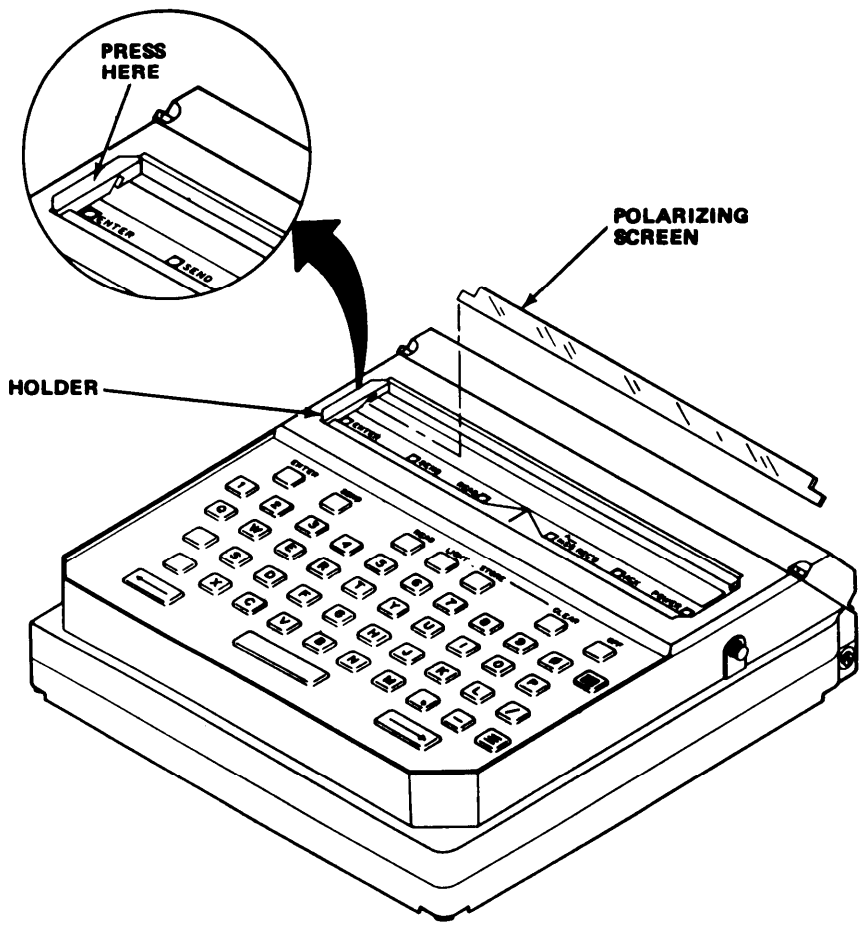


2-11. POLARIZING SCREEN ASSEMBLY REPLACEMENT - Continued

INSTALL POLARIZING SCREEN ASSEMBLY

Step 1. Install either right or left holder in case by pressing on top of holder.

Step 2. Position one end of polarizing screen into Installed holder.



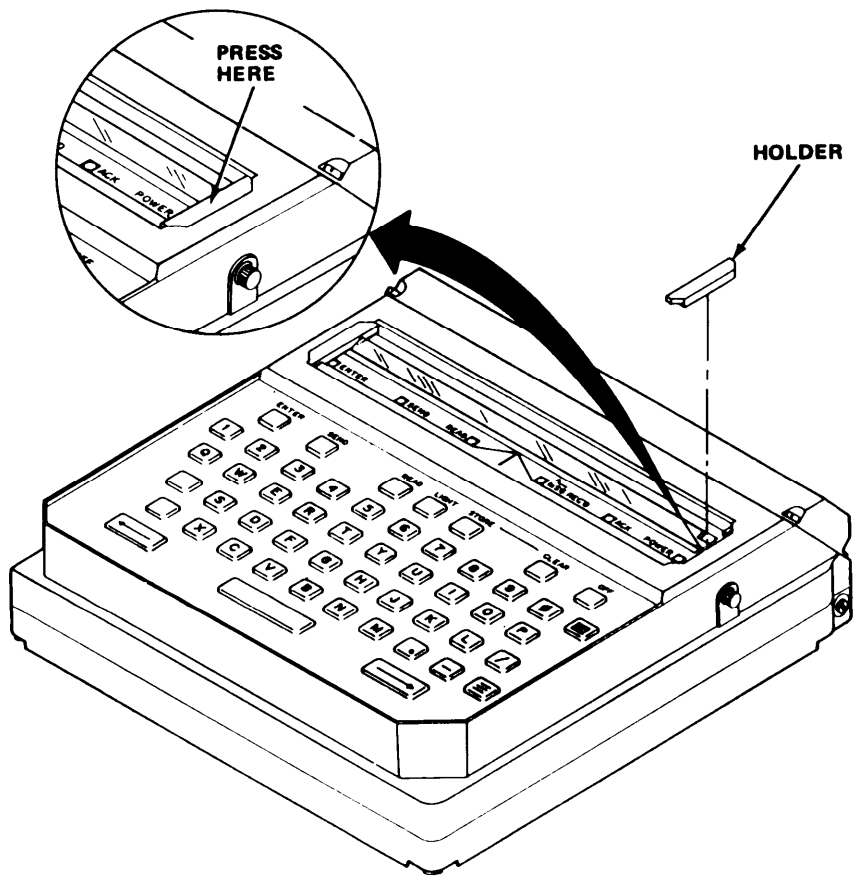
2-11. POLARIZING SCREEN ASSEMBLY REPLACEMENT - Continued

INSTALL POLARIZING SCREEN ASSEMBLY - Continued

Step 3. Position other end of polarizing screen into uninstalled holder.

Step 4. Position uninstalled holder on case.

Step 5. Install holder by pressing on top of holder.



CHAPTER. 3
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

Section I. REPAIR PARTS, SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) ; AND SUPPORT EQUIPMENT

3-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, see the Table of Organization and Equipment (TOE) for your unit.

3-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are authorized for use by direct support or general support maintenance. The TMDE and support equipment are listed in Section III of the maintenance allocation chart, Appendix B.

3-3. REPAIR PARTS

Repair parts used during direct support and general support maintenance are listed and illustrated in TM 11-5820-887-24P, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools): Digital Message Device Group OA-8990/P.

Section II. DIRECT SUPPORT AND GENERAL SUPPORT TROUBLESHOOTING

3-4. GENERAL

The following troubleshooting procedures are provided to aid technicians at the direct support and general support maintenance levels in isolating faults to the defective module or component.

DIRECT SUPPORT AND GENERAL SUPPORT TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION

CAUTION

The zebra strips must be cleaned with denatured alcohol each time they are removed from the holders. Dirt build-up on the zebra strips can cause the conductors not to make proper contact. Failure to clean the zebra strips could cause the device to fail.

NOTE

The device must be put back together and tested after each step has been completed. If Step 1 does not correct the problem, go to next step.

1. DEVICE TOTALLY DEAD; NO DISPLAY, NO LED's.

   Step 1. Check fuse on fuse board (brown discoloration in place of clear or transparent) Replace if defective: See para 3-13.

   Step 2. Replace power module. See para 3-12.

   Step 3. Replace sync I/0 board. See para 3-9.

2. DEVICE FAILS BUILT-IN SELF TEST; DISPLAYS THE FOLLOWING:

ERROR 1		Replace main processor board. See para 3-11.
ERROR 2		Replace main processor board. See para 3-11.
ERROR 3	Step 1.	Replace main processor board. See para 3-11.
	Step 2.	Replace MMI board. See para 3-19.
ERROR 4		Replace MMI board. See para 3-19.
ERROR 5	Step 1.	Replace sync I/0 board. See para 3-9.
	Step 2.	Replace main processor board. See para 3-11.
ERROR 6		Replace sync I/0 board. See para 3-9.

DIRECT SUPPORT AND GENERAL SUPPORT TROUBLESHOOTING - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. FAULTY LCD DATA OR DISCOLORED LCD.

Step 1. Realine LCD zebra strips. See para 3-18.

Step 2. Replace main processor board. See para 3-11.

Step 3. Replace MMI board. See para 3-19.

4. PUSHBUTTON(S) FAIL TO ENTER DISPLAY OR FAIL TO OPERATE

Step 1. Replace MMI board. See para 3-19.

Step 2. Replace keyboard assembly. See para 3-17.

Step 3. Replace keyboard/display module. See para 3-14.

5. WHEN EXECUTE SEND MESSAGE FUNCTION, DATA DOES NOT GET TO TRANSMITTER

Step 1. Replace sync I/0 board. See para 3-9.

Step 2. Replace main processor board. see para 311.

Step 3. Replace power module assembly. See para 3-12.

6. DEVICE CANNOT RECEIVE MESSAGES

Step 1. Replace sync I/0 board. See para 3-9.

Step 2. Replace main processor board. See para 3-11.

Step 3. Replace power module assembly. See para 3-12.

7. LOW BATTERY CHARGE DOES NOT CAUSE POWER LED TO FLASH

Step 1. Replace main processor board. See para 3-11.

Step 2. Replace power module assembly. See para 3-12.

Step 3. Replace MMI board. See para 3-19.

8. MAIN BATTERY FAILS TO MAINTAIN CHARGE

Step 1. Replace main battery. See para 3-7.

Step 2. Replace main processor board. See para 3-11.

DIRECT SUPPORT AND GENERAL SUPPORT TROUBLESHOOTING - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
Step 3. Replace power module assembly. See para 3-12.
9. MSG REC'D LED LIGHTS BUT NO MESSAGE(S) WILL DISPLAY IN READ MODE
Step 1. Replace LCD zebra strips. See para 3-18.
Step 2. Replace MMI board. See para 3-19.
10. WHEN SENDING MESSAGE, DEVICE FAILS TO KEY RADIO SET
Step 1. Replace sync I/0 board. See para 3-9.
Step 2. Replace power module assembly. See para 3-12.
11. DEVICE DOES NOT SHUT DOWN WHEN MAIN BATTERY CHARGE IS LOW
Step 1. Replace main processor board. See para 3-11.
Step 2. Replace power module assembly. See para 3-11.
12. DEVICE WILL NOT TURN OFF
Step 1. Replace MMI board. See para 3-19.
Step 2. Replace power module assembly. See para 3-12.
13. MAIN BATTERY FAILS TO CHARGE FROM RADIO BATTERY PACK
Step 1. Replace main battery. See para 3-7.
Step 2. Replace power module assembly. See para 3-12.
14. MESSAGES NOT RETAINED IN MEMORY AFTER DEVICE TURNED OFF
Step 1. Replace memory battery assembly. See para 3-10.
Step 2. Replace main processor board. See para 3-11.
15. LEDS FAIL TO LIGHT
Replace main processor board. See para 3-11.
16. DISPLAY LIGHT FAILS TO LIGHT
Replace MMI board. See para 3-19.

Section III. DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE PROCEDURES

3-5. GENERAL

Maintenance at the direct support and general support level is limited to replacement of defective modules, gaskets and ancillary hardware, and testing the keyer-message device.

CAUTION

This equipment contains components that are sensitive to damage by electrostatic discharge (ESD). Improper handling will result in component and assembly failure. Use extreme care when handling. Refer to DOD-HDBK-263 for proper handling procedures.

3-5.1 STATIC-SENSITIVE SOLID STATE DEVICES

This equipment contains static-sensitive solid state devices which are subject to damage from electrostatic discharge. Any maintenance of this equipment must be performed at an approved work station.

3-6. SIGNAL CABLE O-RING REPLACEMENT

INITIAL SETUP

Materials/Parts	Equipment Condition	
	Para	Description
O-ring 5330-00-905-6032	None	Signal cable disconnected

INSPECT O-RING

Inspect o-ring in groove. If damaged or missing replace.

REMOVE O-RING

Pry o-ring from groove

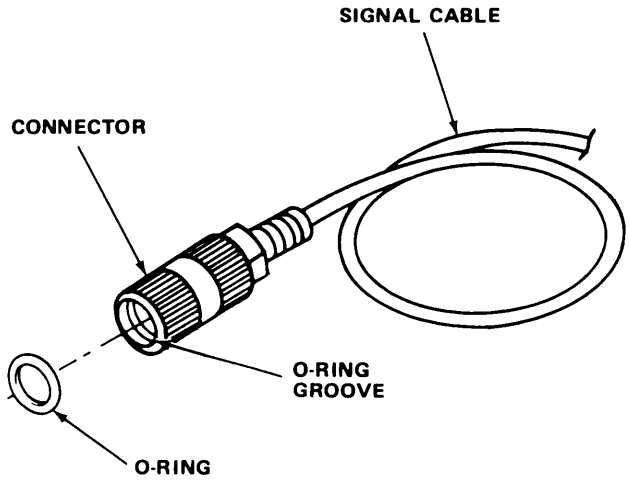
INSTALL O-RING

NOTE

Make sure a serviceable o-ring is firmly seated in groove.

Step 1. Insert one edge of o-ring into groove.

Step 2. Press remaining part of o-ring into groove.



3-7. MAIN BATTERY REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Materials/Parts

Main battery, B4009045

Equipment Condition

Para	Description
	All cables disconnected. Device power off.

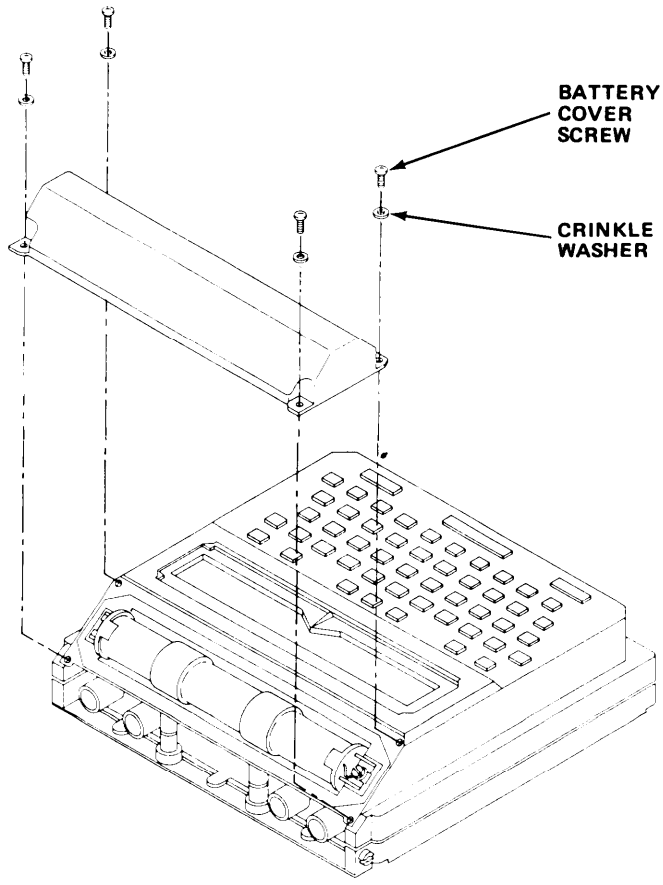
CAUTION

The main battery must be removed before opening the device for any reason. You can blow the fuse or short out electronic components by not following this practice.

REMOVE MAIN BATTERY

Step 1. Remove four battery cover screws and crinkle washers.

Step 2. Remove battery cover.



3-7. MAIN BATTERY REPLACEMENT - Continued

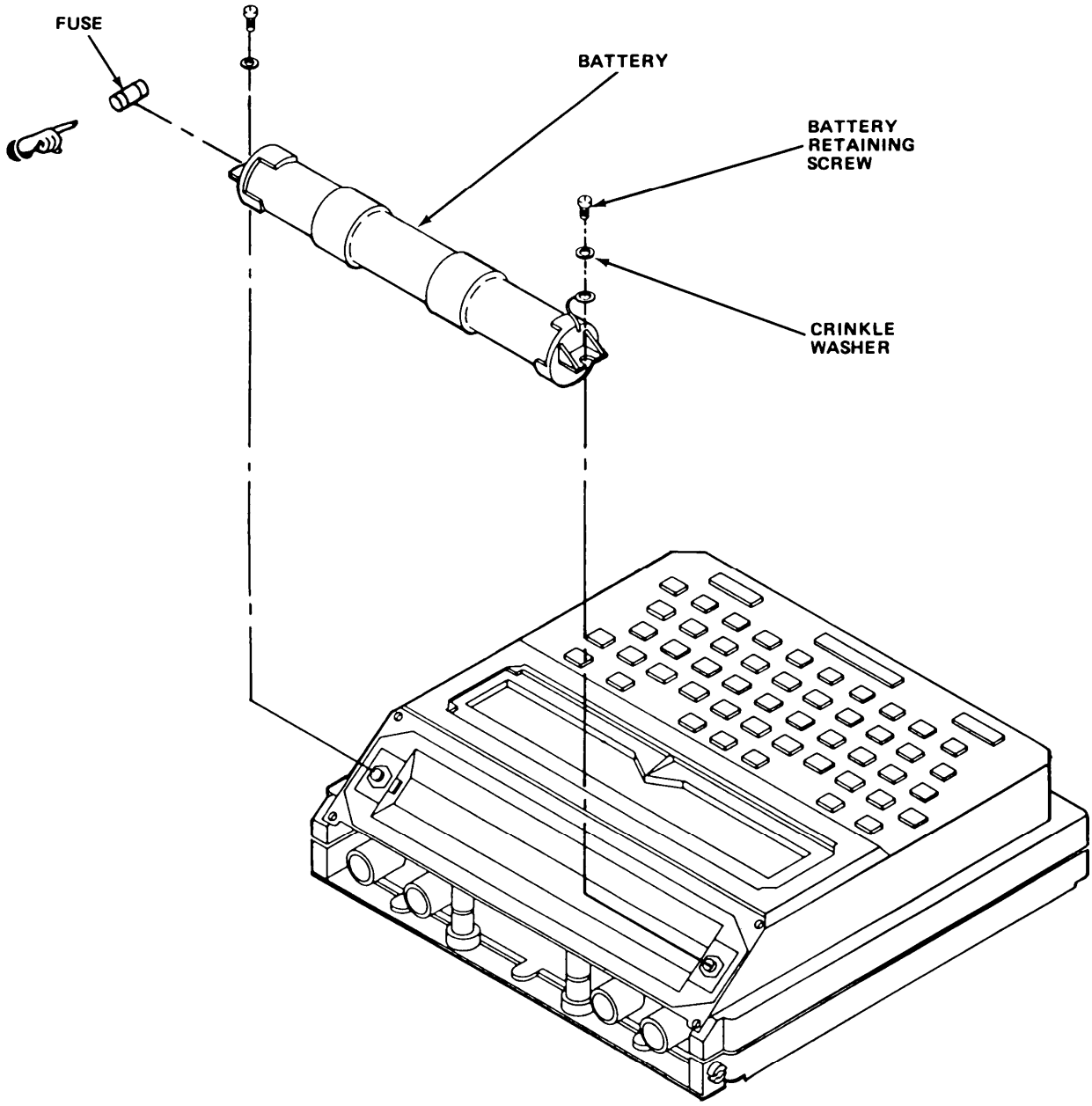
REMOVE MAIN BATTERY - Continued

Step 3. Remove fuse from fuse holder on positive (red) end of main battery. For units with serial numbers 1B thru 80b and 3001B and above.

Step 4. Remove two battery retaining screws and crinkle washers securing battery.

Step 5. Remove main battery.

Step 6. Inspect battery compartment and clean away any corrosion using a clean brush and cloth.



3-7. MAIN BATTERY REPLACEMENT - Continued

INSTALL MAIN BATTERY

NOTE

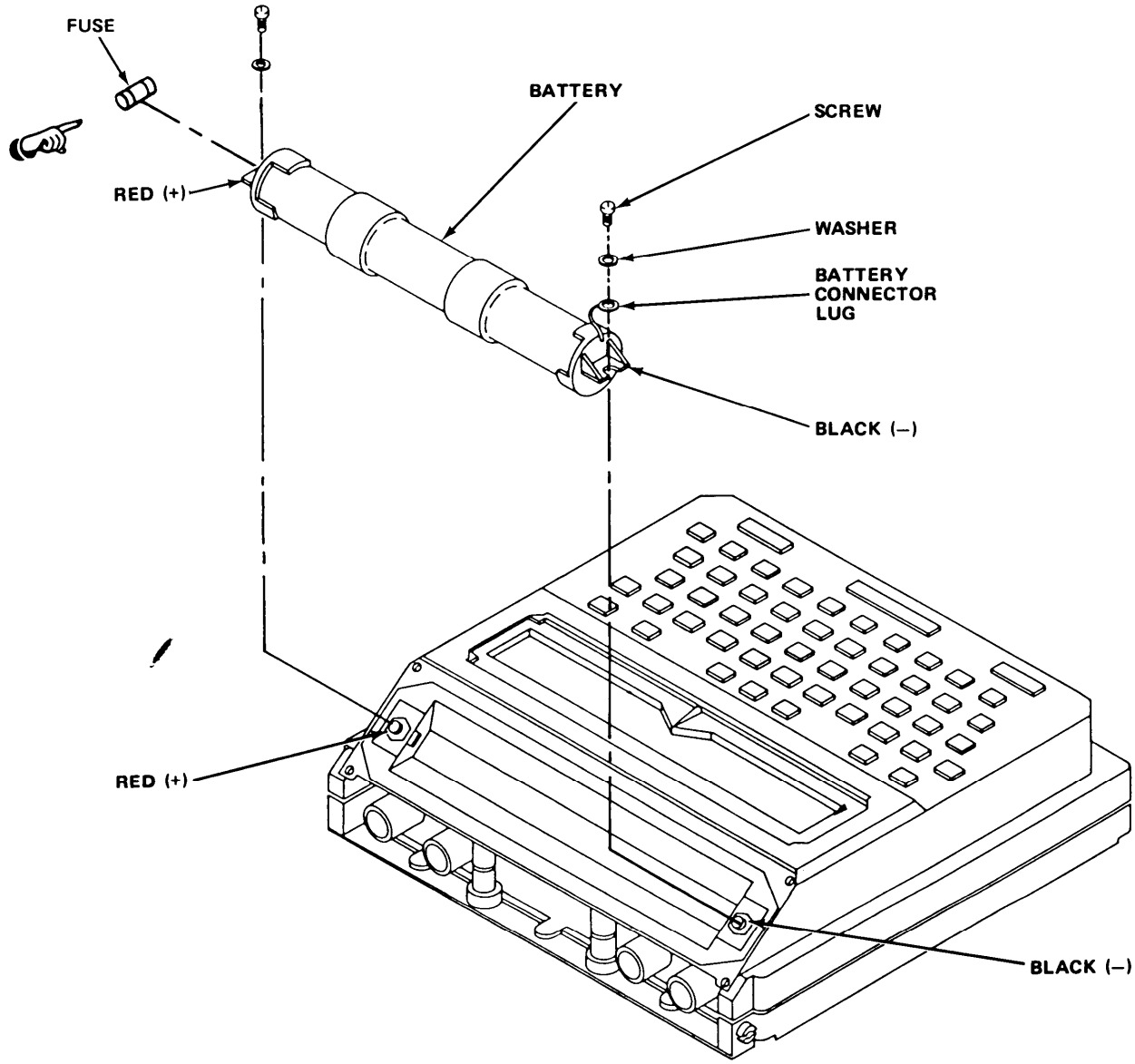
Polarity - Red is positive, black is negative.

Step 1. Install main battery observing proper polarity by connecting red to red and black to black.

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

Step 3. Tighten battery screws and apply a light coating of silicon grease to the head of each screw.

Step 4. Install fuse in fuse holder on positive (red) end of main battery. For units with serial numbers 1B thru 80B and 3001B and above.



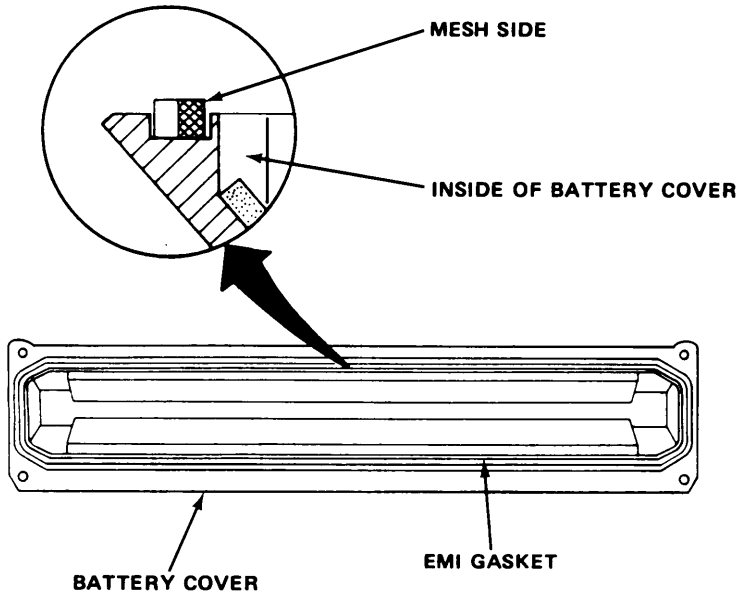
3-7. MAIN BATTERY REPLACEMENT - Continued

INSTALL MAIN BATTERY - Continued

NOTE

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

Step 5. Inspect EMI gasket for breaks, tears and proper seating. If damaged, replace.

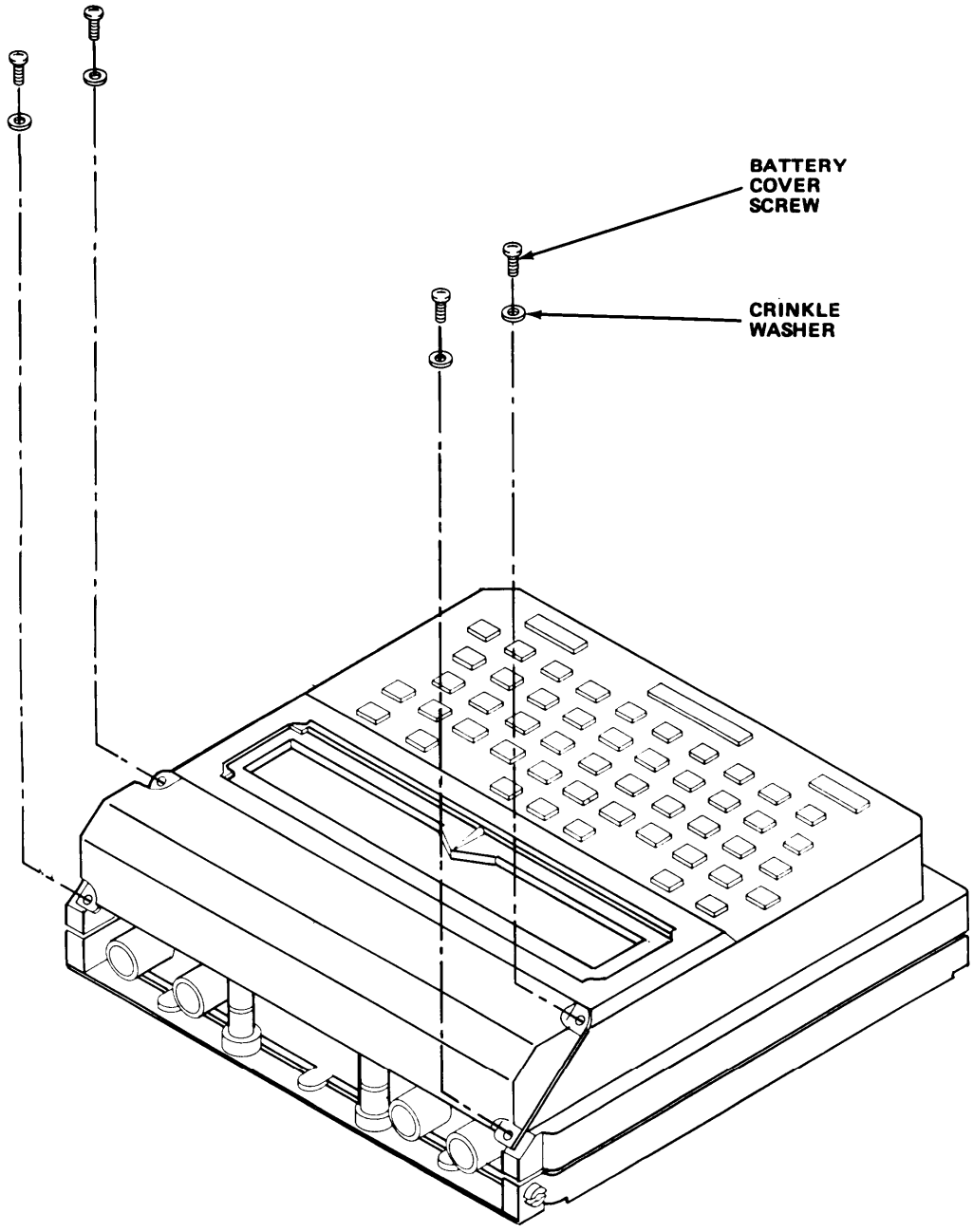


3-7. MAIN BATTERY REPLACEMENT - Continued

INSTALL MAIN BATTERY - Continued.

Step 6. Place battery cover in position and hand tighten four battery cover screws and crinkle washers.

Step 7. Tighten battery cover screws using flat-tip screwdriver.



3-8. DESICCANT BAG REPLACEMENT

INITIAL SETUP

Tools	Equipment Condition	
	Para	Description
3/16-inch, flat-tip screwdriver	3-7.	Main battery removed
Materials/Parts		
Desiccant bag MIL-D-3634		

REMOVE DESICCANT BAG

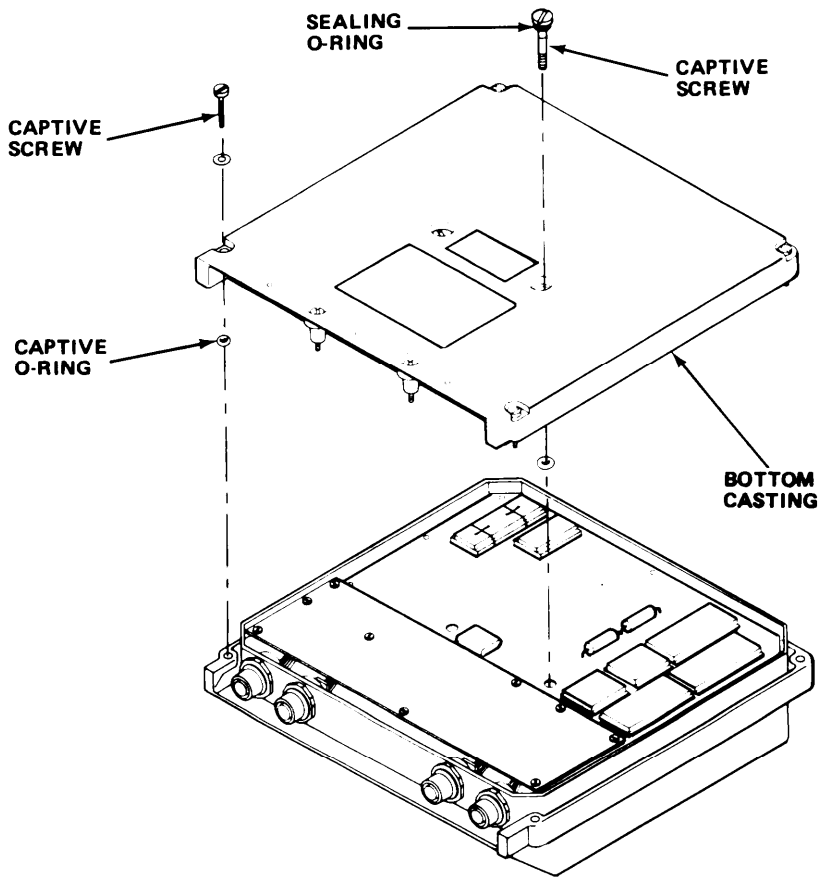
Step 1. Loosen six captive screws on outer edge of bottom casting.

Step 2. Loosen two center captive screws.

Step 3. Remove bottom casting.

Step 4. Inspect two sealing o-rings on center captive screws. Replace if damaged.

Step 5. Inspect eight captive o-rings. Replace if damaged.



3-8. DESICCANT BAG REPLACEMENT - Continued

REMOVE DESICCANT BAG - Continued

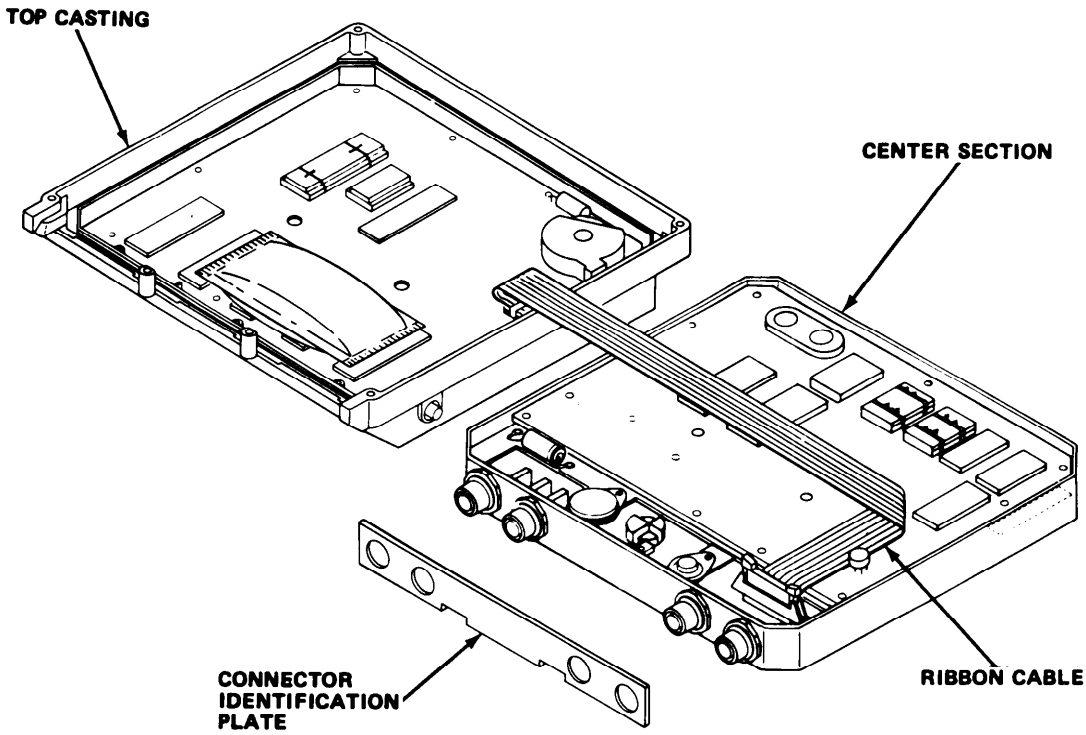
CAUTION

Be careful when lifting and turning center section. You could destroy ribbon cable or cause wire in cable to break or short out. Failure to observe this practice could cause device to fail.

Step 6. Lift center section from top casting.

Step 7. Remove connector identification plate.

Step 8. Turn center section over and place beside top casting.

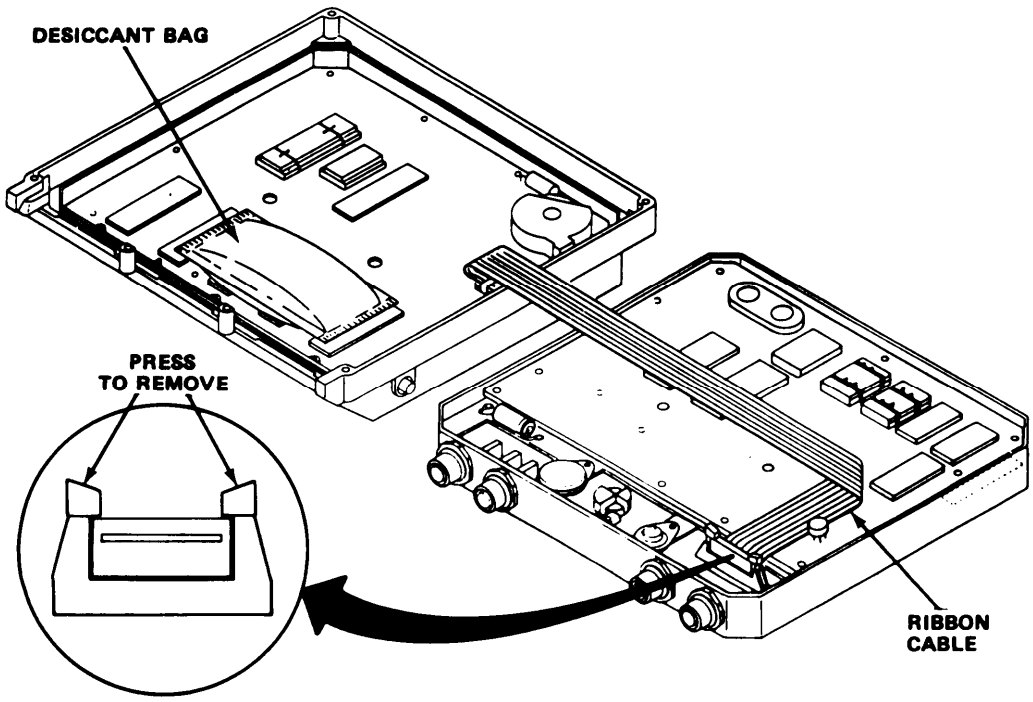


3-8. DESICCANT BAG REPLACEMENT - Continued

REMOVE DESICCANT BAG - Continued

Step 9. Remove ribbon cable from power board connector.

Step 10. Remove desiccant bag.



3-8. DESICCANT BAG REPLACEMENT - Continued

INSTALL DESICCANT BAG

CAUTION

Each time the device is closed, the desiccant bag must be replaced with a dry bag. Failure to replace bag can cause damage to device from moisture.

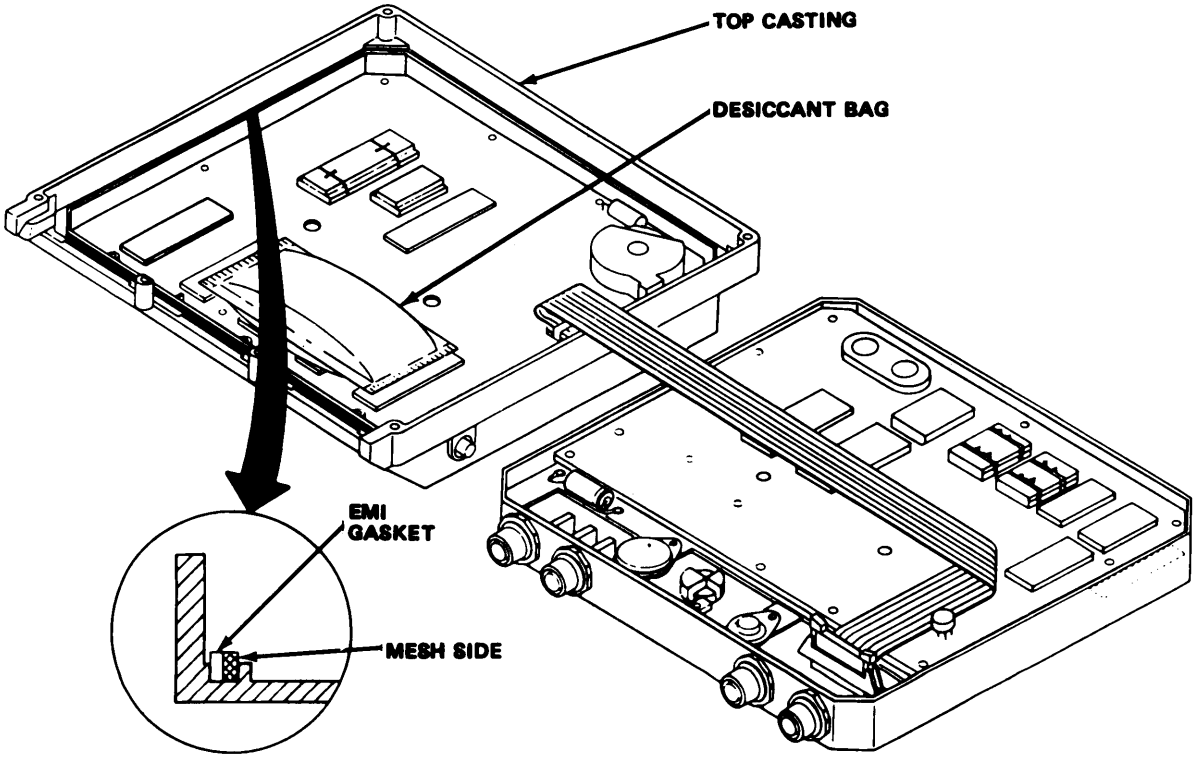
Step 1. Install dry desiccant bag as shown.

Step 2. Inspect EMI gasket. Replace if damaged.

NOTE

Make sure EMI gasket is installed with mesh side facing towards inside of top casting.

Step 3. Position and press EMI gasket in top casting channel if required.



3-8. DESICCANT BAG REPLACEMENT - Continued

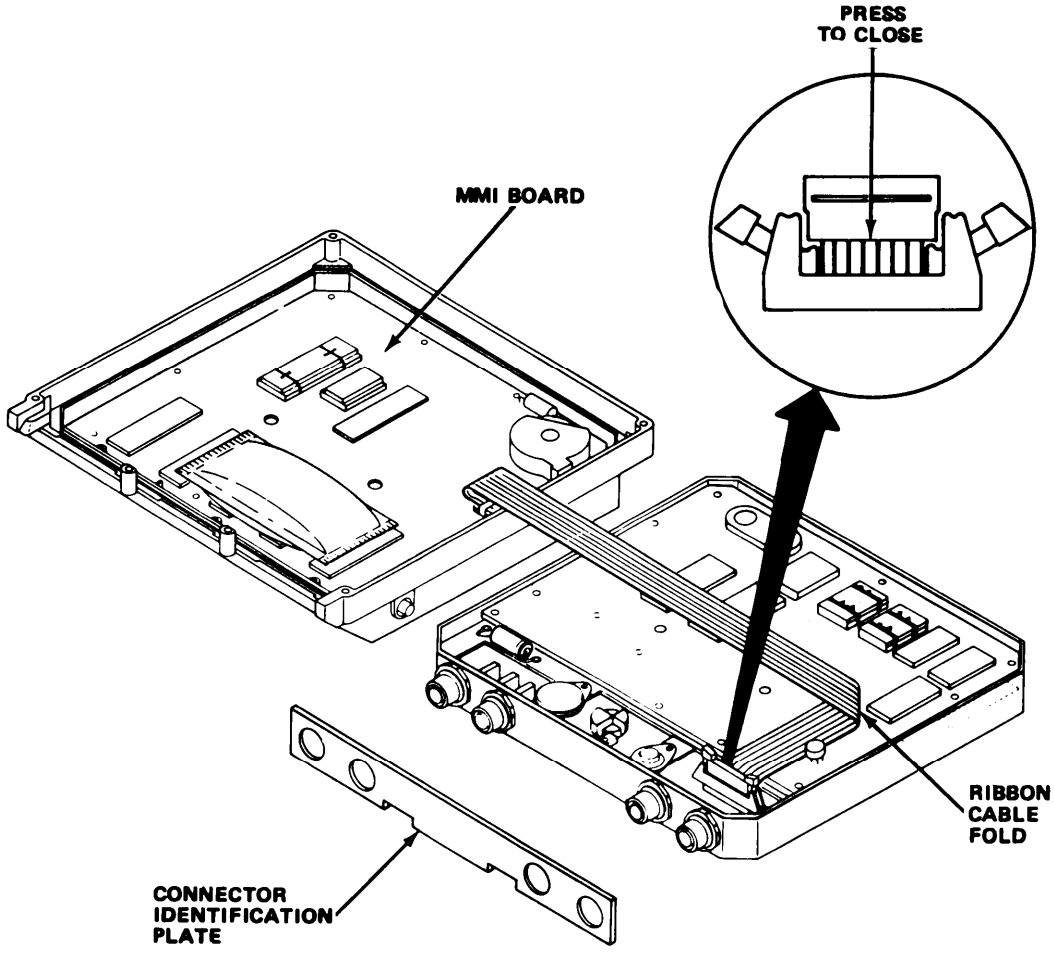
INSTALL DESICCANT BAG - Continued

NOTE

Make sure there is one fold in ribbon cable so it is flat when center section is installed in top casting.

Step 4. Connect ribbon cable from MMI board to connector on power board.

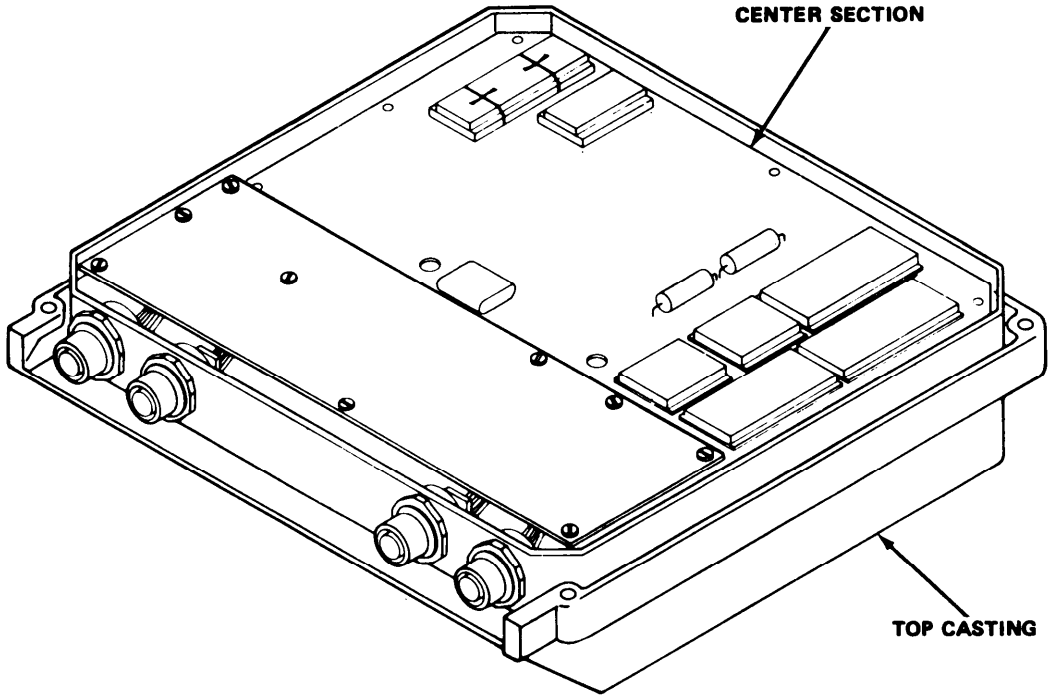
Step 5. Install connector identification plate.



3-8. DESICCANT BAG REPLACEMENT - Continued

INSTALL DESICCANT BAG - Continued

Step 6. Install center section in top casting by turning center section over and positioning in top casting.



3-8. DESICCANT BAG REPLACEMENT - Continued

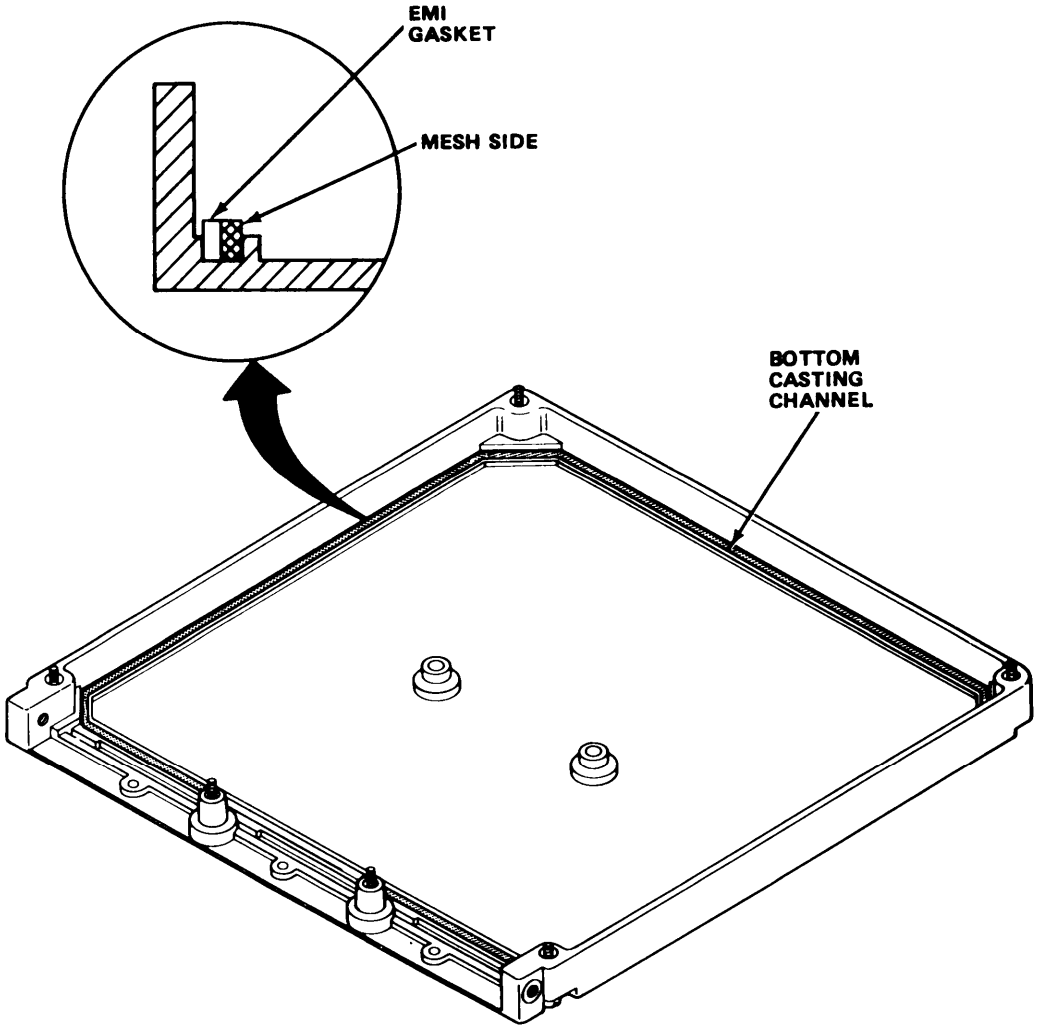
INSTALL DESICCANT BAG - Continued

Step 7. Inspect EMI gasket in bottom casting channel. Replace if damaged.

NOTE

Make sure EMI gasket is installed with mesh side facing toward inside of bottom casting.

Step 8. Position and press EMI gasket In bottom casting channel if required.



3-8. DESICCANT BAG REPLACEMENT - Continued

INSTALL DESICCANT BAG - Continued

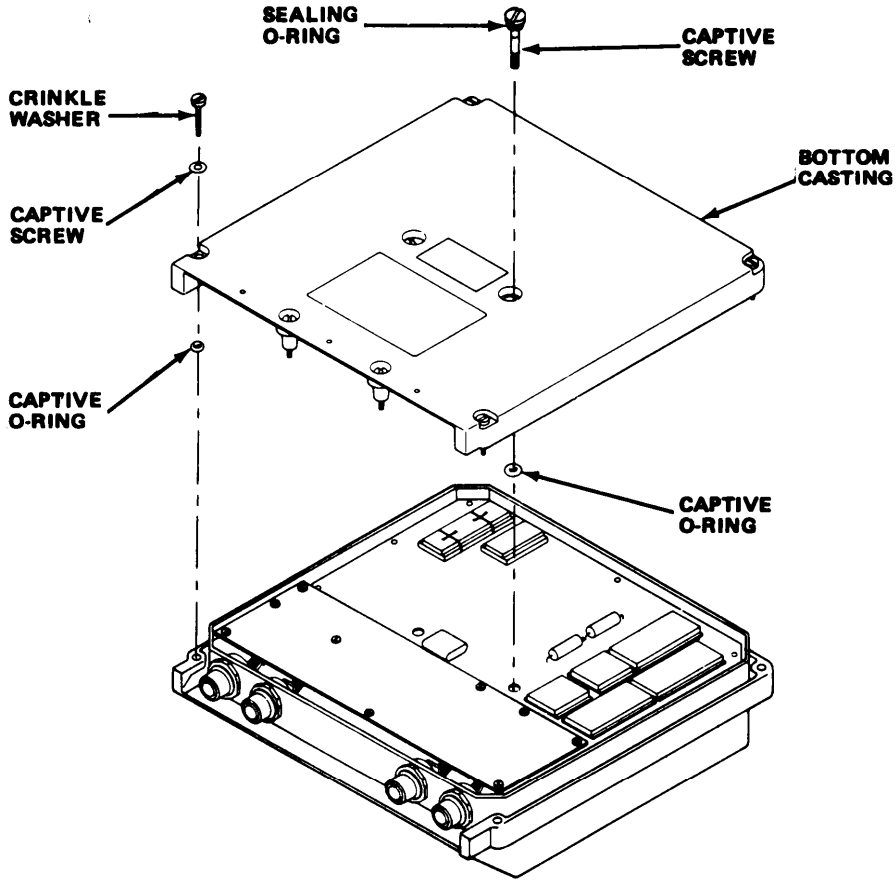
NOTE

Make sure two sealing o-rings, eight captive o-rings, and six crinkle washers are in position.

Step 9. Position bottom casting on top casting.

Step 10. Tighten two center captive screws.

Step 11. Tighten six captive screws on the outer edge.



INSTALL MAIN BATTERY

See para 3-7.

3-9. SYNCHRONOUS INPUT/OUTPUT BOARD REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed

Materials/Parts

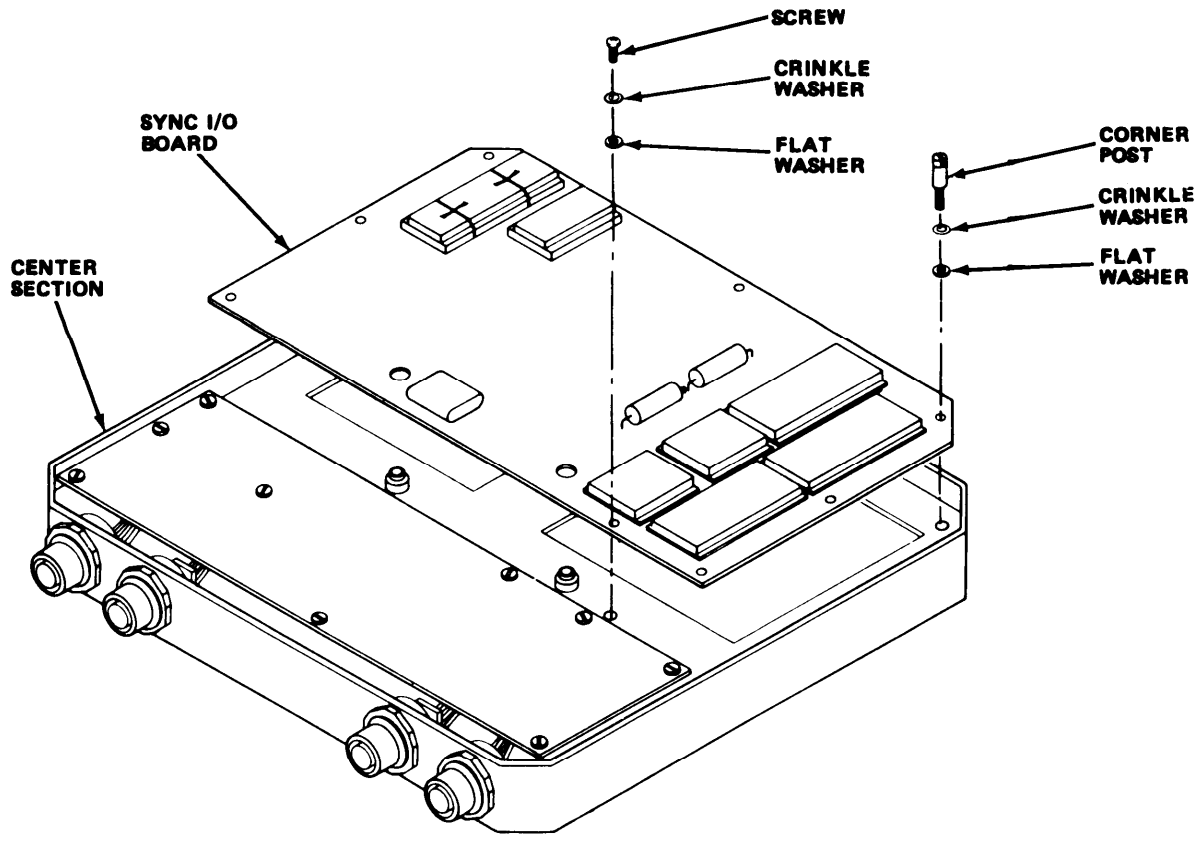
Sync I/0 board B4009014
Alcohol, denatured MIL-STD-1201AA

REMOVE SYNCHRONOUS INPUT/OUTPUT BOARD

Step 1. Remove four screws, crinkle washers and flat washers.

Step 2. Remove four corner posts, crinkle washers and flat washers.

Step 3. Remove sync I/0 board from center section.



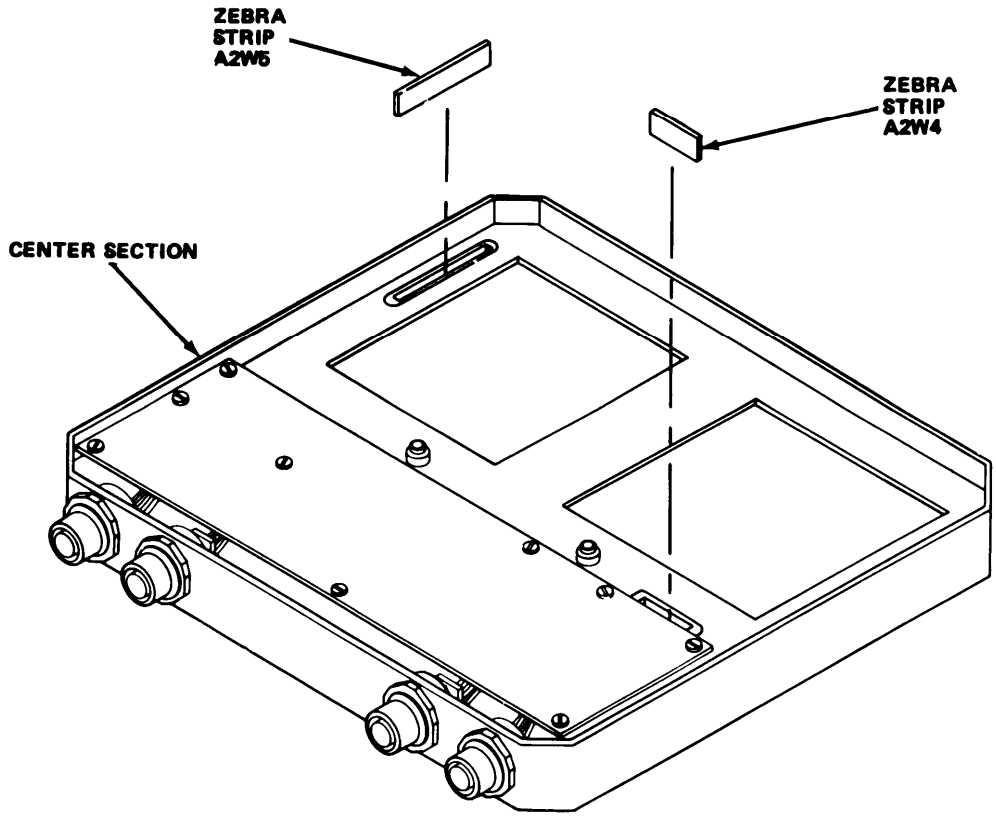
3-9. SYNCHRONOUS INPUT/OUTPUT BOARD REPLACEMENT - Continued

RENOVE SYNCHRONOUS INPUT/OUTPUT BOARD - Continued

Step 4. Remove zebra strips from holders.

Step 5. Inspect zebra strips. Replace if damaged.

Zebra Strip	Connection From	To
A2W4	Sync I/0 board	Main processor board
A2W5	Sync I/0 board	Main processor board

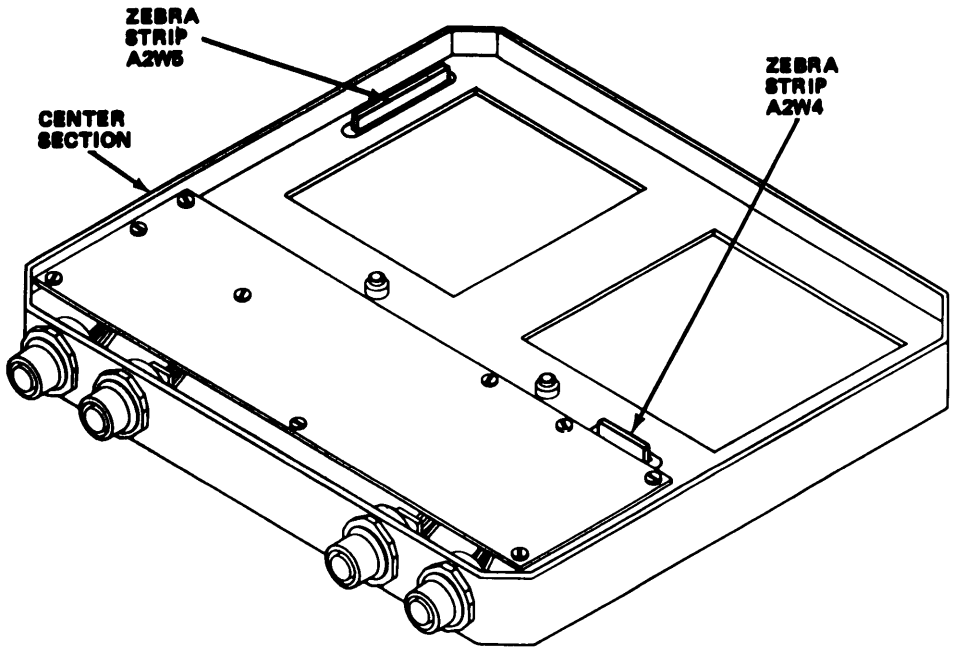


3-9. SYNCHRONOUS INPUT/OUTPUT BOARD REPLACEMENT - Continued

INSTALL SYNCHRONOUS INPUT/OUTPUT BOARD

Step 1. Clean zebra strips with alcohol before installing.

Step 2. Install zebra strips in holders.



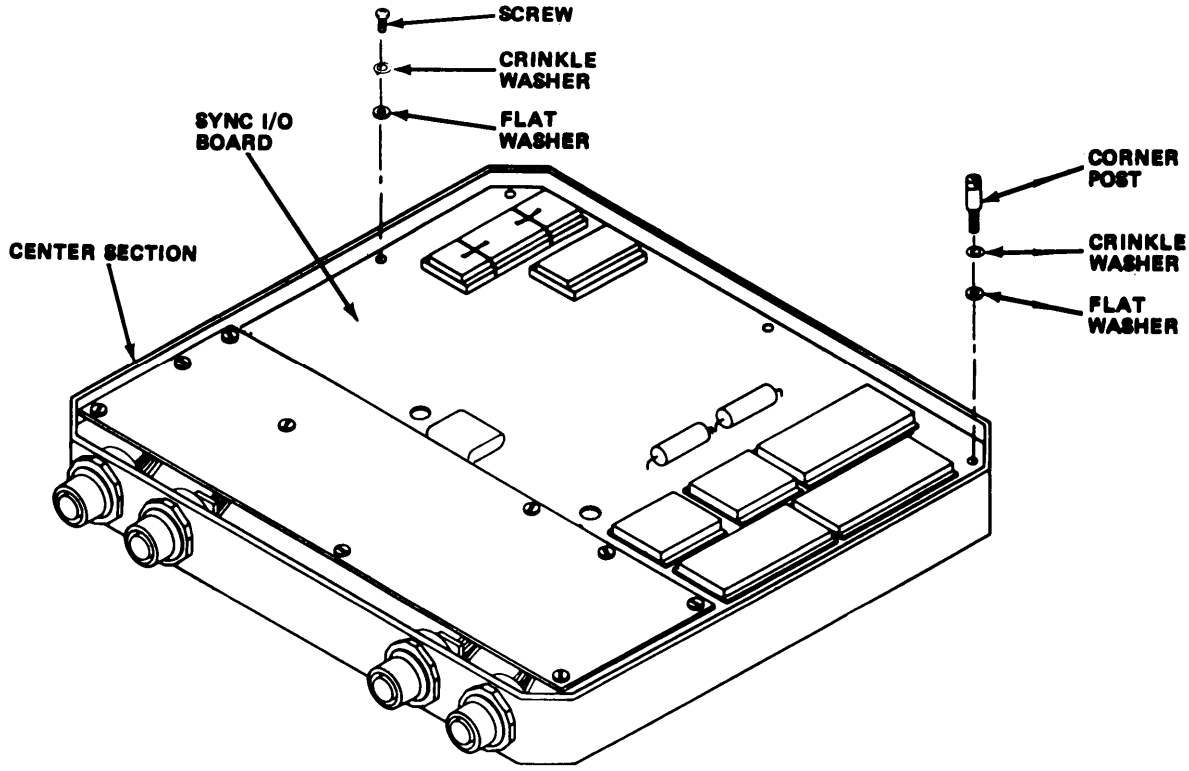
3-9. SYNCHRONOUS INPUT/OUTPUT BOARD REPLACEMENT - Continued

INSTALL SYNCHRONOUS INPUT/OUTPUT BOARD - Continued

Step 3. Position sync I/O board in center section.

Step 4. Install four corner posts, crinkle washers and flat washers.

Step 5. Install four screws, crinkle washers and flat washers.



INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-10. MEMORY BATTERY ASSEMBLY REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed

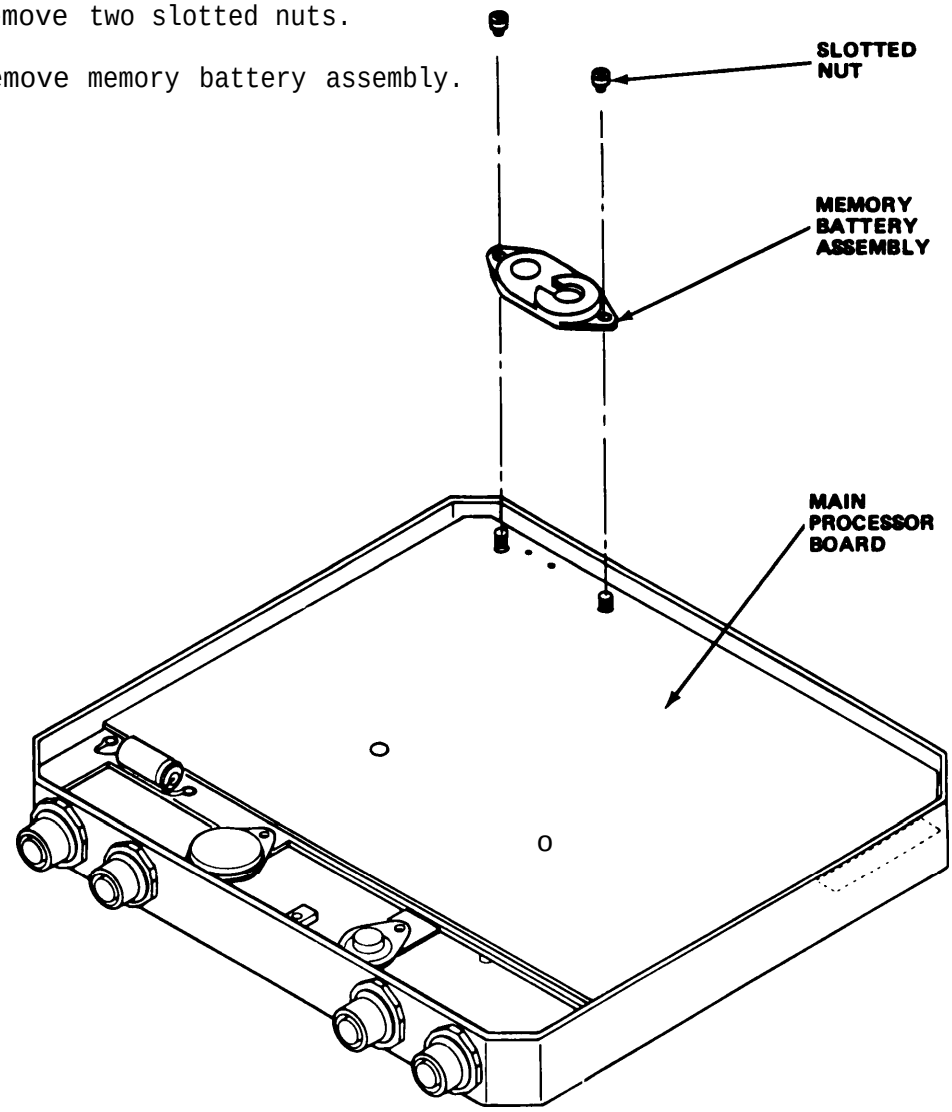
Materials/Parts

Memory battery assembly B4009042

REMOVE MEMORY BATTERY ASSEMBLY

Step 1. Remove two slotted nuts.

Step 2. Remove memory battery assembly.



3-10. MEMORY BATTERY ASSEMBLY REPLACEMENT - Continued

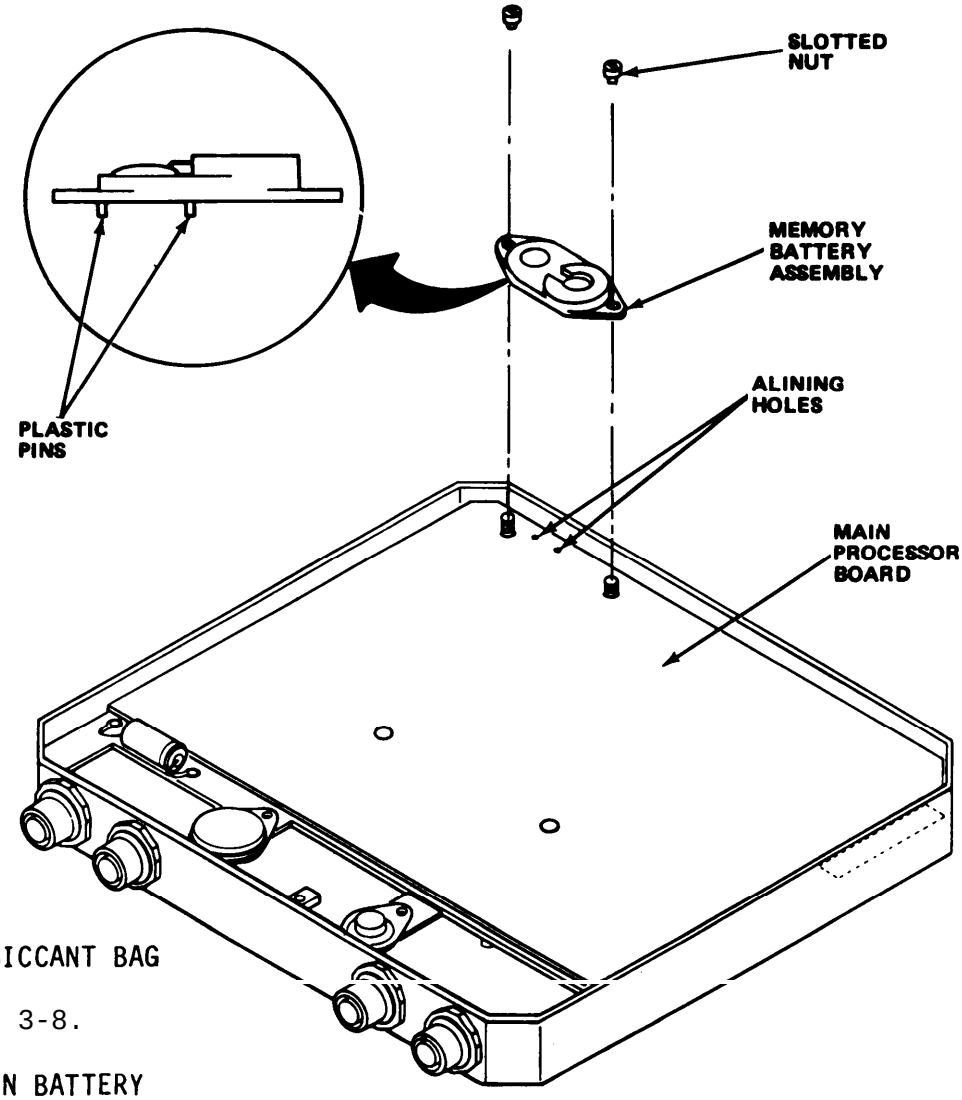
INSTALL MEMORY BATTERY ASSEMBLY

Step 1. Position memory battery assembly on main processor board.

NOTE

The battery assembly will not seat properly unless two plastic pins on assembly casting are alined with holes in main processor board.

Step 2. Install two slotted nuts.



INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-11. MAIN PROCESSOR BOARD REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed

Materials/Parts

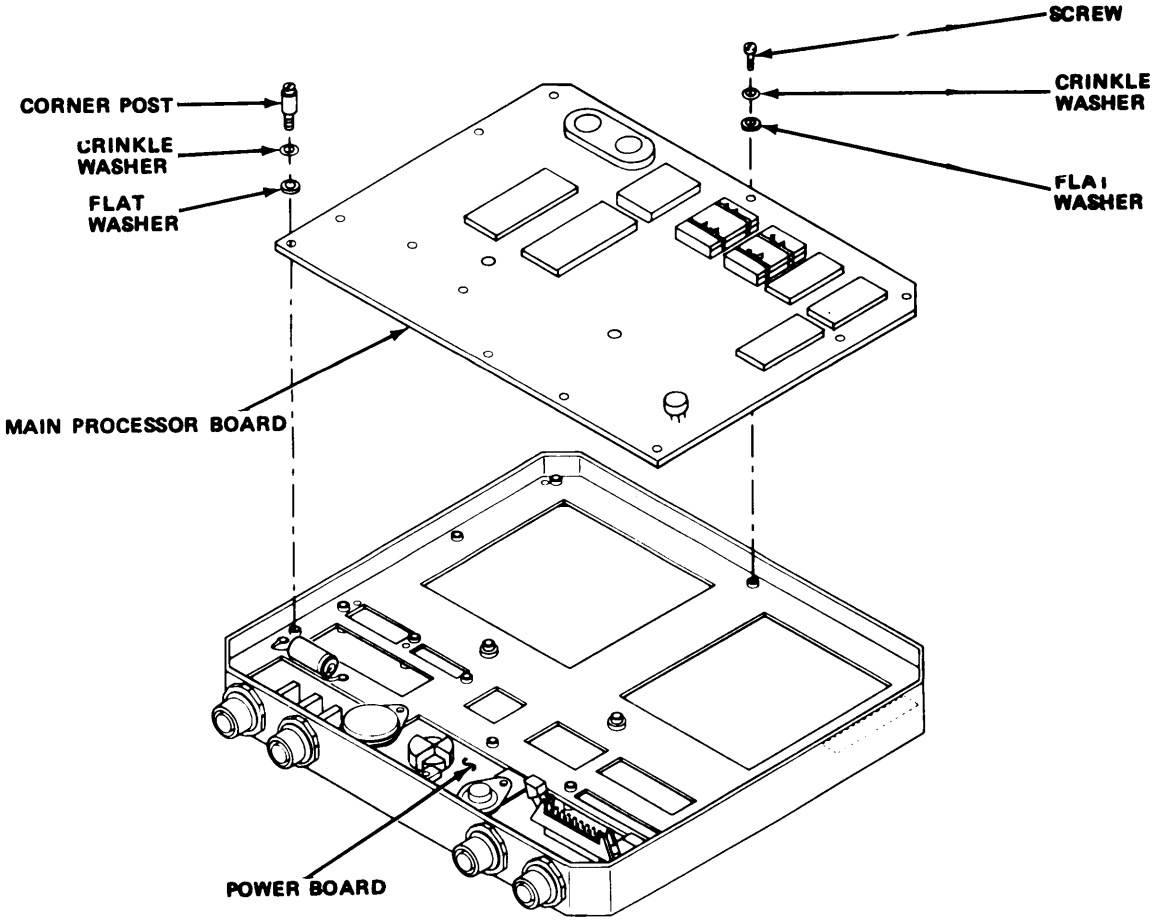
Main processor board B4009015
Alcohol, denatured MIL-STD-1201AA

REMOVE MAIN PROCESSOR BOARD

Step 1. Remove four corner posts, crinkle washers and flat washers.

Step 2. Remove eight screws, crinkle washers and flat washers.

Step 3. Lift main processor board from center section.



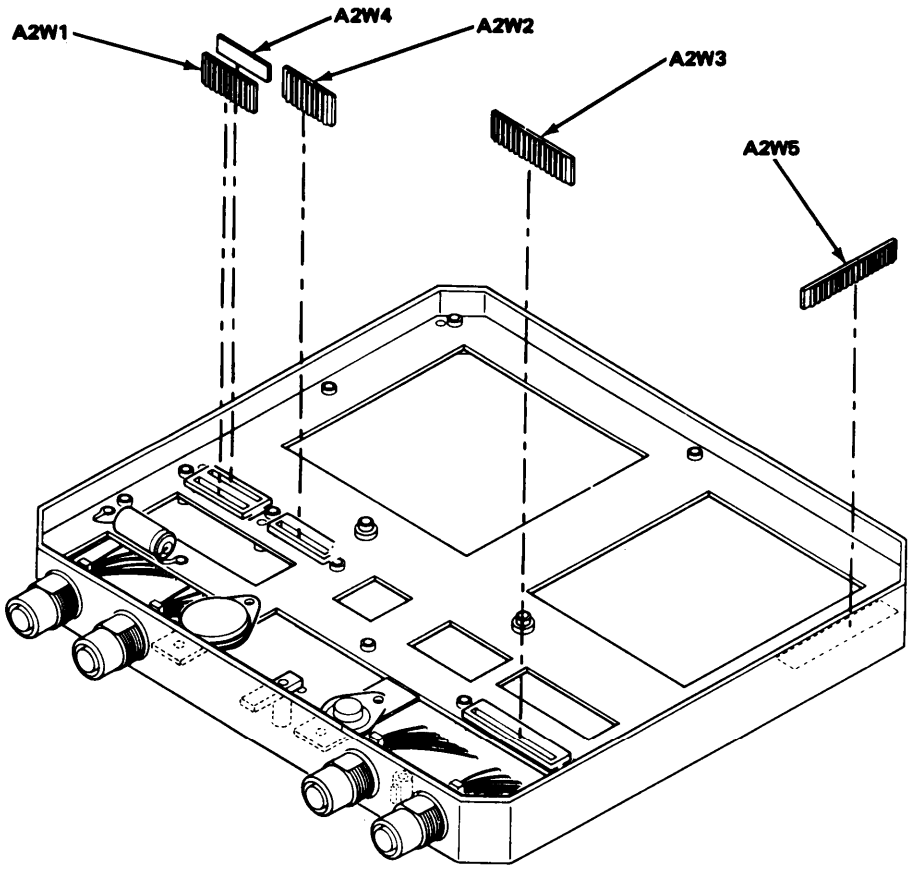
3-11. MAIN PROCESSOR BOARD REPLACEMENT - Continued

REMOVE MAIN PROCESSOR BOARD - Continued

Step 4. Remove zebra strips from holders.

Step 5. Inspect zebra strips for damage.

Zebra Strip	Connection	
	From	To
A2W1	Power board	Main processor board
A2W2	Power board	Main processor board
A2W3	Power board	Main processor board
A2W4	Main processor board	Sync I/O board
A2W5	Main processor board	Sync I/O board



3-11 . MAIN PROCESSOR BOARD REPLACEMENT - Continued

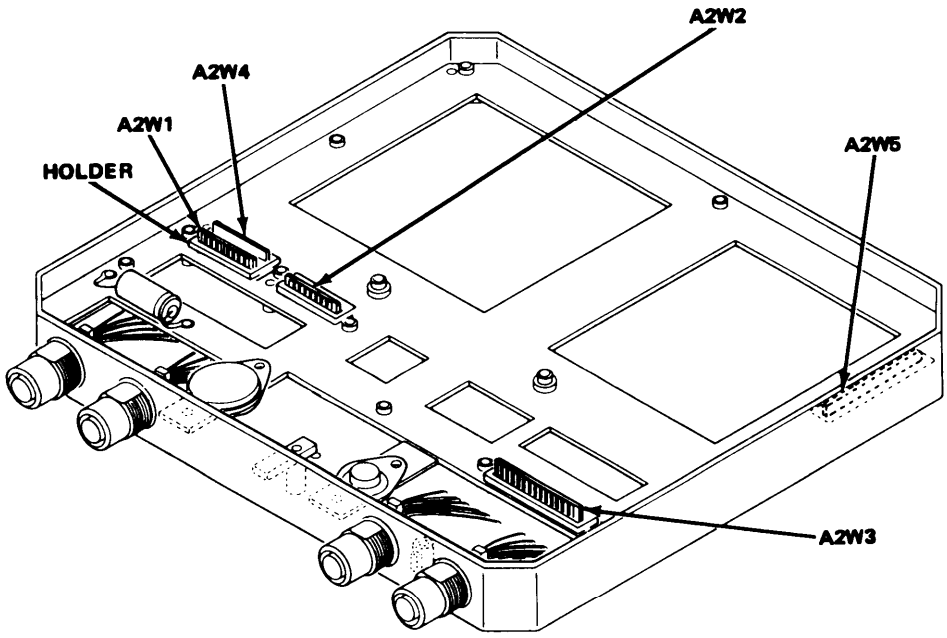
INSTALL MAIN PROCESSOR BOARD

step 1. Clean zebra strips with alcohol before installing

Step 2. Insert zebra strips in holders.

NOTE

Zebra strips A2W1 and A2W4 have the same number of conductors but differ in height. Make sure A2W1 and A2W4 are installed as shown in the illustration below.



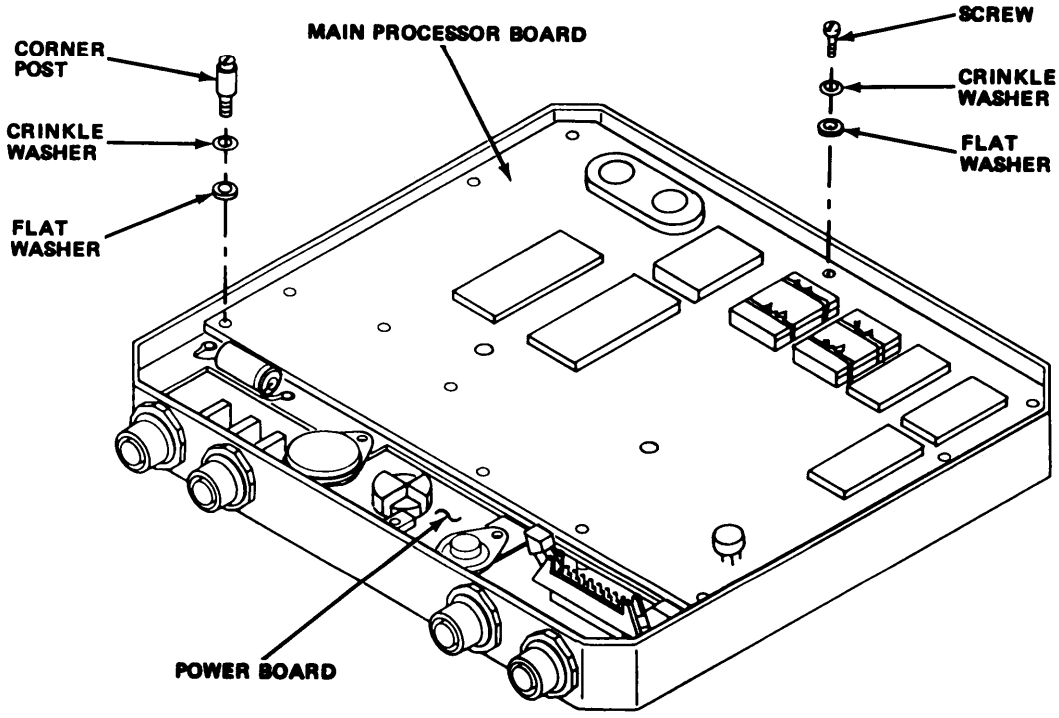
3-11. MAIN PROCESSOR BOARD REPLACEMENT - Continued

INSTALL MAIN PROCESSOR BOARD - Continued

Step 3. Position main processor board in center section.

Step 4. Install light screws, crinkle washers and flat washers.

Step 5. Install four corner posts, crinkle washers and flat washers.



INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-12. POWER MODULE ASSEMBLY REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Materials/Parts

Power module assembly B4009013

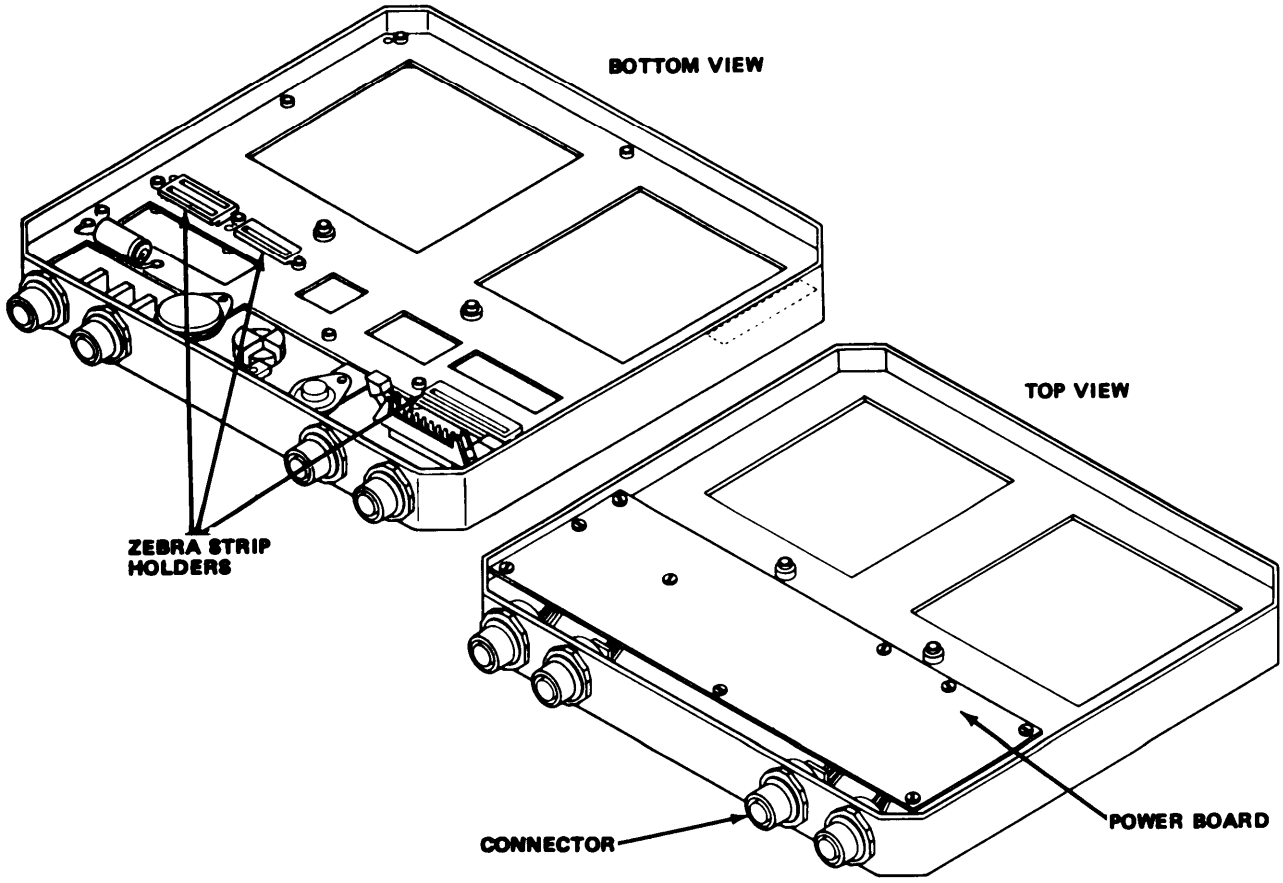
Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed
3-9.	Sync I/O board removed
3-11.	Main processor board removed

NOTE

The center section casting with power board, connectors, zebra strip holders, and ancillary components that remain make up the power module assembly.

Send this assembly to depot maintenance for repair.



3-12. POWER MODULE ASSEMBLY REPLACEMENT - Continued

INSTALL MAIN PROCESSOR BOARD

See para 3-11.

INSTALL SYNC I/O BOARD

See para 3-9.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-13. FUSE REPLACEMENT

INITIAL SETUP

Tools

Soldering iron, 40 watt

Materials/Parts

Fuse, B4023640
Solder

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed

NOTE

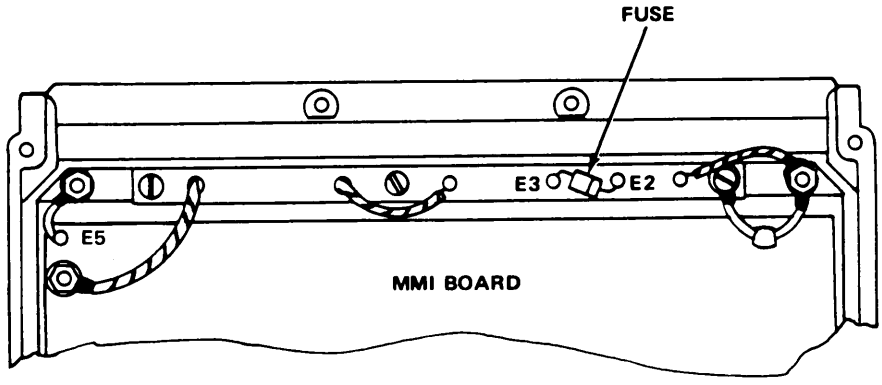
This procedure applies to units with serial numbers 1 thru 1886.

REMOVE FUSE

Unsolder fuse from fuse board at terminals E2 and E3.

INSTALL FUSE

Solder new fuse to terminals E2 and E3 of fuse board.



INSTALL DESICCANT BAG

See para 3-8.

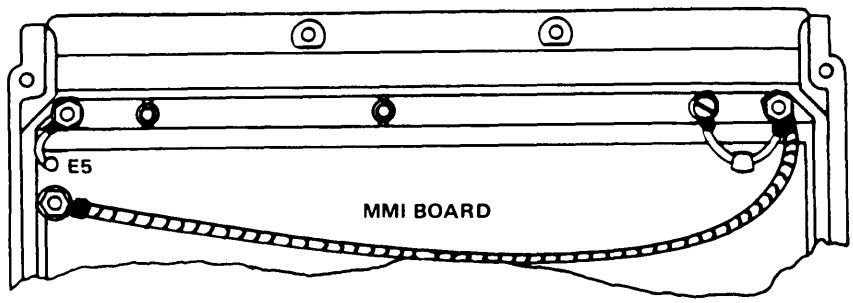
INSTALL MAIN BATTERY

See para 3-7.

3-13. FUSE RELACEMENT - Continued

NOTE

The following illustrates the configuration for units with serial numbers 1B thru 80B and 30016 and above. Fuse is now replaced at the operator level. Refer to TM 11-5820-887-10.



INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-14. KEYBOARD/DISPLAY MODULE REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver
Socket, 5mm NDM-5.OA
Socket, 5.5mm NDM-5.5A
6-inch wrench,adjustable

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desjccant bag removed

Materials/Parts

Keyboard display module, B4009011

REMOVE KEYBOARD/DISPLAY MODULE

Step 1. Remove nut and crinkle washer from positive battery terminal.

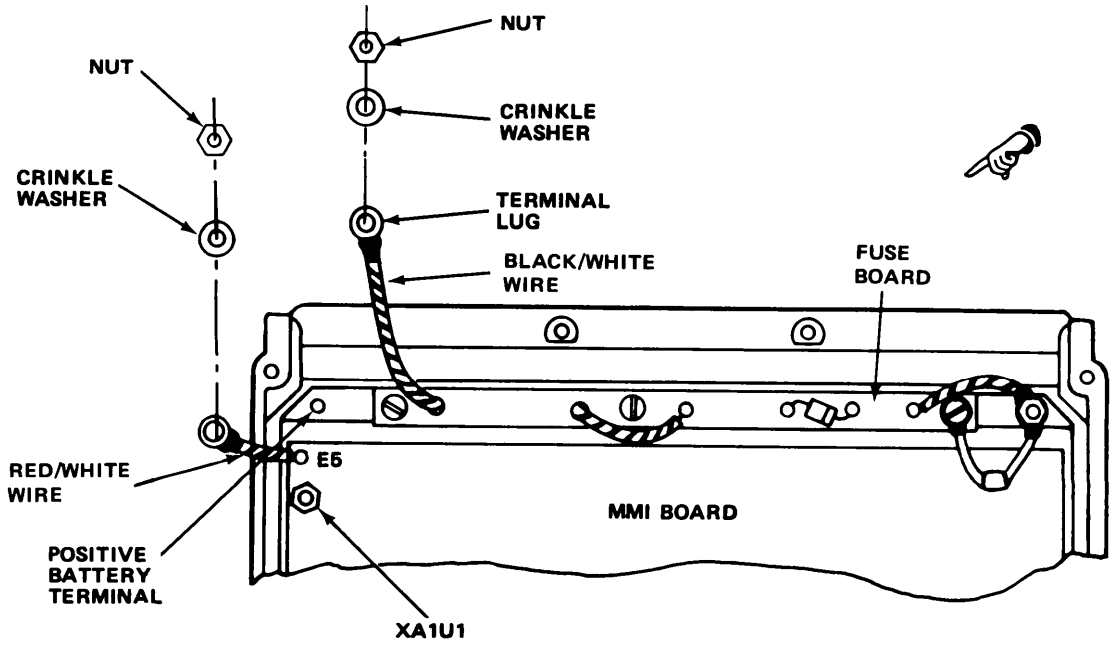
Step 2. Remove red/white wire (E5 of MMI board) from positive battery terminal.

NOTE

Fuse board not installed in units with serial numbers 1B thru 80B and 3001B and above.

Step 3. Remove nut and crinkle washer from MMI board terminal XA1U1.

Step 4. Remove black/white wire from terminal XA1U1.



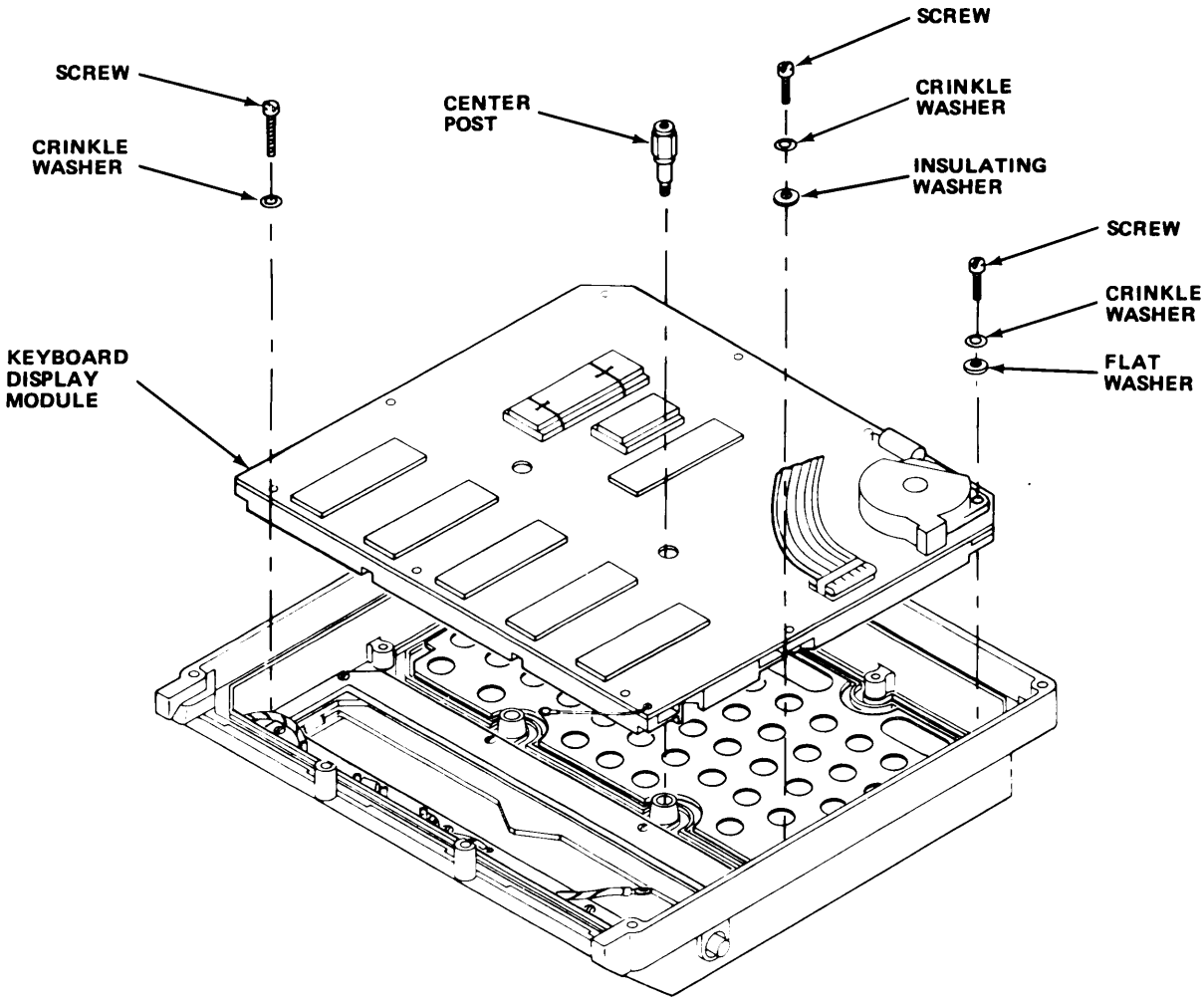
3-14. KEYBOARD/DISPLAY MODULE REPLACEMENT - Continued

REMOVE KEYBOARD/DISPLAY MODULE - Continued

Step 5. Remove from outer edge nine screws, nine crinkle washers, one insulating washer, and one flat washer.

Step 6. Remove two center posts.

Step 7. Remove keyboard/display module.



3-14. KEYBOARD/DISPLAY MODULE REPLACEMENT - Continued

INSTALL KEYBOARD/DISPLAY MODULE

Step 1. Position keyboard/display module in top casting.

Step 2. Install two center posts.

NOTE

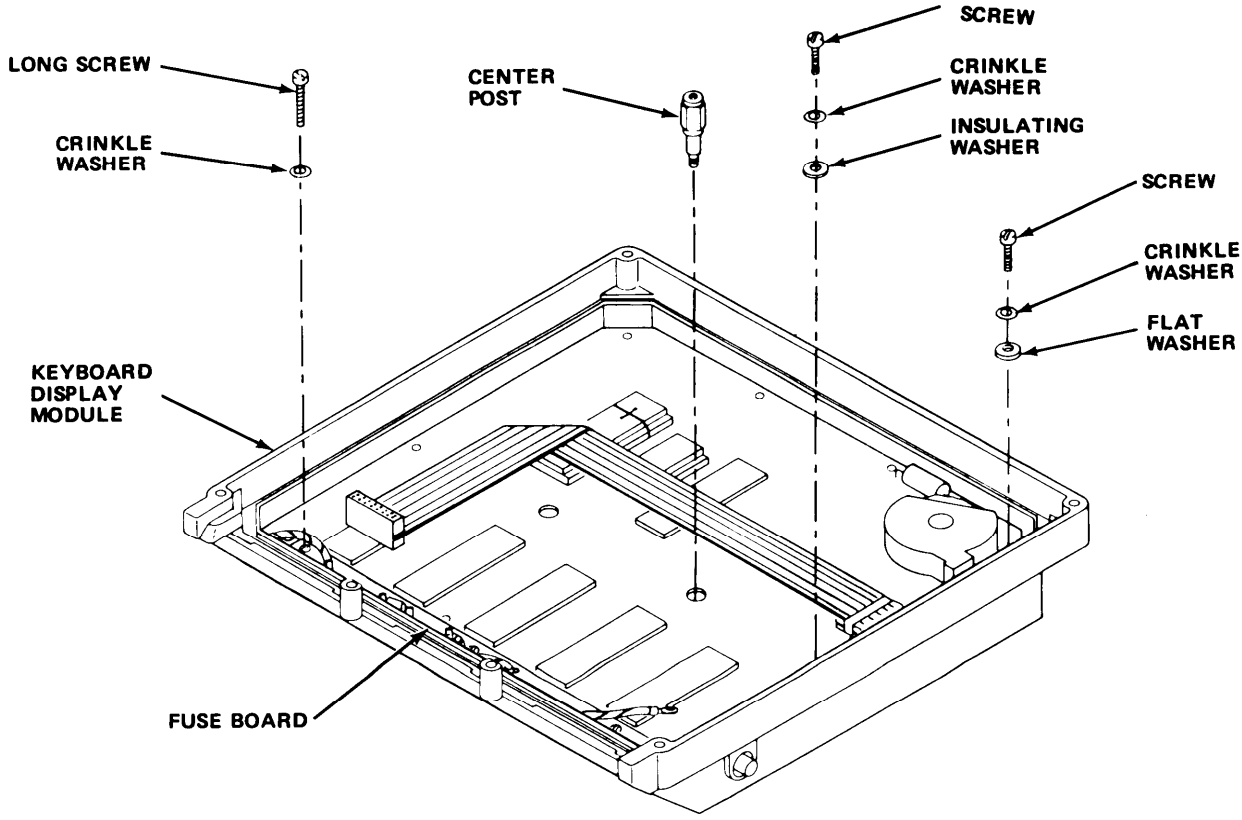
Three screws near fuse board are longer than others.

Step 3. Install three long screws and crinkle washers.

CAUTION

Make sure plastic insulating washer is installed in proper location near ribbon connector.

Step 4. Install remaining six screws, six crinkle washers, one insulating washer, and one flat washer.



3-14. KEYBOARD/DISPLAY MODULE REPLACEMENT - Continued

INSTALL KEYBOARD/DISPLAY MODULE - Continued

NOTE

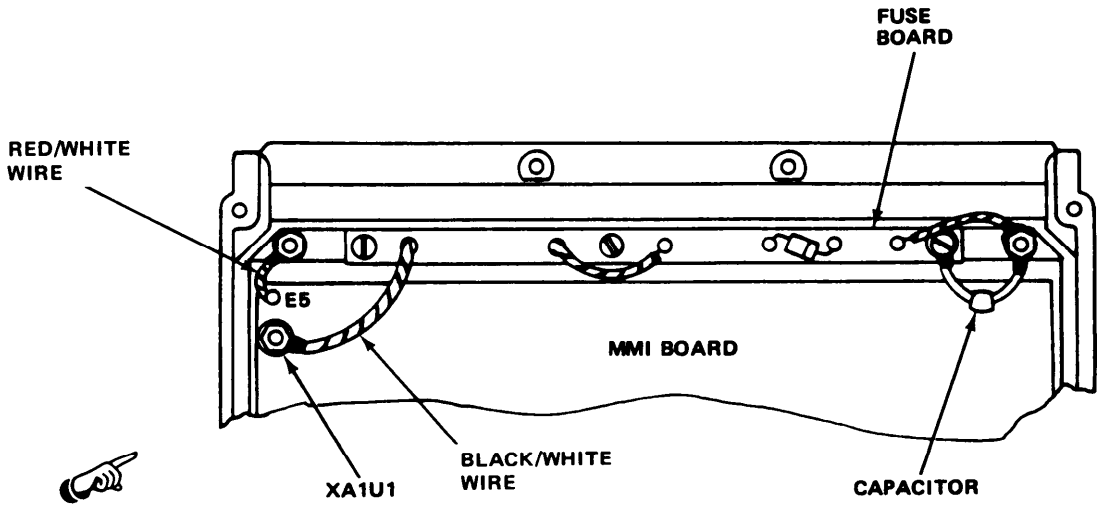
Fuse board not installed in units with serial numbes 1B thru 80B and 3001B and above.

Step 5. Place black/white wire on terminal XA1U1.

Step 6. Install crinkle washer and nut on terminal XA1U1.

Step 7. Place red/white wire from MMI board terminal E5 on positive battery terminal.

Step 8. Install crinkle washer and nut on positive battery terminal.



INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-15. DISPLAY WINDOW REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Materials/parts

Display window B4009083
Grease, silicon MIL-S-8660B

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed
3-14.	Keyboard/display module removed

REMOVE DISPLAY WINDOW

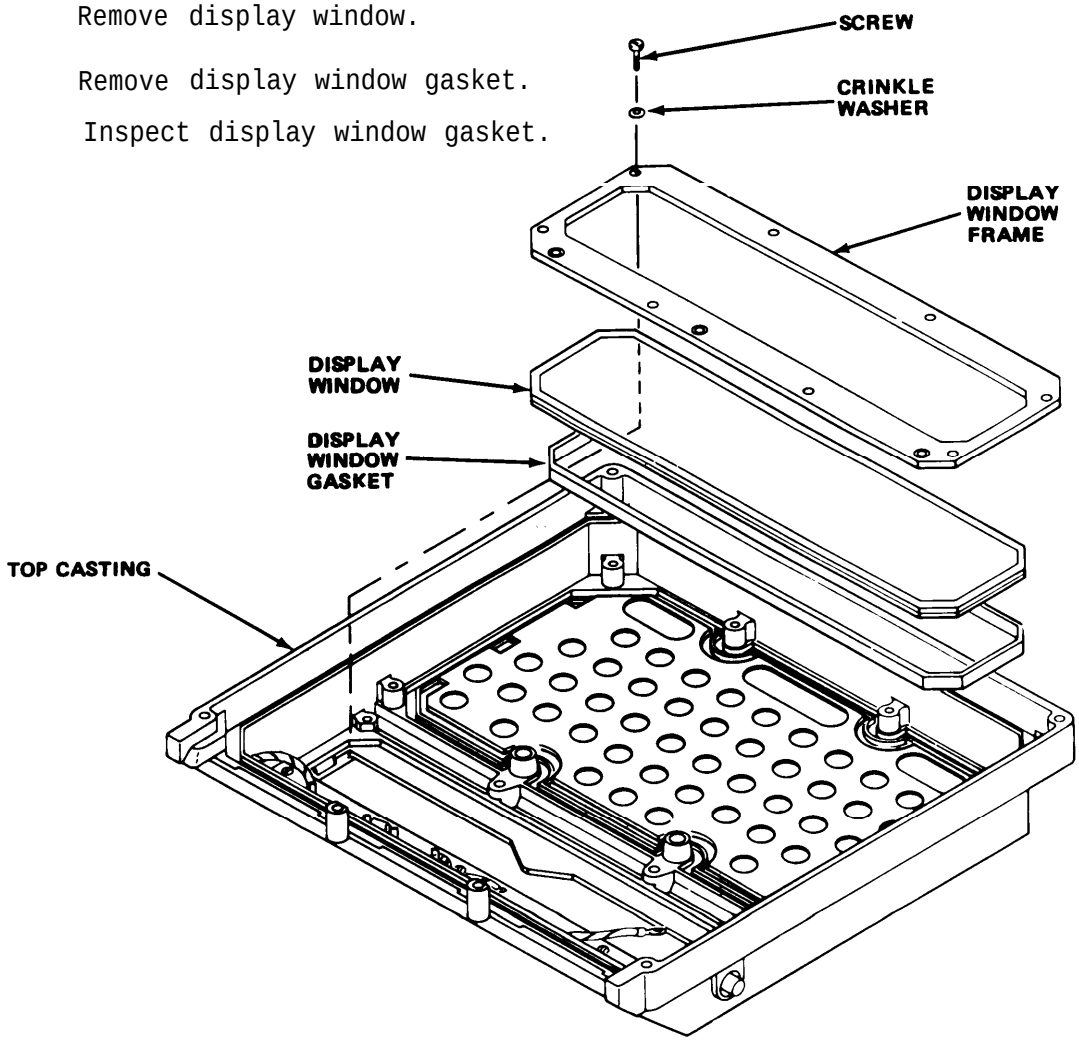
Step Remove eight screws and crinkle washers.

Step Remove display window frame.

Step Remove display window.

Step Remove display window gasket.

Step Inspect display window gasket.



3-15. DISPLAY WINDOW REPLACEMENT - Continued

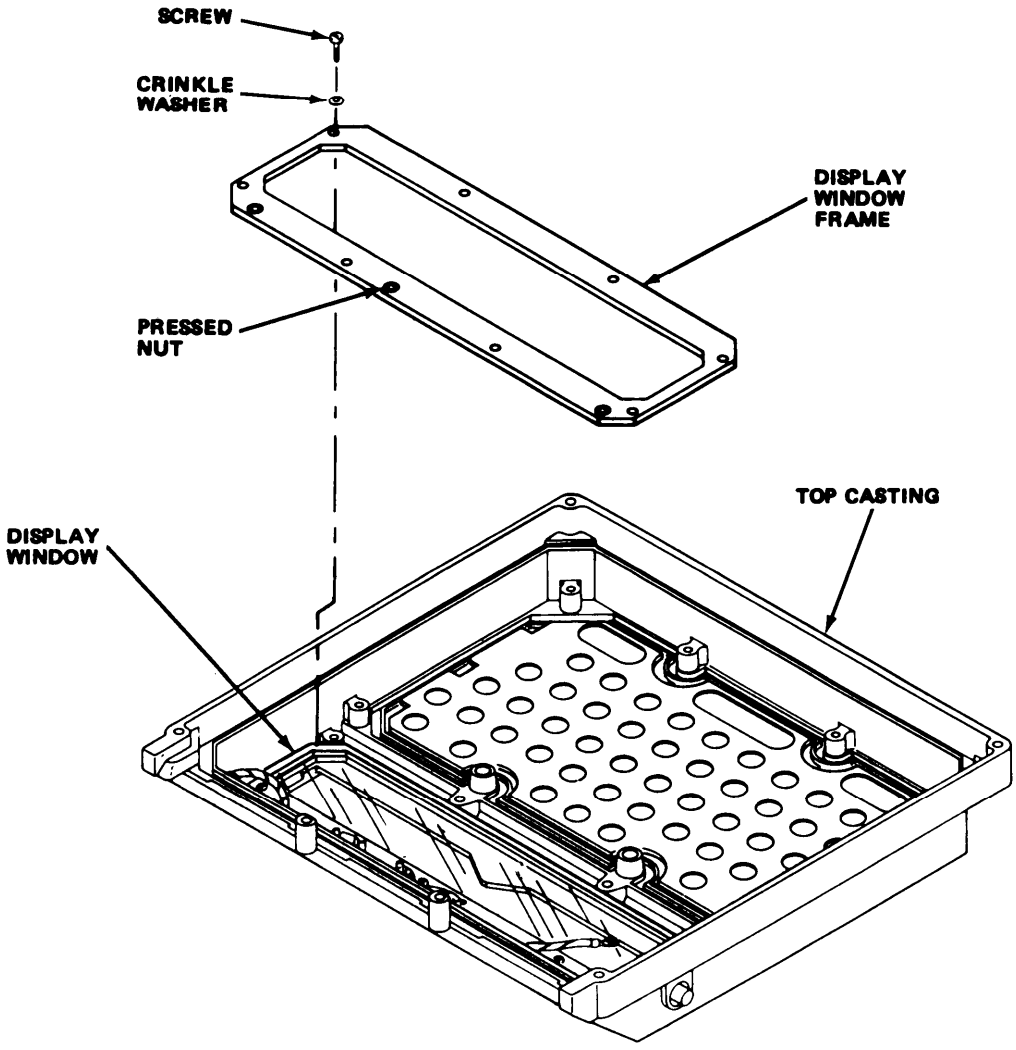
INSTALL DISPLAY WINDOW

Step 1. Coat display window gasket with silicon grease.

Step 2. Seat display window gasket into top casting groove.

Step 3. Position display window in top casting. Foil side must be towards top casting.

Step 4. Install display window frame with three pressed nuts facing towards fuse board.

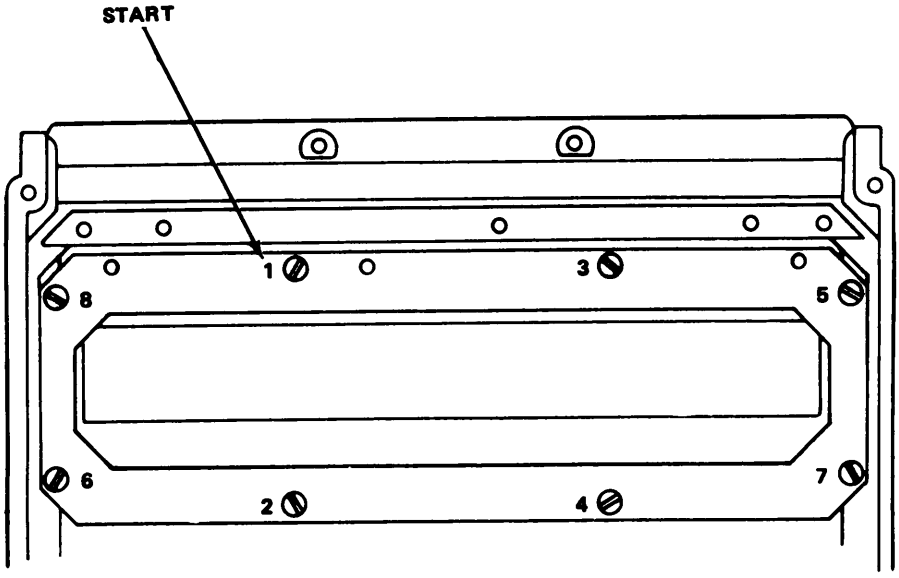


3-15. DISPLAY WINDOW REPLACEMENT - Continued

INSTALL DISPLAY WINDOW - Continued

Step 5. Install but do not tighten eight screws and crinkle washers.

Step 6. Tighten the screws in order shown (i.e., 1 through 8).



INSTALL KEYBOARD/DISPLAY MODULE

See para 3-14.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-16. KEYSHEET MOLDING REPLACEMENT

INITIAL SETUP

Materials/Parts	Equipment Condition	
	Para	Description
Keysheet molding B4009036	3-7.	Main battery removed
	3-8.	Desiccant bag removed
	3-14.	Keyboard/display module removed

REMOVE KEYSHEET MOLDING

Step 1. Remove keyboard support.

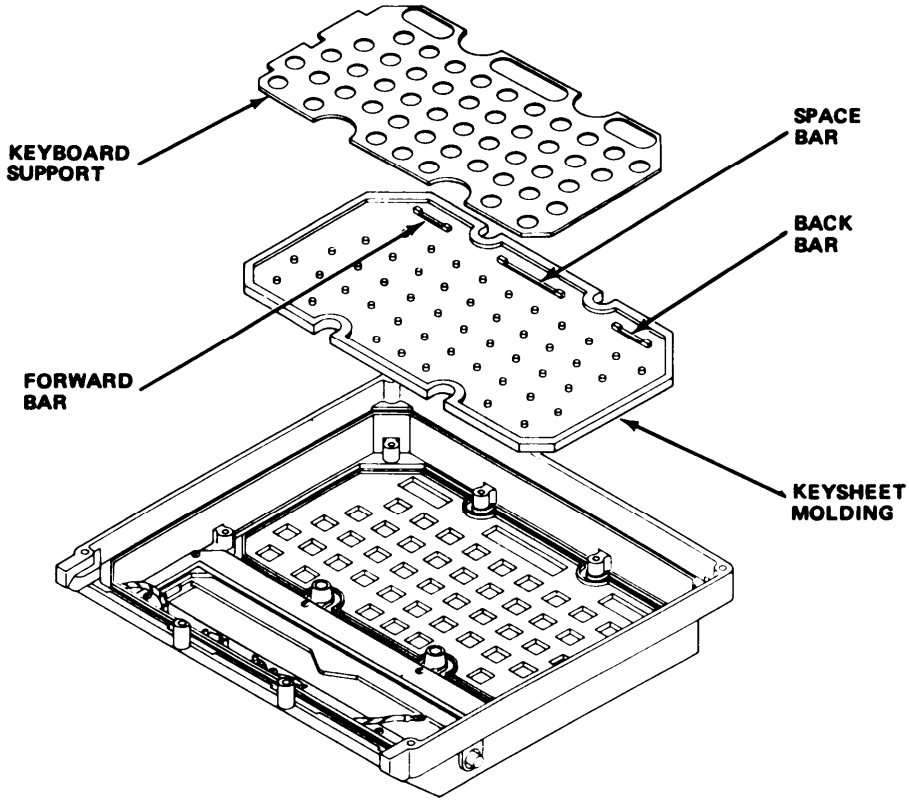
Step 2. Inspect keyboard support. Replace if damaged.

Step 3. Remove keysheet molding.

Step 4. Inspect keysheet molding. Replace if damaged.

Step 5. Remove three bars (SPACE, BACK and FORWARD) from keysheet molding.

Step 6. Inspect bars.



3-16. KEYSHEET MOLDING REPLACEMENT Continued

INSTALL KEYSHEET MOLDING

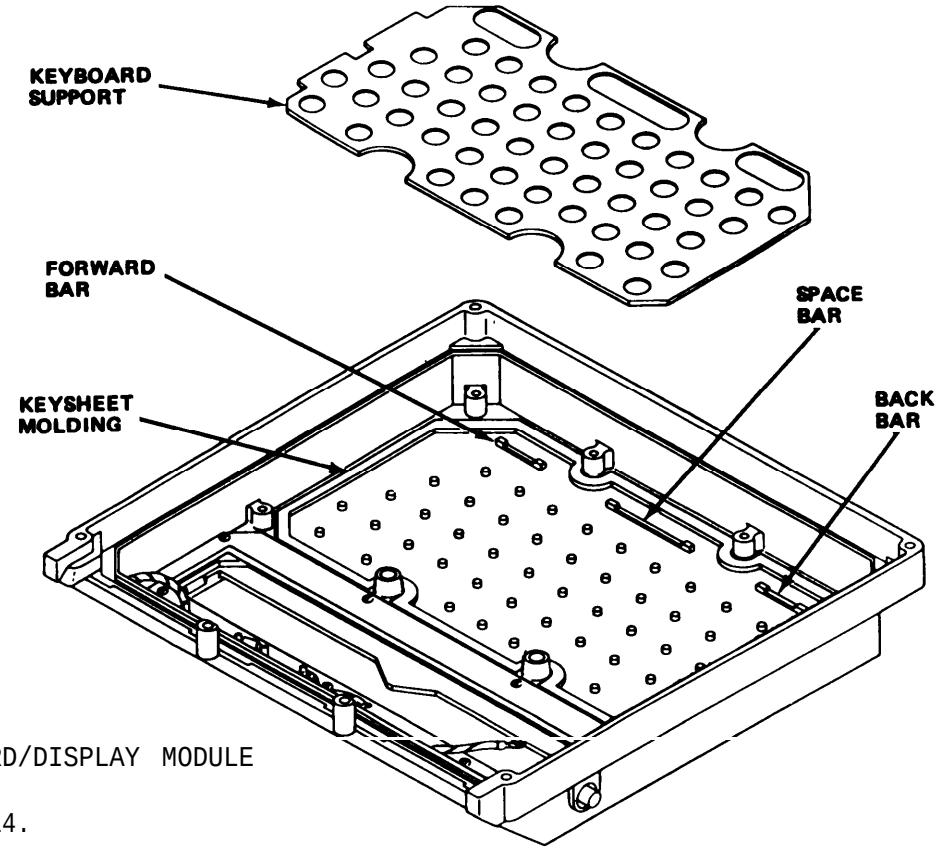
Step 1. Press three bars into keysheet channels.

CAUTION

Do not apply silicon grease to keysheet molding.

Step 2. Install keysheet molding.

Step 3. Install keyboard support with ridged surface facing keysheet molding.



INSTALL KEYBOARD/DISPLAY MODULE

See para 3-14.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-17. KEYBOARD ASSEMBLY REPLACEMENT

INITIAL SETUP

Tools

Socket, 5mm NDM 5.OA
3/16-inch, flat-tip screwdriver

Materials/Parts

Keyboard assembly B4009020
Alcohol, denatured MIL-STD-1201AA

Equipment Condition

Para	Description
3-7.	Main battery removed.
3-8.	Desiccant bag removed
3-14.	Keyboard/display module removed.

REMOVE KEYBOARD ASSEMBLY

Step 1. Remove three nuts and crinkle washers from MMI board.

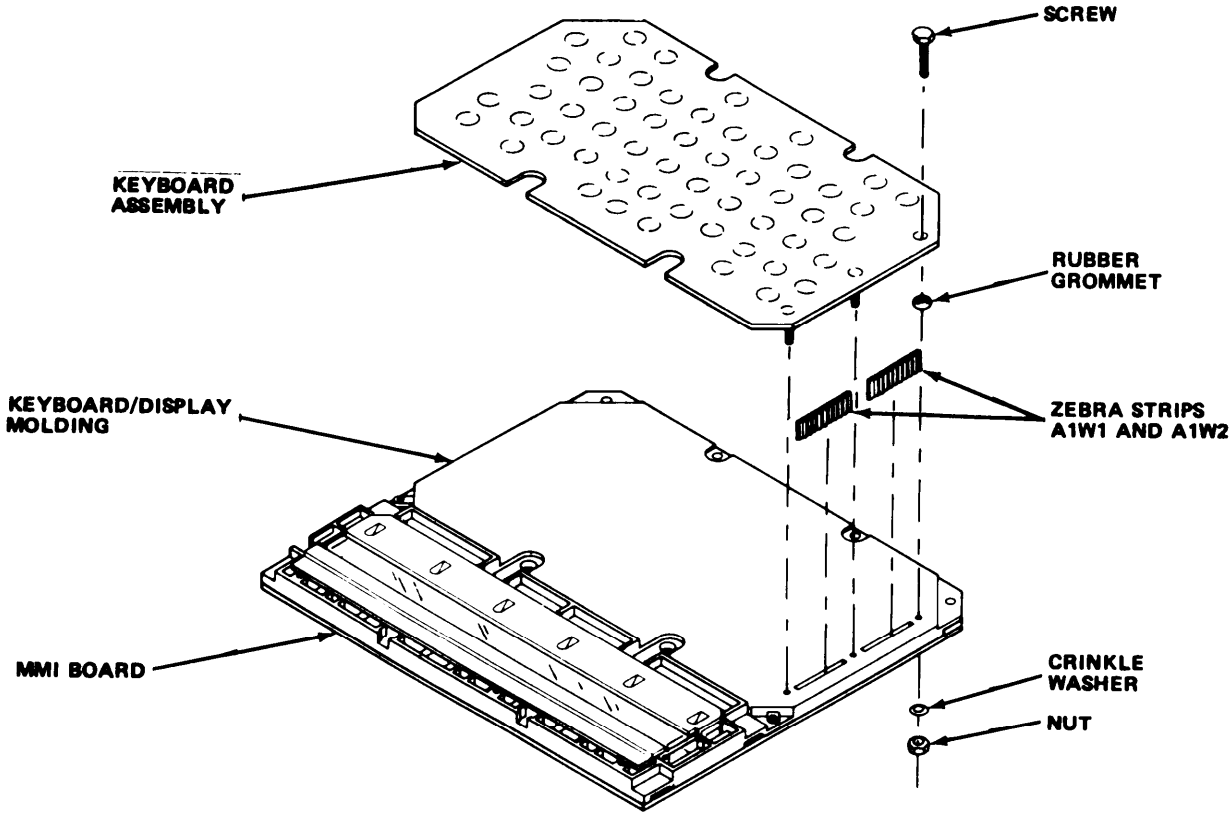
Step 2. Remove keyboard assembly.

Step 3. Remove three screws and rubber grommets from keyboard assembly.

Step 4. Inspect rubber grommets. Replace if damaged.

Step 5. Remove zebra strips from keyboard display molding.

Step 6. Inspect zebra strips. Replace if damaged.



3-17. KEYBOARD ASSEMBLY REPLACEMENT - Continued

INSTALL KEYBOARD ASSEMBLY

Step 1. Clean zebra strips with alcohol before installing.

Step 2. Install zebra strips in keyboard/display molding.

Step 3. Install three screws and rubber grommets on keyboard assembly.

Step 4. Install keyboard assembly.

Step 5. Install three nuts and crinkle washers on MMI board.

INSTALL KEYBOARD/DISPLAY MODULE

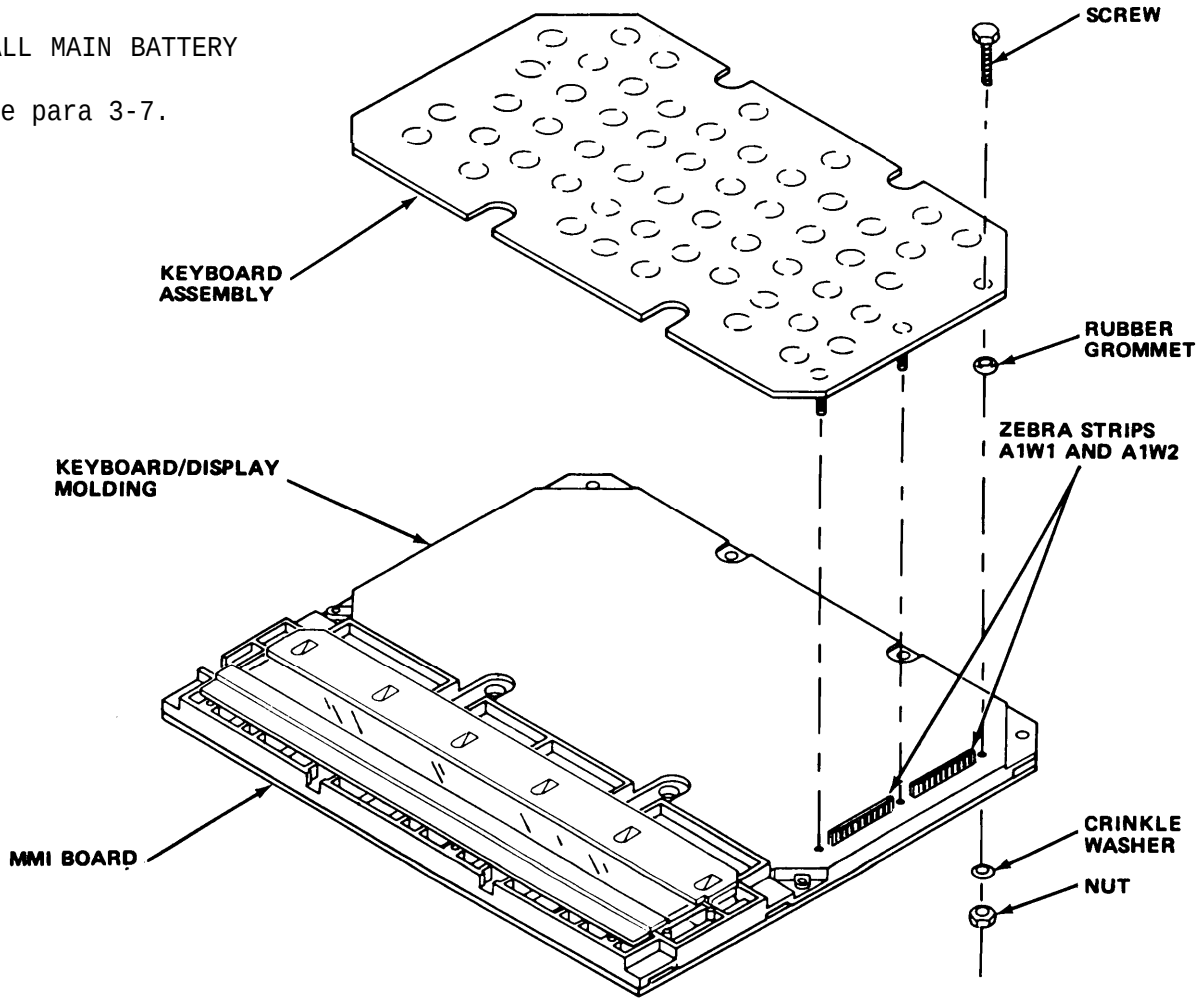
See para 3-14.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.



3-18. LIQUID CRYSTAL DISPLAY (LCD) REPLACEMENT

INITIAL SETUP

Tools

3/16-inch, flat-tip screwdriver

Materials/Parts

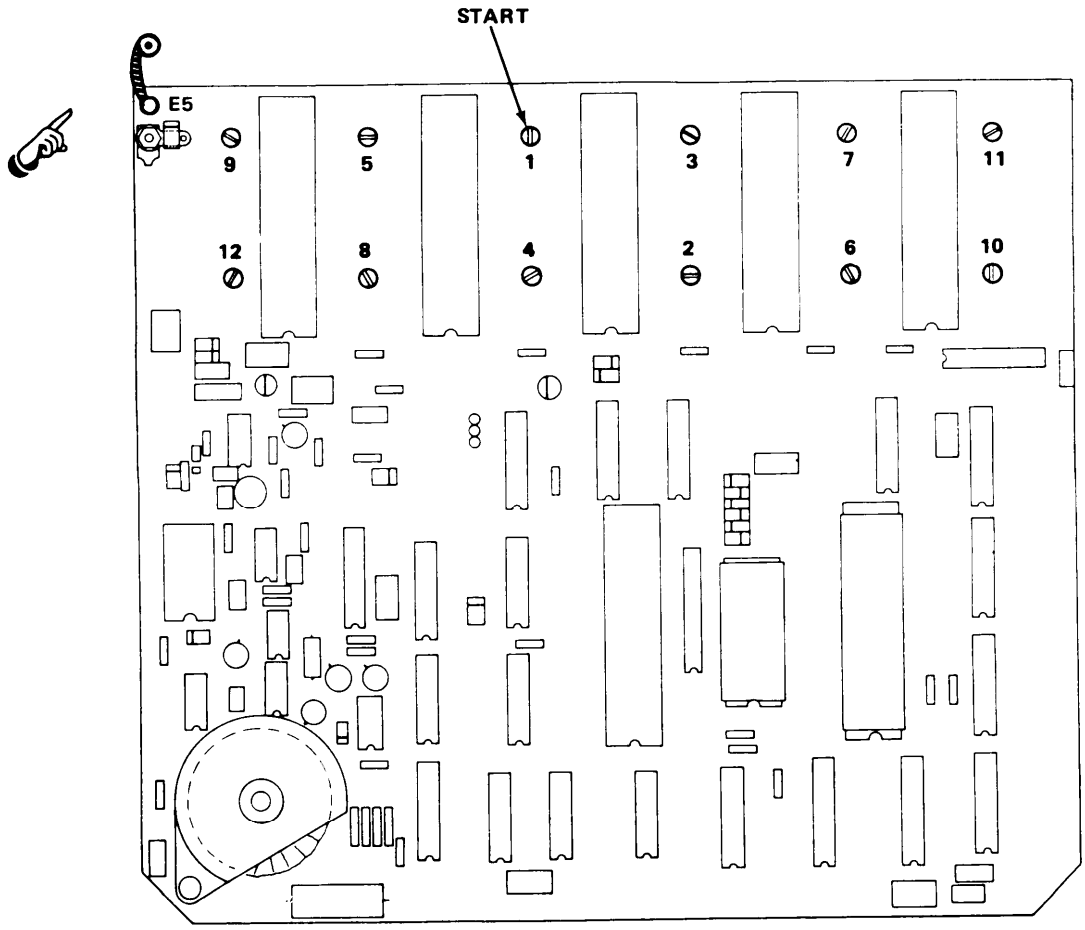
LCD B4009087
Alcohol, denatured MIL-STD-1201AA

Equipment Condition

Para	Description
3-7.	Main battery removed
3-8.	Desiccant bag removed
3-14.	Keyboard/display module removed

REMOVE LCD

Step 1. From MMI board side of assembly remove 12 screws, crinkle washers and insulating washers in order shown.



3-18. LIQUID CRYSTAL DISPLAY (LCD) REPLACEMENT- Continued

REMOVE LCD - Continued

Step 2. Remove both plastic clamping strips.

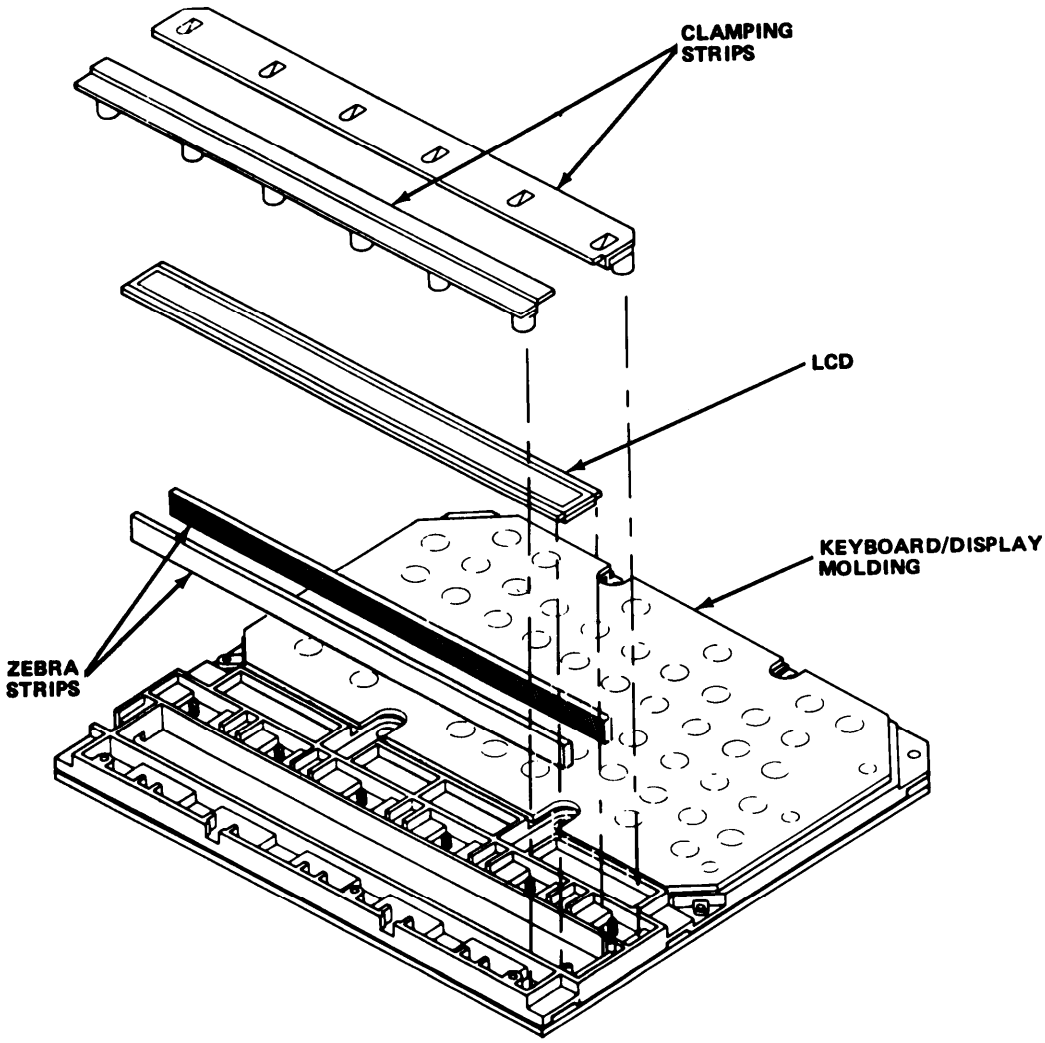
Step 3. Inspect both plastic clamping strips. Replace if damaged.

Step 4. Lift LCD from channel.

Step 5. Inspect LCD.

Step 6. Remove zebra strips from channel.

Step 7. Inspect zebra strips. Replace if damaged.



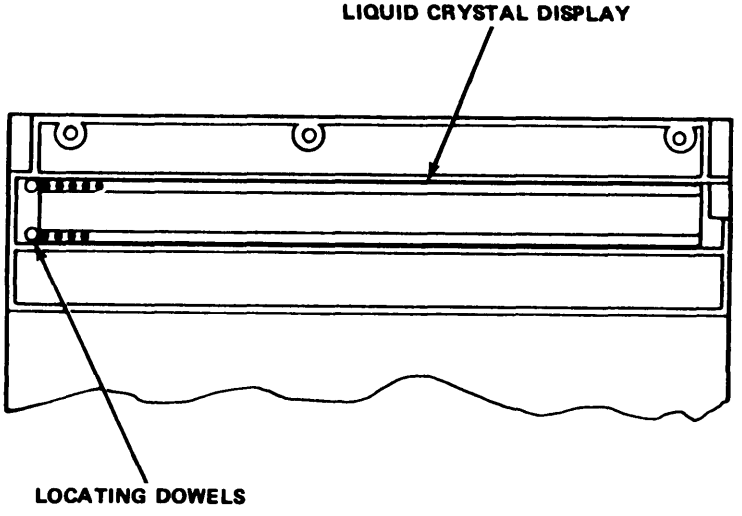
3-18. LIQUID CRYSTAL DISPLAY (LCD) REPLACEMENT - Continued

INSTALL LCD

Step 1. Clean zebra strips with alcohol before installing.

Step 2. Install zebra strips in channel with black sides facing each other.

Step 3. Turn LCD so four dots on top and bottom are positioned towards locating dowels.



3-18. LIQUID CRYSTAL DISPLAY (LCD) REPLACEMENT - Continued

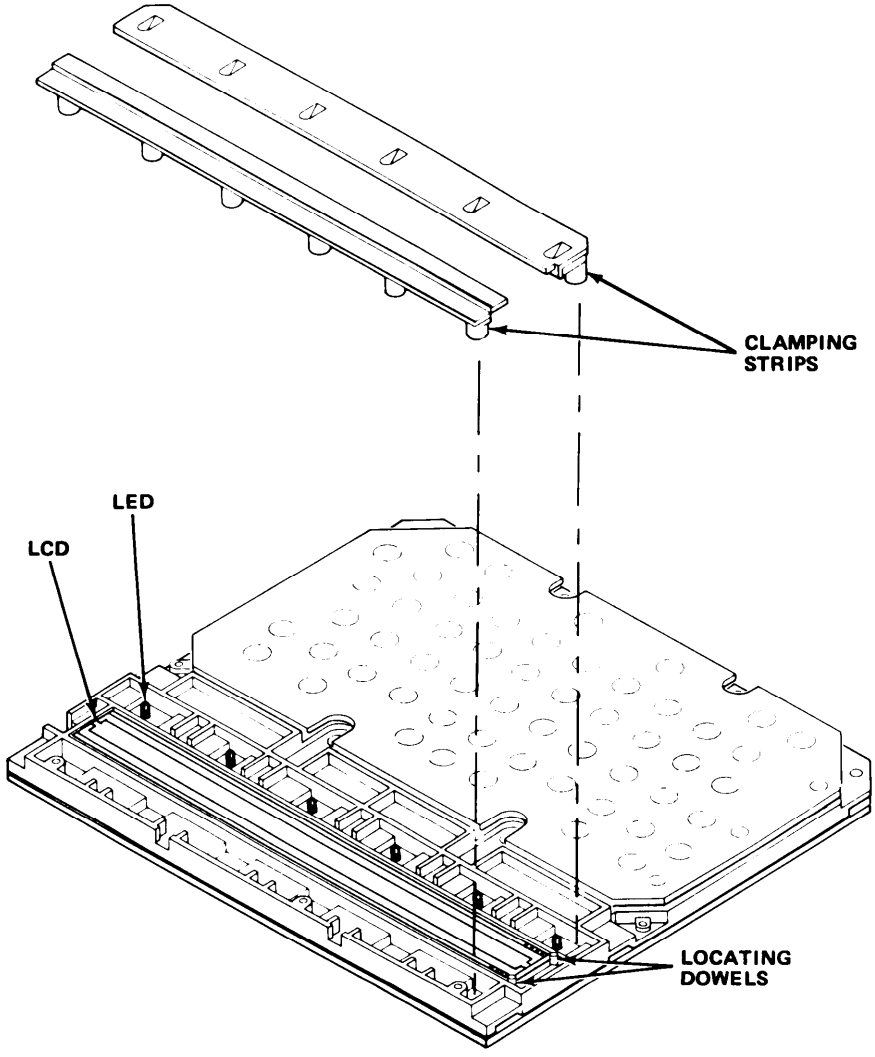
INSTALL LCD - Continued

Step 4. Place LCD in channel and against locating dowels.

CAUTION

Be careful not to damage LED's when replacing bottom clamping strip.

Step 5. Install both clamping strips.



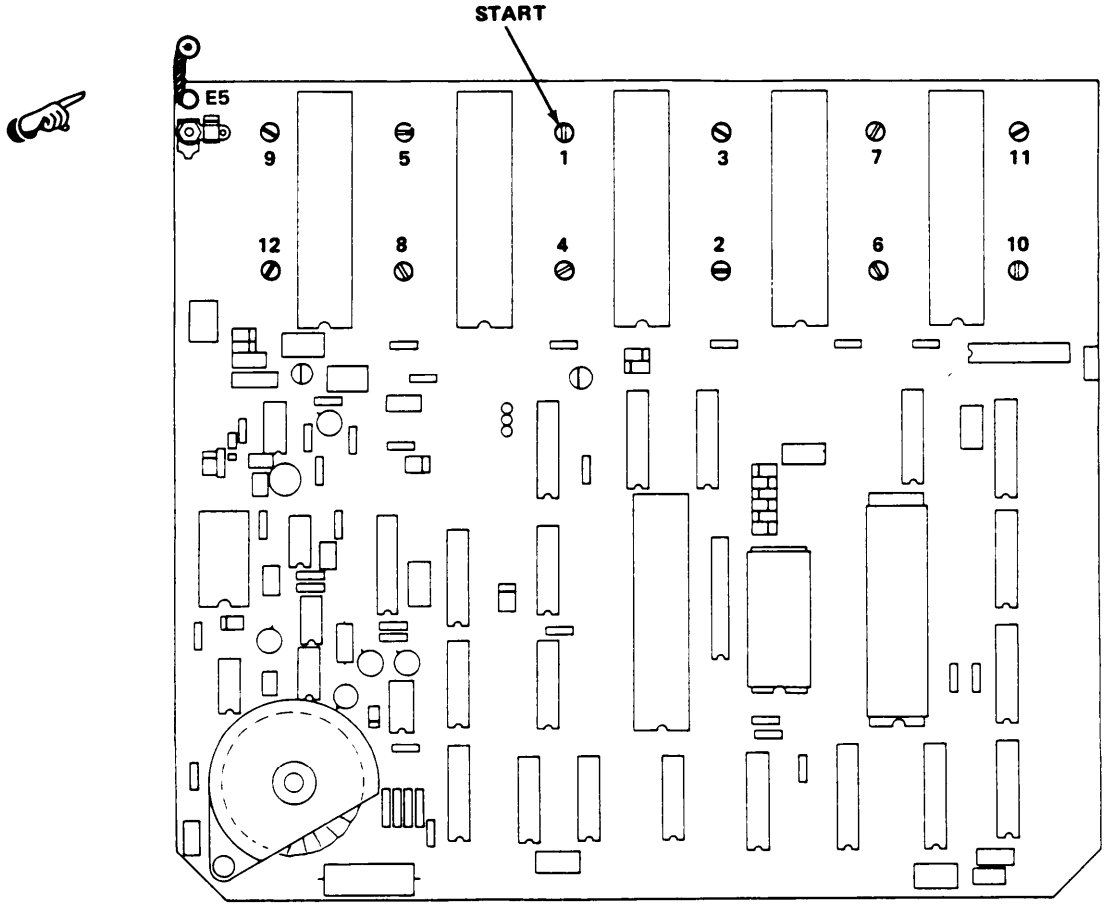
3-18. LIQUID CRYSTAL DISPLAY (LCD) REPLACEMENT - Continued

INSTALL LCD - Continued

Step 6. From MMI board side, insert but do not tighten, 12 screws, crinkle washers and insulating washers.

Step 7. Make sure LCD is against the locating dowels.

Step 8. Tighten 12 screws in order shown.



INSTALL KEYBOARD/DISPLAY MODULE

See para 3-14.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-19. MMI BOARD REPLACEMENT

INITIAL SETUP

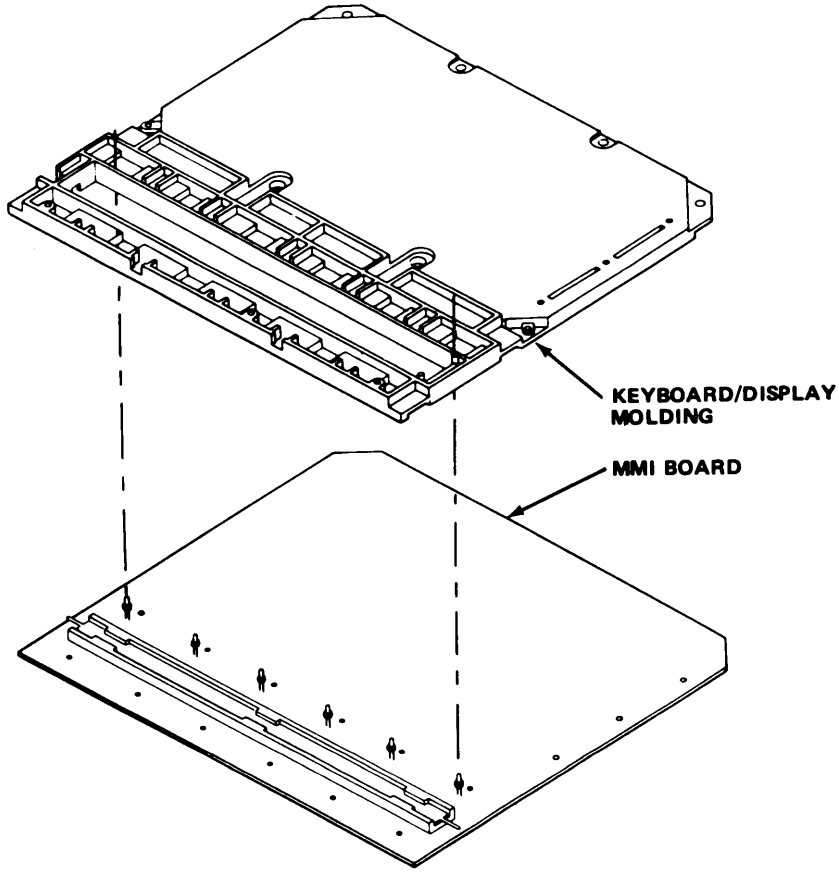
Materials/Parts	Equipment Condition Para	Description
MMI board B4009019	3-7.	Main battery removed
	3-8.	Desiccant bag removed
	3-14.	Keyboard/display module removed
	3-17.	Keyboard assembly removed
	3-18.	LCD removed

REMOVE MMI BOARD

Separate MMI board from keyboard/display molding.

NOTE

When MMI board is separated from keyboard/display molding there should be no other hardware attached to keyboard/display molding or MMI board.

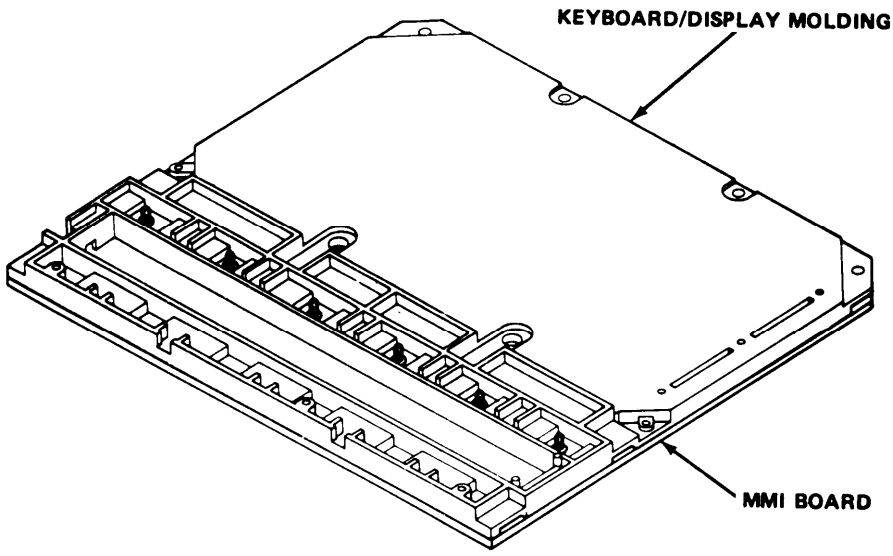


3-19. MMI BOARD REPLACEMENT - Continued

INSTALL MMI BOARD - Continued

Step 1. Inspect keyboard/display molding. Replace if damaged.

Step 2. Fit MMI board and keyboard/display molding together.



INSTALL KEYBOARD ASSEMBLY

See para 3-17.

INSTALL LCD

See para 3-18.

INSTALL KEYBOARD/DISPLAY MODULE

See para 3-14.

INSTALL DESICCANT BAG

See para 3-8.

INSTALL MAIN BATTERY

See para 3-7.

3-20. TEST OF KEYER MESSAGE DEVICE USING AN/PRC-70

INITIAL SETUP

Test Equipment

Radio Set AN/PRC-70
Keyer Message Device KY-879/P
Cable Assembly CX-13156/GR (2)

SET UP TEST

Step 1. Turn mode switch to SSB.

Step 2. Turn volume to far right.

Step 3. Turn squelch to OFF.

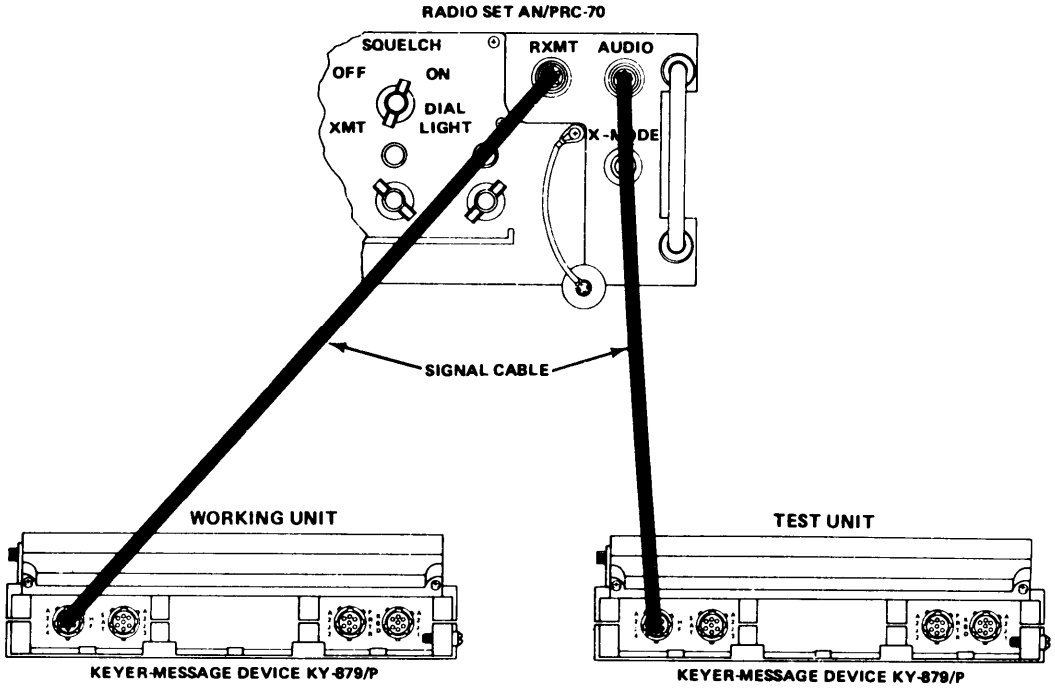
Step 4. Connect signal cable of working device to HF connector at rear of device.

Step 5. Connect other end of cable to RXMT or AUDIO connector on radio set

Step 6. Connect signal cable of unit being tested to HF connector at rear of device.

Step 7. Connect other end of cable to remaining RXMT or AUDIO or-radio set.

Step 8. On Radio-Set. AN/PRC-70, turn power to PWR. Tune and load radio set.



3-20. TEST OF KEYER MESSAGE DEVICE USING AN/PRC-70 - Continued

PERFORM TEST

Step 1. Turn working device on. Verify "SELF TEST COMPLETE UNIT OK" display,

NOTE

If unit responds with an ERROR prompt, isolate the defective module or component by using the troubleshooting procedures in para 3-4.

Step 2. Enter short message.

Step 3. Turn on unit under test and verify "SELF TEST COMPLETE UNIT OK" display.

Step 4. Send message from working unit to unit under test. Verify that message was received.

Step 5. Enter short message in unit under test and send message to working unit.

Step 6. Verify that message was received.

Step 7. Turn both units off.

3-21. TEST OF KEYER MESSAGE DEVICE USING AN/PRC-74

INITIAL SETUP

Test Equipment

Radio Set AN/PRC-74
Keyer Message Device KY-879/P
Cable Assembly CX-13156/GR(2)

SET UP TEST

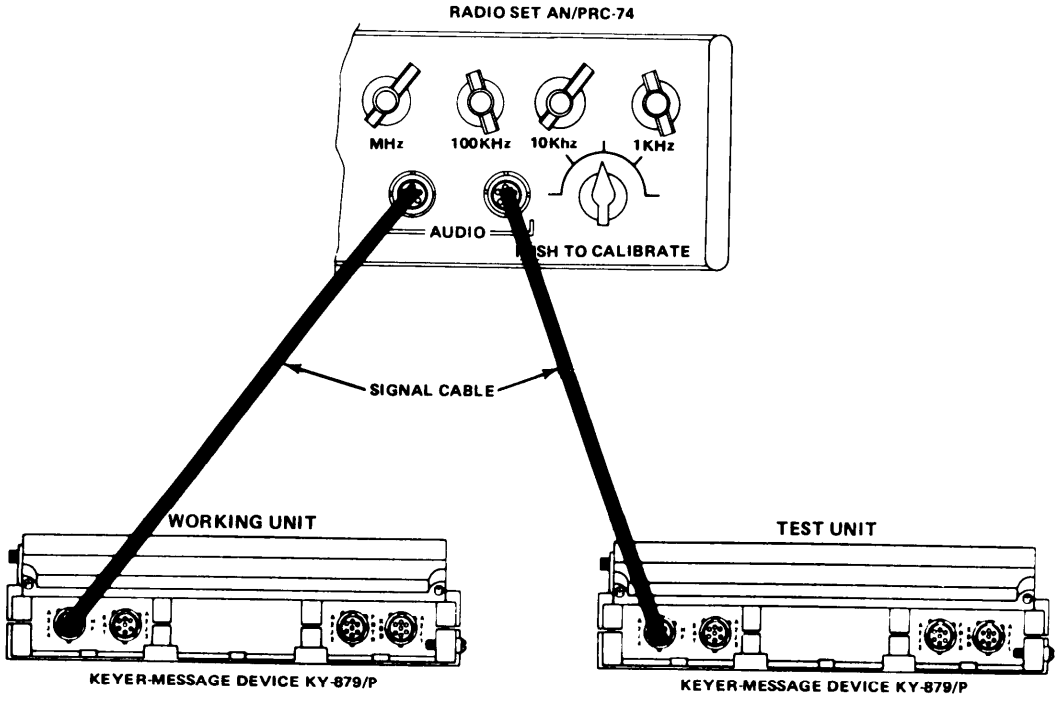
Step 1. Connect signal cable of working device to HF connector on rear of device.

Step 2. Connect other end of cable to either AUDIO connector.

Step 3. Connect second signal cable to HF connector on rear of unit under test.

Step 4. Connect other end of cable to remaining AUDIO connector.

Step 5. Turn on radio and set frequency to minimize interference to nearby stations. Tune and load radio set.



3-21. TEST OF KEYER MESSAGE DEVICE USING AN/PRC-74 - Continued

PERFORM TEST

Step 1. Turn working device on and verify "SELF TEST COMPLETE UNIT OK."

NOTE

If unit responds with an ERROR prompt, isolate the defective module using the troubleshooting procedures in para 3-4.

Step 2. Enter short message.

Step 3. Turn on unit under test and verify "SELF TEST COMPLETE UNIT OK."

Step 4. Send message from working unit to unit under test.

Step 5. Verify that message was received.

Step 6. Prepare short message in unit under test and send message to working unit.

Step 7. Verify that message was received.

Step 8. Turn both units off.

3-22. MAIN BATTERY TEST

INITIAL SETUP

Test Equipment

Multimeter
Resistor, 33 ohm, 2 watt
Power supply PP-6148/U

Equipment Condition

Para	Description
3-7	Main battery removed

BATTERY TEST

NOTE

Battery temperature should be between 400°F (50 C) and 1000° F. (380 C)

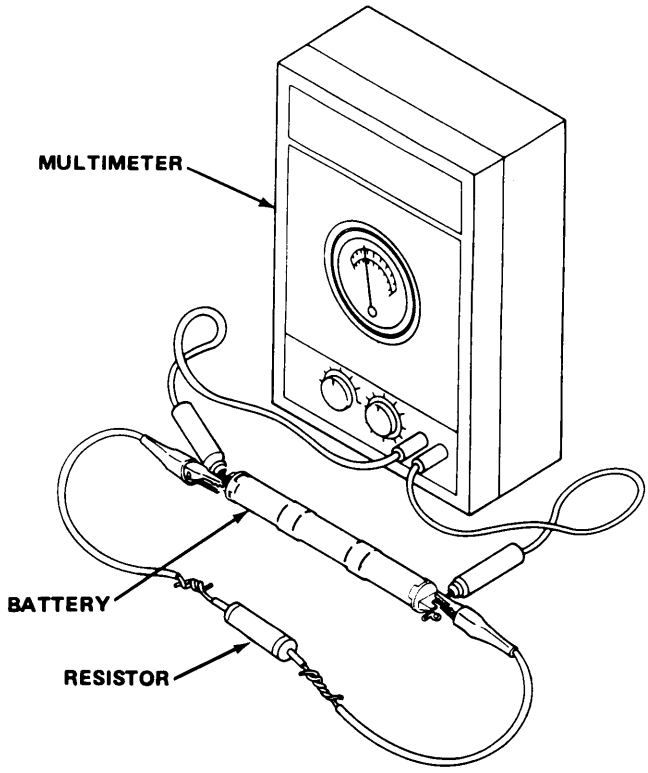
NOTE

Power supply voltage should be at least 9 Vdc.

Step 1. Charge battery pack with power supply PP-6148/U at 200mA for 6 to 8 hours.

Step 2. Connect 33 ohm 2 watt resistor across battery terminals.

Step 3. Connect multimeter across resistor.



3-22 MAIN BATTERY TEST - Continued

Step 4. Read battery voltage every 30 minutes after start of discharge.

Step 5. If battery voltage is below 5 Vdc after 4 hours, disconnect resistor and multimeter and repeat Steps 1, 2, and 3. Failure on 2 successive cycles is cause for rejection and replacement of battery.

Step 6. If battery voltage is above 5.0 Vdc after 4 hours, it is acceptable.

Step 7. Continue discharge until battery voltage reaches 5.0 Vdc.

Step 8. Disconnect resistor and multimeter and recharge battery pack with power supply at 200mA for 6 to 8 hours.

Step 9. With multimeter, measure battery pack terminal voltage for minimum of 6.25 Vdc to maximum 7.0 Vdc.

Step 10. Return battery pack to service.

3-23. RECONDITION MAIN BATTERY PRIOR TO ISSUE

INITIAL SETUP

Test Equipment	Equipment Condition	
	para	Description
Multimeter Power supply PP-6148/U	3-7	Main battery removed.

NOTE

Battery temperature should be between 40° F (5° C) and 100° F (38° C).

NOTE

Power supply voltage should be at least 9 Vdc.

Step 1. Charge battery pack with power supply PP-6148/U at 100mA for 14 hours.

Step 2. With multimeter, measure battery pack terminal voltage for 6.25 Vdc.

Step 3. If battery pack terminal voltage is minimum of 6.25 Vdc to maximum 7.0 Vdc, install battery pack into device. Refer to paragraph 3-7 - Main battery installed.

Step 4. Issue device.

APPENDIX A

REFERENCES

A-1. SCOPE.

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

A-2. FORMS

Discrepancy in Shipment	SF 361
Report of Discrepancy	SF 364
Quality Deficiency Report	SF 368

A-3. MANUALS.

TM 11-5820-887-10	Operator's Manual: Digital Message Device Group OA 8890/P
TM 11-5820-887-24P	Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools): Digital Message Device Group OA-8990/P
TM 740-90-1	Administrative Storage
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)

A-4. MISCELLANEOUS DOCUMENTS.

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 738-750	The Army Maintenance Management Systems(TAMMS)

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1 . GENERAL

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions are limited to and defined as follows:

a. Inspect. To determine the servceabiljty of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on Instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in Its, place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

i. Repair. The application of maintenance services 1), including fault location/troubeshooting 2), removal/installation, and disassembly/assembly 3), procedures, and maintenance actions 4), to identify troubles and restore serviceability to an item by correcting specific damage, fault malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does riot normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

---

1) Services - inspect, test, service, adjust, aline, calibrates and/or replace.

2) Fault locate/troubleshoot - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

3) Disassembly/assembly - encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least component make-up identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

4) Actions - welding, grinding, riveting, straightening, facing, remachining, and/or resurfacing.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to Identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00."

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the Item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2).

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C.	Operator or Crew
0	Organizational Maintenance
F.	Direct Support Maintenance
H.	General Support Maintenance
D	Depot Maintenance

e. Column 5, Tools and equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, SECTION II, column 5.

b. Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National stock number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV

a. Column 1, Reference Code. The code recorded in column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
00	Digital Message Device Group OA-8990/P	Inspect	0.1						
		Repair			0.5			2 thru 4,31	
		Overhaul					4.0	2 thru 6 & 8 thru 25, 31	
01	Keyer-Message Device, KY-879/P	Inspect	0.1						
		Service	0.1						
		Test			1.0				A
		Test					1.0	7 thru 25	
		Repair			0.5			2 thru 4,31	
		Repair					1.0	2 thru 4,31	
	Cable Assembly, Special Purpose Electrical, CX-13156/GR	Inspect	0.1						
		Replace		0.1					
	O-Ring	Inspect			0.1				
		Replace			0.2				
	Top Cover Casting	Inspect	0.1						
		Replace					0.1	2 thru 4,31	
	EMI Gasket	Inspect			0.1			2, 31	
		Replace			0.1			2, 31	
	Bottom Cover Casting	Inspect	0.1						
		Replace					0.1	2, 31	
	EMI Gasket	Inspect			0.1			2, 31	
		Replace			0.1			2, 31	
	Window	Inspect			0.4			2 thru 4,31	
		Replace			0.5			2 thru 4,31	
	Black Sealing Gasket	Inspect			0.3			2 thru 4,31	
		Service			0.4			2 thru 4,31	
		Replace			0.5			2 thru 4,31	

Section II. MAINTENANCE ALLOCATION CHART
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
	Metal Frame	Inspect			0.4			2 thru 4,31	
		Replace			0.5			2 thru 4,31	
	Polarizing Screen	Inspect	0.1						
		Service	0.2						
		Replace		0.2				1	
	Dust Covers	Inspect	0.1					1	B
		Replace	0.1					1	
0101	Assembly, Top Cover	Inspect			0.3			2 thru 4,31	
		Replace					1.0	2 thru 4,31	
		Repair					1.0	2 thru 4,31	
		Test					1.0	7,8,9,28, and 31	
010101	Keyboard Display Module	Inspect			0.3			2 thru 4,31	C
		Replace			0.4			2 thru 4,31	
		Repair					2.0	2 thru 4,31	
	Liquid Crystal Display (LCD)	Inspect			0.3			2 thru 4,31	
		Replace			0.4			2 thru 4,31	
	Zebra Strips (2)	Inspect			0.3			2 thru 4,31	
		Service			0.4			2 thru 4,31	
		Replace			0.5			2 thru 4,31	
	LCD Plastic Molding	Inspect			0.3			2 thru 4,31	
		Replace			0.4			2 thru 4,31	
	Display Plastic Molding	Inspect			0.3			2 thru 4,31	
		Replace			0.4			2 thru 4,31	
	Keyboard Assembly	Inspect			0.3			2 thru 4,31	
		Replace			0.4			2 thru 4,31	

Section II. MAINTENANCE ALLOCATION CHART
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
	Keysheet	Inspect			0.3			2 thru 4,31	
	Support	Replace			0.4			2 thru 4,31	
	Keysheet	Inspect			0.3			2 thru 4,31	
	Molding	Replace			0.4			2 thru 4,31	
010102	Man Machine Interface Board	Inspect			0.3			2 thru 4,31	
		Replace			0.4			2 thru 4,31	
		Test					1.0	7,10,13,15 thru 18,and 31	
		Repair					1.0	2 thru 4,31	
	Zebra Strips (2)	Inspect			0.3			2 thru 4,31	
		Service			0.4			2 thru 4,31	
		Replace			0.5			2 thru 4,31	
010103	Assembly, Fuse Board (B4009012)	Inspect					0.1	2,31	F
		Replace					0.2	2,31	
	Fuse	Inspect			0.1			2,31	
		Replace			0.4			2,31	
0102	Assembly, Center Section	Inspect			0.3			2 thru 4,31	
		Replace					1.0	2 thru 4,31	
		Repair					1.0	2 thru 4,31	
		Test					1.0	7,8,9,28, and 31	
010201	Main Processor Board	Inspect			0.3			2,31	
		Replace			0.4			2,31	
		Test					1.0	11,13,15 thru 18, and 31	
		Repair					1.0	2,31	
	Zebra Strips (3)	Inspect			0.2			2,31	
		Service			0.3			2,31	
		Replace			0.4			2,31	

Section II. MAINTENANCE ALLOCATION CHART
FOR
DIGITAL MESSAGE DEVICE GROUP 0A-8990/P

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
	Memory Battery Assembly	Inspect			0.2			2,6, and 31	
		Replace			0.3			2,31	
010202	Synchronous Input/ Output Board	Inspect			0.3			2,31	
		Replace			0.4			2,31	
		Test					1.0	12,13,15 thru 18, and 31	
		Repair					1.0	2,31	
	Zebra Strips (2)	Inspect			0.2			2,31	
		Service			0.3			2,31	
		Replace			0.4			2,31	
010203	Power Module Assembly	Inspect			0.3			2,31	D
		Replace			0.4			2,31	
		Test					1.0	2,14 and 31	
		Repair					1.0	2,31	
01020301	Assembly Power Board (B4009016)	Test					0.5	7,31	
		Replace					0.5	2,31	
		Repair					0.5	2,31	
	Power (Charging) Cable, CX-13158/GR	Inspect	0.1						
		Replace		0.1					
	Battery Adapter MX-18208/PRC-74 (Charging Adapter)	Inspect	0.1						
		Replace		0.1					
	Main Battery without fuse cap	Inspect	0.1					1	E,F
		Test			6.5			2,5,6 and 30	
		Service	1.1					1	
		Replace	0.2					1	

Section II. MAINTENANCE ALLOCATION CHART
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
	Main Battery with fuse cap	Inspect	0.1					1	B,E
		Test			6.5			2,5,6 and 30	
		Service	1.1					1	
		Replace	0.2					1	
	Fuse	Inspect	0.1					1	B
		Replace	0.1					1	
	EMI Gasket	Inspect	0.1					1	
		Replace			0.1			2	
	Dessicant Bag	Replace			0.1			2,31	G

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

TOOL OR TEST EQUIPMENT PER CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL NATO STOCK NUMBER	TOOL NUMBER
1	C,O	Tool Kit, Electronic Equipment TK 101/G	5180-00-064-5178	
2	F,D	Tool Kit, Electronic Equipment TK 105/G	5180-00-610-8177	
3	F,D	5.5 Millimeter Socket	5120-01-046-4941	NDM5.5A
4	F,D	5.0 Millimeter Socket	5120-00-046-4940	NDM5.0A
5	F,D	Resistor 33 ohm, 2 Watt		
6	F	Multimeter AN/USM-223	6625-00-999-7465	
7	D	Multimeter, AN/GSM-64B	6625-00-022-7894	
8	D	Power Supply, HP6291A	6130-00-179-7718	
9	D	DMDG Test Fixture, MA6306 (23386)		
10	D	Man-Machine Interface Test Fixture (23386)		
11	D	Main Processor Test Fixture (23386)		
12	D	Sync I/O Test Fixture (23386)		
13	D	RCA COSMAC Micromonitor CDP18S030 (86684)		
14	D	Power Module Assembly Test Fixture (23386)		
15	D	Oscilloscope, Dual Trace AN/USM-281C	6625-00-106-9622	
16	D	Amplifier, Single Trace, AM-6555/U	6625-00-106-9625	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
DIGITAL MESSAGE DEVICE GROUP OA-8990/P

TOOL OR TEST EQUIPMENT PER CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL NATO STOCK NUMBER	TOOL NUMBER
17	D	Time Base Unit TD-1085/U	6625-00-106-9624	
18	D	Probe, Oscilloscope, P6105	6625-01-099-9120	
		(For Pressure Test)		
		Item — Manufacturer		
19	D	Compressor, Speedaire P/N 12626		
20	D	Regulator, Speedaire P/N 12476		
21	D	Pressure Hose, Speedaire P/N 22252		
22	D	Hose Connector, Speedaire P/N 42396		
23	D	Hose Coupler, Speedaire P/N 2X170		
24	D	Adaptor, Special 1/4" male pipe thread to 4mm male pipe thread		
25	D	4mm metric hex key wrench (to remove pressure release screw)		
26	F	AN/PRC-70 Radio		
27	F	AN/PRC-74 Radio		
28	F	KY-879/P, Keyer-Message Device	5820-01-100-3194	
29	F	CX-13156/GR, Signal Cable(2)	5995-01-100-6254	
30	F	Power Supply, PP-6148/U	6130-01-062-3618	
31	F,D	Static Control Service Kit	6625-01-168-2044	

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	To test DMDG use an HF radio (AN/PRC-70 or AN/PRC-74) and a working DMDG. This will also require two Signal Cables CX-13156/GR.
B	Installed on units with serial numbers 16 thru 806 and 3001B and above.
C	Module to be returned to depot for repair. Depot to test and repair man-machine interface board.
D	Center section casting must be returned with power board to depot.
E	Charge from AN/PRC-70 or AN/PRC-74 using Charging Cable, CX-13158/GR, and charging Adapter MX-18208/PRC-74, if required.
F	For units with serial numbers 1 thru 1886.
G	Replace each time the device is opened up.

APPENDIX C
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the DMDG. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair parts, and Heraldic Items).

C-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, App. C").

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 identlfy 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	8305-00-205-3456	Cloth, Cheesecloth (81348) CCCC440	YD
2	F	MIL-STD-1201AA	Alcohol, denatured	OZ
3	F	60-40-TIN	Solder	ROLL
4	C	MIL-S-8660B	Silicon grease	TUBE

INDEX

INDEX - Continued

INDEX - Continued

INDEX - Continued

INDEX - Continued

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. . PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure the the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		FO3		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE
I. M. DeSpiritof

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TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5820-887-24	23 February 1983	DIGITAL MESSAGE DE ICE ROUP OA-8990/P

BE EXACT PIN-POINT WHERE IT IS			
PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

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

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

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