

TM 11-5895-1847-12&P

TECHNICAL MANUAL

**OPERATORS MANUAL
CREW MAINTENANCE
FOR THE**

**LCU 2000 GLOBAL MARITIME DISTRESS AND
SAFETY SYSTEM (GMDSS)**

**LSV (1915-01-153-8801)
LCU 2000 (1905-01-154-1191)
TUG 128' SERIES (1925-01-247-7110)**

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
10 JULY 2003**

WARNING SUMMARY

LOCKOUT, TAGOUT OF POWER SOURCE

Personnel must not service equipment unless the power source is properly locked out and tagged out of service. Always disconnect electrical power before attempting any maintenance action.

JEWELRY

Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock. Remove rings, bracelets, wristwatches, and neck chains before working around or on a unit.

HEAVY OBJECTS

Exercise care and use appropriate lifting equipment when handling heavily weighted objects. Do not lift materials or equipment over 50 lbs without using appropriate material handling equipment.

BATTERIES

Batteries give off explosive hydrogen gas. Do not smoke around batteries. When connecting battery cables, always connect cable to positive battery terminal first. When disconnecting battery cables, always disconnect negative cable first.

HAZARD REPORTING

Report all hazards. If at any time you detect a hazard, it is your responsibility to report the hazard to ensure that it is corrected. If you detect a "new" or "suspected new" hazard, particularly due to equipment installation, modification, or repair, it is your responsibility to report this through your chain-of-command to ensure that a safety gram is submitted to the tank and automotive command (tacom), safety office. This will ensure that the hazard will be investigated, publicized, or corrected, as required.

HIGH VOLTAGE

Use extreme caution when checking energized circuits. Be certain that there is someone assisting you who can remove power immediately. Always place power off warning tags on power supply switches so that no one will apply power while performing maintenance.

POLARITY

Ensure polarity is correct when reassembling or connecting direct current (dc) systems.

DEFINITIONS

Icon.

Pictorial representation; visual image to give immediate recognition of a hazard.

GENERAL REQUIREMENTS

Usage of Icons: Icons shall be used with signal word(s). The signal word(s) shall be placed to the right of or below the icon(s). The icon(s) shall precede applicable text in the technical manual.

Development of Icons:

- A. Icons shall be enclosed in a square or rectangular box. The signal word(s) for single icons shall appear outside the box at the upper right-hand side. Type size for signal word(s) shall be no smaller than 10 point; 12 point bold face type is recommended.
- B. As specified by the contracting activity, icons shall or shall not be prepared for electronic presentation (digitizing) per government-provided requirements.

DETAILED REQUIREMENTS

Icons and Definitions: The following icons shall be used in warnings for all technical manuals governed by this specification when applicable. Unless requirement is specifically excluded by the contracting activity, the signal words and definitions shall be used as listed herein.

Signal word(s) appears in all capital letters below, preceding the definition. The signal word(s) and definition appear first followed by the icon (picture).

WARNING

An operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury or death to personnel.

CAUTION

An operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in damage to or destruction of equipment or loss of mission effectiveness, or long-term health hazards to personnel.

SAFETY WARNING ICONS



EAR PROTECTION

WARNING

EAR PROTECTION - Headphones over ears shows that noise level will harm ears.



ELECTRICAL

WARNING

ELECTRICAL - Electrical wire to hand with electricity symbol running through hand shows that shock hazard is present.



ELECTRICAL

WARNING

ELECTRICAL - Electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.



FALLING PARTS

WARNING

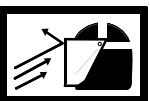
FALLING PARTS - Arrow bouncing off human shoulder and head shows that falling parts present a danger to life or limb.



FLYING PARTICLES

WARNING

FLYING PARTICLES - Arrows bouncing off face shows that particles flying through the air will harm face.



FLYING PARTICLES

WARNING

FLYING PARTICLES - Arrows bouncing off face with face shield shows that particles flying through the air will harm face.



HEAVY OBJECTS

WARNING

HEAVY OBJECT - Human figure stooping over heavy object shows physical injury potential from improper lifting technique.

SAFETY WARNING ICONS - Continued



HEAVY PARTS

WARNING

HEAVY PARTS - Hand with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS

WARNING

HEAVY PARTS - Foot with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS

WARNING

HEAVY PARTS - Heavy object on human figure shows that heavy parts present a danger to life or limb.



SHARP OBJECT

WARNING

SHARP OBJECT - Pointed object in foot shows that a sharp object presents a danger to limb.



SHARP OBJECT

WARNING

SHARP OBJECT - Pointed object in hand shows that a sharp object presents a danger to limb.



SLICK FLOOR

WARNING

SLICK FLOOR - Wavy line on floor with legs prone shows that slick floor presents a danger for falling.

HAZARDOUS MATERIAL WARNING ICONS

WARNING



EXPLOSION

EXPLOSION - Rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition or high pressure.

WARNING



EYE PROTECTION

EYE PROTECTION - Person with goggles shows that the material will injure the eyes.

WARNING



FIRE

FIRE - Flame shows that a material may ignite and cause burns.

WARNING



VAPOR

VAPOR - Human figure in a cloud shows that material vapors present a danger to life or health.

LIST OF EFFECTIVE PAGES / WORK PACKAGES

Dates of issue for original and changed pages / work packages are:

Original 10 July 03

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NUMBER OF WORK PACKAGES IS 167 CONSISTING OF THE FOLLOWING:**

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 10 JULY 2003

TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)
GMDSS001/LCU

Current as of 10 July 2002

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028-2 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is <http://aeeps.ria.army.mil>. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS website. Fill out the form and click on "SUBMIT". Using this form on the AEPS website will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, E-mail or fax your letter, DA Form 2028, or DA Form 2028-2 directly to: Commander, U.S. Army Tank-Automotive and Armaments Command, ATTN: AMSTA-LC-CIP-WT, Rock Island, IL 61299-7630. The E-mail address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HOW TO USE THIS MANUAL

This manual contains certain features to improve the convenience of using this manual and increase the user's efficiency. These features include:

a. Accessing Information

Information is accessed by going to the Table of Contents (located in the Front Matter work package of this manual) or by looking in the Alphabetical Index (located in the Rear Matter work package of this manual).

b. Illustrations

A variety of methods are used to make locating and fixing components much easier. Locator illustrations in Controls and Indicator tables, PMCS tables, exploded views and cut-away diagrams make the information in the manual easier to understand and follow.

c. Using this manual

When using this manual, read and understand the entire maintenance action before performing the task. Also, read and understand all warnings, cautions and notes, as well as general safety precautions, that apply to the task to be performed. The warning summary will inform personnel of hazards associated with the equipment to be worked on. However, the summary is not all inclusive and personnel should be aware at all times of hazardous conditions that may arise.

Prior to starting the procedures in this manual, you will find the initial set-up requirements located directly above each procedure. The information is given to ensure all materials, expendables, tools and any other equipment necessary, are readily available for use. The initial set-up will be accomplished prior to starting the actual steps of each maintenance procedure.

Locating Major Components

Obtain the manual for the CEN system to be worked on. Open to the Table of Contents located in the Front Matter work package. Find Chapter One, "Description and Theory of Operation". Under the chapter title you will find the work package titled "Location and Description of Major Components". Turn to the work package indicated. This work package will give a brief description of the major components, show a picture of what the component looks like and its location.

To find items in the "Alphabetical Index", which is located in the "Rear Matter" of the manual you will find an alphabetical list of all sections of this manual. Look down the list to find the "L" section and under this area you will find "Location and Description of Major Components". On the right side of the title will be the work package where the "Location and Description of Major Components" is located. Turn to the work package indicated to find the description and location of each component.

Operator Instructions

To perform a task located under "Operator Instructions", open the applicable manual to the "Table of Contents" located in "Front Matter" of the manual. Look in Chapter 2 of the "Operator Instructions". Locate the procedure that you want to perform. Next to the procedure, on the right, locate the work package number. Turn to the work package number in the manual. Perform the initial set-up by obtaining the expendables, tools, materials and other items listed prior to starting the task. Perform the listed steps in order. The alphabetical index can also be used to locate the item and procedures to follow.

Location of Controls and Indicators

To locate a particular control and or indicator, open the manual to the Table of Contents. Find “Operator Instructions”. Locate the section on Controls and Indicators. Turn to the work package indicated. Locate the control and or indicator that you are attempting to identify. Take note of the number pointing to the control or indicator. Refer to the table below the picture and find the number in the column on the far left-hand side. Reading from left to right, find the number that matches the number from the picture, then read the name of the control/indicator and follow the function of the item, as detailed in the far right hand column.

Troubleshooting Procedures

As with all sections of this manual, the Table of Contents or Alphabetical Index may be used to locate sections of this manual. To locate a particular troubleshooting procedure in the Table of Contents, open the manual to the Table of Contents. Look down the list until you find the section “Troubleshooting Procedures”. Under this section you will find a work package titled “Troubleshooting Index”. Turn to the work package indicated. Here you will find a list of all the troubleshooting procedures. Look down the list until you find the appropriate work package for the problem you are trying to solve. To the right side of the procedure will be a work package number. Turn to the work package indicated and follow the steps to complete the troubleshooting procedure. The procedures list the malfunction, symptom and the corrective action. The corrective action will either let you know which maintenance procedure to go to for the repair of the symptom or let you know what level of maintenance is capable of repair of the problem.

MAINTENANCE INSTRUCTIONS

To locate a maintenance procedure, go to the “Table of Contents” located in the “Front Matter” of the manual. Look down the list until you come to the section titled “Maintenance Instructions”. Continue until you come to the maintenance procedure you are going to accomplish. On the right side of the maintenance procedure will be a work package number. Turn to the work package indicated. Before beginning the maintenance task, look through the procedure. You must familiarize yourself with the entire maintenance procedure before beginning the maintenance task. At the top of the task you will have a section called “Initial Setup”. There are five basic headings listed under “Initial Setup”.

1. **Tools:** Lists all tools (standard or special) required to perform the task. Tools are identified with an item number and work package number from the “Tool Identification List” located in the “Supporting Information” chapter in the back of this manual.
2. **Materials/Parts:** Lists all parts or materials necessary to perform the task. Expendable and durables are identified with an item number from the applicable work package located in the chapter “Supporting Information” of this manual.
3. **Personnel Required:** Lists all personnel necessary to perform the task.
4. **Equipment Condition:** Notes the conditions that must exist before starting the task. The equipment condition will also include any prerequisite maintenance tasks to be performed with reference to a work package number containing the steps necessary to complete the task.
5. **References:** Includes any other manuals necessary to complete the task. “No references listed” means that all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package “References” under the “Supporting Information” chapter located in this manual.

Refer to the Supporting Information chapter of this manual when requisitioning parts, special tools and equipment.

CHAPTER 1
DESCRIPTION AND THEORY OF OPERATION
FOR
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GENERAL INFORMATION**

SCOPE

The purpose of this manual is to provide information for the Global Maritime Distress and Safety System (GMDSS) installed on the Landing Craft Utility (LCU) 2000.

Type of Manual: Operator and Unit Maintenance.

Purpose of Equipment: The System provides a communication link from vessel to vessel or from vessel to bridge and as a navigational aid by means of the Global Positioning System (GPS).

MAINTENANCE FORMS, RECORDS AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS); and AR 700-138, Army Logistics Readiness and Sustainability.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If any component in your system 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 or performance. Put it on an SF 368, Product Quality Deficiency Report. Mail it to the address specified in DA PAM 738-750, or as specified by the contracting activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling or breaking of the materials may be a corrosion problem. If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words, such as "corrosion", "rust", "deterioration" or "cracking", will ensure that the information is identified as a CPC problem. The form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

OZONE DEPLETING SUBSTANCES

The continued use of ODS has been prohibited by Executive Order 12856 of 3 August 1993.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

The procedures for destruction of Army materiel to prevent enemy use are contained in TM 750-244-6.

PREPARATION FOR STORAGE AND SHIPMENT REFERENCE

All components requiring shipment back to manufacturer should be packed to prevent any damage to component.

LIST OF ABBREVIATIONS/ACRONYMS

| Abbreviation/Acronym | Name |
|-----------------------------|------------------------------------------------------------|
| AC | Alternating Current |
| AAL | Additional Authorization List |
| BII | Basic Issue Items |
| CAGEC | Commercial And Government Entity Code |
| CEN | Communications Electronic and Navigation |
| CDD | Complete Discharge Device |
| CES | Coast Earth Station |
| CLES | COMSAT Land Earth Stations |
| cm | Centimeters |
| COEI | Components Of End Item |
| CPC | Corrosion Prevention Control |
| CRYPTO | Cryptography |
| CTA | Common Table of Allowances |
| CVW | Crypto Variable Weekly |
| dB | Decibels |
| DC | Direct Current |
| DIMM | Dual Inline Memory Module |
| DSC | Digital Selective Calling |
| EIR | Equipment Improvement Recommendations |
| EPIRB | Emergency Position Indicating Radio Beacons |
| EPLGR | Enhanced Precision Lightweight Global Positioning Receiver |
| F | Fahrenheit |
| FAX | Facsimile Transmission |
| FCC | Federal Communications Commission |
| ft | Feet |
| FIG | Figure |
| FM | Frequency Modulation |
| GFI | Ground Fault Indicator |
| ghz | Gigahertz |
| GMDSS | Global Maritime Distress and Safety System |
| GMT | Greenwich Mean Time or Zulu time |
| GPS | Global Positioning System |
| GUI | Graphical User Interface |
| GUV | Group Unique Variable |
| HF | High Frequency |
| HSD | High-Speed Draft |
| Hz | Hertz |
| IFRB | International Frequency Registration Board |
| IMO | International Maritime Organization |
| in. | Inches |
| INMARSAT | International Maritime Satellite Organization |
| Kb | Kilobytes |
| kg | Kilograms |
| kHz | Kilohertz |
| LBR | Lifeboat Radio |
| lbs | Pounds |
| LCD | Liquid-Crystal Display |
| LCU | Landing Craft Utility |
| LED | Light Emitting Diode |
| m | Meters |
| MAC | Maintenance Allocation Chart |

| | |
|--------|---------------------------------------------------|
| mam | Milliampere |
| MF | Medium Frequency |
| mhz | Megahertz |
| MMSI | Maritime Mobile Service Identity |
| MOB | Man Overboard |
| MPS | Mission Planning Software |
| MSI | Maritime Safety Information |
| MTO&E | Modified Table of Organization and Equipment |
| NAVTEX | Navigational TELEX |
| NCS | Network Control Station |
| NEMA | National Electric Manufacturers Association |
| NICAD | Nickel Cadmium |
| NLQ | Near Letter Quality |
| NOAA | National Oceanic and Atmospheric Administration |
| NSA | National Security Agency |
| NSN | National Stock Number |
| NSN | National Stock Number |
| ODS | Ozone Depleting Substances |
| PC | Personal Computer |
| PLGR | Precision Lightweight Global Positioning Receiver |
| PMCS | Preventive Maintenance Checks and Services |
| PTT | Push To Talk |
| RCC | Rescue Coordination Center |
| RF | Radio Frequency |
| RPOA | Recognized Private Operating Agency |
| RPSTL | Repair Parts and Special Tools List |
| Rx | Receive |
| SA | Selective Availability |
| SAR | Search and Rescue |
| SART | Search and Rescue Transponder |
| SOLAS | Safety Of Life At Sea |
| TAMMS | The Army Maintenance Management System |
| TDA | Table of Distribution of Allowances |
| TMDE | Test, Measurement, Diagnostic Equipment |
| TO&E | Table of Organization and Equipment |
| Tx | Transmit |
| UT | Universal Time |
| UTC | Universal Coordinated Time (Greenwich Mean Time) |
| uv | Ultra Violet |
| vac | Volts Alternating Current |
| vdc | Volts Direct Current |
| VHF | Very High Frequency |
| WP | Waypoints or Work Package |

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GMDSS CHARACTERISTICS, CAPABILITIES AND FEATURES

HISTORY OF THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

In 1979, the International Maritime Organization (IMO) recognized the need for an updated maritime communications system and helped create the International Maritime Satellite (INMARSAT) system employing geostationary satellites positioned above the Atlantic, Indian and Pacific oceans. Shortly thereafter, a polar orbiting satellite system was established to locate Emergency Position Indicating Radio Beacons (EPIRB). The IMO also decided to commence a general upgrade of the distress and safety system to be known as GMDSS. This system would provide rapid and automated distress reporting and improved telecommunications for the maritime community.

In 1988, the IMO amended its Safety Of Life At Sea (SOLAS) convention to complete this upgrade of the maritime safety communications procedures and equipment for GMDSS. GMDSS applies system automation techniques to the traditional maritime Medium Frequency (MF), High Frequency (HF) and Very High Frequency (VHF) bands, which previously required a continuous listening watch. GMDSS incorporates the INMARSAT and the EPIRB satellite systems to improve the reliability and effectiveness of the distress and safety system on a global basis. GMDSS also provides for the timely dissemination of maritime safety information, including navigational and meteorological warnings and weather forecasts.

On 1 February 1999, the voice watchkeeping requirement on 2182 kHz for GMDSS equipped vessels ceased. The Coast Guard shore network now maintains a voice guard on channel 16 VHF and 2182 kHz MF. These networks are being upgraded to include the GMDSS Digital Selective Calling (DSC) on channel 70 VHF and 2187.5 kHz MF. While the Coast Guard plans to maintain the shore watch on channel VHF 16 for a number of years, there is no assurance that the 2182 kHz MF and HF voice watches will be continued. Existing Coast Guard MF and HF watches are being augmented with DSC to improve high seas telecommunications services to the maritime public.

OVERVIEW OF GMDSS

Distress Alerting

Distress alerting may be accomplished in three different ways: ship to shore, ship to ship and shore to ship. If terrestrial radio links, rather than satellite, are used, nearby ships will also hear the alert. The initial alert may be sent in a number of ways. The alert may be sent via INMARSAT-C, VHF/FM DSC radio, MF/HF DSC radio or EPIRB. All of these methods give the vessel's identity as well as its location. A DSC alert is the only type that can be picked up by another vessel. It is normally the responsibility of the Rescue Coordination Center (RCC) to respond with an acknowledgement. Vessels at sea should not normally acknowledge receipt of an initial distress alert.

Distress Relay

Once an RCC has heard and acknowledged a distress, it may wish to alert other vessels in the area by means of a distress relay. The relay can be addressed to a precise geographic area so that vessels too far away to render help are not involved. Vessels can be alerted using INMARSAT-C, VHF/FM DSC radio, MF/HF DSC radio or Navigational TELEX (NAVTEX). Any vessel receiving a distress alert directly, or a distress relay, must contact the RCC to offer assistance. Vessels at sea should not normally send a distress relay themselves.

Search and Rescue

When the Search and Rescue (SAR) phase is entered, all communication is two-way to coordinate the activities of ships and aircraft using terrestrial and satellite communication links available. Specific frequencies are allocated for this purpose. Under all circumstances, a shore based RCC takes charge of the operation. The RCC may be located as much as a hemisphere away from the actual casualty. Vessels and aircraft close to the casualty will communicate between themselves using short range terrestrial communications (VHF or MF). Specially designated Search and Rescue (SAR) radio channels will be used. Precise location of the casualty will be aided by the use of a Search and

Rescue Transponder (SART) or the 406 MHz section of a satellite Emergency Position Indicating Radio Beacon (EPIRB). Both of these items may be carried in the lifeboat. Portable VHF lifeboat radios are used by survivors to communicate with rescuers on channels 6 or 16.

Maritime Safety Information (MSI)

Information regarding potential navigation or meteorological hazards, weather forecasts and changes or malfunctions of aids to navigation, such as the Global Positioning System (GPS) or search and rescue information, may be sent via NAVTEX or INMARSAT-C.

General Communications

General communications between vessels and between vessels and harbor authorities, pilots, Coast Guard, etc., are also provided for in GMDSS. These communications are made using VHF/FM DSC radio or MF/HF DSC radio. Provisions also exist for calling a group of vessels using a common, temporary Maritime Mobile Service Identity (MMSI) and for calling all vessels within a definable geographic area. E-mail and TELEX messages may be sent via INMARSAT-C.

Bridge to Bridge Communications

Communications between vessels at sea for the purpose of safety and collision avoidance are conducted on VHF/FM DSC. Ships will normally keep watch on VHF/FM when an imminent risk of collision exists, as well as on the appropriate DSC frequency. If a potential collision situation exists, it is appropriate to call the ship directly on VHF/FM in order to agree on appropriate measures to avoid collision. If a vessel is unable to maneuver due to loss of power, an all ships safety call should be made on DSC channel 70 with a subsequent voice call on channel 16.

**OPERATOR AND UNIT MAINTENANCE
GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
LOCATION AND DESCRIPTION OF GLOBAL MARITIME DISTRESS
AND SAFETY SYSTEM (GMDSS) MAJOR COMPONENTS**

DESCRIPTION OF THE WATCH RECEIVER ANTENNA

The watch receiver antenna (1) is a 23 ft fiberglass antenna that provides the radio signal to the watch keeping receiver and the Digital Selective Calling (DSC) controller.

DESCRIPTION OF THE NAVTEX RECEIVER ANTENNA

The Navigational TELEX (NAVTEX) antenna (2) is a 23 ft fiberglass antenna that provides the radio signal to the NAVTEX receiver and weather facsimile machine.

DESCRIPTION OF THE SATELLITE COMMUNICATIONS SYSTEM ANTENNA

The satellite communications system antenna (3) provides satellite data to the satellite communications system.

DESCRIPTION OF THE DSC VHF/FM TRANSCEIVER ANTENNA

The DSC Very High Frequency/Frequency Modulation (VHF/FM) antenna (4) is a 15 ft fiberglass antenna that provides the radio signal to the DSC VHF/FM transceiver.

DESCRIPTION OF THE GPS ANTENNAS

Two Global Positioning System (GPS) antennas (5) are installed, one for the navigation Precision Lightweight Global Positioning Receiver (PLGR) and one for the communications PLGR. These antennas provide the GPS signal for operation of the PLGRs.

DESCRIPTION OF THE WATCH RECEIVER

The watch receiver (6) is a six channel Medium Frequency/High Frequency (MF/HF) watch keeping receiver which, when combined with the DSC controller, permits scanning of up to six DSC distress and safety frequencies in the MF/HF bands to monitor these frequencies automatically and continuously. The watch receiver, located in the 9701 GMDSS console, includes built in test equipment which permits the operator to easily and quickly test all six channels for normal operation. The receiver scans any desired set of the six GMDSS watch frequencies. Federal Communications Commission (FCC) 80.1091(b)(2) requires that the watch receiver be capable of maintaining DSC watch on 2187.5 khz, 8414.5 khz and on at least one of the remaining four frequencies. For that reason, the 2187.5 khz and 8414.5 khz frequencies in the watch receiver cannot be de-selected by the operator.

DESCRIPTION OF THE SATELLITE COMMUNICATIONS SYSTEM

The satellite communications system is composed of the INMARSAT-C transceiver (7), data terminal (8), printer (9), auto switch and omni-directional antenna (3). The satellite communications system, also known as INMARSAT-C, offers high integrity distress and routine communication. The satellite communications system incorporates the Global Positioning System (GPS) signal from the Precision Lightweight Global Positioning System Receiver (PLGR) to insert the vessel's position automatically into a distress message. By pushing the required INMARSAT-C transceiver, located in the 9701 GMDSS console, a distress message may be sent giving the vessel's identity number and location. The INMARSAT-C is not equipped for voice communication, but provides a high quality email, facsimile transmission (FAX) and TELEX communication by using the INMARSAT-C data terminal. The satellite communications system has the capability to receive Maritime Safety Information (MSI) appropriate to the ocean area where the vessel is sailing. MSI is comprised of weather forecasts, navigation warnings and distress relays.

DESCRIPTION OF THE INMARSAT-C TRANSCEIVER

The INMARSAT-C transceiver (7) is a component of the satellite communication system. The transceiver will automatically perform a login when the transceiver power is turned on. A manual login is required if a logout was performed and the transceiver power was not turned off or operation in a different ocean region is desired. The transceiver can be operated in one of two modes, normal and terminal. The terminal mode is available for users wanting to customize the system to a degree not available from the windows of the message handling software. In terminal mode, the user is in direct contact with the transceiver and able to issue commands by typing them from the keyboard.

The transceiver is a message center containing transceiver and GPS status reports, in addition to the message log and poll files. All incoming and outgoing messages are recorded in special log files. Each log file may hold as many as 50 messages. The names of the log files have a special layout such as: LOG09-03.001, LOG10.93.001 or LOG10.93.002 where 09 and 10 are September and October respectively. 93 is the year. 001 and 002 is a sequential number within each month. A new log file is generated when a new month begins or when the size of the file gets larger than 100 Kb.

A poll is a message, but it differs from normal messages in that it can only be sent from a terrestrial user (TELEX, x.25 or telephone modem), a mobile unit, and in that it may simultaneously be received by several units. A poll can be addressed to one specific mobile, a group of mobiles or a group of mobiles within a specified geographic or navigational area. The reception of a poll can initiate the transmission of a position report or trigger some other pre-defined event. As shipped, the INMARSAT-C only supports transmission of position reports in response to a poll. When an INMARSAT-C unit responds to a poll, the response is either forwarded to the terrestrial user at once or it is stored at the land station for later retrieval. When receiving a poll the transceiver will generate a file containing the data of the poll. These files will be named POLLFILE.000, POLLFILE.001, etc. On the data terminal the files will be placed in the start-up directory. No further action will be taken.

The transceiver also utilizes the Data Network ID (DNID). The DNID is a unique number, which serves as a link between the terrestrial user and the mobile units. For example, the DNID is used when the terrestrial user issues a poll and also when the mobile responds. A user may have several DNIIDs. When several mobiles have the same DNID, this is called a group. Each user in a group is also designated a member number, which enables a terrestrial user to differentiate between the users in a group. This is especially important when responses from the users are processed at the premises of the terrestrial user. The user interface allows the user to enable or disable DNIIDs. If a DNID is disabled you will not receive any poll with this DNID or be able to use it for position reporting.

DESCRIPTION OF THE INMARSAT-C DATA TERMINAL

The INMARSAT-C data terminal (8), located on the flag case, is a component of the satellite communication system. The data terminal is composed of a computer, Alternating Current (AC) adapter and battery pack. The data terminal is used to compose e-mail messages, TELEX messages and FAX to be sent using the satellite communications system. In addition, the data terminal allows the operator to perform file management and print information received or transmitted.

DESCRIPTION OF THE INMARSAT-C PRINTER

The INMARSAT-C printer (9), located on the flag case, is a dot matrix printer capable of printing 240 characters per second in draft mode. The INMARSAT-C printer prints e-mail, TELEX and MSI messages received through the satellite communications system.

DESCRIPTION OF THE INMARSAT-C DATA TERMINAL/INMARSAT-C PRINTER AUTO SWITCH

The INMARSAT-C data terminal/INMARSAT-C printer auto switch provides switching for information received from the INMARSAT-C. The information is automatically switched between the INMARSAT-C data terminal and the INMARSAT-C printer. The auto switch is located on the shelf behind the 9701 GMDSS console.

DESCRIPTION OF THE DSC CONTROLLER

The MF/HF DSC controller (10), located in the 9701 GMDSS console, is composed of a transceiver and an antenna. The DSC controller provides enhanced distress calling capability. The distress call is received by every ship and coast station monitoring the international distress frequencies. The DSC controller repeats a transmitted distress message every four minutes until it is acknowledged. The DSC controller incorporates the GPS signal from the PLGR to insert the vessel's position automatically into a distress message. An alarm sounds when incoming messages are received. Unanswered calls are logged for automated call back. Routine calls can be transmitted and received between DSC equipped vessels or Coast Earth Stations (CES). Once the call is received by the intended party an acknowledgement is transmitted to the sender of the call leaving no doubt whether the call was received. Because each station has a unique DSC number, only the intended party will respond to the call. All ships calling is also provided. The all ships format is useful for initiating safety messages, such as weather reports and navigational warnings.

DESCRIPTION OF THE SERIAL PRINTER

The serial printer (11), located on the bulkhead below the PLGR, is a dot matrix printer capable of printing 240 characters per second in draft mode. The serial printer prints information received from the DSC controller.

DESCRIPTION OF THE COMMUNICATIONS PLGR

The communications PLGR (12), located on the bulkhead above the serial printer, supplies GPS position to the DSC controller, satellite communications system and the DSC VHF/FM transceiver through the communications interface and switchbox. The PLGR receives GPS data from the GPS antenna located on the mast. A PLGR interface cable receives power for the PLGR from the interface and switchbox, receives the GPS signal from the interface and switchbox and returns the ship's position to the interface and switchbox for distribution to DSC controller, satellite communications system and the DSC VHF/FM transceiver. The communications PLGR may be used to mark the position of a man overboard and provide route navigation when properly programmed.

DESCRIPTION OF THE COMMUNICATIONS INTERFACE AND SWITCHBOX

The communications interface and switchbox, located on the shelf behind the 9701 GMDSS console, is an interface between the communications PLGR, the ship's power supply and the GPS antenna. The communications interface and switchbox is also a switchbox that turns power on or off to the communications PLGR, allowing the PLGR to be programmed by the INMARSAT-C data terminal, and allows the operator to turn the position signal on or off to the DSC controller, satellite communications system and the DSC VHF/FM transceiver. The communications interface and switchbox also allows input of differential GPS data to the PLGR.

DESCRIPTION OF THE GMDSS AUTOMATIC POWER SWITCH

The GMDSS automatic power switch (13), located on the bulkhead below the 9701 GMDSS console shelf, provides automatic switching of power for the GMDSS. Power from the GMDSS power supply and the GMDSS DC converter are connected to the automatic power switch. The GMDSS power supply is the primary power source for the GMDSS. In the event that the GMDSS power supply fails to produce electrical power, the automatic power switch closes the circuit to the GMDSS power supply and opens the circuit to the GMDSS DC converter. The GMDSS will then receive power from the Direct Current (DC) converter until power is restored from the power supply. The automatic power switch alarm will be activated when the GMDSS is receiving power from the DC converter. One of two alarm modes may be selected by the user: warning light and buzzer or warning light only.

DESCRIPTION OF THE GMDSS POWER SUPPLY

The GMDSS power supply (14), located below the 9701 GMDSS console shelf, receives 115 vac power from the ship's alternating current power circuit and converts the power to 13.6 vdc. The power supply output is wired to the GMDSS automatic power switch. The power supply furnishes power to the 9701 GMDSS console, the communications interface and switchbox and the RT-1600/U receiver-transmitter.

DESCRIPTION OF THE GMDSS DC CONVERTER

The GMDSS DC converter (15), located below the 9701 GMDSS console shelf, receives 24 vdc power from the ship's GMDSS emergency batteries and converts the power to 13.6 volts direct current (vdc). The DC converter is wired to the GMDSS automatic power switch. The DC converter furnishes power to the 9701 GMDSS console, the communications interface and switchbox and the RT-1600/U receiver-transmitter in the event that the GMDSS power supply fails to produce power.

DESCRIPTION OF THE GMDSS JUNCTION BOX

The GMDSS junction box (16) is located below the serial printer. The GMDSS junction box contains a terminal block to interface power received from the automatic power switch to power cables for the communications interface and switchbox and the 9701 GMDSS console.

DESCRIPTION OF THE NAVIGATION PLGR

The navigation PLGR (17), located next to the chart table on the starboard side of the pilothouse, supplies GPS position for navigation. The PLGR receives GPS data from the GPS antenna located on the mast. A PLGR interface cable receives power for the PLGR from the interface and switchbox and receives the GPS signal from the interface and switchbox. The navigation PLGR may be used to mark the position of a man overboard and provide route navigation when properly programmed.

DESCRIPTION OF THE NAVIGATION INTERFACE AND SWITCHBOX

The navigation interface and switchbox (18), located next to the chart table on the starboard side of the pilothouse, is the interface between the navigation PLGR, the ship's power supply and the GPS antenna. The navigation interface and switchbox is also a switchbox which turns power on or off to the navigation PLGR and allows the PLGR to be programmed using a data terminal for route navigation. The navigation interface and switchbox also allows input of differential GPS data to the PLGR.

DESCRIPTION OF THE NAVIGATION DC JUNCTION BOX

The navigation DC junction box (19) is located below the NAVTEX receiver. The junction box is used to attach the NAVTEX and navigation interface and switchbox power cables to the navigation power supply power cable.

DESCRIPTION OF THE NAVIGATIONAL TELEX (NAVTEX) RECEIVER

The NAVTEX receiver (20) is located on the starboard side of the pilothouse below the weather facsimile. The NAVTEX receiver is a narrow band radio teletype system for sending, by frequency shift keying, text messages expressed in a seven unit code. The NAVTEX transmitter transmits a nine control character header code ahead of the main message so that the receiver can identify the station, message type and serial number automatically. For automatic identification of messages, each message starts with nine control characters, called a header code. The first five characters are always ZCZC_. The latter four characters of the header code indicate origin, category and serial number of the message. The NAVTEX receiver selectively acquires stations and types of messages specified by the operator. Message types A (navigational warnings), B (meteorological warnings) and C (ice reports) cannot be switched off by the operator. Message type D (Search and Rescue (SAR) information) will be printed immediately, the NAVTEX alarm buzzer will sound and the SAR warning Light Emitting Diode (LED) will light. When an abnormal character is received due to noise interference it will be printed as an asterisk. A message having serial number "00" (emergency message) will be reprinted. Message types A, B, D and L, or serial number "00" from rejected stations will be printed. Message type D will be printed up to 2,000 characters regardless of character error rate. The NAVTEX receiver may be preset to stop printing when the error rate is above thirty-three percent.

DESCRIPTION OF THE GMDSS NAVIGATION POWER SUPPLY

The GMDSS navigation power supply (21), located above the chart table, powers the NAVTEX receiver and the navigation PLGR (through the navigation interface and switchbox). The navigation power supply receives 115 vac power from the ship's alternating current power circuit and converts the power to 13.6 vdc.

DESCRIPTION OF THE DSC VHF/FM TRANSCEIVER

The DSC VHF/FM transceiver (22) is an all channel Digital Selective Calling (DSC) Frequency Modulation (FM) transceiver operating in the Very High Frequency (VHF) marine frequency range. The transceiver employs the latest frequency and microcomputer technology to provide a high performance, reliable communication system for both military and commercial mariners. The DSC features make the transceiver the most advanced marine VHF communication system available. Also, a two-way data communications interface allows automatic position reporting. The transceiver system consists of the compact transceiver with microphone, accessories and cables for installation and electrical connection. The transceiver enables the operator to program into the radio DSC numbers for other vessels, marinas, bridge tenders and coast stations. DSC ship station identification numbers are issued by the FCC or DOC (Canada) and appropriate communications authorities in other countries.

DSC Calling

The DSC offers many Digital Selective Calling features to improve communication effectiveness and reduce channel congestion. The Digital Selective Call functions of the DSC are divided into four different operating modes: the DSC mode is for placing individual and group calls, the ANSWER mode is for returning received calls. The TELEphone mode is for placing phone calls and the SCRambler mode is used to keep conversation private. Each mode has one or more directories and other supporting functions to enhance the DSC communication capability.

All DSC calls are automatically sent and received on channel 70. Channel 70 has been designated specifically for DSC service and must not be used for voice communication. The DSC calling procedure requires the selection of a working channel prior to making a call. After DSC contact is established on channel 70, the transceiver automatically switches to the selected working channel for routine communication.

In order to use the DSC mode to send and receive calls, two things must be done. Your ship station identity number must be entered into the USER DSC ID page of the USER SETUPS mode. Please see USER SETUPS for the procedures (WP003300). The name and ship station Identity number of at least one other DSC equipped vessel must be entered into the DSC calling directory.

Most of the DSC functions of the DSC are accessed through the DSC mode. The SCRambler, TELEphone, and ANSwer modes are all DSC functions as well but since they are more specific in their purpose they are treated as individual modes. The general arrangement of the menus and data pages is the same for all DSC modes.

Directories

The DIRECTORY is the data base for placing and answering DSC calls. Both vessel names and ship station identity numbers are entered into the directories. Although only the Ship Station Identity numbers are used to place and answer calls, having the corresponding names make selection and identification much easier.

There are five directories used for either sending or receiving DSC calls. They are: DSC CALLING for calls to other vessels and to private coast stations, GROUP CALLING for ship to ship group calls, TELEPHONE and COAST STATION directories for placing unattended calls to residence or business telephones and CALL WAITING for logging and returning received DSC calls. Another directory, DISTRESS DATA, logs vessel ID, time, and position of vessels sending DSC distress calls.

The DSC CALLING directory's purpose is to store the user's list of vessels or coast stations and their ID number for use in placing DSC calls. When a DSC call is made, the vessel's name or ID number is first selected from the directory.

The DSC CALLING directory will accept 200 entries of vessel names and their ship station identity numbers. The name may be one to ten characters. Letters, numbers and spaces may be used in the name but at least one character must be entered. An ID number without a name will not be accepted. The ID number must be all nine digits of the ship station identity number issued by the FCC with the Ship Radio Station License.

The DSC CALLING directory, the GROUP CALLING directory, the TELEPHONE and COAST STATION directories all require the user to enter specific information in order for the DSC to send DSC calls to other DSC equipped vessels or shore stations. The basic procedure for entering the information is the same for all of the directories. The information stored in the directories may be changed or deleted as desired. Entries are automatically arranged in alphabetical order according to name. A copy of the last completed entry will also appear at the top of the list.

DSC Group Calling Directory

The DSC GROUP CALLING directory allows vessels with common interests to be listed in a separate directory and be identified with a common group ID number. When a group call is made, all vessels belonging to that group will receive the call.

Group ID numbers start with a (0). Presently, the procedure for obtaining group ID numbers is not clear. Please contact the FCC for the latest information.

The DSC GROUP CALLING directory will accept 50 entries of group names and their group ID numbers. Group names should uniquely differ from individual names in the DSC calling directory to avoid confusion when calls are received. The name may be one to ten characters and the ID number must be nine digits. Letters, numbers, and spaces may be used in the name, but at least one character must be entered. An ID number without a name will not be accepted.

DSC Coast Station Directory

The DSC COAST STATION directory is used to store the names and DSC ID numbers of public coast stations equipped to provide telephone service for ship to shore communication. The DSC COAST STATION directory is combined with the DSC TELEPHONE directory. When a DSC ship to shore telephone call is placed, the coast station is selected first, then the telephone number is selected.

DSC Telephone Directory

The DSC TELEPHONE directory is used to store names and telephone numbers of individuals or businesses for direct contact through DSC equipped coast stations. The TELEPHONE directory includes the DSC COAST STATION directory. When a DSC ship to shore telephone call is placed, the coast station is selected first, then the telephone number is selected.

DSC Call Waiting Directory

The DSC call waiting directory logs all DSC calls that are received and not answered within 60 seconds. Calls will be logged while busy with other communications as long as the transmitter is not keyed at the time of the call. If the call is answered within 60 seconds the call will not be logged. When a call is logged, a message will appear in the Primary mode display.

The DSC CALL WAITING directory will accept 100 received DSC calls. When a DSC call is received, the caller's ID number is logged into the CALL WAITING directory with the time of day. If the caller's ID number also resides in your DSC CALLING directory, the name will also be logged. NO NAME will appear otherwise.

Calls may be returned to any logged entry and any entry may be cleared from the directory but no user entries are accepted into the CALL WAITING directory. A special feature of the CALL WAITING directory allows NO NAME calls to be transferred into the DSC CALLING directory.

Call Waiting

A special feature of the CALL WAITING directory allows NO NAME entries to be transferred directly into the DSC CALL directory. Named entries appearing in the CALL WAITING directory already have their ID numbers listed in the DSC CALLING directory. The transfer is accomplished by giving the ID number a name. This feature eliminates the inconvenience of obtaining, recording, and manually entering the information. Also, keep in mind calls are not logged into the CALL WAITING directory unless unanswered for 60 seconds.

Searching Directories

The search function allows names in long directory lists to be located quickly. The search function searches for names, not ID numbers, although numbers may be included in names. To use the search function, one or more characters of a name are entered. The directory list is searched alphabetically for the first search character. The search will stop on the first occurrence of the search character. If a name starting with the first character is found and more than one search character was entered, the search will continue to look for the next character etc. until no further matches are found. If no occurrences of the first search character are found, then the search will stop at the last name in the list whose first character's alphabetic rank is lower than the first search character. There is no attempt made to find a name using the second search character if no name using the first character is found.

DSC Calling

The digital selective call functions of the DSC are divided into four different operating modes. The DSC mode is for placing individual and group calls and the ANSWER mode is for returning received calls. The TELEphone mode is for placing phone calls and the SCRambler mode is used to keep conversations private. Each mode is tailored for its particular type of DSC communication.

All DSC calls are automatically sent and received on channel 70. Channel 70 has been designated specifically for DSC service and must not be used for voice communication. The DSC calling procedure requires the selection of a working channel prior to making a call. After DSC contact is established on channel 70, the transceiver automatically switches to the selected working channel for routine communication.

DSC Answering and Call Waiting

The DSC transceiver will receive DSC calls while idle, that is monitoring any channel, or while busy in routine communications or otherwise available. When idle and monitoring a channel, DSC calls may be answered immediately. If busy or unavailable, DSC calls are logged into the CALL WAITING directory and may be answered when convenient. Group calls are logged as the individual initiating the group call. The group ID is not logged.

Geographic Area Calling

The DSC will respond to and generate a geographic area type DSC call. This type of DSC call can be used to contact a vessel by its location without the need to know its DSC ID. A geographic area is a rectangle that is constructed by a reference point (latitude, longitude) and two sides defining the number of degrees and minutes for the North-to-South sides and the West to East side.

Scrambler Mode

The Scrambler mode allows conversation on any working channel to be kept private. Conversation between two, or more if desired, DSC's will be loud and clear while others who may be monitoring the channel will hear only garble. Scrambler mode uses the same DSC Calling directories as unscrambled DSC calls. Both individual and group calls can be scrambled.

The scrambler does not make a channel private. The channel must still be shared with other traffic. A unique feature of the scrambler allows the working channel to be changed by either party and the other party's transceiver will change channels automatically to stay in contact. This feature works with group scrambled calls also. If anyone in the group changes channels, all others in the group will automatically switch to the new channel.

DSC Standby

The DSC Standby function allows the transceiver to reply to DSC calls with the UNATTENDED message and log the calls for return at a more convenient time. When set to the DSC Standby mode, voice traffic may still be monitored on any selected channel.

All Ships Call

The all ships call function allows contact to be established with other DSC equipped vessels without having their mobile service identity number in the calling ships directory. Also, priority for the call is designated as Urgency, Safety, or Routine. Select the primary mode by exiting any other active function.

Sending Position

The send position function allows your vessel's position coordinates to be sent to another vessel as a DSC call, thereby avoiding a voice announcement of your position. Position information is obtained from the AN/PSN-11(V)1 PLGR.

Request Position

The request position function allows you to interrogate another vessel to determine its position coordinates. The other vessel must have an operating navigation receiver connected to its DSC transceiver and must not have its transceiver set to deny position requests.

Station Number

The STATION NUMBER mode is used to allow multiple DSC transceivers to operate on a single vessel with one vessel ID number. In a single radio installation, the STATION NUMBER would be "0". In a multiple transceiver installation, the STATION NUMBER should be set from 1 to 5. Station 1 is the primary radio, and station 2 thru 5 are used as redundant backups. If a DSC call is placed to a vessel and station 1 cannot respond, station 2 will respond. STATION NUMBER "B" specifies a radio to be a voice only radio and not to respond to any calls including distress calls.

Security Code

The SECURITY CODE feature is provided to prevent unauthorized use of the DSC. Once a security code has been entered, the same code must be entered each time the transceiver is turned on. The code may be changed or deleted at any time by any authorized user. If three attempts are made to enter an incorrect code, the transceiver will operate in a limited manner to provide minimal effective use in an emergency. Under these circumstances, only PRIMARY MODE, EMERGENCY MODE and the WEATHER MODE will operate. Attempts to select other modes will sound the three beep error tone.

Number of People

This option is used to declare the number of people on the vessel and is attached to the distress call information that is sent when a distress call is activated.

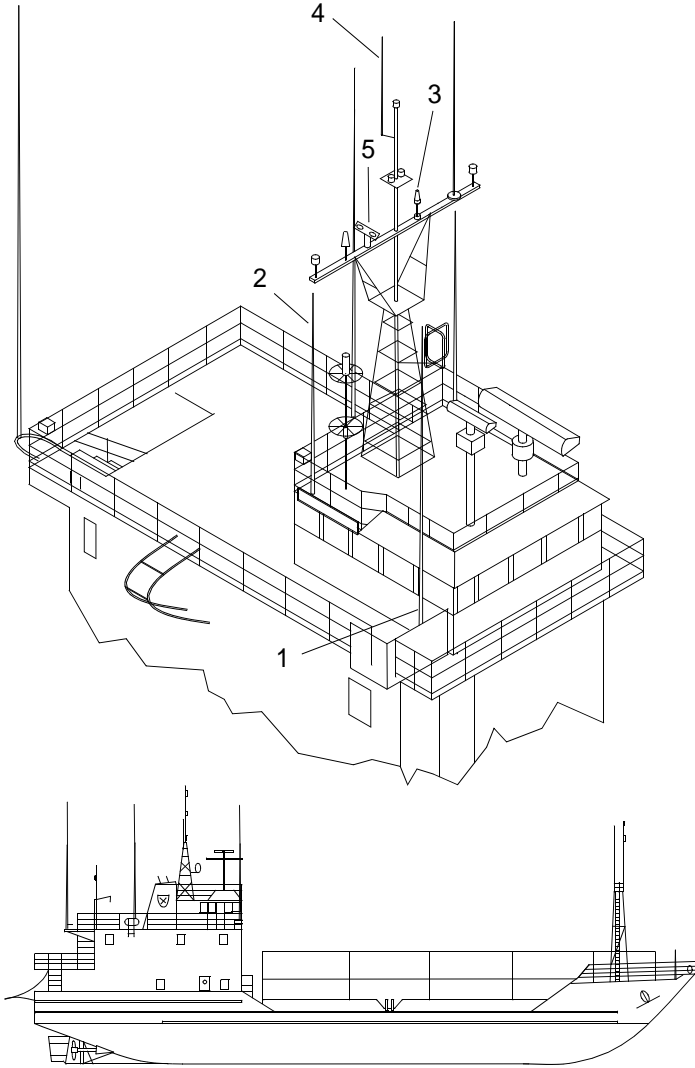
DESCRIPTION OF THE LIFEBOAT RADIO (LBR)

The 16/6 lifeboat radio (23) is a portable two-way radiotelephone used for on-scene emergency communications between survival craft and rescue units. The radio is equipped with a five year lithium battery pack, which is operator replaceable. The radio will operate on either channel 6 or 16. The radio is FCC type accepted and GMDSS listed (FCC Part 80.1101) as a survival craft two-way VHF radiotelephone apparatus which complies with the 1988 GMDSS Safety Of Life At Sea (SOLAS) amendments. The lifeboat radio should be tested semi-annually using a battery other than the assigned lifeboat radio battery. Three lifeboat radios are installed on the vessel.

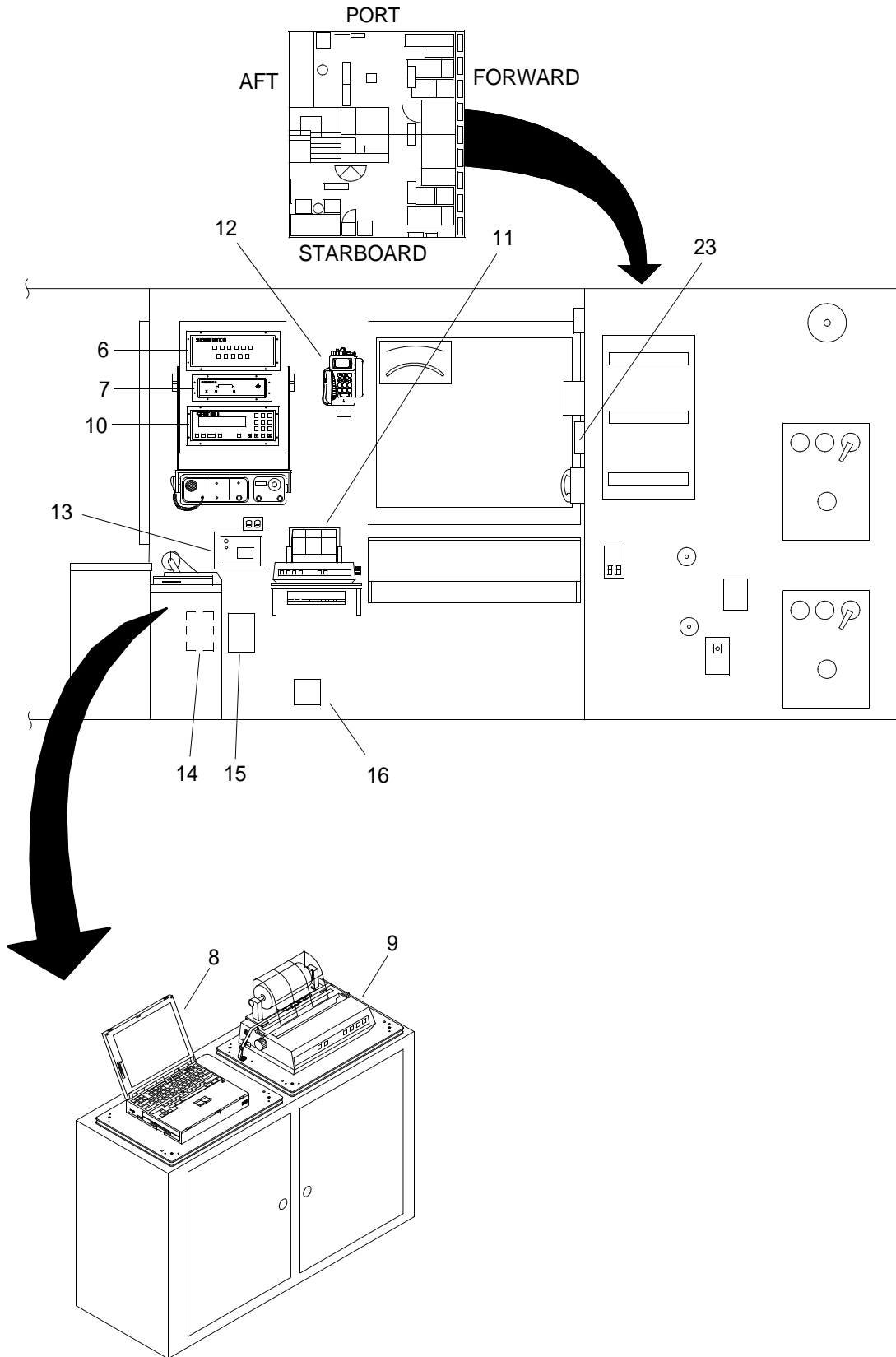
DESCRIPTION OF THE SEARCH AND RESCUE TRANSCEIVER (SART)

The Search and Rescue Transponder (SART) (24) is a battery powered transponder used in an emergency by survivors of a sinking vessel. The SART must be mounted in the lifeboat one meter above the sea. The signal from the SART is detected by a 9 ghz radar at a range of five to seven miles using the ship's radar. Aircraft radar can receive the SART signal flying at 3,000 ft at up to 40 nautical miles. Once activated, the SART will rebroadcast a very strong response to any interrogating radar. At the same time, a line of 12 dots will appear on the search radar screen, radiating outwards from the position of the SART. Once the search vessel or aircraft has approached within one nautical mile of the SART, these dots widen to eventually form a series of concentric circles around the position of the SART. The SART has a built-in test capability and should be tested monthly. Two SARTs are installed on the vessel.

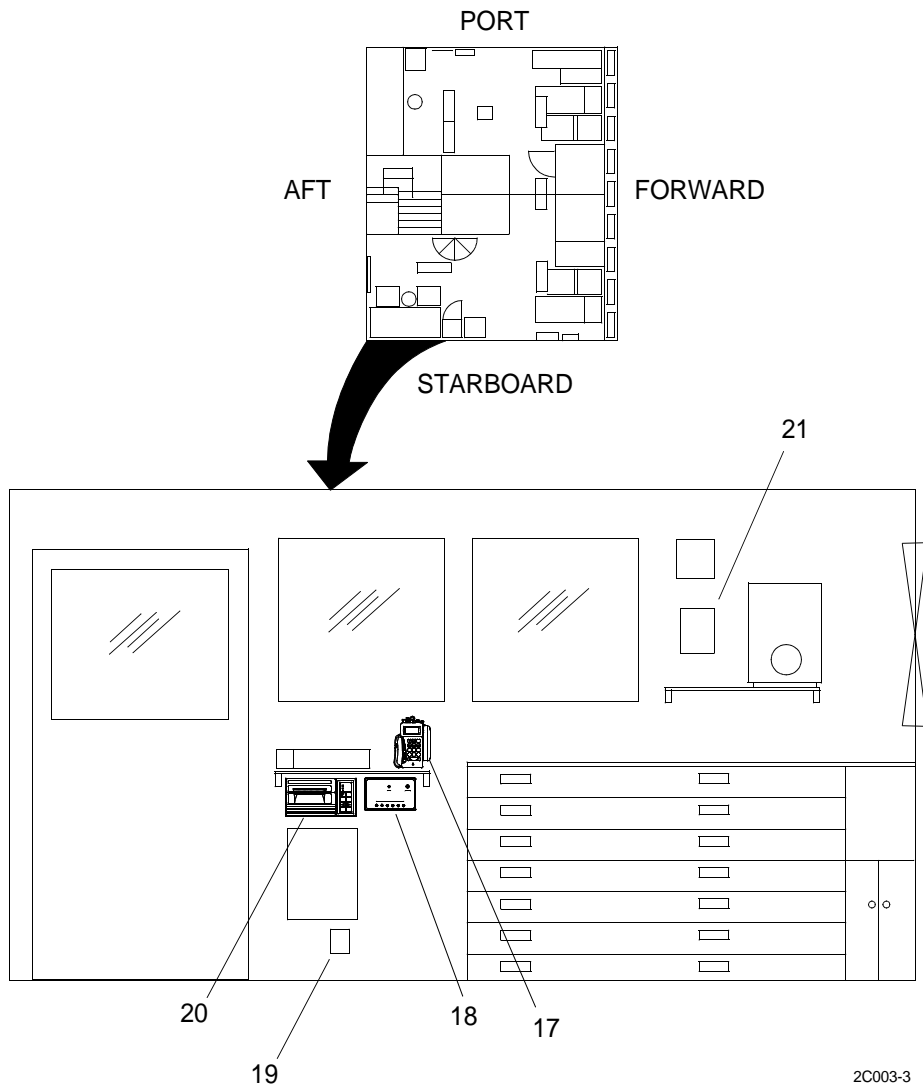
LOCATION OF GMDSS COMPONENTS

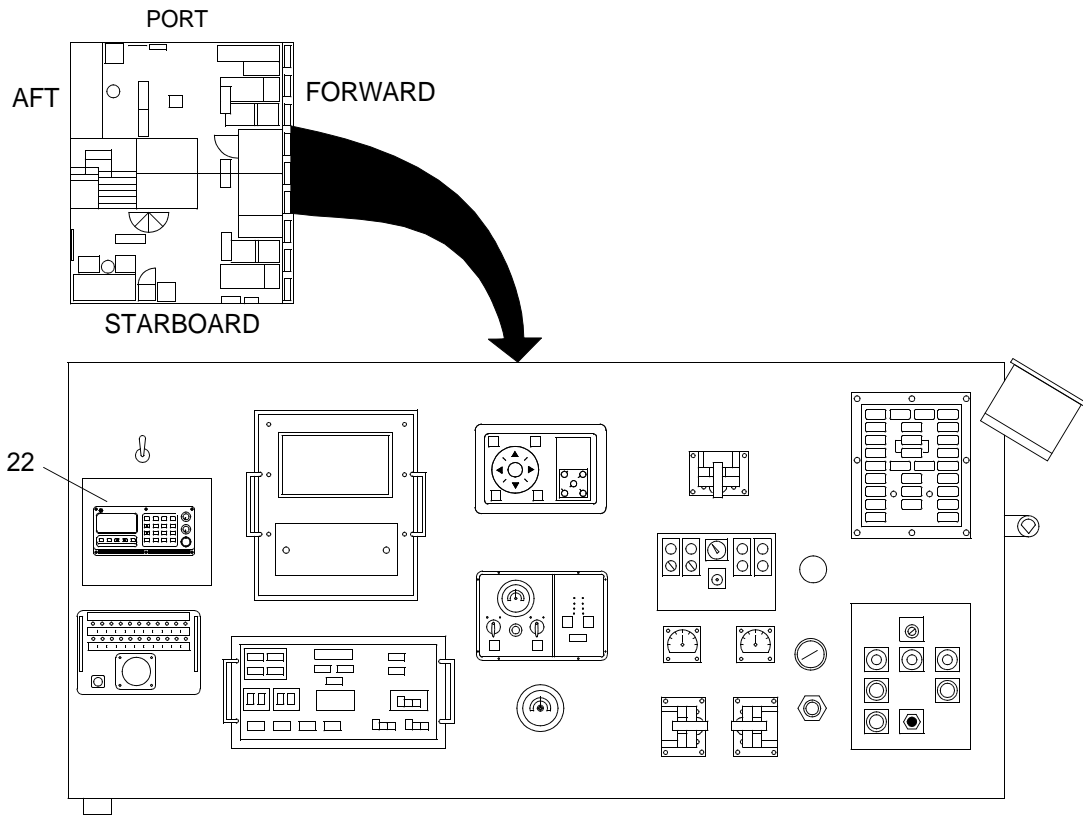


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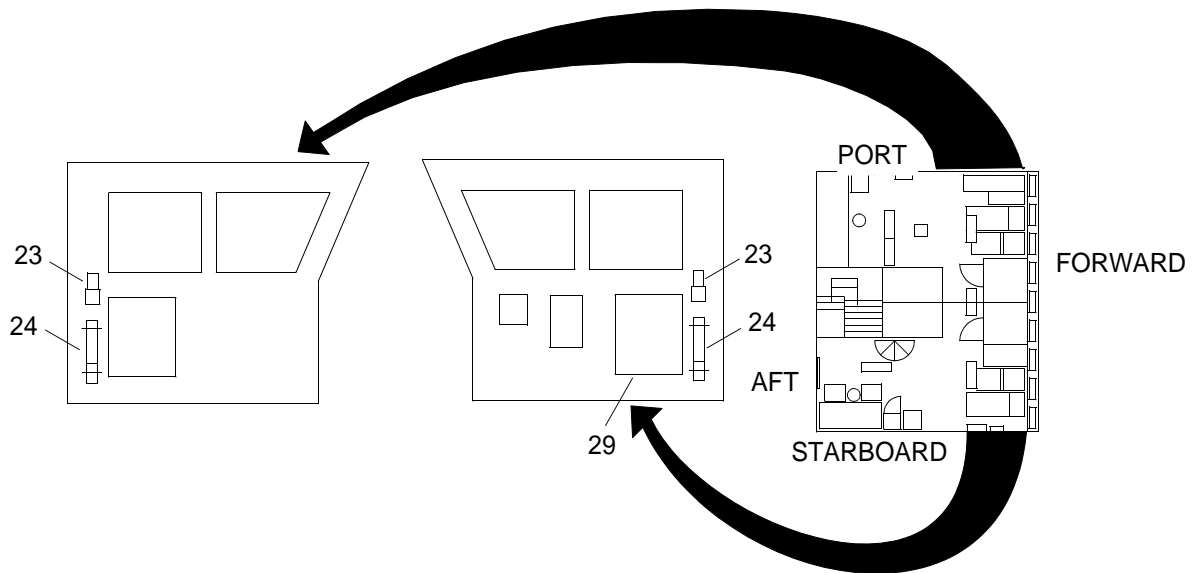


2C003-2





2C003-4



2C003-5

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GMDSS MAJOR COMPONENT EQUIPMENT DATA

Table 1. Watch Receiver.

| | |
|-----------------------|----------------------------------------------------------------------------|
| Size | 10.4 in. wide x 3.82 in. high x 10.4 in. deep |
| Weight | 5 lbs |
| Type Acceptance | Complies with CFR 47, Part 80, Subpart W, para 80.101 |
| Operating Frequencies | 2187.5, 8414.5, 4207.5, 6312, 12577, and 16804.5 khz |
| Scan Watch | All frequencies within two seconds. |
| Mode of Reception | F1B, J2B |
| Sensitivity | Error rate 1×10^{-2} or less than 1uv |
| Stability | = or - 10 hz |
| Bandwidth | 270 to 300 hz (-6 db) |
| Line Output | 600 ohm balanced, -10 dbm to +10 dbm |
| Ambient Temperature | -20 degrees C to +55 degrees C |
| Interconnect | SEABUSS (SEA 330 Protocol) |
| Circuitry | Fully synthesized, double conversion. 45 mhz 1st I.F., 6.3983 mhz 2nd I.F. |
| Primary Voltage | 10 to 14 vdc |
| Current Drain | 750 ma |

Table 2. INMARSAT-C.

| | |
|---------------------------|-------------------------------------------------------------------------------------------------|
| Size | 214 mam wide, 62 mam high, 279 mam deep |
| Weight | 3.2 kg |
| General Specifications | Meets or exceeds all INMARSAT specifications for the INMARSAT-C network and GMDSS requirements. |
| Transmit Frequency | 1626.5 to 1646.5 mhz |
| Receive Frequency | 1530.0 to 1545.0 mhz |
| Channel Spacing | 5 khz |
| Modulation | 1200 symbols/sec BPSK |
| Ambiguity Resolution | Unique word |
| Coding | R 1/2 K=7 convolutional code, (interleaved code symbols RX) |
| Data Rate | 600 bit/sec |
| RX Frame Length | 8.64 seconds |
| TX Signalling Access Mode | Slotted ALOHA |

Table 2. INMARSAT-C. (Continued)

| | |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TX Message Channel | TDMA & FDMA, interleaved code symbol |
| Antenna Interface | Standard 50 ohm female N-connector, max 10 m cable |
| GPS Interface | 50 db antenna amplification, 75 ohm female F-connector output for GPS antenna |
| Terminal Interface | CCITT Rec. V.10 Special with NMEA0183 interface and multidrop addressing, female BNC-connector, max 100 m cable |
| Printer Interface | Standard parallel Centronics, DB-25F connector |
| Navigator and Alarm Interface | CCITT Rec. V.10 special with NMEA0183 interface and multidrop addressing, female BNC-connector, max 100 m cable |
| System Setup | EEPROM programming from operator terminal |
| DC power source | 10.5 to 32 floating vdc, Rx: 9.5 watts, TX: 80 watts |
| Ambient Temperature | -25 degrees C to 55 degrees C operating, -40 degrees C to 80 degrees C storage |
| INMARSAT-C Protocol support | Message transmission and reception with IA-5, ITA-2 and binary transfer to/from the following destinations: TELEX, PSTN (telephone modems and fax modems, PSDN (X.25 network), EGC message reception with automatic geographical area selection, Polling and data reporting with automatic transmission of position reports down to one per minute, Special Access Codes, Basic X.400, DNID messaging, Program Unreserved Data Reporting, Pre-assigned DATA Reporting, GMDSS Facilities, Transmit message size: maximum 32 kb, Receive storage: 128 kb |

Table 3. INMARSAT-C Printer.

| | |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------|
| Size | 14.2 in. wide, 3.2 in. high, 10.8 in. deep |
| Weight | 10 lbs |
| Print Speed | Utility: 200 cps, Draft: 240 cps @ 10 and 17.1 cpi, 300 cps @ 12 cpi, Near Letter Quality: 50 cps |
| Characters Per Line | at 10 cpi: 80, at 12 cpi: 96, at 17.1 cpi (Microline emulation): 137, at 17.1 cpi (IBM emulation): 132 |
| Electrical Characteristics | 120 vac + or - 10%, 220/240 vac + or - 10% |
| Reliability: Mean Time Between Failures | 6000 hours at 25% duty cycle |
| Reliability: Mean Time To Repair | 15 minutes |
| Reliability: Ribbon Life | 3 million characters |
| Reliability: Printhead Life | 200 million characters |
| Paper Weight | 16 to 20 lb |

Table 4. INMARSAT-C Data Terminal.

| | |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Size | 300 mm wide, 59 - 62 mm high, 234 mm deep |
| Weight | 3.1 kg |
| Microprocessor | Intel Pentium processor |
| Memory | 16 MB |
| Display | Width of 12.1 in. measured diagonally, up to 65,536 colors, up to 800 by 600 resolution, up to 1024 by 768 resolution on external monitor, contrast control |
| Keyboard | 84 key, 85 key or 89 key Trackpoint III, Fn key function |
| Storage Device | 2.5 in. hard disk drive, 3.5 in. diskette drive |
| External Interface | Serial connector (EIA/TIA-232-E) |
| | Parallel connector (Centronics) |
| | External input device connector |
| | External monitor connector |
| | Expansion connector |
| | PC card slots (two Type I or Type II PC cards or one Type III PC card) |
| | Headphone jack |
| | Microphone/line-in jack (supports a dynamic microphone or a self battery powered condenser microphone) |
| | Infrared port |
| Environment (Temperature at altitudes less than 2438 m (8000 ft)) | Operating with no diskette: 5 degrees to 35 degrees C (41 to 95 degrees F), Operating with a diskette: 10 degrees to 35 degrees C (50 to 95 degrees F), Nonoperating: 5 degrees to 43 degrees C (41 to 109 degrees F) |
| Environment (Relative Humidity) | Operating with no diskette: 8% to 95%, Operating with a diskette: 8% to 80% |
| Environment (Maximum Altitude) | 3048 m (10,000 ft) in unpressurized conditions, maximum temperature 31.3 degrees C (88 degrees F) |
| Heat Output | Approximately 119.4 British Thermal Units (BTU) per hour (35 Watts) |
| Electrical AC Adapter | Sine wave input, at 50-60 Hz, is required, the input rating of the AC adapter is 100 - 240 Vac |
| Lithium-Ion Battery Pack | Nominal voltage: 10.8 Vdc, Capacity: 2.6 Ah |
| NiMH Battery Pack | Nominal voltage: 8.4 Vdc, Capacity: 3.5 Ah |
| PC Cards Slots Power | Computer only: total 5 Watts (two slots), Computer and ThinkPad 380/385 port replicator: total 7 Watts (four slots) |

Table 5. DSC Controller.

| | |
|----------------------|-----------------|
| CCIR Recommendations | 493-4 and 541-3 |
| IMO Resolution | A.610 (15) |

Table 5. DSC Controller. (Continued)

| | |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Voltage | 12 vdc (-10%, + 30%) Isolated Ground |
| Current Drain | 1 amp Maximum |
| Operating Temperature Range | -15 degrees C to +60 degrees C |
| Safe Compass Distance | 1 meter |
| Navigation Interface | NMEA0183 Version 2.0 compatible with Loran, GPS, Transit. Reads RMA, RMC, GLL, GGA, TRF sentences |
| Position Interval Update | 3 minutes |
| SSB Interface | Receive audio, transmit audio, push to talk, scan stop with software programmable polarity, SEABUSS control interface for SEA radios. |
| Alarms | One internal, output for one or two watt remote speaker alarms, externally available uncommitted normally open relay contact. |
| Display | 40 character by four line backlit LCD |
| Keypad | 18 key backlit with audible feedback |
| Memory | Nonvolatile memory for its own DSC individual and group ID's and Necode transmit and receive codes. Nonvolatile memory for 45 frequently called DSC ID's, 45 Necode ID's, 45 telephone numbers, 45 radio voice channels and DSC scan channels. Nonvolatile memory log for 40 most frequently received distress and urgency calls and 40 routine calls. |
| Clock | Date and time of day, battery backed |
| Transmit and Receive Formats | All formats per ITU-R recommendation 493 class A as well as Necode calls |

Table 6. Serial Printer.

| | |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------|
| Size | 14.2 in. wide, 3.2 in. high, 10.8 in. deep |
| Weight | 10 lbs |
| Print Speed | Utility: 200 cps, Draft: 240 cps @ 10 and 17.1 cpi, 300 cps @ 12 cpi, Near Letter Quality: 50 cps |
| Characters Per Line | at 10 cpi: 80, at 12 cpi: 96, at 17.1 cpi (Microline emulation): 137, at 17.1 cpi (IBM emulation): 132 |
| Electrical Characteristics | 120 vac + or - 10%, 220/240 vac + or - 10% |
| Reliability: Mean Time Between Failures | 6000 hours at 25% duty cycle |
| Reliability: Mean Time To Repair | 15 minutes |
| Reliability: Ribbon Life | 3 million characters |
| Reliability: Printhead Life | 200 million characters |
| Paper Weight | 16 to 20 lb |

Table 7. Portable Lightweight Global Positioning System Receiver. (PLGR)

| | |
|--------------------|--------------------------------------------------------------------------------------|
| Size | 4.1 in. wide, 9.5 in. long, 2.6 in. deep |
| Weight | 2.75 with all batteries in place |
| Elevation Limits | Operation: -1312 ft to 29,856 ft MSL, Storage: -1312 ft to 49,213 ft MSL |
| Temperature Limits | Operation: -4 to +158 degrees F, Storage without batteries: -76.2 to + 158 degrees F |
| Humidity Limits | 0 to 100% humidity |

Table 8. Interface and Switchbox.

| | |
|--------|-----------------------------------------------------------------------------------------------------------------------|
| Size | 7 in. wide, 4.5 in.high, 3 in. deep |
| Weight | 1.1 lbs |
| Power | Capable of generating 12 vdc at 1.5 amps from an input range of 12 - 30 vdc at a temperature of -40 to 120 degrees F. |

Table 9. GMDSS Power Supply.

| | |
|------------------------------------|----------------------------------------------------------------------------------------------------------|
| Size | 7.8 in. wide x 5.7 in. high x 16 in. deep |
| Weight | 13.2 lbs |
| Nominal Input Voltage | 115/230 vac |
| Output Amperage, Intermittent | 35 amps |
| Output Amperage, Continuous | 15 amps |
| Input Voltage, Continuous Rating | 105-125/210-270 vac, 50-60hz |
| Input Voltage, Intermittent Rating | 110-125/220-250 vac, 50-60hz |
| Output Voltage | 13.6 vdc (internally adjustable 12.6-14.5 vdc) |
| Regulation | 1% line and load |
| Operating Temperature | 0-40 degrees C, derate linearly to 50% @ 50 degrees C, Thermal Shutdown @ 85 degrees C, case temperature |
| Duty Cycle, Intermittent | 20 minutes, 20% duty cycle |
| Duty Cycle, Continuous | 24 hours/day, 100% duty |

Table 10. GMDSS DC Converter.

| | |
|-----------------------|------------------------------------------------|
| Size | 4.7 in. wide x 6 in. high x 14 in. deep |
| Weight | 7.5 lbs |
| Nominal Input Voltage | 20-50 vdc |
| Output Voltage | 13.6 vdc (internally adjustable 12.6-14.5 vdc) |

Table 10. GMDSS DC Converter. (Continued)

| | |
|--------------------------|----------------------------------------------------------------------------------------------------------|
| Regulation | 1% line/load |
| Operating Temperature | 0-40 degrees C, derate linearly to 50% @ 50 degrees C, Thermal Shutdown @ 70 degrees C, case temperature |
| Duty Cycle, Intermittent | 20 minutes, 20% duty cycle, current limit set at approx. 105% of intermittent rating |
| Duty Cycle, Continuous | 24 hours/day, 100% duty |
| Idle Current | Less than 100 ma (including power on light) |
| Switching Frequency | 40 khz |
| Isolation | Output /Chassis; Input/Chassis: 250 vdc |

Table 11. Navtex.

| | |
|--------------------------|----------------------------------------------------|
| Size | 10.6 in. wide, 5.6 in. high, 4.2 in. deep |
| Weight | 6.6 lbs |
| Power | 10.8 to 40 vdc |
| Power Consumption | 15 watts or less for printing, 9 watts for standby |
| AF Signal (Input/Output) | 0 dbm/600 ohms, 1700 + or - 85 hz |
| Alarm Signal (Output) | Contact closure signal (max 1 amp, 12 watts) |
| Navigation Data (Input) | Furuno CIF or NMEA0183 format |
| Environmental Data | -15 degrees C to +55 degrees C |
| Relative Humidity | 0 to 95% |

Table 12. Navigation Power Supply.

| | |
|------------------------------------|----------------------------------------------------------------------------------------------------------|
| Size | 5.9 in. wide x 4.9 in. high x 6 in. deep |
| Weight | 6 lbs |
| Nominal Input Voltage | 115/230 vac |
| Output Amperage, Intermittent | 6 amps |
| Output Amperage, Continuous | 3.5 amps |
| Input Voltage, Continuous Rating | 105-125/210-270 vac, 50-60 hz |
| Input Voltage, Intermittent Rating | 110-125/220-250 vac, 50-60 hz |
| Output Voltage | 13.6 vdc (internally adjustable 12.6-14.5 vdc) |
| Regulation | 1% line and lead |
| Operating Temperature | 0-40 degrees C, derate linearly to 50% @ 50 degrees C, Thermal Shutdown @ 85 degrees C, case temperature |

Table 12. Navigation Power Supply. (Continued)

| | |
|--------------------------|----------------------------|
| Duty Cycle, Intermittent | 20 minutes, 20% duty cycle |
| Duty Cycle, Continuous | 24 hours/day, 100% duty |

Table 13. DSC VHF/FM Transceiver.

| | |
|------------------------------------------|---------------------------------------------------------------------------|
| Size | 6.38 in. wide x 3.25 in. high x 7.25 in. deep |
| Weight | 5.6 lbs |
| Nominal Input Voltage | 11 -18 vdc, 13.8 vdc nominal |
| Frequency Range, Primary Channels | 156.025 - 157.425 mhz transmit, 156.025 - 163.275 mhz, receive |
| Programmable Channels | 156.000 - 159.175 mhz, transmit, 156.025 - 163.774 mhz, receive |
| Channels | 57 standard USA or ITU, 10 weather and 42 programmable channels |
| Type Certification | FCC, Parts 15, 80, 80K, 80S, 80T, 80U, 80.1101(c)(2), notes CP, GM |
| RF Output Connector | SO-239, UHF (f) |
| Mating Antenna Connector | PL-259, UHF (m) |
| Operating Temperature | -20 degrees C to +50 degrees C, -4 degrees F to +122 degrees F |
| Transmitter Output Power | 1 or 25 watts (selectable) |
| Transmitter Frequency Stability | 0.0005% from -20 degrees C to +50 degrees C |
| Transmitter Spurious Emissions | -70db @ 25 watts, -56 db @ 1 watt |
| Transmitter Output Impedance | 50 ohms |
| Transmitter Antenna Mismatch | Built in VSWR protection and fault warning display |
| Transmitter Modulation | FM, 5 khz maximum deviation |
| Transmitter Audio | Less Than 5% distortion at 3 khz deviation, +6 db per octave pre-emphasis |
| Transmitter Hum and Noise | -37 db |
| Receiver Adjacent Channel Rejection | -80 db |
| Receiver Inter modulation Rejection | -80 db |
| Receiver Spurious Response | -80 db |
| Receiver Modulation Acceptance Bandwidth | + or - 7.5 khz |
| Receiver Audio | -6 db per octave deemphasis, Less than 10% distortion at 6.5 watts |

Table 14. Lifeboat Radio.

| | |
|------------------------------------------------------------------------------------|--------------------------------------------|
| Size | 2.6 in. wide x 7.6 in. high x 1.7 in. deep |
| Weight | 1.1 lbs with battery |
| Channel 6 Frequency | 156.300 |
| Channel 16 Frequency | 156.800 |
| Transmitter Power Output | 500 mw + or - 2.5 db |
| Transmitter Frequency Control | Quartz Crystal (+ or -.001%) |
| Transmitter Modulation Type | Phase |
| Transmitter Maximum Modulation | + or - 5 khz |
| Transmitter Bandwidth | 300/2500 hz |
| Receiver Sensitivity (12 db SINAD) | 1.0 uv |
| Receiver Audio Output | 300 mw |
| Battery Type | Primary, Lithium |
| Battery Storage Life | 10 years |
| Battery Operating Life Under Typical Duty Cycle of 1:9 (Transmit to Receive Ratio) | 8 hours @ -20 degrees C |
| Service Condition (Temperature) | -20 degrees C to +50 degrees C |
| Service Condition (Altitude) | 0 to 40,000 ft/0 to 12,000 m |
| Service Condition (Waterproof) | 3 meters depth, max up to 5 minutes |

Table 15. Search and Rescue Transponder. (SART)

| | |
|------------------------|----------------------------------------------------------------------------------------|
| Size | Stowed 572 mm long, Deployed 1850 mm long, Max Diameter 60 mm |
| Weight | 1.1 kg |
| OPERATING Temperature | -20 degrees C to +55 degrees C |
| STOWAGE Temperature | -30 degrees C to +65 degrees C |
| Environmental | Waterproof to 10 meters |
| Battery | Lithium Manganese Dioxide - Type SRT-A-106 or Lithium Sulphur Dioxide - Type SRT-A-116 |
| Transmitter Frequency | 9.2 - 9.5 ghz |
| Transmitter Sweep Rate | 5 us per 200 mhz |
| Response Signal | 12 sweeps |

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
THEORY OF OPERATION

INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM OPERATION

The INMARSAT-C satellite communications system is comprised of an INMARSAT-C transceiver, data terminal, parallel printer and INMARSAT-C antenna. The INMARSAT-C transceiver, located in the GMDSS 9701 console, receives and transmits a radio signal to a geosynchronous orbiting satellite allowing distress, e-mail, FAX and TELEX communications. The transceiver is cabled to the INMARSAT-C antenna located on the yardarm. E-mail, FAX and TELEX messages are sent using the data terminal. An auto switch routes the received messages to the parallel printer to be printed or viewed by the data terminal. In an emergency situation, a distress may be transmitted from the transceiver. The current ship's position is transferred from the communications Precision Lightweight Global Positioning Receiver (PLGR) through the communications interface and switchbox to the INMARSAT-C. The INMARSAT-C is powered by ship's power through the 9701 console. In the event of an AC system failure, backup power to operate the INMARSAT-C is received from the GMDSS emergency batteries.

COMMUNICATIONS AN/PSN-11(V)1 PLGR

The communications PLGR receives ship's position data through the communications PLGR antenna from Global Positioning System (GPS) satellites. The PLGR is powered by ship's power through the communications interface and switchbox and PLGR interface cable. The communications PLGR supplies current position information, through the interface and switchbox and PLGR interface cable, to the INMARSAT-C transceiver, Digital Selective Calling (DSC) controller and the DSC VHF/FM transceiver. The PLGR may be programmed for crypto operations using the KYK-13 or KOI-18 crypto key.

COMMUNICATIONS INTERFACE AND SWITCHBOX

The communications interface and switchbox provides isolated and regulated ship's power to the communications PLGR. The interface and switchbox acts as an interface to provide position data from the communications PLGR to the INMARSAT-C transceiver, DSC controller and the DSC VHF/FM transceiver. Switches are located on the interface and switchbox to either turn the position data signal off or on to each component. The communications PLGR may be programmed by the INMARSAT-C data terminal using the data terminal interface on the interface and switchbox with the appropriate cable.

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) POWER

The GMDSS communications system is powered by ship's power. The INMARSAT-C transceiver, watch receiver, DSC controller and communications PLGR are supplied with power by a redundant power system through the 9701 console. The primary source of power for these components is the GMDSS power supply. The GMDSS power supply converts 115 vac to a nominal 13.8 vdc. The GMDSS power supply receives power from the EP103 circuit box using circuit breaker 3. In the event that alternating current is not available, the automatic power switch relay automatically switches to receive power from the ship's GMDSS emergency batteries. The GMDSS DC converter converts 24 vdc emergency battery power to a nominal 13.8 vdc to power the equipment. The satellite communications system data terminal, parallel printer and DSC serial printer are powered by 115 vac from the EP103 circuit box using circuit breaker 8. In the event of a main buss AC system failure, the data terminal, parallel printer and DSC serial printer are powered by the emergency generator. No battery backup power capability exists for these components.

DSC WATCH RECEIVER

The DSC watch receiver monitors preset frequencies for distress messages and alerts the operator through an audible signal and visual signal. The watch receiver antenna is cabled to the watch receiver to provide the required radio signal. The watch receiver is powered by ship's power through the GMDSS 9701 console.

MF/HF DSC CONTROLLER

The MF/HF DSC controller allows the reception of MF/HF DSC messages. The serial printer prints any messages received by the DSC controller. The controller incorporates the GPS signal from the communications PLGR to insert the vessel's position when a distress is transferred by the DSC controller to the MF/HF transceiver. The DSC controller is powered by ship's power through the 9701 GMDSS console. The data extracted from the radio signal is received or transmitted to the controller by the watch receiver antenna and cabling. The antenna interface between the watch receiver and DSC controller is located inside the 9701 GMDSS console.

NAVIGATION AN/PSN-11(V)1PLGR

The navigation PLGR receives ship's position data through the navigation PLGR antenna from Global Positioning System (GPS) satellites. The PLGR is powered by the navigation power supply through the navigation interface and switchbox and PLGR interface cable. The navigation PLGR supplies current position information for navigation at the chart table. The PLGR may be programmed for crypto operations using the KYK-13 or KOI-18 crypto key.

NAVIGATION INTERFACE AND SWITCHBOX

The navigation interface and switchbox provides isolated and regulated ship's power to the navigation PLGR. The navigation PLGR may be programmed by the INMARSAT-C data terminal using the data terminal interface on the interface and switchbox with the appropriate cable.

NAVIGATION TELEX (NAVTEX) RECEIVER

The NAVTEX receiver receives weather and distress information. The NAVTEX receiver receives the incoming signal through cabling from the NAVTEX/weather facsimile antenna. The NAVTEX is powered by the navigation power supply.

NAVIGATION POWER SUPPLY

The navigation power supply converts 115 vac current to a nominal 13.6 vdc. The navigation power supply, located above the chart table, powers the navigation PLGR and the NAVTEX receiver. The navigation power supply receives 115 vac from the EP103 circuit box using circuit breaker 19 through a junction box above the chart table. The 13.6 vdc output is routed through a direct current junction box to the navigation PLGR interface and switchbox and NAVTEX receiver.

DSC VHF/FM TRANSCEIVER

The DSC VHF/FM is an all channel DSC FM transceiver operating in the VHF range. The current ship's position is transferred from the communications Precision Lightweight Global Positioning Receiver (PLGR) through the communications interface and switchbox to the transceiver. Primary power for operation is received from a 115 vac to a nominal 13.6 vdc power supply. In the event of AC failure, a power relay switches to GMDSS emergency battery backup. A switch, located forward of the transceiver, allows the operator to turn the GMDSS emergency battery power off or on. The radio signal for the transceiver is transmitted and received through cabling and the VHF/FM antenna located on the mast.

LIFEBOAT RADIO (LBR)

The lifeboat radio is a two-way radiotelephone used to coordinate rescue during emergency situations. The radio may be used on channel 6 or channel 16. The radio is powered by a lithium battery.

SEARCH AND RESCUE TRANSPONDER (SART)

The SART is a battery powered transponder used in a lifeboat after an emergency evacuation of a vessel. The signal from the SART is detected by 9 GHz radar at a range of five to seven miles using the ship's radar. Aircraft radar can receive the SART signal flying at 3,000 ft at up to 40 nautical miles. Once activated, the SART will rebroadcast a very strong response to any interrogating radar. At the same time, a line of 12 dots will appear on the search radar screen, radiating outward from the position of the SART. Once the search vessel or aircraft has approached within one nautical mile of the SART, these dots widen to eventually form a series of concentric circles around the position of the SART.

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS

SCOPE

The following paragraphs contain illustrations that show the location of each control and indicator for operation of the Global Maritime Distress and Safety System (GMDSS). Each control and indicator is clearly labeled as it appears on the equipment. Find numbers on the illustration are keyed to the tabular listing which contains the name, based on the equipment markings, and the functional description of each control and indicator.

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, WATCH RECEIVER

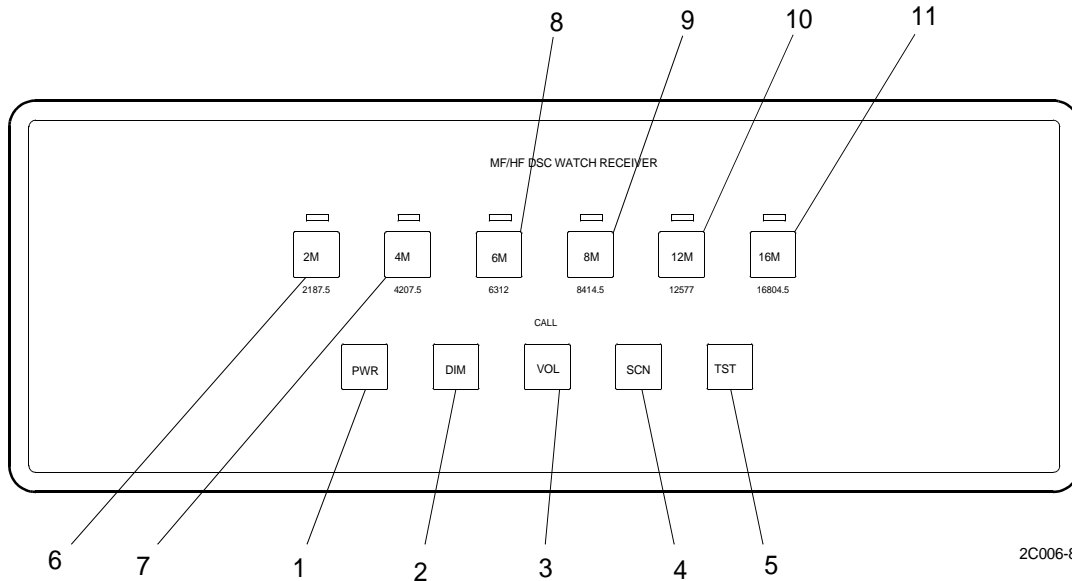


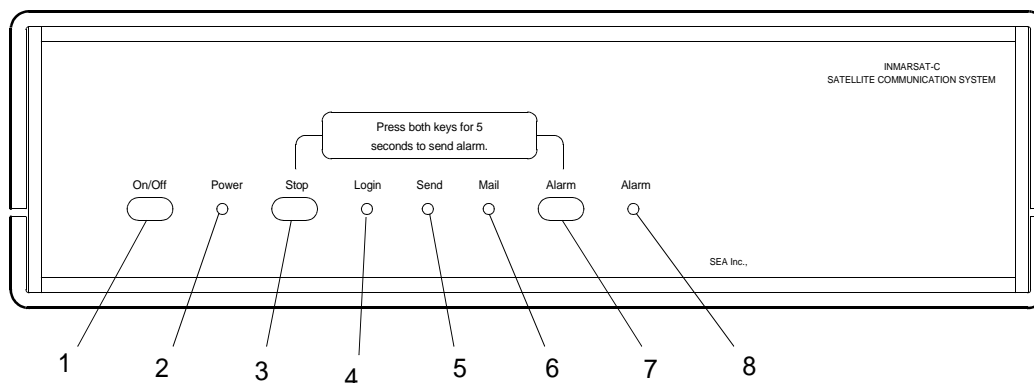
Table 1. Operator Controls and Indicators, Watch Receiver.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PWR | Turns power on and off to the receiver. |
| 2 | DIM | Controls illumination level for backlit keys. |
| 3 | VOL | Controls volume level. |
| 4 | SCN | Press to initiate or exit scanning mode. |
| 5 | TST | Press to initiate test mode. |
| 6 | 2M | This channel cannot be deselected. GMDSS regulations require full time scanning of 2187.5 kHz. Frequency is active when channel key is backlit. |
| 7 | 4M | Press to add or remove frequency 4207.5 kHz to scanning list. Frequency is active when channel key is backlit. |
| 8 | 6M | Press to add or remove frequency 6312 kHz to scanning list. Frequency is active when channel key is backlit. |

Table 1. Operator Controls and Indicators, Watch Receiver. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 | 8M | Press to add or remove frequency 8414.5 kHz to scanning list. Frequency is active when channel key is backlit. |
| 10 | 12M | Press to add or remove frequency 12577 kHz to scanning list. Frequency is active when channel key is backlit. |
| 11 | 16M | Press to add or remove frequency 16804.5 kHz to scanning list. Frequency is active when channel key is backlit. 240 volt, 20 amp electrical receptacle. |
| 12 | CALL INDICATOR | Indicates the reception of a distress message preamble. Call indicator is not visible to operator until activated. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM

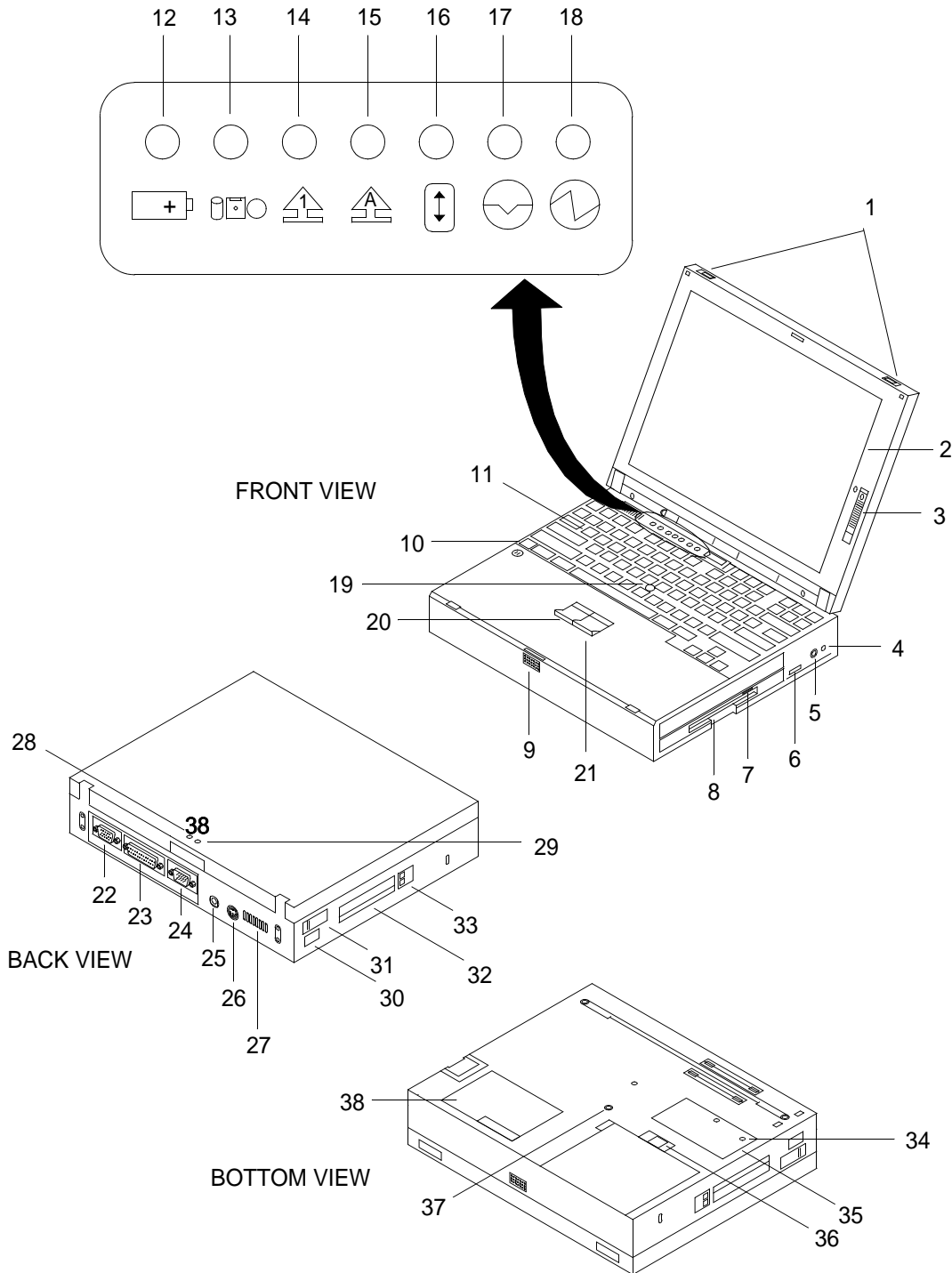


2C006-9

Table 2. Operator Controls and Indicators, INMARSAT-C Satellite Communications System.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|--------------------------------------------------------------------------------------------------------|
| 1 | ON/OFF | Turns the power on to the receiver when button is depressed. Turns power off to receiver when pressed. |
| 2 | POWER LIGHT | When lit, indicates that the receiver is powered. |
| 3 | STOP BUTTON | The stop button is used when sending a distress, performing a link test or commissioning the system. |
| 4 | LOGIN LIGHT | Indicates that the receiver is logged in. |
| 5 | SEND LIGHT | Indicates that a message has been sent. |
| 6 | MAIL LIGHT | Indicates reception of a message since the last inspection of the receive log. |
| 7 | ALARM BUTTON | Used to commission the receiver and to send a distress. |
| 8 | ALARM LIGHT | Indicates that a distress message has been sent. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, INMARSAT-C DATA TERMINAL



2C006-10

Table 3. Operator Controls and Indicators, INMARSAT-C Data Terminal.

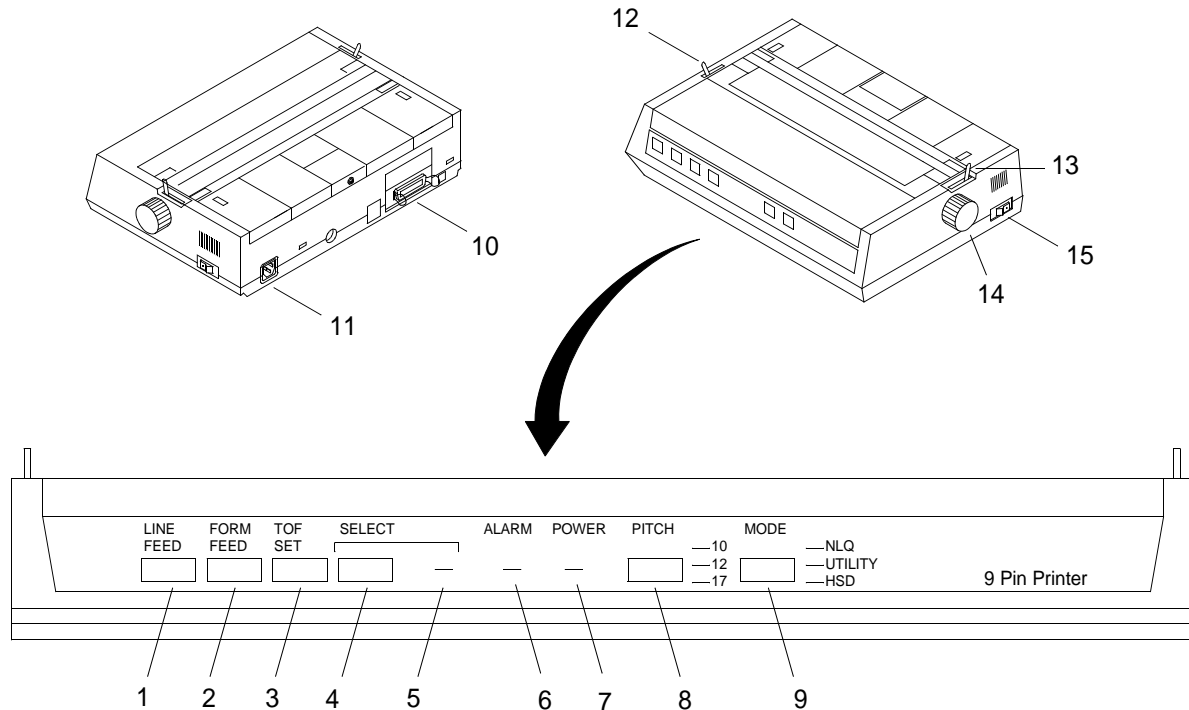
| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LCD LATCHES | The LCD latches open the Liquid Crystal Display (LCD) when they are slid outward. |
| 2 | COLOR LCD SCREEN | The LCD screen displays computer output. |
| 3 | CONTRAST CONTROL | The contrast control moves up or down to adjust the clarity of the picture. |
| 4 | HEADPHONE JACK | The headphone jack, a 1/8 in. (3.5 mm) diameter jack, provides for connection of stereo headphones or external speakers. |
| 5 | MICROPHONE/LINE-IN JACK | The microphone/line-in jack, a 1/8 in. (3.5 mm) diameter jack, provides for connection of a stereo microphone or external audio device. |
| 6 | VOLUME CONTROL | Selects the desired channel. Each press decreases the channel number. When held down, the channels decrease continuously. |
| 7 | DISKETTE EJECT BUTTON | The diskette eject button ejects the diskette from the disk drive. |
| 8 | DISKETTE DRIVE | The diskette drive reads data from and writes data to a diskette. |
| 9 | SPEAKER | The built in speaker reproduces sound for your application programs. |
| 10 | FN KEY | The Fn key is used with the function keys to activate the Fn key functions. |
| 11 | KEYBOARD | The keyboard is used to enter data into the computer. |
| 12 | BATTERY INDICATOR LIGHT | The battery indicator light may be one of three colors; green, orange or blinking orange. Green indicates that enough power remains for operation. Orange indicates that the battery pack is being recharged. The blinking orange light indicates that the battery pack needs charging. |
| 13 | DRIVE IN USE LIGHT | The orange drive in use light indicates that data is being read from or written to the hard drive or diskette. |
| 14 | NUMERIC LOCK LIGHT | The numeric lock light is green. The numeric keypad on the keyboard is enabled. Enable or disable the numeric keypad by pressing and holding the Shift key and pressing the Numlk key. |
| 15 | CAPS LOCK LIGHT | The caps lock light is green. The caps lock mode is enabled. In that mode all alphabetic characters are entered in capital letters without pressing the Shift key. Enable or disable the caps lock by pressing the Caps Lock key. |
| 16 | SCROLL LOCK LIGHT | The scroll lock light is green. Enable or disable the scroll function by pressing ScrLK key. |

Table 3. Operator Controls and Indicators, INMARSAT-C Data Terminal. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17 | SUSPEND MODE LIGHT | The suspend mode light is green when the computer is in the suspend mode. The light is blinking green when the data terminal is entering the suspend mode or is resuming normal operations. |
| 18 | POWER ON LIGHT | The power on light indicates that the data terminal is on and operational and not in the suspend mode. |
| 19 | TRACKPOINT | The trackpoint moves the mouse pointer. |
| 20 | LEFT CLICK BUTTON | The left click button performs the functions of a left mouse button. |
| 21 | RIGHT CLICK BUTTON | The right click button performs the functions of a right mouse button. |
| 22 | EXTERNAL MONITOR CONNECTOR | The external monitor connector allows connection of an external monitor. |
| 23 | PARALLEL CONNECTOR | The cable from the INMARSAT-C data terminal/INMARSAT-C printer, tagged IBM-TERM/PRNSB, is connected to the parallel connector. |
| 24 | SERIAL CONNECTOR | The J4 cable from the GMDSS 9701, tagged GMDSS-J4/IBM-TERM, is connected to the serial connector. |
| 25 | POWER JACK | The AC adapter cable is connected to the power jack. |
| 26 | EXTERNAL INPUT DEVICE CONNECTOR | The external input device connector is used to attach a mouse, external keyboard or numeric keypad to the data terminal. |
| 27 | FAN LOUVER | The fan louver is used to cool the inside of the computer. Do not place anything in front of the louver that would block air flow. |
| 28 | SUSPEND MODE LIGHT | The suspend mode indicator light shows the condition of the suspend state. |
| 29 | BATTERY INDICATOR | The battery indicator shows the condition of the battery. |
| 30 | INFRARED PORT | The infrared port allows the data terminal to communicate with other devices that have infrared data transfer capability. |
| 31 | POWER SWITCH | The power switch turns the data terminal off and on. |
| 32 | PC CARD SLOT | The PC card slot accepts one or two PC cards or one Zoomed Video port card only in the lower slot. |
| 33 | PC CARD EJECT BUTTONS | The PC card eject buttons eject PC cards from the PC card slot. |
| 34 | MEMORY SLOT COVER | The memory slot cover covers the memory slot. |
| 35 | MEMORY SLOT | The memory slot accepts a Dual Inline Memory Module (DIMM). |
| 36 | BATTERY PACK LOCK | The battery pack lock locks or releases the battery pack. |

Table 3. Operator Controls and Indicators, INMARSAT-C Data Terminal. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 37 | POWER SHUTDOWN SWITCH | The power shutdown switch is used to turn the computer off when an application locks up or the computer will not accept any input. Use the tip of a pen to press the switch. |
| 38 | SERIAL NUMBER | The serial number identifies the computer. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, INMARSAT-C PRINTER

2C006-1

Table 4. Operator Controls and Indicators, INMARSAT-C Printer.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LINE FEED BUTTON | The line feed button moves the paper up one line at a time. |
| 2 | FORM FEED BUTTON | The form feed button moves the paper to the top margin of the next page. |
| 3 | TOF SET BUTTON | The TOF set button sets the top margin at the current position. The select light must be off. |
| 4 | SELECT BUTTON | The select button selects or deselects the printer. |
| 5 | SELECT LIGHT | The select light shows whether the printer is ready to receive data. When the light is on, the printer is ready. When the light is off, the printer is not ready. |

Table 4. Operator Controls and Indicators, INMARSAT-C Printer. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | ALARM LIGHT | The alarm light indicates that paper is low or out or that there is an internal printer problem. |
| 7 | POWER LIGHT | The power light indicates that the printer is receiving power. |
| 8 | PITCH BUTTON | The pitch button selects the size of the printer characters; 10, 12 or 17 characters per inch as indicated by the light adjacent to the print size. |
| 9 | MODE BUTTON | The mode button selects the type of printing indicated by the light next to the button. Three modes of printing are available: Near Letter Quality (NLQ), high resolution printing; Utility, normal printing; High Speed Draft (HSD), fast printing for drafts, underlining is the only printing feature available with HSD. |
| 10 | PARALLEL INTERFACE | The parallel interface allows connection of the cable from the data terminal/INMARSAT-C printer auto switch. This cable is tagged PRN _{SB} /INMARSAT PRN. |
| 11 | POWER CONNECTOR | The power connector allows the power cord to plug in powering the printer. |
| 12 | BAIL LEVER | The bail lever opens and closes the bail. |
| 13 | PAPER LEVER | The paper lever releases tension on the paper. |
| 14 | PLATEN KNOB | The platen knob advances paper through the printer when the paper lever is engaged. |
| 15 | POWER SWITCH | The power switch turns the printer on or off. |

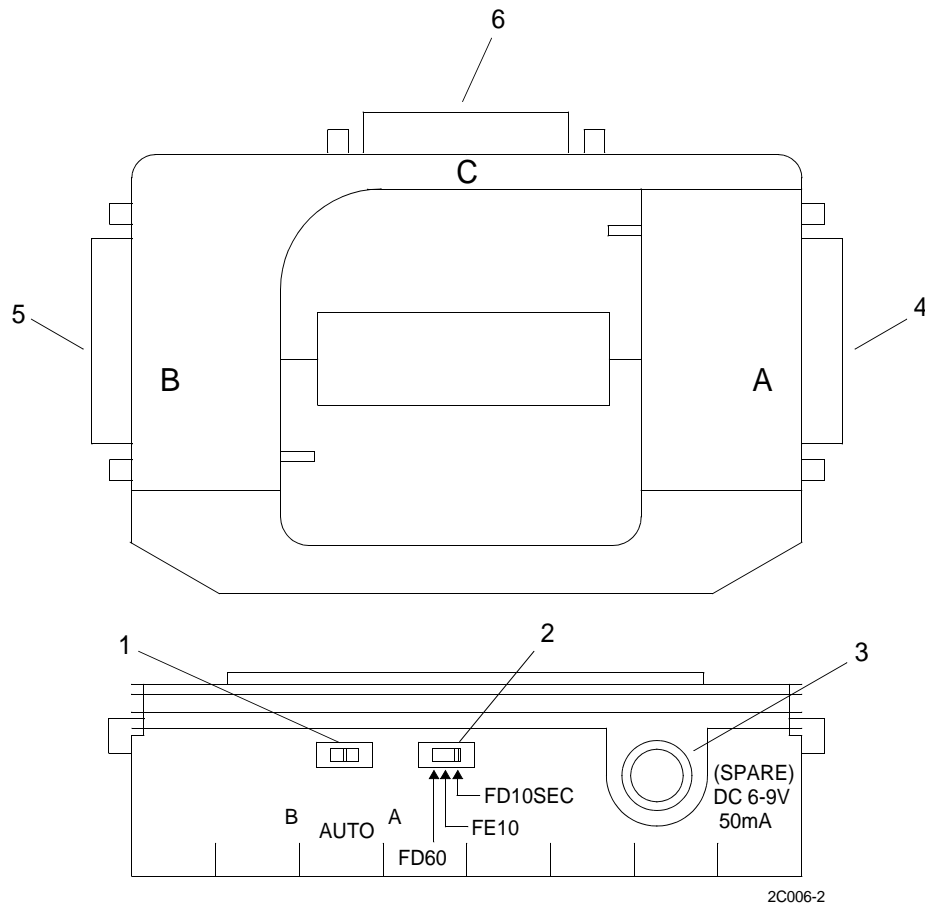
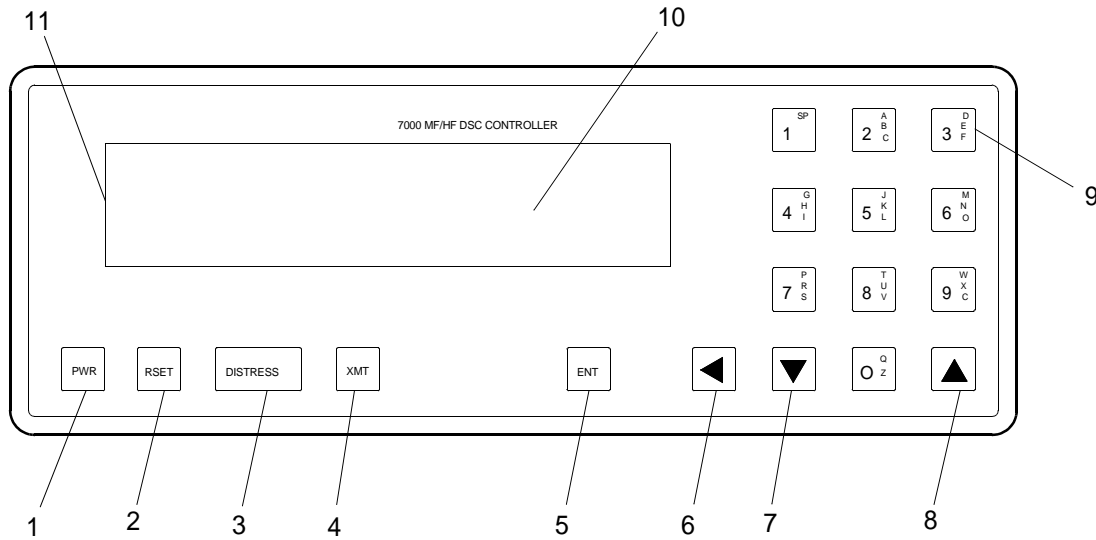
**DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, INMARSAT-C DATA TERMINAL/
INMARSAT-C PRINTER AUTO SWITCH**


Table 5. Operator Controls and Indicators, INMARSAT-C Data Terminal/INMARSAT-C Printer Auto Switch.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 1 | SELECTOR SWITCH | The selector switch selects mode of operation. The switch must be set to AUTO. |
| 2 | OPERATION SWITCH | The operation switch controls the mode of operation. Set the operation switch to FD 10SEC. |
| 3 | SPARE POWER CONNECTOR | The spare power connector is not used for the GMDSS installation. |
| 4 | SERIAL INTERFACE CONNECTOR A | The cable from the INMARSAT data terminal, tagged IBM-TERM/PRNsb, attaches to serial interface connector A. |
| 5 | SERIAL INTERFACE CONNECTOR B | The cable from the J6 connector on the 9701 console, tagged GMDSS-J6/PRNsb, attaches to serial interface connector B. |
| 6 | SERIAL INTERFACE CONNECTOR C | The cable from the INMARSAT printer, tagged PRNsb/INMARSAT PRN, attaches to serial interface connector C. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, DSC CONTROLLER



2C006-11

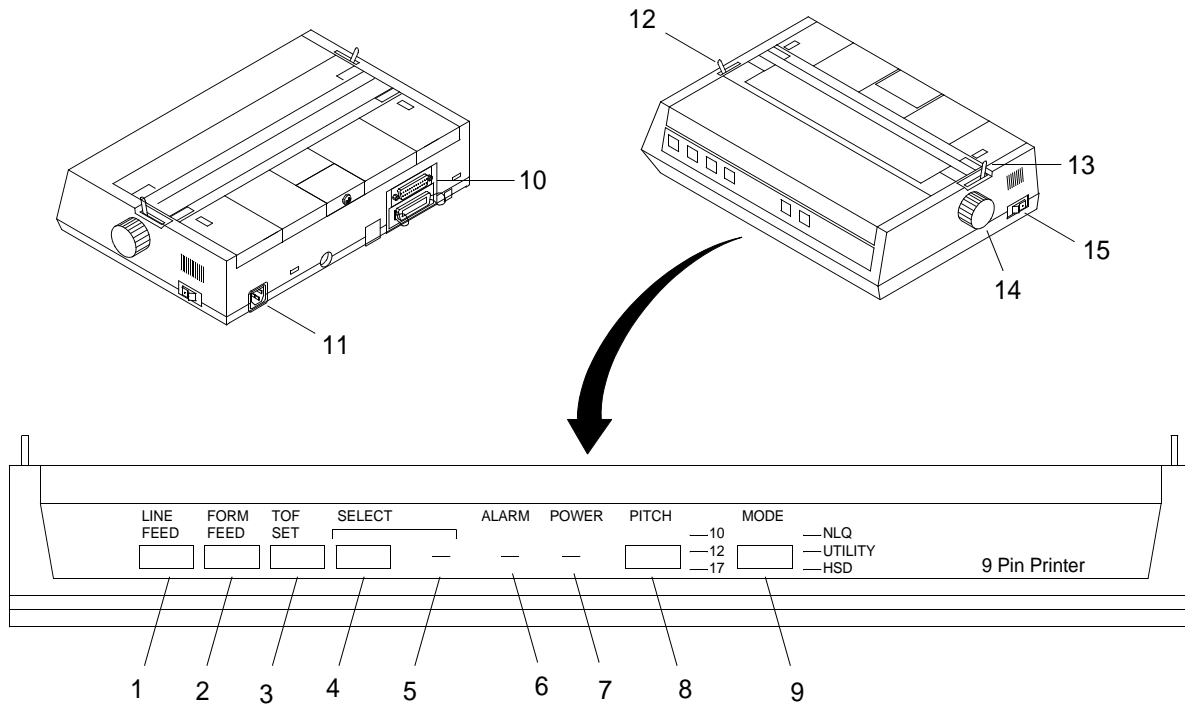
Table 6. Operator Controls and Indicators, DSC Controller.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PWR | The PWR button turns power on and off. |
| 2 | RSET | The RSET button returns the DSC controller to its initial power up state. |
| 3 | DISTRESS | The DISTRESS button initiates a distress call. |
| 4 | XMT | The XMT button calls up the transmit menu, initiates transmission once call is composed and initiates printing when menu options permit. |
| 5 | ENT | The ENT button selects a menu entry. Default values are shown at end of menu. This key lights red when required. This key terminates entries requiring more than a single digit. Turns scan on and off. |
| 6 | LEFT ARROW | The LEFT ARROW key is used as a backspace for entries requiring more than a single digit. |
| 7 | DOWN ARROW | The DOWN ARROW key decreases backlight intensity, displays previously logged calls and moves to a previous scan channel, cycles letters and numbers on each key. |
| 8 | UP ARROW | The UP ARROW key increases backlight intensity, displays next logged call and moves to next scan channel, cycles letters and number on each key. |
| 9 | KEYPAD NUMBERS0-9 | The keypad numbers choose menu selections and input numeric and alphabetic entries. |

Table 6. Operator Controls and Indicators, DSC Controller. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | CALL INDICATOR | The red call indicator indicates that a call addressed to the unit has been received. The call indicator is not visible until a call is received. |
| 11 | LCD DISPLAY | The LCD display can display 40 character lines, menu options and system status reports. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, GMDSS SERIAL PRINTER



2C006-18

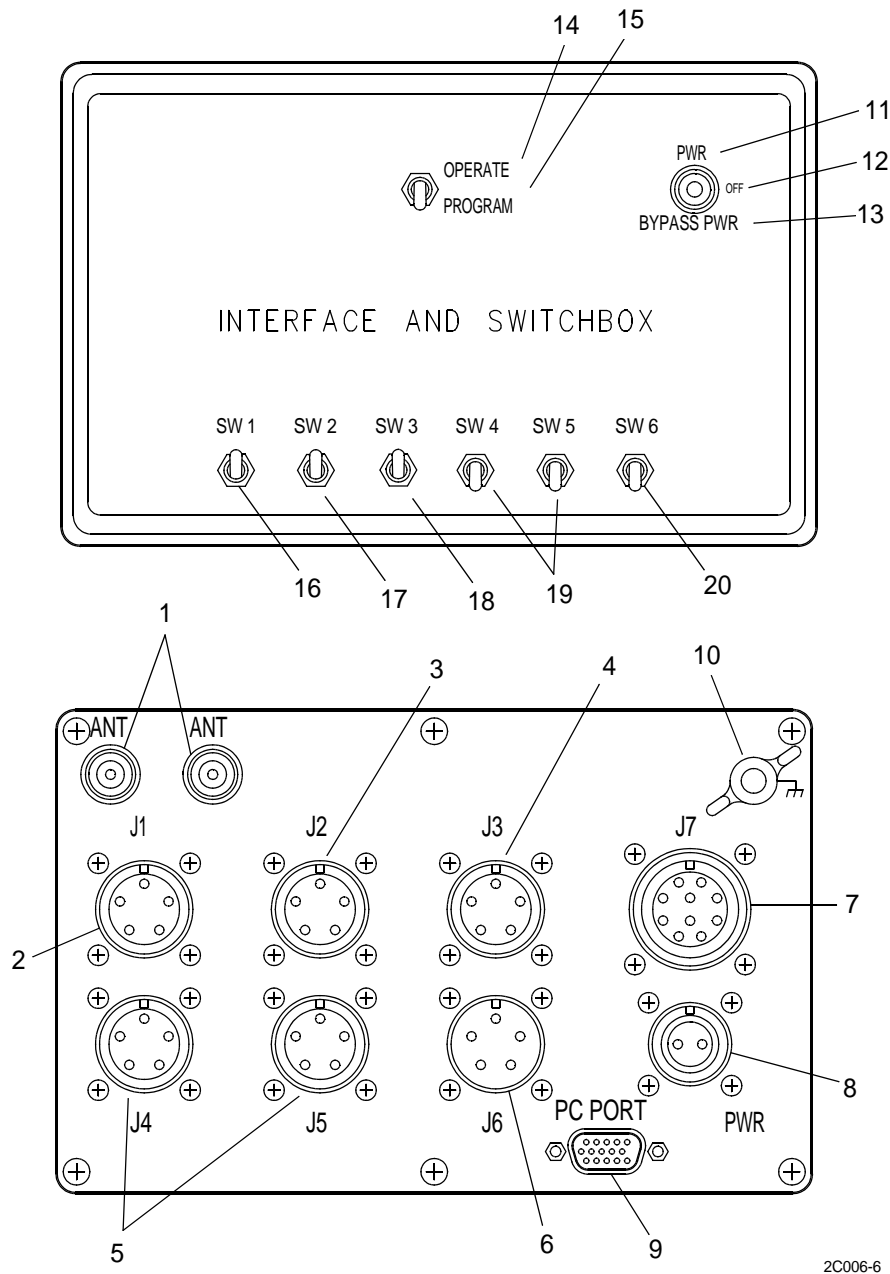
Table 7. Operator Controls and Indicators, GMDSS Serial Printer.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LINE FEED BUTTON | The line feed button moves the paper up one line at a time. |
| 2 | FORM FEED BUTTON | The form feed button moves the paper to the top margin of the next page. |
| 3 | TOF SET BUTTON | The TOF set button sets the top margin at the current position. The select light must be off. |
| 4 | SELECT BUTTON | The select button selects or deselects the printer. |
| 5 | SELECT LIGHT | The select light shows whether the printer is ready to receive data. When the light is on, the printer is ready. When the light is off, the printer is not ready. |
| 6 | ALARM LIGHT | The alarm light indicates that paper is low or out or that there is an internal printer problem. |
| 7 | POWER LIGHT | The power light indicates that the printer is receiving power. |
| 8 | PITCH BUTTON | The pitch button selects the size of the printer characters; 10, 12 or 17 characters per inch as indicated by the light adjacent to the print size. |

Table 7. Operator Controls and Indicators, GMDSS Serial Printer. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 | MODE BUTTON | The mode button selects the type of printing indicated by the light next to the button. Three modes of printing are available: Near Letter Quality (NLQ), high resolution printing; Utility, normal printing; High Speed Draft (HSD), fast printing for drafts, underlining is the only printing feature available with HSD. |
| 10 | SERIAL INTERFACE | The serial interface allows connection of the cable from the 9701 console J2 connector. This cable is tagged GMDSS-J2/HF PRINTER. |
| 11 | POWER CONNECTOR | The power connector allows the power cord to plug in powering the printer. |
| 12 | BAIL LEVER | The bail lever opens and closes the bail. |
| 13 | PAPER LEVER | The paper lever releases tension on the paper. |
| 14 | PLATEN KNOB | The platen knob advances paper through the printer when the paper lever is engaged. |
| 15 | POWER SWITCH | The power light indicates that the printer is receiving power. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, COMMUNICATIONS INTERFACE AND SWITCHBOX



2C006-6

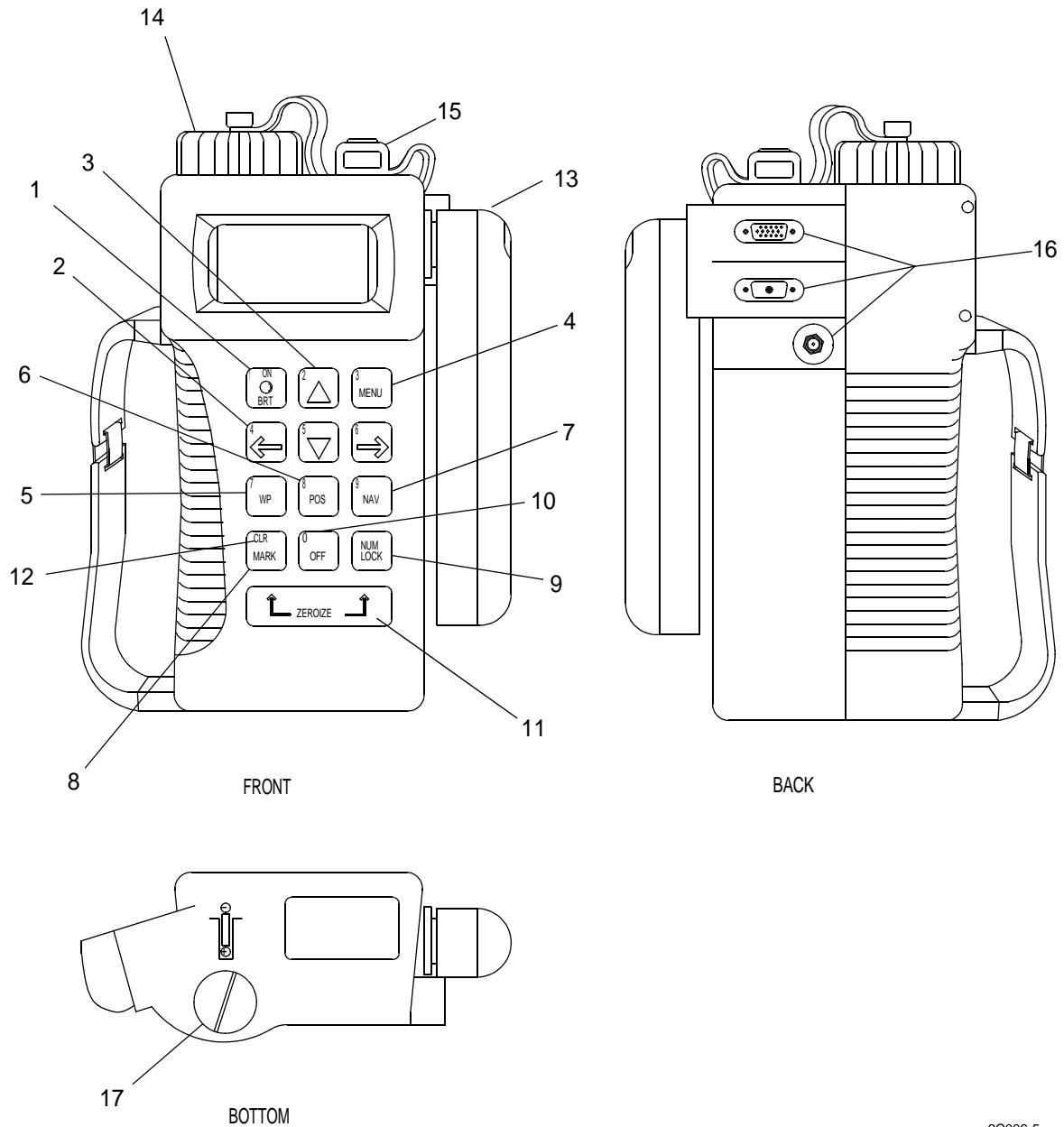
Table 8. Operator Controls and Indicators, Communications Interface and Switchbox.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-------------------|----------------------------------------------------------------------------------------|
| 1 | ANT CONNECTOR | Antenna connections for PLGR signal input and output. Connections are interchangeable. |
| 2 | J1 CONNECTOR | Provides GPS signal to DSC controller. |
| 3 | J2 CONNECTOR | Provides GPS signal to satellite communications system. |

Table 8. Operator Controls and Indicators, Communications Interface and Switchbox. (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 4 | J3 CONNECTOR | Provides GPS signal to DSC VHF/FM transceiver. |
| 5 | J4 - J5 CONNECTOR | Provides GPS signal to equipment to be installed at a later date. |
| 6 | J6 CONNECTOR | Allows input of GPS differential data. |
| 7 | J7 CONNECTOR | Provides ship's power to PLGR and receives GPS data from PLGR for distribution to J1 - J3 outputs. |
| 8 | PWR CONNECTION | Receives power from ship power source to operate PLGR. |
| 9 | PC PORT CONNECTOR | Provides data terminal interface with PLGR for programming PLGR from data terminal. |
| 10 | GROUNDING POINT | Grounding point for grounding the interface and switchbox to the vessel. |
| 11 | POWER SWITCH IN POWER POSITION | Allows the interface and switchbox to receive power from ship's power source and supplies regulated power to the PLGR. |
| 12 | POWER SWITCH IN OFF POSITION | Allows the interface and switchbox to receive ship's power, but does not allow power output to PLGR. |
| 13 | POWER SWITCH IN BYPASS POWER | Allows interface and switchbox to receive ship's power and supplies unregulated power to the PLGR. |
| 14 | OPERATE/PROGRAM SWITCH IN OPERATE POSITION | Allows GPS data from PLGR to be distributed to J1 - J5 outputs. |
| 15 | OPERATE/PROGRAM SWITCH IN PROGRAM POSITION | Provides a direct programming link between the PLGR and a data terminal. |
| 16 | SW1 | Turns GPS signal on (UP position) or off (DOWN position) to the DSC controller. |
| 17 | SW2 | Turns GPS signal on (UP position) or off (DOWN position) to the satellite communications system. |
| 18 | SW3 | Turns GPS signal on (UP position) or off (DOWN position) to the DSC VHF/FM transceiver. |
| 19 | SW4 - SW5 | Turns GPS signal on (UP position) or off (DOWN position) for equipment to be installed at a later date. |
| 20 | SW6 | Allows interface of GPS differential signal data. Switch up for ON, switch down for OFF. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, PRECISION LIGHTWEIGHT GLOBAL POSITIONING SYSTEM RECEIVER (PLGR)



2C006-5

Table 9. Operator Controls and Indicators, Precision Lightweight. (PLGR)

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-----------------------|-----------------------------------------------------------------------------------------|
| 1 | ON/BRT KEY | Turns the PLGR on. Also adjusts the brightness of the display backlighting. |
| 2 | LEFT/RIGHT ARROW KEYS | Moves the cursor from field to field in the display. |
| 3 | UP/DOWN ARROW KEYS | Used to change display pages, change numbers/alpha field values and activate functions. |

Table 9. Operator Controls and Indicators, Precision Lightweight. (PLGR) (Continued)

| KEY | CONTROL/INDICATOR | FUNCTION |
|------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | MENU KEY | Displays the system menu. Changes to new menu page. |
| 5 | WP KEY | Displays the WAYPOINT menu. |
| 6 | POS KEY | Brings up the POSITION menu. Changes position display pages. |
| 7 | NAV KEY | Brings up the NAV menu displays. Key is inoperable until way points are loaded. |
| 8 | MARK KEY | Activates the MARK and Man Overboard (MOB) way point selection page. |
| 9 | NUM LOCK KEY | Toggles the keyboard between control mode and numeric mode. |
| 10 | OFF KEY | Turns the PLGR off. |
| 11 | ZEROIZE KEY | Destroys all data that has been entered into, collected or stored by the PLGR. |
| 12 | CLEAR KEY | Used in numeric mode. Moves the cursor to the left. |
| 13 | INTEGRAL ANTENNA | Receives GPS signal when external antenna is not used. |
| 14 | BATTERY COMPARTMENT | Powers the PLGR when external power is not used. Battery must be removed before external power is applied. |
| 15 | KYK-13 ENCRYPTION PORT | When loaded, allows user to receive or read encrypted data. |
| 16 | J2, J3 and J4 PORTS | Allows PLGR to be used with external power and provides external output of GPS data. Provides a receptacle for connecting PLGR to a data terminal. |
| 17 | MEMORY BATTERY COMPARTMENT | Contains memory battery which retains PLGR memory when the PLGR is turned off. |

**DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, GMDSS EQUIPMENT
POWER SUPPLY**

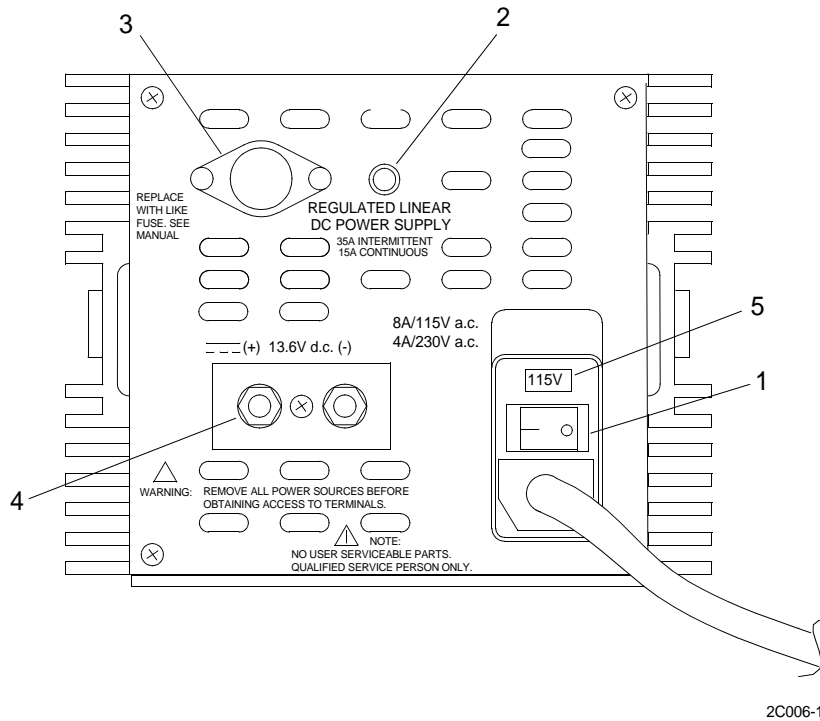
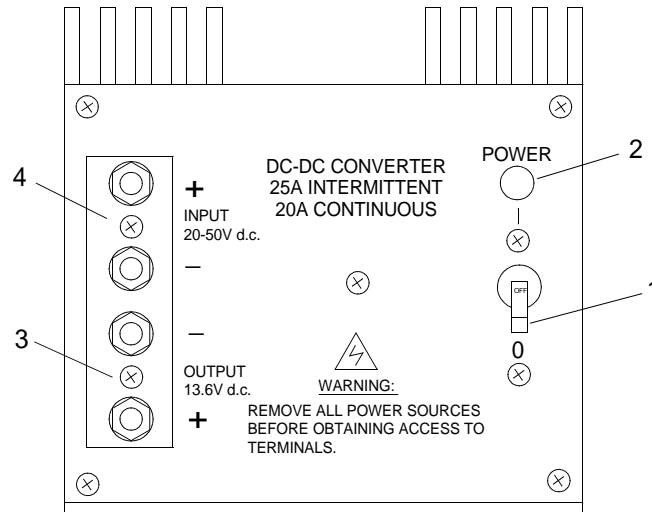


Table 10. Operator Controls and Indicators, GMDSS Equipment Power Supply.

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|-----------------------|----------------------------------------------------------------------------------------------------------|
| 1 | POWER SWITCH | The power switch turns the power supply on or off. |
| 2 | POWER INDICATOR LIGHT | The power indicator light, when lit, indicates that the power supply is producing power. |
| 3 | FUSE HOLDER | The fuse holder contains the fuse for the power supply. |
| 4 | OUTPUT TERMINALS | The output terminals provide for connection of the power output wires to the automatic power switch. |
| 5 | VOLTAGE SELECTOR | The voltage selector switch allows the user to select the desired input voltage; 115 volts or 220 volts. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, GMDSS DC POWER CONVERTER

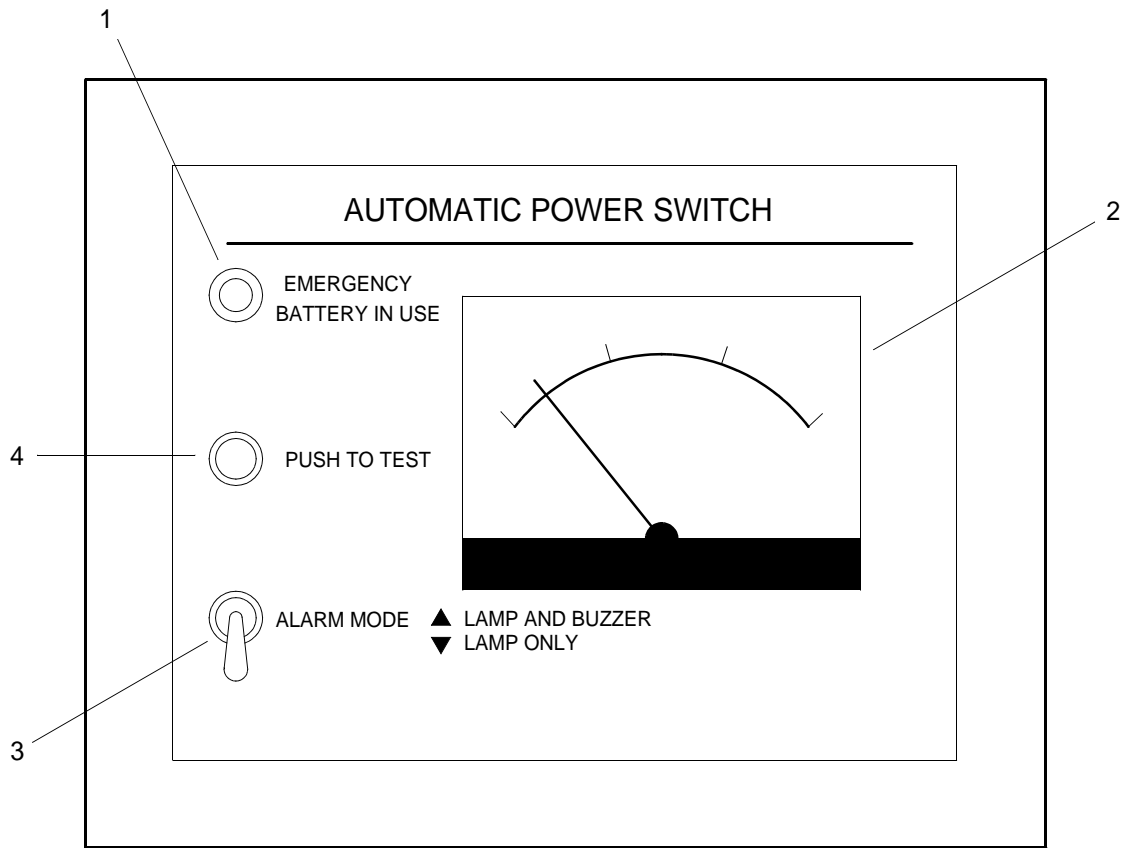


2C006-19

Table 11. Operator Controls and Indicators, GMDSS DC Power Converter.

| KEY | CONTROL/INDICATOR | FUNCTION |
|-----|-----------------------|---------------------------------------------------------------------------------------------------------|
| 1 | POWER SWITCH | The power switch turns the DC converter on or off. |
| 2 | POWER INDICATOR LIGHT | The power indicator light, when lit, indicates that the converter is producing power. |
| 3 | OUTPUT TERMINALS | The output terminals provide for connection of the power output wires to the automatic power switch. |
| 4 | INPUT TERMINALS | The input terminals provide for connection of the power input wires from the GMDSS emergency batteries. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, GMDSS EQUIPMENT AUTOMATIC POWER SWITCH

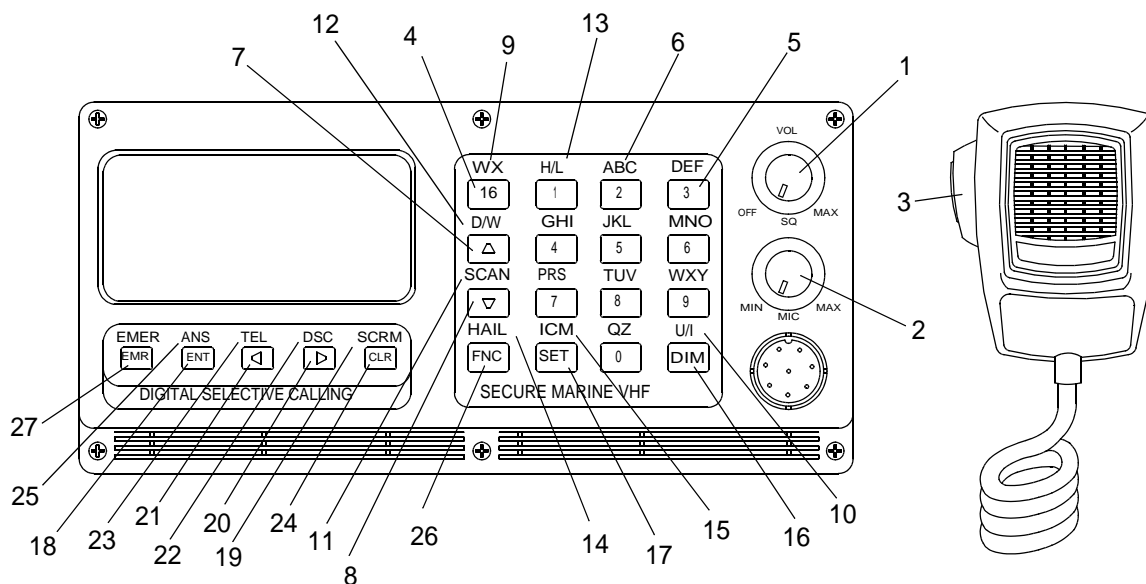


2C006-3

Table 12. Operator Controls and Indicators, GMDSS Equipment Automatic Power Switch.

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|------------------------------------------|----------------------------------------------------------------------------------|
| 1 | EMERGENCY BATTERY IN USE INDICATOR LIGHT | When lit, indicates that the power is coming from the GMDSS emergency batteries. |
| 2 | METER | Indicates voltage received from GMDSS emergency batteries. |
| 3 | ALARM MODE | Selects type of alarm to be used; either lamp only or lamp and buzzer. |
| 4 | PUSH TO TEST | Push button used to test the lamp and buzzer. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, DSC VHF/FM TRANSCEIVER



2C006-4

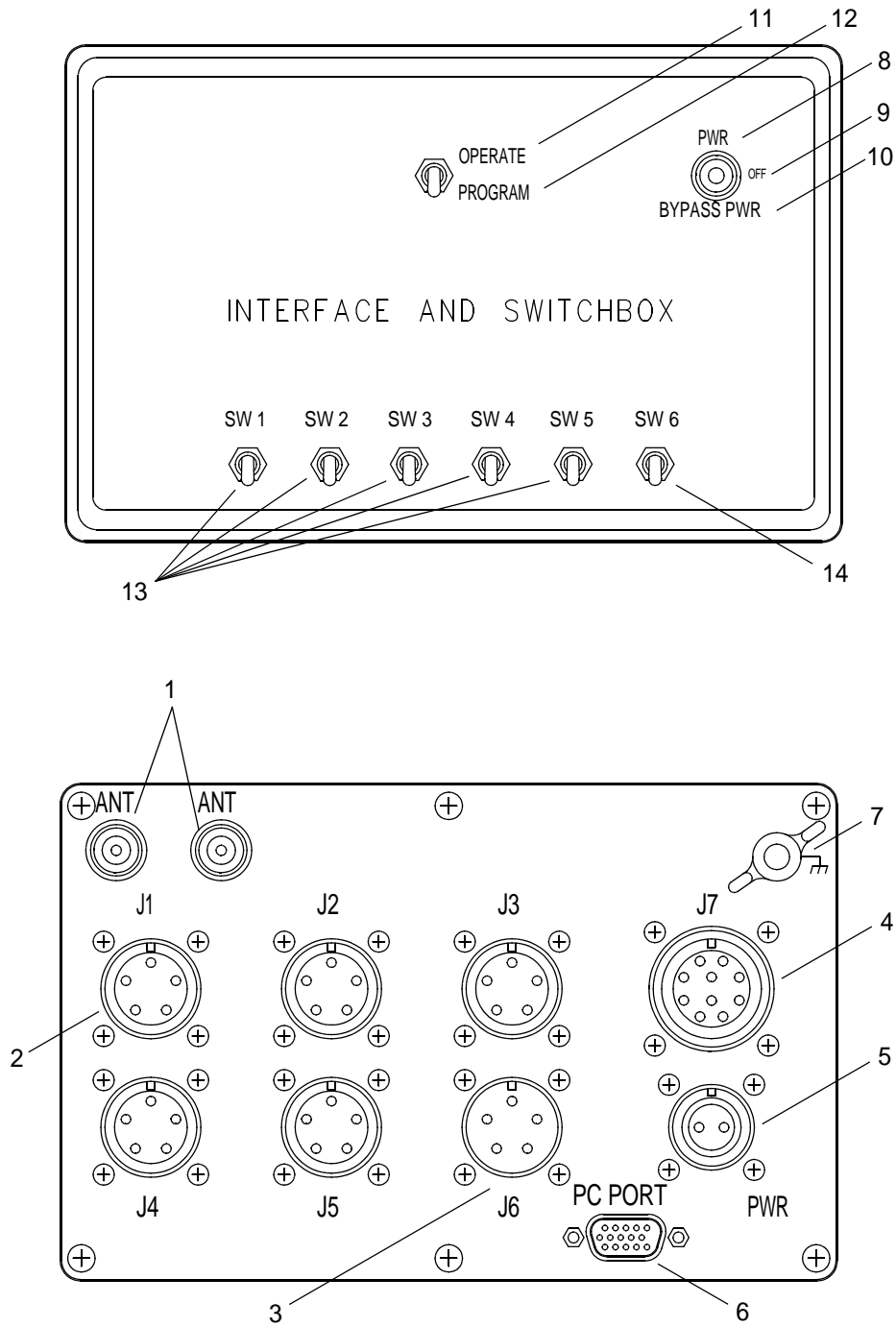
Table 13. Operator Controls and Indicators, DSC VHF/FM Transceiver.

| KEY | PUSH BUTTON OR CONTROL | FUNCTION |
|-----|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PWR/VOLUME KEY | Turns power on and off. Adjusts speaker volume level. |
| 2 | SQUELCH KEY | Sets the threshold level of received signals that will produce audio output from the speaker. |
| 3 | MICROPHONE PUSH TO TALK BUTTON | Press the push to talk button to transmit. Release button to receive. A transmit timer limits continuous transmission to 5 minutes. |
| 4 | 16 KEY | Sets the DSC VHF/FM transceiver to transmit and receive on channel 16 and overrides any other function when pressed. |
| 5 | NUMBER KEYS | Used for channel selection and entry of numeric values. |
| 6 | LETTER KEYS | Used for entry of names into directories. |
| 7 | UP ARROW KEY | Used to select the next higher channel number or move selection bar upward in menus. |
| 8 | DOWN ARROW KEY | Used to select the next lower channel number or move selection bar downward in menus. |
| 9 | WEATHER KEY | Allows 10 weather channels to be selected individually or scanned. |
| 10 | U/I KEY | USA or International. Selects USA or International frequency sets. |
| 11 | SCAN KEY | Displays SCAN SELECTION menu. Choose MEMORY SCAN, ALL CHANNELS or SCAN REVIEW. |

Table 13. Operator Controls and Indicators, DSC VHF/FM Transceiver. (Continued)

| KEY | PUSH BUTTON OR CONTROL | FUNCTION |
|------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12 | D/W KEY | Dual Watch. Allows any two channels to be selected and monitored simultaneously. |
| 13 | H/L KEY | High/Low. Selects HIGH (25 watt) or LOW (1 watt) transmit power. Also selects LOCAL or DISTANCE receive mode. |
| 14 | HAIL KEY | Activates the HAIL mode. Remote speaker required. |
| 15 | ICM KEY | Intercom. Activates the INTERCOM mode. Remote station speakers required. |
| 16 | DIM KEY | Selects any of four display backlighting levels; Low, Medium, High or Off. |
| 17 | SET KEY | Displays USER SETUPS menu. Choose from Clock, Viewing Angle, User Options, NMEA Position and Security Code. |
| 18 | ENT KEY | Enter. Used to complete selections and terminate multiple key entries. Enter displayed channel into Memory Scan memory. |
| 19 | SCRM KEY | Scrambler. Displays the SCRAMBLER selections menu. Choose Individual, Group Scramble or Search for directory entry. |
| 20 | RIGHT ARROW KEY | Used to change pages in multiple page menus and advance the entry position when entering or editing data. |
| 21 | LEFT ARROW KEY | Used to change pages in multiple page menus and backspace the entry position when entering or editing data. |
| 22 | DSC KEY | Displays the DSC CALLING and several other menus regarding DSC operations. Use arrow keys to make selection. |
| 23 | TEL KEY | Displays the TELEPHONE and COAST STATION menus. Choose any existing entry, new entry or search for individual telephone numbers and coast station DSC ID numbers. |
| 24 | CLR KEY | Clear key. Clears erroneous entries. Clears displayed channel from MEMORY SCAN memory. Stops call ringing. |
| 25 | ANS KEY | Answer. Displays the CALL WAITING menu. Select any entry to respond. |
| 26 | FNC KEY | Function key. Selects the second function for a key. The second function is shown above the key. Does not select the letters above keys 2 thru 0. |
| 27 | EMR KEY | Emergency key. Displays the EMERGENCY menu. When SEND DISTRESS is selected and button is pushed and held in for five seconds, transmits emergency message on channel 70. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, NAVIGATION INTERFACE AND SWITCHBOX

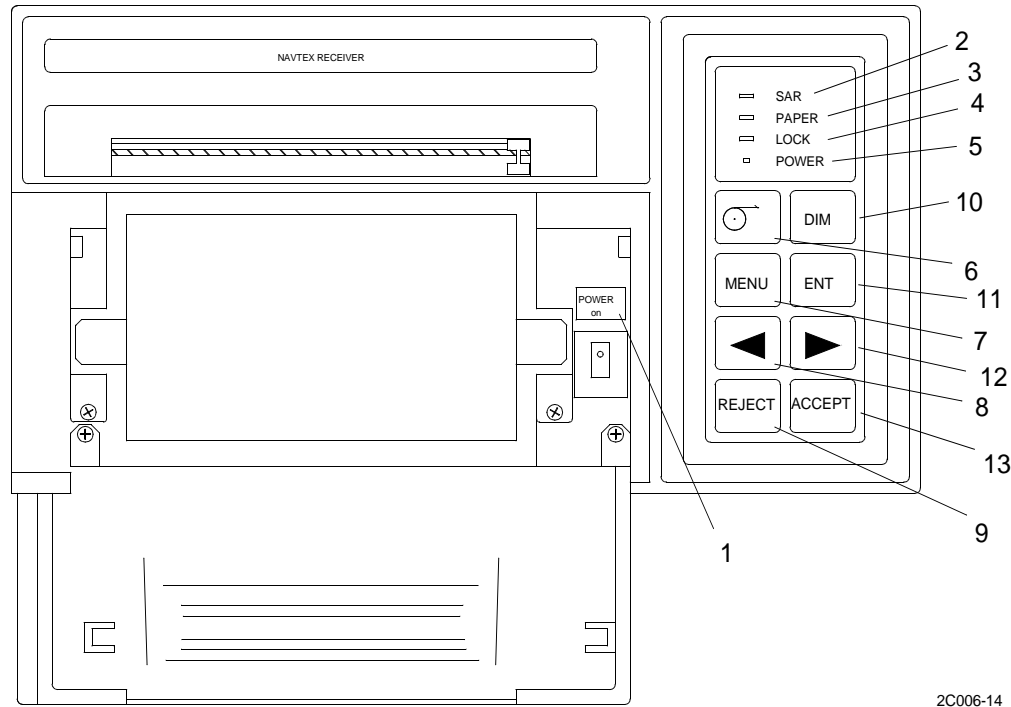


2C006-7

Table 14. Operator Controls and Indicators, Navigation Interface and Switchbox.

| KEY | PUSH BUTTON OR CONTROL | FUNCTION |
|------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1 | ANT CONNECTOR | Antenna connections for PLGR signal input and output. Connections are interchangeable. |
| 2 | J1 - J5 CONNECTORS | These connectors are not used when the interface and switchbox is used in the navigation location. |
| 3 | J6 CONNECTOR | Allows input of GPS differential data. |
| 4 | J7 CONNECTOR | Provides ship's power to PLGR. |
| 5 | PWR CONNECTION | Receives power from ship power source to operate PLGR. |
| 6 | PC PORT CONNECTOR | Provides data terminal interface with PLGR for programming PLGR from data terminal. |
| 7 | GROUNDING POINT | Grounding point for grounding the interface and switchbox to the vessel. |
| 8 | POWER SWITCH IN POWER POSITION | Allows the interface and switchbox to receive power from ship's power source and supplies regulated power to the PLGR. |
| 9 | POWER SWITCH IN OFF POSITION | Allows the interface and switchbox to receive ship's power, but does not allow power output to PLGR. |
| 10 | POWER SWITCH IN BYPASS POWER | Allows interface and switchbox to receive ship's power and supplies unregulated power to the PLGR. |
| 11 | OPERATE/PROGRAM SWITCH IN OPERATE POSITION | Normal switch position for the interface and switchbox when installed in the navigation location. |
| 12 | POSITION OPERATE/PROGRAM SWITCH IN PROGRAM POSITION | This switch position is not used when the interface and switchbox is installed in the navigation location. |
| 13 | SW1 - SW5 | These connectors are not used when the interface and switchbox are used in the navigation location. |
| 14 | SW6 | Allows interface of GPS differential signal data. Switch up for ON, switch down for OFF. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, NAVTEX RECEIVER



2C006-14

Table 15. Operator Controls and Indicators, NAVTEX Receiver.

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | POWER KEY | The power key turns the unit off and on. |
| 2 | SAR INDICATOR LIGHT | The Search and Rescue (SAR) indicator light illuminates when a SAR message is received. |
| 3 | PAPER INDICATOR LIGHT | The paper indicator light illuminates when the NAVTEX is out of paper. |
| 4 | LOCK INDICATOR LIGHT | The lock indicator illuminates while messages are being received. |
| 5 | POWER INDICATOR LIGHT | The power indicator light illuminates when the power is on. |
| 6 | FEED KEY | The feed key feeds paper into the NAVTEX. |
| 7 | MENU KEY | The menu key calls up the main menu. |
| 8 | LEFT ARROW KEY | The left arrow key moves the cursor to the left. |
| 9 | REJECT KEY | The reject key is used to reject stations/messages or to enter lower case characters. Additionally, it cuts off the signal monitor function. |
| 10 | DIM KEY | The dim key adjusts illumination. |
| 11 | ENTER KEY | The enter key registers user set data. |

Table 15. Operator Controls and Indicators, NAVTEX Receiver. (Continued)

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|----------------------|---------------------------------------------------------------------------------------|
| 12 | RIGHT ARROW KEY | The right arrow key moves the cursor to the right. |
| 13 | ACCEPT KEY | The accept key is used to select stations/messages or to enter upper case characters. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, NAVIGATION EQUIPMENT POWER SUPPLY

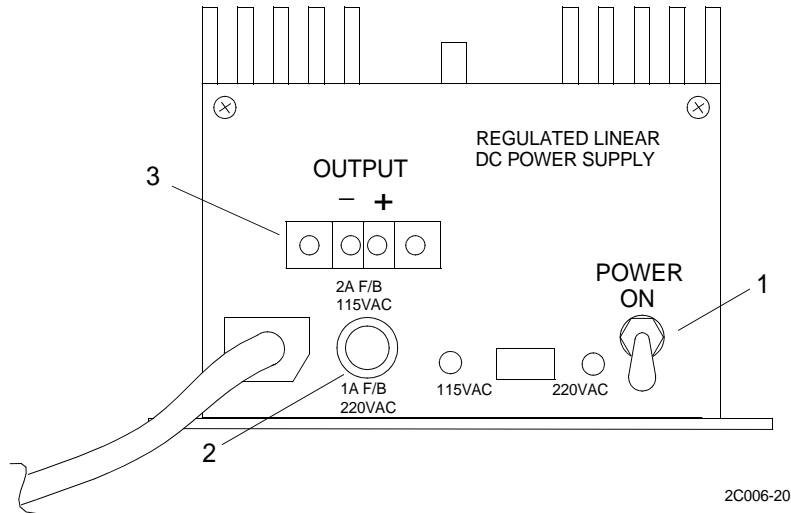
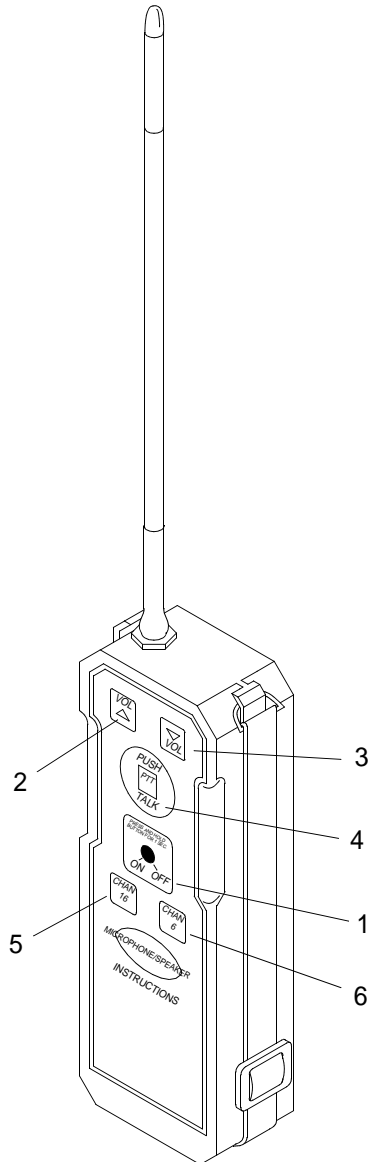


Table 16. Operator Controls and Indicators, Navigation Equipment Power Supply.

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|----------------------|-----------------------------------------------------------------------------------------------|
| 1 | POWER SWITCH | The power switch turns the power supply on or off. |
| 2 | FUSE HOLDER | The fuse holder contains the fuse for the power supply. |
| 3 | OUTPUT TERMINALS | The output terminals provide for connection of the power output wires to the DC junction box. |

DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, LIFEBOAT RADIO



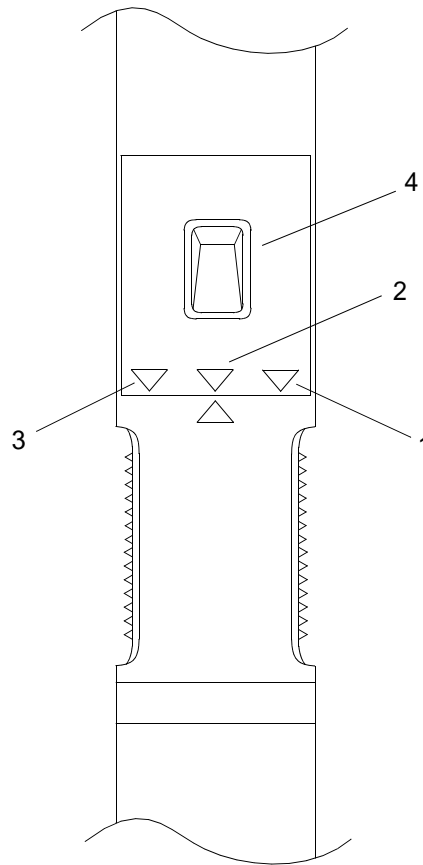
2C006-16

Table 17. Operator Controls and Indicators, Lifeboat Radio.

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | ON/OFF BUTTON | Press the on/off button for one second to turn the radio on. Press the on/off button again to turn the radio off. |
| 2 | VOLUME UP BUTTON AND INDICATOR LIGHT | Press the volume up button to increase the audio output level. The volume up indicator lights yellow when the PTT button is pressed. The yellow light indicates that the radio is transmitting. |
| 3 | VOLUME DOWN BUTTON AND INDICATOR LIGHT | Press the volume down button to decrease the audio output level. The volume down indicator lights yellow when the PTT button is pressed. The yellow light indicates that the radio is transmitting. |

Table 17. Operator Controls and Indicators, Lifeboat Radio. (Continued)

| KEY | CONTROL OR INDICATOR | FUNCTION |
|------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | PTT BUTTON AND INDICATOR LIGHT | The push to talk button activates the transmission when pressed. When the button is released, the radio returns to the receive mode. The PTT button blinks yellow at a slow rate to assist the operator in locating the PTT switch in darkness. |
| 5 | CHAN 16 BUTTON AND INDICATOR LIGHT | The channel 16 button selects operation on marine band 16 (distress/calling). The button will be illuminated with a red light when the radio is turned on and channel 16 has been selected. |
| 6 | CHAN 6 AND INDICATOR LIGHT | The channel 6 button selects operation on marine band 6 (communications/USCG). The button will be illuminated with a green light when the radio is turned on and channel 6 has been selected. |

**DESCRIPTION OF OPERATOR CONTROLS AND INDICATORS, SEARCH AND RESCUE
TRANSPONDER (SART)**


2C006-17

Table 18. Operator Controls and Indicators, Search and Rescue Transponder. (SART)

| KEY | CONTROL OR INDICATOR | FUNCTION |
|-----|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | SWITCH RING OFF POSITION | When the switch ring is turned to the OFF position, the SART is turned off. |
| 2 | SWITCH RING ON POSITION | When the switch ring is turned to the ON position, the SART is turned on and in the standby mode. |
| 3 | SWITCH RING TEST POSITION | When the switch ring is turned and held in the TEST position, the SART may be tested. |
| 4 | INDICATOR LIGHT | When the switch ring is rotated to the ON position, the indicator light slowly flashes green and the indicator light slowly flashes red when interrogated by a compatible airborne or shipborne radar. When the switch ring is rotated to the TEST position, the indicator shows a steady green light. |

CHAPTER 2
OPERATOR INSTRUCTIONS FOR LCU 2000 GLOBAL MARITIME
DISTRESS AND SAFETY SYSTEM

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

PERFORM INITIAL SETUP OF INMARSAT DATA TERMINAL (THINKPAD)

1. Remove thinkpad from shipping box.
 - a. Open top of shipping box.
 - b. Remove packing material.
 - c. Remove thinkpad.

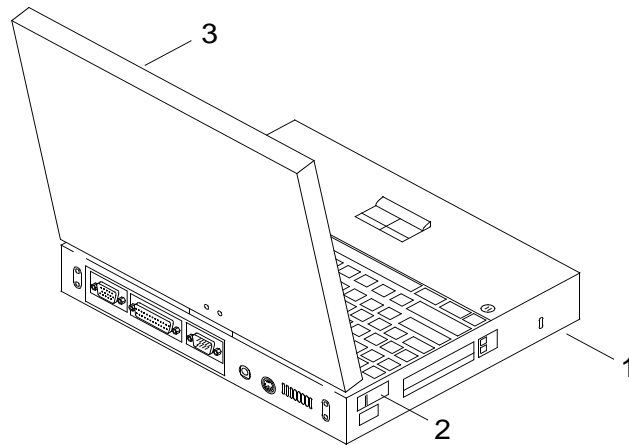
NOTE

Remove tape embossed with serial number prior to removing THINKPAD from protective plastic bag and safekeep for use during initial setup.

2. Remove thinkpad from protective plastic bag.
3. Verify serial number embossed on tape matches the serial number stamped on the data plate on bottom of thinkpad.

PERFORM INITIAL SETUP OF THINKPAD

1. Install thinkpad (1). (WP 0135 00)



2C007-1

2. Open thinkpad screen (3).
3. Push power switch (2) to ON position and release.

4. Ensure that the SEASAT program is installed. If program is installed, proceed to Step 5. If not, install program as follows:
 - a. Insert the SEASAT Install floppy disk into the 3 1/2 in. drive.
 - b. At the DOS prompt, switch to the 3 1/2 in. drive, e.g., if your 3 1/2 in. drive is A: type A; press ENTER.
 - c. Type INSTALL, press ENTER.
 - d. Install will show which directories will be created and give instructions how to install another location if desired.
 - e. When prompted, select the language you wish to install.
 - f. When the installation is complete, change to the SEASAT directory and type SEASAT.
5. Press the thinkpad ALT key to access the SEASAT menu bar.

NOTE

File should be highlighted. If not, use the cursor keys to highlight file.

6. Press the ENTER key to open the pull down menu.
7. Press the X key or using the cursor key, press the DOWN ARROW to highlight EXIT.
8. The confirm menu box should appear. The YES command should be highlighted. If not, use the cursor keys to highlight YES.
9. Press the ENTER key. Program will exit to the DOS screen and the C:\> PROMPT will be displayed.
10. Type win at the C:\> PROMPT and press the ENTER key. The Windows 95 Desktop will appear.
11. Position the mouse pointer on the START button and click the left mouse button. The START menu will appear.
12. Position the mouse pointer on PROGRAMS. An additional program menu will appear.
13. Move the mouse pointer to THINKPAD, then to THINKPAD FEATURES. Click the left mouse button on THINKPAD FEATURES.
14. Move the mouse pointer to the INFRARED PORT icon and click the left mouse button.



2C007-2

15. Position the mouse pointer on the circle to the left of the word DISABLE. Click the left mouse button to select. A dot will appear in the circle.
16. Position the mouse pointer on OK. Click the left mouse button.

17. Move the mouse pointer to the PARALLEL PORT icon and click the left mouse button.



2C007-3

18. Position the mouse pointer on the circle to the left of the word ENABLE. Click the left mouse button to select. A dot will appear in the circle.
19. Position the mouse pointer on the circle to the left of the word ADVANCED. Click the left mouse button to select.
20. Position the mouse pointer on the circle to the left of the word LPT1. Click the left mouse button to select. A dot will appear in the circle.
21. Position the mouse pointer on the circle to the left of the word UNI-DIRECTIONAL. Click the left mouse button to select. A dot will appear in the circle.
22. Position the mouse pointer on OK. Click the left mouse button.
23. Position the mouse pointer on the SERIAL PORT icon. Click the left mouse button.



2C007-4

24. Position the mouse pointer on the circle to the left of the word ENABLE. Click the left mouse button to select. A dot will appear in the circle.
25. Position the mouse pointer on the circle to the left of the word COM1. Click the left mouse button to select. A dot will appear in the circle.
26. Position the mouse pointer on OK. Click the left mouse button.
27. Position the mouse pointer on the X in the top right corner of the THINKPAD FEATURES window. Click the left mouse button to close the THINKPAD FEATURES window.
28. Position the mouse pointer on the START button and click the left mouse button. The START menu will appear.
29. Position the mouse pointer on SHUTDOWN and click the left mouse button.
30. Position the mouse pointer on the circle to the left of RESTART THE COMPUTER. Click the left mouse button to select. A dot will appear in the circle.
31. Position the mouse pointer on the YES button and click the left mouse button. The thinkpad will restart and return to the SEASAT program.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

PERFORM INITIAL SETUP OF INMARSAT-C TRANSCEIVER**UNPACK INMARSAT-C TRANSCEIVER**

1. Remove INMARSAT-C transceiver from shipping box.
 - a. Open top of shipping box.
 - b. Remove packing material.
 - c. Remove INMARSAT-C transceiver.

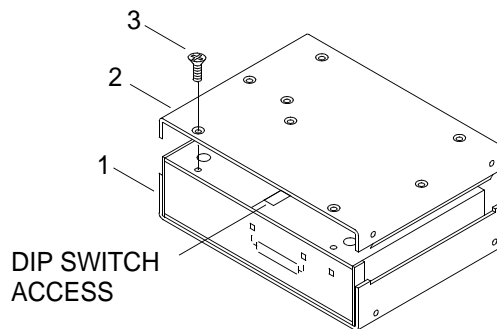
NOTE

Remove tape embossed with serial number prior to removing Inmarsat-C transceiver from protective plastic bag and safekeep for use during initial setup.

2. Remove INMARSAT-C transceiver from protective plastic bag.
3. Verify serial number embossed on tape with the serial number stamped on the data plate on bottom of INMARSAT-C transceiver.

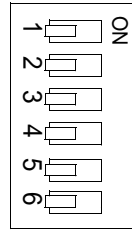
CHECK/SET INMARSAT-C TRANSCEIVER DIP SWITCHES**NOTE**

Dip switches are factory preset and may need adjustment prior to installation of the INMARSAT-C transceiver.



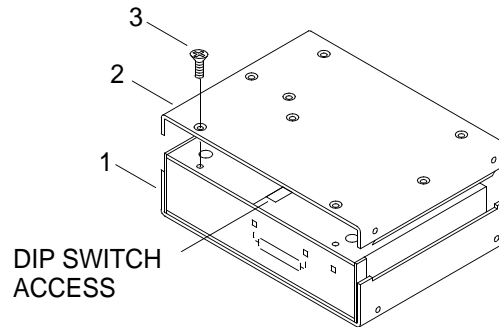
1. Remove bottom cover (2) from INMARSAT-C transceiver (1).
 - a. Remove eight screws (3) that secure the bottom cover (2) to the INMARSAT-C transceiver (1).
 - b. Remove bottom cover (2).

2. Check/Set INMARSAT-C transceiver dip switches. Dip switches should be set as depicted in illustration below.



2C008-2

3. After switches are set, install bottom cover (2) on INMARSAT-C transceiver (1).



2C008-1

- a. Align bottom cover (2) with mounting holes on bottom of the INMARSAT-C transceiver (1).
- b. Install eight screws (3) and tighten.

INSTALL INMARSAT-C TRANSCEIVER

1. Install INMARSAT-C transceiver (1). (WP 0121 00)

NOTE

Guard cover is supplied with a new transceiver.

2. Install guard cover over alarm button.
 - a. Peel paper from adhesive pad on back of guard cover.
 - b. Stick alarm cover on INMARSAT-C over alarm button.

COMMISSIONING THE INMARSAT-C TRANSCEIVER

NOTE

The INMARSAT-C transceiver must be commissioned after initial installation or replacement.

The INMARSAT-C transceiver is registered by serial number to the vessel it is being installed on. Removing an INMARSAT-C transceiver from one vessel to another vessel for installation is not authorized.

1. Turn on the power to the parallel printer.

-
2. Turn on the power to the data terminal.
 - a. Perform initial setup of INMARSAT-C data terminal, if required. (WP 0007 00)
 - b. Ensure that the SEASAT program appears on the screen.
 3. Press the ALT key to access the SEASAT menu bar.
 4. Using the cursor keys, highlight OPTIONS on the SEASAT menu bar. Press ENTER.
 5. Using the cursor keys, highlight CONFIGURATION on the SEASAT menu bar. Press ENTER.
 6. Using the cursor keys, highlight TERMINAL mode on the SEASAT menu bar. Press ENTER.
 7. On the INMARSAT-C transceiver, press and hold the STOP button (do not release). Push and release the ON/OFF button. Release the STOP button after printing appears on the data terminal screen.
 - a. Press the data terminal ENTER key. The SYSTEM GENERATION menu will appear.
 - b. Enter the menu number for mobile number. Press ENTER.
 - c. Enter the assigned mobile number.
 - d. The menu for mobile type will appear. Enter the menu number for MARITIME. Press ENTER.
 - e. Press CTRL C to return to the SYSTEM GENERATION menu.
 8. Enter the menu number for preferred ocean from the SYSTEM GENERATION menu. Press ENTER.
 - a. Enter the first letter of the ocean that the vessel normally operates in or the closest available ocean. Press ENTER.
 - b. Press ESC key.
 9. Using the cursor keys, highlight EGC on the CONFIGURATION menu. Press ENTER.
 - a. Using the cursor keys, highlight the brackets to the left of SYSTEM MESSAGES. Use the spacebar to mark an X in the block.
 - b. Using the cursor keys, highlight the brackets to the left of NAV. WARNINGS. Use the spacebar to mark an X in the block.
 - c. Using the cursor keys, highlight the brackets to the left of MET. WARNINGS. Use the spacebar to mark an X in the block.
 - d. Using the cursor keys, highlight the brackets to the left of ICE REPORTS. If the vessel is sailing in a cold climate, use the spacebar to mark an X in the block.
 - e. Using the cursor keys, highlight the brackets to the left of SAR. Use the spacebar to mark an X in the block.
 - f. Using the cursor keys, highlight the brackets to the left of MET. FORECASTS. Use the spacebar to mark an X in the block.
 - g. Using the cursor keys, highlight OK. Press the ENTER key.

-
10. Using the cursor keys, highlight ROUTING on the CONFIGURATION menu. Press ENTER.
 - a. Using the cursor keys, highlight the brackets in the DISKETTE COLUMN on the MESSAGE LOG FILES line. Use the spacebar to mark an X in the block.
 - b. Remove all X's in the REMOTE PRN column using the cursor keys and the spacebar.
 - c. Using the cursor keys, highlight PATH OF MAIL. The path should read: C:SEASAT2\MSG.
 - d. Using the cursor keys, highlight PATH OF EGC. The path should read: C:SEASAT2\EGC.
 - e. Using the cursor keys, highlight PATH OF LOG. The path should read: C:SEASAT2\LOG.
 - f. Using the cursor keys, highlight OK. Press the ENTER key. Press the ESC key twice.
 - g. Using the cursor keys, highlight each set of brackets in the LOCAL PRN column on the MESSAGE LOG FILES line. Use the spacebar to mark an X in the block.
 11. All satellites channels will be automatically scanned in order to determine the best channel. The status field on the data terminal screen will show SCAN and the login light on the INMARSAT-C transceiver will blink each time it synchronizes with a satellite.
 12. A login is automatically generated to the INMARSAT-C network. When the login is completed, the status field on the data terminal screen should show one of the four ocean regions: West Atlantic, East Atlantic, Pacific or Indian.
 13. The first time the INMARSAT-C transceiver performs a login on the INMARSAT-C network, the transceiver is commanded to carry out a link test, also known as automatic commissioning. This may take up to fifteen minutes and is indicated by LINK TEST in the status field on the data terminal screen. A test distress call is included in the link test for these systems.

NOTE

The link test distress must be initiated within one minute from the time the command to initiate the distress is displayed on the data terminal screen.

14. When the message PLEASE INITIATE DISTRESS AS PART OF THE LINK TEST appears on the data terminal screen press both the STOP and ALARM buttons on the INMARSAT-C transceiver at the same time for a minimum of five seconds.
15. When the link test is completed, the message LINK TEST FINISHED and the results of the link test will be displayed on the data terminal screen. The results of the link test will also be printed out on the parallel printer.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

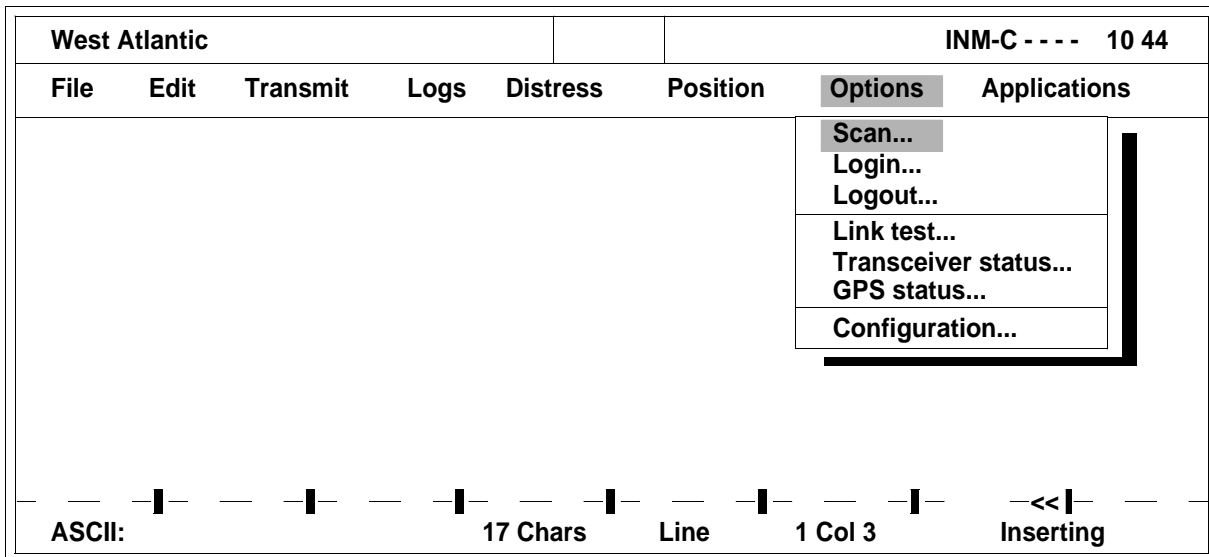
Seaman 88K

OPERATE THE INMARSAT-C TRANSCEIVER

1. Press the power button to turn the power on to the transceiver.
2. Turn power on to INMARSAT-C data terminal and INMARSAT-C printer.
3. Ensure that the correct ocean region appears in the upper left corner of the SEASAT program screen.
4. Highlight POSITION. Press the ENTER key.
5. Ensure that position data on data terminal screen and position on Precision Lightweight Global Positioning Receiver (PLGR) are the same.

PERFORM A MANUAL LOGIN

1. Perform a manual login.
2. Press the ALT key to access the menu bar.
3. Highlight OPTIONS. Press the ENTER key.



2C009-1

4. Highlight LOGIN. Press the ENTER key.

5. Highlight the desired ocean region. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|----------|-----------------------|--------------|
| West Atlantic | | | | | | INM-C - - - - 10 44 | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | 17 Chars | | Line | 1 Col 3 | << Inserting | |

2C009-2

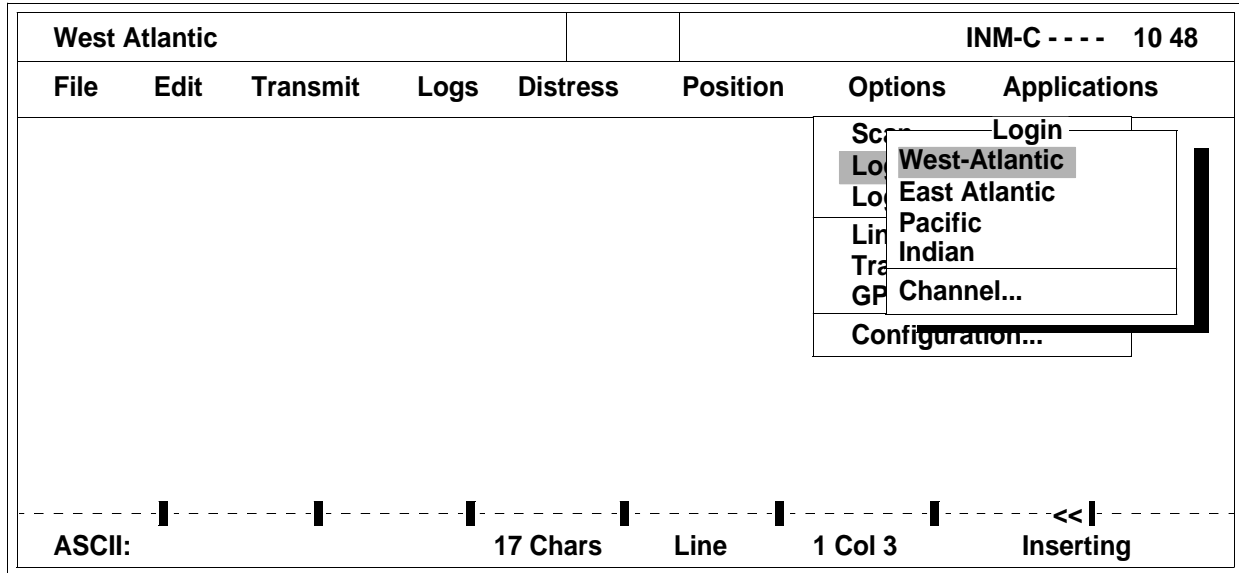
PERFORM A MANUAL SATELLITE SCAN

1. Perform a manual scan to force the transceiver to stay within a specified ocean region or to find the best possible satellite frequency of all regions.
2. Press the ALT key to access the menu bar.
3. Highlight OPTIONS. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|----------|-----------------------|--------------|
| West Atlantic | | | | | | INM-C - - - - 10 44 | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | 17 Chars | | Line | 1 Col 3 | << Inserting | |

2C009-1

4. Highlight SCAN. Press the ENTER key.

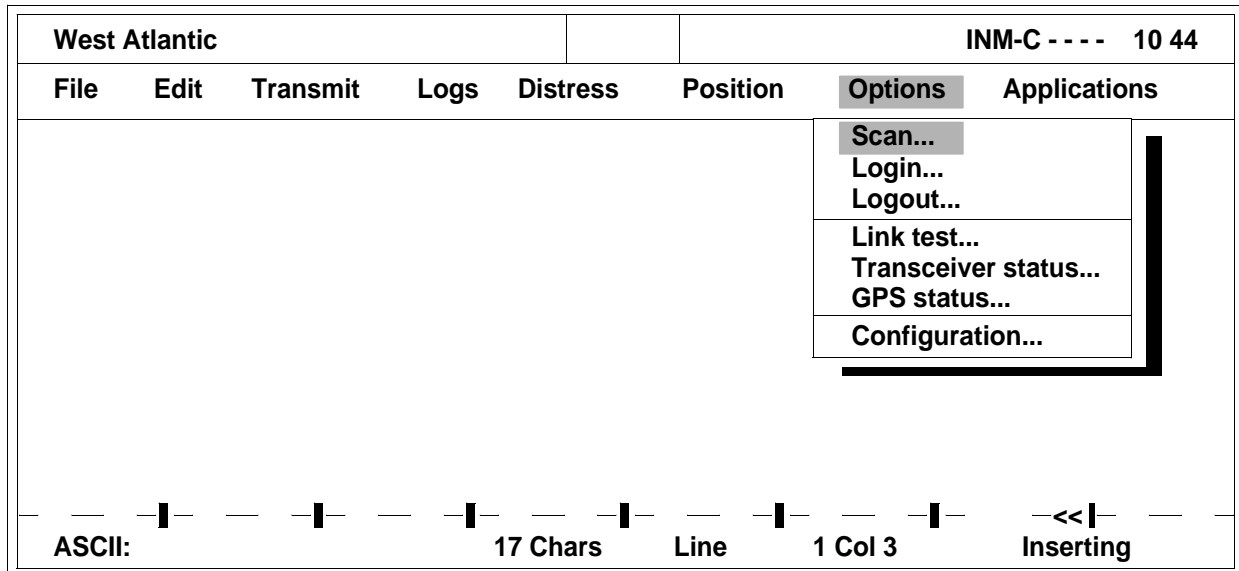


2C009-3

5. Highlight the desired ocean or all oceans. Press the ENTER key.

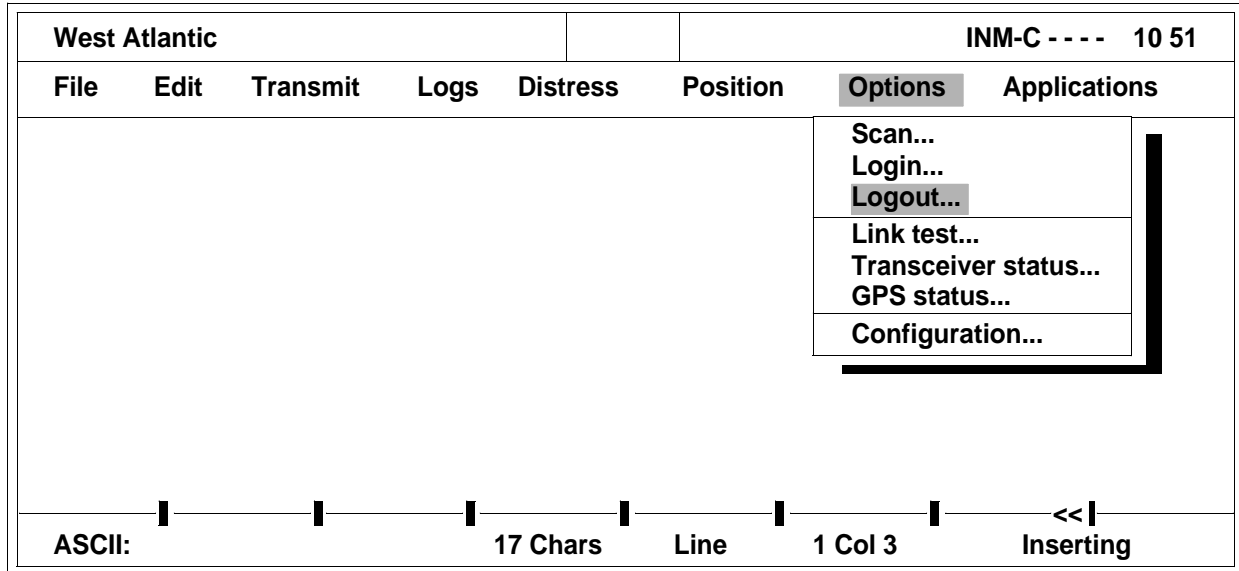
PERFORM A LOGOUT

1. Before turning off the transceiver, perform a logout.
2. Press the ALT key to access the menu bar.
3. Highlight OPTIONS. Press the ENTER key.



2C009-1

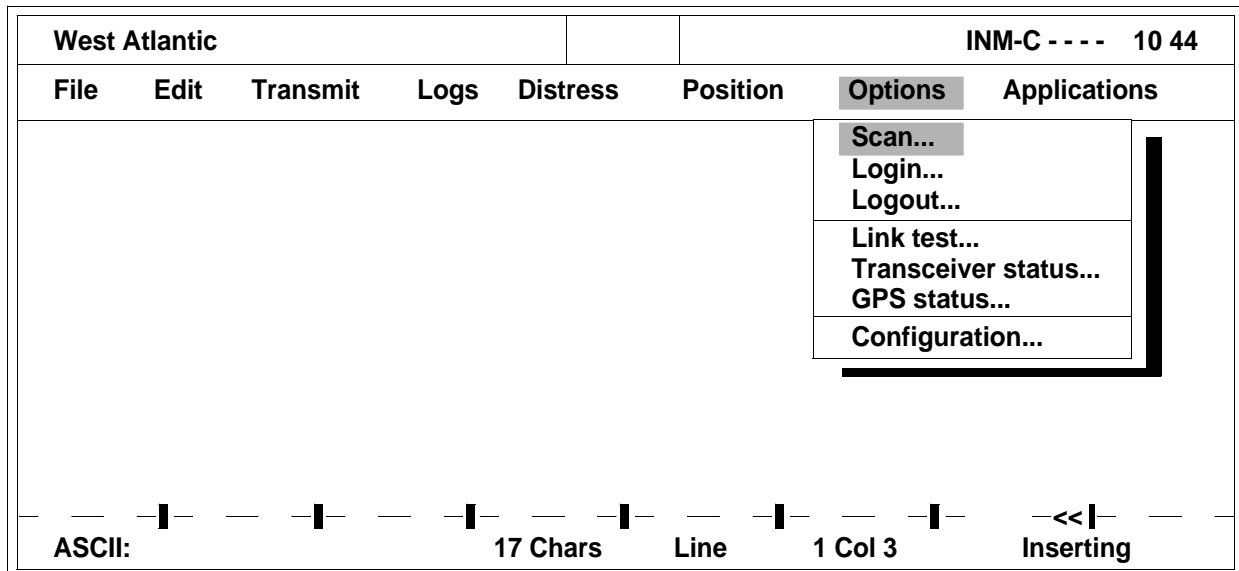
4. Highlight LOGOUT. Press the ENTER key.



2C009-7

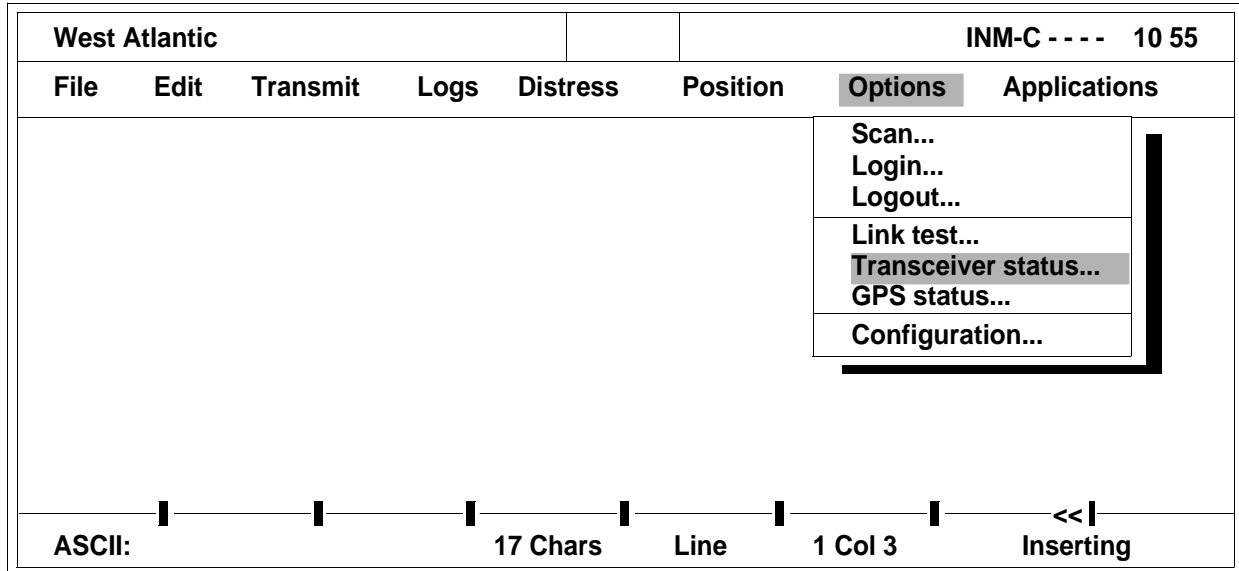
TRANSCEIVER STATUS

1. View general information about the transceiver in the transceiver status window.
2. Press the ALT key to access the menu bar.
3. Highlight OPTIONS. Press the ENTER key.



2C009-1

4. Highlight TRANSCEIVER STATUS.

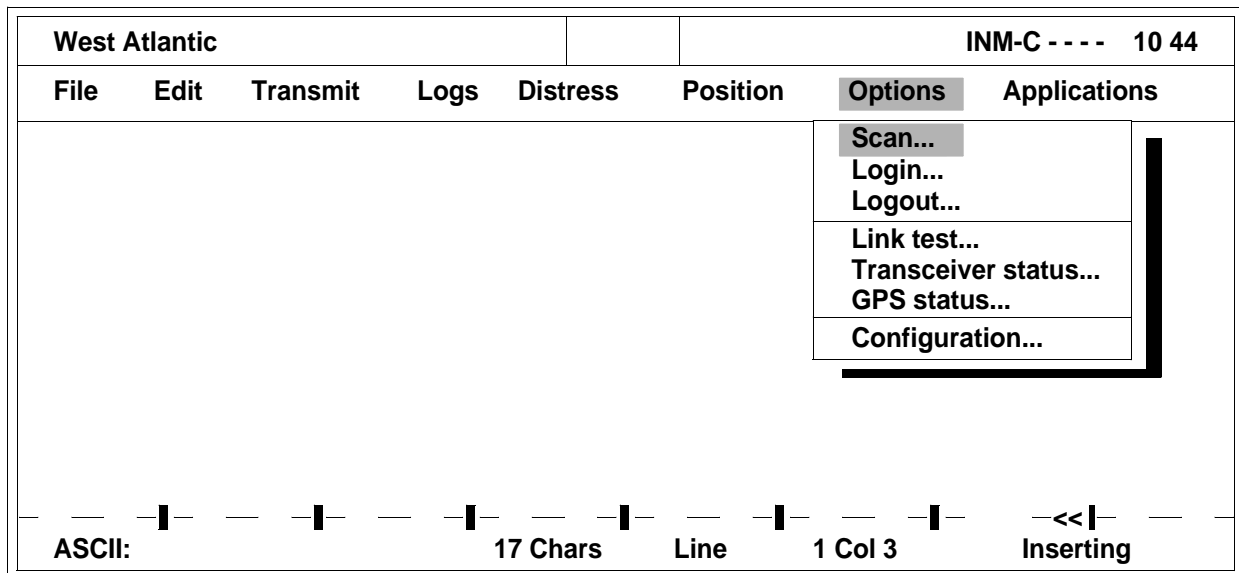


2C009-9

5. Press the ENTER key to highlight PRINT to print the transceiver status. Highlight SAVE to save the transceiver status to a file or highlight UPDATE to refresh the transceiver status screen.

THE DATA NETWORK ID (DNID)

1. Change the status of a DNID.
 - a. Press the ALT key to access the menu bar.
 - b. Highlight OPTIONS. Press the ENTER key.



2C009-1

- c. Highlight CONFIGURATION. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|---------------------|-----------------------|--------------|
| West Atlantic | | | | | INM-C - - - - 10 59 | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | 17 Chars | | Line | 1 Col 3 | << Inserting | |

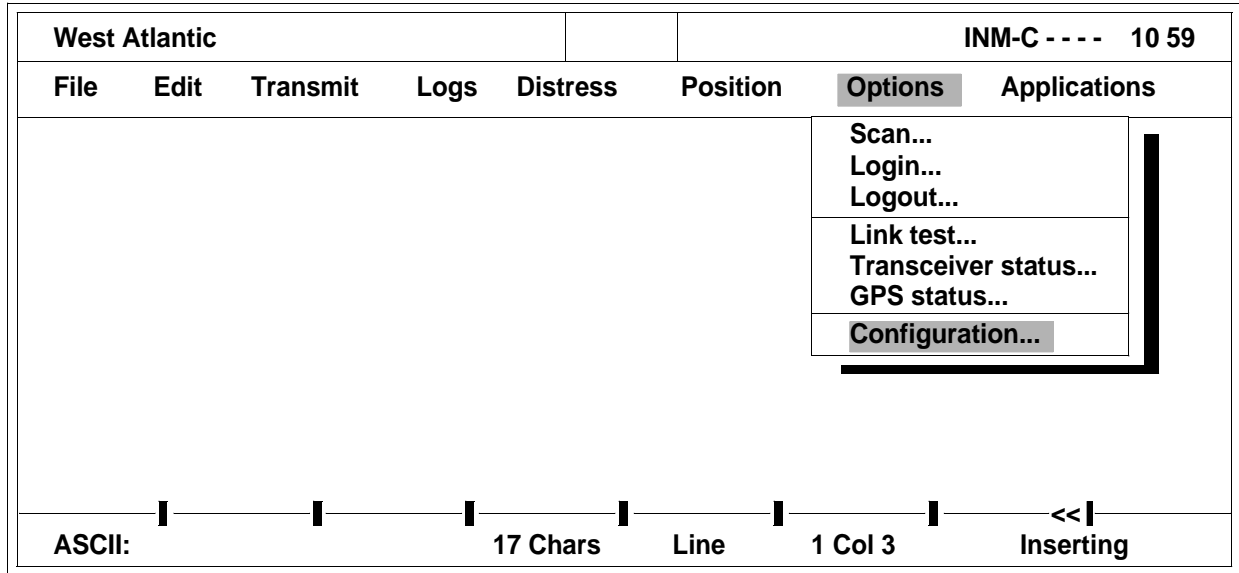
2C009-11

- d. Highlight DNID. Press the ENTER key.
- e. Choose ENABLE or DISABLE to change the status of a DNID entry. The entries can have the status ENABLED, DISABLED, T&TPos on and T&TPos off. The last two types will only appear if a user has set this DNID to use the old type T&T type position reporting.
2. Send a data report directly to a DNID.
- a. Press the ALT key to access the menu bar.
- b. Highlight OPTIONS. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|---------------------|-----------------------|--------------|
| West Atlantic | | | | | INM-C - - - - 10 44 | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | 17 Chars | | Line | 1 Col 3 | << Inserting | |

2C009-1

c. Highlight CONFIGURATION. Press the ENTER key.



2C009-11

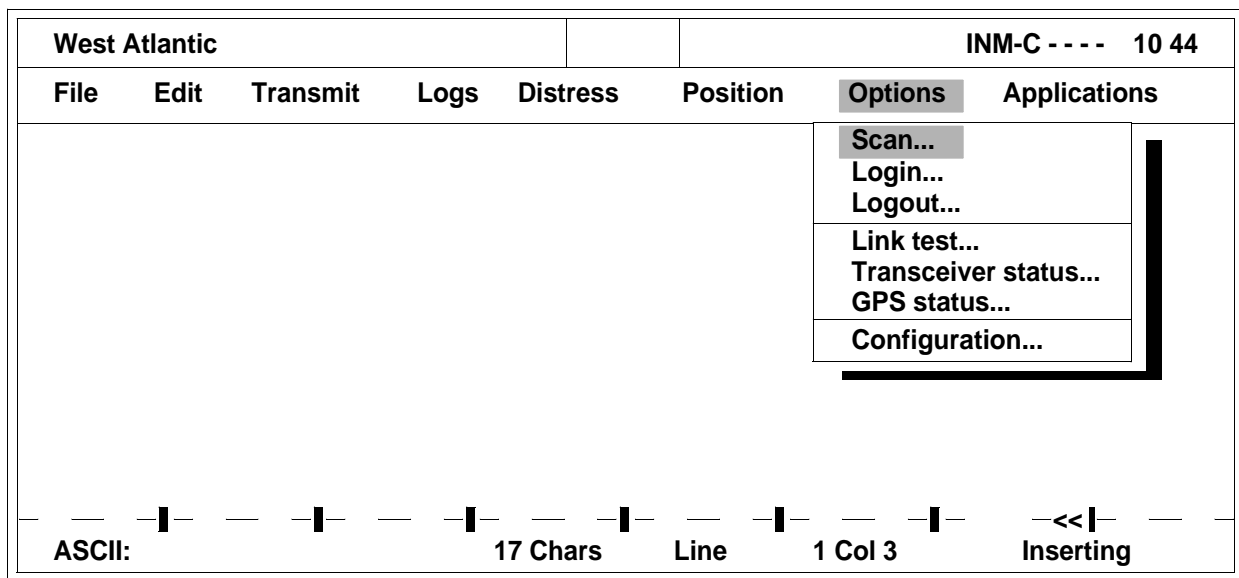
d. Highlight DNID. Press the ENTER key.

e. Highlight the DNID that will be transmitted to.

f. Choose TRANSMIT and select either the current content of the editor or a disk file to be transmitted as a data report. Ensure that the size of the data report is limited to 120 bytes as only the first 120 bytes will be sent.

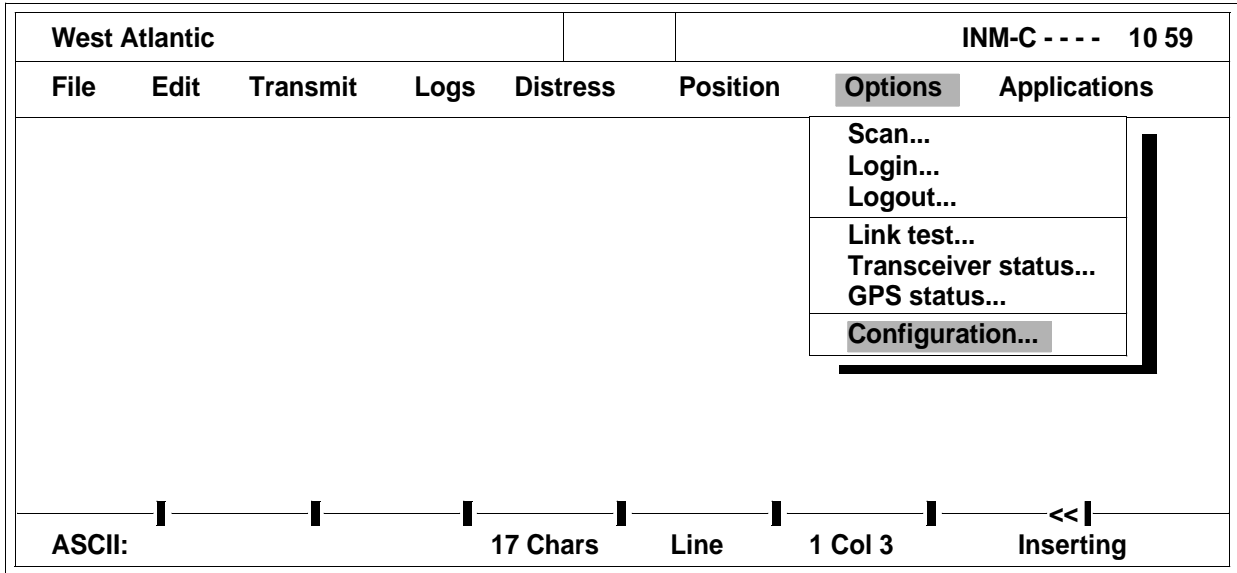
NCS CHANNELS

1. Insert new channels in this table upon receiving information from INMARSAT.
2. Press the ALT key to access the menu bar.
3. Highlight OPTIONS. Press the ENTER key.



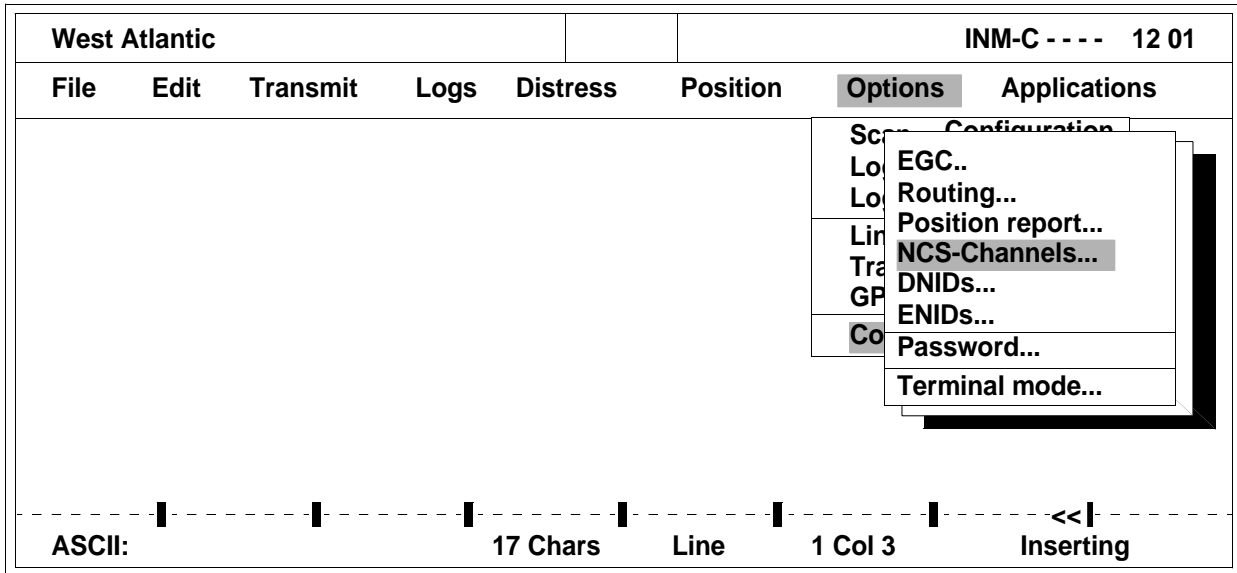
2C009-1

4. Highlight CONFIGURATION. Press the ENTER key.



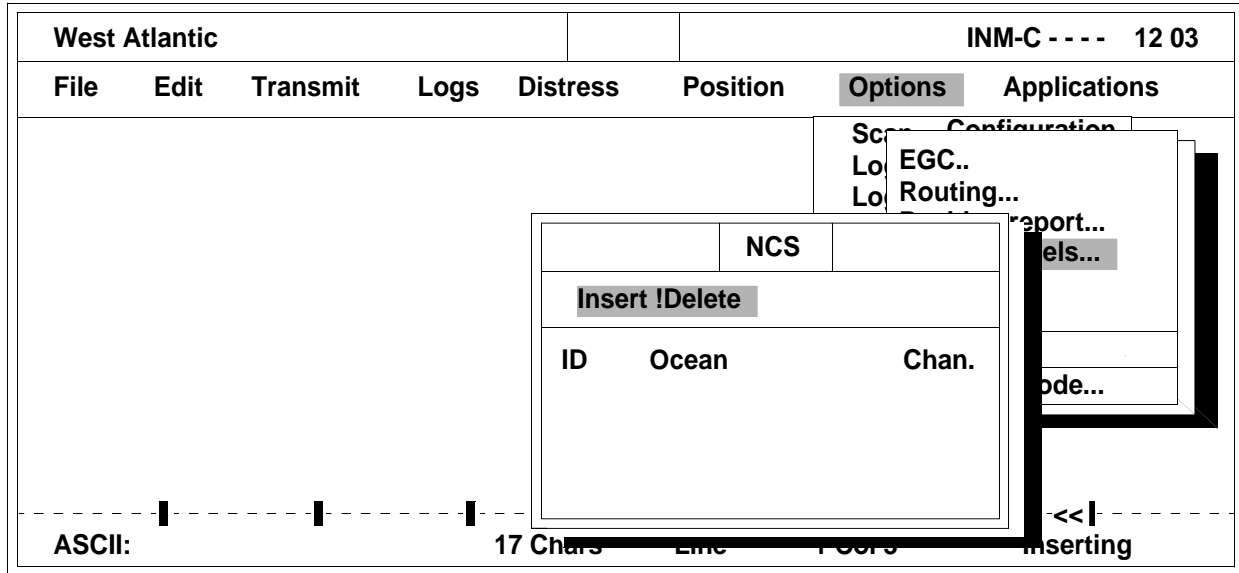
2C009-11

5. Highlight NCS-CHANNELS. Press the ENTER key.



2C009-12

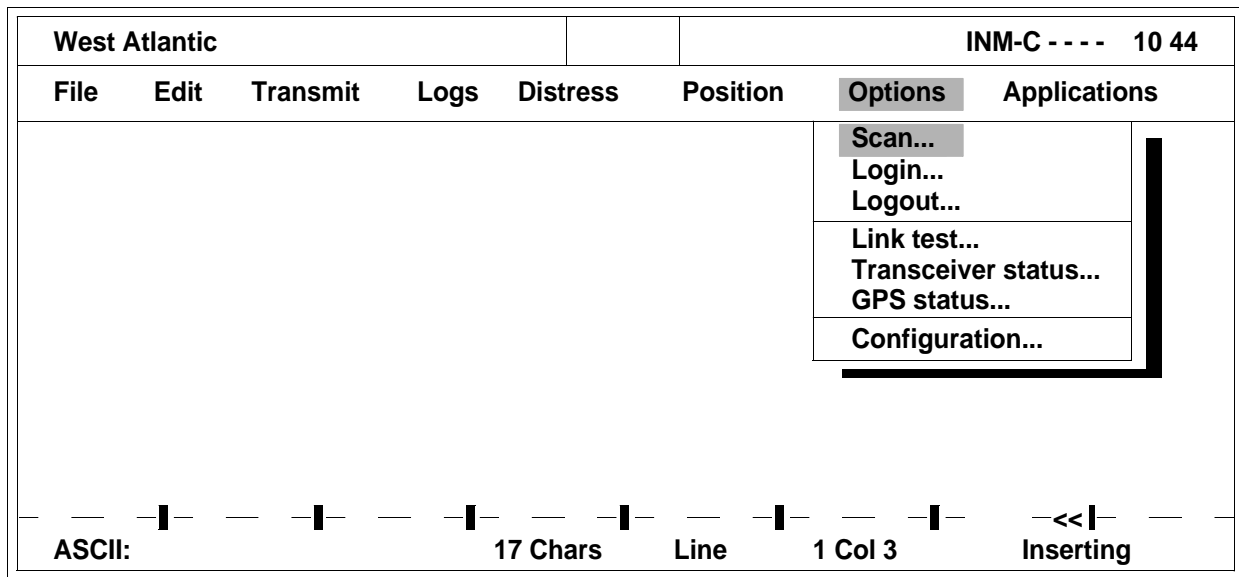
6. Highlight INSERT to add a new channel.



2C009-13

GPS STATUS INFORMATION

1. Press the ALT key to access the menu bar.
2. Highlight OPTIONS. Press the ENTER key.



2C009-1

- Highlight GPS STATUS. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|----------|-----------------------|--------------|
| West Atlantic | | | | | | INM-C - - - - 12 04 | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | | | | | 1 Chars | Line |
| | | | | | | 1 Col 1 | << Inserting |

2C009-14

- Choose UPDATE just once to have the window updated automatically every five seconds.

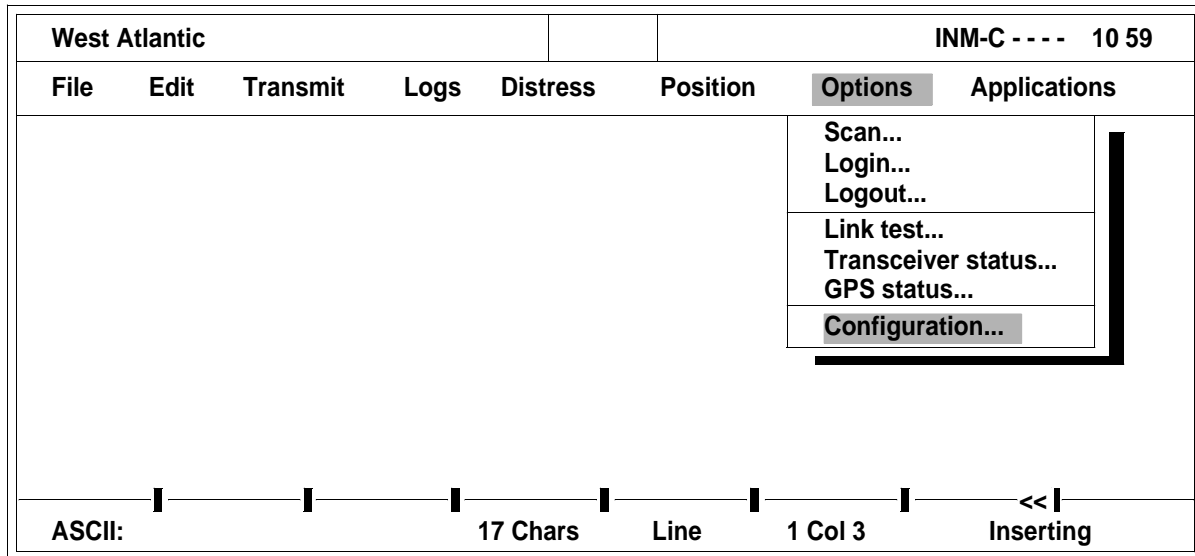
TERMINAL MODE

- Press the ALT key to access the menu bar.
- Highlight OPTIONS. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|----------|----------|-----------------------|--------------|
| West Atlantic | | | | | | INM-C - - - - 10 44 | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | Scan... | |
| | | | | | | Login... | |
| | | | | | | Logout... | |
| | | | | | | Link test... | |
| | | | | | | Transceiver status... | |
| | | | | | | GPS status... | |
| | | | | | | Configuration... | |
| ASCII: | | | | | | 17 Chars | Line |
| | | | | | | 1 Col 3 | << Inserting |

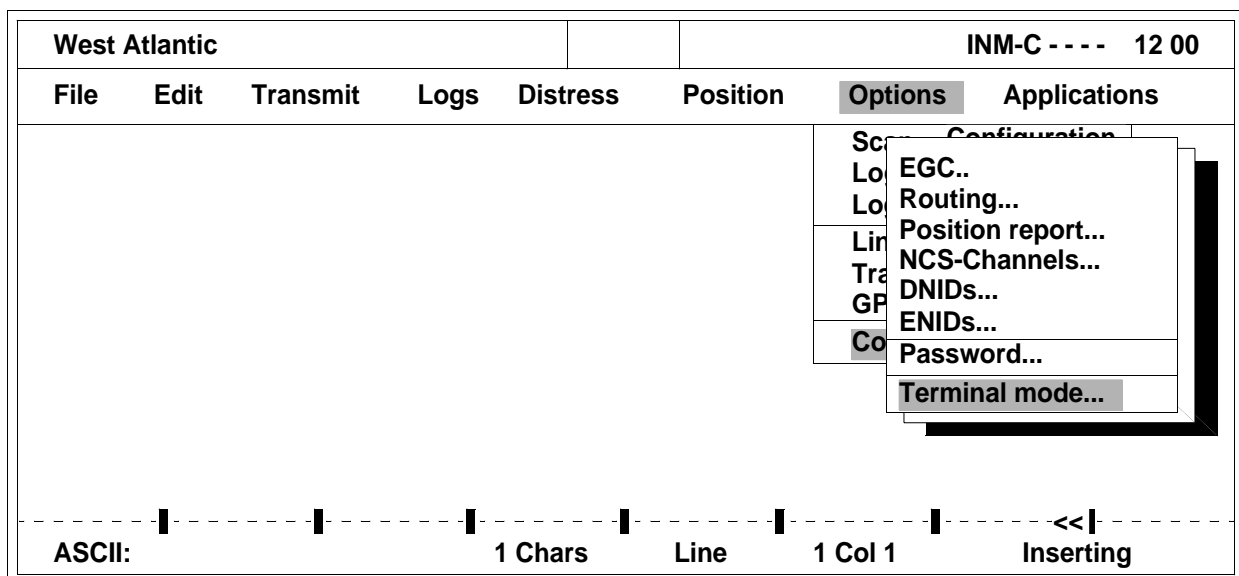
2C009-1

3. Highlight CONFIGURATION. Press the ENTER key.



2C009-11

4. Highlight TERMINAL MODE. Press the ENTER key.

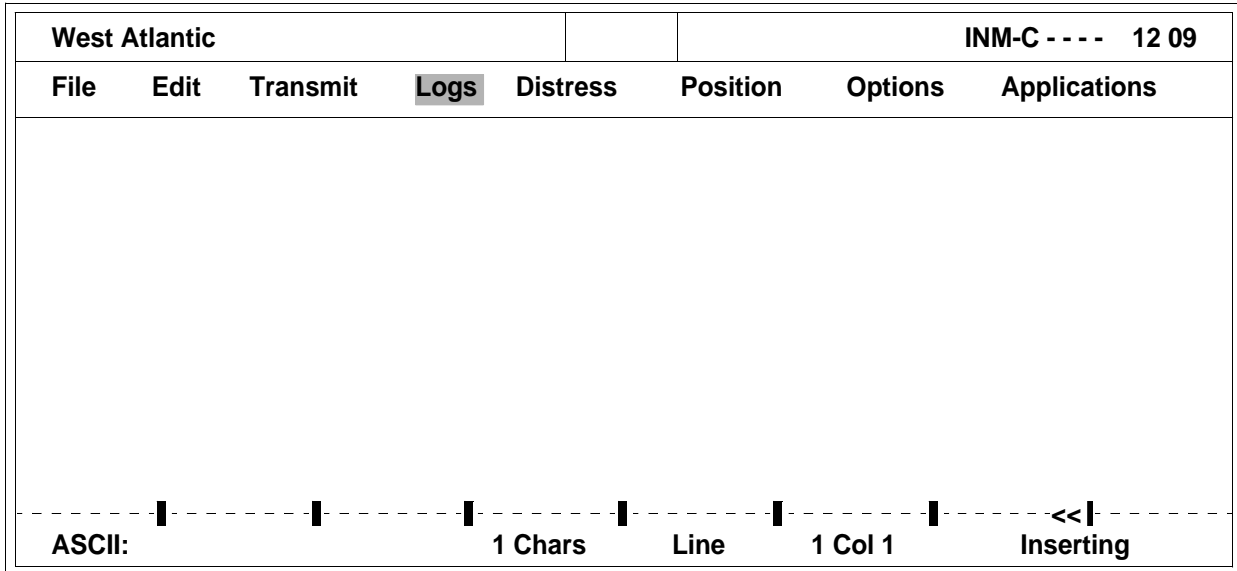


2C009-15

5. Wait for the blinking cursor to appear.
6. Press the ENTER key to see the prompt : on the screen.
7. Type ? and press the ENTER key to get a list of the available commands.
8. Type in a command followed by a question mark and press the ENTER key to get detailed information.
9. Press the ESC key to ensure functionality of the system when finished with TERMINAL MODE.

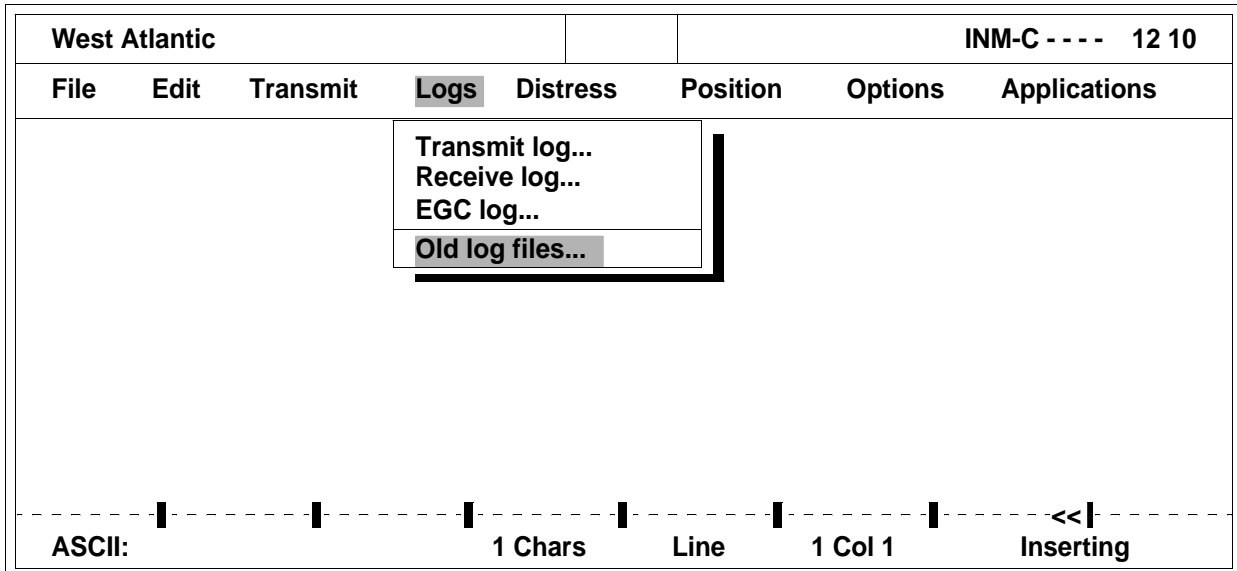
INSPECTING OLD MESSAGE LOGS

- 1. Inspect old message logs.
 - a. Press the ALT key to access the menu bar.
 - b. Highlight LOGS. Press the ENTER key.



2C009-16

- c. Highlight OLD LOG FILES. Press the ENTER key.



2C009-17

d. Highlight the desired log file and press the ENTER key.

| | | | | | | | |
|----------------------|------|----------------|------------|---------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 12 10 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| Select Logfile | | | | | | | |
| Select | | | | | | | |
| | Size | Time | Date | | | | |
| LOG01-99.001 | 1718 | 13:56 | 1999-01-25 | | | | |
| LOG03-00.001 | 1718 | 08:13 | 2000-03-02 | | | | |
| Files: 2 LOG*.* | | Free: 65437696 | | | | | |
| Path: C:\SEASAT2\LOG | | | | | | | |
| ASCII: | | | | 1 Chars | Line | 1 Col 1 | << |

2C009-18

e. Highlight the desired message and select view, print or copy the message to a separate file.

2. Press the ESC key to return to the main screen.

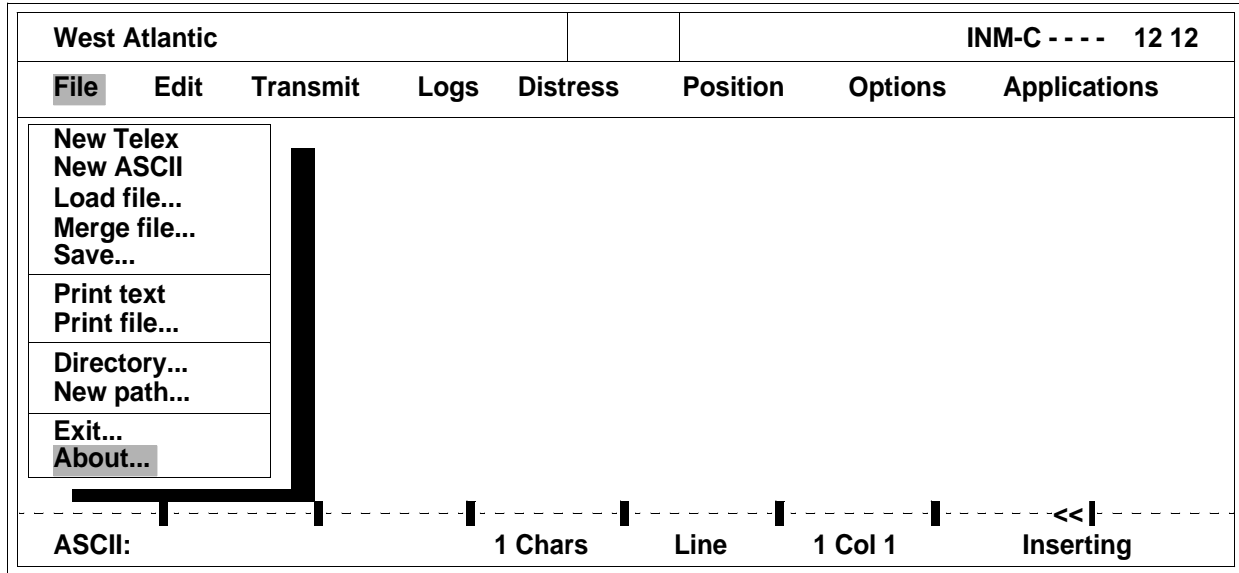
THE ABOUT WINDOW

- Using the ABOUT window, view a summary of the system, such as program version, serial number, mobile number and type.
- Press the ALT key to access the menu bar.
- Highlight FILE. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|---------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 12 11 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| ASCII: | | | | 1 Chars | Line | 1 Col 1 | << |

2C009-19

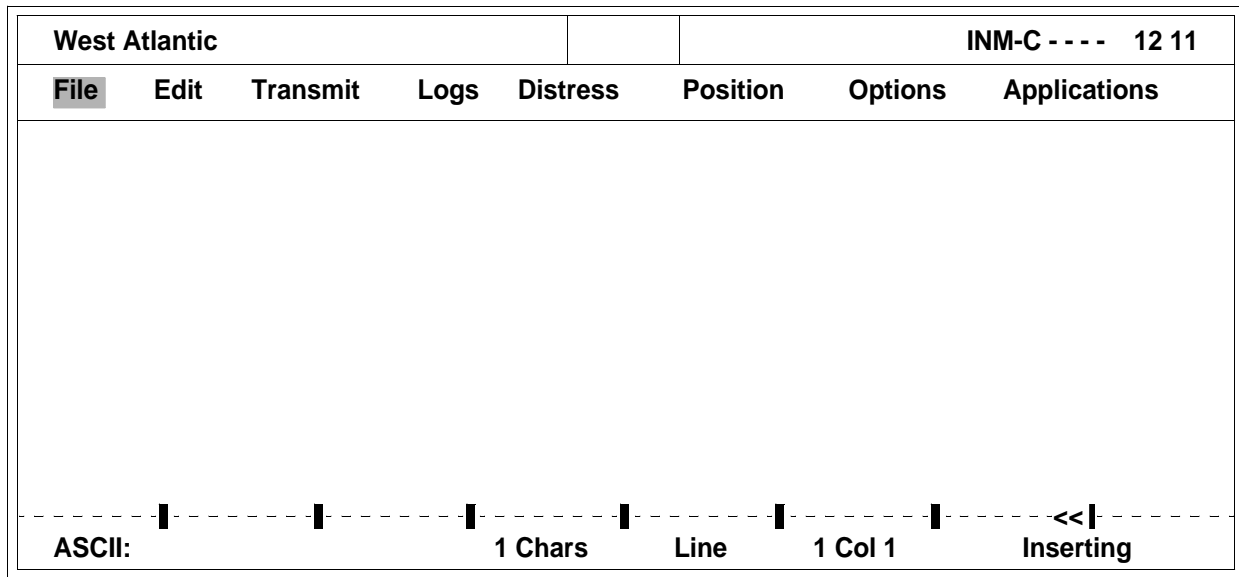
4. Highlight ABOUT. Press the ENTER key.



2C009-20

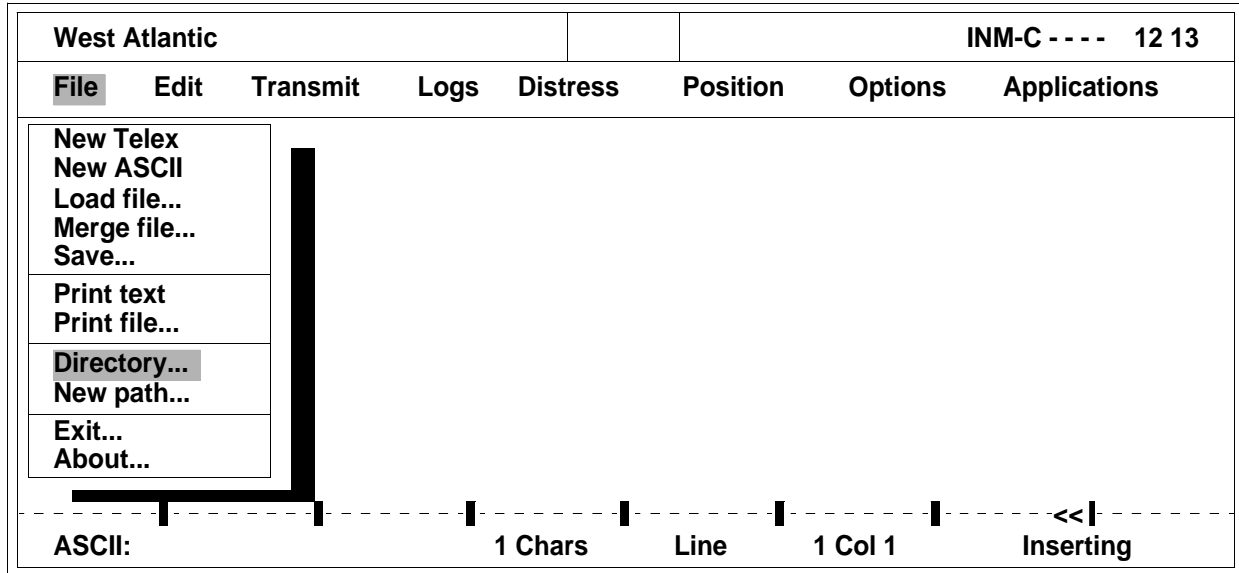
DIRECTORY MAINTENANCE

1. Press the ALT key to access the menu bar.
2. Highlight FILE. Press the ENTER key.



2C009-19

3. Highlight DIRECTORY. Press the ENTER key.

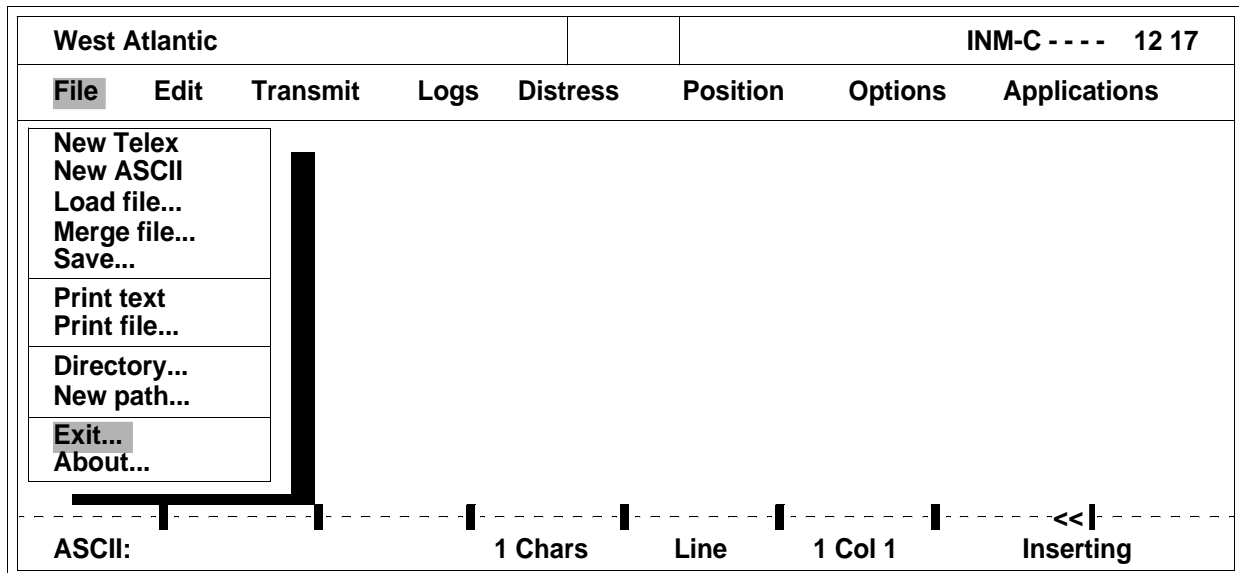


2C009-21

4. Select the desired menu.

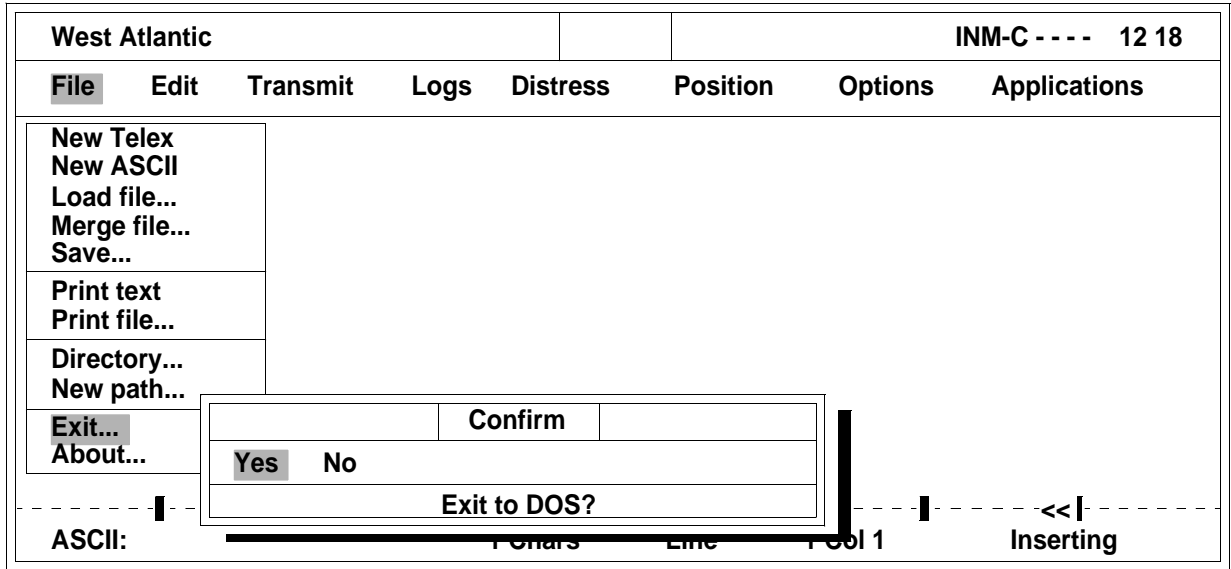
EXIT THE SEASAT 2 PROGRAM

1. Press the ALT key to access the menu bar.
2. Highlight FILE, then highlight EXIT. Press the ENTER key.



2C009-22

3. Highlight YES on the CONFIRMATION menu. Press the ENTER key.



2C009-23

END OF WORK PACKAGE

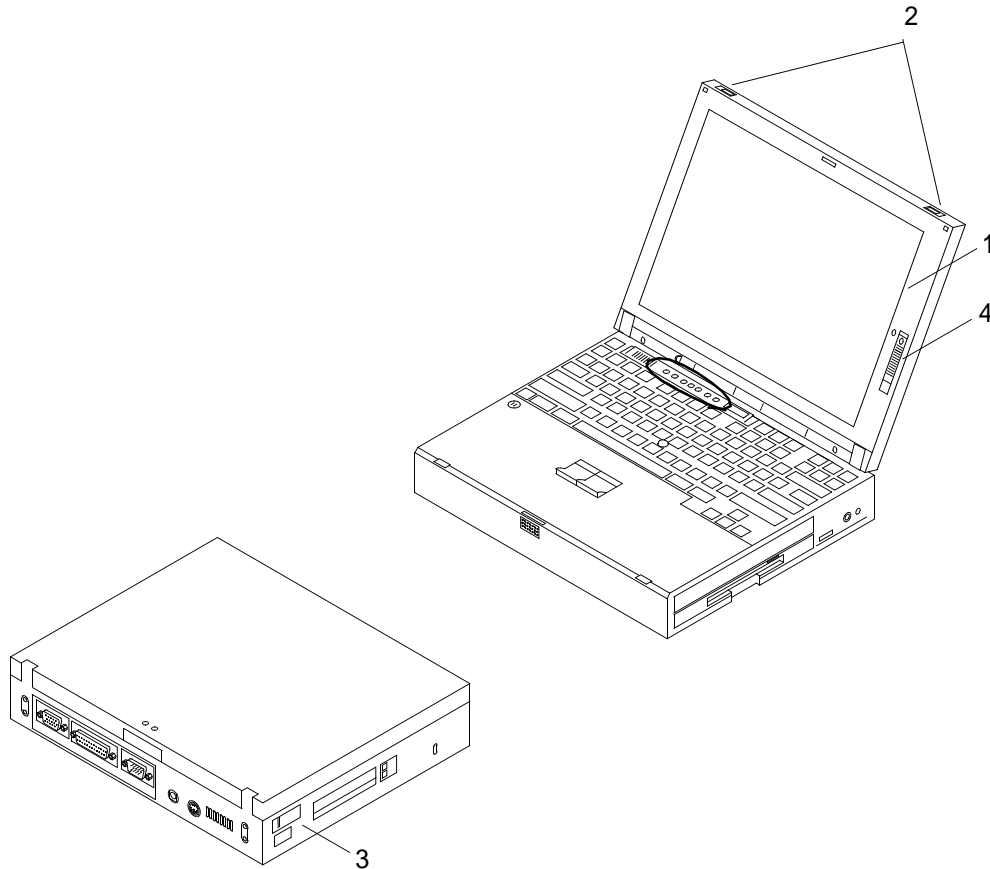
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE INMARSAT-C DATA TERMINAL

1. Open the LCD display (1) by pushing the LCD latches (2) outboard.



2C010-1

2. Turn the power on to the data terminal using the power switch (3). The SEASAT 2 program will appear.
3. Adjust the LCD contrast as necessary, using the contrast control (4).
4. Ensure that INMARSAT-C transceiver is operational, login has been completed and desired ocean has been selected.
5. Check the upper left corner of SEASAT 2 program window on the data terminal LCD, the selected ocean designation should appear.
6. Press the ALT key to access menu bar.

-
7. Highlight POSITION. Press the ENTER key. Compare position data with position on communications Portable Lightweight Global Positioning Receiver (PLGR). Position should match.
 8. Highlight OPTIONS. Press the ENTER key.
 9. Highlight TRANSCEIVER STATUS. Press the ENTER key. Review transceiver status.
 10. Press the ESC key, as necessary, to return to the data terminal message data field.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

PERFORM AN INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM LINK TEST**NOTE**

The link test checks if your equipment meets specifications established by INMARSAT. You may perform a link test at any time to test the system.

1. Press the ALT key to access the menu bar.
2. Use the cursor key or press the O key to choose OPTIONS on the menu bar. Press ENTER to open the pull down menu.

NOTE

If a test has been carried out, the results will be displayed in the link test window. Each item will show the verdict, OK or FAIL. If no test has been done with the unit, no results will be available.

3. Press the i key to access the LINK TEST MENU screen or press the cursor key until LINK TEST is highlighted and press ENTER to open the LINK TEST MENU screen.
4. Choose ACTIVATE or press the A key to initiate the link test. The status field of the SEASAT program window will show LINK TEST until the test has been completed.

NOTE

The link test distress must be initiated within one minute from the time the message is displayed on the data terminal screen.

5. Press both the STOP and ALARM buttons on the INMARSAT-C transceiver at the same time, for a minimum of five seconds, when the message PLEASE INITIATE DISTRESS AS PART OF THE LINK TEST appears on the data terminal screen.
6. View the results of the link test when the message LINK TEST FINISHED appears on the data terminal screen.
7. Remove results of link test from parallel printer.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

Seaman 88K

SEND AND RECEIVE E-MAIL USING THE INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM

CREATE AND SAVE AN E-MAIL ADDRESS NAME

1. Ensure that power is on to INMARSAT-C transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes are illuminated in top right corner of data terminal screen.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.
4. Using the cursor keys highlight APPLICATIONS on the SEASAT menu bar. Press the ENTER key.

| | | | | | | | | | |
|-------------------------------------------------------|-------------|-----------------|-------------|-----------------|---------------------------|----------------|---------------------|------------|------------------|
| West Atlantic | | | | | INM-C - - - - 7 10 | | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications | | |
| | | | | | | | SEASAT | F2 | |
| | | | | | | | Addressbook | F3 | |
| | | | | | | | Directory | F9 | |
| | | | | | | | System | F10 | |
| ----- ----- ----- ----- ----- ----- ----- ----- ----- | | | | | | | | | |
| ASCII: | | 1 Chars | | | Line | | 1 Col 1 | | << |
| ----- ----- ----- ----- ----- ----- ----- ----- ----- | | | | | | | | | |

2C012-5

5. Highlight ADDRESS BOOK. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 7 11 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |

| Addressbook | |
|---------------------------|-------------------------------|
| Select | Mark New Revise Erase Options |
| Jim | () Telex () 5 bit |
| internet | () Mobile (●) 7 bit |
| jjones | () X.25 () 8 bit |
| | () Fax [] Position |
| | () PSTN |
| | (●) Special |
| | () X.400 |
| | () DNID |
| Special Access code: INET | |

ASCII: |

2C012-6

6. Highlight NEW. Press the ENTER key.

| | | | | | | | |
|---------------|------|----------|------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 7 11 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |

| Addressbook | |
|-------------|-------------------------------|
| Select | Mark New Revise Erase Options |
| Jim | (●) Telex () 5 bit |
| internet | () Mobile (●) 7 bit |
| ▶ jjones | () X.25 |
| | () Fax [] Position |
| | () PSTN [] Prefixed |
| | () Special |
| | () X.400 < OK > |
| | () DNID |
| Number: | |

ASCII: |

2C012-7

7. Type the name of the person or activity to receive the message in the highlighted area of the left column. Press the ENTER key.

8. Using the cursor keys, highlight the parentheses to the left of SPECIAL.

9. Press the spacebar to place an asterisk in the parentheses to the left of SPECIAL.

| | | | | | | | |
|---------------|------|----------|------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 7 13 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |

| | | | Addressbook | | |
|----------|------|-----|-------------|---------|--------------|
| Select | Mark | New | Revise | Erase | Options |
| | | | () | Telex | () 5 bit |
| Jim | | | () | Mobile | (●) 7 bit |
| internet | | | () | X.25 | () 8 bit |
| jmiller | | | () | Fax | |
| jjones | | | () | PSTN | [] Position |
| | | | ▶(●) | Special | |
| | | | () | X.400 | |
| | | | () | DNID | |

Special Access code:

ASCII: |-----| g

2C012-8

10. Press the ENTER key to select the SPECIAL ACCESS CODE field.

11. Type INET for Internet. Press the ENTER key as needed to advance to the OK field.

| | | | | | | | |
|---------------|------|----------|------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 7 11 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |

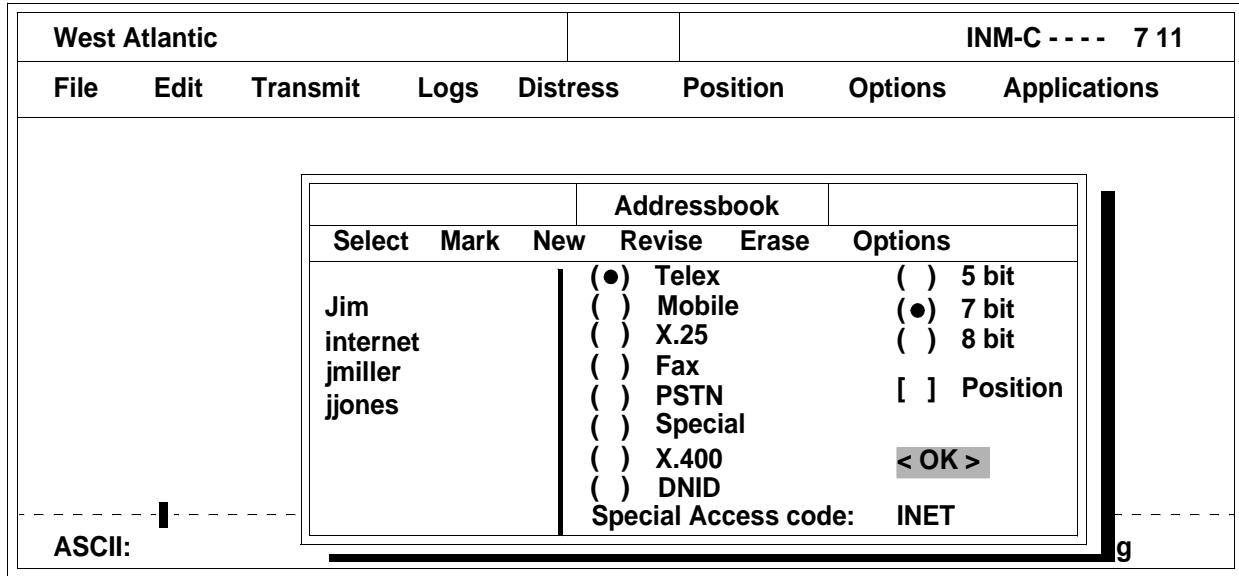
| | | | Addressbook | | |
|----------|------|-----|-------------|---------|--------------|
| Select | Mark | New | Revise | Erase | Options |
| | | | (●) | Telex | () 5 bit |
| Jim | | | () | Mobile | (●) 7 bit |
| internet | | | () | X.25 | () 8 bit |
| jmiller | | | () | Fax | |
| jjones | | | () | PSTN | [] Position |
| | | | () | Special | |
| | | | () | X.400 | < OK > |
| | | | () | DNID | |

Special Access code: INET

ASCII: |-----| g

2C012-9

12. Press the ENTER key when OK is highlighted to save e-mail address in address book.

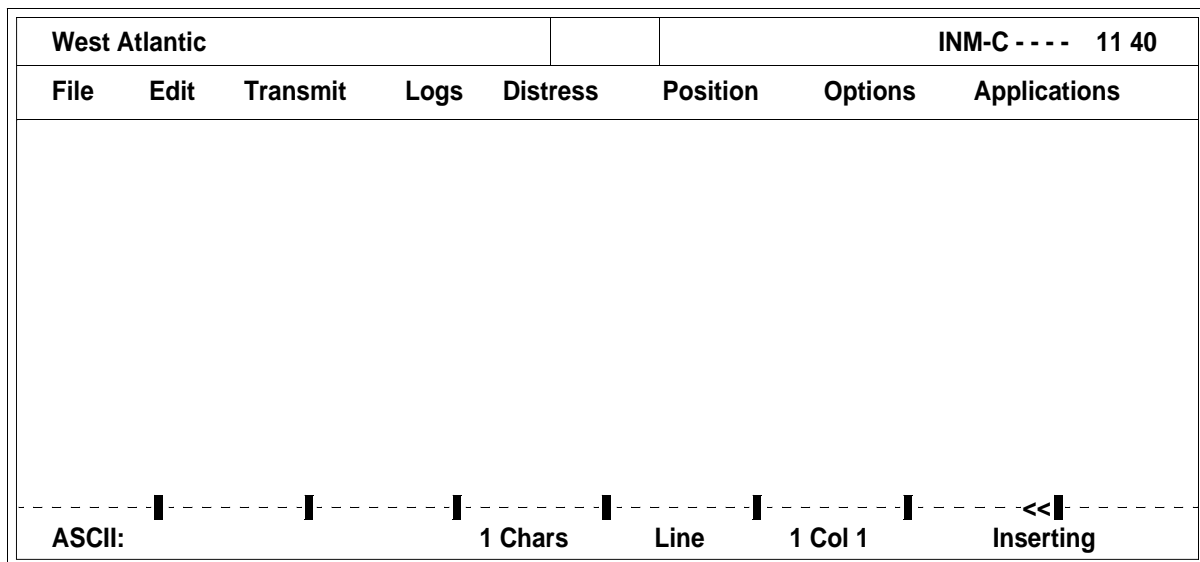


2C012-10

13. Press the ESC key to return to the main screen.

CREATE AN E-MAIL MESSAGE

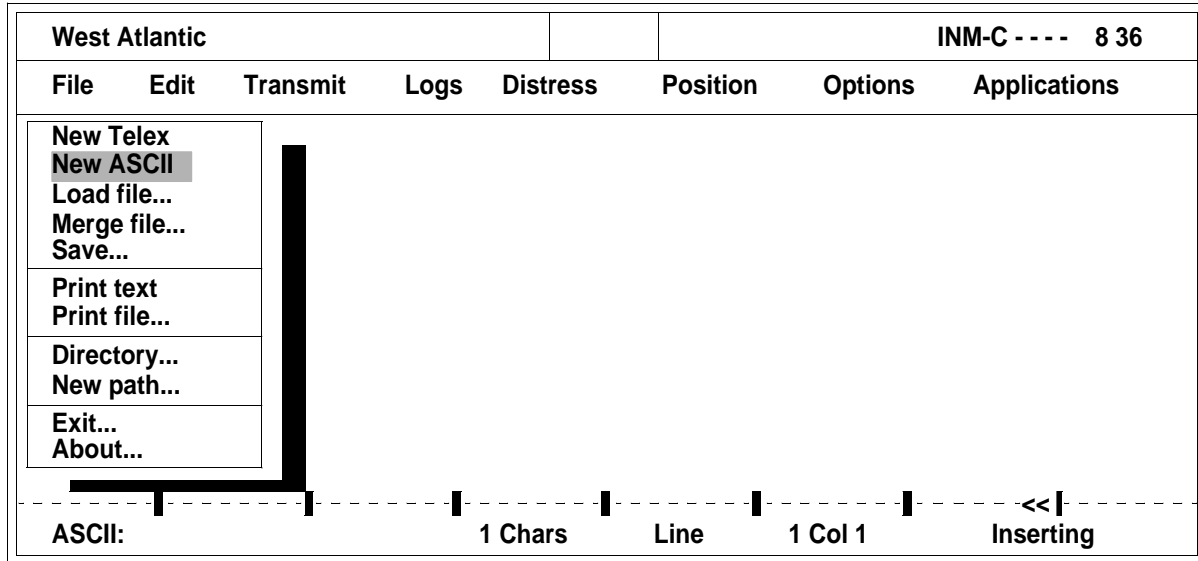
1. Ensure that power is on to SEASAT 2 transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes are illuminated in top right corner of data terminal screen.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.



2C012-2

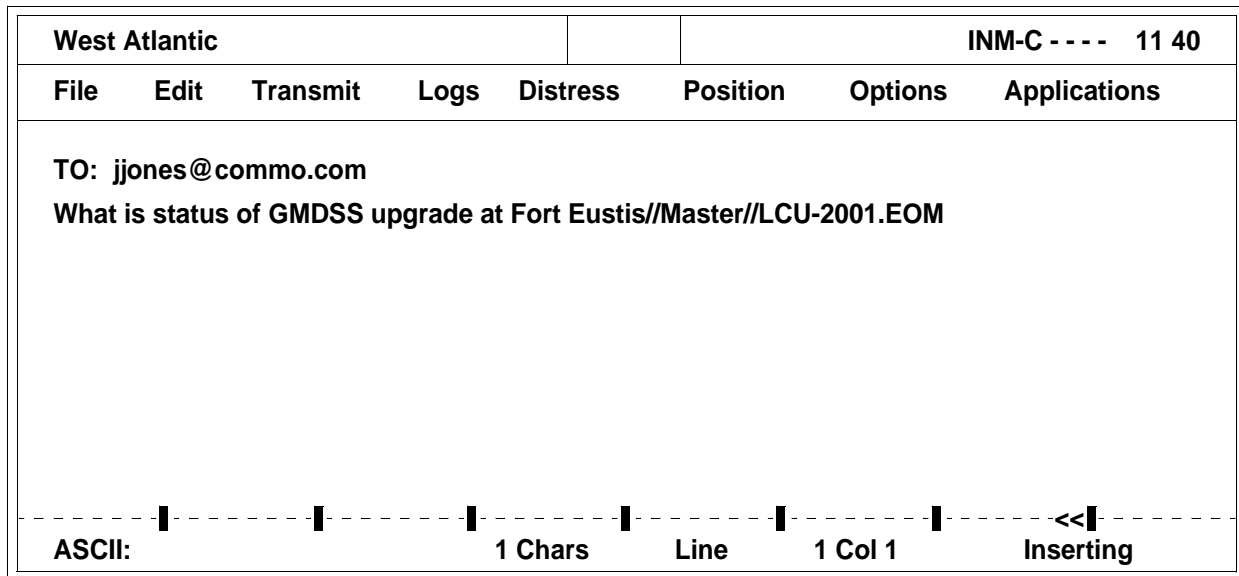
4. Press the ALT key to access the menu bar.
5. Press the cursor keys to highlight FILE. Press the ENTER key.

- Press the cursor keys to highlight NEW ASCII. Press the ENTER key.



2C012-3

- Type the e-mail address on the first line of the message.
- Press the ENTER key twice to leave a blank line between the e-mail address and the message.
- Type the e-mail message. Press the ESC key when finished with the e-mail message.



2C012-4

TRANSMIT AN E-MAIL MESSAGE

- Ensure that power is on to SEASAT 2 transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
- Ensure that a minimum of three SEASAT program signal strength boxes are illuminated in top right corner of data terminal screen.
- Ensure that transceiver is logged in and the correct ocean region has been selected.

4. Press the ALT key to access the menu bar.
5. Using the cursor keys, highlight TRANSMIT. Press the ENTER key.

| | | | |
|---------------|----|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| West Atlantic | | INM-C - - - - 7 16 | |
| File | Ed | <Space> Transmit | |
| | | To: ► internet INET Spec. 7bit Land Station: [X] Text in editor | (●) Routine () Non-Urgent () Distress [X] Request confirmation [X] Print [X] Immediate transmission <SEND> |
| -----<<----- | | | |
| ASCII: | | 1 Chars | Line 1 Col 1 Inserting |

2C012-11

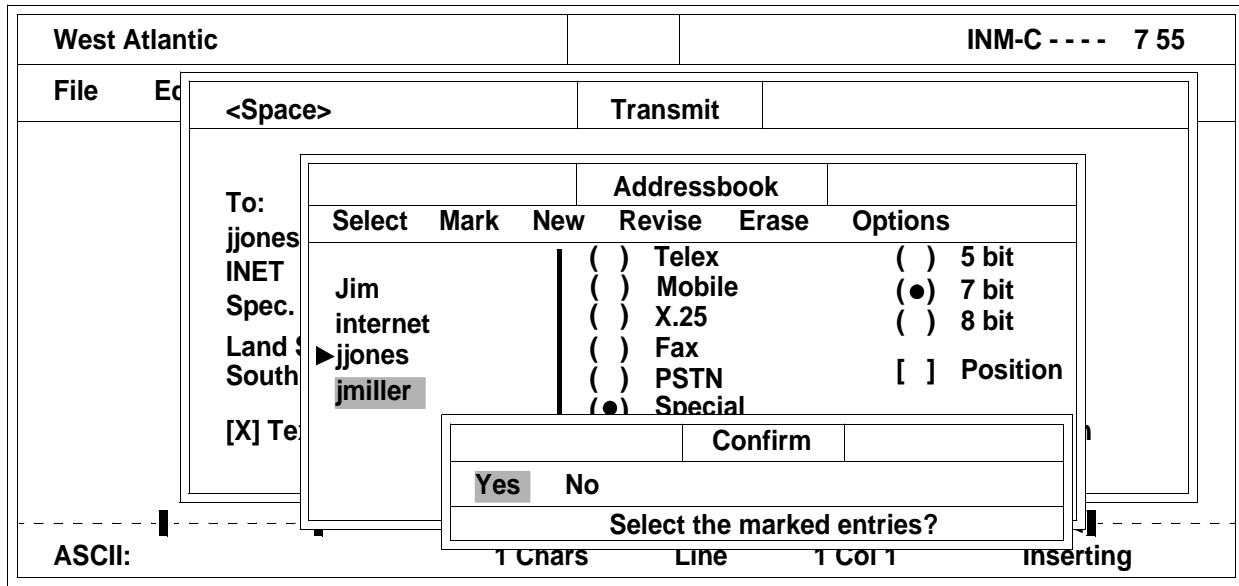
6. Press the spacebar to display the ADDRESS BOOK.

| West Atlantic | | INM-C - - - - 7 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--|--|--------|------|-----|--|--|-----------|--|--|------------|--|--|----------|--|--|---------|--|--|----------|--|--|-------------|--|--|-----------|--|--|----------|--|--|---------------------------|
| File | Ed | <Space> Transmit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | To: jjones INET Spec. 7bit Land S South [X] Te | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: center;">Addressbook</th> </tr> <tr> <th style="width: 30%;">Select</th> <th style="width: 30%;">Mark</th> <th style="width: 40%;">New</th> </tr> <tr> <td></td> <td></td> <td>() Telex</td> </tr> <tr> <td></td> <td></td> <td>() Mobile</td> </tr> <tr> <td></td> <td></td> <td>() X.25</td> </tr> <tr> <td></td> <td></td> <td>() Fax</td> </tr> <tr> <td></td> <td></td> <td>() PSTN</td> </tr> <tr> <td></td> <td></td> <td>(●) Special</td> </tr> <tr> <td></td> <td></td> <td>() X.400</td> </tr> <tr> <td></td> <td></td> <td>() DNID</td> </tr> <tr> <td colspan="2"></td> <td>Special Access code: INET</td> </tr> </table> | Addressbook | | | Select | Mark | New | | | () Telex | | | () Mobile | | | () X.25 | | | () Fax | | | () PSTN | | | (●) Special | | | () X.400 | | | () DNID | | | Special Access code: INET |
| Addressbook | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Select | Mark | New | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () Telex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () Mobile | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () X.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () Fax | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () PSTN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (●) Special | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () X.400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | () DNID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Special Access code: INET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -----<<----- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASCII: | | 1 Chars | Line 1 Col 1 Inserting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

2C012-12

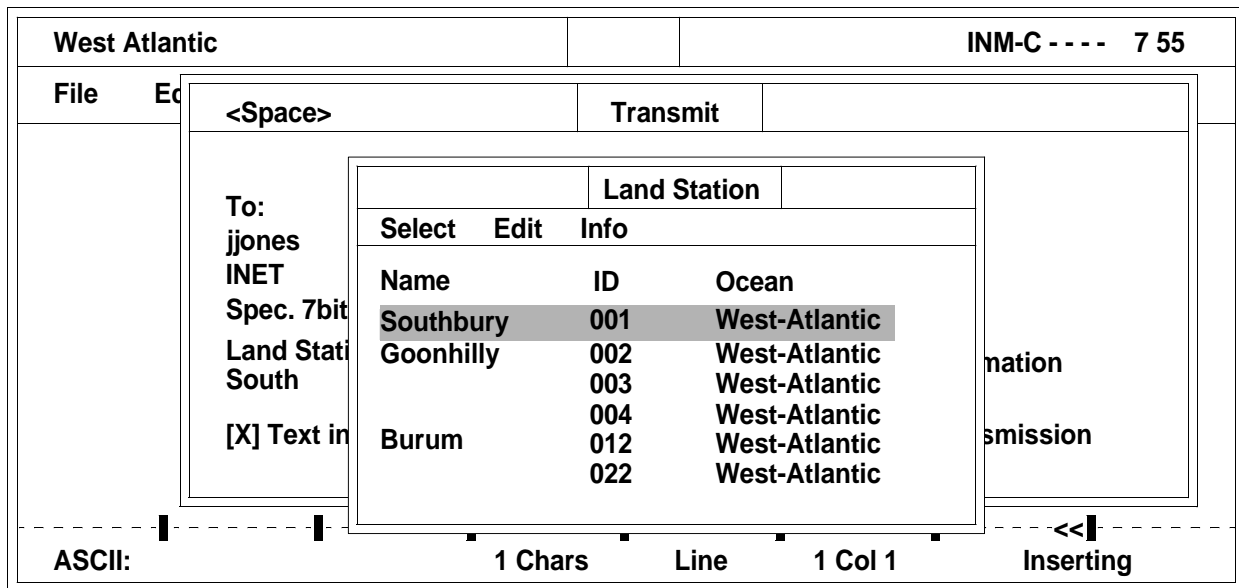
7. Using the cursor keys, highlight the name of the person or activity that will receive the e-mail. Press the spacebar to select the name.

- Press the ENTER key to select the confirmation menu. Highlight YES or NO and press the ENTER key to confirm the choice.



2C012-13

- Press the spacebar to display the list of COMSAT Land Earth Stations (CLES).



2C012-14

- Highlight the desired CLES from the list. Press the ENTER key.

11. Press the RIGHT ARROW key until SEND is highlighted. Press the ENTER key to transmit the message. The SEND LED on the transceiver will blink indicating that the transceiver is transmitting the message.

| | | | |
|---------------|---------|-----------------------------|-------------------|
| West Atlantic | | INM-C - - - - 7 22 | |
| File | Ed | <Space> | Land Station |
| | | Select Edit Info | |
| | | Name ID Ocean | |
| | | Southbury 001 West-Atlantic | |
| | | Goonhilly 002 West-Atlantic | |
| | | 003 West-Atlantic | |
| | | 004 West-Atlantic | |
| | | Burum 012 West-Atlantic | ation |
| | | 022 West-Atlantic | mission |
| | | [X] Text in e | |
| | | <SEND> | |
| ASCII: | 1 Chars | Line | 1 Col 1 Inserting |

2C012-15

Table 1. Transmission Error Codes.

| CODE | COMMENT |
|------|------------------------------------------------------------------------------|
| ACB | Access barred |
| ADR | Addressee refuses |
| ATD | Attempting to deliver the message |
| BUS | Busy |
| CCD | Call cut or disconnected |
| CIE | The LES ran out of processing/communications capacity to process the message |
| CNS | Call not started |
| FAU | Faulty |
| FSA | Fast select acceptance not subscribed |
| IAM | Was unable to process the address information in the following message: |
| IDS | Invalid data from ship |
| IDT | Input data timeout |
| IFR | Invalid facility request |
| IMS | Message size is invalid |
| IND | Incompatible destination |

Table 1. Transmission Error Codes. (Continued)

| CODE | COMMENT |
|-------------|-------------------------------------------------------------|
| INH | Was unable to establish the type of message from the header |
| ISR | Invalid ship request |
| LEF | Local equipment failure |
| LPE | Local procedure error |
| MBB | Message broken by higher priority |
| MCC | Message channel congestion |
| MCF | Message channel failure |
| MKO | Message killed by operator |
| MSO | Machine switched off |
| NAL | No address line was present |
| NDA | There was no delivery attempt |
| NFA | No final answerback |
| NIA | No initial answerback |
| NOB | Not obtainable |
| NOC | No connection |
| NP | No party |
| NTC | Network congestion |
| OAB | Operator aborted |
| OCC | TELEX occupied |
| OOO | Out of order |
| PRC | Premature clearing |
| PRF | Protocol failure |
| RCA | Reverse charging acceptance not subscribed |
| REF | There was a failure in the remote equipment |
| RLE | Resource limit exceeded |
| RPE | Remote protocol error |
| RPO | RPOA (Recognized Private Operating Agency) out of order |
| SCC | Call completely successful |

Table 1. Transmission Error Codes. (Continued)

| CODE | COMMENT |
|-------------|----------------------------------|
| SHE | Mobile unit hardware error |
| SNF | The satellite network has failed |
| SPE | Mobile unit protocol error |
| SUC | Test results being delivered |
| TBY | Trunks busy |
| TGR | TDM group reset |
| TIM | Timeout |
| WFA | Wrong final answerback |
| WIA | Wrong initial answerback |

RECEIVING E-MAIL

1. Press the ALT key to access the menu bar.
2. Highlight LOGS. Press the ENTER key.
3. Highlight RECEIVE LOG. Press the enter key.
4. Check for messages received since the last inspection of the log by looking for an arrow, called a view mark, to the left of the message file name.
5. View the message by highlighting VIEW.
6. Print the message by highlighting PRINT.
7. Print the mail log by highlighting PRINT LOG.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

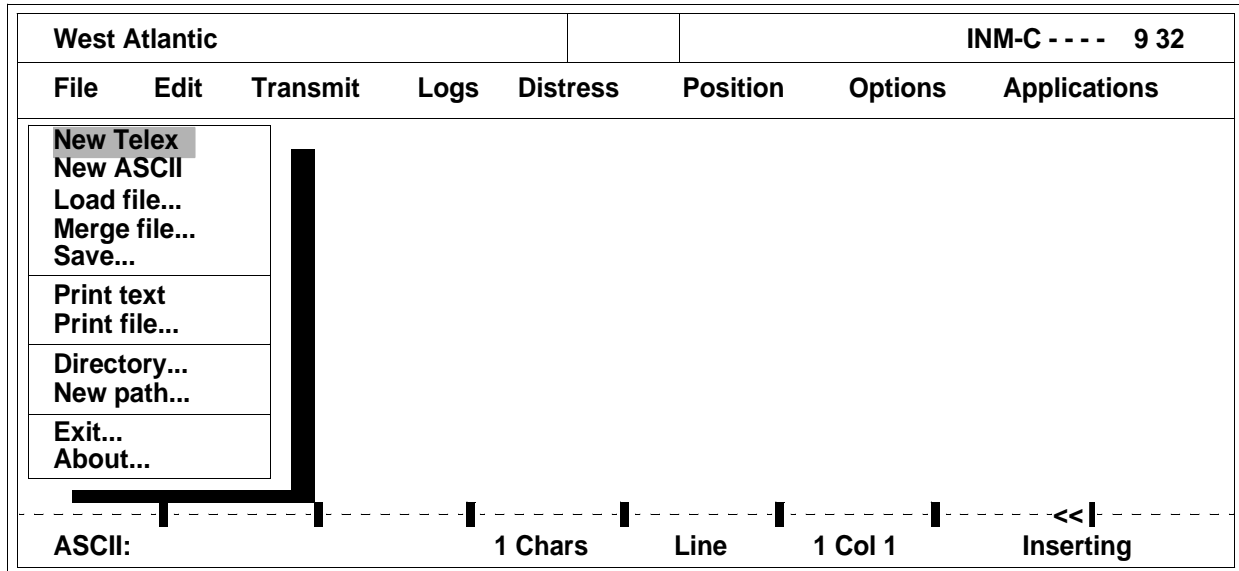
Personnel Required

Seaman 88K

SEND AND RECEIVE A TELEX MESSAGE

CREATE A TELEX MESSAGE

1. Ensure that power is on to INMARSAT-C transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes in top right corner of data terminal screen are illuminated.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.
4. Press the ALT key to access the menu bar.
5. Highlight FILE. Press the ENTER key.
6. Highlight NEW TELEX. Press the ENTER key.



2C013-1

7. Type the TELEX message.

| | | | | | | | |
|----------------------------------------------|------|----------|----------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 9 33 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| PLEASE SEND MEDICAL PERSONNEL WHEN POSSIBLE. | | | | | | | |
| ----- | | | | | | | |
| ASCII: | | | 45 Chars | Line | 1 Col 45 | | << Inserting |

2C013-2

8. Press the ESC key when message is complete.

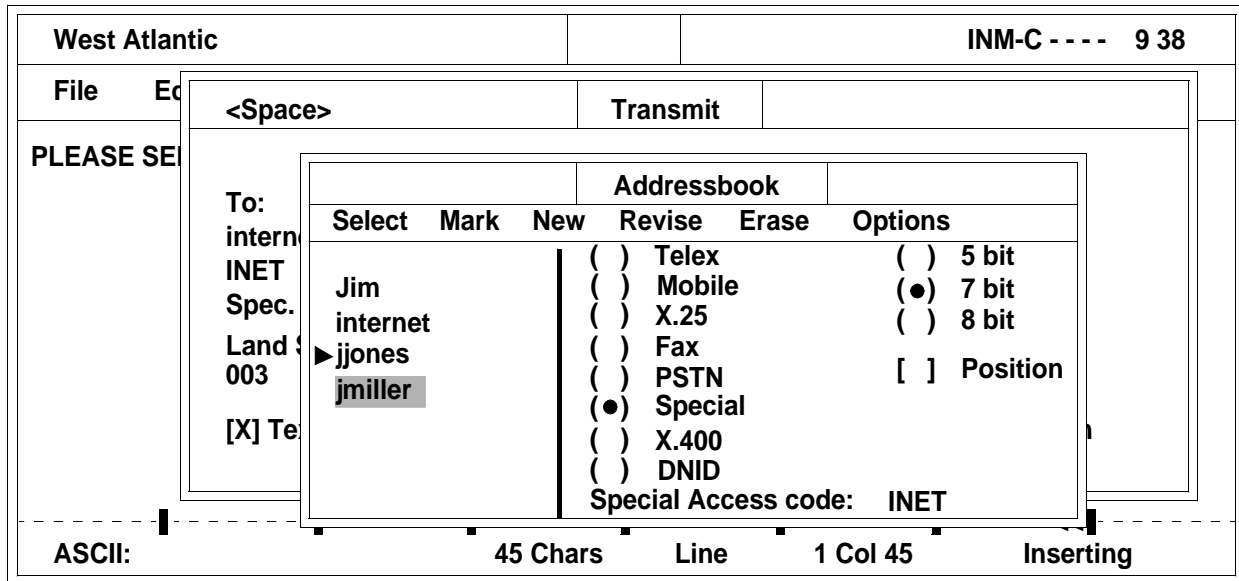
TRANSMIT A TELEX MESSAGE

1. Ensure that power is on to INMARSAT-C transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes in top right corner of data terminal screen are illuminated.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.
4. Press the ALT key to access the menu bar.
5. Highlight TRANSMIT. Press the ENTER key.

| | | | | | | | |
|---------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| West Atlantic | | | | INM-C - - - - 9 34 | | | |
| File | Ed | Transmit | | | | | |
| PLEASE SE | | To: <input checked="" type="checkbox"/> internet INET Spec. 7bit Land Station: 003 <input checked="" type="checkbox"/> Text in editor | | | | | |
| | | | | | | <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Urgent <input type="checkbox"/> Distress <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission | |
| <SEND> | | | | | | | |
| ----- | | | | | | | |
| ASCII: | | | 45 Chars | Line | 1 Col 45 | | << Inserting |

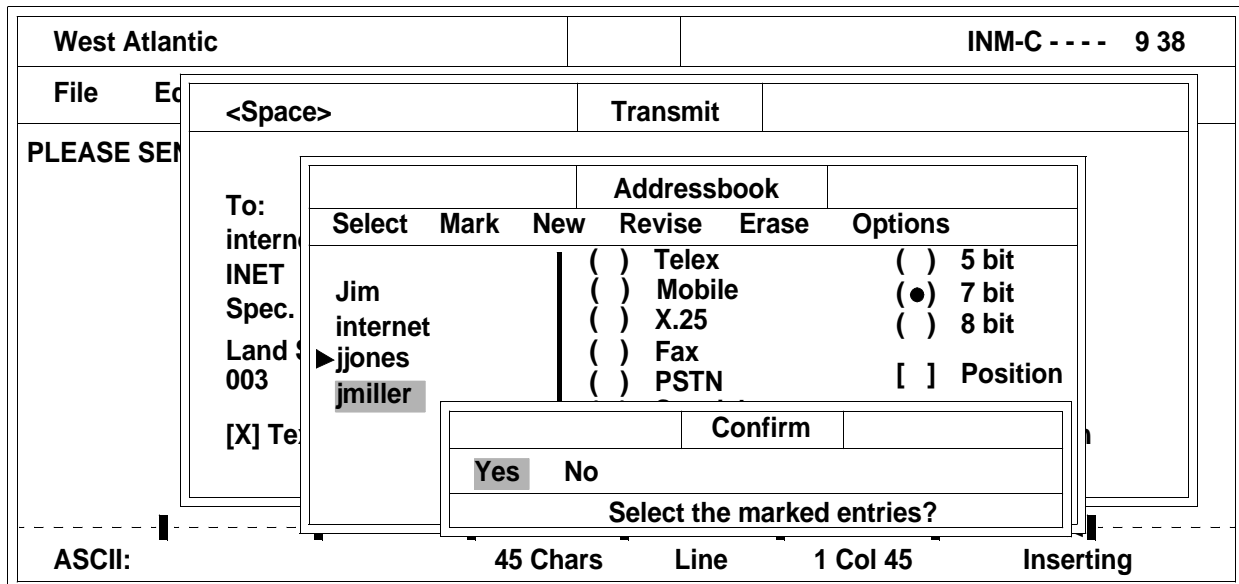
2C013-3

6. Press the spacebar to display ADDRESS BOOK.
7. Select destination from the ADDRESS BOOK.
8. Press the spacebar to mark destination.



2C013-4

9. Press the ENTER key to select the confirmation menu.
10. Select YES or NO. Press the ENTER key to confirm and exit.



2C013-5

11. Press the spacebar to display the COMSAT Land Earth Stations List (CLES).

12. Select CLES from the list. Press ENTER.

| | | | |
|---------------------|----|-------------------------|-----------------------------|
| West Atlantic | | INM-C - - - - 9 43 | |
| File | Ed | <Space> | Land Station |
| | | Select Edit Info | |
| | | To: | Name ID Ocean |
| | | internet | Southbury 001 West-Atlantic |
| | | INET | Goonhilly 002 West-Atlantic |
| | | Spec. 7bit | 003 West-Atlantic |
| | | Land Station | Burum 004 West-Atlantic |
| | | ► 003 | 012 West-Atlantic |
| | | [X] Text in e | 022 West-Atlantic |
| <SEND> | | | |
| ----- | | | |
| ASCII: | | 1 Chars | Line 1 Col 1 Inserting |

2C013-6

13. Press the RIGHT ARROW key until the cursor is positioned on SEND.

| | | | |
|---------------------|----|--------------------|----------------------------|
| West Atlantic | | INM-C - - - - 9 42 | |
| File | Ed | <Space> | Transmit |
| | | PLEASE SE | |
| | | To: | (●) Routine |
| | | internet | () Non-Urgent |
| | | INET | () Distress |
| | | Spec. 7bit | [X] Request confirmation |
| | | Land Station: | [] Print |
| | | 003 | [X] Immediate transmission |
| | | [X] Text in editor | |
| <SEND> | | | |
| ----- | | | |
| ASCII: | | 45 Chars | Line 1 Col 45 Inserting |

2C013-7

14. Press the ENTER key to transmit the TELEX message.

15. Ensure that the INMARSAT-C transceiver send light blinks, indicating that the transceiver is transmitting the message.

Table 1. Transmission Error Codes.

| CODE | COMMENT |
|------|------------------------------------------------------------------------------|
| ACB | Access barred |
| ADR | Addressee refuses |
| ATD | Attempting to deliver the message |
| BUS | Busy |
| CCD | Call cut or disconnected |
| CIE | The LES ran out of processing/communications capacity to process the message |
| CNS | Call not started |
| FAU | Faulty |
| FSA | Fast select acceptance not subscribed |
| IAM | Was unable to process the address information in the following message: |
| IDS | Invalid data from ship |
| IDT | Input data time out |
| IFR | Invalid facility request |
| IMS | Message size is invalid |
| IND | Incompatible destination |
| INH | Was unable to establish the type of message from the header |
| ISR | Invalid ship request |
| LEF | Local equipment failure |
| LPE | Local procedure error |
| MBB | Message broken by higher priority |
| MCC | Message channel congestion |
| MCF | Message channel failure |
| MKO | Message killed by operator |
| MSO | Machine switched off |
| NAL | No address line was present |
| NDA | There was no delivery attempt |
| NFA | No final answerback |
| NIA | No initial answerback |

Table 1. Transmission Error Codes. (Continued)

| CODE | COMMENT |
|-------------|---------------------------------------------------------|
| NOB | Not obtainable |
| NOC | No connection |
| NP | No party |
| NTC | Network congestion |
| OAB | Operator aborted |
| OCC | TELEX occupied |
| OOO | Out of order |
| PRC | Premature clearing |
| PRF | Protocol failure |
| RCA | Reverse charging acceptance not subscribed |
| REF | There was a failure in the remote equipment |
| RLE | Resource limit exceeded |
| RPE | Remote protocol error |
| RPO | RPOA (Recognized Private Operating Agency) out of order |
| SCC | Call completely successful |
| SHE | Mobile unit hardware error |
| SNF | The satellite network has failed |
| SPE | Mobile unit protocol error |
| SUC | Test results being delivered |
| TBY | Trunks busy |
| TGR | TDM group reset |
| TIM | Time out |
| WFA | Wrong final answerback |
| WIA | Wrong initial answerback |

RECEIVE A TELEX MESSAGE

1. Press the ALT key to access the menu bar.
2. Highlight LOGS. Press the ENTER key.

-
3. Highlight RECEIVE LOG. Press the ENTER key.
 4. Check for messages received since the last inspection of the log by looking for an arrow, called a view mark, to the left of the message file name.
 5. View the message by highlighting VIEW.
 6. Print the message by highlighting PRINT.
 7. Print the mail log by highlighting PRINT LOG.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

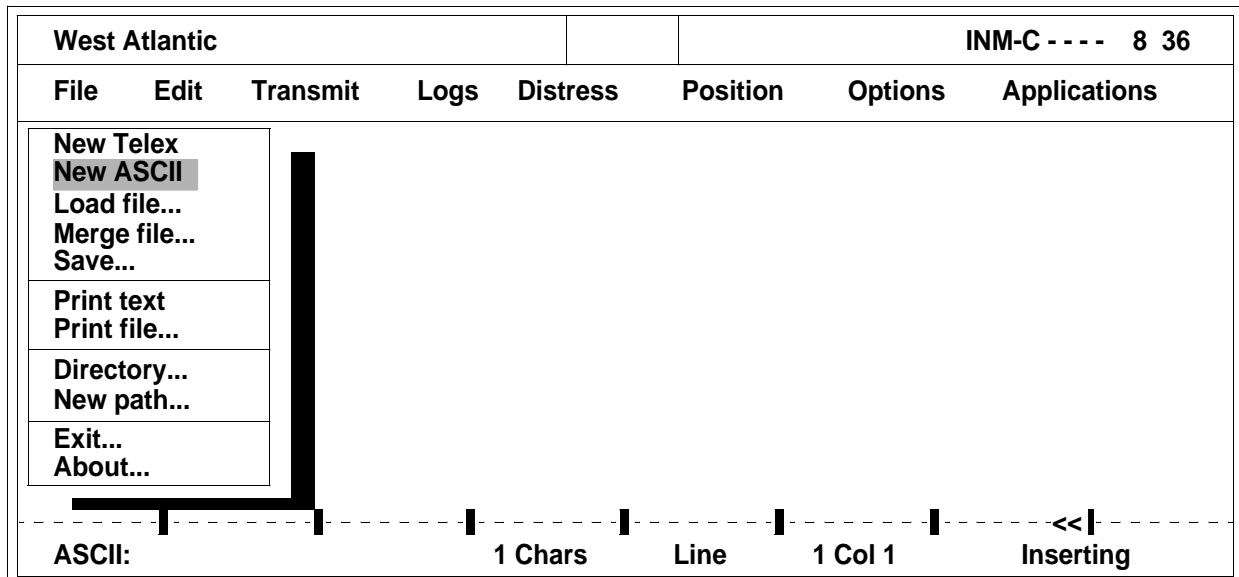
Personnel Required

Seaman 88K

SEND A FAX MESSAGE USING THE INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM

CREATE A FAX MESSAGE

1. Ensure that power is on to INMARSAT-C transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes in top right corner of data terminal screen are illuminated.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.
4. Press the ALT key to access the menu bar.
5. Highlight FILE. Press the ENTER key.
6. Highlight NEW ASCII. Press the ENTER key.



2C014-1

7. Type the FAX message.

| | | | | | | | |
|----------------------------------------------------|------|----------|------|----------|--------------------|-----------|--------------|
| West Atlantic | | | | | INM-C - - - - 8 39 | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| PLEASE SEND RESUPPLY WHEN POSSIBLE. | | | | | | | |
| ----- ----- ----- ----- ----- ----- ----- << ----- | | | | | | | |
| ASCII: | | 36 Chars | | Line | 1 Col 36 | Inserting | |

2C014-2

8. Press the ESC key when message is complete.

TRANSMIT A FAX MESSAGE

1. Ensure that power is on to INMARSAT-C transceiver, INMARSAT-C data terminal and INMARSAT-C printer.
2. Ensure that a minimum of three SEASAT program signal strength boxes in top right corner of data terminal screen are illuminated.
3. Ensure that transceiver is logged in and the correct ocean region has been selected.
4. Press the ALT key to access the menu bar.

5. Highlight TRANSMIT. Press the ENTER key.

| | | | | | | | |
|-------------------------------------|------|--------------------|------|----------|----------|---------|--------------|
| West Atlantic | | INM-C - - - - 8 39 | | | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| PLEASE SEND RESUPPLY WHEN POSSIBLE. | | | | | | | |
| -----<< | | | | | | | |
| ASCII: | | 36 Chars | Line | 1 Col 36 | | | Inserting |

2C014-3

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|--|--------|-----------|---------|----------|--|--|--|--|-----|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|----------|--|--|--|--|--|--|------|--|--|--|--|--|--|------------|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|--|--|--------|
| West Atlantic | | INM-C - - - - 8 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| File | Ed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLEASE SE | | <table border="1"> <tr> <td><Space></td> <td>Transmit</td> <td colspan="4"></td> </tr> <tr> <td>To:</td> <td></td> <td colspan="5"> <input checked="" type="radio"/> Routine <input type="radio"/> Non-Urgent <input type="radio"/> Distress <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission </td> </tr> <tr> <td>internet</td> <td></td> <td colspan="5"></td> </tr> <tr> <td>INET</td> <td></td> <td colspan="5"></td> </tr> <tr> <td>Spec. 7bit</td> <td></td> <td colspan="5"></td> </tr> <tr> <td>Land Station:</td> <td></td> <td colspan="5"></td> </tr> <tr> <td>[X] Text in editor</td> <td></td> <td colspan="5"></td> </tr> <tr> <td colspan="6"></td> <td><SEND></td> </tr> </table> | | | | | | <Space> | Transmit | | | | | To: | | <input checked="" type="radio"/> Routine <input type="radio"/> Non-Urgent <input type="radio"/> Distress <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission | | | | | internet | | | | | | | INET | | | | | | | Spec. 7bit | | | | | | | Land Station: | | | | | | | [X] Text in editor | | | | | | | | | | | | | <SEND> |
| <Space> | Transmit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| To: | | <input checked="" type="radio"/> Routine <input type="radio"/> Non-Urgent <input type="radio"/> Distress <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| internet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spec. 7bit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Station: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [X] Text in editor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | <SEND> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -----<< | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASCII: | | 36 Chars | Line | 1 Col 36 | | | Inserting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

2C014-4

6. Press the spacebar to display the ADDRESS BOOK.

7. Select destination from the ADDRESS BOOK.

| | | | |
|---------------|-------------|--------------------|----------------------|
| West Atlantic | | INM-C - - - - 8 55 | |
| File | Ed | <Space> | Transmit |
| PLEASE SE | | | |
| To: | Addressbook | | |
| ▶ intern | Select | Mark | New |
| INET | | | Revise |
| Spec. | | | Erase |
| Land S | | | Options |
| [X] Te | Jim | | () Telex () 5 bit |
| | internet | | () Mobile (●) 7 bit |
| | jjones | | () X.25 () 8 bit |
| | jmiller | | () Fax () Position |
| | | | () PSTN |
| | | | (●) Special |
| | | | () X.400 |
| | | | () DNID |
| | | | Number: 66666666 |
| ASCII: | 36 Chars | Line | 1 Col 36 Inserting |

2C014-5

8. Press the spacebar to mark destination.

| | | | |
|---------------|-------------|--------------------|---------------------------|
| West Atlantic | | INM-C - - - - 8 55 | |
| File | Ed | <Space> | Transmit |
| PLEASE SE | | | |
| To: | Addressbook | | |
| ▶ intern | Select | Mark | New |
| INET | | | Revise |
| Spec. | | | Erase |
| Land S | | | Options |
| [X] Te | Jim | | () 5 bit |
| | internet | | (●) 7 bit |
| | jjones | | () 8 bit |
| | jmiller | | () Position |
| | | | () Special |
| | | | () X.400 |
| | | | () DNID |
| | | | Special Access code: INET |
| ASCII: | 36 Chars | Line | 1 Col 36 Inserting |

2C014-6

9. Press the ENTER key to select the CONFIRMATION MENU.

10. Select YES or NO. Press the ENTER key to confirm and exit.

| | | | |
|---------------|----------|----------------------------|-------------------------------|
| West Atlantic | | INM-C - - - - 9 00 | |
| File | Ed | <Space> Transmit | |
| PLEASE SEND | | | |
| To: | internet | Addressbook | |
| INET | Spec. | Select | Mark New Revise Erase Options |
| Land Station | 003 | () | Telex () 5 bit |
| | | () | Mobile (●) 7 bit |
| | | () | X.25 () 8 bit |
| | | () | Fax [] Position |
| | | () | PSTN |
| [X] Text in e | | Confirm | |
| | | Yes | No |
| | | Select the marked entries? | |
| ASCII: | 36 Chars | Line | 1 Col 36 Inserting |

2C014-7

11. Press the spacebar to display the COMSAT Land Earth Stations List (CLES).

| | | | |
|---------------|------------|----------------------|--------------------|
| West Atlantic | | INM-C - - - - 9 27 | |
| File | Ed | <Space> Land Station | |
| PLEASE SEND | | | |
| To: | internet | Select | Edit Info |
| INET | Spec. 7bit | Name | ID Ocean |
| Land Station | | Southbury | 001 West-Atlantic |
| | | Goonhilly | 002 West-Atlantic |
| | | | 003 West-Atlantic |
| | | | 004 West-Atlantic |
| | | Burum | 012 West-Atlantic |
| | | | 022 West-Atlantic |
| [X] Text in e | | <SEND> | |
| ASCII: | 21 Chars | Line | 1 Col 21 Inserting |

2C014-8

12. Select CLES from the list. Press the ENTER key.

13. Press the RIGHT ARROW key until the cursor is positioned on SEND.

| | | | |
|--------------------|----|----------------------------------------------------------------------------------------------------------------|---------------|
| West Atlantic | | INM-C - - - - 9 30 | |
| File | Ed | | |
| PLEASE SE | | <Space> | Transmit |
| To: | | <input checked="" type="radio"/> Routine <input type="radio"/> Non-Urgent <input type="radio"/> Distress | |
| internet | | [X] Request confirmation | |
| INET | | [] Print | |
| Spec. 7bit | | [X] Immediate transmission | |
| Land Station: | | | |
| 003 | | | |
| [X] Text in editor | | ▶ <SEND> | |
| ASCII: | | 21 Chars | Line 1 Col 21 |
| | | Inserting << | |

2C014-9

14. Press the ENTER key to transmit the FAX message.

15. Ensure the INMARSAT-C transceiver send light is blinking, indicating that the transceiver is transmitting the message.

END OF WORK PACKAGE

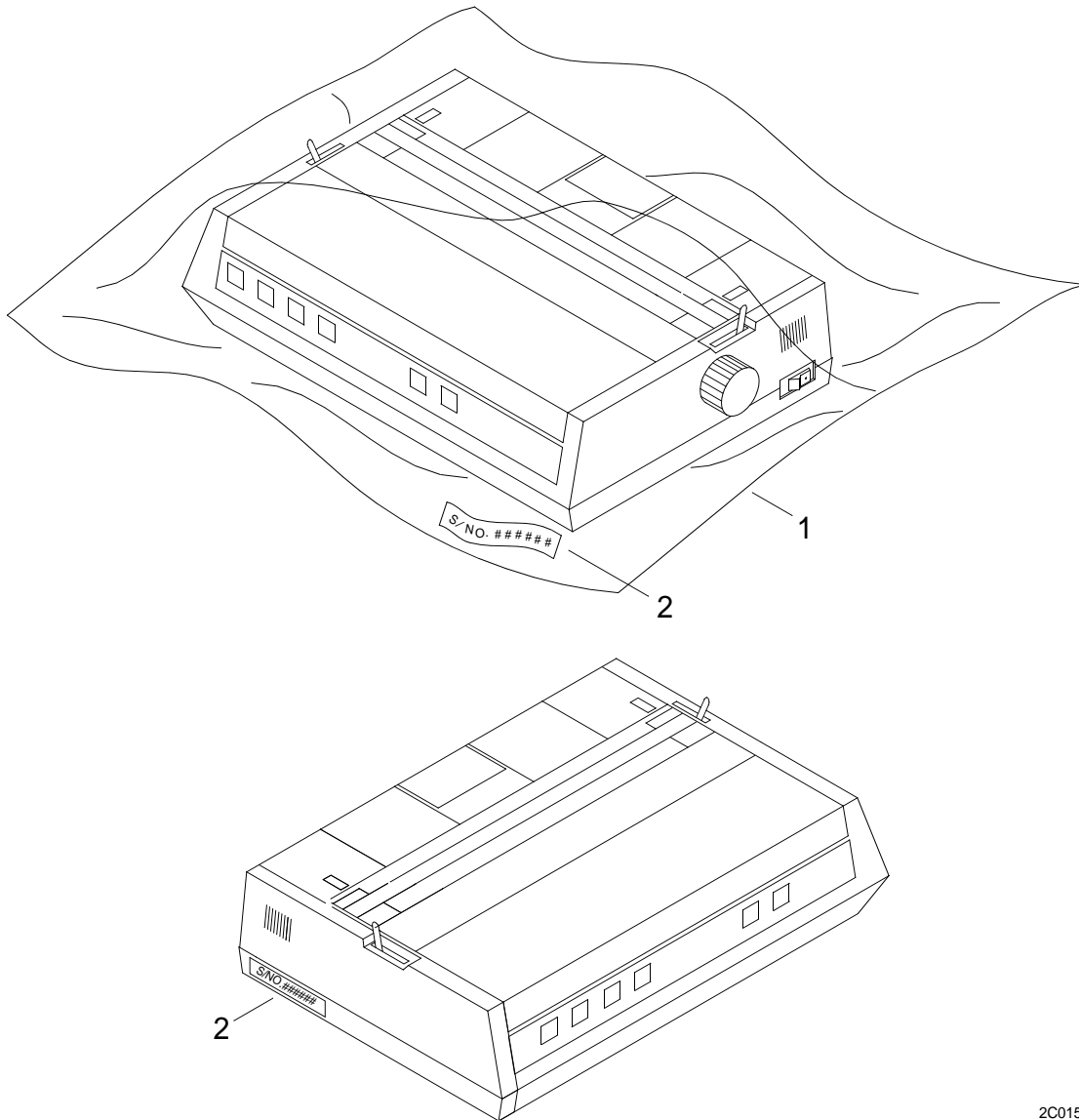
**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

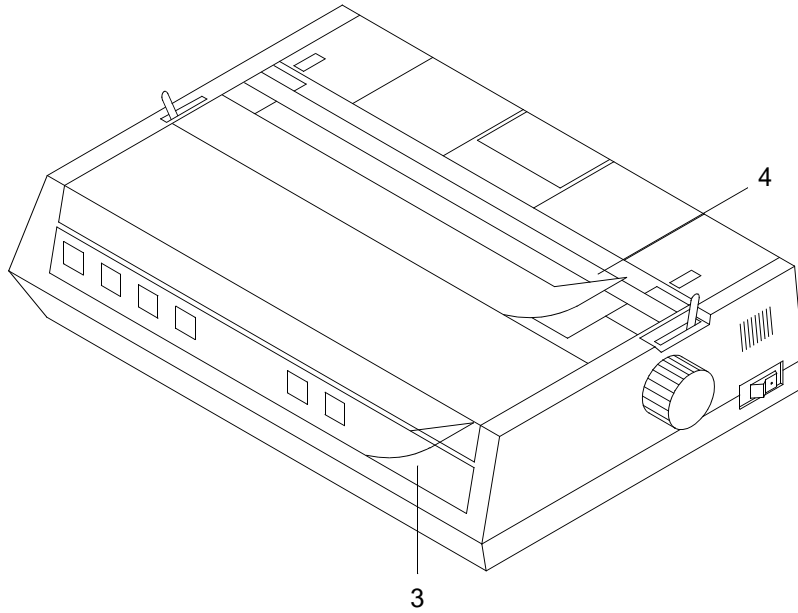
PERFORM INITIAL SETUP OF INMARSAT-C PRINTER**UNPACK SERIAL PRINTER**

1. Remove INMARSAT-C printer from protective plastic bag (1) and remove tape embossed with serial number (2).



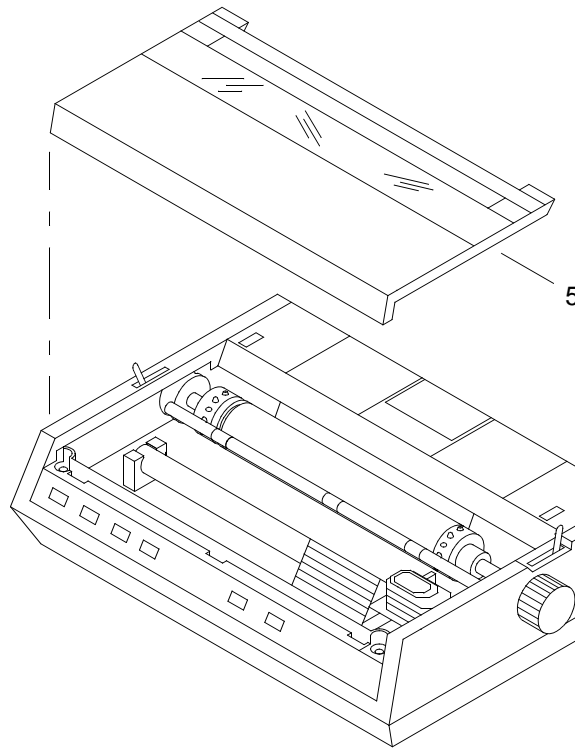
2C015-1

- Place tape with serial number (2) on left hand side of INMARSAT-C printer.



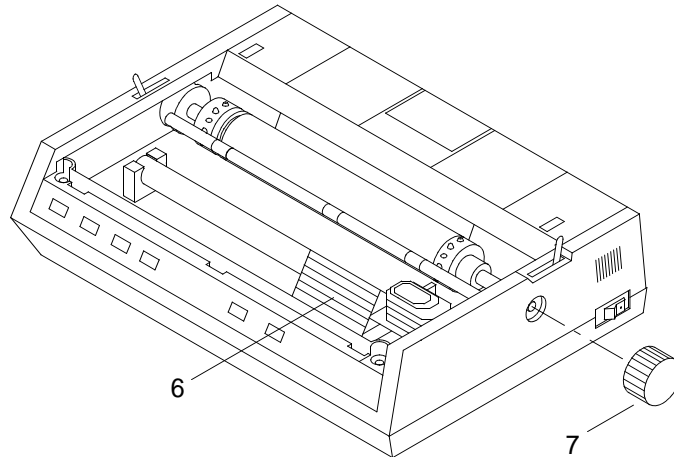
2C015-2

- Remove the clear smudge strip (3) from the INMARSAT-C printer front panel.
- Remove the clear smudge strip (4) from the INMARSAT-C printer access cover (5).
- Lift off the INMARSAT-C printer access cover (5).



2C015-3

- Remove the shipping retainer (6) that secures the printhead during shipment.



2C015-4

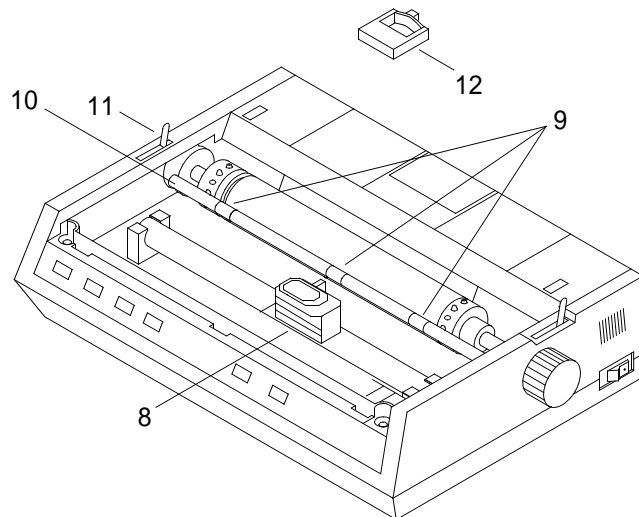
NOTE

Save the printhead shipping retainer in the event the INMARSAT-C printer needs to be shipped for repair or replacement.

- Remove platen knob (7) from shipping bag.
- Insert platen knob (7) in the hole on the right side of the INMARSAT-C printer, lining up the notch in the knob (7) with the pin on the shaft.

INSTALL RIBBON CARTRIDGE

- Center the printhead (8) so that it's away from the bail rollers (9). Make sure the bail (10) is closed (lever (11) back).



2C015-5

2. With the knob (7) side up, tilt the ribbon cartridge (12) onto the printhead plate so that it slides into the area of the plate that is closest to the front of the INMARSAT-C printer.

NOTE

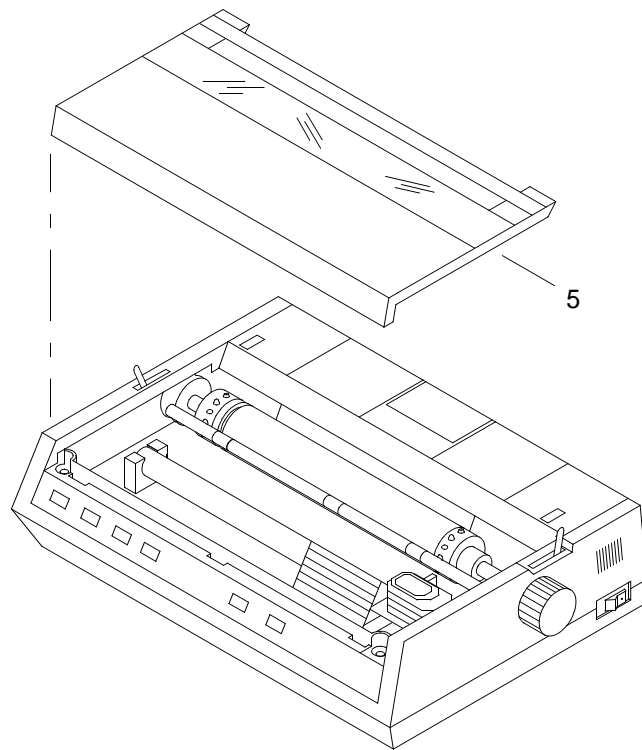
If the ribbon will not load easily, turn the blue knob slightly until the x-shaped notch on the bottom of the ribbon cartridge aligns with the x-shaped insert on the ribbon plate.

3. Lower the ribbon shield over the printhead (8), aligning the tabs with the inserts on the printhead plate.

NOTE

Do not remove the clear plastic ribbon shield from the ribbon cartridge.

4. Press on the cartridge (12) until it snaps into place.
5. Install INMARSAT-C printer access cover (5).



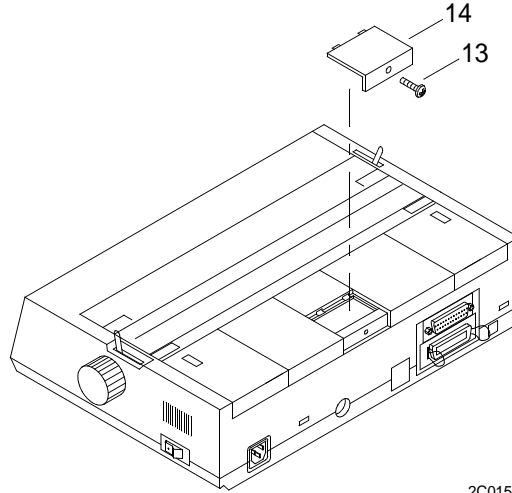
2C015-3

CHECK/SET INMARSAT-C PRINTER BOARD SWITCHES

NOTE

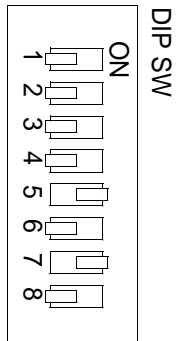
Board switches are normally preset. If not, perform the following steps.

1. On back of printer, remove screw (13) from cover (14) and remove cover (14).



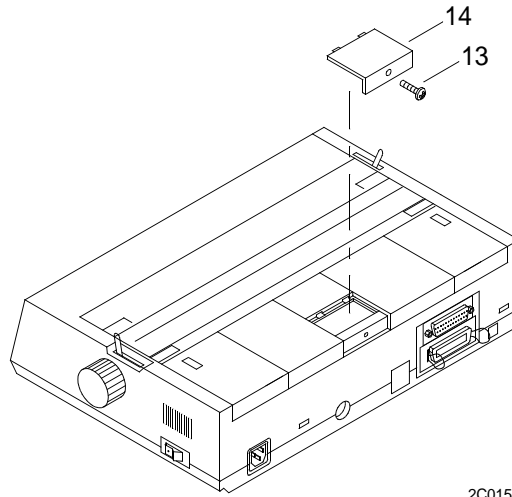
2C015-6

2. Set switches as depicted in illustration below.



2C015-7

3. After switches are set, place cover (14) on back of INMARSAT-C printer and secure with screw (13).



2C015-6

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

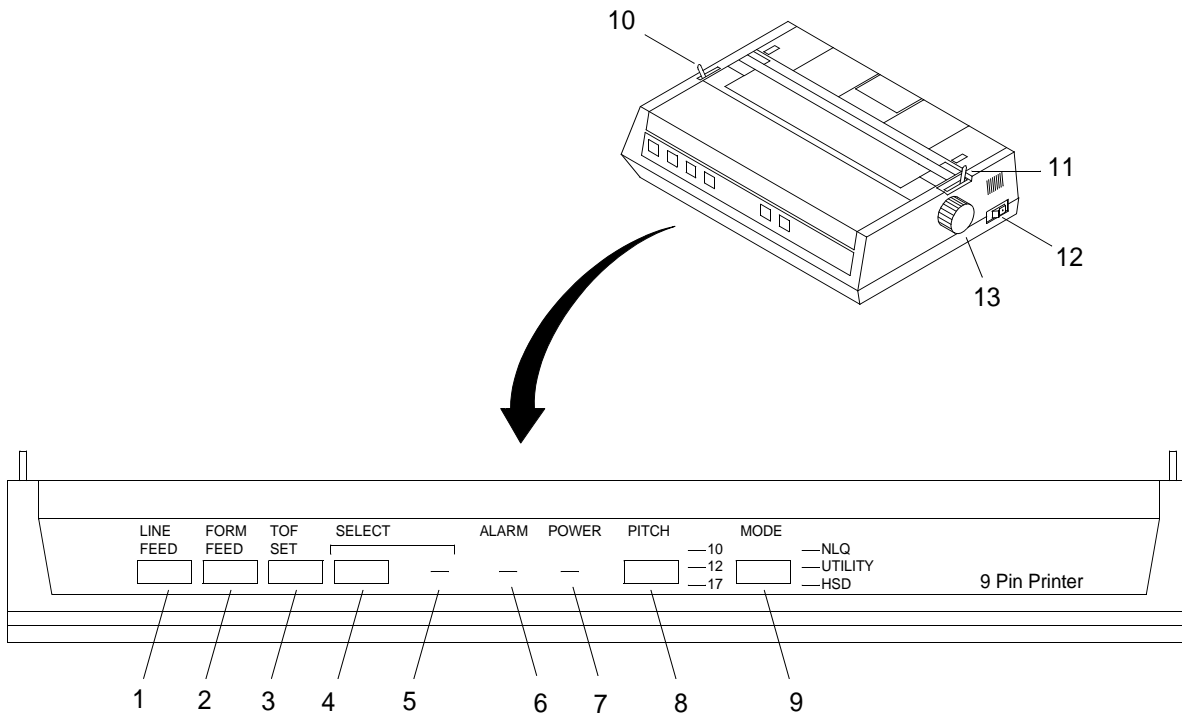
Personnel Required

Seaman 88K

OPERATE THE INMARSAT-C PRINTER

NOTE

The controls for operation of the INMARSAT-C printer are listed below.



2C016-1

1. Press the LINE FEED button (1) to move the paper up one line at a time.
2. Press the FORM FEED button (2) to move the paper to the top margin of the next page.

3. Press the TOF button (3) to set the top margin at the current position.

NOTE

The SELECT light (5) must be off.

4. Press the SELECT button (4) to select or deselect the printer.

NOTE

The SELECT light (5) shows whether the printer is ready to receive data (on) or not (off).

The ALARM light (6) indicates that paper is low or out, or that there is an internal printer problem.

The POWER light (7) indicates that the printer is plugged in and turned on.

5. Press the PITCH button (8) to select the size of the printed characters - 10, 12, or 17 characters per inch (dpi).
6. Press the MODE button (9) to select the type of printing desired. The three modes available are:
 - a. NLQ (Near Letter Quality): High-resolution printing in two passes of the printhead; not available at 17 dpi.
 - b. UTILITY: Normal printing.
 - c. HSD (High-Speed Draft): fast printing for drafts; underlining is the only printing feature available with HSD.
7. Move the bail lever (10) towards the front or back of the printer to open and close the bail.
8. Move the paper lever (11) towards the front or back to release or apply tension to the paper.
9. With the paper lever engaged, turn the platen knob (12) to advance paper through the printer.
10. Press the power switch (13) to turn the printer on or off.

END OF WORK PACKAGE

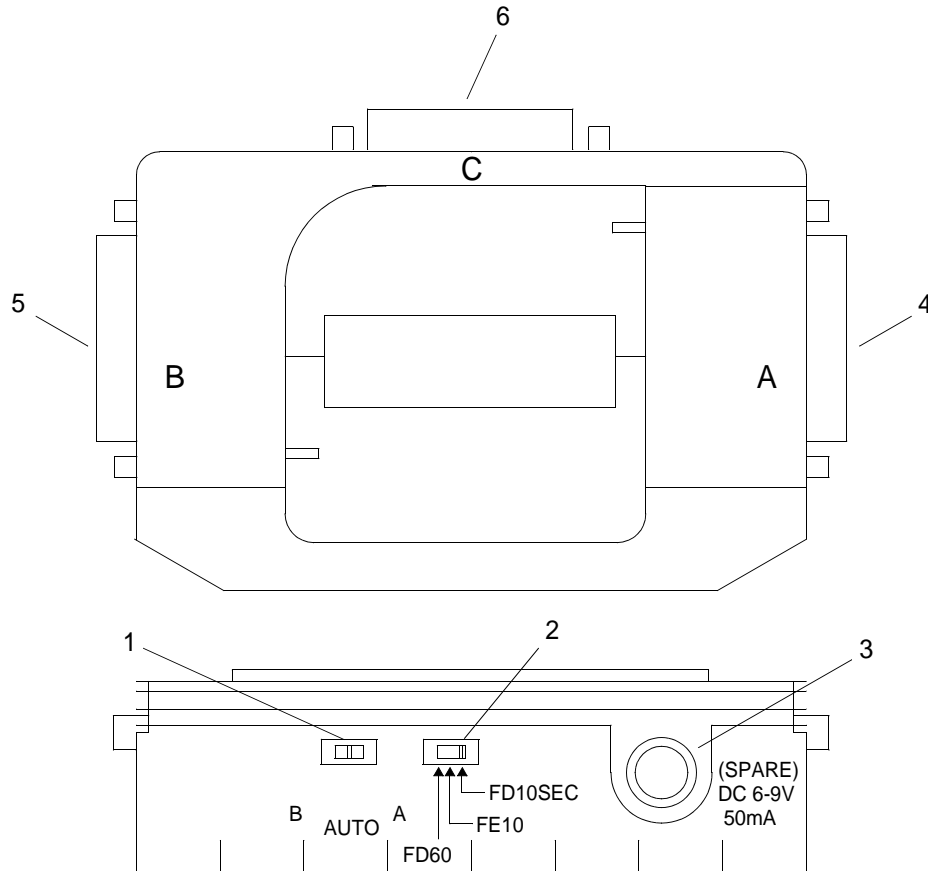
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE INMARSAT-C DATA TERMINAL/INMARSAT-C PRINTER AUTO SWITCH

1. Place the selector switch (1) in the AUTO position.



2C017-1

2. Place the operation switch (2) in the FD 10SEC position.

NOTE

Do not use the spare power connector (3) in the GMDSS application.

3. Ensure that the INMARSAT-C data terminal cable is connected to serial interface connector A (4).
4. Ensure that the J6 cable from the 9701 GMDSS console is connected to serial interface connector B (5).
5. Ensure that the INMARSAT-C printer is connected to serial interface connector C (6).

END OF WORK PACKAGE

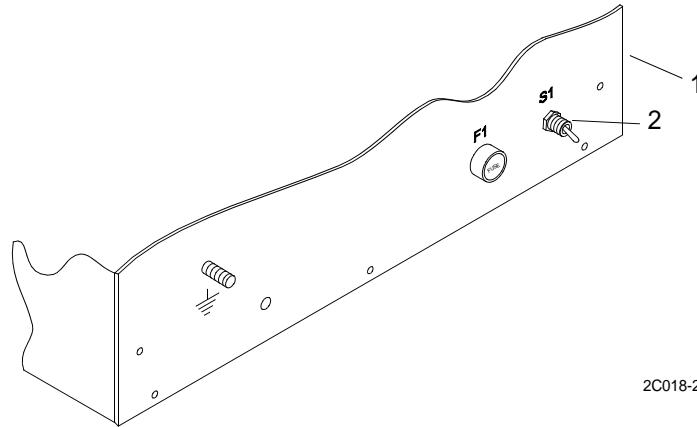
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

Personnel Required
 Seaman 88K

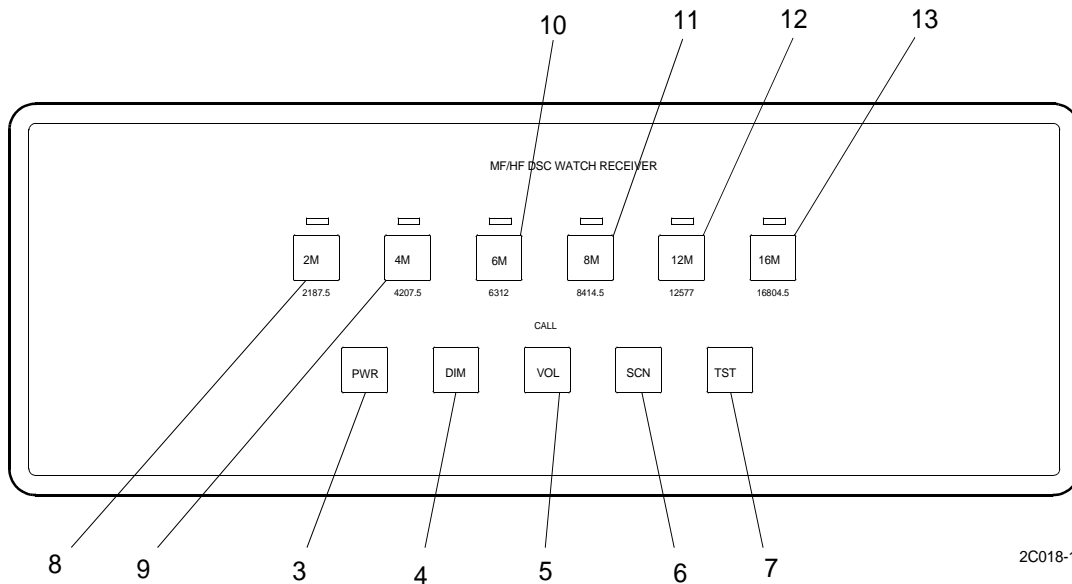
OPERATE THE WATCH RECEIVER

1. Turn on power to the 9701 GMDSS console using power switch (2) located on the right rear corner of the console (1).



2C018-2

2. Press the PWR button (3) to turn the power on. Press the PWR button (3) again to turn the power off.



2C018-1

3. Press the DIM button (4) to dim the backlighting.
4. Press the VOL button (5) to increase or decrease the volume level of the internal speaker.
5. Press the SCN button (6) to start or stop the scan function.

6. Press the TST button (7) to place the receiver in test mode.
7. Do not press the 2M button (8) as it is an annunciator light only and cannot be deselected.
8. Press the 4M button (9) to toggle the scan status of 4207.5 kHz.
9. Press the 6M button (10) to toggle the scan status of 6312 kHz.
10. Do not press the 8M button (11) as it is an annunciator light only and cannot be deselected.
11. Press the 12M button (12) to toggle the scan status of 12577 kHz.
12. Press the 16M button (13) to toggle the scan status of 16804.5 kHz.
13. Ensure that the red call indicator lights when a dot pattern is received.
14. View which frequency is in use by checking the backlighted indicator lamp.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

Personnel Required

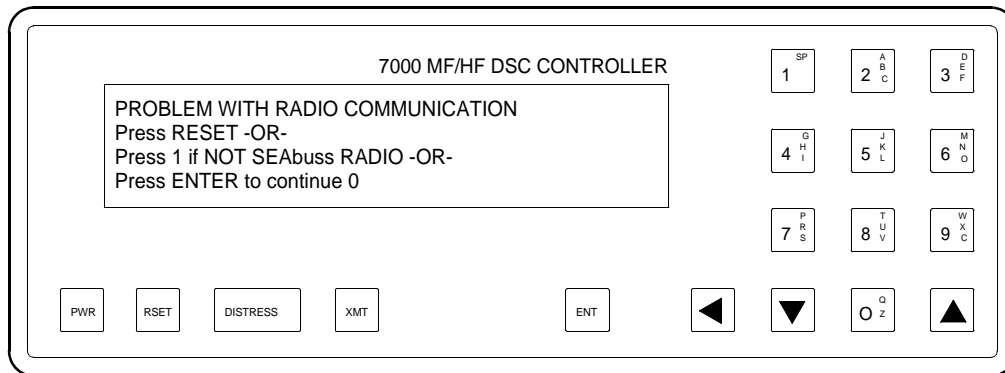
Seaman 88K

Equipment Condition

Install DSC Controller. (WP 0123 00)

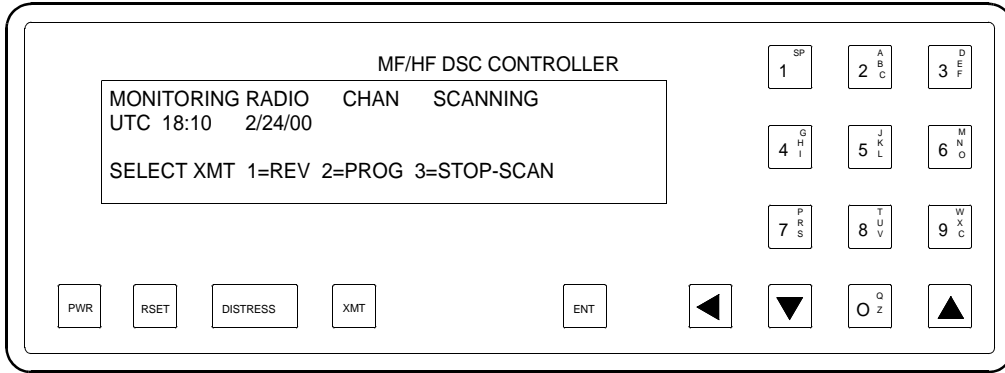
PERFORM INITIAL SETUP OF MF/HF DIGITAL SELECTIVE CALLING (DSC) CONTROLLER

1. Turn power on to view the following screen:

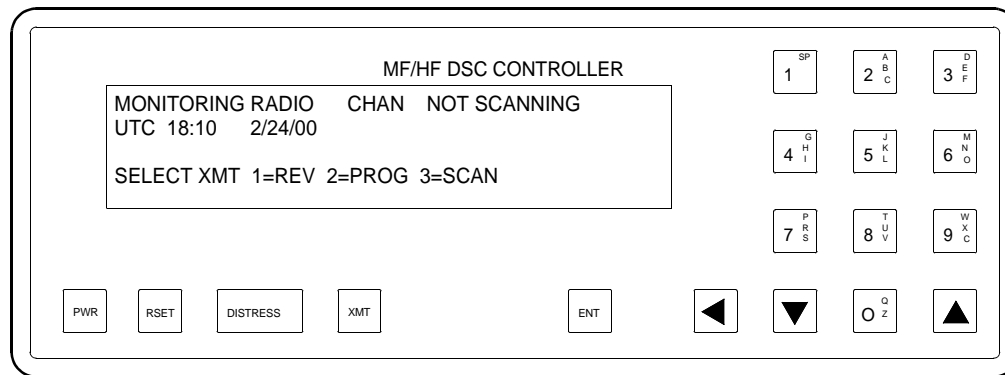


2C019-1

2. Press 1 to view one of the following screens:

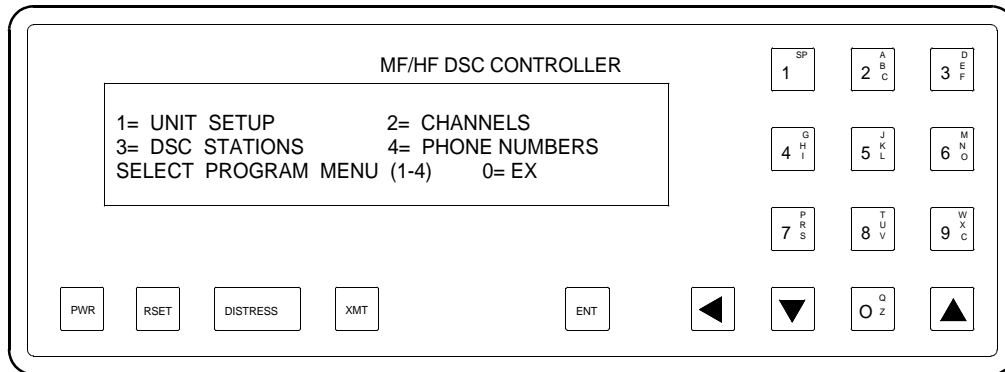


-OR-



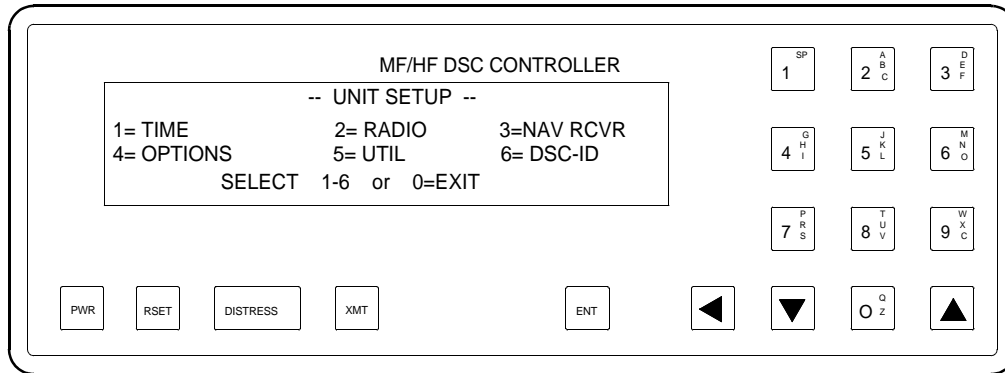
2C019-2

3. Press 2 to select PROGRAM.



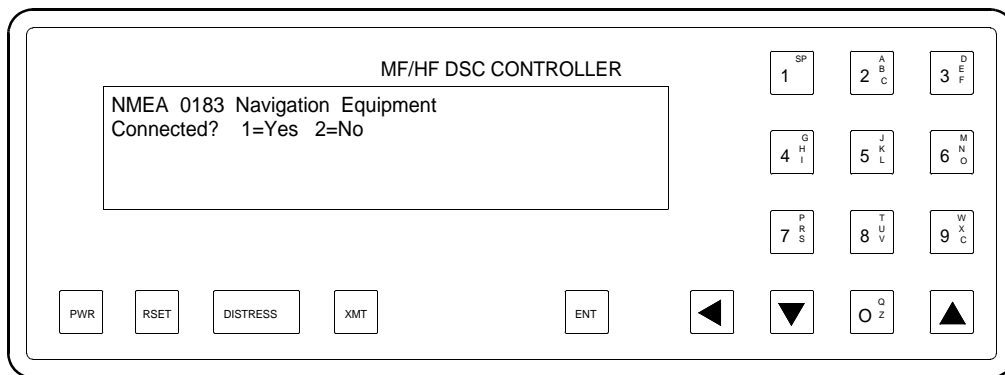
2C019-3

4. Press 1 to select UNIT SETUP.



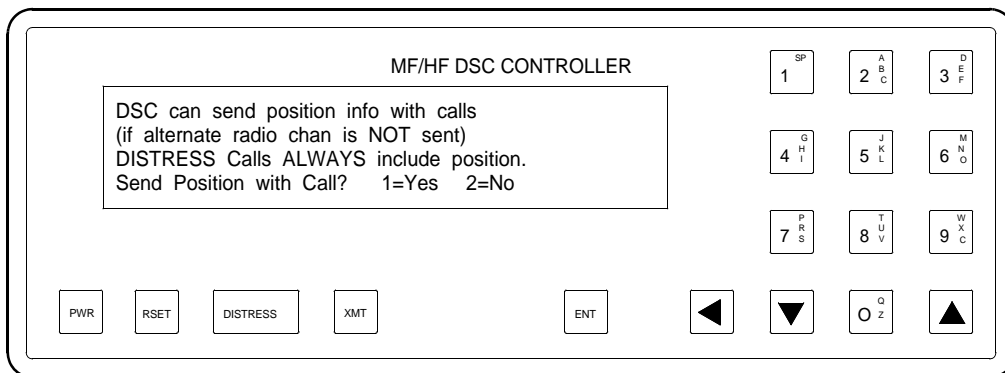
2C019-4

5. Press 3 to select NAV RCVR.



2C019-5

- a. Press 1 for YES.



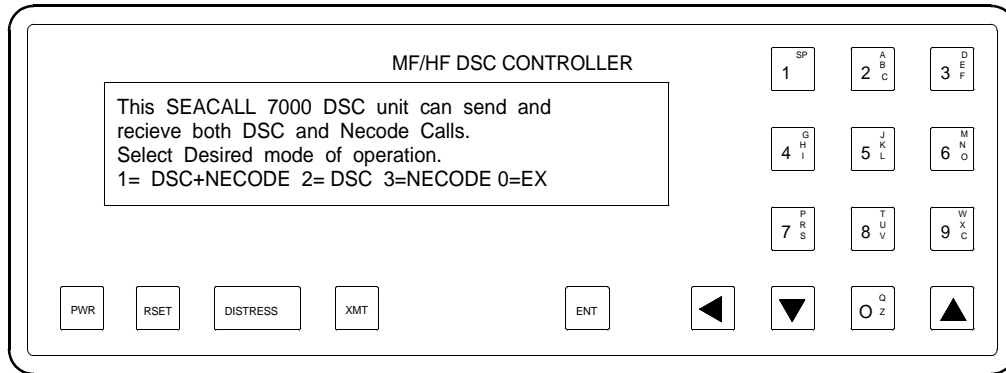
2C019-6

{1} Press 1 for YES and the screen will return to the UNIT SETUP menu.

{2} Press 2 for NO and the screen will return to the UNIT SETUP menu.

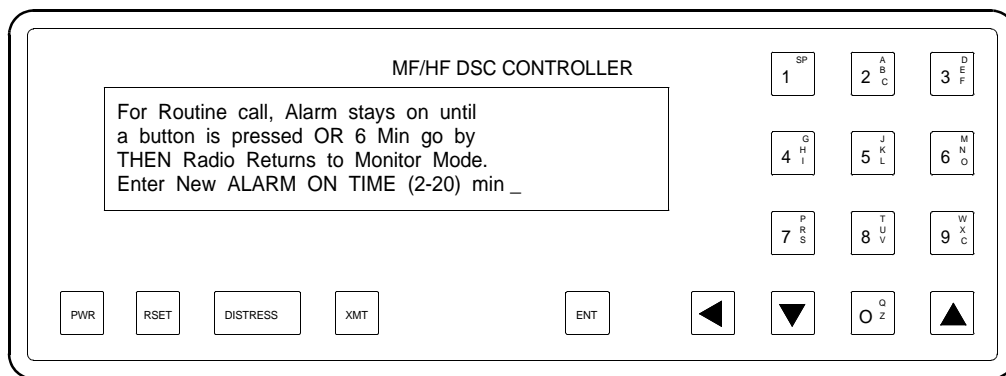
- b. Press 2 for NO and the screen will return to the UNIT SETUP menu.

6. Press 4 to select OPTIONS.



2C019-7

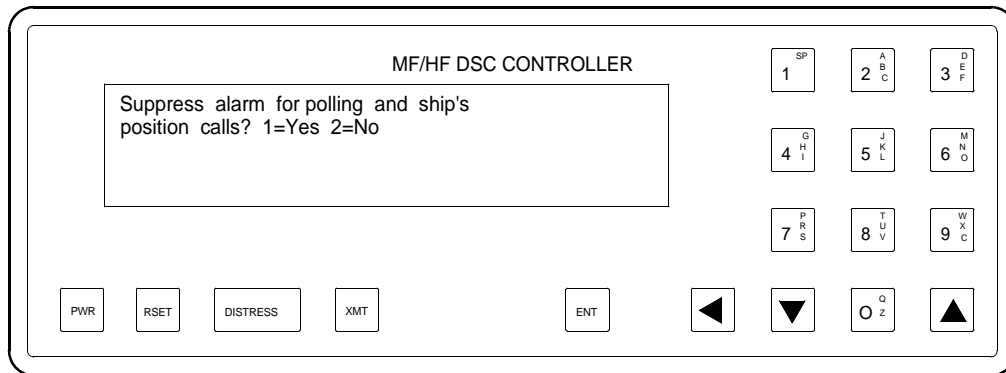
a. Press 2 for DSC.



2C019-8

{1} Enter new alarm time.

{2} Press ENTER.



2C019-9

(a) Press 1 for YES and DSC controller will return to the UNIT SETUP menu.

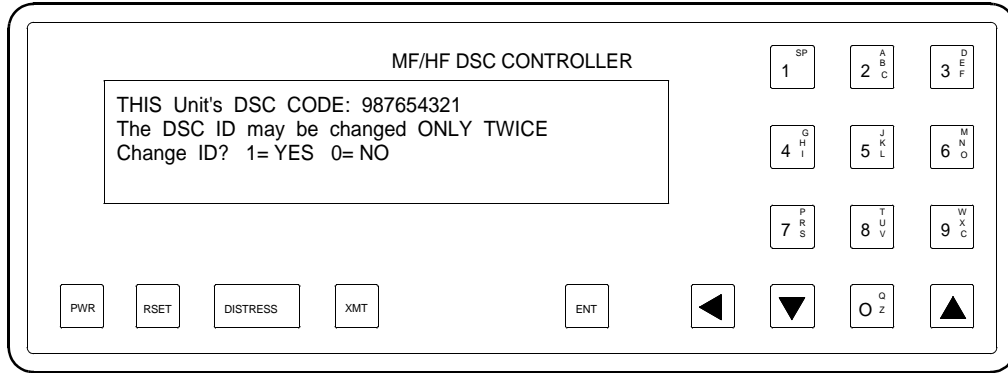
(b) Press 2 for NO and DSC controller will return to the UNIT SETUP menu.

b. Verify 6=DSC-ID appears in the screen.

- Press 6 to select DSC-ID.

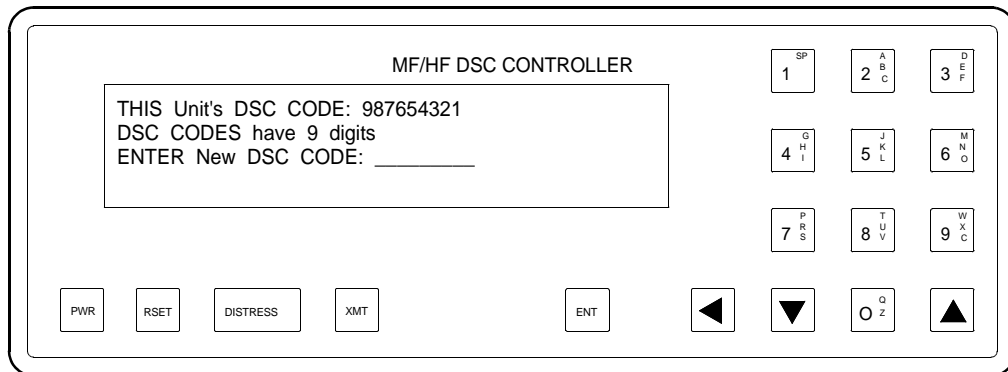
NOTE

The DSC ID can only be changed twice. If the message “the DSC ID has been changed twice, “Return to SEA for ID reprogramming” appears. Contact direct support maintenance.



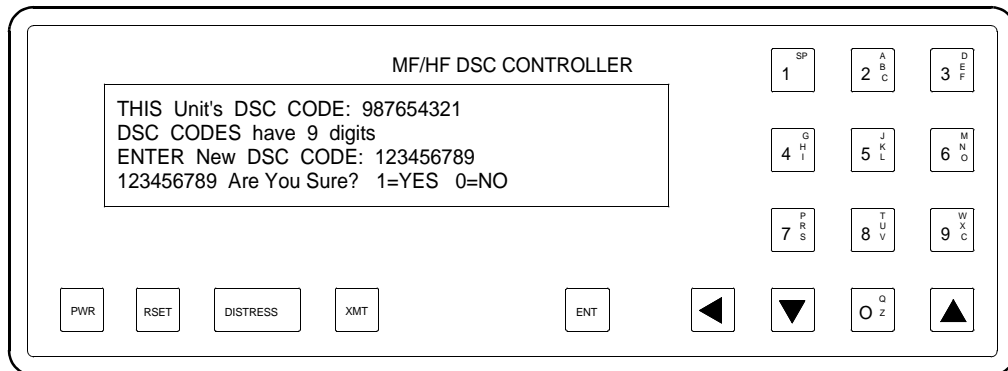
2C019-10

- Verify DSC Code that is displayed. If DSC ID is incorrect, press 1.



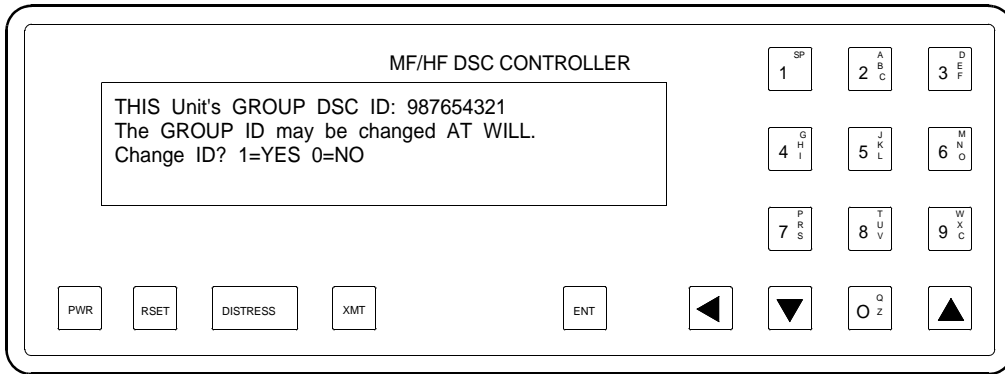
2c019-11

- Enter new DSC CODE. Press ENTER.



2C019-12

10. Verify Unit's DSC CODE. Are you sure you want to change the Unit's DSC CODE? Press 1. The following screen will be displayed:



2C019-13

11. Press 1 to change the Unit's DSC CODE.

12. Press 0 to return to the Unit's Setup Menu.

END OF WORK PACKAGE

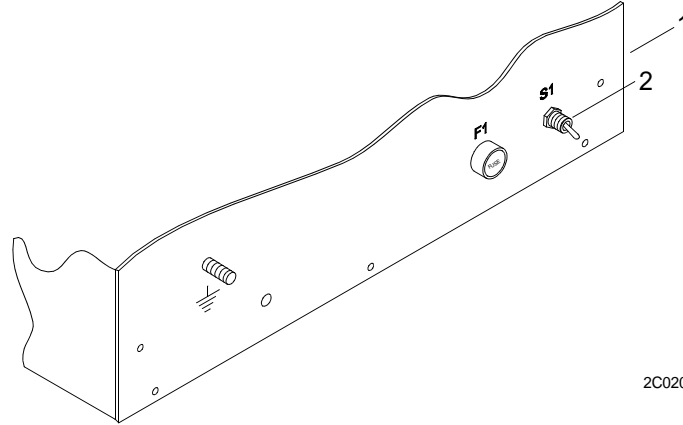
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

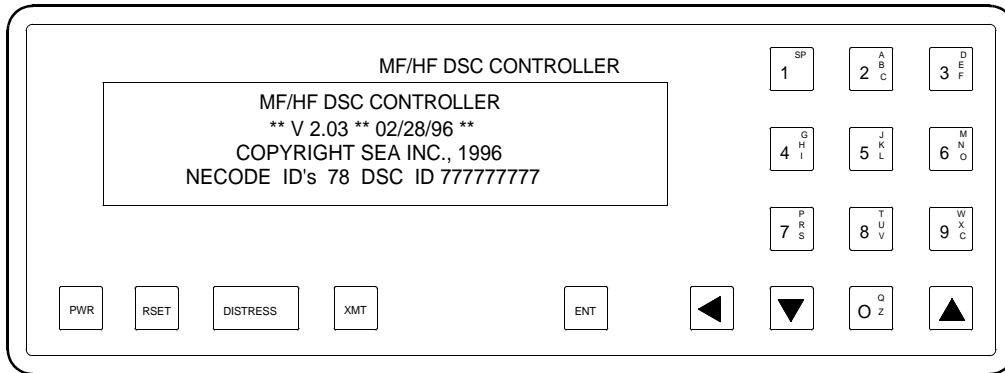
OPERATE THE DSC CONTROLLER

1. Turn on power to the 9701 GMDSS Console (1) using power switch (2) located on the right rear corner of the console.



2C020-1

2. Turn on the DSC Controller by pressing the PWR switch on the front panel. The startup screen will appear.

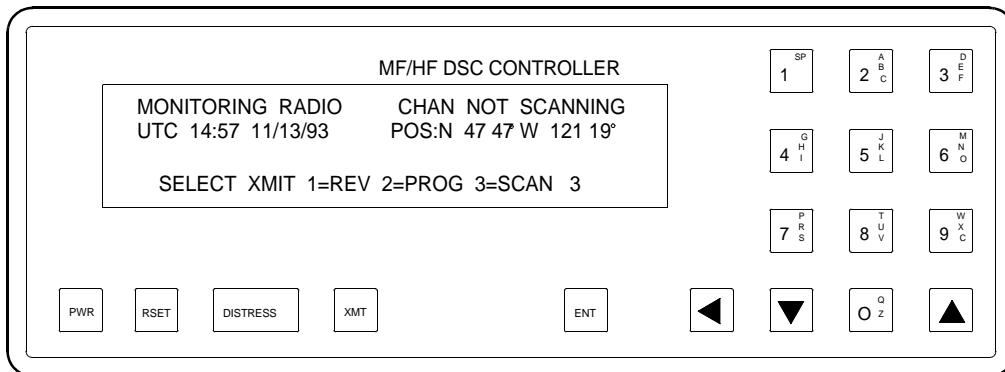


2C020-2

NOTE

If the DSC controller is configured for a SEABUSS radio, it will attempt to establish communication with the radio after a few seconds. The DSC controller will then check that the scan channel frequencies programed in the radio are consistent with its own. The DSC controller will also establish communication with the PLGR, if the proper configuration is in place.

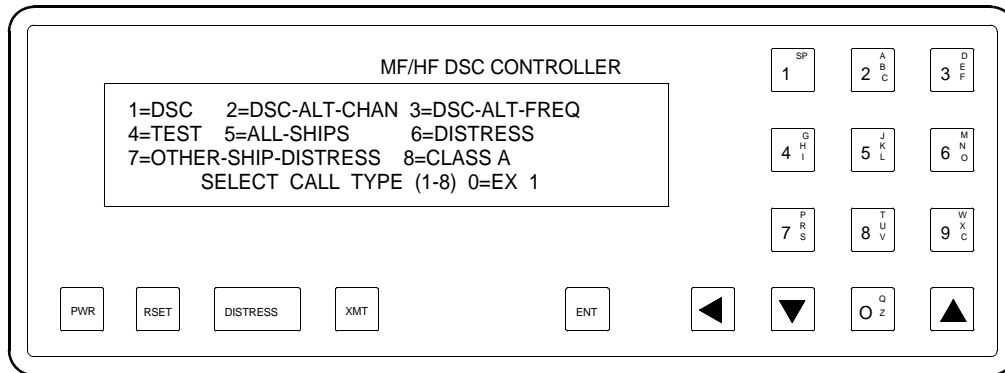
The DSC controller then enters into the monitor mode and the main menu screen appears.



2C020-3

TRANSMIT MENU

1. Press the XMT key from the main menu to display a menu of available call formats.



2C020-4

NOTE

If NECODE protocol has been disabled in the options menu, the NECODE format will not appear in the menu. In place of the NECODE option, a CLASS A call option will appear for composing a general DSC message.

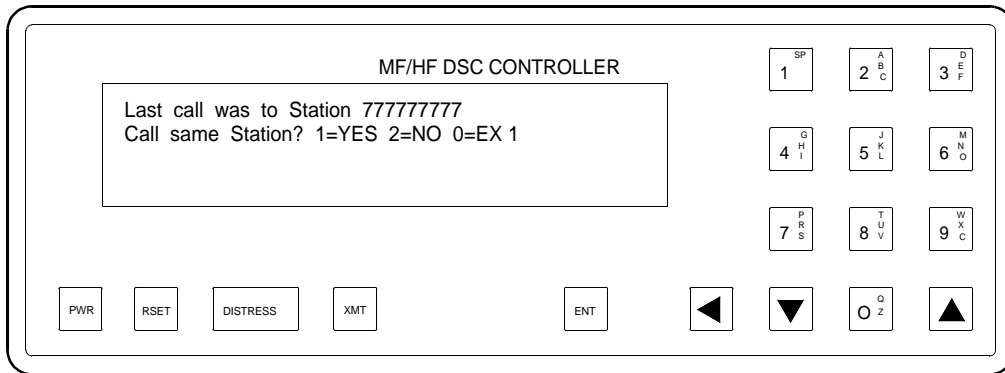
If DSC protocol has been disabled, the DSC CONTROLLER will proceed directly to the NECODE calling procedure.

A MF/HF radio must be installed to use the transmit menu.

2. Select call type option.

SEND ROUTINE INDIVIDUAL DSC CALL

1. From the main menu, press the 1 key for a DSC call.



2C020-5

2. Press 1 or ENT key to call the same station as your last DSC call. Proceed to TRANSMITTING A CALL.
3. Press the 2 key to call a different DSC station. The screen will show a menu of DSC stations stored in memory.
4. To select a DSC station displayed on the current page, press the corresponding numeric key, 1 - 9. Proceed to TRANSMITTING A CALL.

5. Press the 0 key to call a station that has not been pre-programmed.
6. Enter the 9 digit DSC ID of the station you wish to call and press the ENT key. Proceed to TRANSMITTING A CALL.

DSC CALL WITH ALTERNATE CHANNEL

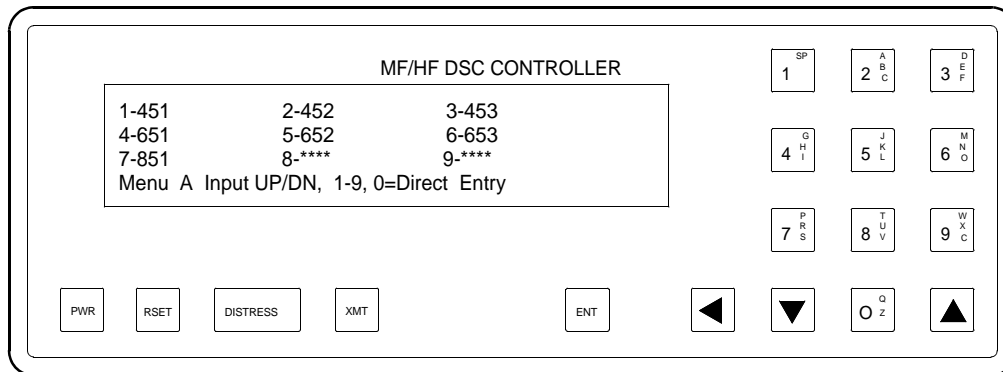
1. Press the 2 key from the transmit menu to go to an alternate channel.
2. Select the receiving station.

NOTE

A menu of alternate working channels stored in memory will be displayed.

“****” Will denote a channel which has not yet been programmed.

There are five pages of channel numbers labeled Menu A through Menu E. You can page through them by pressing DOWN ARROW for the next page or UP ARROW for the preceding page.



2C020-6

3. To select a channel number displayed on the current page, press the corresponding numeric key, 1 - 9. Proceed to TRANSMITTING A CALL.

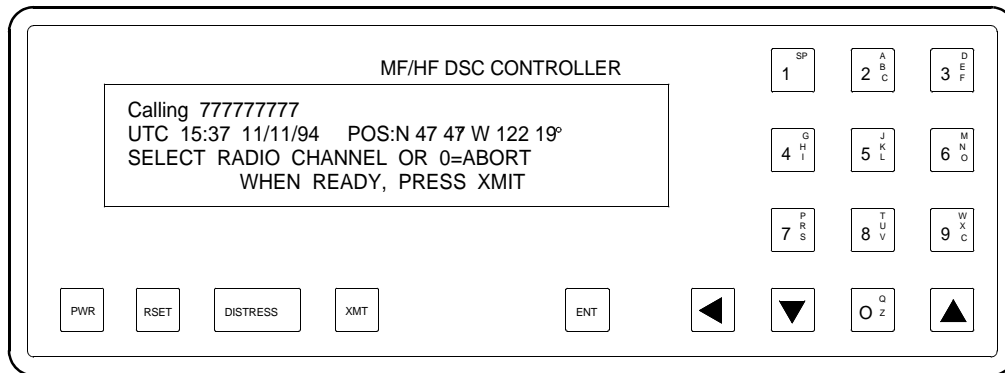
TRANSMITTING A CALL

1. Press the 0 key to call a channel that has not been pre-programed. You can then enter the 3 or 4 digit ITU channel number and press the ENT key.

NOTE

A display showing the summary of the call to be placed is as follows.

The precise format of this display will vary with the format of the call, the presence of a navigation receiver and the radio interface selected.



2C020-7

2. To abort the call, press 0. You will be then be asked if you wish to make another call of the same type. If so, you may reenter all the pertinent information. Otherwise, you can return to the main menu.

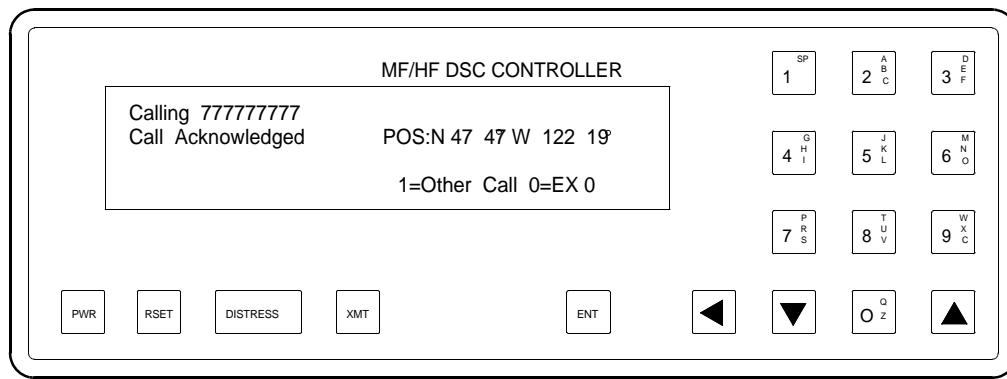
- On the single sideband radiotelephone, select the frequency on which the call will be transmitted.

NOTE

If a DSC CONTROLLER radio is present, you may select a scan channel by keying in the channel number or by searching through them using the UP and DOWN ARROW keys. The channel and frequency will be displayed in the upper right corner of the DSC CONTROLLER display.

When the radio is on the desired channel, press the XMT key to start the transmission. The DSC CONTROLLER will monitor the receive audio for radio activity and initiate the call once the channel is clear. Even if the channel is not clear, you have the opportunity to transmit the call at any time.

Once the call is transmitted, the DSC CONTROLLER will wait for an acknowledgment if one is required. If the transmission is acknowledged, the display will show as below.



2C020-8

- If the call is not acknowledged, you will be asked if you wish to try the call again. Press 1 to make another call. Press the 0 or ENT key to return to the main menu and radio monitoring.

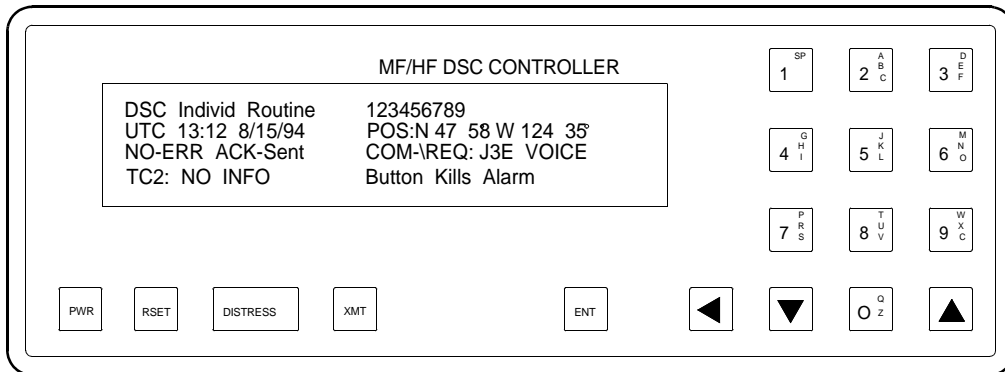
RECEIVING CALLS

NOTE

Whenever the DSC controller is not performing other tasks, it is monitoring the receive audio for incoming calls. When a call is detected, the RECV annunciator will light solid red for a DSC call and solid green for a NECODE call and a call receive tone will sound. Due to ambient noise or other signals, the light may flicker red or green.

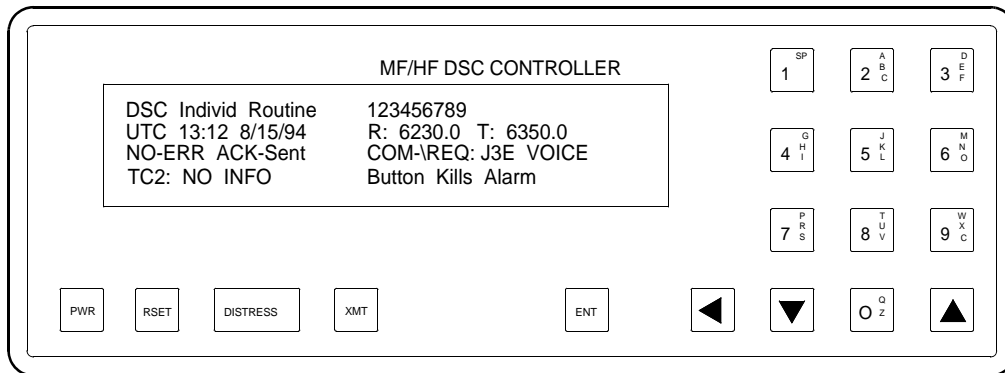
The tone will continue until any key is pressed. For calls tagged with distress or urgency priority, the alarm continues indefinitely until the call is acknowledged. For routine calls it will time out after a programmable period from 2 to 20 minutes.

1. Press any key to acknowledge and cancel alarm.



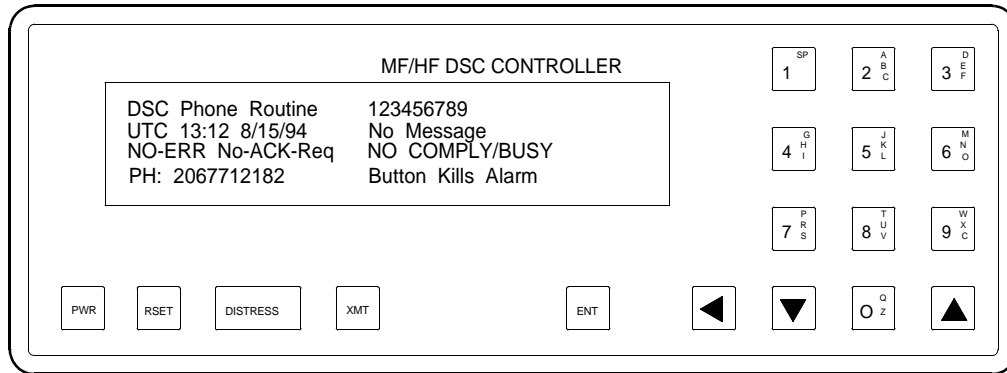
2C020-9

2. Return the radio call using the displayed frequencies.



2C020-10

- Return telephone call using the telephone number shown on the display.



2C020-11

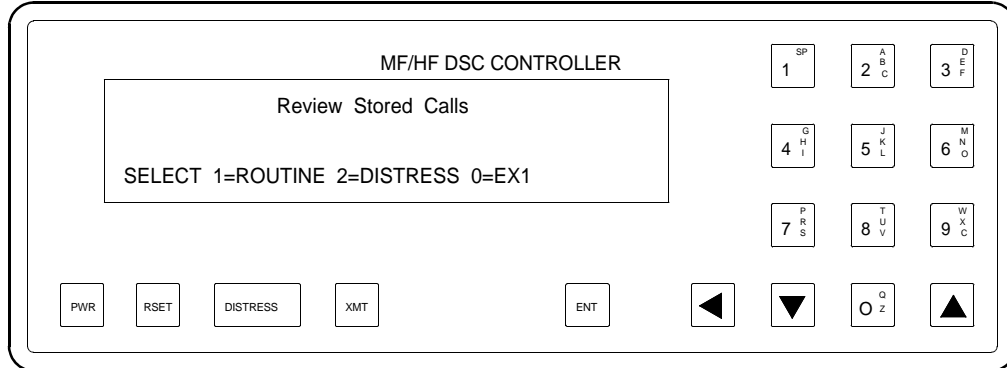
REVIEWING STORED CALLS DSC CONTROLLER

NOTE

Incoming calls are stored in memory upon receipt.

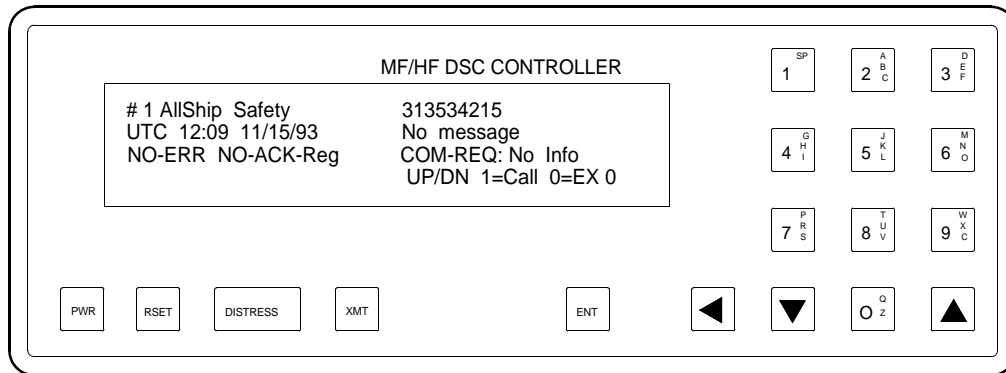
Calls with distress or urgency priority are stored in one log. All other calls are stored in a separate log. Each log has sufficient memory for the most recent calls. If a call(s) has been received while the DSC CONTROLLER was unattended, the first time you press a key you will be informed that calls have been logged for your review.

- Press the 1 key to review a stored call on the main menu. You will then be asked which log you wish to review.



2C020-12

- To review routine calls (including safety and NECODE calls), press the 1 key. To review distress calls (including urgency calls), press the 2 key. To return to the main menu, press the 0 key. The most recent call in the log will be displayed.



2C020-13

- You can scroll through the log using the UP and DOWN arrows. Press the DOWN arrow to see older calls. Press the UP arrow to see more recent calls.
- If you wish to return the viewed call, press the 1 key. This puts you into the calling procedure described earlier, but the caller's DSC ID will be used by default. To return to the main menu, press the 0 or ENT key.
- If a printer is connected, the displayed information can be printed by pressing the 2 key.

END OF WORK PACKAGE

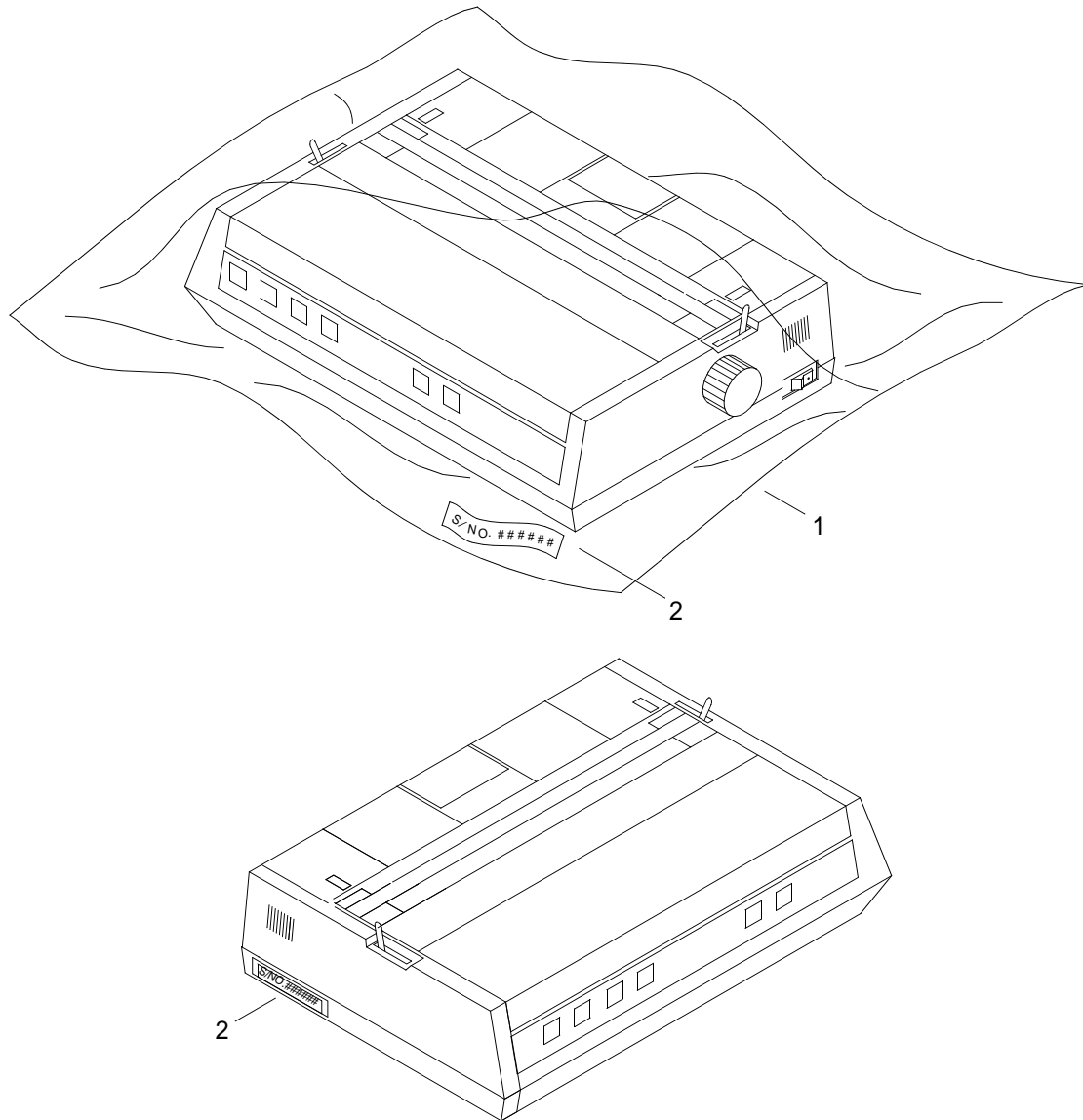
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

PERFORM INITIAL SETUP OF SERIAL PRINTER**UNPACK SERIAL PRINTER**

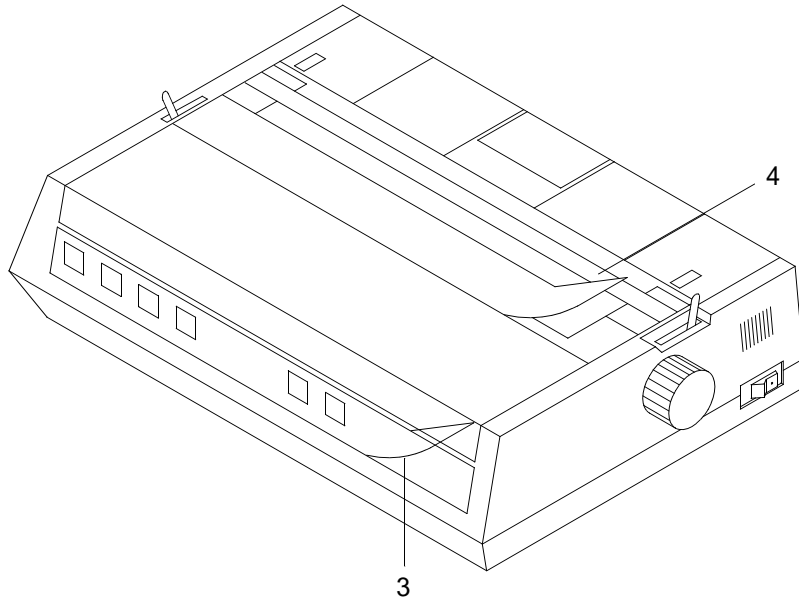
1. Prior to removing serial printer from protective plastic bag (1), remove tape embossed with serial number (2).



2C021-7

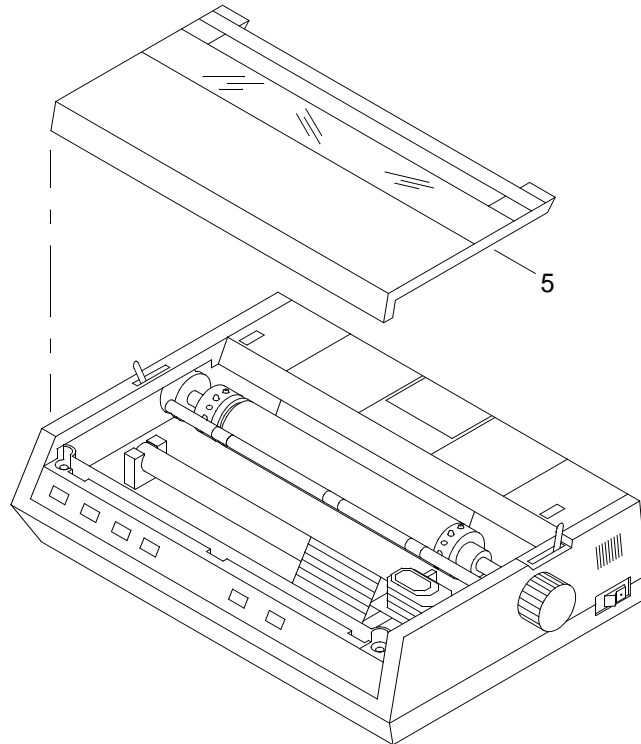
2. Remove serial printer from protective plastic bag (1).
3. Place tape with serial number (2) on left hand side of serial printer.

4. Remove the clear smudge strip (3) from the serial printer front panel.



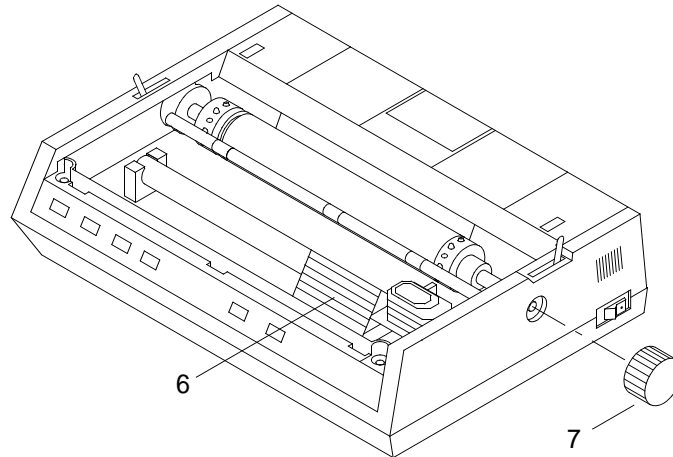
2C021-1

5. Remove the clear smudge strip (4) from the serial printer access cover (5).
6. Lift off the serial printer access cover (5).



2C021-2

7. Remove the shipping retainer (6) that secures the printhead during shipment.



2C021-3

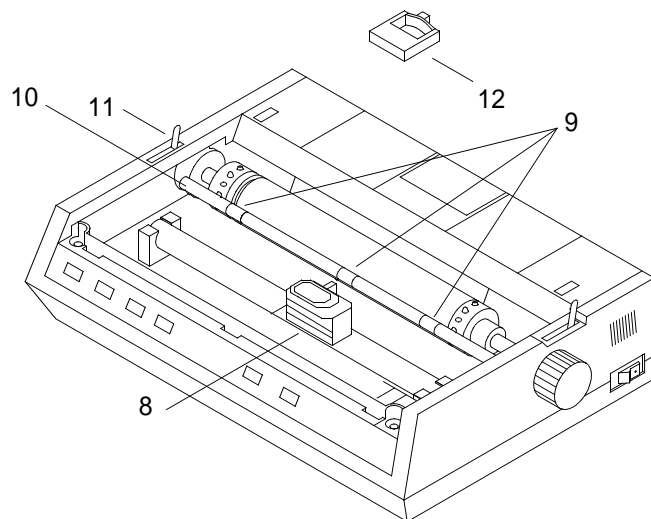
NOTE

Save shipping retainer in the event serial printer needs to be shipped for repair or replacement.

8. Remove platen knob (7) from shipping bag.
9. Insert platen knob (7) in the hole on the right side of the printer, lining up the notch in the knob (7) with the pin on the shaft.

INSTALL RIBBON CARTRIDGE

1. Center the printhead (8) so that it's away from the bail rollers (9). Make sure the bail (10) is closed (lever (11) back).



2C021-6

2. With the knob side up, tilt the ribbon cartridge (12) onto the printhead plate so that it slides into the area of the plate that is closest to the front of the serial printer.

NOTE

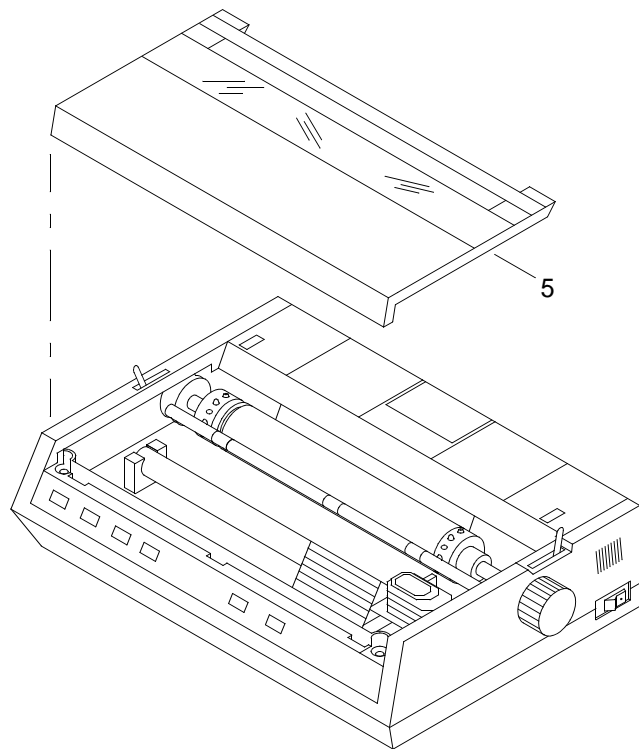
If the ribbon will not load easily, turn the blue knob slightly until the X-shaped notch on the bottom of the ribbon cartridge aligns with the X-shaped insert on the ribbon plate.

3. Lower the ribbon shield over the printhead (8), aligning the tabs with the inserts on the printhead plate.

NOTE

Do not remove the clear plastic ribbon shield from the ribbon cartridge.

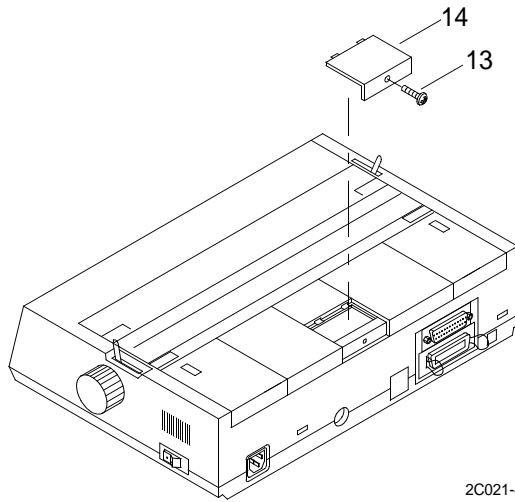
4. Press on the cartridge (12) until it snaps into place.
5. Install serial printer access cover (5).



2C021-2

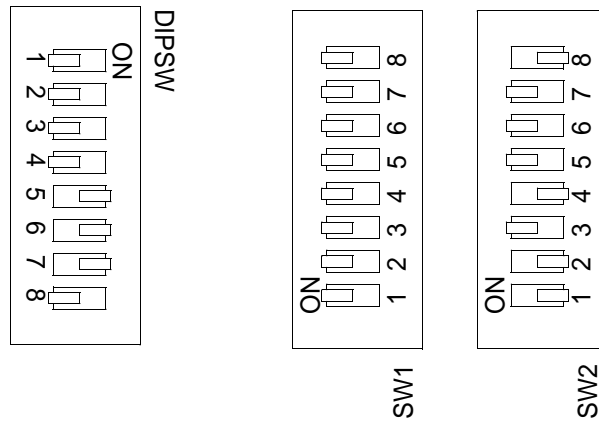
SET SERIAL BOARD SWITCHES

1. On back of printer, remove screw (13) from cover (14) and remove cover (14).



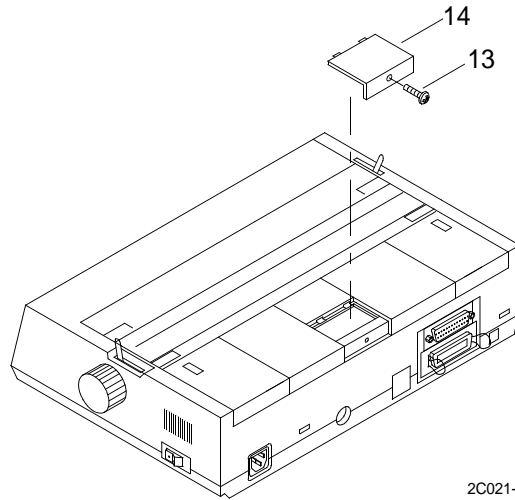
2C021-4

2. Set switches as depicted in illustration below.



2C021-5

-
3. After switches are set, place cover (14) on back of serial printer and secure with screw (13).



2C021-4

END OF WORK PACKAGE

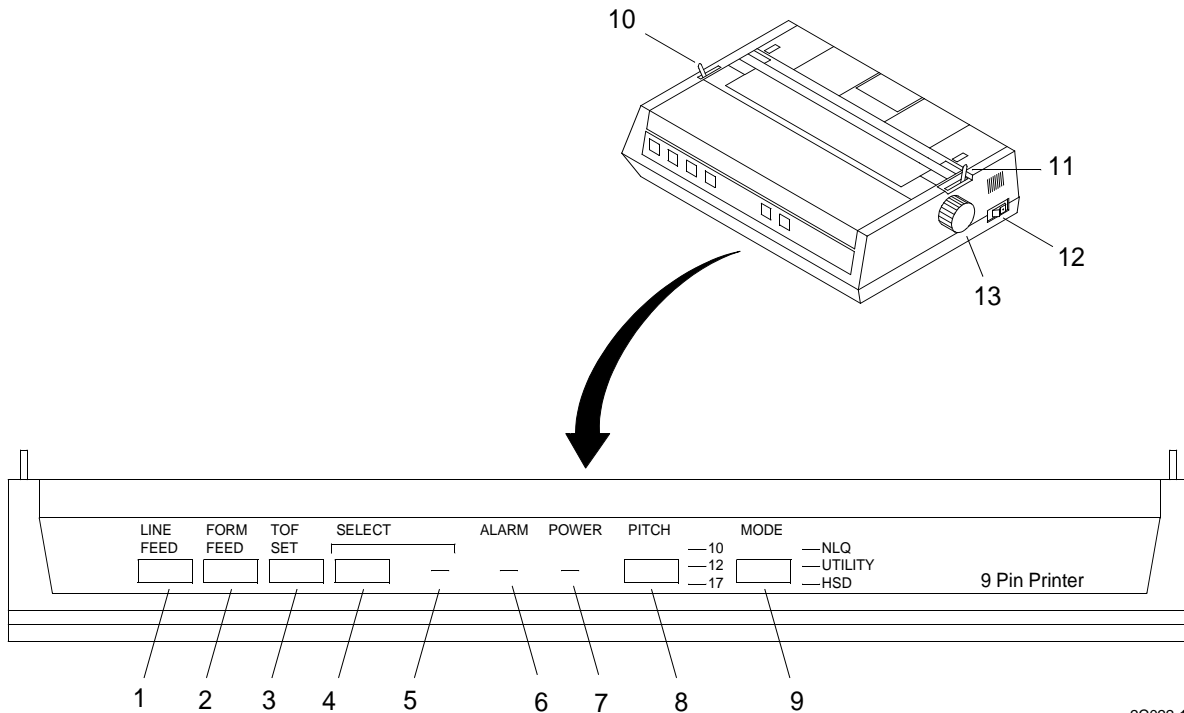
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE GMDSS SERIAL PRINTER

1. Press the LINE FEED button (1) to move the paper up one line at a time.



2. Press the FORM FEED button (2) to move the paper to the top margin of the next page.
3. Press the TOF button (3) to set the top margin at the current position. The SELECT light (5) must be off.
4. Press the SELECT button (4) to select or deselect the printer.

NOTE

The SELECT light (5) indicates if the printer is ready to receive data (on) or not (off).

The POWER light (7) indicates that the printer is plugged in and turned on.

The ALARM light (6) indicates that paper is low or out, or that there is an internal printer problem.

5. Press the PITCH button (8) to select the size of the printed characters - 10, 12 or 17 characters per inch (cpi), indicated by the lights next to the button.

-
6. Press the MODE button (9) to select the type of printing as indicated by the lights next to the button:
 - a. NLQ (Near Letter Quality): High-resolution printing in two passes of the printhead; not available at 17 cpi.
 - b. UTILITY: Normal printing.
 - c. HSD (High-Speed Draft): Fast printing for drafts; underlining is the only printing feature available with HSD.
 7. Operate the bail lever (10) to open and close the bail.
 8. Operate the paper lever (11) to release tension on the paper.
 9. Operate the platen knob (12) to advance paper through the printer when the paper lever is engaged.
 10. Press the power switch (13) to turn the printer on or off.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

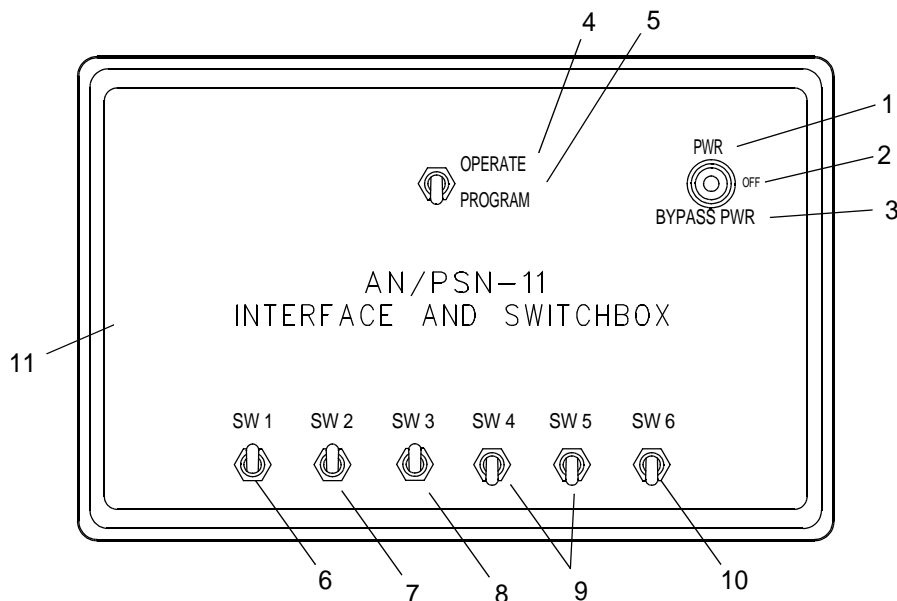
OPERATE THE COMMUNICATIONS INTERFACE AND SWITCHBOXWARNING

Any vessel can request position through the DSC VHF/FM transceiver. There is no request authorization required nor can this request be seen by the vessel operator. During tactical operations, switch SW3 should remain in the OFF position and used only as necessary. Failure to comply could result in unwanted interrogation of position. Failure to comply during tactical operations could result in injury or death to personnel.

NOTE

The interface and switchbox will not transmit the current position to any interfaced devices with the operate/program switch in the program position or the power switch in bypass PWR position.

1. Place the power switch (1) in the PWR position to allow the interface and switchbox (11) to receive ship's power and supply regulated power to the PLGR.



2C023-1

2. Place the power switch (2) to the OFF position to allow the interface and switchbox (11) to receive ship's power, but not allow power output to the PLGR.
3. Place the power switch (3) in the BYPASS PWR position to allow the interface and switchbox (11) to receive ship's power and supply unregulated power to the PLGR.

-
4. Place the operate/program switch (4) in the OPERATE position to allow GPS data from the PLGR to be distributed to J1 - J5 outputs.
 5. Place the operate/program switch (5) in the PROGRAM position to provide a direct programming link between the PLGR and a data terminal.
 6. Place SW1 (6) in the ON (up) position to supply the GPS signal to the DSC controller. Place the switch in the OFF (down position) to prevent the GPS signal from being supplied to the DSC controller.
 7. Place SW2 (7) in the ON (up) position to supply the GPS signal to the satellite communications system. Place the switch in the OFF (down) position to prevent the GPS signal from being supplied to the satellite communications system.
 8. Place SW2 (8) in the ON (up) position to supply the GPS signal to the DSC VHF/FM transceiver. Place the switch in the OFF (down) position to prevent the GPS signal from being supplied to the DSC VHF/FM transceiver.
 9. Place SW4 (9) and SW5 (9) in the ON (up) position or OFF (down) position to turn the GPS signal on or off for equipment to be installed at a later date.
 10. Place SW6 (10) in the ON (up) position to allow interface of GPS differential signal data.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

PERFORM INITIAL SETUP OF THE PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)

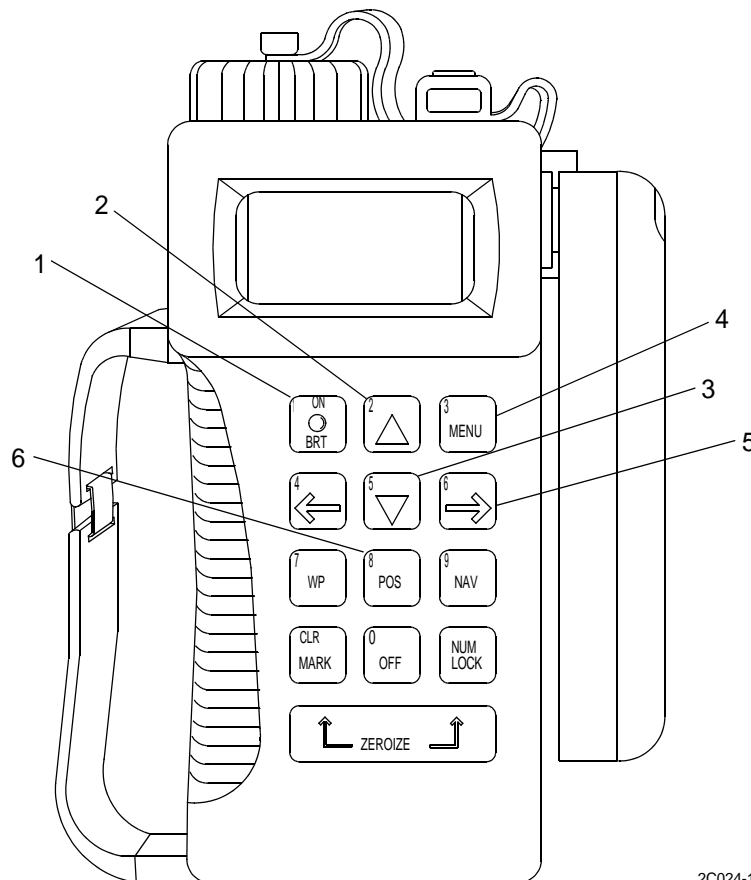
SETUP PLGRWARNING

Remove BA-5800 battery before applying external power. Failure to comply could result in injury to personnel.

NOTE

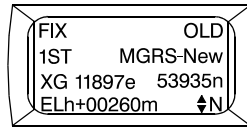
The following procedure provides instructions to accomplish basic Precision Lightweight Global Positioning System Receiver (PLGR) setup for U.S. Army Watercraft. It is recommended that the applicable U.S. Army Publications be reviewed and referenced for additional PLGR operating and setup procedures.

1. Press the ON key (1) to turn the PLGR on.



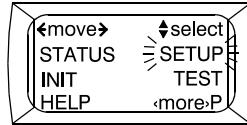
2C024-1

2. Adjust the display backlighting by simultaneously pressing the ON/BRT key (1) and the UP ARROW key (2) to increase lighting or the DOWN ARROW key (3) to decrease lighting.



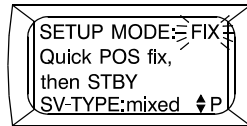
2C024-2

3. Press the MENU key (4).
4. SETUP must flash. If STATUS is flashing, press the RIGHT ARROW key (5).



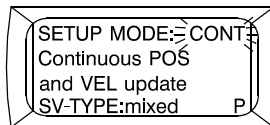
2C024-4

5. Press the DOWN ARROW key (3).
6. Press the RIGHT ARROW key (5). FIX will be flashing in SETUP MODE.



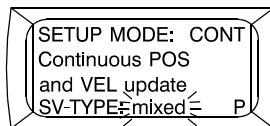
2C024-5

7. Press the UP ARROW key (2) or DOWN ARROW key (3) until CONT is flashing in SETUP MODE.



2C024-6

8. Press the RIGHT ARROW key (5) to save CONT and move to next selection.
9. Press the UP ARROW key (2) or DOWN ARROW key (3) until MIXED is flashing in SV-TYPE.

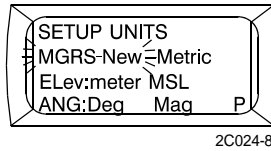


2C024-7

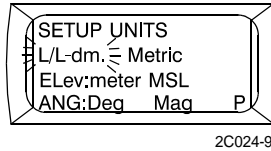
10. Press the RIGHT ARROW key (5) to save MIXED.

SETUP UNITS

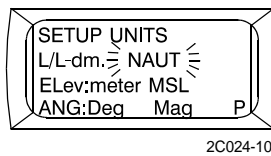
1. Press the DOWN ARROW key (3) to advance to SETUP UNITS.
2. Press the RIGHT ARROW key (5) to start selection flashing.



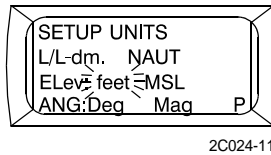
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until L/L-DM. is flashing.



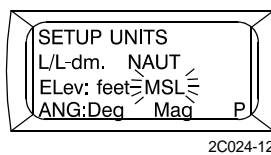
4. Press the RIGHT ARROW key (5) to save L/L-DM. and move to next selection.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) until NAUT is flashing.



6. Press the RIGHT ARROW key (5) to save NAUT and move to next selection.
7. Press the UP ARROW key (2) or DOWN ARROW key (3) until FEET is flashing for Elev.

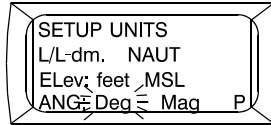


8. Press the RIGHT ARROW key (5) to save FEET and move to next selection.
9. Press the UP ARROW key (2) or DOWN ARROW key (3) until MSL is flashing.



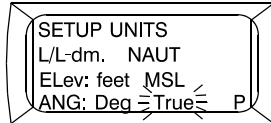
10. Press the RIGHT ARROW key (5) to save MSL and move to next selection.

11. Press the UP ARROW key (2) or DOWN ARROW key (3) until DEG is flashing for ANG.



2C024-13

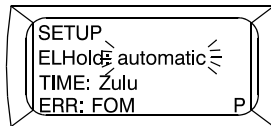
12. Press the RIGHT ARROW key (5) to save DEG and move to next selection.
13. Press the UP ARROW key (2) or DOWN ARROW key (3) until TRUE is flashing for vessels with a gyro compass. For vessels without a gyro compass, select MAG.



2C024-14

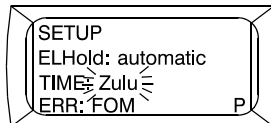
SETUP ELHOLD, TIME AND ERR

1. Press the DOWN ARROW key (3) twice to advance to SETUP.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until automatic is flashing for ELHOLD.



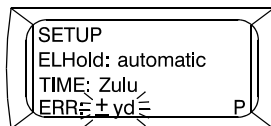
2C024-15

4. Press the RIGHT ARROW key (5) to save AUTOMATIC and move to next selection.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) until ZULU is flashing for TIME.



2C024-16

6. Press the UP ARROW key (2) or DOWN ARROW key (3) to save ZULU and move to next selection.
7. Press the UP ARROW key (2) or DOWN ARROW key (3) until +/- YD is flashing for ERR.



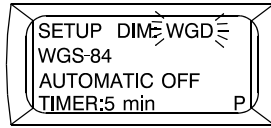
2C024-17

8. Press the RIGHT ARROW key (5) to save +/- YD and end selection flashing.

SETUP DTM AND AUTOMATIC OFF TIMER

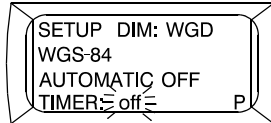
1. Press the DOWN ARROW key (3) to advance to SETUP.

2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until WGD is flashing.



2C024-18

4. Press the RIGHT ARROW key (5) to save WGD WGS-84 and move to next selection.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) until OFF is flashing for TIMER.

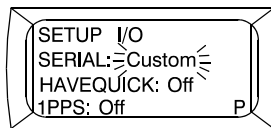


2C024-19

6. Press the RIGHT ARROW key (5) to save OFF and end selection flashing.

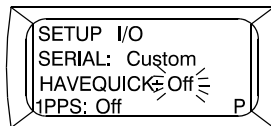
SETUP I/O SERIAL, HAVEQUICK AND 1PPS

1. Press the DOWN ARROW key (3) to advance to SETUP I/O.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until CUSTOM is flashing for SERIAL.



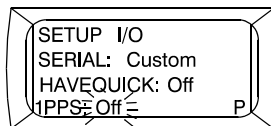
2C024-20

4. Press the RIGHT ARROW key (5) to save CUSTOM and move next selection.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) until OFF is flashing for HAVEQUICK.



2C024-21

6. Press the RIGHT ARROW key (5) to save OFF and move to next selection.
7. Press the UP ARROW key (2) or DOWN ARROW key (3) until OFF is flashing for 1PPS.

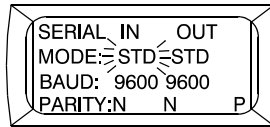


2C024-22

8. Press the RIGHT ARROW key (5) to save OFF and end selection flashing.

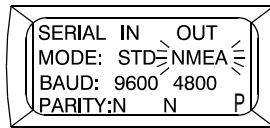
SERIAL IN OUT SETUP

1. Press the DOWN ARROW key (3) to advance to SERIAL IN OUT.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until STD is flashing for SERIAL IN MODE.



2C024-23

4. Press the RIGHT ARROW key (5) to save STD and move to next selection.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) until NMEA is flashing for SERIAL OUT MODE.

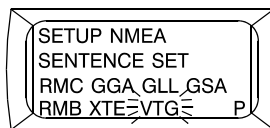


2C024-24

6. Press the RIGHT ARROW key (5) to save NMEA and end selection flashing.

SETUP NMEA SENTENCE STRING

1. Press the DOWN ARROW key (3) to advance to SETUP.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) to change the NMEA sentence string.

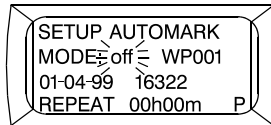


2C024-25

4. Press the RIGHT ARROW key (5) to advance to the next string after entering each three letter group sentence string.
5. Verify sentence strings [RMC] [GGA] [GSA] [RMB] [XTE] [VTG].
6. Press the RIGHT ARROW key (5) after the last NMEA sentence string is entered.

SETUP AUTO MARK MODE

1. Press the DOWN ARROW key (3) to advance to SETUP AUTOMARK.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) until OFF is flashing for MODE.



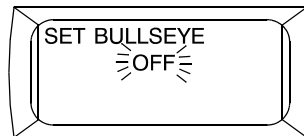
2C024-26

4. Press the RIGHT ARROW key (5) four times to save OFF and end selection flashing.

SET BULLSEYE**NOTE**

The bullseye menu will only activate when waypoint data is entered.

1. Press the DOWN ARROW key (3) to advance to SET BULLSEYE.
2. Press the RIGHT ARROW key (5) to start selection flashing.



12C024-27

3. Press the UP ARROW key (2) or DOWN ARROW key (3) to select flashing OFF.
4. Press the RIGHT ARROW key (5) to save OFF and end selection flashing.

SETUP OPERATOR ID

1. Press the DOWN ARROW key (3) to advance to SETUP OPERATOR ID.
2. Press the RIGHT ARROW key (5) to start selection flashing.
3. Press the UP ARROW key (2) or DOWN ARROW key (3) to enter the operator ID.
4. Press the RIGHT ARROW key (5) to advance to the next letter/number position after each letter/number is entered.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) to change the letter/number.
6. Continue until the complete operator ID is entered.
7. Press the RIGHT ARROW key (5) until the double arrow symbol appears in the right lower corner of the display to the left of P.

SETUP APPROACH

1. Press the DOWN ARROW key (3) to advance to SETUP APPROACH.
2. Verify default settings.
3. Press the POS key (6) to end setup and return to POSITION SCREEN.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required
Seaman 88K

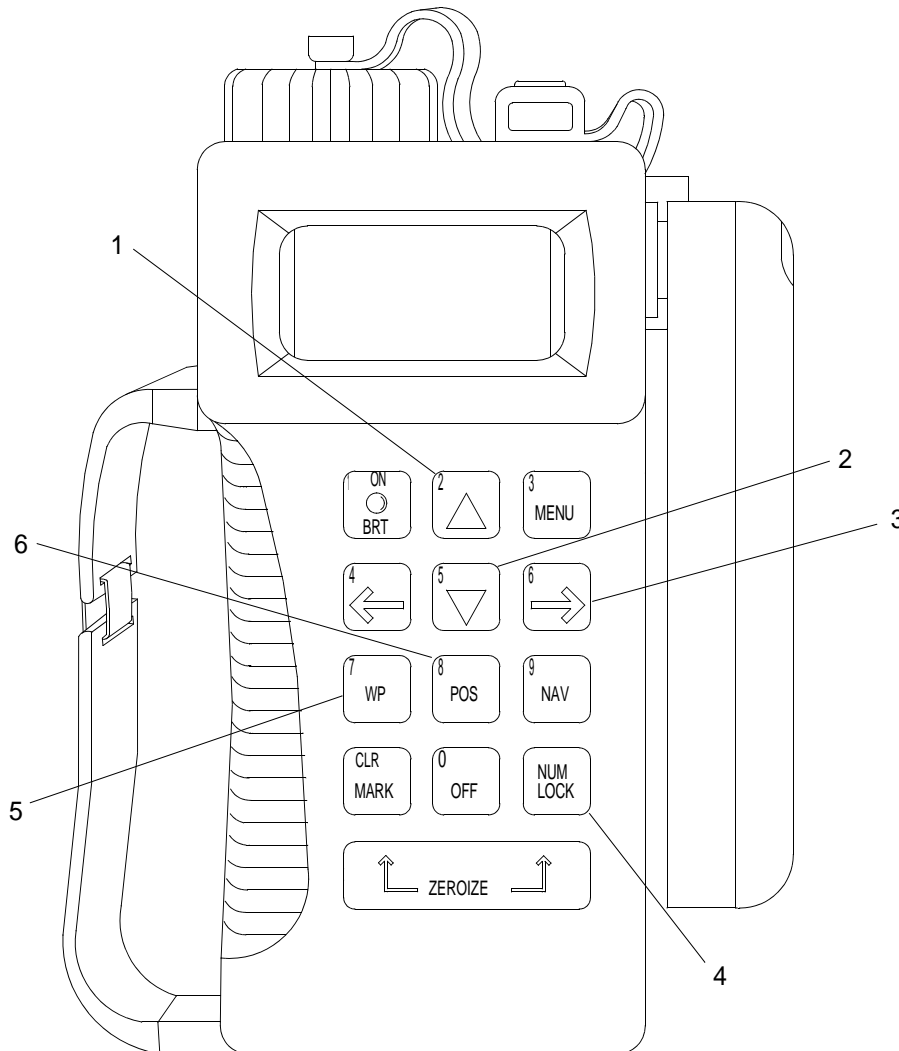
SETUP WAYPOINTS USING THE PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)

ENTERING WAYPOINTS

NOTE

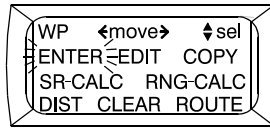
Waypoints are useful for defining routes, defining bullseyes, marking present or remote positions or assigning alert areas.

Up to 999 waypoints may be defined and stored in the PLGR. Entering multiple waypoints can be a tedious and error-prone task.



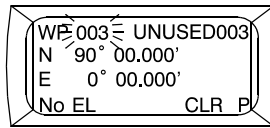
2C025-1

1. Press the WP key (5) to access the WAYPOINTS OPTIONS menu.
2. Press the RIGHT ARROW key (3) until ENTER is flashing.



2C025-2

3. Press the DOWN ARROW key (2).
4. Press the RIGHT ARROW key (3) to start the WP number field in the upper left corner flashing to allow the changing of the waypoint number in numeric order.

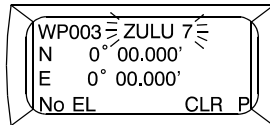


2C025-3

NOTE

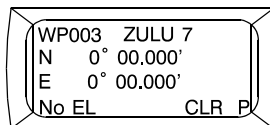
Waypoint numbers range from 000 to 999. Waypoint 000, or present position, cannot be edited.

5. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the waypoint number as desired.
6. Press the RIGHT ARROW key (3) twice to start the waypoint label field flashing.



2C025-4

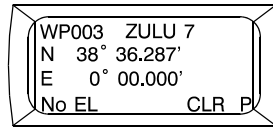
7. Press the DOWN ARROW key (2) to start the first letter/number position flashing.
8. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the first letter/number in the waypoint label.
9. Press the RIGHT ARROW key (3) to advance to the next letter/number position.
10. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the letter/number.
11. Continue until the complete waypoint name is entered, ensuring that waypoint names do not exceed ten characters.
12. Press the RIGHT ARROW key (3) as necessary to move to the latitude field.



2C025-17

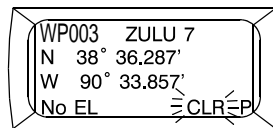
13. Use the UP ARROW key (1) to toggle between N or S.
14. Press the RIGHT ARROW key (3) to move to the first numeric latitude number.

15. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the number.
16. Use the RIGHT ARROW key (3) to progress to each number until the complete latitude of the waypoint is entered.
17. Press the RIGHT ARROW key (3) to move to the longitude field.



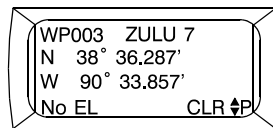
2C025-5

18. Use the UP ARROW key (1) to toggle between W or E.
19. Press the RIGHT ARROW key (3) to move to the first numeric longitude number.
20. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the number.
21. Use the RIGHT ARROW key (3) to progress to each number until the complete longitude of the waypoint is entered.
22. Press the RIGHT ARROW key (3) twice. CLR will be flashing.



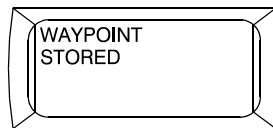
2C025-6

23. Press the NUM LOCK key (4) to change the PLGR to the control mode where AP will be displayed in the lower right hand corner of the display.



2C025-7

24. Press the RIGHT ARROW key (3) to move the cursor next to the P so that an UP and DOWN ARROW symbol will appear next to the letter P.
25. Press the DOWN ARROW key (2) and observe the display. WAYPOINT STORED will appear and the PLGR will automatically default to page 2 of waypoints.

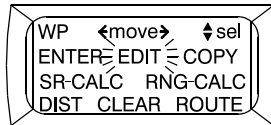


2C025-8

26. For vessels without a gyro compass, press the RIGHT ARROW key (3) until NO MAGVAR is flashing.
27. Enter the magnetic variation from the chart used for the waypoint.
28. Press the RIGHT ARROW key (3) three times.
29. Press the DOWN ARROW key (2) to enter another waypoint or exit by pressing the POS key (6).

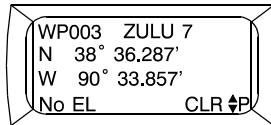
EDITING A WAYPOINT

1. Change the waypoint data to edit an existing waypoint.
2. Press the WP key (5).
3. Press the RIGHT ARROW key (3) until EDIT is flashing.



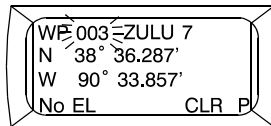
2C025-9

4. Press the UP ARROW key (1). A waypoint will appear on the display.



2C025-7

5. Press the RIGHT ARROW key (3) to start the waypoints number field flashing.



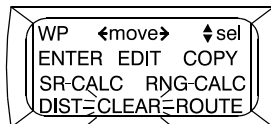
2C025-10

6. Use the UP ARROW key (1) or DOWN ARROW key (2) to change the waypoint number or press the NUM LOCK key (4) and enter the number of the waypoint.
7. Change the waypoint data using the procedures for entering a waypoint.

CLEARING A WAYPOINT
NOTE

Clearing a waypoint will also clear any routes that contain this waypoint.

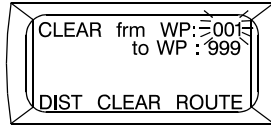
1. Press the WP key (5).
2. Press the RIGHT ARROW key (3) until CLEAR is flashing.



2C025-11

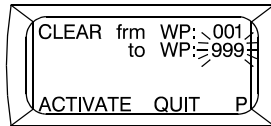
3. Press the UP ARROW key (1).

4. Press the RIGHT ARROW key (3) until FRM: WP number is flashing.



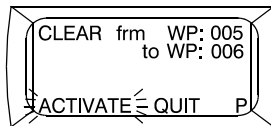
2C025-12

5. Press the UP ARROW key (1) to start the first number position of the waypoint number flashing.
6. Press the RIGHT ARROW key (3) to enter the next digit of the waypoint to be deleted and continue until the complete waypoint number is entered.
7. Press the RIGHT ARROW key (3) until TO: WP number is flashing.



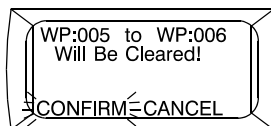
2C025-13

8. Press the UP ARROW key (1) to start the first number position of the waypoint number flashing.
9. Press the RIGHT ARROW key (3) to enter the next digit of the waypoint to be deleted and continue until the complete waypoint number is entered.
10. Press the RIGHT ARROW key (3) until ACTIVATE is flashing.



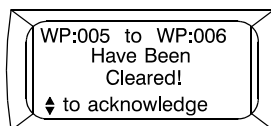
2C025-14

11. Press the UP ARROW key (1).
12. Press the RIGHT ARROW key (3) until CONFIRM is flashing.



2C025-15

13. Press the UP ARROW key (1) until the display advises the operator of the waypoints that will be deleted.



2C025-16

14. Press the POS key (6) to return to the POS display.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

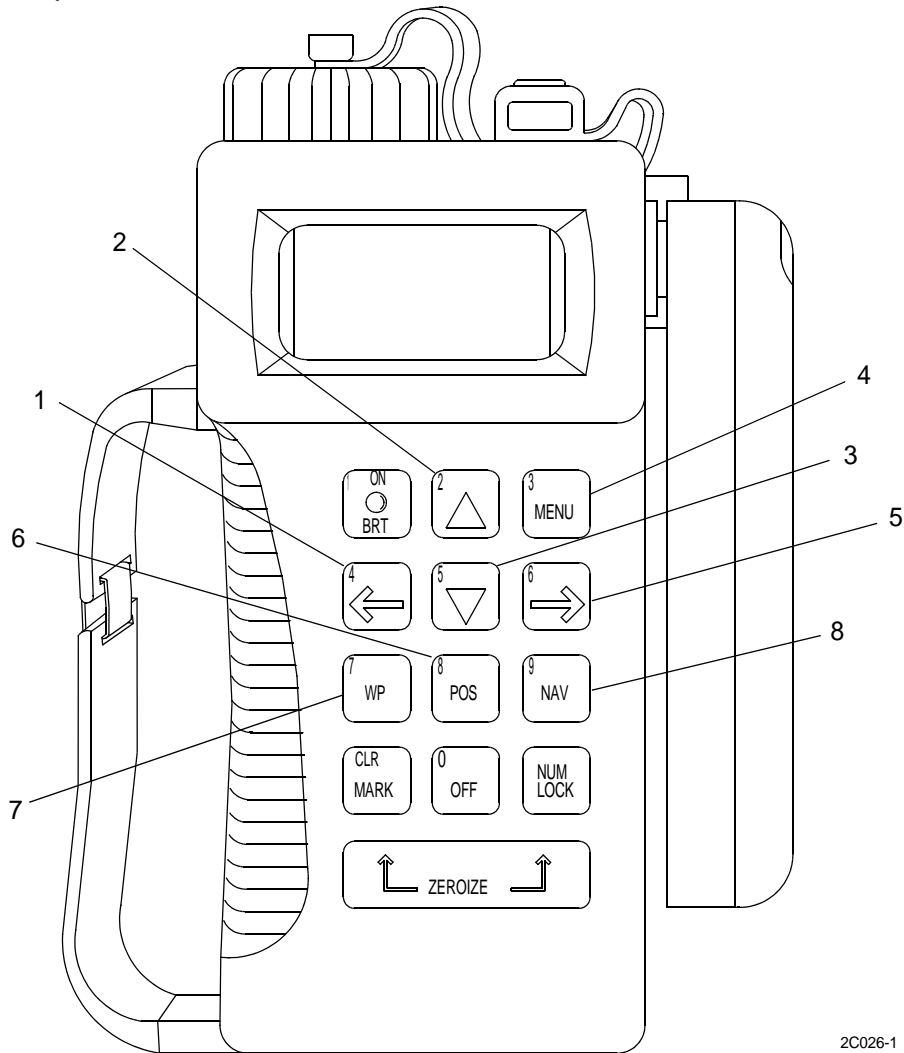
INITIAL SETUP:

Personnel Required
Seaman 88K

SETUP ROUTE NAVIGATION USING THE PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)

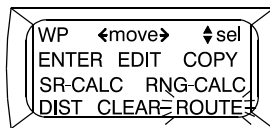
PLANNING A ROUTE

1. Press the WP key (7).



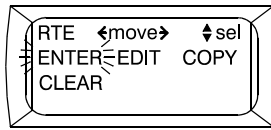
2C026-1

2. Press the RIGHT ARROW key (5) until ROUTE is flashing.



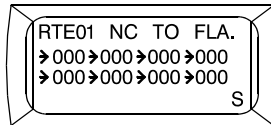
2C026-2

3. Press the UP ARROW key (2) to select ROUTE.
4. ENTER will be flashing. Press the UP ARROW key (2) to select ENTER.



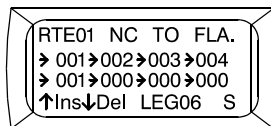
2C026-3

5. Using the UP ARROW key (2) or DOWN ARROW key (3), assign a route number to the new route.
6. Press the RIGHT ARROW key (5) to highlight the route name field.



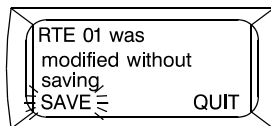
2C026-4

7. Press the UP ARROW key (2) to select the first letter of the route name.
8. Use the UP ARROW key (2) or DOWN ARROW key (3) to change to the desired letter.
9. Press the RIGHT ARROW key (5) to advance to the next letter position.
10. Repeat until the route name is entered.
11. Press the RIGHT ARROW key (5) until the arrow left of the first group of three digits is flashing.
12. Press the RIGHT ARROW key (5) to start the first group of three digits flashing.
13. Press the UP ARROW key (2) to select the first waypoint number.
14. Press the RIGHT ARROW key (5).



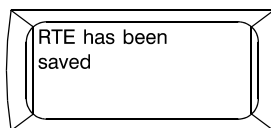
2C026-5

15. Press the UP ARROW key (2) to enter the next waypoint.
16. Continue to add waypoints until all waypoints have been entered.
17. After all waypoints have been entered, exit the display by pressing the WP key (7), POS key (6), NAV key (8) or MENU key (4).



2C026-6

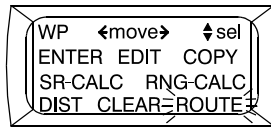
18. Press the UP ARROW key (2) to save the route.



2C026-7

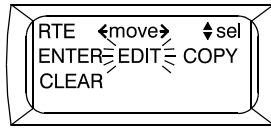
EDITING A ROUTE

1. Press the WP key (7). Press the RIGHT ARROW key (5) until ROUTE is flashing.



2C026-8

2. Press the UP ARROW key (2) to select ROUTE. Press the RIGHT ARROW key (5) until EDIT is flashing.

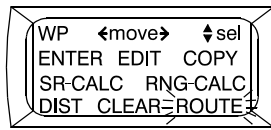


2C026-9

3. Press the UP ARROW key (2) to select EDIT.
4. Using the UP ARROW key (2) or DOWN ARROW key (3), select the route number to be edited. Follow the procedures for planning a route to edit the route as required.

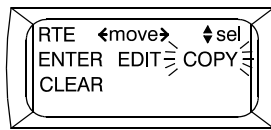
COPYING A ROUTE

1. Press the WP key (7).
2. Press the RIGHT ARROW key (5) until ROUTE is flashing.



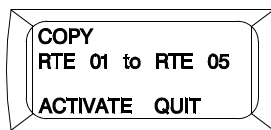
2C026-8

3. Press the UP ARROW key (2).
4. Press the RIGHT ARROW key (5) until COPY is flashing.



2C026-10

5. Press the UP ARROW key (2).
6. Enter the route numbers for copying to/from using the RIGHT ARROW key (5) or LEFT ARROW key (1) to select to/from and the UP ARROW key (2) or DOWN ARROW key (3) to change the route numbers.
7. Press the RIGHT ARROW key (5) until ACTIVATE is flashing.

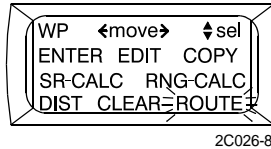


2C026-11

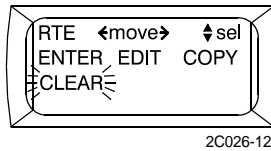
8. Press the UP ARROW key (2).
9. Press the POS key (6) to exit the WP menu.

CLEARING A ROUTE

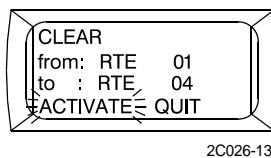
1. Press the WP key (7).
2. Press the RIGHT ARROW key (5) until ROUTE is flashing.



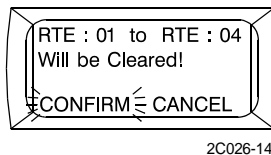
3. Press the UP ARROW key (2).
4. Press the RIGHT ARROW key (5) until CLEAR is flashing.



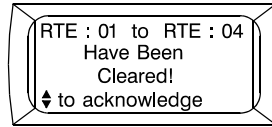
5. Press the UP ARROW key (2).
6. Press the RIGHT ARROW key (5) until the FROM: RTE number is flashing.
7. Enter the starting route number to be deleted using the UP ARROW key (2).
8. Press the RIGHT ARROW key (5) until the TO: RTE number is flashing.
9. Enter the ending route number to be deleted using the UP ARROW key (2).
10. Press the RIGHT ARROW key (5) until ACTIVATE flashes.



11. Press the UP ARROW key (2).
12. Press the RIGHT ARROW key (5) until CONFIRM flashes.



13. Press the UP ARROW key (2).



2C026-15

14. Press the POS key (6) to return to POS display.

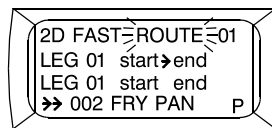
NAVIGATING A COURSE

1. Press the NAV key (8). Press the RIGHT ARROW key (5) to start the type of navigation flashing.
2. Press the UP ARROW key (2) to start 2D FAST flashing.



2C026-16

3. Press the RIGHT ARROW key (5) to advance to the next field. Press the DOWN ARROW key (3) until ROUTE is flashing.



2C026-17

4. Press the RIGHT ARROW key (5) to advance to the route number field.
5. Use the UP ARROW key (2) or DOWN ARROW key (3) to change the route number to the desired route.
6. Press the RIGHT ARROW key (5) to advance to the leg number field.
7. Use the UP ARROW key (2) or DOWN ARROW key (3) to change the leg number.
8. Press the RIGHT ARROW key (5) to advance to the START - END/END - START field.
9. Use the UP ARROW key (2) or DOWN ARROW key (3) to change START - END or END - START.
10. Press the RIGHT ARROW key (5) to complete programming the route.
11. Press the POS key (6) to exit the NAV display.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

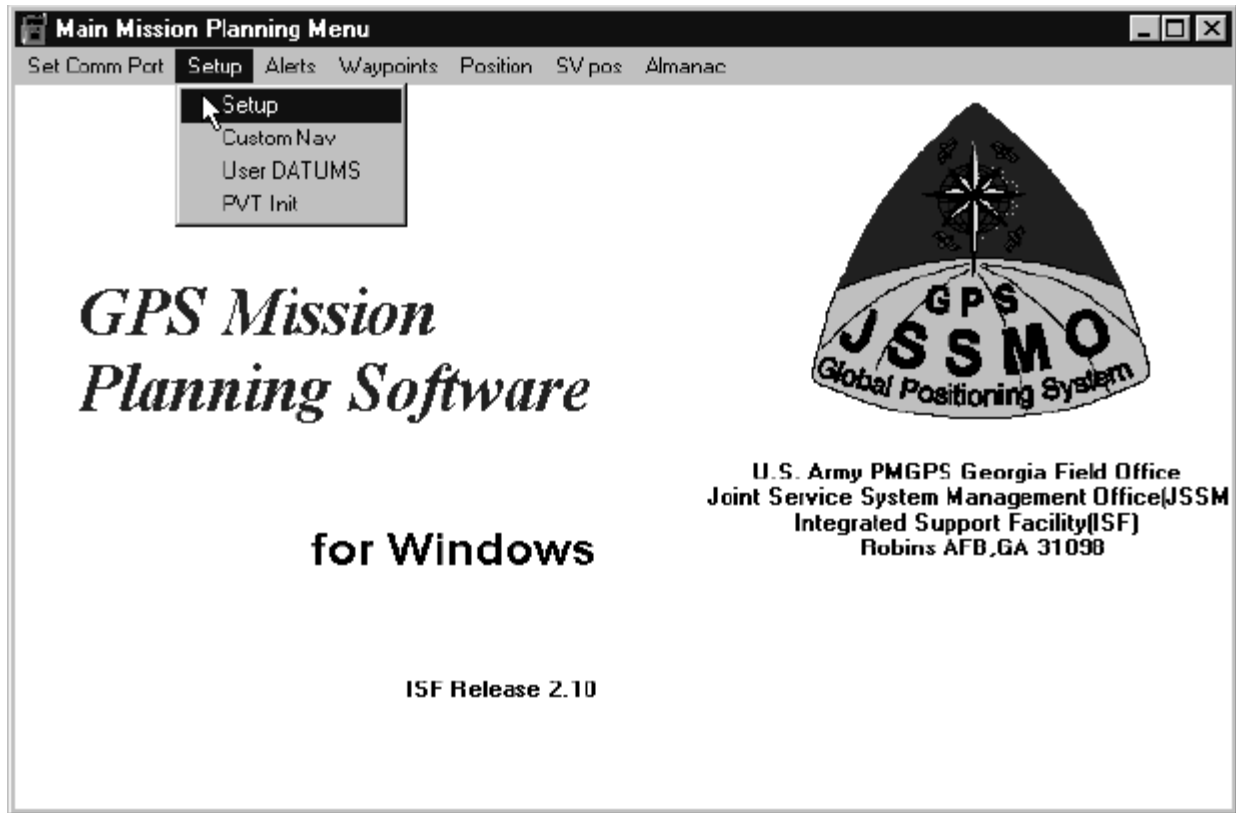
SETUP WAYPOINTS USING THE ENHANCED PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (EPLGR) MISSION PLANNING SOFTWARE (MPS)**SETTING UP COMM PORT****NOTE**

Note for laptop computer users: some laptops employ power saving techniques that can affect the ability of the laptop to communicate with the EPLGR over the comm port. These features vary, so check your laptop's manual to determine which features your laptop uses. Ensure that the comm port is configured for high speed communications (9600 baud) and that other power saving features which can affect the comm port are disabled.

1. Ensure that your EPLGR is connected to your PC with the EPLGR to PC cable (NSN 6150-01-375-8664).
2. Select the SET COMM PORT option from the EPLGR MPS display.
 - a. Select the COMM PORT that the EPLGR is attached to.
 - b. Press save to save the comm port selected.

SETUP

1. Click on SETUP to bring up the menu for SETUP, Custom Nav, User DATUMS or PVT Init.



2C027-10

2. Click on SETUP from the sub-menu. The setup sub function allows you to configure the MPS and EPLGR settings that you will be using as your defaults. The seven available categories are:

Mode/SV Type
 Units *
 MAGVAR *
 ELhold/Time/Err
 DTM/Off Timer *
 I/O
 Automark
 Bullseye
 Operator ID
 Approach

NOTE

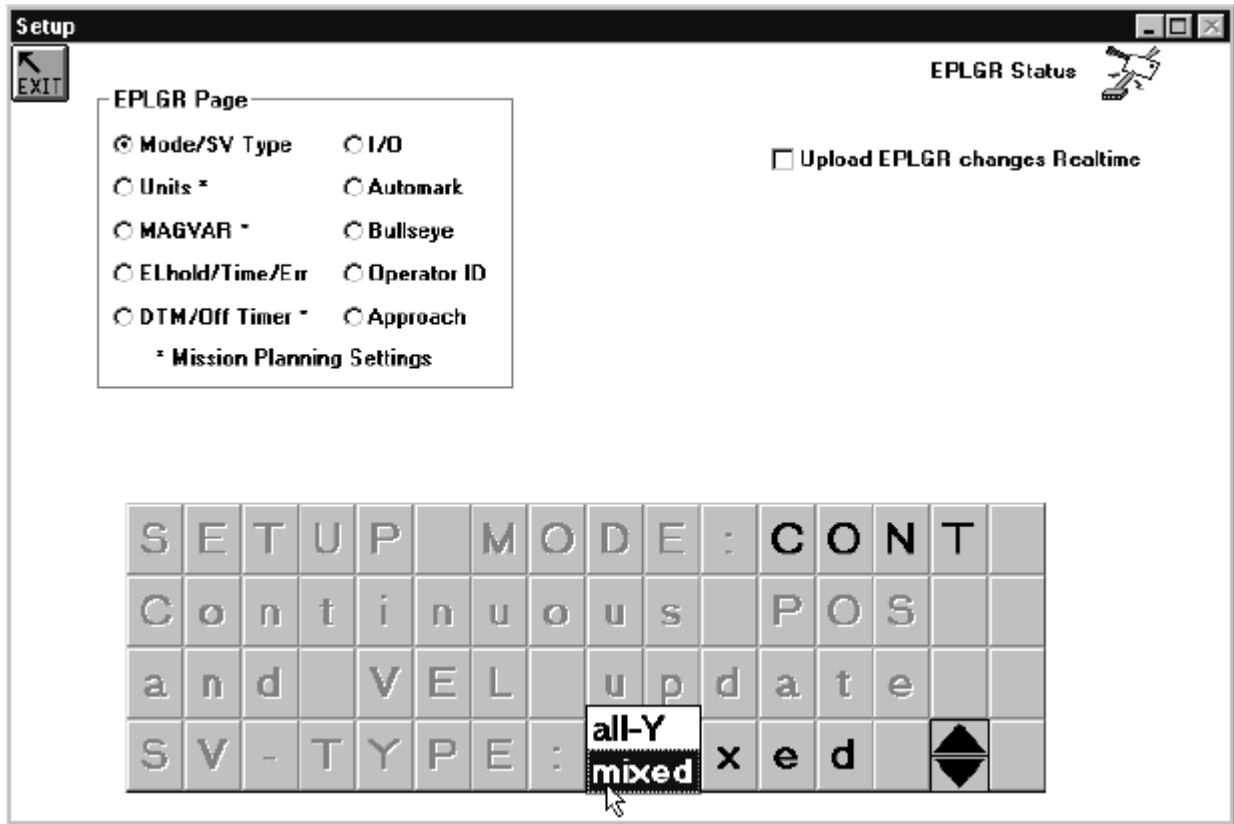
Those selections marked with an * setup not only the EPLGR but the MPS off-line mission planning functions as well. There is a checkbox on the screen that will allow you to upload your selected changes to the EPLGR in real-time.

3. To scroll through the list, click on the buttons next to the list or press the UP/DOWN ARROW on the emulated EPLGR display.
4. To download the current EPLGR settings, click the mouse in one of the checkboxes. MPS will download the current EPLGR settings to get in sync, and your on-screen changes will be sent to the EPLGR as they are made.

- To send changes to the EPLGR manually, select the AUTOMARK category and click on the SEND DATA TO EPLGR button that appears on-screen.

SETUP EPLGR MODE/SV TYPE

- On the setup page the SV - TYPE, click on ALL - Y on the emulated EPLGR display to change to MIXED, the SETUP MODE defaults to CONT.



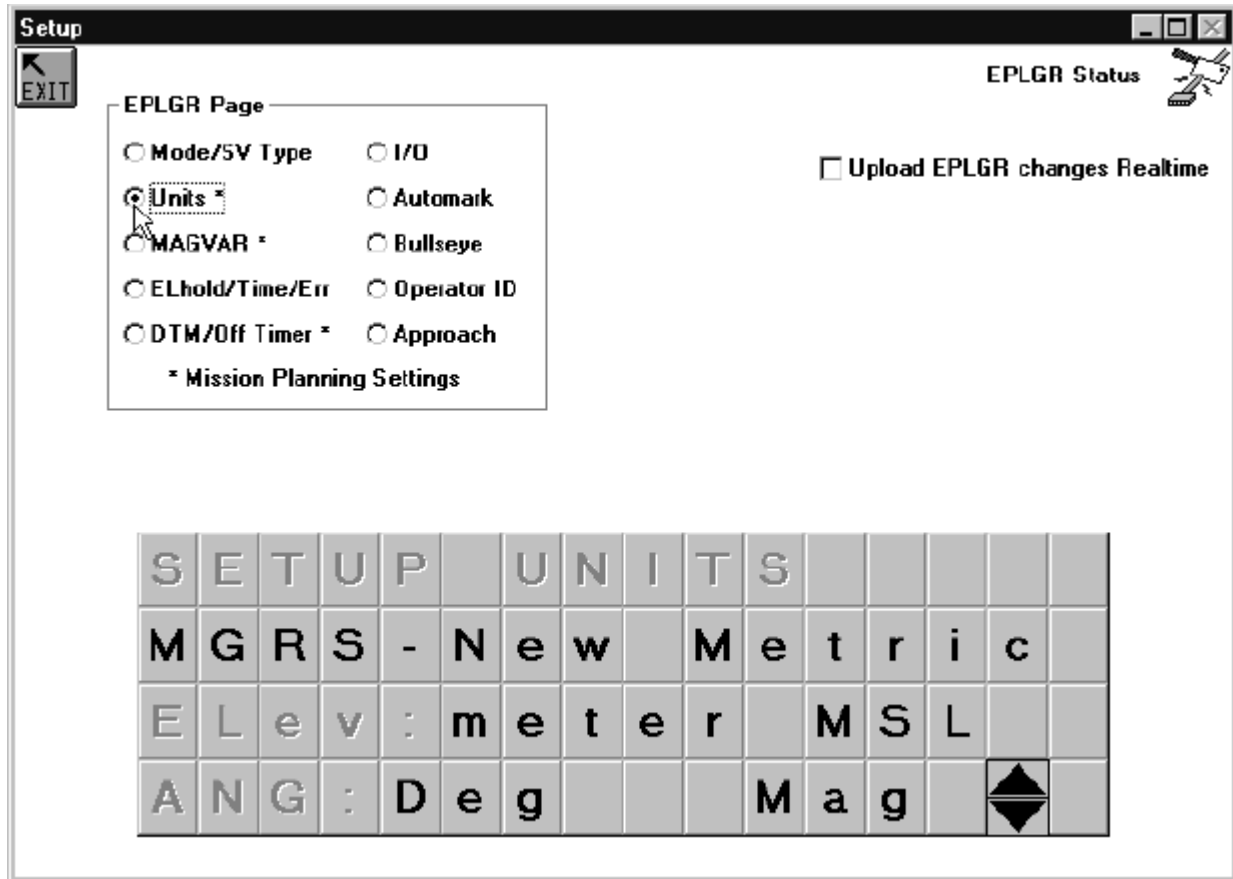
2C027-11

- Click the button next to UNITS or the DOWN ARROW to advance to the next screen.

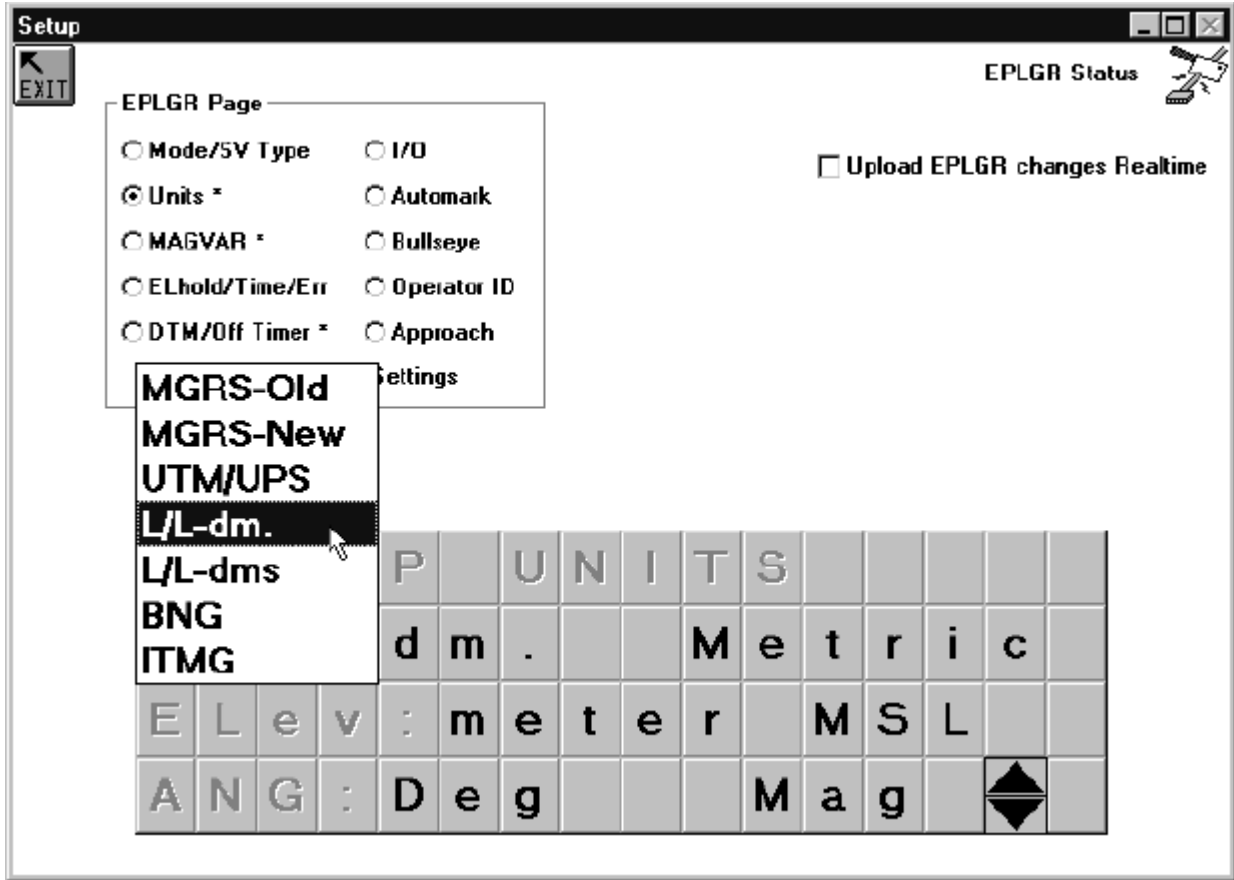
SETUP UNITS

NOTE

On the UNITS setup page the default settings show up as shown.

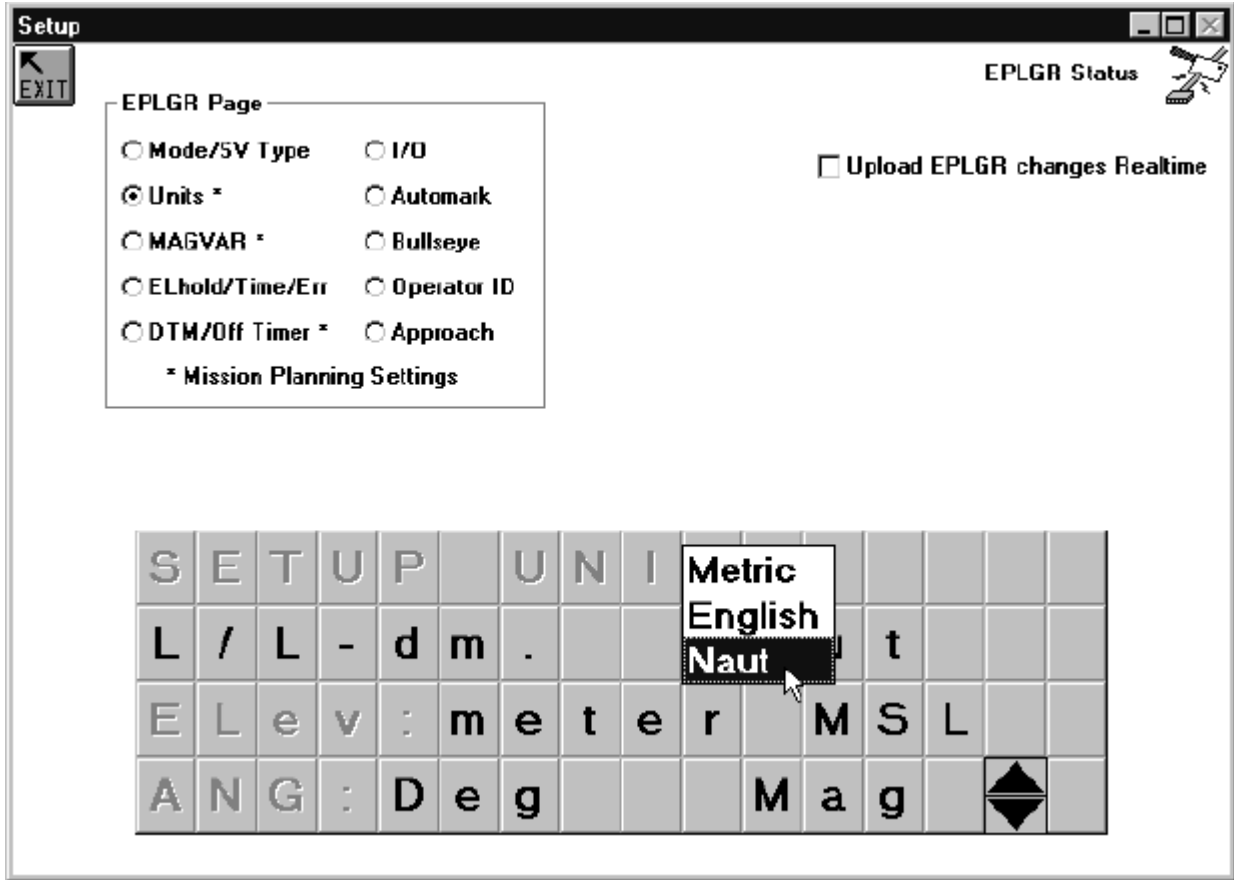


1. Click on MGRS-NEW on the emulated EPLGR display to change to L/L - dm.



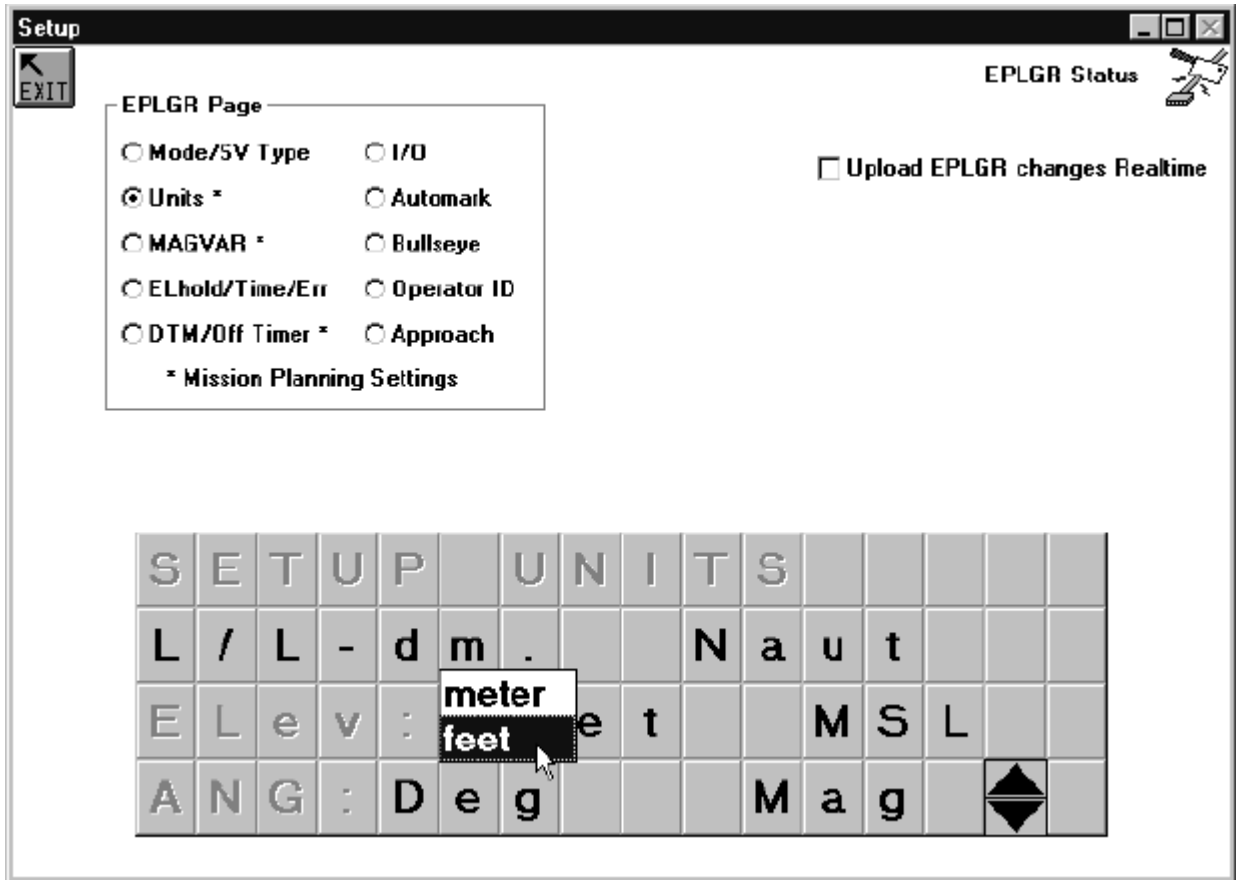
2C027-15

2. Click on the word METRIC on the emulated EPLGR display to change to NAUT.



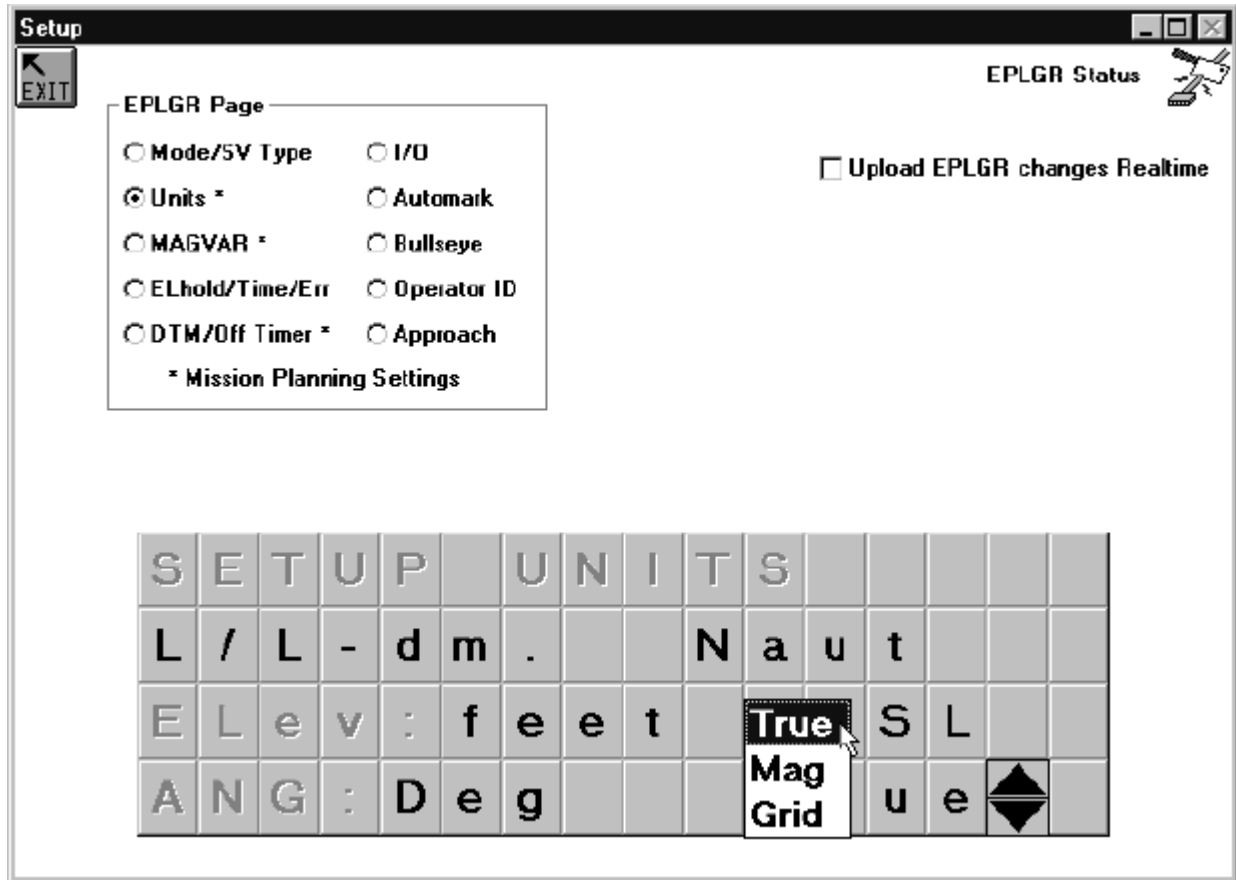
2C027-16

3. Click on the word METER on the emulated EPLGR display to change to FEET.



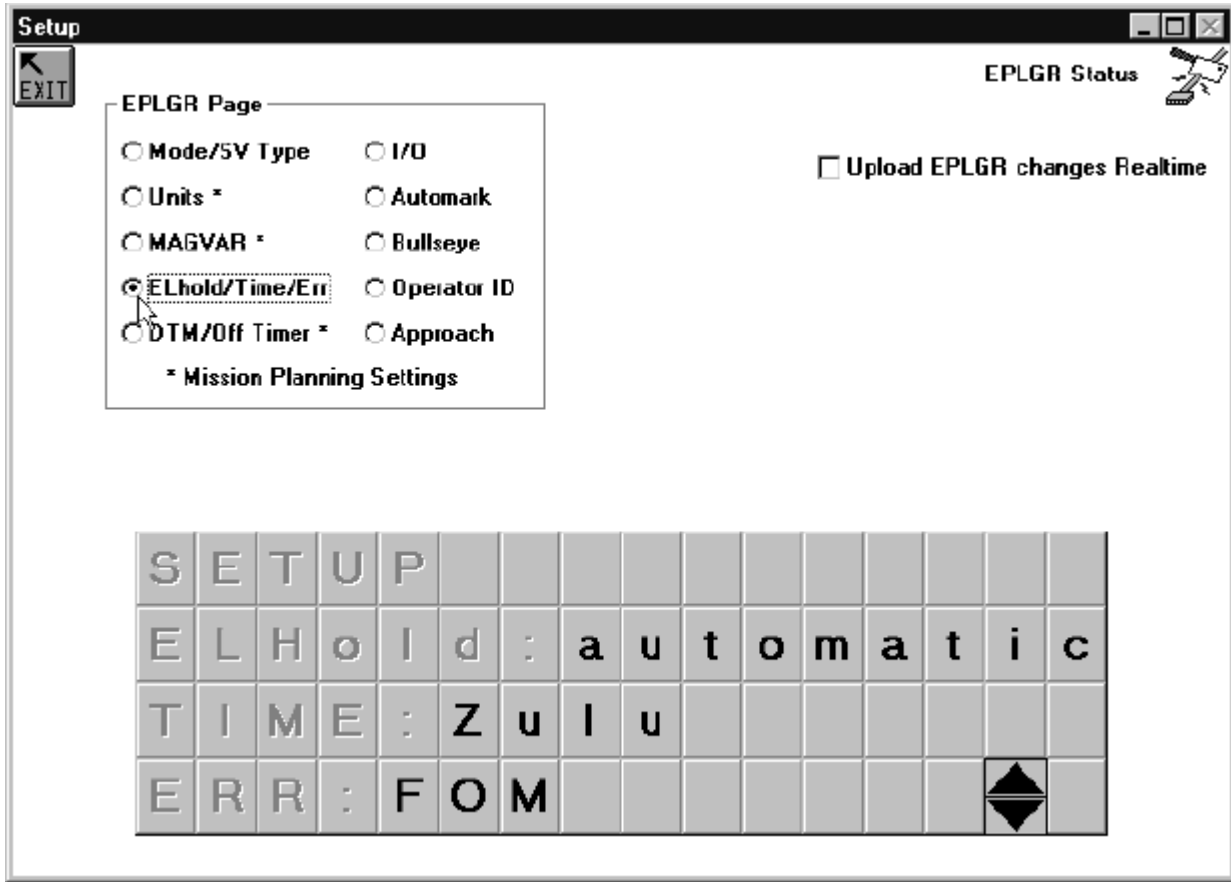
2C027-17

4. Click on the word MAG on the emulated EPLGR display to change to TRUE.



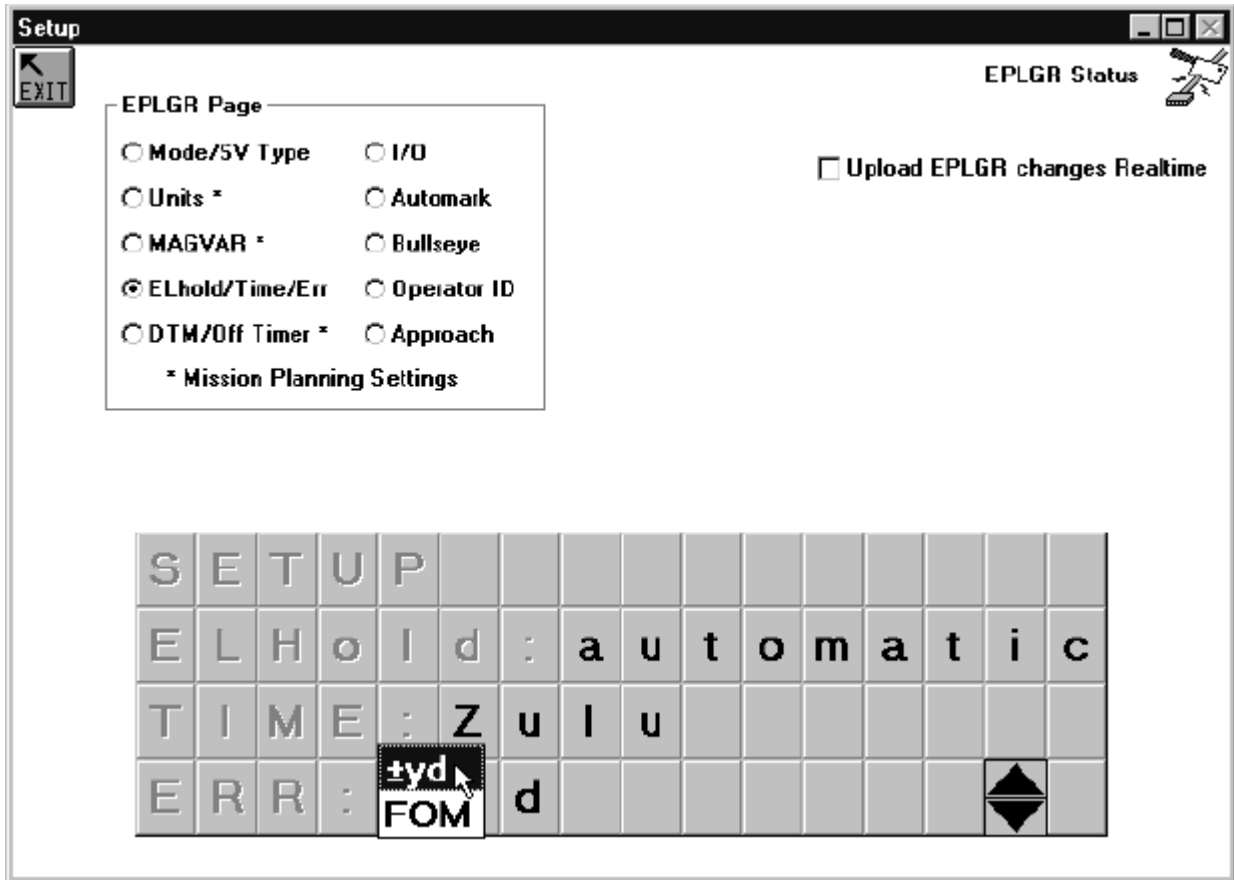
SETUP ELHOLD/TIMER/ERR

1. Click on ELHOLD/TIME/ERR to advance to next screen on emulated EPLGR display.



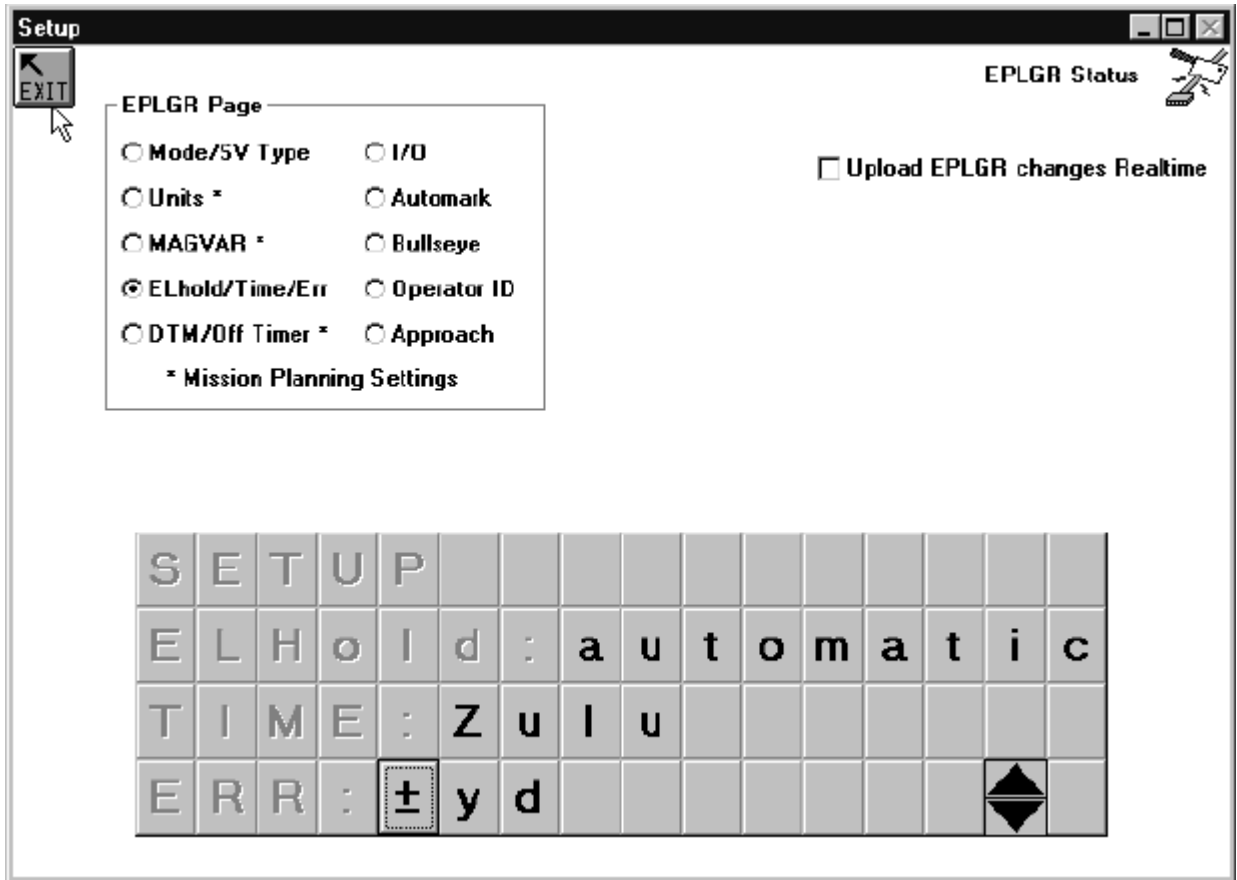
2C027-22

2. Click on FOM on the emulated EPLGR display to change to +-yd.



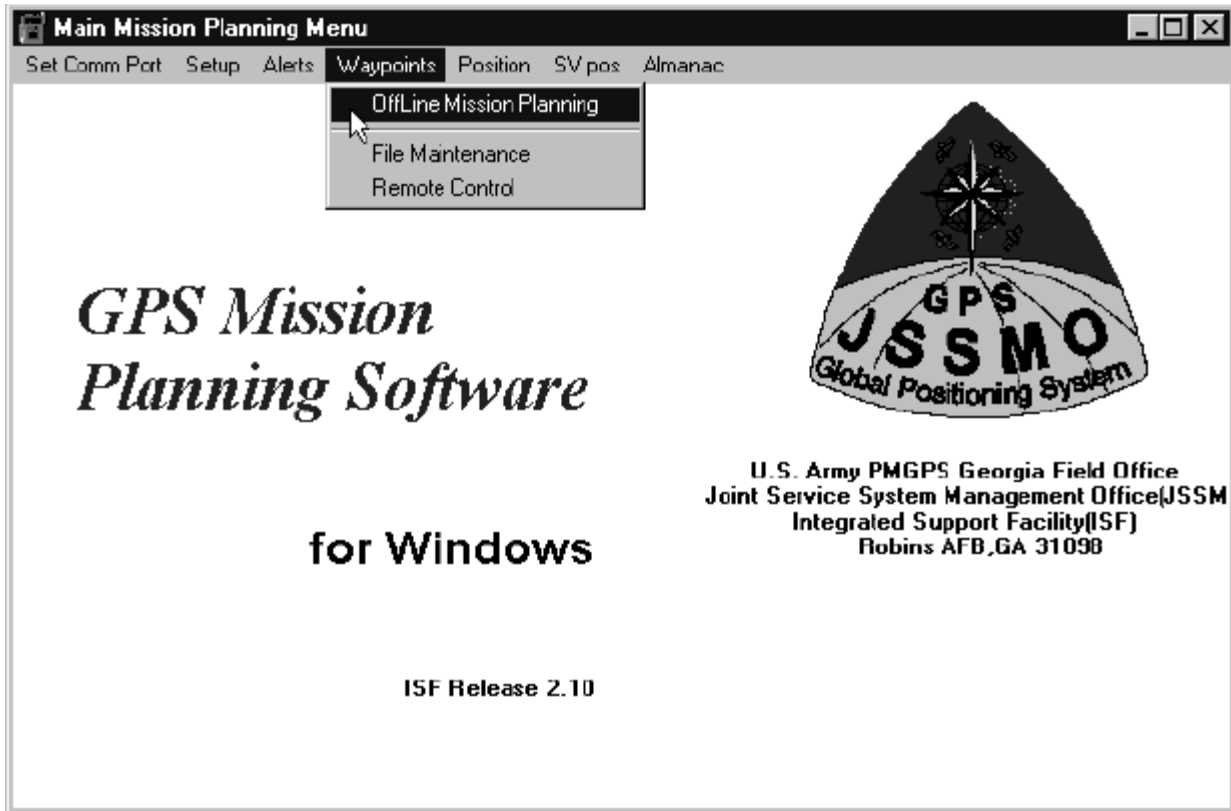
2C027-23

3. Click on the EXIT button, upper left corner, to return to main menu.



2C027-21

4. At the MAIN MISSION PLANNING MENU click on WAYPOINTS and then OFFLINE MISSION PLANNING to enter data for new waypoint.

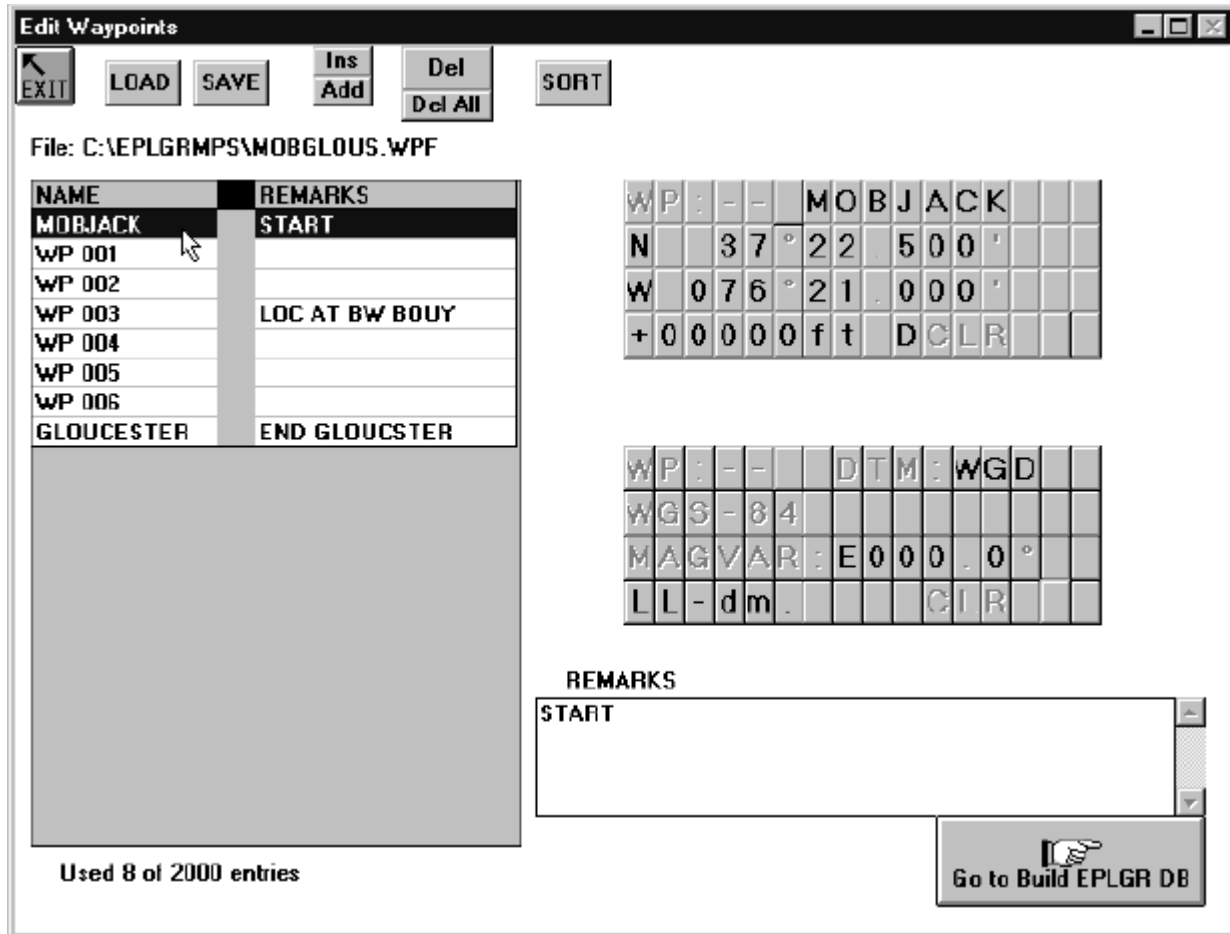


ENTER OR EDIT WAYPOINTS

NOTE

This display gives you the capability to edit a PC disk file containing up to 2000 EPLGR waypoints. The list displayed on the left side of the PC screen shows the database. On the right side of the PC screen, an emulation of the EPLGR waypoints displays are shown.

EPLGR MPS can only convert between LL-DMS and LL-DM. If you change from one coordinate system to another (i.e., from MGRS to LL-DMS), the EPLGR MPS does not automatically convert your waypoint data to the new coordinate system. It zeroes the waypoint data. If you change datums, the data is not recomputed.

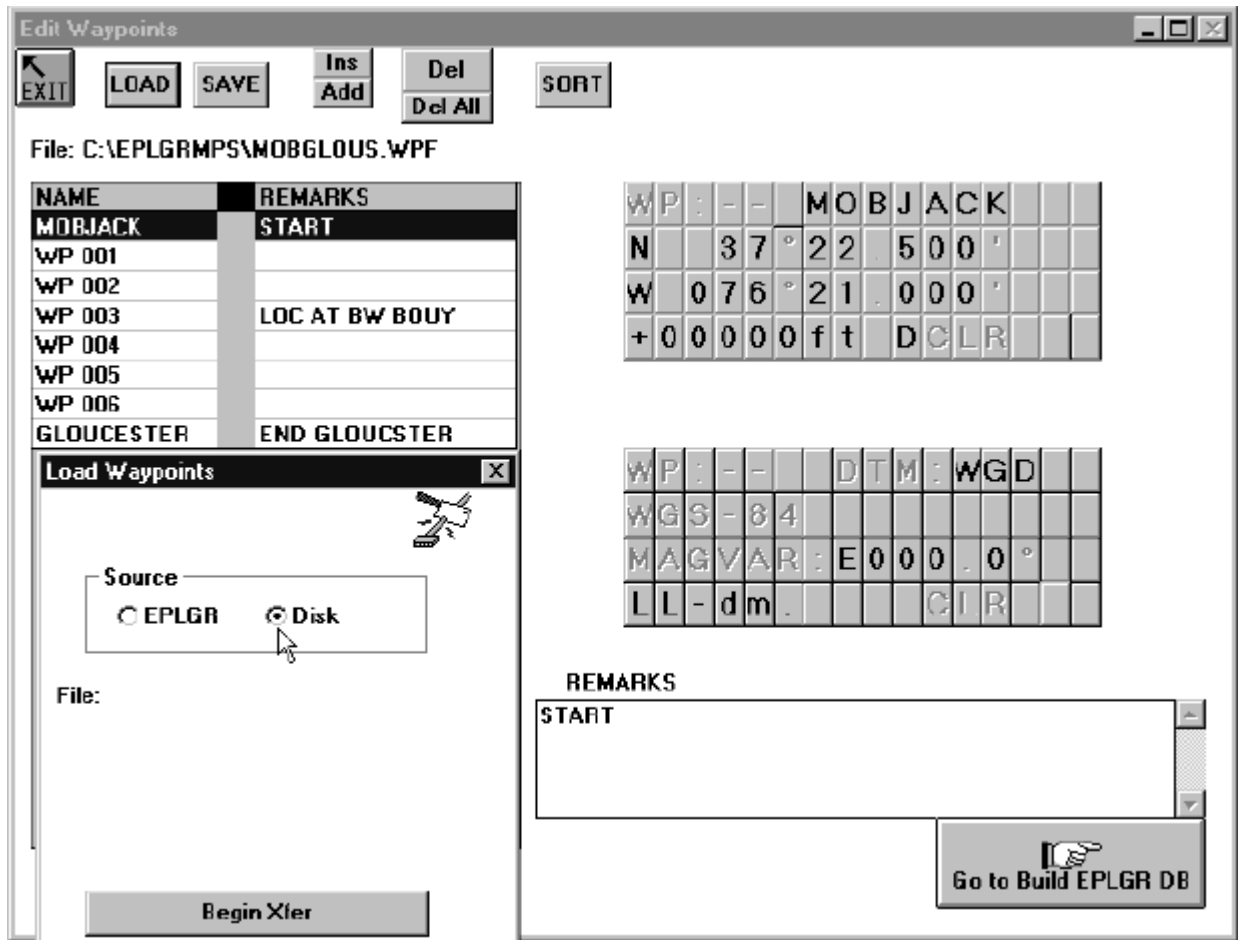


2C027-24

1. Select the entry to edit from the list on the left.
2. Click on the field (in the emulated EPLGR display, right side of PC screen) that you wish to change. Some fields will show a pop-up list from which you can choose a new value. Others, like lat/long and elevation, require that you type in the new value. The REMARKS block allows you to give a detailed description (up to 200 characters) of the waypoint. The description is stored in the PC file, not the EPLGR.

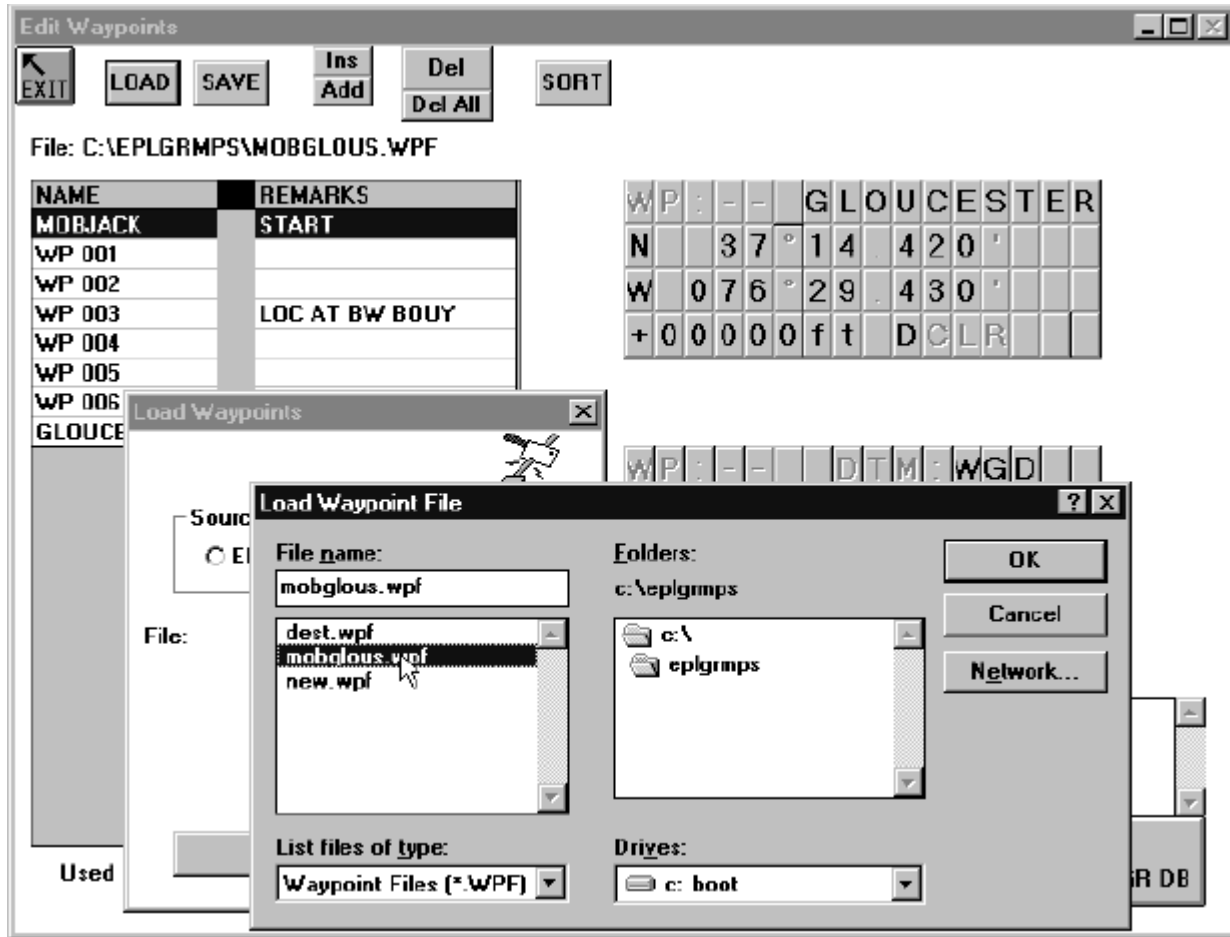
COMMANDS

1. Load: You may load waypoints from a EPLGR or a PC disk file. If you are loading waypoints from the EPLGR, you must specify a beginning and ending waypoint number. Each successive load will append to the list enabling you to build a customized waypoint file from several sources.



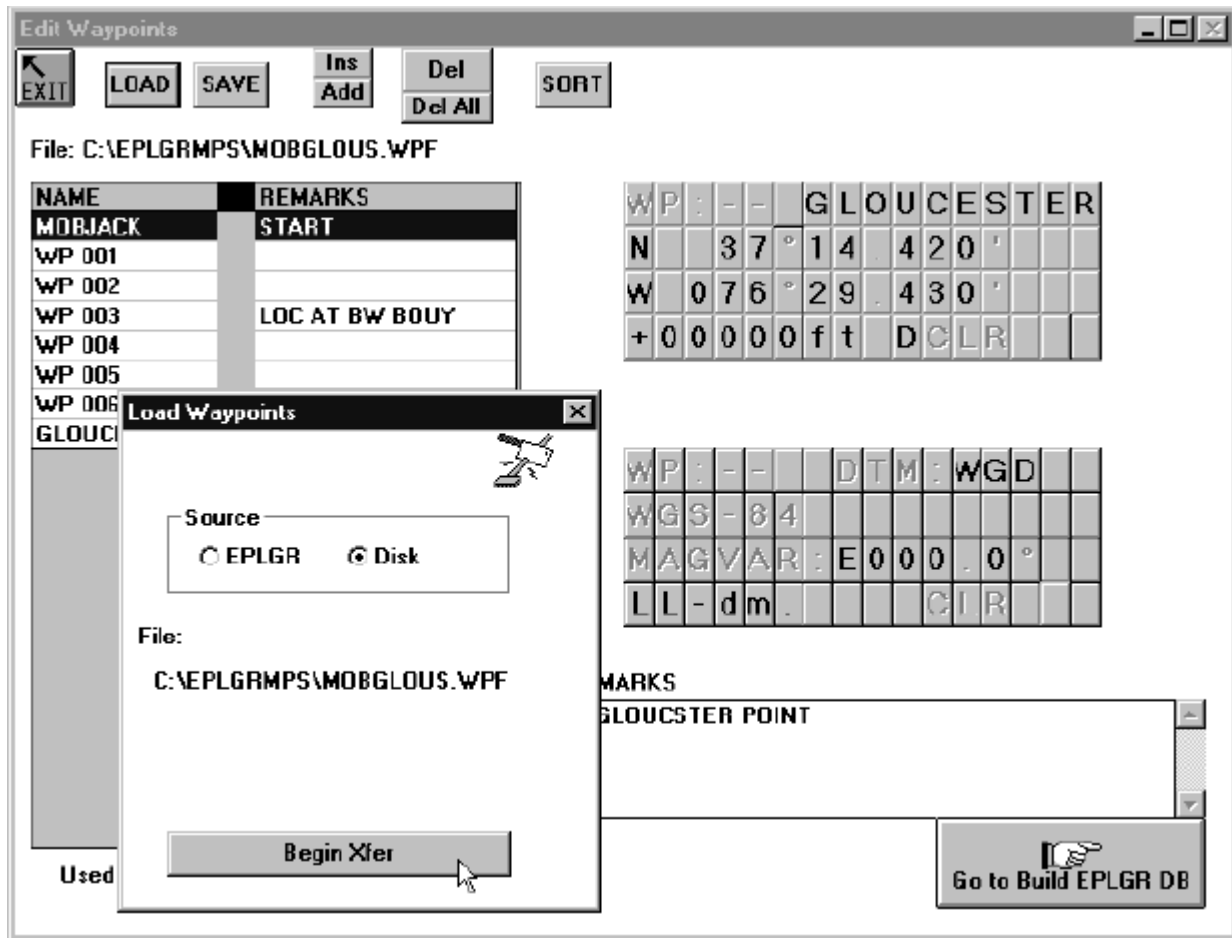
2C027-25

2. Click on LOAD WAYPOINTS, then choose from SOURCE BLOCK, EPLGR or DISK.



2C027-26

- Click on the file name you wish to load, then click OK. The LOAD WAYPOINT FILE screen will disappear allowing you to click on the BEGIN XFER button to transfer the files.



2C027-27

- Save: Saves the waypoint file to the PC disk.
- INS & ADD: These functions create a new waypoint with the default settings defined in SETUP in the list. Select (click on) the position at which you wish to add a waypoint to the list. Clicking the INS button will add the new waypoint before the selected entry. Clicking the ADD button will add the waypoint after the selected entry.
- DEL: Remove single or multiple waypoints from the list. Click on a single waypoint, or select several in a row to delete.
- DEL ALL: Deletes all entries from the waypoint list. One default record is left as a place holder.
- SORT: This function will sort your list by waypoints name.
- EXIT: Causes the EPLGR MPS to return to the main screen. Prior to executing the exit command, you will be prompted to save your work if you have not already done so.

ENTER NEW WAYPOINT

1. Click on ****UNUSED**** to enter a new waypoint name on the emulated EPLGR display on the right side of the screen.

Edit Waypoints

EXIT LOAD SAVE Ins Add Del Del All SORT

File:

| NAME | REMARKS |
|------------|---------|
| --unused-- | |

Used 1 of 2000 entries

WAYPOINT NAME

WP: -- * unused * *

N 00° 00.000'

E 000° 00.000'

+00000ft MCLR

REMARKS

DTM: WGD

WGS: - 84

MAGVAR: W000.0°

LL: dm. CLR

Go to Build EPLGR DB

- Click on “N” to change to North or South on the emulated EPLGR display on the right side of the screen.

Edit Waypoints

EXIT LOAD SAVE Ins Add Del Del All SORT

File:

| NAME | REMARKS |
|---------|---------|
| MOBJACK | |

Used 1 of 2000 entries

WP: -- MOBJACK
 N 00°00.000'
 E 000°00.000'
 +00000ft MCLR

DTM: WGD
 WGS - 84
 MAGVAR: W000.0°
 LL - dm. CLR

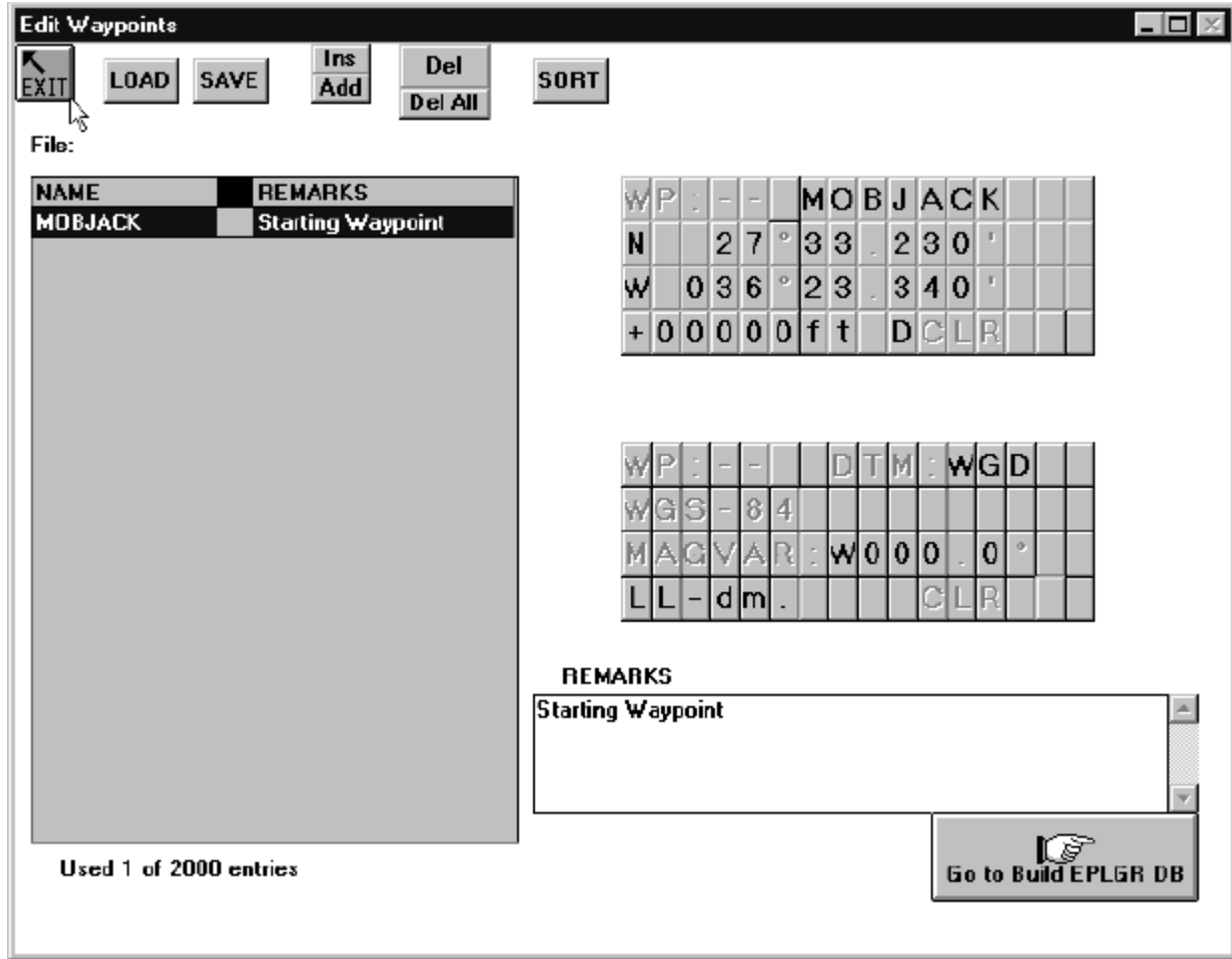
REMARKS

Go to Build EPLGR DB

2C027-29

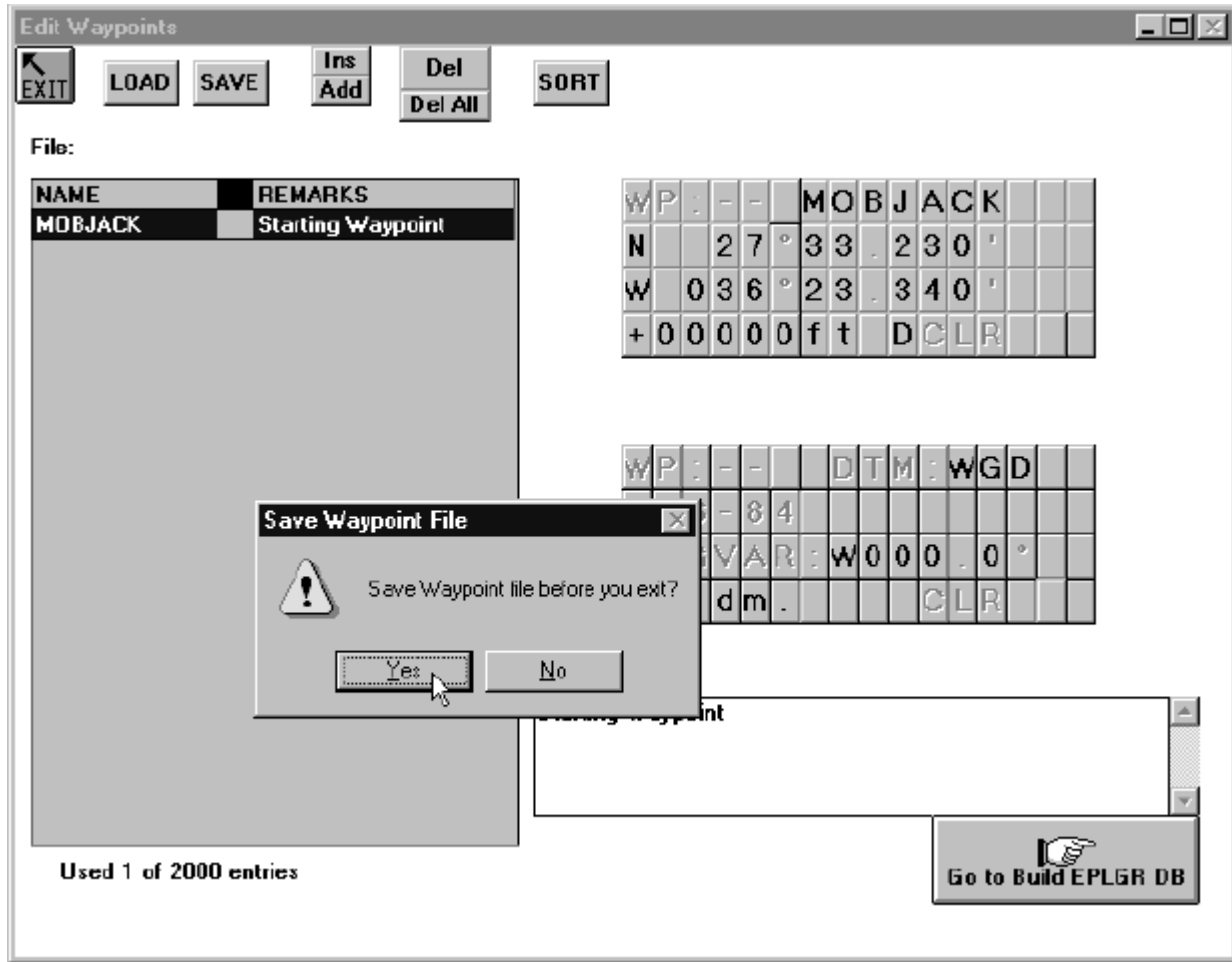
- Click on the first “0” after the “N” to enter new latitude on the emulated EPLGR display on the right side of the screen.
- Click on “E” to change to East or West on the emulated EPLGR display on the right side of the screen.
- Click on the first “0” after the “E” to enter new longitude on the emulated EPLGR display on the right side of the screen.

6. Click on the EXIT button in the upper left corner. A SAVE FILE screen will appear.

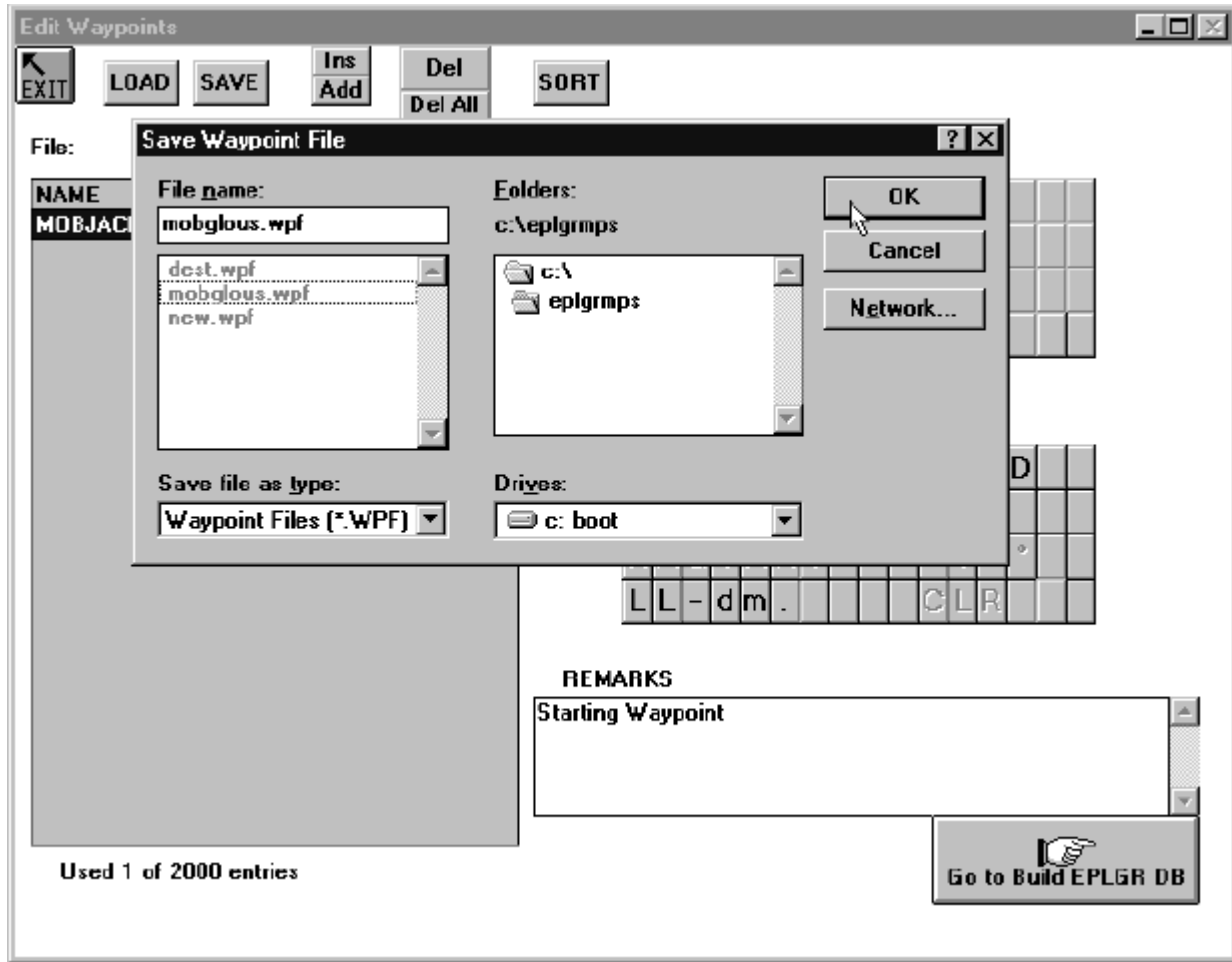


2C027-30

7. Click "YES" on the SAVE WAYPOINT FILE before you exit?.



8. Type in a name to save file under, then click "OK". This will save all waypoint data to a file or disk.



2C027-32

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

SETUP ROUTE NAVIGATION USING THE ENHANCED PLGR (EPLGR) MISSION PLANNING SOFTWARE (MPS)**PLANNING A ROUTE****NOTE**

A route is a set of related points defining a path, or way to navigate. In the EPLGR MPS, waypoints can be linked together to form a navigation route. Any two consecutive waypoints in a route make up a leg. When navigating a route, start with leg 1 and proceed from leg to leg until the end waypoints are reached.

Up to 15 navigation routes may be defined, with each route having 2 to 26 waypoints (1 to 25 legs). The EPLGR MPS allows the user to pick waypoints with different datums, but gives a warning when selected. For best results, all waypoints in a route must use the same datum.

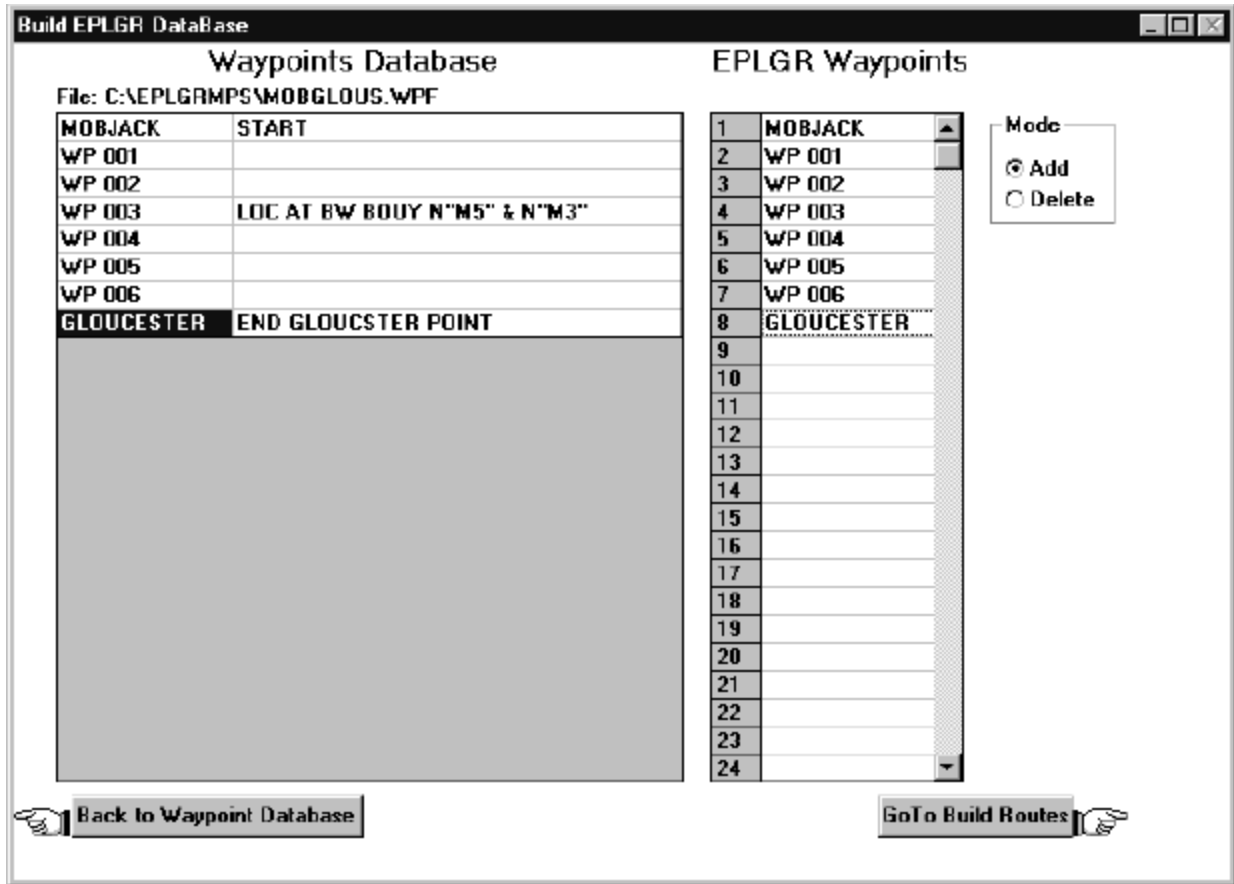
1. After opening the EPLGR MPS software, click on Waypoints on the taskbar. This will open a drop down menu.
2. Select Offline Mission Planning, this will open a window allowing you to click on the Go To Build EPLGR DB button.

BUILD EPLGR DATABASE**NOTE**

Up to 999 individual waypoints may be selected

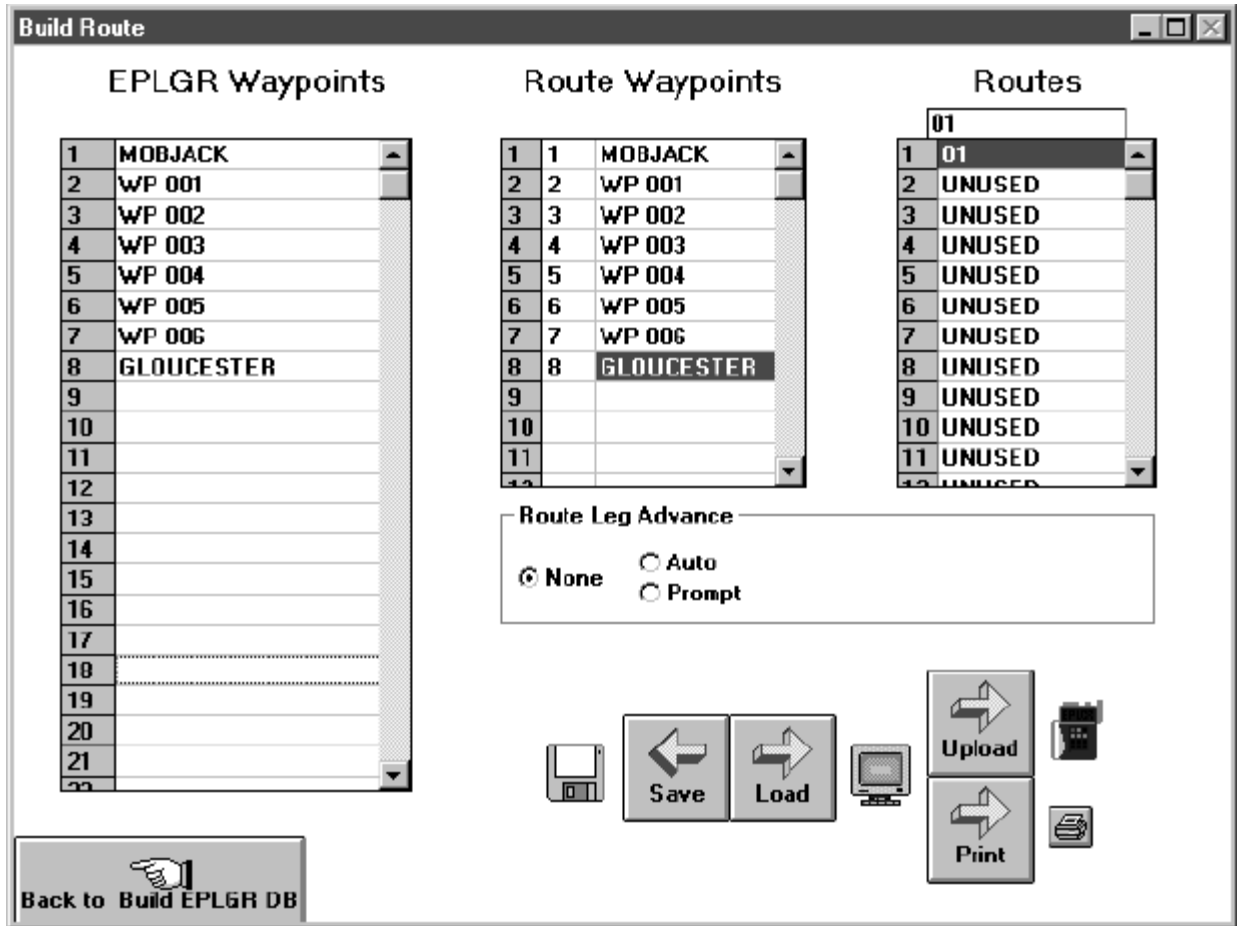
1. To define the waypoints that will be uploaded to the EPLGR, select the add or delete mode from the panel located on the right side of the PC screen

- Once selected, the mode will remain active until you either reselect the mode, or leave the Build EPLGR Database screen.



BUILD ROUTES

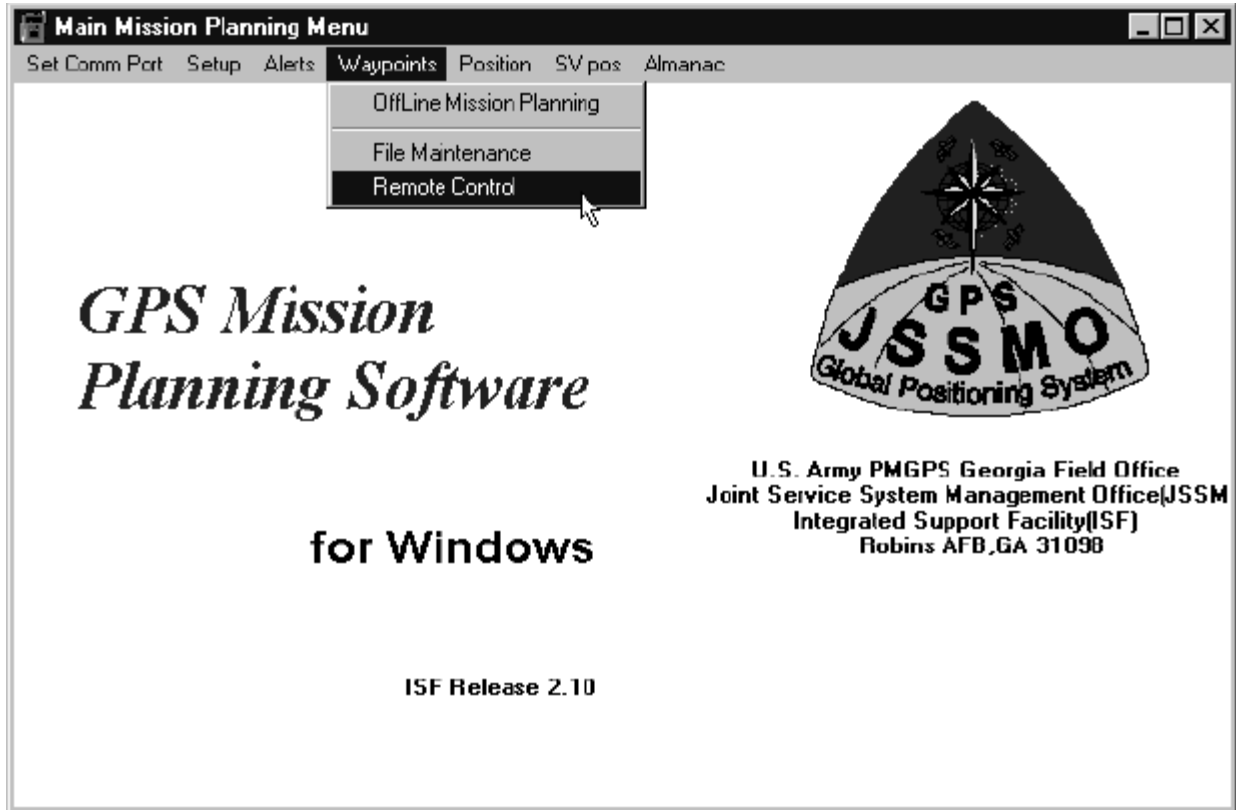
1. To define EPLGR routes, drag and drop waypoints from the EPLGR waypoint list to the route waypoint list. Each route can contain up to 26 waypoints defining 25 legs. Fifteen separate routes are available. The third column on the PC display shows the routes by name. As a route name is selected, its waypoints are displayed in the center column.
2. To set the Route Leg Advance, click on either None, Auto or Prompt.



2C028-11

USING THE REMOTE CONTROL FUNCTION

1. Click on WAYPOINTS to bring up drop down menu of OFFLINE MISSION PLANNING, FILE MAINTENANCE or REMOTE CONTROL and click on Remote Control.



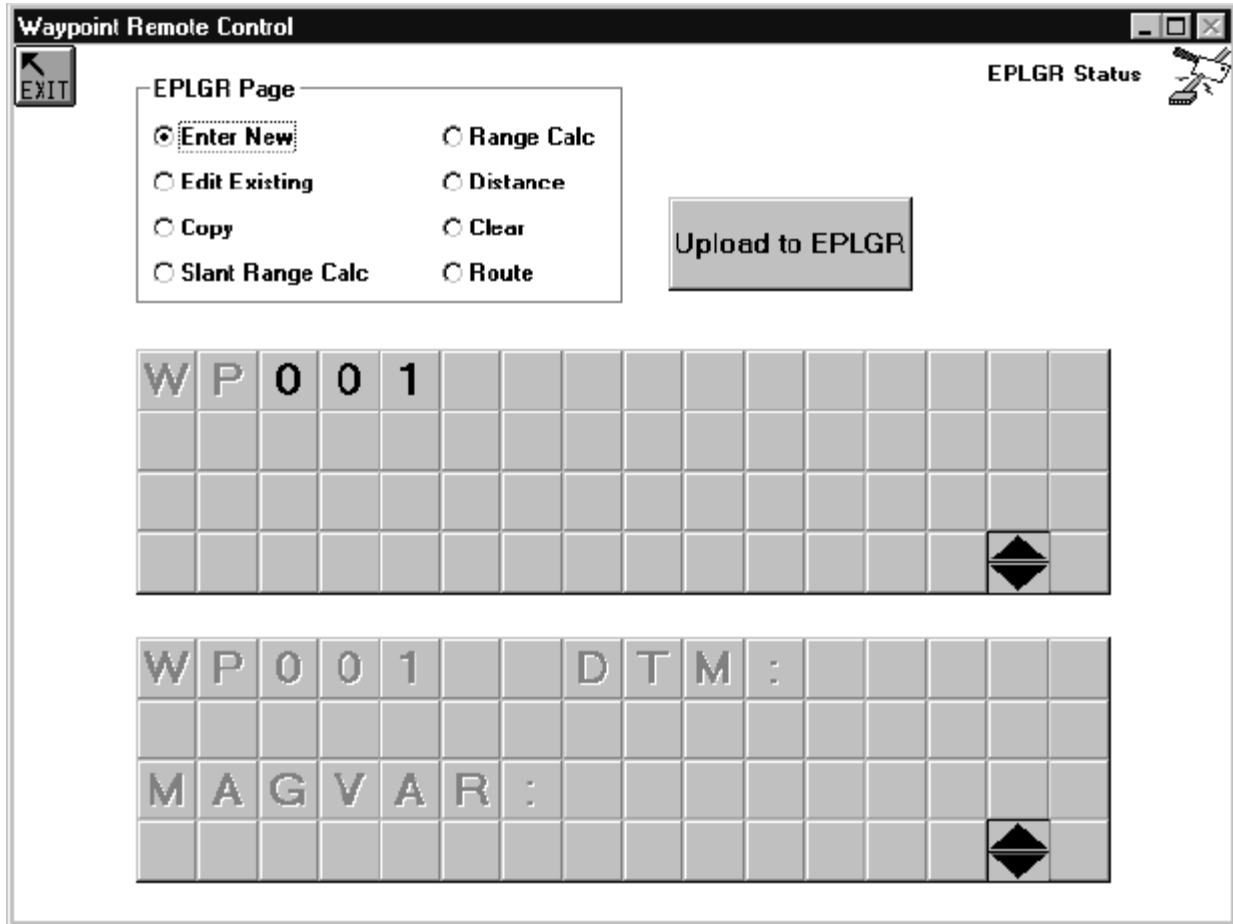
2C028-2

NOTE

The waypoint remote control function requires that the EPLGR and PC be communicating or the PC display will remain blank.

2. To display the eight EPLGR waypoint displays either click the button on top or click the up/down arrow on the emulated EPLGR LCD display.

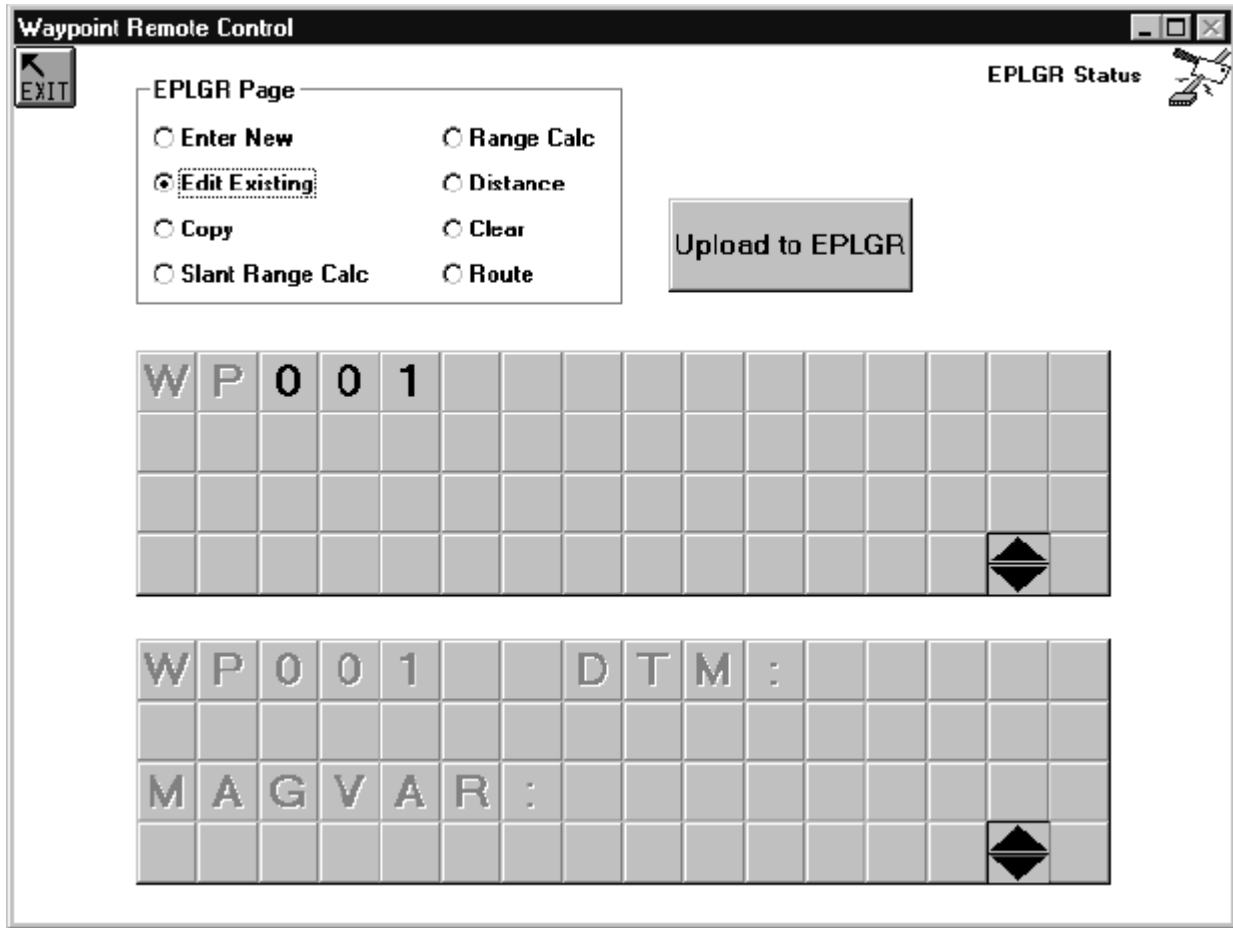
3. Enter New: Select the WP to enter by clicking on the WP number and selecting from the pop-up list. You will get a warning if the WP is already defined. When you have completed waypoint entry, click the UPLOAD TO EPLGR button to transfer the data to the EPLGR.



2C028-3

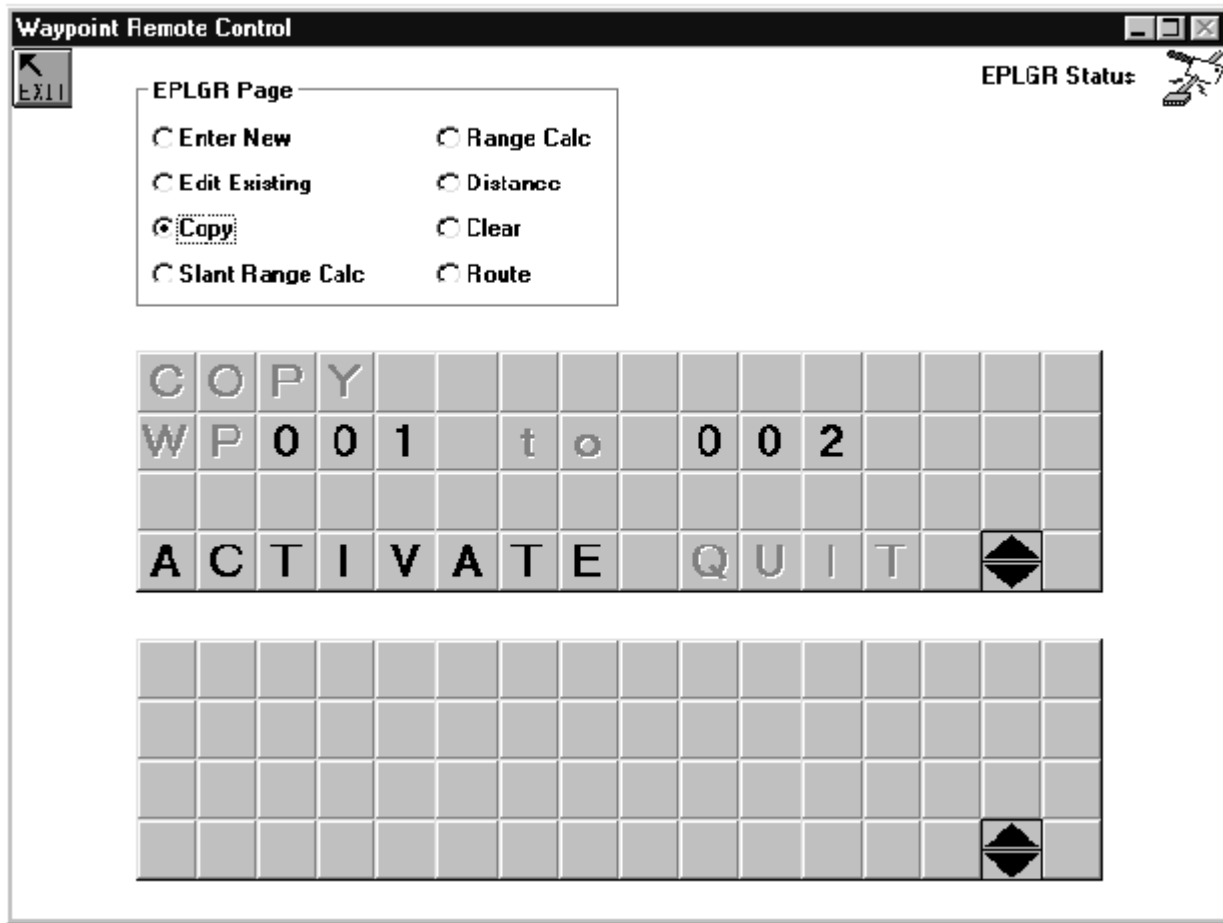
4. Edit Existing: To edit an existing WP, select the WP that you wish to edit by clicking on the WP number and selecting from the pop-up list.

5. When you have completed the editing, click the UPLOAD TO EPLGR button to save the data to the EPLGR.



2C028-4

- 6. Copy: When the from and to WAYPOINTS are defined, click ACTIVATE on the emulated EPLGR display. This function allows you to copy waypoint data between waypoint numbers.



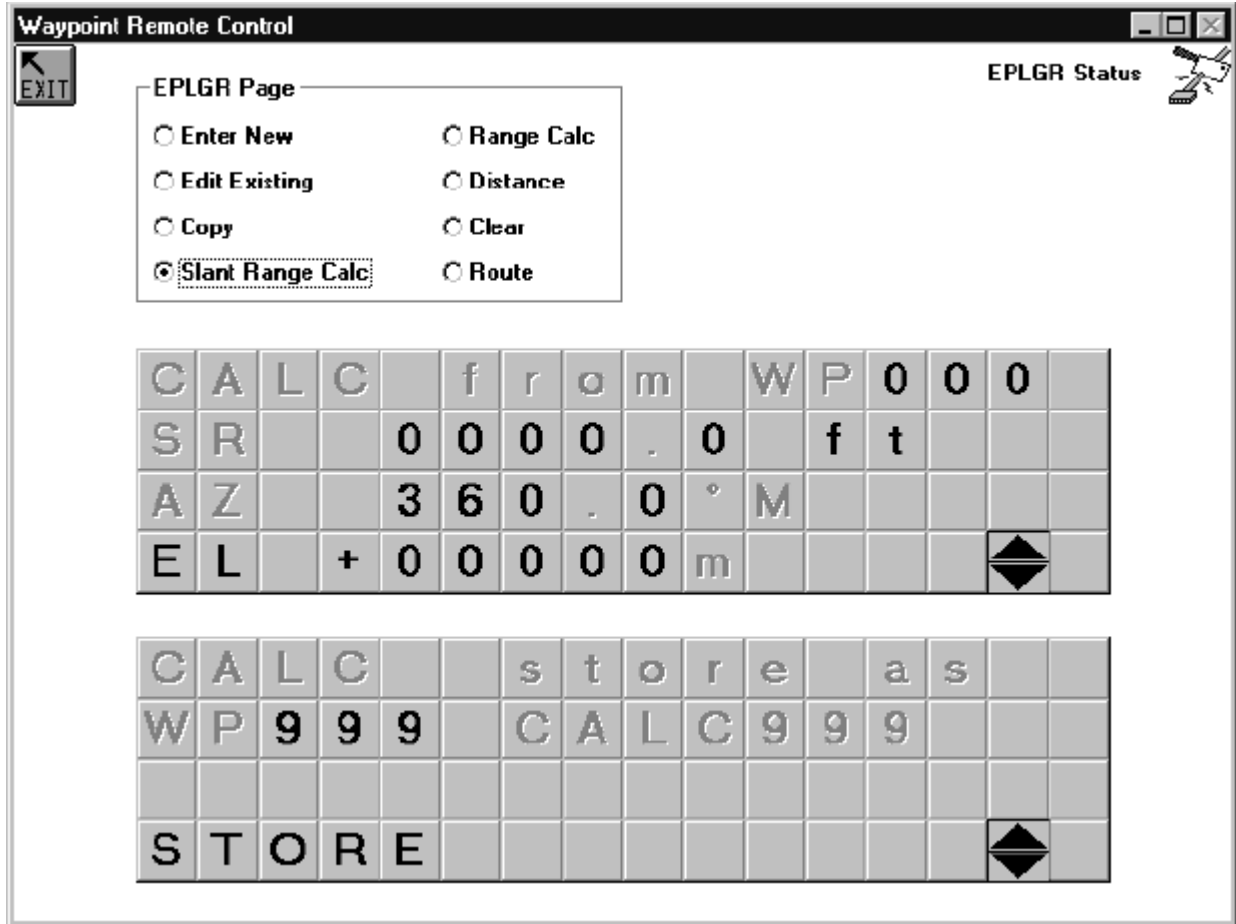
2C028-5

7. Select the from and to WAYPOINT numbers by clicking on the WAYPOINT number and selecting from the pop-up list.

NOTE

This function allows you to calculate the coordinates of a new waypoint based upon slant range, elevation angle, and azimuth from your current position or a specified EPLGR waypoint. The new coordinates are stored in a waypoint

8. Slant Range Calc: Enter the data required on top display screen.



2C028-6

- a. Select the destination WP in which to store the result from the pop-up list on the bottom screen.

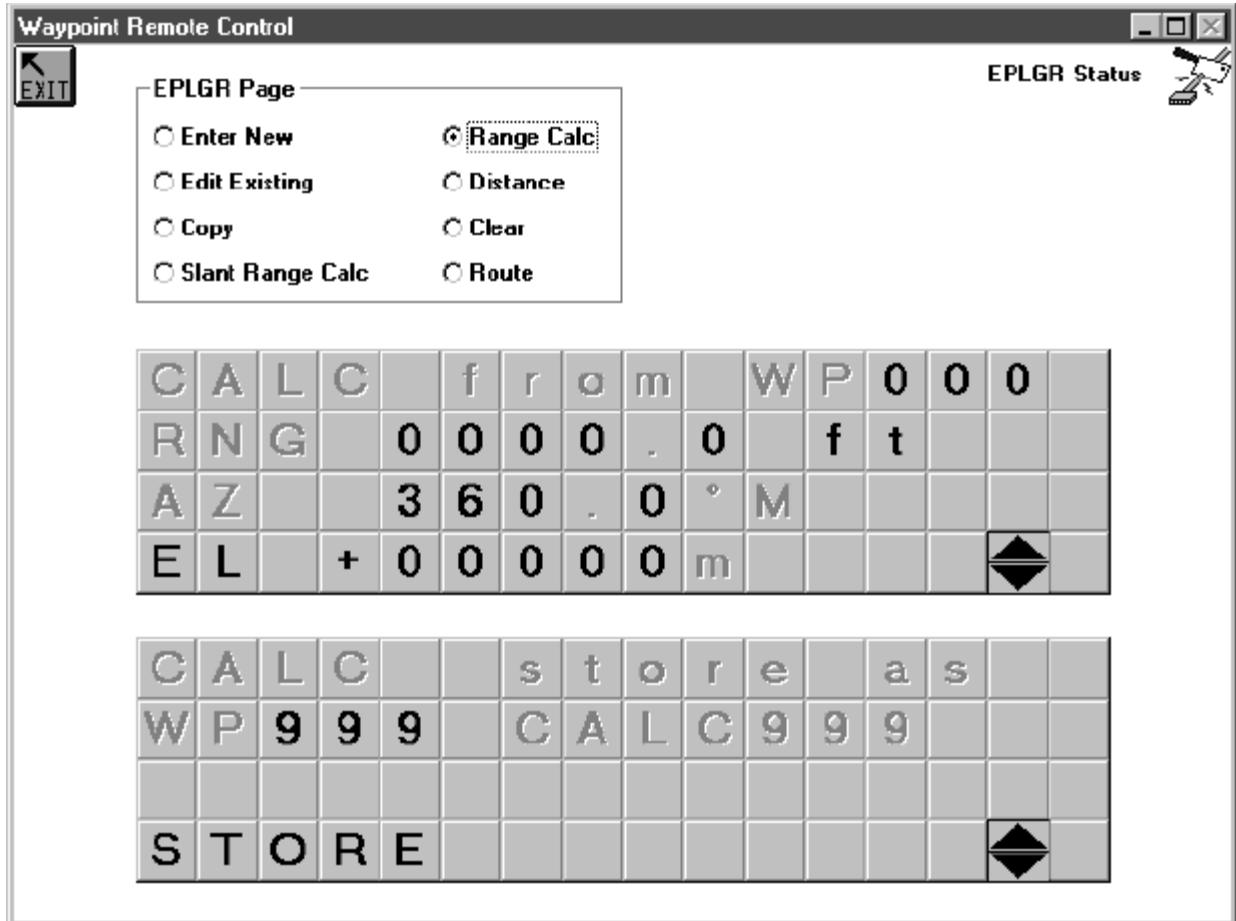
- b. Click STORE on the bottom screen to store the new computed coordinates in the destination waypoint.

NOTE

This function allows you to calculate the coordinates of a new waypoint based upon range, elevation distance, and azimuth from your current position or a specified EPLGR waypoint.

The new coordinates are stored in a waypoint.

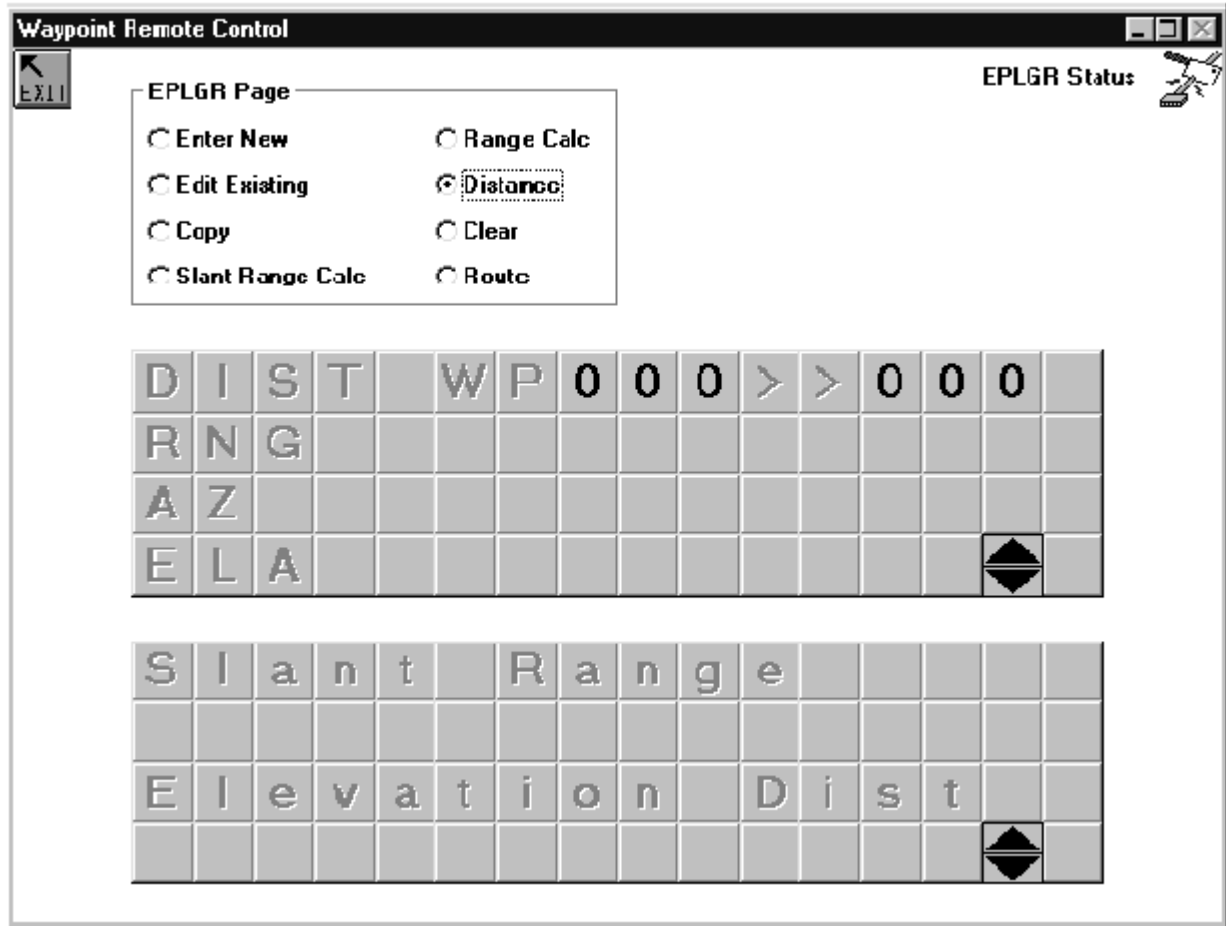
- 9. Range Calc: Enter the data required on the top display screen.



2C028-7

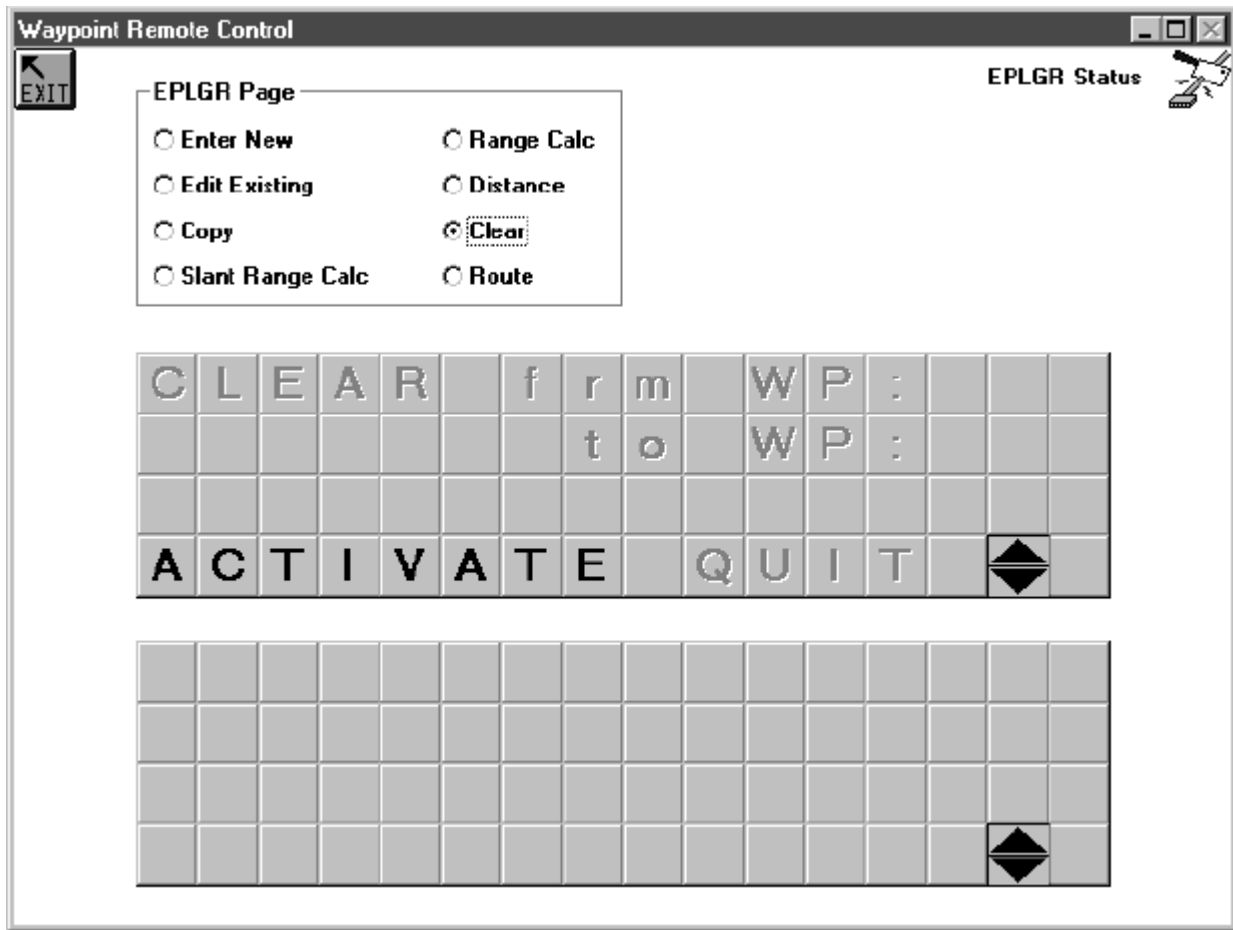
- a. Select the destination WP in which to store the result from the pop-up list on the bottom screen.
- b. Click STORE on the bottom screen to store the new computed coordinates in the destination waypoint.

10. Distance: This function calculates and displays the distance between your present position and a waypoint or between two EPLGR waypoints. Select the to and from WP by clicking on the waypoint number and then selecting from the pop-up list. The display will indicate range, azimuth, elevation angle, slant range, and elevation distance.



2C028-8

11. Clear: This function allows you to clear the contents of EPLGR waypoints. First, select the range of waypoint numbers to delete.



2C028-9

- a. Select the from and to WP numbers by clicking on them and selecting from the pop-up list.
- b. When you are ready to clear the selected waypoints, click ACTIVATE on the emulated EPLGR LCD display

12. Route definition: Perform the following steps to define a EPLGR route:

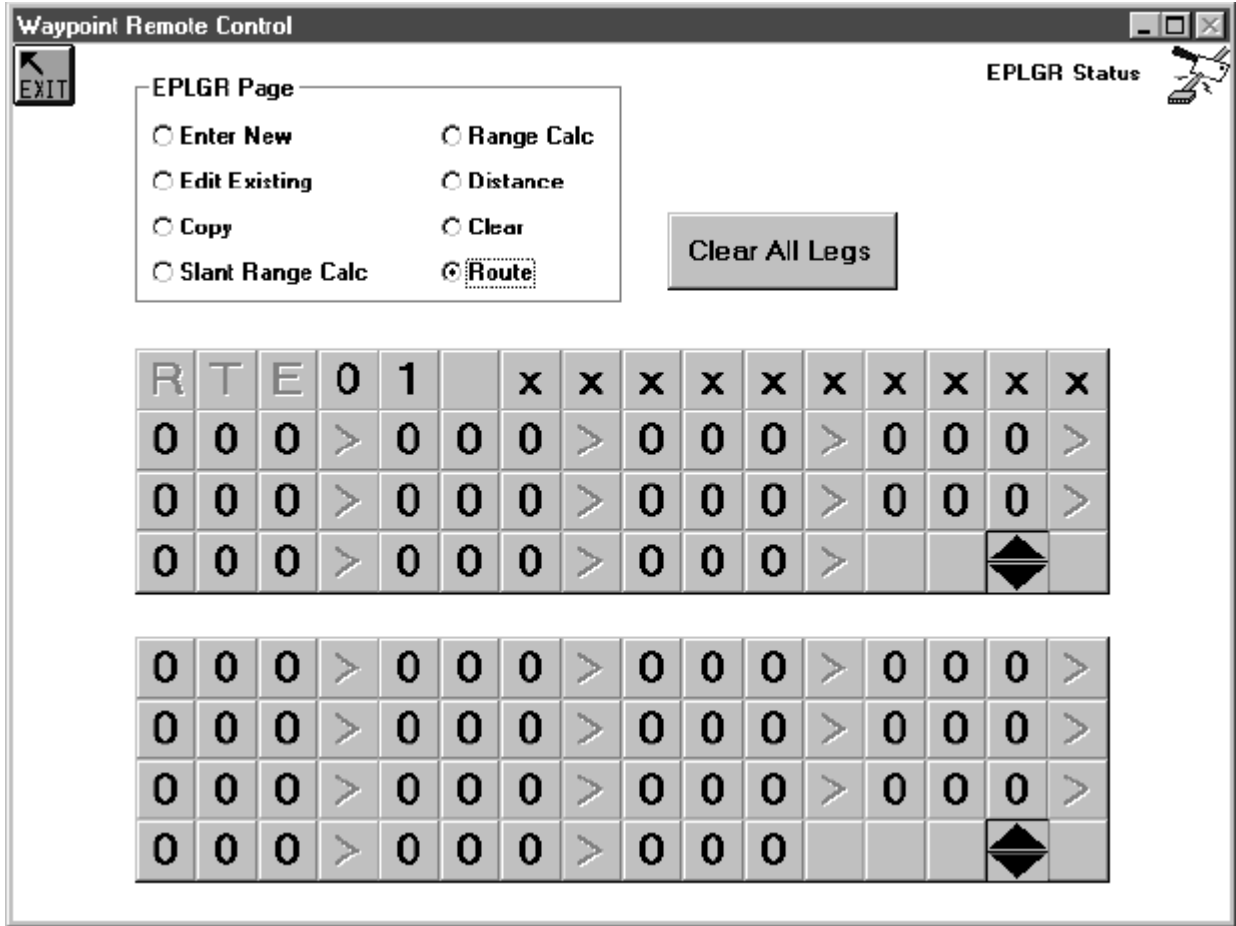
NOTE

The function of Route Definition allows you to define the waypoints to be used by the EPLGR as a route.

WP legs may also be selected by clicking on the wp number on the bottom screen and then selecting from the pop-up list.

- a. Select the leg by clicking on leg number and choosing from the pop-up list.
- b. Select the to and from WP by clicking on waypoint number and selecting from pop-up list.
- c. Click SAVE to store the leg to the EPLGR.

- d. Click CLEAR on the bottom emulated EPLGR LCD screen to zero out all waypoints/legs.



2C028-10

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

PERFORM AN/PSN-11(V)1 PLGR CRYPTO VARIABLE OPERATIONS**CRYPTO KEY ENTRY USING THE KYK-13**

WARNING

Without crypto keys, the user cannot compensate for the selective availability errors (SA). The user cannot receive encrypted signals and have no protection against spoofing. The receiver will still operate but cannot be used for combat operations. All shipboard PLGR's must be keyed using the correct crypto key prior to combat operations. Failure to observe these precautions could result in loss of life.

NOTE

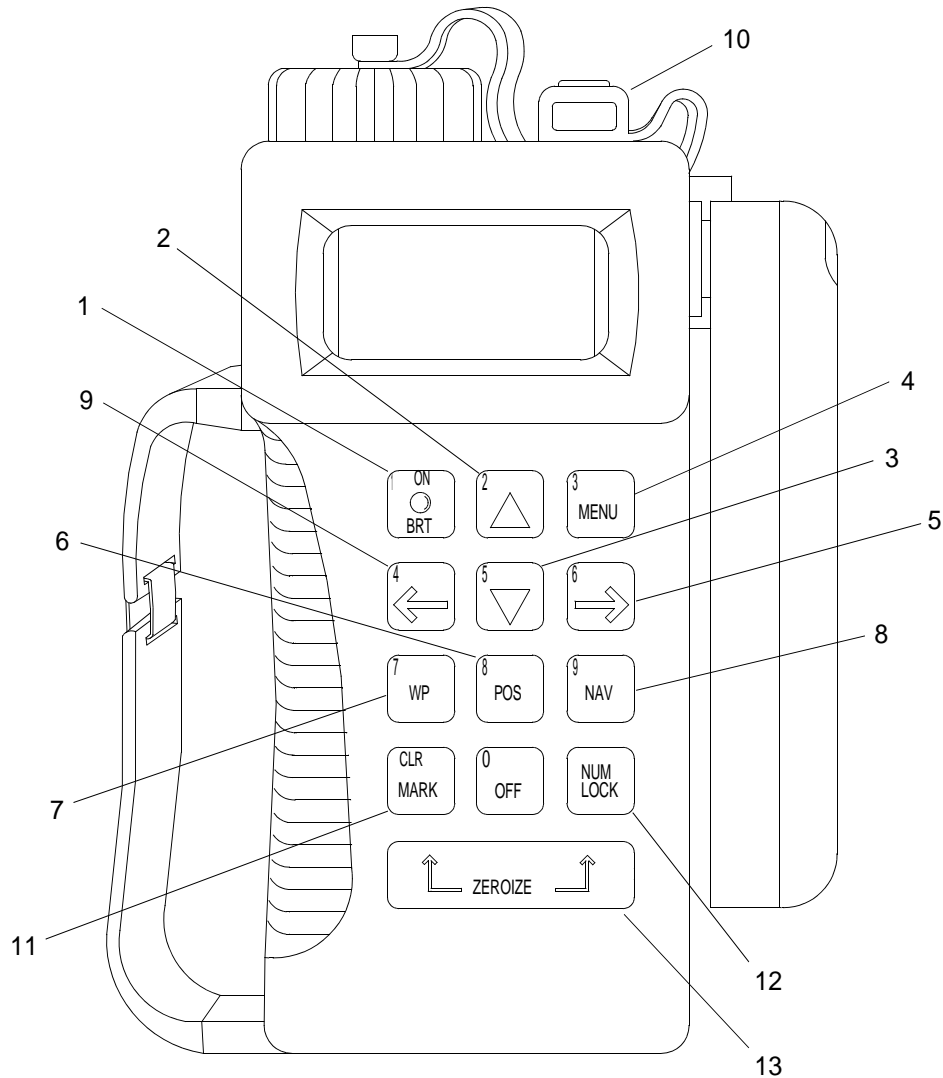
The PLGR has a National Security Agency (NSA) module that stores the crypto keys. Since the crypto keys are stored in this tamper proof module (called a precise positioning service security module, or PPS-SM), the PLGR is not classified when crypto keys are installed.

After turn on, the operator can easily determine if crypto keys are installed. Select menu second page. If crypto is not displayed on line 4, crypto keys are not installed or are not valid.

The PPS-SM does not protect classified waypoints. When classified waypoints are stored in the PLGR, the PLGR is classified at the same level as the waypoints.

1. Connect the KYK-13 to the J1 port (10) on the PLGR. Ensure that the PLGR is turned on and not performing a self-test.

- Set the KYK-13 selector switch to the position that contains the crypto key.



3C027-1

- Set the KYK-13 mode switch to on. The light on the KYK-13 flashes showing a successful crypto load.

CRYPTO KEY ENTRY USING KOI-18

- Connect the KOI-18 to the J1 port (10) on the PLGR. Ensure that the PLGR is turned on and not performing a self-test.
- Press the MENU key (4) until the menu display with KOI-18 appears. Select and activate the KOI-18.
- Select and activate LOAD. Immediately pull the paper tape through the KOI-18.
- After loading, select and activate QUIT.
- Bring up the CRYPTO pages from the system menu. Verify the crypto key status.
- Remove the KOI-18 from the PLGR.

CRYPTO KEY ENTRY USING AN/CYZ-10 (SPECIAL ANCD)

1. Turn on the ANCD, read RADIO/SOI/SUPERVISOR.
2. Enter RADIO, read SEND/RECEIVE/DATABASE/SETUP/COMSEC/TIME.
3. Enter COMSEC, read VG/LD/RV/AK/MK/VU.
4. Enter LD, read SELECT TEK/KEK.
5. Enter TEK.
6. Select the desired GPS key, then press ENTER.
7. Enter QUIT, read CONNECT ANCD TO RT - DO NOT COMPLY.
8. Press the DOWN ARROW key (3), read Press LOAD ON RT- DO NOT COMPLY.
9. Turn the PLGR on, wait for self-test to complete.
10. Connect ANCD to the J1 port (10) on the PLGR. GPS key transfers automatically. The ANCD reports: 1 KEYS TRANSFERRED. The PLGR reports KEY LOADED.
11. Disconnect ANCD from the J1 port (10) on the PLGR.

MISSION DURATION WARNINGS**NOTE**

Mission duration does not apply when Group Unique Variable (GUV) keys are used.
A second GUV may be loaded prior to expiration of the current GUV key.

1. Enter a mission duration to limit the number of crypto keys stored in the PPS-SM. Mission duration only applies when Crypto Variable Weekly (CVW) keys are used. The maximum duration for these keys is 42 days (six weeks or current day + 41). Up to six CVW keys may be loaded in any order. After the mission duration is entered, the PLGR may display a warning.
2. The PLGR may warn the user that too few keys are loaded for the duration of the mission or that too many are loaded.

END OF WORK PACKAGE

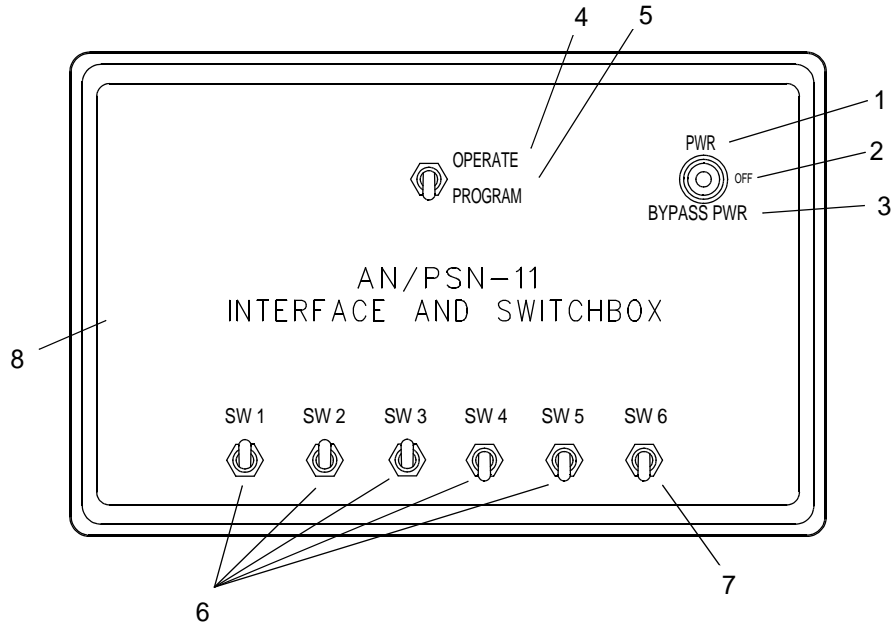
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE NAVIGATION INTERFACE AND SWITCHBOX

1. Place the power switch (1) in the PWR position to receive ship's power and supply regulated power to the PLGR.



2. Place the power switch (2) in the OFF position to stop power output to the PLGR from the interface and switchbox (8).
3. Place the power switch (3) in the BYPASS PWR position to allow the interface and switchbox (8) to receive ship's power and supply unregulated power to the PLGR.
4. Place the OPERATE/PROGRAM switch (4) in the OPERATE position to allow GPS data from the PLGR to be distributed to J1 - J5 outputs.
5. Place the OPERATE/PROGRAM switch (5) in the PROGRAM position to provide a direct programming link between the PLGR and a data terminal.

NOTE

SW1 thru SW5 (6) are not used when the interface and switchbox (8) is installed in the navigation location.

6. Place SW6 (7) in the UP position to allow interface of GPS differential signal data.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

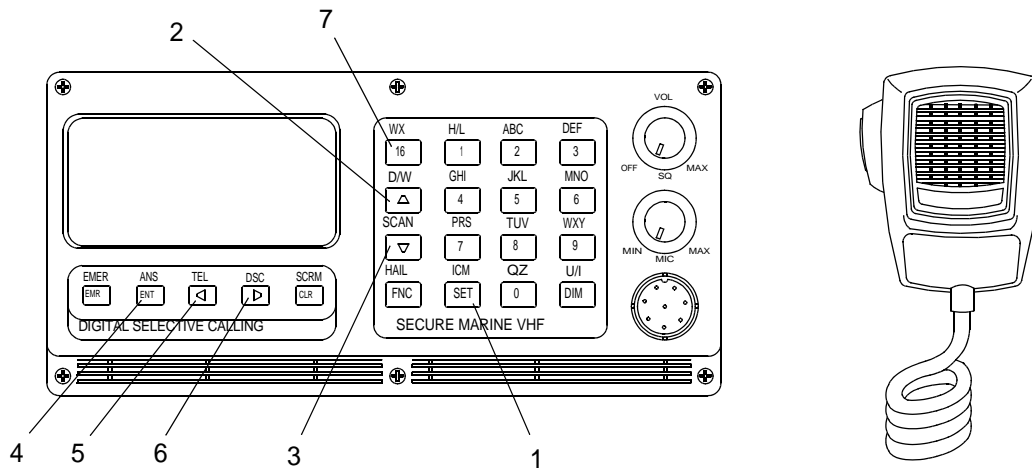
Seaman 88 K

PERFORM INITIAL SETUP OF THE VHF/FM DSC TRANSCEIVER

ENTER USER DIGITAL SELECTIVE CALL (DSC) ID NUMBER

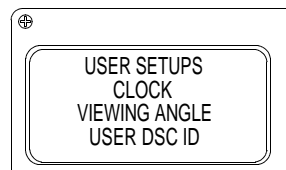
NOTE

The FCC issued ship station identity number (DSC ID), 9 digits, must be entered into the DSC VHF/FM transceiver in order to send or receive DSC calls. To protect against unauthorized use of ID numbers, a ship station identity number may be entered or changed only one time. Any further attempts to change the number will cause **USER DSC ID CAN NO LONGER BE CHANGED** to appear in the display and the last ID number entered will become permanent. The transceiver must be returned to the factory or authorized dealer to clear this condition



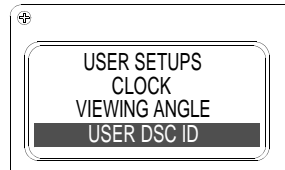
2C031-1

1. To enter your Ship Station Identity number, press the SET key (1). The USER SETUPS menu will appear.



2C031-2

- Press the UP ARROW KEY (2) or DOWN ARROW key (3) to select USER DSC ID with the selection bar.

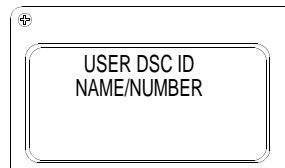


2C031-3

NOTE

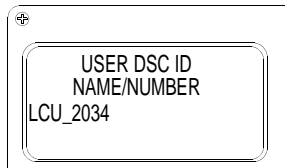
The lower two lines of the display will show dashes unless a name and number have been previously entered. A name must be entered on the second line from the bottom of the display and the ID number must be entered on the lower line. A name may be one or more alphanumeric characters but the ID number must be nine digits.

- Press the ENT key (4). The DSC ID, NAME/NUMBER page will appear.



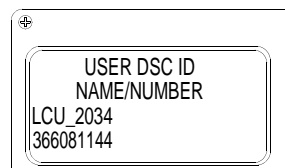
2C031-4

- To enter a letter into the name line of the display, press the appropriate number key. Press the key repeatedly until the desired letter or the number appears in the character position. Then, press the next key. The entry point will move to the next position automatically. If more than one letter from the same key must be entered in succession, press the RIGHT ARROW key (6) to move the entry point to the next character position. To correct an entry, press the LEFT ARROW key (5) to backspace. When the name is complete press the DOWN ARROW key (3) to move the entry point to the ID number line.



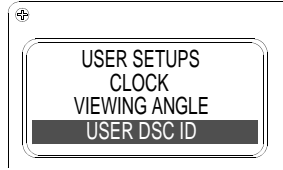
2C031-6

- Press the appropriate number keys to enter the Ship Station Identification number. To correct an entry, press the LEFT ARROW key (5) to backspace. To skip a digit, press the RIGHT ARROW key (6).



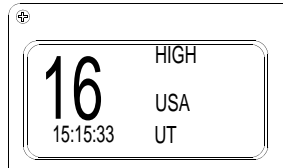
2C031-7

6. When all information is displayed correctly, press the ENT key (4) to complete the operation and return to the USER SETUPS menu.



2C031-3

7. Press key (7) to return to normal operation.



2C031-5

8. Perform user setups. (WP 0033 00)

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required
Seaman 88K

OPERATE THE DSC VHF/FM TRANSCEIVER

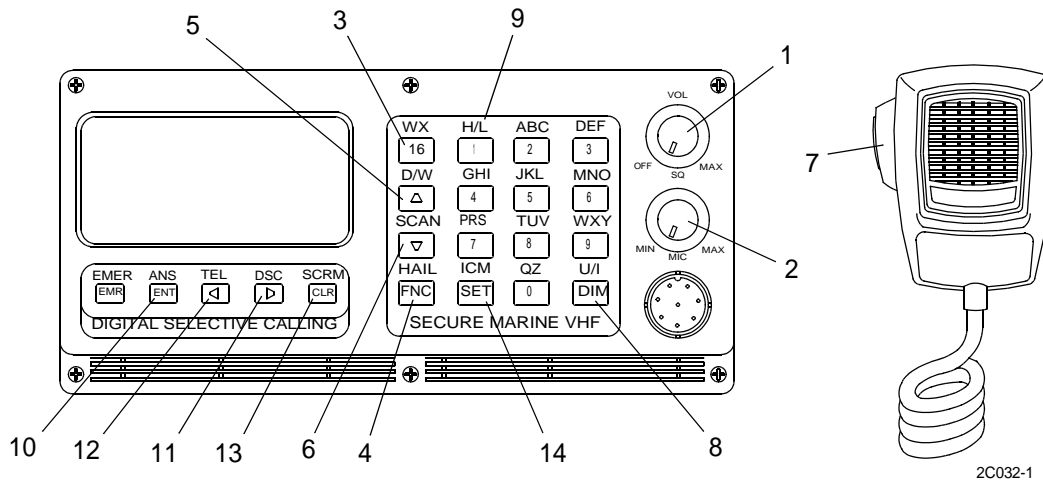
MODEL IDENTIFICATION

WARNING

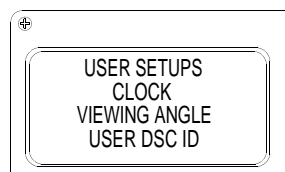
During tactical operations, any vessel can request position through the DSC VHF/FM transceiver. There is no request authorization required nor can this request be seen by the vessel operator. During tactical operations, switch SW3 on the AN/PSN-11 Interface and switchbox should remain in the OFF position and used only as necessary to prevent unwanted interrogation of position for vessels equipped with a DSC transceiver not manufactured to military specification. Vessels operating with a DSC transceiver manufactured to military specification may leave switch SW3 on the AN/PSN-11 Interface and switchbox in the on position, but must operate with the covert mode enabled. Failure to comply during tactical operations could result in injury or death to personnel.

NOTE

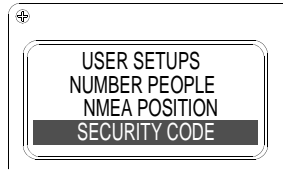
The DSC transceiver has been manufactured with different models. These models can be categorized as military specification and non-military specification transceivers.



- To determine the type of transceiver installed, military specification or non-military specification, press the SET key (14). The USER SETUPS menu will appear.

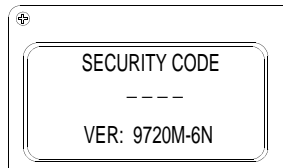


- Press the DOWN ARROW key (6) until SECURITY CODE is highlighted.



2C032-3

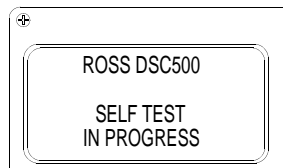
- Press the ENT key (10). A software version number appears on the bottom line of the display. The letter “M” after the four numerical digits denotes that the transceiver has been manufactured to military specification. Absence of the letter “M” denotes that the transceiver has not been manufactured to military specification.



2C032-4

POWER ON AND VOLUME

- Rotate the VOLUME KNOB (1) clockwise to turn the power on.



2C032-5

- Rotate the knob further clockwise to adjust the audio output level. If a self-test fails, a message describing the failure will be displayed.

POWER OFF

- Rotate the knob further counterclockwise to decrease the audio output level.
- Rotate the VOLUME KNOB (1) counterclockwise until it clicks to turn the power off. The display becomes blank and the transceiver does not receive any calls. Memory is protected by an internal battery.

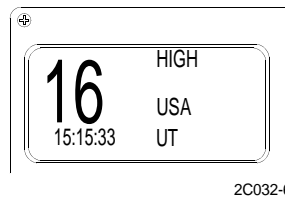
SQUELCH

- Rotate the SQUELCH KNOB (2) counterclockwise until background noise is heard.
- Adjust the knob clockwise until slightly beyond the point where noise is muted.

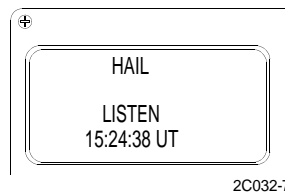
PRIMARY MODE**NOTE**

The Primary mode is the basic communication mode of the transceiver. In voice contacts, both calling and routine communications use the Primary mode. Even when a DSC call is placed or received, the routine communications that follow the DSC operations use the Primary mode.

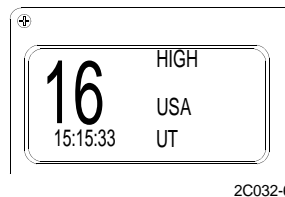
1. Press the 16 key (3). Any function, active or pending, is canceled and the Primary mode display appears with channel 16 selected.



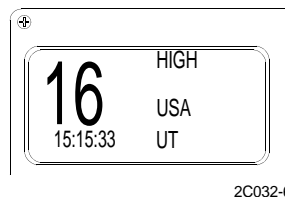
2. Press two channel number keys. In all modes, except open edits where alphanumeric entry is expected, pressing two channel number keys invokes the Primary mode and selects the entered channel number.
3. Press the function keys for the current active mode again. For example, to select the Hail mode, press the FNC/HAIL key (4) twice. The HAIL display appears.



4. To cancel the HAIL mode, press the FNC/HAIL key (4) twice again. The Primary mode display appears.

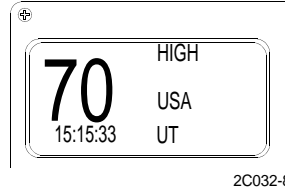
**CHANGING CHANNELS**

1. To select the calling and safety channel, press the 16 key (3). The Primary mode display appears with channel 16 selected as the working channel.



2. To select a working channel, press the UP ARROW key (5) or DOWN ARROW key (6) or two number keys for the desired channel when the Primary mode is active.

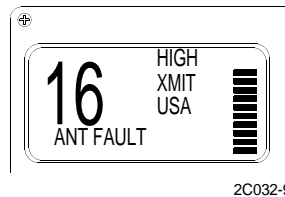
3. If the transceiver has another mode active, the scan menu for example, two options are available to select a new channel.



- a. Pressing the functions keys for the active mode returns to the Primary mode with the current working channel active. Press the arrow keys or two number keys to select the desired channel.
- b. Also, in most menu display modes, pressing two number keys corresponding to a desired channel changes to the Primary mode with the new channel active.

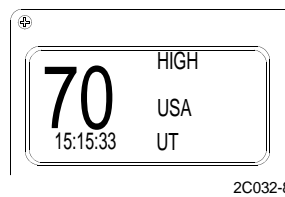
TRANSMITTING

1. To transmit, hold the microphone near your lips and press the PUSH TO TALK button (7) on the microphone. .
2. If a bad antenna condition is detected, the alarm message ANT FAULT appears in the lower line of the display as long as transmission is attempted. Note that the transceiver continues to attempt transmission even though the alarm message appears.

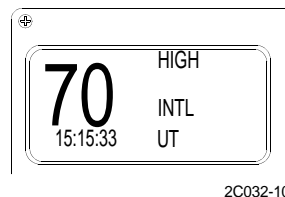


USA OR INTERNATIONAL FREQUENCIES

1. The DSC may be operated on either the USA or INTERNATIONAL FREQUENCIES. The current selection appears in the Primary mode display.

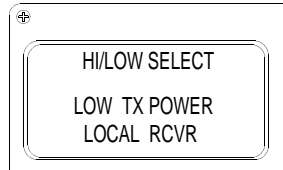


2. To change the current frequency set, press the FNC key (4) and U/I key (8) while the Primary mode is active. The annunciator toggles between USA and INTL each time the keys are pressed.



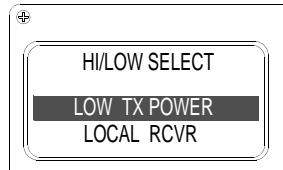
TRANSMITTER POWER SETTING

1. To change the current power setting, select the Primary mode. Press the FNC key (4) and H/L key (9). The HI/LOW SELECT menu appears in the display.



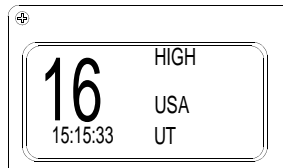
2C032-11

2. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on TX POWER. Observe that the setting appearing in the display is the opposite of the current setting.



2C032-12

3. Press the ENT key (10). The Primary mode display appears with the new power setting. Pressing any key other than the ENT key (10) exits the HI/LOW SELECT menu without changing the power setting.

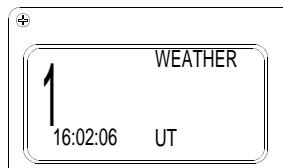


2C032-6

4. The transmit power control for channels 13 and 67 operate differently than all others. These channels are normally low power and the power setting cannot be changed. To transmit on high power, the FNC key (4) and H/L (9) keys must be pressed and held while the microphone's PUSH TO TALK button (7) is pressed. The HIGH annunciator appears in the display while transmitting at 25 watts.

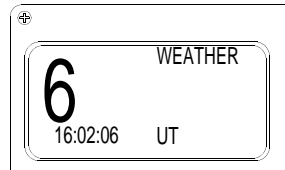
WEATHER

1. Press the FNC key (4) and WX key (3) to receive recorded weather broadcasts. The WEATHER display will appear and the last used channel will be selected.



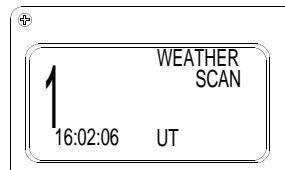
2C032-13

- Press the UP ARROW key (5) or DOWN ARROW key (6) or a number key to select a different weather channel.



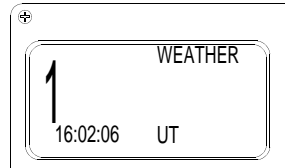
2C032-14

- Press the FNC key (4) and SCAN key (6) to scan all weather channels.



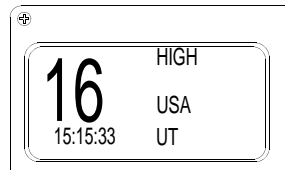
2C032-15

- Press the UP ARROW key (5) to force scanning to resume. To stop scanning and return to a weather channel, press the FNC key (4) and SCAN key (6) again.



2C032-13

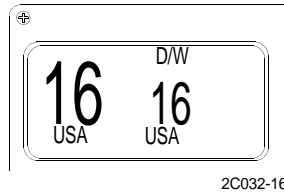
- To return to the Primary mode, press the FNC key (4) and WX key (3). To select any other mode, press the function key(s) for that mode.



2C032-6

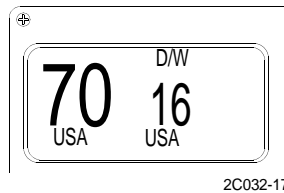
DUAL WATCH

1. Press the FNC key (4) and D/W key (5). The current working channel and last used priority channel numbers appear in the display.

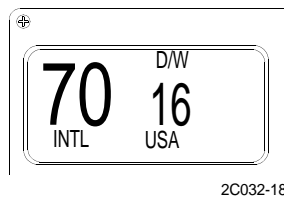
**NOTE**

The priority channel number appears in the smaller center digits of the display. The larger digits on the left of the display show the working channel. When activity is detected on the priority channel, the priority channel becomes the active channel. This will occur whether or not there is activity on the working channel. The radio will transmit only on the channel number displayed in the larger digits.

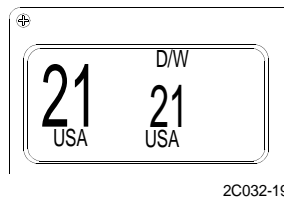
2. Pressing the PUSH TO TALK button (7) will cancel the DUAL WATCH mode.
3. To change the working channel, press the UP ARROW key (5) or DOWN ARROW key (6) or appropriate number keys to select a working channel. A three beep tone will sound if an invalid channel is selected.



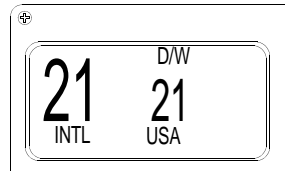
4. Press the FNC key (4) and U/I key (8) to change between USA and INTL frequencies.



5. To select or change the priority channel, press the RIGHT ARROW key (11). The smaller priority channel digits will begin flashing. The scan is halted while the digits are flashing. Press the UP ARROW key (5) or DOWN ARROW key (6) or appropriate number keys to select a priority channel.



- Press the FNC key (4) and U/I key (8) to change between USA and INTL frequencies for the priority channels. Press the LEFT ARROW key (12) or RIGHT ARROW key (11) to complete the priority channel selection.

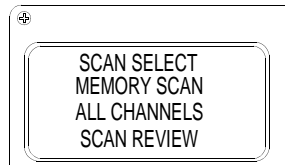


2C032-20

- The transceiver will resume scanning. D/W flashing in display indicates that scanning is active. Pressing the PUSH TO TALK button (7) on either channel will cancel the DUAL WATCH mode.
- Press the 16 key (3) to return to the Primary mode.

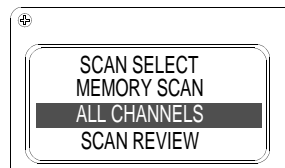
ALL CHANNEL SCAN

- Press the FNC key (4) and SCAN key (6). The SCAN SELECT display will appear.



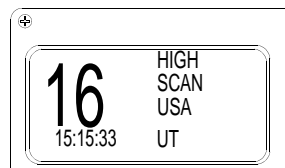
2C032-21

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select ALL CHANNELS with selection bar.



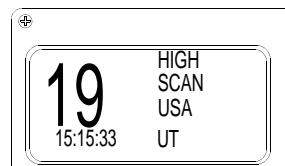
2C032-22

- Press the ENT key (10) to initiate channel scanning. All channels will be scanned in sequence.



2C032-23

- Press the UP ARROW key (5) to override the active channel and resume scanning.

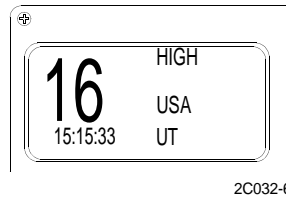


2C032-24

- Pressing the PUSH TO TALK button (7) or entering a channel number will cancel the ALL CHANNEL SCAN mode and select the Primary mode.

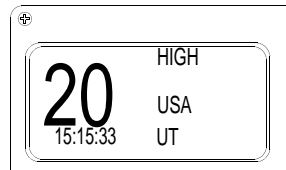
SCAN MEMORY

1. Press the 16 key (3) to select the calling channel. The Primary mode display will appear.



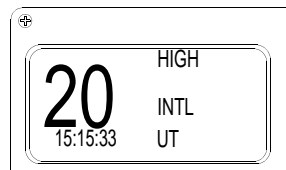
2C032-6

2. Press the UP ARROW key (5) or DOWN ARROW key (6) or appropriate number keys to select a desired channel.



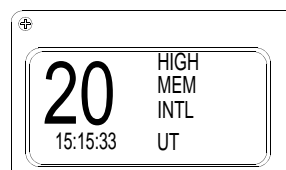
2C032-25

3. Press the FNC key (4) and U/I key (8) to change between USA and INTL frequencies, if necessary.



2C032-26

4. Press the ENT key (10) to enter the selected channel into Scan Memory. MEM will appear in the display.

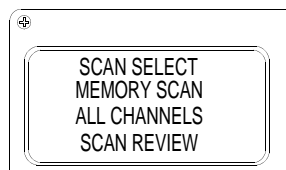


2C032-27

5. Press the CLR key (13) to remove a previously selected channel from SCAN MEMORY. MEM will not appear in display.

SCAN REVIEW

1. Press the FNC key (4) and SCAN key (6). The SCAN SELECT display will appear.



2C032-21

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select SCAN REVIEW with selection bar.

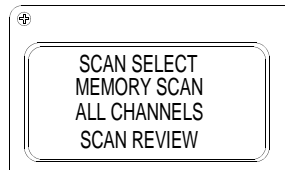


2C032-28

- Press the ENT key (10) to initiate SCAN REVIEW. Each channel in SCAN MEMORY will be displayed for 1 second. Two beeps will sound at the end of the list.

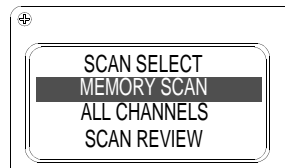
MEMORY SCAN

- Press the FNC key (4) and SCAN key (6). The SCAN SELECT display will appear.



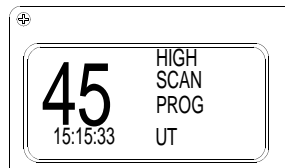
2C032-21

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select MEMORY SCAN with selection bar.



2C032-29

- Press the ENT key (10) to initiate scanning. Only channels previously assigned to SCAN MEMORY will be scanned. Press the UP ARROW key (5) to override an active channel and resume scanning.

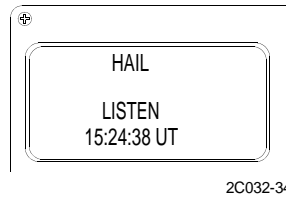


2C032-30

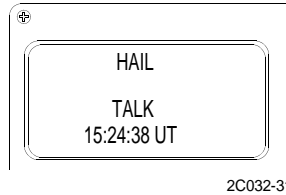
- To remove an excessively active channel from SCAN MEMORY, press the CLR key (13) while the scan is stopped on the channel.
- Pressing the PUSH TO TALK button (7) or entering a channel number will cancel the MEMORY SCAN mode and select the Primary mode. If the channel number is valid, the channel entered will be selected. If not valid, the channel being scanned at the first number key entry will become active.

HAIL

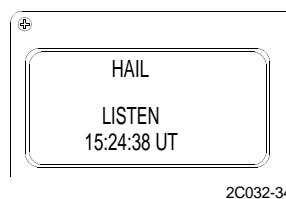
1. Press FNC/HAIL key (4) to select the HAIL MODE.



2. Press the PUSH TO TALK button (7) to speak through the hail speaker. TALK will appear in the display.



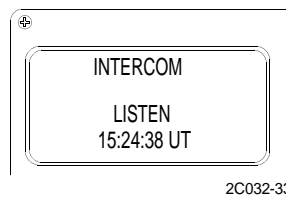
3. Release the PUSH TO TALK button (7) to listen through hail speaker. LISTEN will appear in the display.



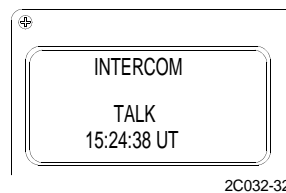
4. Use the VOL KNOB (1) to adjust the talk and listen levels. Press the FNC/HAIL key (4) again or enter a valid channel number to exit the HAIL MODE and resume Primary mode operation.

INTERCOM

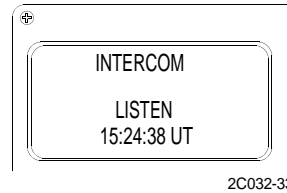
1. Press the FNC key (4) and ICM key (14) to select the Intercom mode. The INTERCOM display will appear.



2. Press the PUSH TO TALK button (7) to speak through the intercom speaker. TALK will appear in the display.



3. Release the PUSH TO TALK button (7) to listen through intercom speaker. LISTEN will appear in the display.



2C032-33

4. Use the VOL KNOB (1) to adjust the talk and listen levels. Press the FNC key (4) and ICM key (14) again or enter a valid channel number to exit the Intercom mode and resume Primary mode operation.

Table 1. VHF Marine Channels and Frequencies.

| CHAN NUMB | SIMP USA | DUP INTL | USA CHANNEL ASSIGNMENT | INTL CHANNEL ASSIGNMENT | RECEIVE (USA) FREQ. MHZ | RECEIVE (INTL) FREQ. MHZ | TRANSMIT FREQ. MHZ |
|-----------|----------|----------|----------------------------------------|-------------------------|-------------------------|--------------------------|--------------------|
| 01 | S | D | Port Operations | Port Operations | 156.050 | 160.650 | 156.050 |
| 02 | S | D | Port Operations | Port Operations | 156.100 | 160.700 | 156.100 |
| 03 | S | D | Intership & Coast-Coast | Public Correspondence | 156.150 | 160.750 | 156.150 |
| 04 | S | D | Port Operations | Port Operations | 156.200 | 160.800 | 156.200 |
| 05 | S | D | Port Ops. (Intership/Ship-Coast) | Port Operations | 156.250 | 160.850 | 156.250 |
| 06 | S | S | Ship-Ship Safety Only | Intership Safety | 156.300 | 156.300 | 156.300 |
| 07 | S | D | Commercial (Intership/Ship-Coast) | Public Correspondence | 156.350 | 160.950 | 156.350 |
| 08 | S | S | Commercial (Intership) | Commercial | 156.400 | 156.400 | 156.400 |
| 09 | S | S | Comm./Non Comm. (Intership/Ship-Coast) | Port Operations | 156.450 | 156.450 | 156.450 |
| 10 | S | S | Commercial (Intership/Ship-Coast) | Port Operations | 156.500 | 156.500 | 156.500 |
| 11 | S | S | Commercial (Intership/Ship-Coast) | Port Operations | 156.550 | 156.550 | 156.550 |
| 12 | S | S | Port Operations (Intership/Ship-Coast) | Port Operations | 156.600 | 156.600 | 156.600 |

Table 1. VHF Marine Channels and Frequencies. (Continued)

| CHAN NUMB | SIMP USA | DUP INTL | USA CHANNEL ASSIGNMENT | INTL CHANNEL ASSIGNMENT | RECEIVE (USA) FREQ. MHZ | RECEIVE (INTL) FREQ. MHZ | TRANSMIT FREQ. MHZ |
|-----------|----------|----------|------------------------------------|-------------------------------|-------------------------|--------------------------|--------------------|
| 13 | S | S | Navigation (Ship-Ship) | Port Operations | 156.650 | 156.650 | 156.650 |
| 14 | S | S | Port. Ops. (Intership/Ship-Coast) | Port Operations | 156.700 | 156.700 | 156.700 |
| 15 | S | S | Environmental | On-Board Communications | 156.750 | 156.750 | 156.750 |
| 16 | S | S | Distress, Safety, and Calling | Distress, Safety, and Calling | 156.800 | 156.800 | 156.800 |
| 17 | S | S | State Control | On-Board Communications | 156.850 | 156.850 | 156.850 |
| 18 | S | D | Commercial (Intership/Ship-Coast) | Port Operations | 156.900 | 161.500 | 156.900 |
| 19 | S | D | Commercial (Intership/Ship-Coast) | Port Operations | 156.950 | 161.550 | 156.950 |
| 20 | D | D | Port Ops. (Intership/Ship-Coast) | Port Operations | 161.600 | 161.600 | 157.000 |
| 21 | S | D | U. S. Government Only | Port Operations | 157.050 | 161.650 | 157.050 |
| 22 | S | D | Coast Guard Only | Port Operations | 157.100 | 161.700 | 157.100 |
| 23 | S | D | U. S. Government Only | Public Correspondence | 157.150 | 161.750 | 157.150 |
| 24 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.800 | 161.800 | 157.200 |
| 224 | D | D | - | - | 161.8125 | 161.8125 | 157.2125 |
| 25 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.850 | 161.850 | 157.250 |
| 225 | D | D | - | - | 161.8625 | 161.8625 | 157.2625 |
| 26 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.900 | 161.900 | 157.300 |

Table 1. VHF Marine Channels and Frequencies. (Continued)

| CHAN NUMB | SIMP USA | DUP INTL | USA CHANNEL ASSIGNMENT | INTL CHANNEL ASSIGNMENT | RECEIVE (USA) FREQ. MHZ | RECEIVE (INTL) FREQ. MHZ | TRANSMIT FREQ. MHZ |
|-----------|----------|----------|------------------------------------|-------------------------|-------------------------|--------------------------|--------------------|
| 226 | D | D | - | - | 161.9125 | 161.9125 | 157.3025 |
| 27 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.950 | 161.950 | 157.350 |
| 227 | D | D | - | - | 161.9625 | 161.9625 | 157.3625 |
| 28 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 162.000 | 162.000 | 157.400 |
| 228 | D | D | - | - | 162.0125 | 162.0125 | 157.4125 |
| 60 | D | D | - | Port Operations | 160.625 | 160.625 | 156.025 |
| 61 | D | D | - | Port Operations | 160.675 | 160.675 | 156.075 |
| 62 | D | D | Public Correspondence | Public Correspondence | 160.725 | 160.725 | 156.125 |
| 63 | S | D | Port Operations | Port Operations | 156.175 | 160.775 | 156.175 |
| 64 | D | D | - | - | 160.825 | 160.825 | 156.225 |
| 65 | D | D | Port Ops. (Intership/ Ship-Coast) | Special Emergency | 156.275 | 160.875 | 156.275 |
| 66 | S | D | Port Ops. (Intership/ Ship-Coast) | - | 156.325 | 160.875 | 156.325 |
| 67 | S | S | Commercial Miss. River | Port Operations | 156.375 | 157.375 | 157.375 |
| 68 | S | S | Non-Commercial | Port Operations | 156.425 | 156.425 | 156.425 |
| 69 | S | S | Non-Commercial | Port Operations | 156.475 | 156.475 | 156.475 |
| 70 | S | S | Digital Selective Calling | Commercial | 156.525 | 156.525 | 156.525 |
| 71 | S | S | Non-Commercial | Port Operations | 156.575 | 156.575 | 156.575 |
| 72 | S | S | Non-Commercial | Commercial | 156.625 | 156.625 | 156.625 |
| 73 | S | S | Port Ops. (Intership/ Ship-Coast) | Port Operations | 156.675 | 156.675 | 156.675 |

Table 1. VHF Marine Channels and Frequencies. (Continued)

| CHAN NUMB | SIMP USA | DUP INTL | USA CHANNEL ASSIGNMENT | INTL CHANNEL ASSIGNMENT | RECEIVE (USA) FREQ. MHZ | RECEIVE (INTL) FREQ. MHZ | TRANSMIT FREQ. MHZ |
|-----------|----------|----------|------------------------------------------|--------------------------|-------------------------|--------------------------|--------------------|
| 74 | S | S | Port Ops. (Intership/ Ship-Coast) | Port Operations | 156.725 | 156.725 | 156.725 |
| 75 | S | S | Guard Channel | - | 156.775 | 156.775 | 156.775 |
| 76 | S | S | Guard Channel | - | 156.825 | 156.825 | 156.825 |
| 77 | S | S | Port Ops. (Intership) | Commercial | 156.875 | 156.875 | 156.875 |
| 78 | S | D | Non. Commercial | Port Operations | 156.925 | 161.525 | 156.925 |
| 79 | S | D | Commercial | Port Operations | 156.975 | 161.575 | 156.975 |
| 80 | S | D | Commercial | Port Operations | 157.025 | 161.625 | 157.025 |
| 81 | S | D | U. S. Government Only | Port Operations | 157.075 | 161.675 | 157.075 |
| 82 | S | D | U. S. Government Only | Port Operations | 157.125 | 161.725 | 157.125 |
| 83 | S | D | U. S. Government Only | Public Correspondence | 157.175 | 161.775 | 157.175 |
| 283 | D | D | - | - | 161.7875 | 161.7875 | 157.1875 |
| 84 | S | D | U. S. Government Only | Public Correspondence | 157.275 | 161.825 | 157.225 |
| 284 | D | D | - | - | 161.8375 | 161.8375 | 157.2375 |
| 85 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.875 | 161.875 | 157.275 |
| 285 | D | D | - | - | 161.8875 | 161.8875 | 157.2875 |
| 86 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.925 | 161.925 | 157.325 |
| 286 | D | D | - | - | 161.9375 | 161.9375 | 157.3375 |
| 87 | D | D | Public Correspondence (Ship-Coast) | Public Correspondence | 161.975 | 161.975 | 157.375 |

Table 1. VHF Marine Channels and Frequencies. (Continued)

| CHAN NUMB | SIMP USA | DUP INTL | USA CHANNEL ASSIGNMENT | INTL CHANNEL ASSIGNMENT | RECEIVE (USA) FREQ. MHZ | RECEIVE (INTL) FREQ. MHZ | TRANSMIT FREQ. MHZ |
|--------------|-------------|-------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------|
| 287 | D | D | - | - | 161.9875 | 161.9875 | 157.3875 |
| 88 | S | D | Commercial (Intership) | Public Correspondence | 157.425 | 162.025 | 157.425 |

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

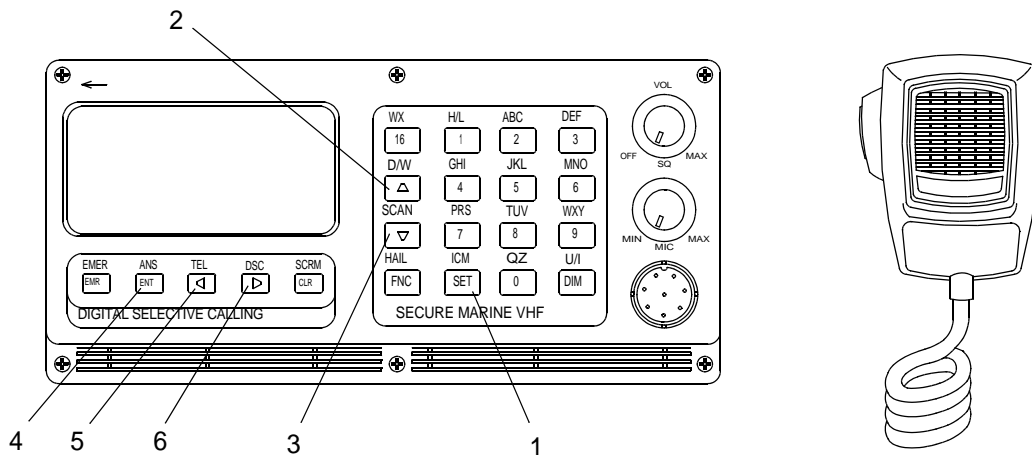
Personnel Required

Seaman 88K

PERFORM USER SETUPS FOR THE DSC VHF/FM TRANSCEIVER

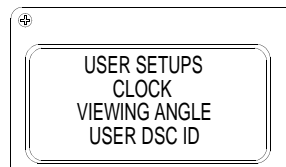
NOTE

USER SETUPS allow certain characteristics of the DSC to be set or changed according to the user's preference. Once the preferences have been set, they will be retained in memory until again changed by the user.



2C033-1

1. Press the SET key (1). The USER SETUPS menu will appear.



2C033-2

2. Press the UP ARROW key (2) or DOWN ARROW key (3) to position the selection bar on the desired selection.
3. Press the ENT key (4) to complete the selection. The appropriate setup page will appear.
4. Press LEFT ARROW key (5) or RIGHT ARROW key (6) to select the character to be changed.
5. Press the UP ARROW key (2), DOWN ARROW key (3) or a NUMBER KEY to change a value.

NOTE

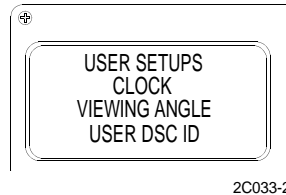
If the ENT key is not pressed to complete an operation, the new setup information will not be remembered.

6. Press the ENT key (4) to complete the operation and return to the USER SETUPS menu.

CLOCK SETUP**NOTE**

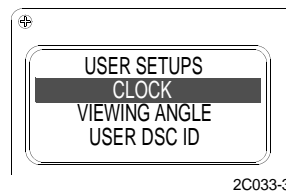
The CLOCK SETUP page allows the user to choose how the time of day will appear in certain displays. The time may be displayed as either local time or UTC time. Local time may be displayed in AM/PM or 24 hour format. UTC time is always displayed in 24 hour format.

1. Press the SET key (1). The USER SETUPS menu will appear.



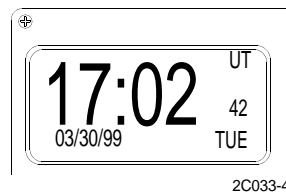
2C033-2

2. Press the UP ARROW key (2) to highlight CLOCK.



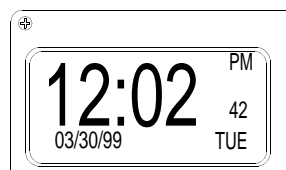
2C033-3

3. Press the ENT key (4). The CLOCK display will appear. The date and day of the week appear in the lower line of the display. The large digits display the hours and the minutes. Seconds are displayed to the lower right. The two letters in the upper right hand corner of the display indicate how the time is displayed. AM or PM indicates 12 hour format, MT indicates 24 hour military format and UT indicates Universal Coordinated Time. Universal Coordinated Time (UTC) has been known as Greenwich Mean Time (GMT) or Zulu time.



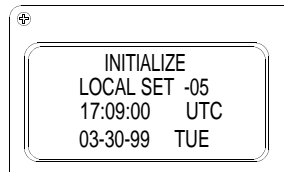
2C033-4

4. Press either the UP ARROW key (2), DOWN ARROW key (3), LEFT ARROW key (5) or RIGHT ARROW key (6) to change between AM/PM or MT or UT.



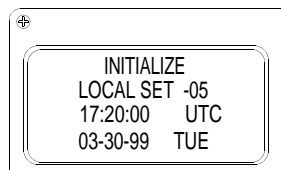
2C033-5

5. Press the CLR key (7). The INITIALIZE page will appear to change the time, date, day of week, or local offset from UTC,. The UTC time, date and day of the week appear in the lower two lines of the display. The LOCAL SET line in the display show the offset from UTC to local time as + or D the number of hours from your location to the Greenwich meridian. The + or D sign will be flashing.



2C033-6

6. Press the UP ARROW key (2) to change the sign.
7. Press the RIGHT ARROW key (6) to select the next digit in the offset field. Enter the correct number of hours. As each digit is entered, the flashing digit will move to the next position.

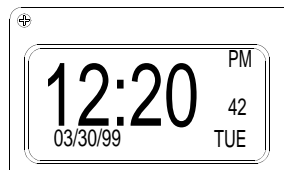


2C033-7

NOTE

If this is the first time you have set the clock, you may want to set the time several minutes ahead to allow for following the instructions.

8. To correct an entry, press the LEFT ARROW key (5) to backspace.
9. To skip a digit, press the RIGHT ARROW key (6). Enter the correct UTC time in hours and minutes. As each digit is entered, the flashing digit will move to the next position.
10. After the time is set, the flashing digit will move to the first digit on the lower line of the display. Press the appropriate number keys to enter the date.
11. When the date is complete, press the UP ARROW key (2) repeatedly to select the day of the week.
12. When all information is displayed correctly, press the ENT key (4). The clock will be started at 00 seconds and the CLOCK display will appear. If desired, the clock may be set accurately to the second by setting the time a minute ahead and then pressing the ENT key (4) at 00 seconds on the time reference.

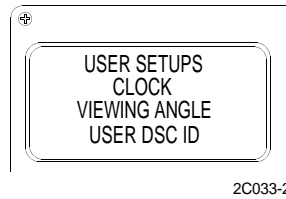


2C033-8

13. The UTC time will be corrected by the AN/PSN-11(V)1 PLGR if the system is operational.
14. Press the 16 key to return to the Primary mode.

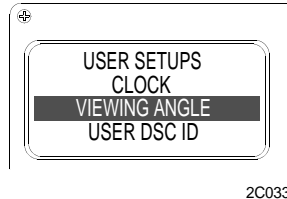
VIEWING ANGLE

1. Press the SET key (1). The USER SETUPS menu will appear.



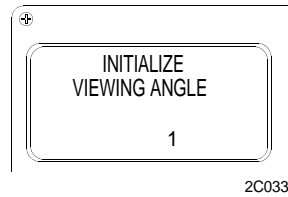
2C033-2

2. Press the UP ARROW key (2) or DOWN ARROW key (3) to select VIEWING ANGLE with the selection bar.



2C033-9

3. Press the ENT key (4). The INITIALIZE VIEWING ANGLE page will appear.

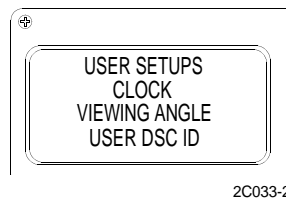


2C033-10

4. Press the UP ARROW key (2) or DOWN ARROW key (3) or an appropriate number key (0-7) to change the contrast between the background and the displayed character.
5. Press the ENT key (4) to complete the operation and return to the USER SETUPS menu.
6. Press the 16 key to return to the Primary mode.

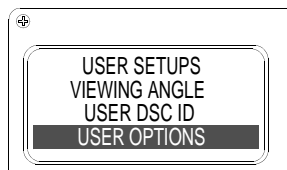
USER OPTIONS

1. Press the SET key (1). The USER SETUPS menu will appear.



2C033-2

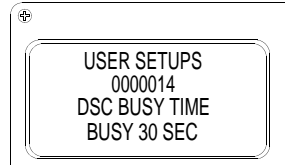
2. Press the UP ARROW key (2) or DOWN ARROW key (3) to select USER OPTIONS with the selection bar.



2C033-11

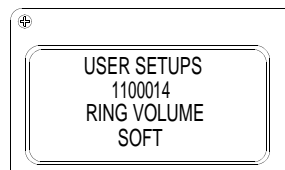
3. Press the ENT KEY (4), the USER OPTIONS page will appear with a seven digit number in the second line of the display.

4. Press the LEFT ARROW key (5) or RIGHT ARROW key (6) to select a digit position. The active digit position will flash.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to change to the desired value. When all digit positions are set to the desired option press the ENT key (4) to complete the operation and return to the USER SETUPS menu.
6. Press the RIGHT ARROW key (6) to select the first digit position.
7. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to change to the desired DSC BUSY TIME: The amount of time, after the release of the PUSH TO TALK button (8), that the transceiver will respond to a DSC call with a busy signal.



2C033-12

8. Press the RIGHT ARROW key (6) to select the second digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to change to the desired ring volume.

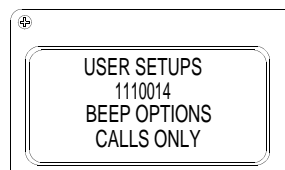


2C033-13

9. Press the RIGHT ARROW key (6) to select the third digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to change to ALL ON, CALLS ONLY, or ALL OFF. The distress signal will sound with any option.

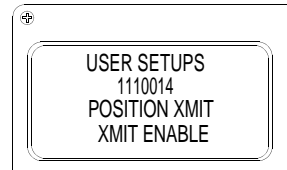
NOTE

If a distress signal is sent, position coordinates will be transmitted with either option selected, provided the AN/PSN-11(V)1 PLGR is operational.



2C033-14

10. Press the RIGHT ARROW key (6) to select the fourth digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to select POSITION XMIT or XMIT ENABLE.

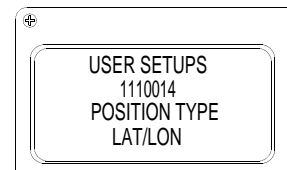


2C033-15

NOTE

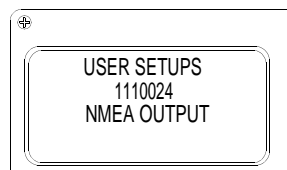
LATITUDE/LONGITUDE should always be selected in the fifth position of the USER SETUP menu.

11. Press the RIGHT ARROW key (6) to select the fifth digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to select LATITUDE/LONGITUDE.



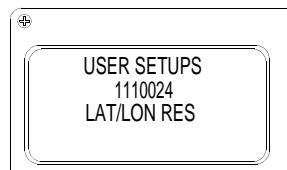
2C033-16

12. Press the RIGHT ARROW key (6) to select the sixth digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to select NMEA output sentences available from the data interface. Each selection provides one or more sentences to facilitate connection to plotters, displays, or personal computers. OPTION0: Outputs the \$LCGLL sentence for any LAT./LON position received from another vessel. OPTION 1: Outputs \$CDWPL and \$CDBWC sentences for LAT./LON positions received from another vessel. OPTION 2: Repeats every 5 seconds a \$CDGLL sentence for any LAT./LON position received through the NMEA data input to the DSC. Also outputs \$CDWPL and \$CDBWC sentences each time a LAT./LON position received through the NMEA data input to the DSC. Also outputs \$CDWPL and \$CDBWC sentences each time a LAT./LON position is received from another vessel. OPTION 3: Proprietary. OPTION 4: Repeats character \$GPGGA, \$xxVTG, and \$GPGSV sentences received through the NMEA data input.



3C030-17

13. Press the RIGHT ARROW key (6) to select the seventh digit position. Press the UP ARROW key (2) or DOWN ARROW key (3) repeatedly to select LAT/LON RESOLUTION to set the number of decimal places in LAT/LON position.



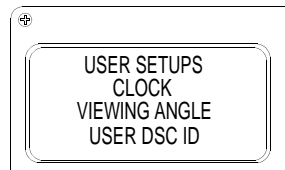
2C033-18

14. Press the 16 key to return to the Primary mode.

COVERT MODE**NOTE**

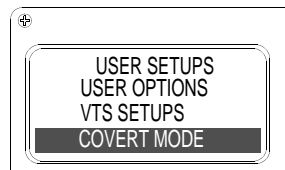
Only military specification transceivers are equipped with the COVERT MODE option.

1. The Covert mode, when enabled, prevents the DSC transceiver from being interrogated by another vessel requesting position.
2. Press the SET key (1). The USER SETUPS menu will appear.



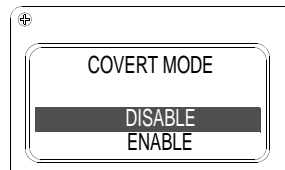
2C033-2

3. Press the DOWN ARROW key (3) to select Covert mode with the selection bar.



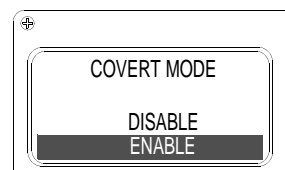
2C033-19

4. Press the ENT key (4), the Covert mode page will appear.



2C033-20

5. Press the DOWN ARROW key (3) to select ENABLE.



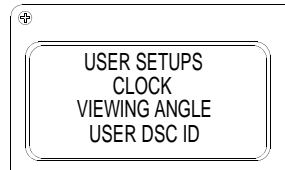
2C033-21

6. Press the ENT key (4). The display returns to the USER SETUPS menu.
7. Press the 16 key to return to the Primary mode.

WATCH 16

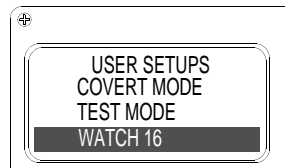
1. The WATCH 16 mode, when enabled, allows the operator to select a working channel other than channel 16 while monitoring channel 16. Any activity on channel 16 will cause the transceiver to change to channel 16 until the activity ceases. The transceiver then changes back to the operator assigned working channel.

- Press the SET key (1). The USER SETUPS menu will appear.



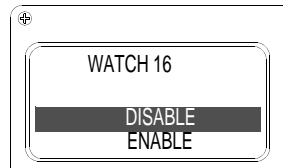
2C033-2

- Press the DOWN ARROW key (3) to select WATCH 16 with the selection bar.



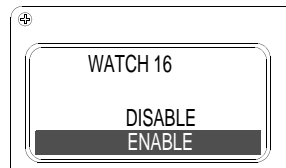
2C033-22

- Press the ENT key (4), the WATCH 16 page will appear.



2C033-23

- Press the DOWN ARROW key (3) to select ENABLE.



2C033-24

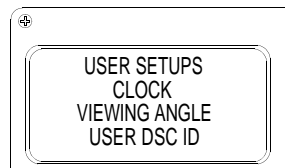
- Press the ENT key (4). The display returns to the USER SETUPS menu.
- Press the 16 key to return to the Primary mode.

STATION NUMBER

NOTE

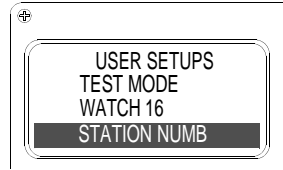
Only transceivers manufactured to military specification have the station number mode.

- Press the SET key (1). The USER SETUPS menu will appear.



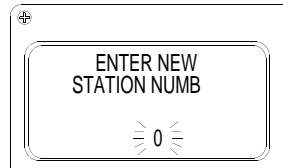
2C033-2

- Press the DOWN ARROW key (3) to select STATION NUMB with the selection bar.



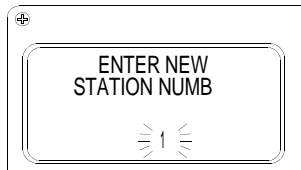
2C033-25

- Press the ENT key (4), the STATION NUMB page will appear.



2C033-26

- Enter the preferred STATION NUMBER.



2C033-27

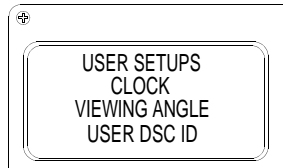
- Press the ENT key (4). The display returns to the USER SETUPS menu.
- Press the 16 key to return to the PRIMARY MODE.

NMEA POSITION

NOTE

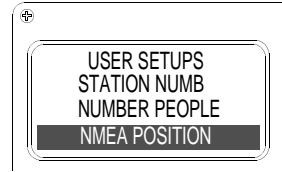
The NMEA POSITION function displays the position coordinates from the AN/PSN-11(V)1 PLGR.

- Press the SET key (1). The USER SETUPS menu will appear.



2C033-2

- Press the UP ARROW key (2) or DOWN ARROW key (3) to select NMEA POSITION with the selection bar.

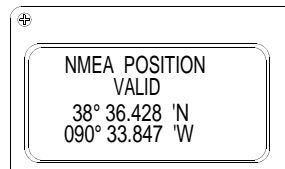


2C033-28

NOTE

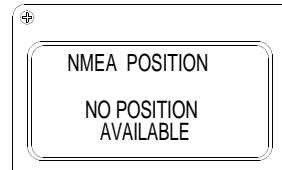
The DSC protocol specifies LAT./LON coordinates for reporting. The DSC is capable of using both TD and LAT./LON coordinates, depending upon the POSITION TYPE setting on the USER OPTIONS page. Ensure that POSITION TYPE is set up for LAT./LON.

- Press the ENT key (4). The NMEA POSITION page will appear. If position information is available from the AN/PSN-11(V)1 PLGR, the coordinates will appear.



2C033-29

- If position information is not available from AN/PSN-11(V)1 PLGR, NO POSITION AVAILABLE will appear in the lower two lines of the display.

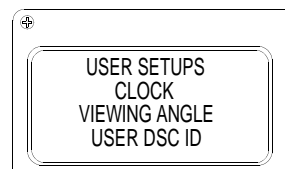


2C033-30

- Press the 16 key to return to the Primary mode.

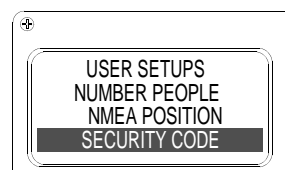
SECURITY CODE

- Press the SET key (1). The USER SETUPS menu will appear.



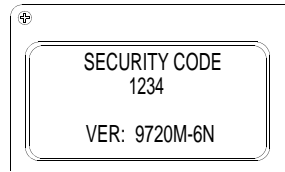
2C033-2

- Press the UP ARROW key (2) or DOWN ARROW key (3) to select SECURITY CODE with the selection bar.



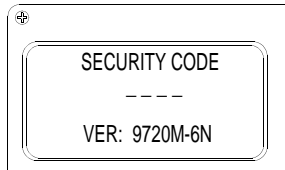
2C033-31

3. Press the ENT key (4). The SECURITY page will appear. Four dashes appear on the second line of the display if no code has been entered. The software version number, VER: #-#, appears in the lower line of the display. If a four digit number appears in the second line, it may be changed or deleted or left as is.



2C033-32

4. Press the CLR key (7) twice to clear an existing entry. Four dashes will appear in the display. To change an existing code or enter a new one, press the desired number keys. Four digits without spaces must be entered.



2C033-33

5. To correct an entry, press the LEFT ARROW key (5) to backspace. To skip a digit, press the RIGHT ARROW key (6).

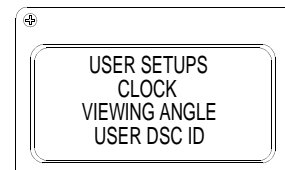
NOTE

When all information is displayed correctly, record the code number in a safe place. The next time the transceiver is turned on, you must know the code. If a security code is entered and not remembered, the transceiver's advanced features will not function. Contact a Ross Dealer or Ross Engineering Co. to restore the unit to full operation.

6. Press the ENT key (4) to complete the operation and return to the USER SETUPS menu.
7. Press the 16 key to return to the Primary mode.

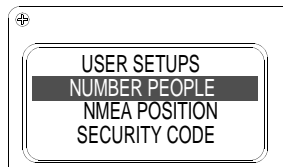
NUMBER OF PEOPLE

1. Press the SET key (1). The USER SETUPS menu will appear.



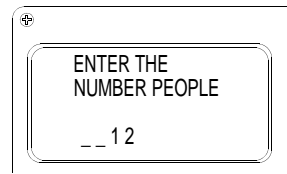
2C033-2

2. Press the UP ARROW key (2) or DOWN ARROW key (3) to select NUMBER PEOPLE with the selection bar and press the ENT key (4).



2C033-34

3. Enter the number of people using the digit keys on the keypad, press the ENT key (4) to save the information. This option is saved when the unit is turned off as with all USER SETUPS option.



2C033-35

4. Press the 16 key to return to the Primary mode.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

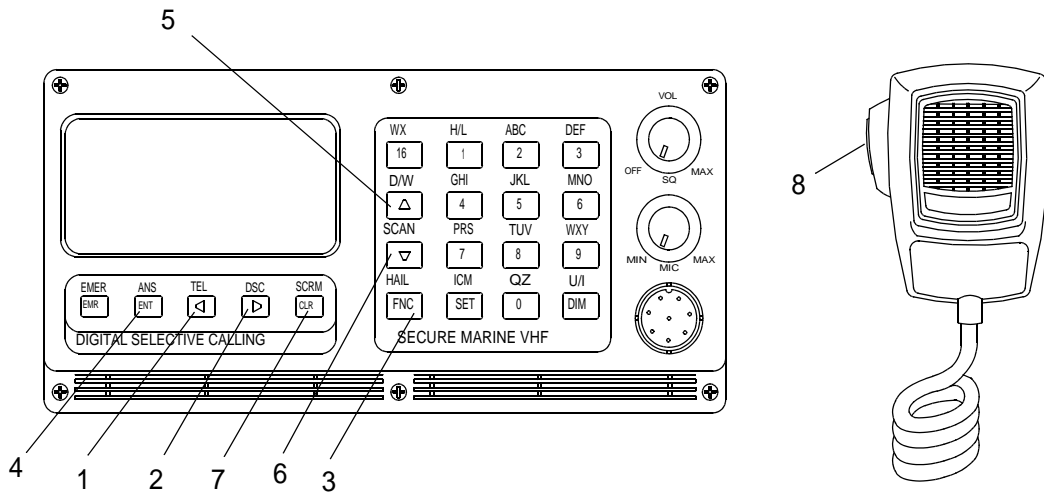
Personnel Required

Seaman 88K

OPERATE THE DSC FUNCTIONS FOR THE DSC VHF/FM TRANSCEIVER

DSC MODE MENU ARRANGEMENT

1. Access the DSC mode.



2C034-1

2. Press the LEFT ARROW key (1) to access the desired menu; DSC CALLING, DSC STANDBY, ALL SHIPS, DISTRESS DATA, GROUP POSITION, GROUP CALLING, REQUEST POSITION, and SEND POSITION.
3. Press the RIGHT ARROW key (2) to scroll through the menus and their data pages.
4. Press the LEFT ARROW key (1) to scrolls through the DSC functions menu.

NOTE

When certain selections are activated, another page will appear which either presents more information or allows the user to enter information into the page.

5. Press the UP and DOWN ARROW keys (5, 6) to highlight the desired selection with the menu bar.

DSC CALLING DIRECTORY**NOTE**

The basic procedure for entering names and numbers into directories is the same for all directories except CALL WAITING and DISTRESS DATA. These two directories automatically receive DSC calls and do not accept user entries from the keypad. However, logged entries may be cleared as desired from the CALL WAITING directory. The contents of all directories are protected from loss by an internal memory battery.

1. Press the FNC key (3) and DSC (2) keys to access the DSC CALLING directory . The DSC CALLING menu will appear in the display.



2C034-2

2. Select NEW ENTRY or SEARCH.

DSC GROUP CALLING DIRECTORY

1. Press the FNC key (3) and DSC (2) keys to access the DSC GROUP CALLING directory. The DSC CALLING menu will appear in the display.



2C034-2

2. Press the RIGHT ARROW key (2) repeatedly until the GROUP CALLING menu is displayed.



2C034-3

DSC COAST STATION DIRECTORY**NOTE**

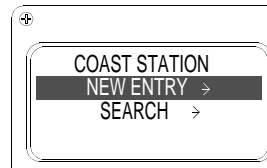
The DSC COAST STATION directory will accept 50 entries of station names and their ID numbers. The name may be one to ten characters and the ID number must be nine digits. Letters, numbers and spaces may be used in the name but at least one character must be entered. An ID number without a name will not be accepted.

1. To access the DSC COAST STATION directory, press the FNC key (3) and TEL key (1). The TELEPHONE menu will appear in the display.



2C034-4

2. Press the RIGHT ARROW key (2). The COAST STATION menu will appear in the display.



2C034-5

DSC TELEPHONE DIRECTORY**NOTE**

The DSC TELEPHONE directory will accept 200 entries of individual names and their telephone numbers. The telephone number may be up to 16 digits long, while the name may not exceed 10 characters. Letters, numbers and spaces may be used in the name but at least one character must be entered. A telephone number without a name will not be accepted. Letters are not accepted in telephone numbers.

1. Press the FNC key (3) and TEL key (1) to access the DSC TELEPHONE directory. The TELEPHONE menu will appear in the display.

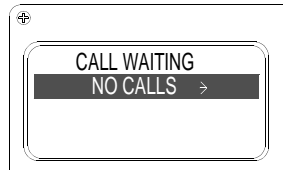


2C034-4

2. Select NEW ENTRY or SEARCH.

DSC CALL WAITING DIRECTORY

1. Press the FNC key (3) and ANS key (4) to access the DSC CALL WAITING directory. The CALL WAITING menu will appear in the display.



2C034-6

2. Select the call to be returned.

BUILDING DIRECTORIES

1. Press the FNC key (3) and TEL key (1) to select the TELEPHONE mode.



2C034-4

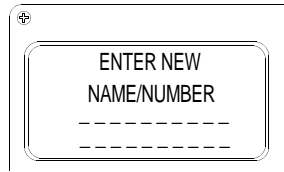
2. To access the DSC calling or group calling directories enter the DSC mode. Press the FNC key (3) and DSC key (2). When the desired mode is active, press the RIGHT ARROW key (2) to select the desired entry.



2C034-2

3. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on NEW ENTRY. Press the ENT key (4).

4. The ENTER NEW NAME/NUMBER page will appear. Dashes will appear in the lower two lines of the display.

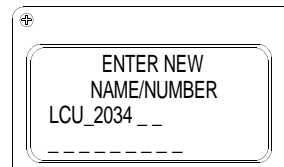


2C034-7

NOTE

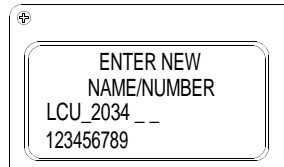
A name must be entered on the second line from the bottom of the display and the ID number must be entered on the lower line. A name may be one or more alphanumeric characters but the ID number must be nine digits. Names are entered by pressing the number key that is associated with the letters of the alphabet printed above them. The number for that key may be used as part of the name also. Alphabetic entries are allowed only on certain pages for entering names into directories. At other times, pressing a number key will enter a numeric value only.

5. To enter a letter into the name line of the display, press the appropriate number key.



2C034-8

6. Press the key repeatedly until the desired letter or the number appears in the character position. Then press the next key. The entry point will move to the next position automatically. If more than one letter from the same key must be entered in succession, press the RIGHT ARROW key (2) to move the entry point to the next character position. To enter a space, press the RIGHT ARROW key (2) twice. To correct an entry, press the LEFT ARROW key (1) to backspace. When the entry is complete, press the DOWN ARROW key (6) to move the entry point to the ID number line.



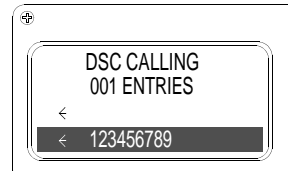
2C034-9

7. Press the appropriate number keys to enter the ship station identification number. To correct an entry, press the LEFT ARROW key (1) to backspace. To skip a digit, press the RIGHT ARROW key (2).
8. When all information is displayed correctly, press the ENT key (4) to complete the operation. The DSC CALLING menu will appear and the newest entry name will appear with the selection bar in the lower line of the display.



2C034-10

9. To check the ID number for the name, press the RIGHT ARROW key (2). The corresponding ID number will appear with the selection bar in the lower line of the display. To return to the name, press the LEFT ARROW key (1).



2C034-11

10. Use the LEFT ARROW (1) and RIGHT ARROW (2) keys to switch back and forth between a name page and a number page.
11. Press the UP ARROW key (5) and DOWN ARROW key (6) as appropriate to recall other names and numbers in the directory.
12. Press and hold down the appropriate ARROW key to scroll through the directory list.
13. Select NEW ENTRY from the menu and repeat the above entry procedure to add more entries to the directory.
14. Press the appropriate function keys again or enter a valid channel number to exit the directory and return to the Primary mode.
15. Press the function keys for the desired mode to exit the directory and select another mode.

CHANGE OR REMOVE AN EXISTING DIRECTORY ENTRY

1. To access a directory, first select the appropriate mode. To access the Telephone and Coast Station directories, enter the Telephone mode. Press the FNC key (3) and TEL key (1).



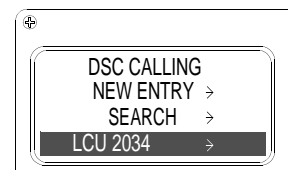
2C034-4

2. To access the DSC CALLING or GROUP CALLING directories, enter the DSC mode. Press the FNC key (3) and DSC key (2). Press the RIGHT ARROW key (2) as necessary to select the desired directory.



2C034-10

3. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on the entry you want to change or remove.



2C034-10

4. Press the CLR key (7). The ENTER NEW page will appear with the selected entry information displayed. The first character in the name will be flashing.
5. To remove the selection from the directory, press the CLR key (7) twice. Dashes will appear in the name line of the display.



2C034-12

6. Press the ENT key (4). Both the name and ID number have been cleared from the directory.

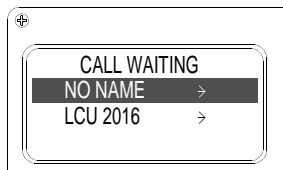


2C034-7

7. To change the name or ID number for the selection, press the UP ARROW key (5), DOWN ARROW key (6), LEFT ARROW key (1), or RIGHT ARROW key (2) to move the flashing entry point to the character to be changed. Press the appropriate number keys to make the desired changes. When all information is displayed correctly, press the ENT key (4) to complete the operation and enter the changes into the directory.

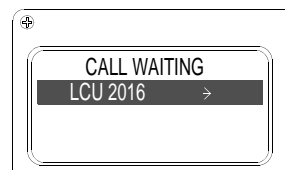
TRANSFER OR CLEAR FROM CALL WAITING

1. Press the FNC key (3) and ANS key (4) to access the DSC CALL WAITING directory,. The CALL WAITING menu will appear in the display.



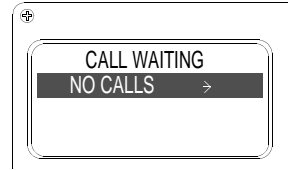
2C034-13

2. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on the entry you want to transfer or clear. If the selection has a name and you want to remove it from the directory, press and hold the CLR key (7) for two seconds. The selection will be cleared and the next entry in the directory will appear with the selection bar.



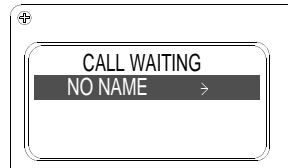
2C034-14

3. If no more entries exist in the directory, NO CALLS will appear in the display.



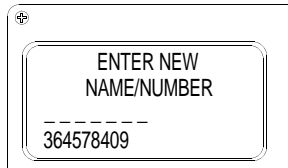
2C034-15

4. If the selection is NO NAME, press and hold the CLR key (7) for two seconds.



2C034-16

5. The ENTER NEW NAME/NUMBER page will appear. The ID number will appear in the lower line of the display and dashes will appear in the line above the ID number. The first dash will be flashing.



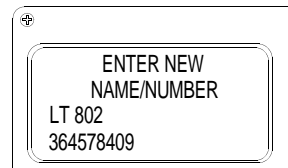
2C034-17

6. Press the ENT key (4) to clear the entry. The entry is cleared.

NOTE

To transfer the entry, a name must be entered in order to transfer the selected entry. A name may be one or more letters or numbers and may include spaces. At least one character must be entered. Names are entered by pressing the number key that is associated with the letters of the alphabet printed above them. The number for that key may be used as part of the name also.

7. Press the appropriate number keys to enter a name. When all information is displayed correctly, press the ENT key (4). The new name and its corresponding ID number have been added to the DSC calling directory also.



2C034-18

SEARCHING DIRECTORIES

NOTE

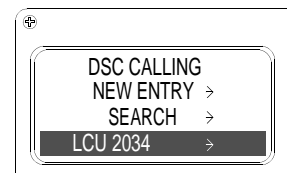
To search a directory, first select the appropriate mode.

1. Press the FNC key (3) and TEL key (1) to access the TELEPHONE and COAST STATION directories.



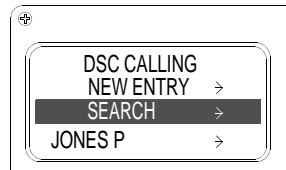
2C034-4

2. Press the FNC key (3) and DSC key (2) to access the DSC CALLING and GROUP CALLING directories.



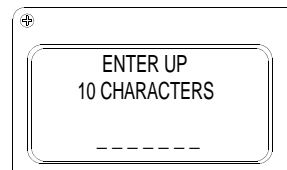
2C034-10

3. Press the RIGHT ARROW key (2) as necessary to select the desired directory. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on SEARCH in the directory menu.



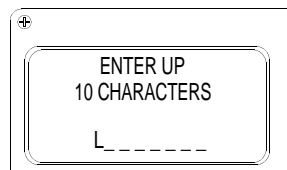
2C034-19

4. Press the ENT key (4). ENTER UP TEN CHARACTERS will appear in the display. Ten dashes will also appear on the lower line of the display. The first character position will be flashing.



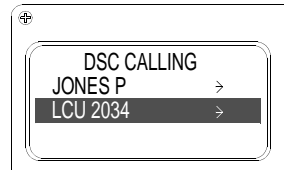
2C034-20

5. Press the appropriate key to enter one or more characters of the name to be found. Letters are entered by pressing the number key that is associated with the letters of the alphabet printed above them. The number for that key may be used as part of the name also.



2C034-21

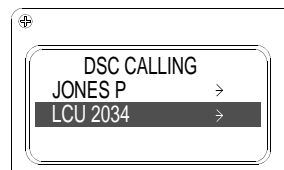
- Press the ENT key (4) to complete the operation. The name alphabetically nearest to the search character(s) will appear in the display with the selection bar. Press the UP ARROW key (5) or DOWN ARROW key (6) to position the selection bar on another entry if necessary. Once the desired entry is found, any appropriate function may be activated using the entry.



2C034-22

PLACING A DSC INDIVIDUAL CALL

- Select the primary mode by exiting any other active function. Press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel number is entered. Press the FNC key (3) and DSC key (2). The DSC calling menu will appear in the display.



2C034-22

NOTE

One of four status messages will appear when placing a call. These status messages are:

ANSWERED. Contact with the called vessel was established. After several seconds, the transceiver will switch to the primary mode and the selected working channel will be active. Normal communications may begin immediately. The called party's name will appear in the lower line of the display. The time of day will return to the lower line of the display after 1 minute.

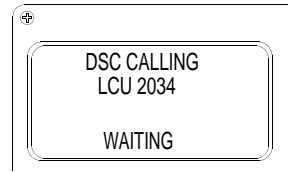
NO RESPONSE. Contact with the other vessel could not be established. After several seconds, the DSC calling directory will reappear with the called party's name at the top of the list. You may call again later or select another party to call.

BUSY. Contact was established but the transceiver was busy. Your call will be logged into the other transceiver's call waiting directory. After several seconds, the DSC calling directory will reappear with the called party's name at the top of the list. You may call again later or select another party to call.

UNATTENDED. Contact was established with the other vessel. The other vessel's transceiver is set to reply with the unattended message. For some reason an operator is not available to respond. Your call will be logged into the other transceiver's call waiting directory. After several seconds, your DSC calling directory will reappear with the called party's name at the top of the list. You may call again later or select another party to call.

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired party from the directory. A three or four beep tone will sound and a status message will appear in the display.

3. Press the ENT key (4) to initiate the call. The called party's name and WAITING will appear in the display.



2C034-23

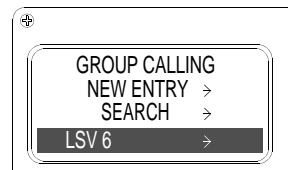
PLACING A DSC GROUP CALL

1. Select the Primary mode by exiting any other active function. Press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel number is entered.
2. Press the FNC (3) and DSC (2) keys. The DSC CALLING menu will appear in the display.



2C034-10

3. Press the RIGHT ARROW key (2) repeatedly until the GROUP CALLING menu appears. Press the DOWN ARROW key (6) to highlight the desired group name.

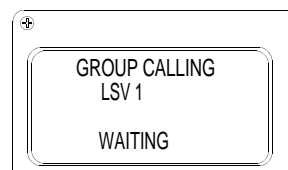


2C034-24

NOTE

On group calls, there is no acknowledgement from the called vessels. After several seconds, the transceiver switches to the primary mode and the selected working channel is active. The group name will appear in the lower line of the display. Normal communication may begin immediately and a voice poll or roll call should be made to confirm which group members are present. The time of day will return to the lower line of the display after 1 minute.

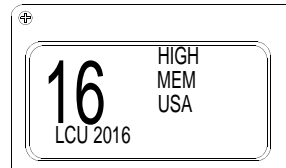
4. Press the ENT key (4) to initiate the call. The called group's name and WAITING will appear in the display.



2C034-25

DSC ANSWERING AND CALL WAITING
NOTE

Calls received while idle are signaled by short Hi/Lo beeps. RECEIVED DSC CALL FROM with the caller's name or DSC call sign will appear in the display for 5 seconds. The Primary mode display will appear with the caller's name or DSC call sign in the lower line. The channel number displayed will be the caller's working channel. The sound will repeat every 8 seconds until the call is answered or until the call is logged into the CALL WAITING directory after 60 seconds.



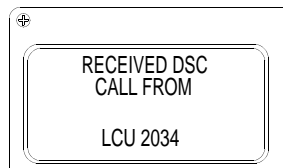
2C034-26

1. Press the PUSH TO TALK button (8) on the microphone and acknowledge the call verbally. If the call is not answered within 60 seconds, it will be logged into the CALL WAITING directory and may be returned later. To silence the beeps without answering the call, press the CLR key (7). The call will not be logged.

NOTE

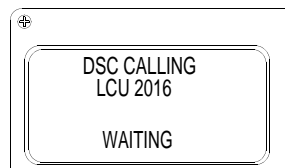
Calls received while busy or unattended are signaled by short Hi/Lo beeps that will sound only once. The call will be logged into the call waiting directory. The vessel that called will appear flashing in the lower line of the primary mode display. When you are able to return the call, press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel number is entered.

2. Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired caller from the directory.



2C034-27

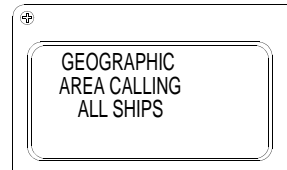
3. Press the ENT key (4) to answer the call on the current working channel of your radio. The called party's name and WAITING will appear in the display.



2C034-28

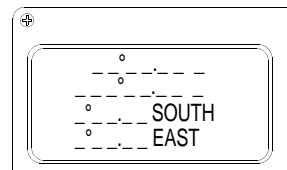
GEOGRAPHIC AREA CALLING

1. Access the DSC directory. Press the LEFT ARROW key (2) until the title GEOGRAPHIC AREA CALLING ALL SHIPS is displayed.



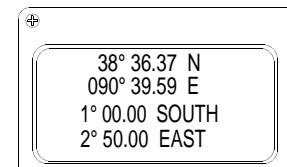
2C034-29

2. Press the ENT key (4) to open the edit to make a geographic area call.



2C034-30

3. Enter the latitude of the reference point on line one and the longitude reference point on line two. Enter the number of degrees and minutes of the North-to-South side on line three and the West-to-East side on line four.

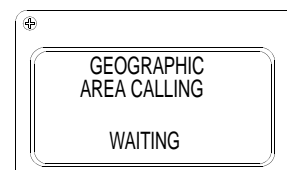


2C034-31

NOTE

The geographical area call will switch all vessels within the defined area to the calling radio's working channel just like a DSC Group Call.

4. Press the ENT key (4) to activate the DSC call.

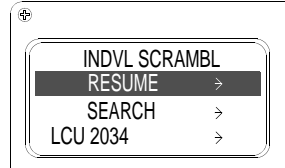


2C034-32

SCRAMBLER MODE

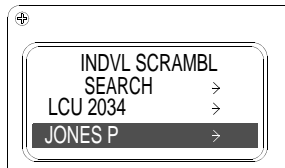
1. Place an individual scrambled call .
 - a. Select the primary mode by exiting any other active function.
 - b. Press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel is selected.

- c. Press the FNC key (3) and SCRM key (7). The INDIVIDUAL SCRAMBLER menu will appear in the display.



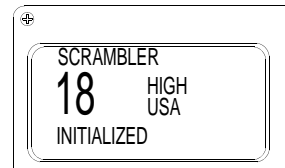
2C034-33

- d. Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired party from the directory.



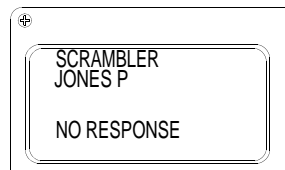
2C034-34

- e. Press the ENT key (4) to initiate the call. SCRAMBLER will appear in the upper line of the display and INITIALIZED will appear in the lower line. Working channel information will also be displayed.



2C034-35

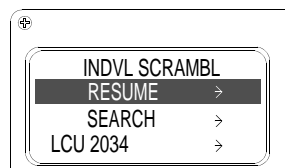
- f. A three or four beep tone will sound and either the called party's name or a status message will appear in the display. If the called party's name appears, the call was completed and scrambled voice communication may proceed.



2C034-36

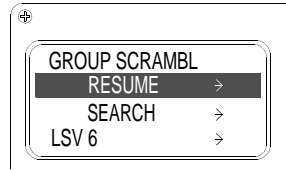
2. Place a scrambled group call.

- Select the primary mode by exiting any other active function.
- Press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel is selected.
- Press the FNC key (3) and SCRM key (7). The INDIVIDUAL SCRAMBLE menu will appear in the display.



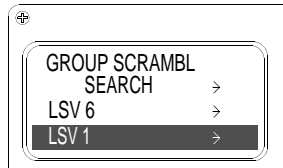
2C034-33

- d. Press the RIGHT ARROW key (2). The SCRAMBLER GROUP menu will appear in the display.



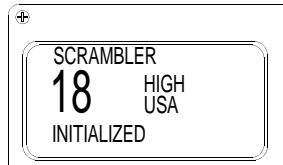
2C034-37

- e. Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired party from the directory.



2C034-38

- f. Press the ENT key (4) to initiate the call. SCRAMBLER will appear in the upper line of the display and INITIALIZED will appear in the lower line. Working channel information will also be displayed.

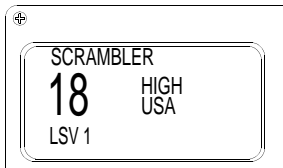


2C034-35

NOTE

In group calls there is no acknowledgement from the called vessels. A voice poll or role call should be made to confirm which group members are present.

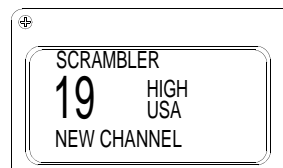
When the group name appears in the lower line of the display, voice contact may be initiated.



2C034-39

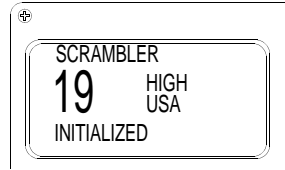
3. Change scrambler channels.

- a. Press the UP ARROW key (5) or DOWN ARROW key (6) or press the appropriate number keys to select a different working channel. A three beep tone will sound if an invalid channel is selected. NEW CHANNEL will appear in the lower line of the display.



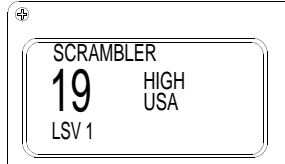
2C034-40

- b. Press the ENT key (4) to complete the operation. INITIALIZED will appear in the lower line of the display.



2C034-41

- c. When the called party's name returns to the lower line of the display, the channel change is complete and scrambled voice contact may resume.



2C034-42

- d. If the PUSH TO TALK button (8) is pressed before pressing the ENT key (4), the SCRAMBLER mode will be cancelled and the Primary mode will become active.

4. Cancel SCRAMBLE mode.

- a. Press the FNC key (3) and SCRM key (7) again or change channels and press the PUSH TO TALK button (8) instead of the ENT key (4).
- b. The SCRAMBLE mode may also be cancelled by pressing the appropriate function keys to activate another mode.

NOTE

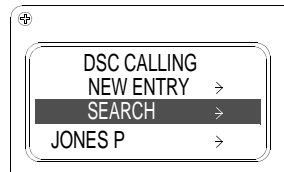
The resume feature allows the user to interrupt scrambled conversation to use the transceiver for other communication and return to the scrambled conversation without having to re-initialize. The working channel and scramble codes are memorized by the transceiver. The resume feature may be used in both individual and group scramble communication.

5. Resume SCRAMBLE mode.

- a. Press the FNC key (3) and SCRM key (7) to resume a scrambled call. The scramble menu will appear.
- b. Press the RIGHT ARROW key (2) to select GROUP.
- c. Press the UP ARROW key (5) to select RESUME.
- d. Press the ENT key (4). The SCRAMBLER display will appear showing the working channel and the other vessel's name.

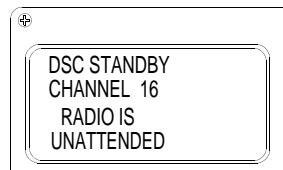
DSC STANDBY

1. Press the appropriate number keys to select the desired channel to monitor. A three beep tone will sound if an invalid channel is selected. Press the FNC key (3) and DSC key (2). The DSC CALLING menu will appear in the display.



2C034-19

2. Press the LEFT ARROW key (1) two times until the DSC STANDBY menu appears. DSC STANDBY, CHANNEL number, RADIO IS UNATTENDED will appear in the display with the selected monitor channel number.



2C034-43

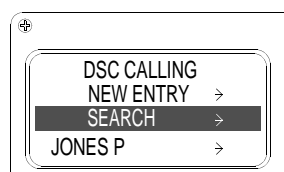
NOTE

When a DSC call is received, the radio will respond with the unattended message informing the caller that an operator is not available to answer the call. Calls received will be logged into the CALL WAITING directory.

3. Enter a valid channel number or press the PUSH TO TALK button (8) to cancel the DSC Standby mode and switch to the Primary mode.

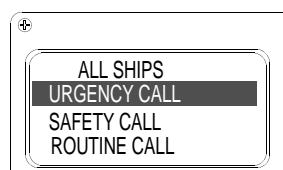
ALL SHIPS CALL

1. Press the appropriate number keys to select the desired working channel. A three beep tone will sound if an invalid channel is selected. Press the FNC key (3) and DSC key (2). The DSC CALLING menu will appear in the display.



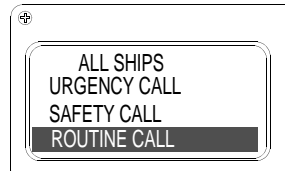
2C034-19

2. Press the RIGHT ARROW key (2) repeatedly until ALL SHIPS menu appears.



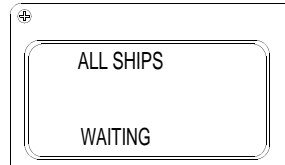
2C034-44

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select the priority for the call.



2C034-45

- Press the ENT key (4) to initiate the ALL SHIPS call. DSC transceivers aboard vessels receiving the call will ring and ALL SHIPS will appear in their display.



2C034-46

- The vessel initiating a all ships call should make a voice call to alert the other vessels.

SENDING POSITION

WARNING

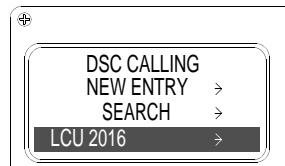
During tactical operations, any vessel can request position through the DSC VHF/FM transceiver. There is no request authorization required nor can this request be seen by the vessel operator. During tactical operations, switches SW1, SW2, SW3 on the AN/PSN-11 interface and switchbox should remain in the OFF position and used only as necessary to prevent unwanted interrogation of position for vessels equipped with a DSC transceiver not manufactured to military specification. Vessels operating with a DSC transceiver manufactured to military specification may leave switch SW3 on the AN/PSN-11 interface and switchbox in the on position but must operate with the Covert mode enabled. Failure to comply during tactical operations could result in injury or death to personnel.

NOTE

The send position function will override the POSITION XMIT DISABLE.

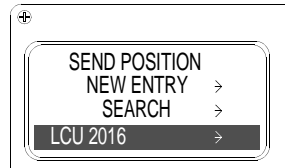
The type of position coordinates sent, either Lat./Lon or Loran TD's is determined by the POSITION TYPE USER OPTION in the USER SETUPS mode.

- To send the current position, press the FNC (3) and DSC (2) keys. The DSC CALLING menu will appear in the display.



2C034-47

- Press the RIGHT ARROW key (2) repeatedly until the END POSITION menu appears.

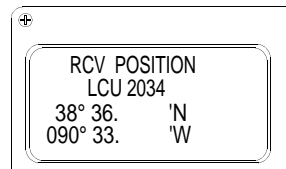


2C034-48

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired name from the directory. Press the ENT key (4) to initiate the call. There is no acknowledgement from the other vessel that the position was received.

RECEIVE A POSITION

- When a SEND POSITION call is received from another vessel, four beeps will sound and RCV POSITION will appear in the upper line of the display.



2C034-49

NOTE

The calling vessel's name or ship station identity number will appear in the second line and the calling vessel's coordinates will appear in the lower two lines of the display. At the same time as the position coordinates are displayed, the position information is output through the data interface. The interface may be connected to any device capable of receiving the information.

- Press the ENT key (4) if the receiving device was not ready to accept the data. Each time the key is pressed, the position coordinated will be output to the data interface.
- The display will remain until a valid channel number is entered or the PUSH TO TALK button (8) is pressed or another function is selected.

REQUEST POSITION**NOTE**

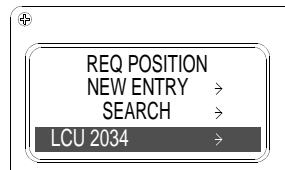
During tactical operations, any vessel can request position through the DSC VHF/FM transceiver. There is no request authorization required nor can this request be seen by the vessel operator. During tactical operations, switches SW1, SW2, SW3 on the AN/PSN-11 interface and switchbox should remain in the OFF position and used only as necessary to prevent unwanted interrogation of position for vessels equipped with a DSC transceiver not manufactured to military specification. Vessels operating with a DSC transceiver manufactured to military specification may leave switch SW3 on the AN/PSN-11 interface and switchbox in the on position but must operate with the Covert mode enabled. Failure to comply during tactical operations could result in injury or death to personnel.

1. Press the FNC key (3) and DSC (2) key to request the position of another vessel. The DSC CALLING menu will appear in the display.



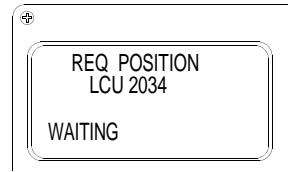
2C034-47

2. Press the RIGHT ARROW key (2) repeatedly until the REQ POSITION menu appears.



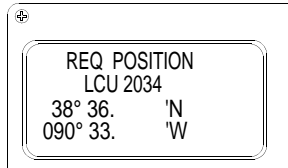
2C034-50

- Press the UP ARROW key (5) or DOWN ARROW key (6) to select the desired name from the directory. Press the ENT (4) key to initiate the call. The called vessel's name and WAITING will appear in the display.



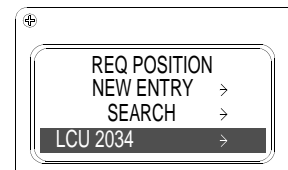
2C034-51

- Three or four beeps will sound and either the called vessel's coordinates or a status message will appear in the display.



2C034-52

- Press the ENT key (4) if the receiving device was not ready to accept the data. Each time the key is pressed, the position coordinates will be output to the data interface.
- To return to the REQUEST POSITION menu, press the CLR key (7).



2C034-50

- To return to the Primary mode, enter a valid channel number, press the PUSH TO TALK button (8) or select another mode by pressing the appropriate function keys.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

PERFORM INITIAL SETUP OF NAVTEX RECEIVER**UNPACK NAVTEX RECEIVER**

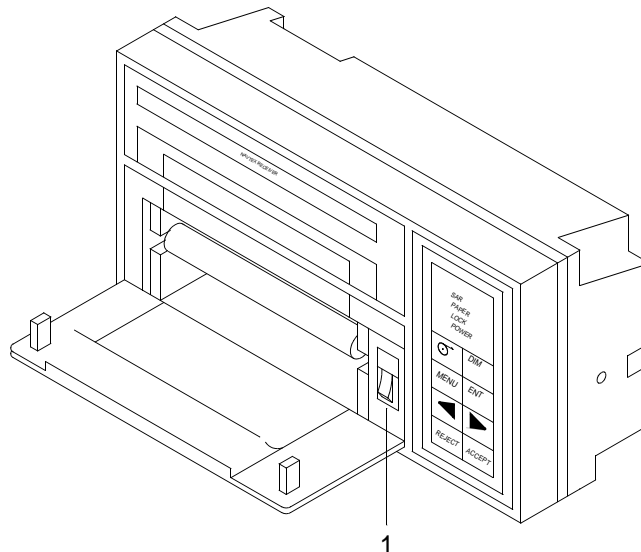
1. Remove NAVTEX receiver from shipping box.
 - a. Open top of shipping box.
 - b. Remove packing material.
 - c. Remove NAVTEX receiver.
2. Remove NAVTEX receiver from protective plastic bag.
3. Verify serial number embossed on outside of box with the serial number stamped on the back of NAVTEX receiver.

PERFORM INITIAL SETUP OF NAVTEX RECEIVER

1. Install NAVTEX receiver. (WP013300)
2. Load paper in NAVTEX receiver. (WP010800)
3. Turn power on. Press the POWER button (1).

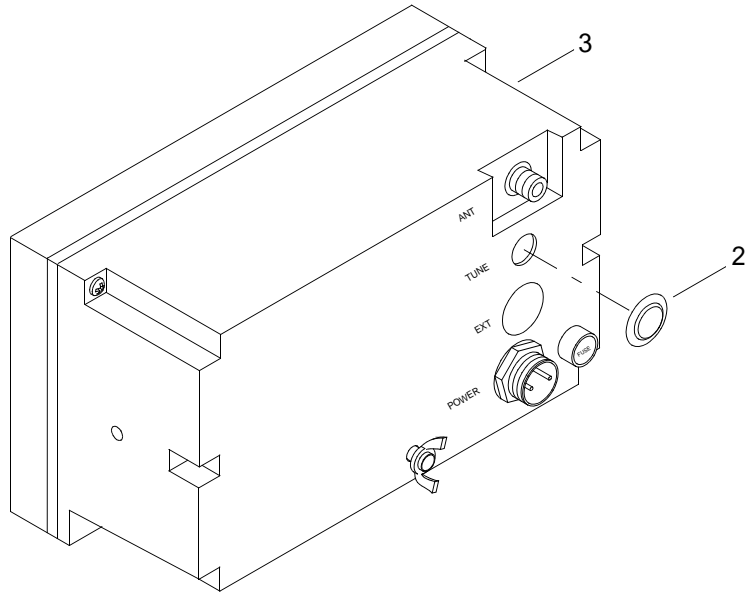
NOTE

Slide switch S2, inside the main unit, should be set according to the type of antenna used.



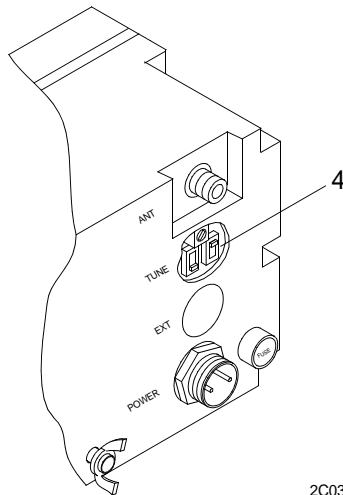
2C035-1

4. Remove the rubber cap (2) from the rear of the NAVTEX receiver (3).



2C035-2

5. Locate the slide switch, S2 (4).



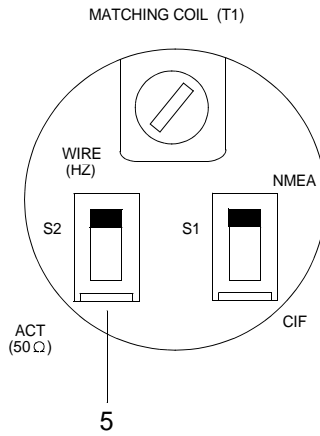
2C035-3

6. When preamp unit is not used, set switch S2 (5) to WIRE (HIGH IMPEDANCE).

NOTE

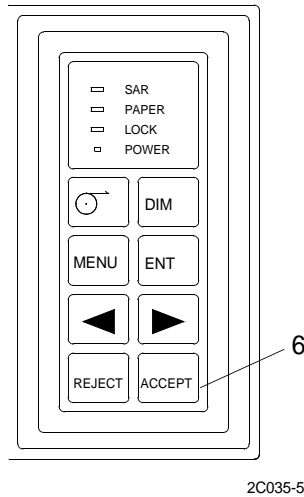
If interference is a problem, adjust the matching coil while monitoring the receiving signal.

When S2 is set to "WIRE", matching COIL T1 is inserted to enable tuning of the TELEX signal.



2C035-4

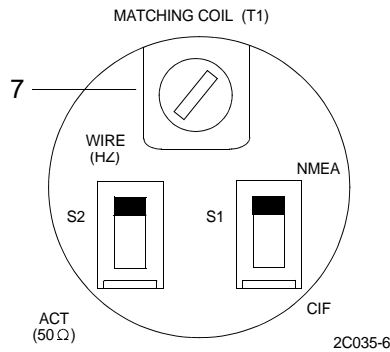
- a. To tune the telex signal, press the ACCEPT key (6) (in the Receiving mode) to monitor raw NAVTEX signal.



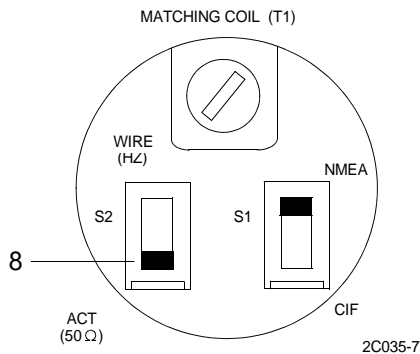
CAUTION

The core of T1 can only be rotated 2.5 turns between fully counterclockwise and fully clockwise positions. Rotation beyond this limit may damage the ferrite coil.

- b. Slowly rotate the core of T1 (7) until telex signal is heard clearly.



7. When preamp unit is used, set switch S2 (8) to ACT (50 OHMS).



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

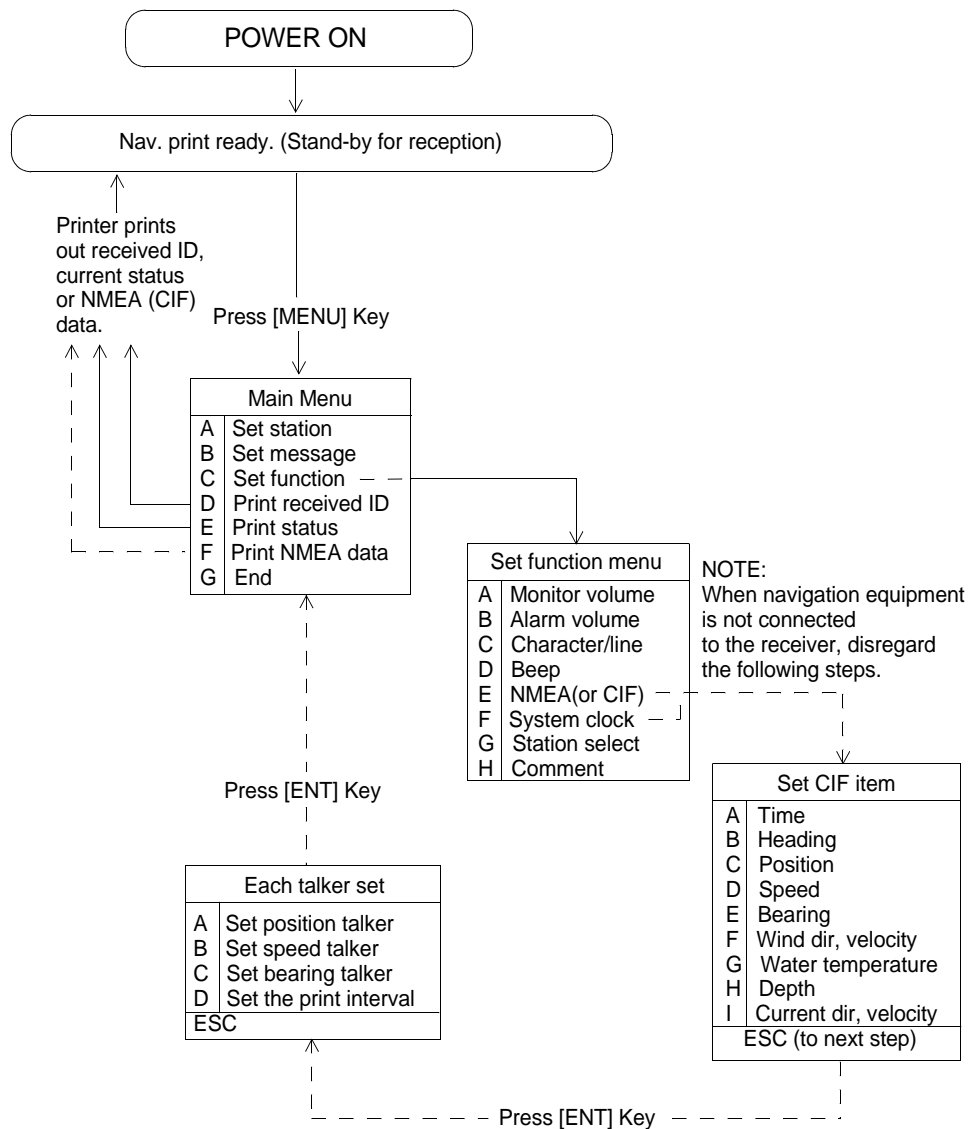
Personnel Required

Seaman 88K

OPERATE THE NAVTEX RECEIVER

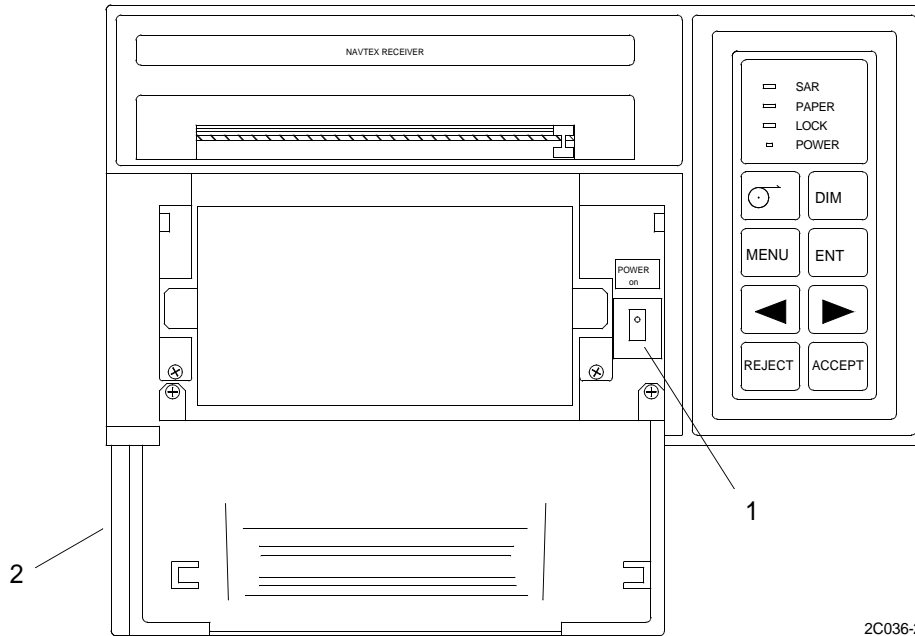
NOTE

The flow chart below shows configuration of commands provided in the NAVTEX receiver. It is useful if you forget at which command level you are, or if you would like to move to another setting. Most command levels selected at main menu revert to the main menu after selecting escape.



2C036-1

1. Open the front panel (2) and turn on the power switch (1).



2C036-2

NOTE

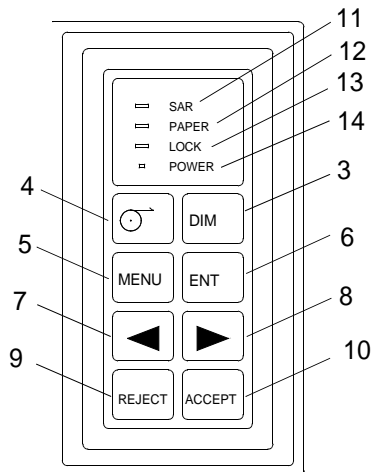
As soon as the NAVTEX receiver is turned on, the message "NAV. PRINT READY." is printed. This message indicates the receiver is in stand-by, ready to receive the NAVTEX signal.

The receiver should be turned on for the duration of a voyage so that important warning messages will not be missed.

2. Press the DIM key (3) to adjust paper illumination, touchpad panel backlighting and LED brightness concurrently.

NOTE

Each time the key is pressed, illumination, backlighting and brightness are changed in the sequence of BRIGHT-DIM-OFF.



2C036-3

3. Press the FEED key (3) to advance the paper by one line. To advance the paper more rapidly, press and hold the key. The key is inoperable while a message is being printed.
4. Press the MENU key (4) to display the main menu.
5. Press the ENT key (5) to register user-set data.
6. Press the < key (6) to move the cursor leftward.
7. Press the > key (7) to move the cursor rightward.
8. Press the REJECT key (8) to reject stations/messages or to enter lower case (small) characters.
9. Press the ACCEPT key (9) to select stations/messages or to enter upper case (capital) characters. Additionally, it also enables aural monitoring of NAVTEX signal.

NOTE

The SAR light (10) illuminates when a Search and Rescue (SAR) message is received. The audio alarm is also activated.

The PAPER light (13) illuminates when the receiver is out of paper.

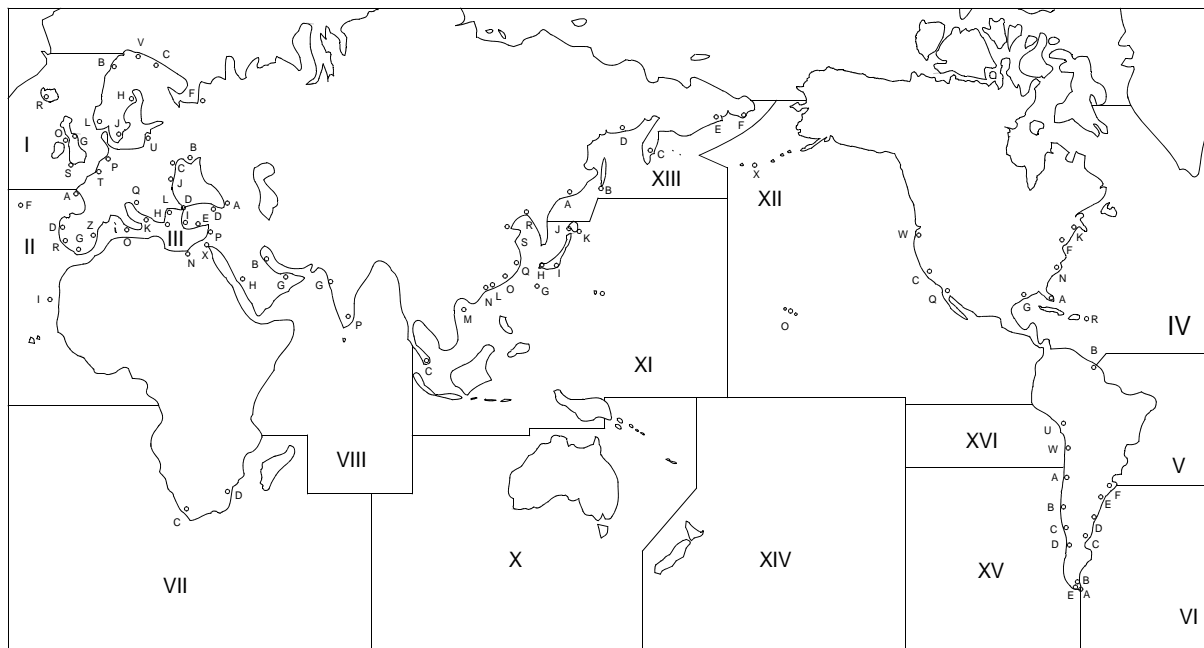
The LOCK light (11) illuminates when messages are being received.

The POWER light (12) illuminates when receiver power is on.

The list below shows the stations registered with the international frequency registration board (IFRB) for transmission of 518 KHZ (as of Jan. 1994). Note that all stations are not operational.

10. Additional information on the operation of the NAVTEX receiver is supplied below.

NAVTEX STATION MAP



2C036-4

Table 1. NAVTEX Station List.

| NAV-AREA | STN ID | COUNTRY | CITY | TIME SCHEDULE (UTC) | REMARKS |
|----------|--------|----------|----------------|-----------------------------------|-----------------|
| | B | NORWAY | Bodo | 0018,0418,0900, 1218, 1618, 2100 | |
| | C | RUSSIA | Murmansk | 0120,0520,0920, 1320, 1720, 2120 | |
| | F | RUSSIA | Arkhangelsk | 0200,0600, 1000, 1400, 1800, 2200 | |
| | G | U.K. | Cullercoats | 0048,0448,0848, 1248, 1648, 2048 | |
| I | H | SWEDEN | Haernoessand | 0000,0400,0800, 1200, 1600, 2000 | |
| | J | SWEDEN | Stockholm | 0300,0730, 1130, 1530, 1930, 2330 | |
| | L | NORWAY | Rogaland | 0148,0548,0948, 1348, 1748, 2148 | |
| | O | U.K. | Portpatrick | 0130,0530,0930, 1330, 1730, 2130 | Pre-operational |
| | P | NETH. L | Scheveningen | 0348,0748, 1148, 1548, 1948, 2348 | |
| | R | ICELAND | Reykjavik | 0318,0718, 1118, 1518, 1918, 2318 | |
| | S | U.K. | Niton | 0018,0418,0900, 1218, 1618, 2100 | |
| | T | BELGIUM | Oostende | 0248,0648, 1048, 1448, 1848, 2248 | |
| | U | RUSSIA | Tallin | 0030,0430,0830, 1230, 1630, 2030 | |
| | V | NORWAY | Vardoe | 0300,0700, 1100, 1500, 1900, 2300 | |
| | A | FRANCE | Brest-Le con1q | | Planned |
| | D | SPAIN | Finisterre | 0030,0430,0830, 1230, 1630, 2030 | |
| II | F | PORTUGAL | Azores | 0050,0450,0850, 1250, 1650, 2050 | |
| | I | SPAIN | Canary Islands | 0100,0500,0900, 1300, 1700, 2100 | |
| | R | PORTUGAL | Lisbon | 0250,0650, 1050, 1450, 1850, 2250 | |
| | | CAMEROON | Douala | | Planned |
| | A | RUSSIA | Novorossiysk | 0300,0700, 1100, 1500, 1900, 2300 | |
| | B | RUSSIA | Mariupol | 0100,0500,0900, 1300, 1700, 2100 | |
| | C | RUSSIA | Odessa | 0230,0630, 1030, 1430, 1830, 2230 | |
| | D | TURKEY | Istanbul | 0030,0430,0830, 1230, 1630, 2030 | |
| | E | TURKEY | Samsun | 0040,0440,0840, 1240, 1640, 2040 | |
| III | F | TURKEY | Antalta | 0050,0450,0850, 1250, 1650, 2050 | |
| | G | SPAIN | Tarifa | 0100,0500,0900, 1300, 1700, 2100 | |

Table 1. NAVTEX Station List. (Continued)

| NAV-AREA | STN ID | COUNTRY | CITY | TIME SCHEDULE (UTC) | REMARKS |
|----------|--------|-----------|----------------|-----------------------------------|-----------------|
| | H | GREECE | Iraklion | 0110,0510,0910, 1310, 1710, 2110 | |
| | I | TURKEY | Izmir | 0120,0520,0920, 1320, 1720, 2120 | |
| | J | BULGARIA | Varna | 0130,0530,0930, 1330, 1730, 2130 | |
| | K | GREECE | Kerkyra | 0140,0540,0940, 1340, 1740, 2140 | Planned |
| | L | GREECE | Limnos | 0150,0550,0950, 1350, 1750, 2150 | |
| III | M | CYPRUS | Troodos | 0200,0600, 1000, 1400, 1800, 2200 | |
| | N | EGYPT | Alexandria | 0210,0610, 1010, 1410, 1810, 2210 | |
| | O | MALTA | Malta | 0220,0620, 1020, 1420, 1820, 2220 | Planned |
| | P | ISRAEL | Haifa | 0020,0420,0820, 1220, 1620, 2020 | Planned |
| | Q | YUGO. | Split | 0250,0650, 1050, 1450, 1850, 2250 | |
| | Z | SPAIN | Cabo La Nao | | |
| | | FRANCE | La Garde | | |
| | A | USA | Miami | 0000,0600, 1200, 1800 | Pre-operational |
| | B | BERMUDA | St. Georges | 0100,0700, 1300, 1900 | |
| | F | USA | Boston | 0445, 1045, 1645, 2245 | |
| IV | G | USA | New Orleans | 0300,0900, 1500, 2100 | |
| | K | CANADA | Sydney | 0040,0540,0940, 1340, 1740, 2140 | Under trials |
| | N | USA | Portsmouth | 0130,0730, 1330, 1930 | Pre-operational |
| | R | USA | San Juan | 0415, 1015, 1615, 2215 | Pre-operational |
| | | URUGUAY | Colonia | | Planned |
| | | URUGUAY | Laguna D Sauce | | Planned |
| V | | URUGUAY | La Paloma | | Planned |
| | | URUGUAY | Montevideo | | Planned |
| | | URUGUAY | Punte de Este | | Planned |
| | | URUGUAY | Salto | | Planned |
| | A | ARGENTINA | Ushuaia | 0240,0840, 1440, 2040 | Planned |
| | B | ARGENTINA | Rio Gallegos | 0140,0740, 1340, 1940 | Planned |

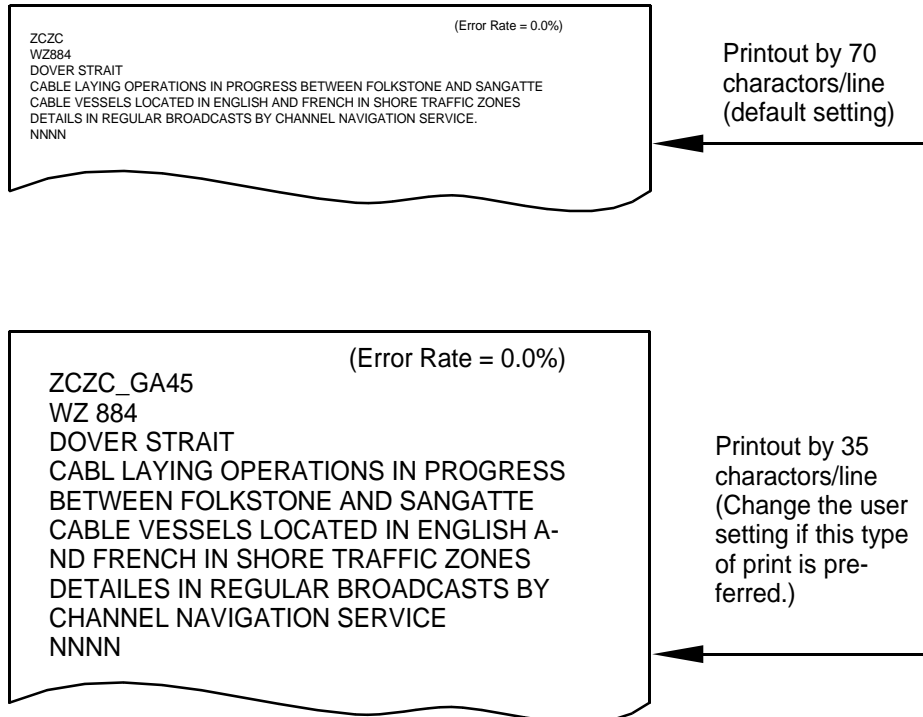
Table 1. NAVTEX Station List. (Continued)

| NAV-AREA | STN ID | COUNTRY | CITY | TIME SCHEDULE (UTC) | REMARKS |
|----------|--------|-----------|---------------|-----------------------------------|---------|
| | C | ARGENTINA | Rivadavia | 0040,0640, 1240, 1840 | Planned |
| VI | D | ARGENTINA | Bahia Blanca | 0210,0810, 1410, 2010 | Planned |
| | E | ARGENTINA | Mar Del Plata | 0110,0710, 1310, 1910 | Planned |
| | F | ARGENTINA | Buenos Aires | 0510, 1110, 1710, 2310 | Planned |
| | G | ARGENTINA | Rosario | 0110,0610, 1210, 1810 | Planned |
| VII | C | S. AFRICA | Capetown | 0020,0420,0820, 1220, 1620, 2020 | |
| | D | S. AFRICA | Durban | 0120,0520,0920, 1320, 1720, 2120 | |
| VIII | G | INDIA | Bombay | 0100,0500,0900, 1300, 1700, 2100 | |
| | P | INDIA | Madras | 0230,0630, 1030, 1430, 1830, 2230 | |
| | H | S. ARABIA | Jeddah | | Planned |
| IX | G | S. ARABIA | Dammam | | Planned |
| | X | EGYPT | Ismailia | | Planned |
| | B | BAHRAIN | Hamala | 0010,0410,0810, 1210, 1610, 2010 | Planned |
| | V | USA | Guam | 0100,0700, 1300, 1900 | |
| | C | SINGAPORE | Jurong | 0020,0420,0820, 1220, 1620, 2020 | |
| | G | JAPAN | Naha | 0100,0500,0900, 1300, 1700, 2100 | |
| XI | H | JAPAN | Moji | 0110,0510,0910, 1310, 1710, 2110 | |
| | I | JAPAN | Yokohama | 0120,0520,0920, 1320, 1720, 2120 | |
| | J | JAPAN | Otaru | 0130,0530,0930, 1330, 1730, 2130 | |
| | K | JAPAN | Kushiro | 0140,0540,0940, 1340, 1740, 2140 | |
| | L | HONG KONG | Hong Kong | 0200,0600, 1000,1400, 1800, 2200 | |
| | M | CHINA | Zhanjiang | | |
| | N | CHINA | Guangzhou | 0210,0610, 1010, 1410, 2210 | |
| | O | CHINA | Fuzhou | | |
| | R | CHINA | Dalian | 0250,0650, 1050, 1450, 2250 | |
| | Q | CHINA | Shanghai | 0240,0640, 1040, 1440, 2240 | |

Table 1. NAVTEX Station List. (Continued)

| NAV-AREA | STN ID | COUNTRY | CITY | TIME SCHEDULE (UTC) | REMARKS |
|----------|--------|---------|---------------|-----------------------------------|-----------------|
| | S | CHINA | Tianjin | | |
| | | CHINA | Hainan | | |
| | C | USA | San Francisco | 0400, 1000, 1600, 2200 | Pre-operational |
| | W | USA | Astoria | 0130,0730, 1330, 1930 | Pre-operational |
| | Q | USA | Cambria | 0445, 1045, 1645, 2245 | Pre-operational |
| XII | J | USA | Kodiak | 0300,0900, 1500, 2100 | Pre-operational |
| | O | USA | Honolulu | 0400,0640, 1240, 1840 | |
| | X | USA | Adak | 0000,0600, 1200, 1745 | Planned |
| | A | RUSSIA | Vladivostok | 0000,0400,0800, 1200, 1600, 2000 | |
| | B | RUSSIA | Kholmsk | 0010,0410,0810, 1210, 1610, 2010 | |
| XIII | C | RUSSIA | Petropavlovsk | 0050,0450,0850 | |
| | D | RUSSIA | Magadan | 0030,0430,0830, 1230, 1630, 2030 | |
| | E | RUSSIA | Beringovskiy | 0040,0440,0840, 1240, 1640, 2040 | |
| | F | RUSSIA | Providenya | 0050,0450,0850, 1250, 1650, 2050 | |
| | A | CHILE | Antofagasta | | |
| | B | CHILE | Valparaiso | 0010,0410,0810, 1210, 1610, 2010 | |
| XV | C | CHILE | Talcahuano | | |
| | D | CHILE | Puerto Montt | | |
| | E | CHILE | Magallanes | | |
| | S | PERU | Paita | 0300,0700, 1100, 1500, 1900, 2300 | Planned |
| XVI | U | PERU | Callao | 0320,0720, 1120, 1520, 1920, 2320 | Planned |
| | W | PERU | Mollendo | 0340,0740, 1140, 1540, 1940, 2340 | Planned |

11. An example of a NAVTEX message printout is shown below.



2C036-5

ZCZC----- Message header

GA45----- G: Station ID

A: Message category

45: Serial number00 thru 99

NNNN----- Message terminator

12. After printing is completed, control is returned to the receiving mode. Messages carrying the same station ID and message category of ones already received less than 66 hours earlier will not be printed, to avoid redundancy and paper waste. SAR messages (message category D) and messages carrying serial numbers, however, will be printed even if they are received repeatedly.

13. Error rate and message reception status may be added to each message. A comment can be added to messages by entering H on the Main Menu-C: Set function. The comments printed out are tabulated below:

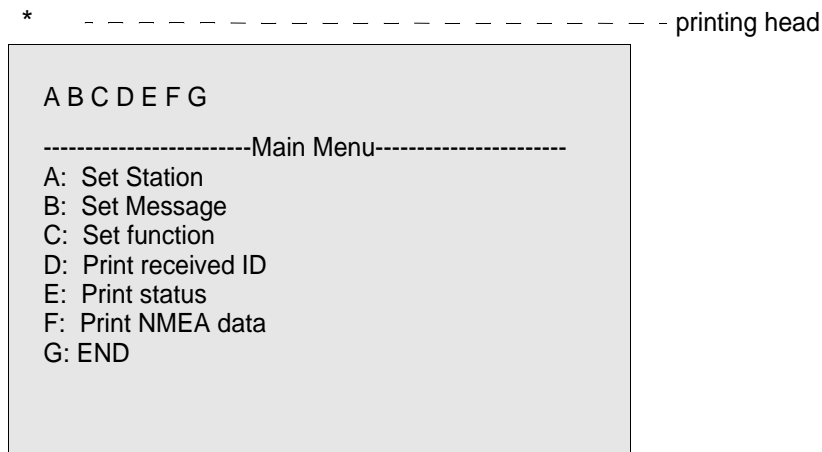
| COMMENT | MEANINGS |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| (ERROR RATE =0.0%) | NO ERROR IS FOUND IN THE RECEIVED MESSAGES. |
| (ERROR RATE = 33% OVER) | WHEN THE CHARACTER ERROR RATE EXCEEDS 33%, THE RECEIVER PRINTS THIS COMMENT AND SUSPENDS PRINTING. (SEE NOTE 2) |
| CORRUPT MESSAGE | WHEN THE CHARACTER ERROR RATE IN ONE MESSAGE EXCEEDS 33%, THE RECEIVER SUSPENDS PRINTING AND THE MESSAGE "CORRUPT MESSAGE" IS PRINTED. (SEE NOTE 2) |

NOTE

When a character could not be received due to noise interference, for example, an asterisk (*) is printed in its place.

Messages carrying message type "D" or serial number "00" are printed regardless of character error rate.

- 14. When the receiver, receives a message carrying type "D", it generates an audible ALARM. To silence the ALARM, press any key.
- 15. The user setting mode allows you to custom tailor the receiver according to your needs. You can select which category of message you wish to receive, set monitor speaker volume, specify which data are to be printed, etc.
- 16. All user settings are contained in the main menu. To get into the main menu press the Menu key. The printout should look similar to the figure shown below.



2C036-6

17. The printing head is above "A" of "ABCDEFGH". Each character corresponds to a Main Menu, which is listed below them on the printout. To call up a menu, place the printing head above the letter corresponding to the menu desired by operating the arrow keys (<) or (>) and press the ENT key or "ACCEPT" key.

18. Most functions are selected or deselected by designating upper (capital) or lower (small) case characters by pressing the "ACCEPT" key or "REJECT" key at relevant characters, respectively.
19. The "<" and ">" keys move the printing head leftward or rightward to skip over functions or items which you do not wish to change.
20. To escape from the user setting mode (at this stage), place the printing head above "G" and press either the ENT key or the ACCEPT key. The message "Nav. print ready." is displayed, indicating control is returned to the receiving mode.

Nav. print ready.

2C036-7

NOTE

Menus D,E, and F are not for parameter setting but for activating the printer for use as a data logger.

Any message received during user setting (lock lamp illuminates) is stored in the memory and will be printed out immediately after "NAV. PRINT READY." is printed.

21. The MENU-A: SET STATION allows you to select what stations you wish to receive. In order to select stations, you have to switch the reception mode to MANUAL in Menu-C: Set function. If you attempt to proceed the SET STATION menu while in the AUTO station selection mode, the receiver will print the following alert message.

Change to manual selection mode and try again.

2C036-8

22. To change the station selection, go to SET FUNCTION MENU-C and switch to MANUAL selection mode.
23. Move the printing head to "A", then press either the ENT key or the ACCEPT key. The following is printed.

```

*   - - - - - printing head
A b C D e f G H I j K L M ESC - - - - - current setting
-----Set station-----
Selected station = capital letter
ESC: ESCAPE
    
```

2C036-9

24. The characters in the top line of the menu represent station ID's, and may be in upper or lower case depending on if C, D, G, H, I, K, L, and M are selected for reception, and stations B, E, F, and J are eliminated from reception.
25. To select or deselect a station, place the printing head above the letter (station ID) and press ACCEPT or REJECT depending on whether you want to select or deselect the station.

26. If you enter the wrong character case, place the printing head above the character once again and press ACCEPT or REJECT key. The incorrect character case is overwritten. After all changes are made, press the ENT key. If the current station is not to be changed, press ENT key once, or select ESC and press ENT to escape. Then, the second page of the menu, showing the status of stations N - Z, is printed out along with the status of stations A - M.
27. Make changes as necessary followed by pressing the ENT key, or select ESC and press ENT to escape. The main menu is reprinted.

NOTE

If any selection for stations A through M is found to be incorrect after the **ENT** key is pressed or **ESC** is selected, you have to start over from the main menu to make any corrections.

28. The Menu-B: SET MESSAGE allows you to specify which category of message you wish to receive. The category of messages is shown at the top of the next page.

NOTE

Categories A, B, and D cannot be rejected from printout, in accordance with inters national regulations.

| LIST OF CATEGORIES | |
|--------------------|----------------------------------------------------------------------------------|
| A ----- | NAVIGATIONAL WARNINGS |
| B ----- | METEOROLOGICAL WARNINGS |
| C ----- | ICE REPORTS |
| D ----- | SEARCH AND RESCUE INFORMATION |
| E ----- | METEOROLOGICAL FORECASTS |
| F ----- | PILOT SERVICE MESSAGES |
| G ----- | DECCA MESSAGES |
| H ----- | LORAN MESSAGES |
| I ----- | OMEGA MESSAGES |
| J ----- | SATNAV MESSAGES |
| K ----- | OTHER ELECTRONIC NAVAID MESSAGES (MESSAGES CONCERNING RADIO-NAVIGATION SERVICES) |
| L ----- | NAVIGATIONAL WARNINGS-ADDITIONAL TO LETTER A |
| M THRU Y ----- | NOT SPECIFIED |
| V THRU Y ----- | SPECIAL SERVICES-ALLOCATION BY IMO |
| Z ----- | NO MESSAGE IN HAND |

29. Get into the MAIN MENU, place the printing head above "B" and press either the ENT key or ACCEPT key. The following is printed out.

```

*  - - - - - printing head
A B C D E F G H I J K L M ESC:  - - - - - current setting
-----Set station-----
Selected message = capital letter
ESC: ESCAPE

```

2C036-10

30. In accordance with the procedure for STATION SELECTION/REJECTION, select or reject each message category by pressing ACCEPT key to enter upper case character or REJECT key to enter lower case character. The < and > keys may be used to skip over characters.
31. Message categories are identified by letters A, B, ..., Z, and are divided into two groups just like station selection: A through M and N through Z.
32. As soon as selection/rejection for messages N through Z is completed, the main menu is printed.
33. To change an incorrect selection, move the cursor to that incorrect character and press either ACCEPT or RECT key accordingly. The incorrect character is overprinted.
34. The MENU-C: SET FUNCTION items settable on the following menu include automatic or manual (as registered) station selection, number of characters/line, navigation data to be printed out (connection kit: option), talker priority (if several navigation receivers are connected), printout interval, etc.
35. Select "C" on the Main Menu, and the printout should look something like the one below.

```

*  - - - - - printing head
A b C d E f G h ESC  - - - - - current setting
-----Set function-----
Letter           Small      Capital
A: Monitor volume Minimum  Maximum
B: Alarm volume  Minimum  Maximum
C: Character/Line 70        35
D: Beep           Off        On
E: NMEA (or CIF) On         Off
F: System clock   On         Off
G: Station select Auto *1    Manual
H: Comment        Off        On

ESC: ESCAPE

```

2C036-11

36. *1 AUTO is available for Europe, USA, Japan, China, Hong Kong, and Singapore area.

37. The meaning of each function is as follows;

| | |
|-----------|---------------------------------------------------------------------------------------------------------|
| A ----- | SIGNAL MONITOR VOLUME MINIMUM/MAXIMUM |
| B ----- | ALARM VOLUME MINIMUM/MAXIMUM |
| C ----- | NUMBER OF CHARACTER/LINE (MESSAGE PRINT OUT ONLY. FOR USER SETTING 35 CHARACTERS /LINE IS ALWAYS USED.) |
| D ----- | KEY PRESS CONFIRMATION BEEP ON/OFF |
| E ----- | NAVIGATION DATA INPUT ON/OFF (SEE NOTE 1) |
| NEMA ---- | NATIONAL MARINE ELECTRONICS ASSOCIATION |
| CIF ----- | FURUNO COMMUNICATION INTERFACE |
| F ----- | TIME FROM CONNECTED NAVIGATION EQUIPMENT ON/OFF |
| G ----- | AUTOMATIC OR MANUAL STATION SELECTION |
| H ----- | PRINTING OF CHARACTER ERROR RATE ON/OFF |

38. Make necessary changes with the ACCEPT and REJECT keys. After making selections, press the ENT key.

NOTE

When entry of "NMEA-0183" or "CIF" data is accepted, the receiver provides: time, heading, position, speed, bearing, wind direction, and speed. Water temperature, depth and ocean current direction and speed, as available, will be printed automatically at a preset time interval.

In order to activate the manual station selection, "G" should be entered in this C: set function mode.

Error rate, message reception status (duplicate reception, etc.) may be added to each message received. You may activate the comment printout to check signal quality by entering "H". To delete it, enter "H".

39. Select MENU-D: PRINT SELECTED ID on the main menu. The receiver prints out station ID's and message categories, preceded by time information by hour, for messages received within the last 66 hours. An example printout is shown below.

```

Nav. print ready.
-----End of print ID-----
(Passed time : Received ID code)
00:AF00          00:BB01          01:LL01
02:CD01          02:ED00          04:DD01
-----Print ID-----
    
```

2C036-12

40. After printing out ID's, control is returned to the receiving mode.

41. Select MENU -E on main menu, and the receiver prints out the following.

```

Nav. print ready.
-----End of print setup data-----
Time                (UTC/SMT/LOCAL TIME)
Heading
Position            (Talker name)
Speed               (GRD/WATER) (Talker name)
Bearing            (Talker name)
Wind                Dir. (N/H) Vel. (True/Rel.)
Water temp
Depth
Current             Dir. Vel.
Print interval      2 Hours
Print start time    1 o'clock
-----Print NMEA setup data -----
----- End of print status -----
Selected station = capital letter
ABCdEfgHIJKLMnOPqRstUVWxyz
Selected message
ABCDEFGHIJKLMNopQRSTUVWXYZ
Selected status
Monitor volume      Maximum
Alarm Volume        Minimum
Character/Line      70
Beep                Off
Data format         NMEA
System clock        On
Station select      Manual
Comment             Off
----- Print status -----
( Station, Message, Function )

```

These items do not appear
when "System clock" is off.

2C036-13

42. After printing out setup data, control is returned to the receiving mode.

43. If NMEA (or CIF) is off in Menu-C, above SETUP DATA is not printed.

44. Select MENU-F the receiver can print out navigation data if interfaced with navigation equipment. To commence printout, select "F" Print NMEA (or CIF) data on main menu.

The image displays two examples of navigation data printouts. The top printout is NMEA data, and the bottom is CIF data. Callout lines connect specific fields to their units or options.

NMEA Data Printout:

- Nav. print ready.
- End of print NMEA data -----
- Date September 01 1992
- Time 09:56 53 UTC
- Heading GYRO 157.5 DEG (Callout: Talker Name)
- Longitude GPS W101 52.60 MIN (Callout: TRUE or MAG)
- Lattitude GPS N 34 18.77 MIN (Callout: KT or K/H)
- Speed GRD GPS 10.6 KT (Callout: L(Left) or R(Right))
- Bearing TRUE GPS 155 DEG (Callout: RELATIVE or TRUE)
- Wind dir. RELATIVE L145 DEG (Callout: FT, M or FA)
- Wind vel. RELATIVE 11.0 KT (Callout: KT or M/S)
- Water temp CENTIGRADE 17.4 DEG
- Depth BELOW SURFACE 205.6 M (Callout: SURFACE or TRANSDUCER or KEEL)
- Curr dir. MAG 104.2 DEG (Callout: MAG or TRUE)
- Curr vel. 10.2 KT
- Manual print NMEA data -----

CIF Data Printout:

- Nav. print ready.
- End of print CIF data -----
- Date September 01 1992
- Time 09:56 53 UTC
- Heading GYRO 157.5 DEG
- Longitude GPS W101 52.60 MIN
- Lattitude GPS N 34 18.77 MIN
- Speed GRD GPS 10.6 KT
- Bearing TRUE GPS 155 DEG (Callout: N UP(North up) or H UP(Heading up))
- Wind dir. N UP L145 DEG
- Wind vel. RELATIVE 11.0 KT
- Water temp CENTIGRADE 17.4 DEG
- Depth 205.6 M (Callout: FT, M, F, H or PB)
- Curr dir. 04.2 DEG
- Curr vel. 10.2 KT
- Manual print CIF data -----

2C036-14

NOTE

The printout shows talker as follows.

For periodical printout of navigation data, "AUTO PRINT ---" will be printed instead of "MANUAL PRINT ---"

If navigation data is not available, the following is printed.

| TALKER DEVICE | TALKER ID | INDICATION |
|---------------|-----------|------------|
| GPS | GP | GPS |
| LORAN A | LA | LA |
| LORAN C | LC | LC |

| TALKER DEVICE | TALKER ID | INDICATION |
|------------------------|-----------|------------|
| DECCA | DE | DC |
| INTEGRATED INSTRUMENTS | II | DR |
| OMEGA | OM | OMEGA |

Nav. print ready.
 End of print NMEA data
 Manual print NMEA data

2C036-15

45. When navigation data is fed to the receiver it may be used as a data logger, or a peripheral printer for navigation equipment.

NOTE

To feed navigation data, a connector assembly (optional supply) is required.

When no navigation equipment is connected, the following descriptions can be disregarded.

46. To select navigation data to be printed, select “C” on the main menu and set NMEA (or CIF) to ON by entering lower case character “e”, then press ENT key. The receiver prints out the following.

* printing head
 A B C D E F G H I ESC current setting
 Set NMEA item

Capital = Selected Small = Deselected
 A: Time
 B: Heading
 C: Position
 D: Speed
 E: Bearing
 F: Wind direction, velocity
 G: Water temperature
 H: Depth
 I: Current direction, velocity

ESC: ESCAPE

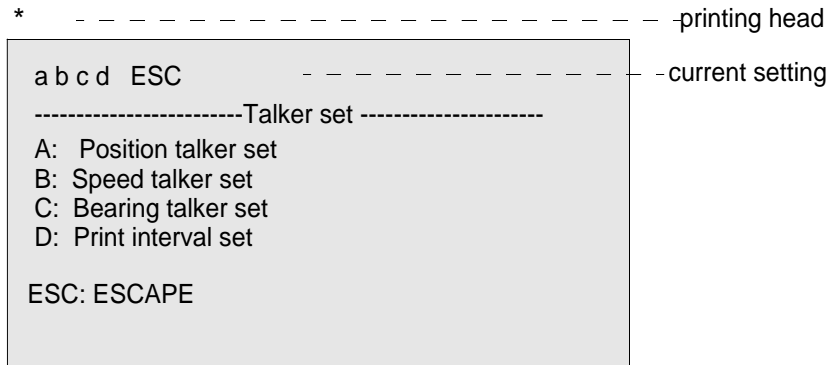
2C036-16

NOTE

“CIF” may be printed instead of “NMEA” depending on internal setting.

47. Enter upper or lower case characters to select or deselect navigation data, respectively. Press the ENT key to register selections.

48. After the ENT key is pressed to register navigation data to be printed, the menu is printed as follows.

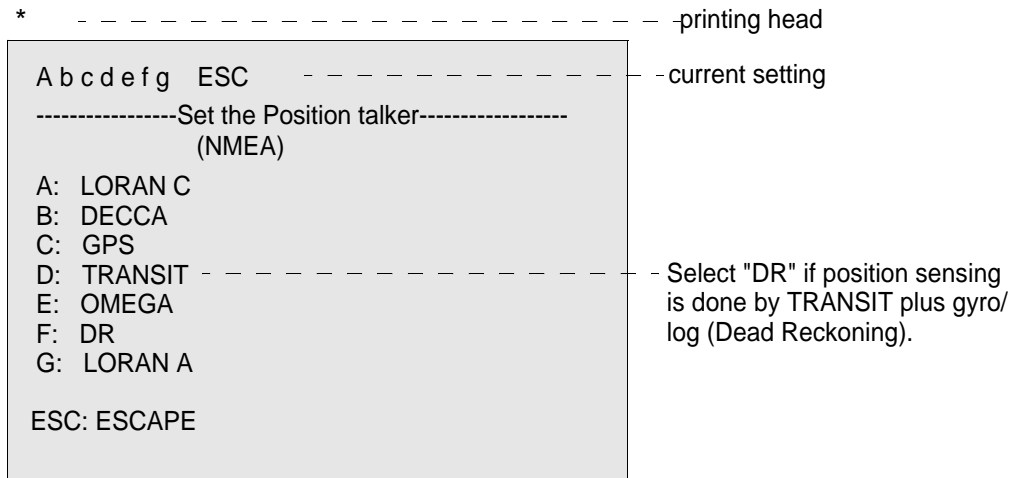


2C036-17

NOTE

In the default setting, A, B, C, and D are printed in lower case characters.

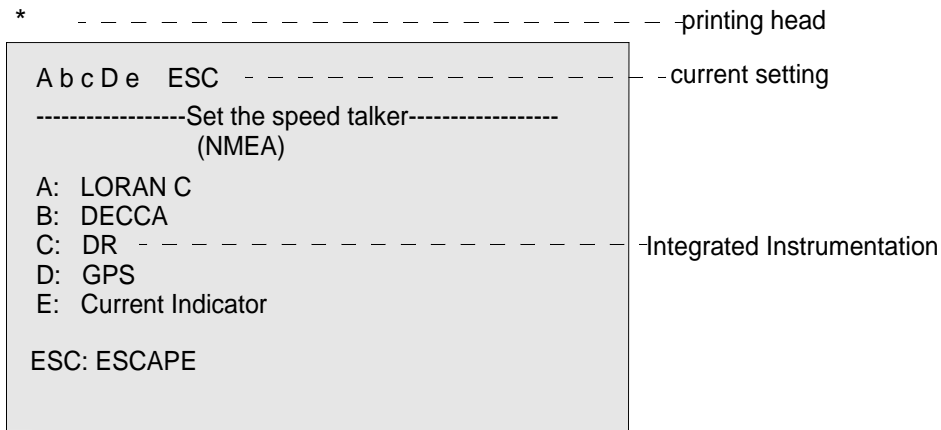
- 49. Assuming that this is the first time you are setting talker and print interval, you would press the ACCEPT key four times to change all the characters on the top line to upper case characters, then press the ENT key.
- 50. After the ENT key is pressed, the position talker menu is printed out.



2C036-18

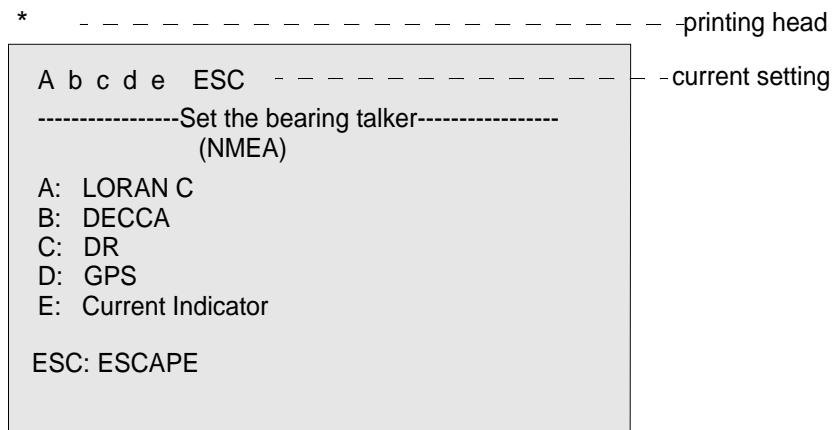
- 51. This menu is used to set talker on the receiver to LISTEN to position data. The currently selected talker is shown in upper case character on the top line and the talker (navigation equipment) connectable to this unit are printed below.
- 52. To change the talker, you would press the ACCEPT key at characters representing a navigator. Supposing that, you want to switch the talker from LORAN-C to GPS, you would place the printing head above c and press the ACCEPT key.
- 53. If you select the wrong talker, select ESC and press the ENT key to return to the position talker sub menu. If you do not wish to change the talker, simply press the ENT key.

54. The speed talker is printed out as follows.



2C036-19

55. Similar to the manner in which positioning talker selection is done, set your desired talker equipment for ship's speed data, and then press the ENT key. The bearing talker menu is printed.



2C036-20

56. Set the talker for bearing data followed by the ENT key. Then the print interval menu is printed out.

57. The below menu appears when SYSTEM CLOCK is on in the menu-C.

```

*  ----- -printing head
a b c d E f g h i ESC ----- -current setting
-----Set the print interval-----
              (NMEA)

A: STOP
B: 0.5   Hour
C: 1     Hour
D: 2     Hours
E: 3     Hours
F: 4     Hours
G: 6     Hours
H: 8     Hours
I: 12    Hours

ESC: ESCAPE
    
```

2C036-21

58. In the above example, the current print interval setting is “E” (three hours), i.e., selected navigation data is printed every three hours. Select a print interval by placing the printing head above the character designating the interval desired followed by pressing the ACCEPT key. If you do not want automatic printout of navigation data, select “A” (STOP).

59. After selecting a print interval, press ENT. Then, PRINT START TIME MENU is printed. (If A, B, or C is selected, PRINT START TIME MENU is not printed).

```

*  ----- -printing head
a b c d e F g h i j k l ESC ----- -current setting
-----Set the start time -----
              (NMEA)

A: 1 o'clock
B: 2 o'clock
C: 3 o'clock
D: 4 o'clock
E: 5 o'clock
F: 6 o'clock
G: 7 o'clock
H: 8 o'clock
I: 9 o'clock
J: 10 o'clock
K: 11 o'clock
L: 12 o'clock

ESC: ESCAPE
    
```

2C036-22

60. Move the cursor to the desired time and press ACCEPT key. The selected upper case character will be printed.

61. After making the selection, press the ENT key. Then, EACH TALKER SET MENU is printed again.

* - - - - - printing head

a b c d ESC - - - - - current setting

-----Talker set -----

A: Position talker set
B: Speed talker set
C: Bearing talker set
D: Print interval set

ESC: ESCAPE

2C036-23

62. Press the ENT key to return to main menu.

END OF WORK PACKAGE

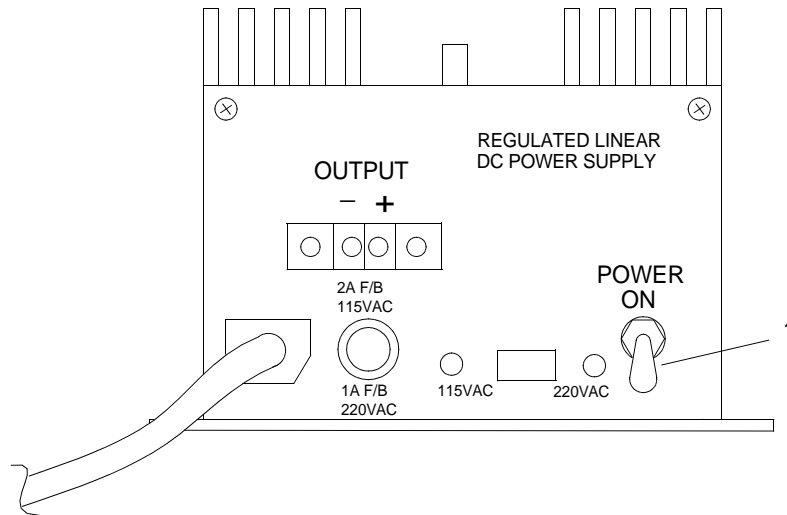
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE NAVIGATION EQUIPMENT POWER SUPPLY

1. Move power switch (1) to ON position.



2C037-1

2. Ensure that Precision Lightweight Global Positioning Receiver (PLGR) and NAVTEX receiver are receiving power.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

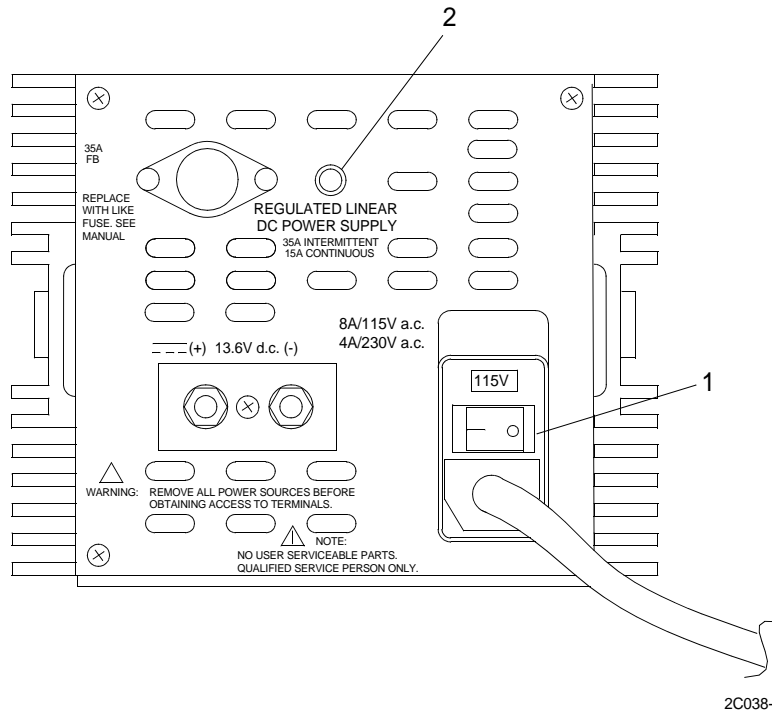
INITIAL SETUP:

Personnel Required

Seaman 88K

OPERATE THE GMDSS POWER SUPPLY

1. Move power switch (1) to ON position.



2. Ensure that power indicator light (2) is lit, indicating that the power supply is producing power.

END OF WORK PACKAGE

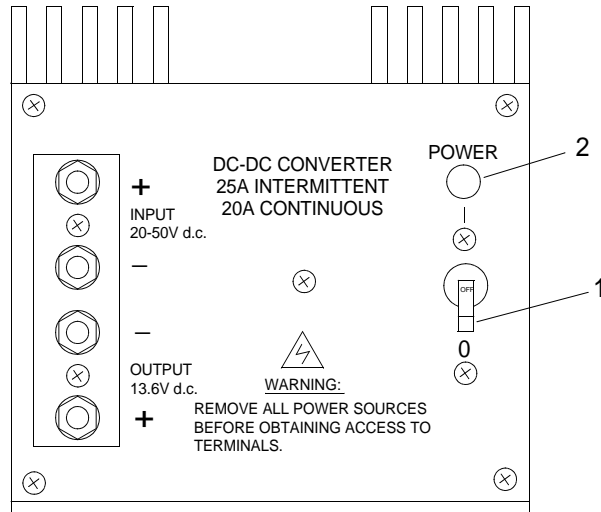
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE THE GMDSS DC CONVERTER

1. Move power switch (1) to ON position.



2C039-1

2. Ensure that power indicator light (2) is lit, indicating that the converter is producing power.

END OF WORK PACKAGE

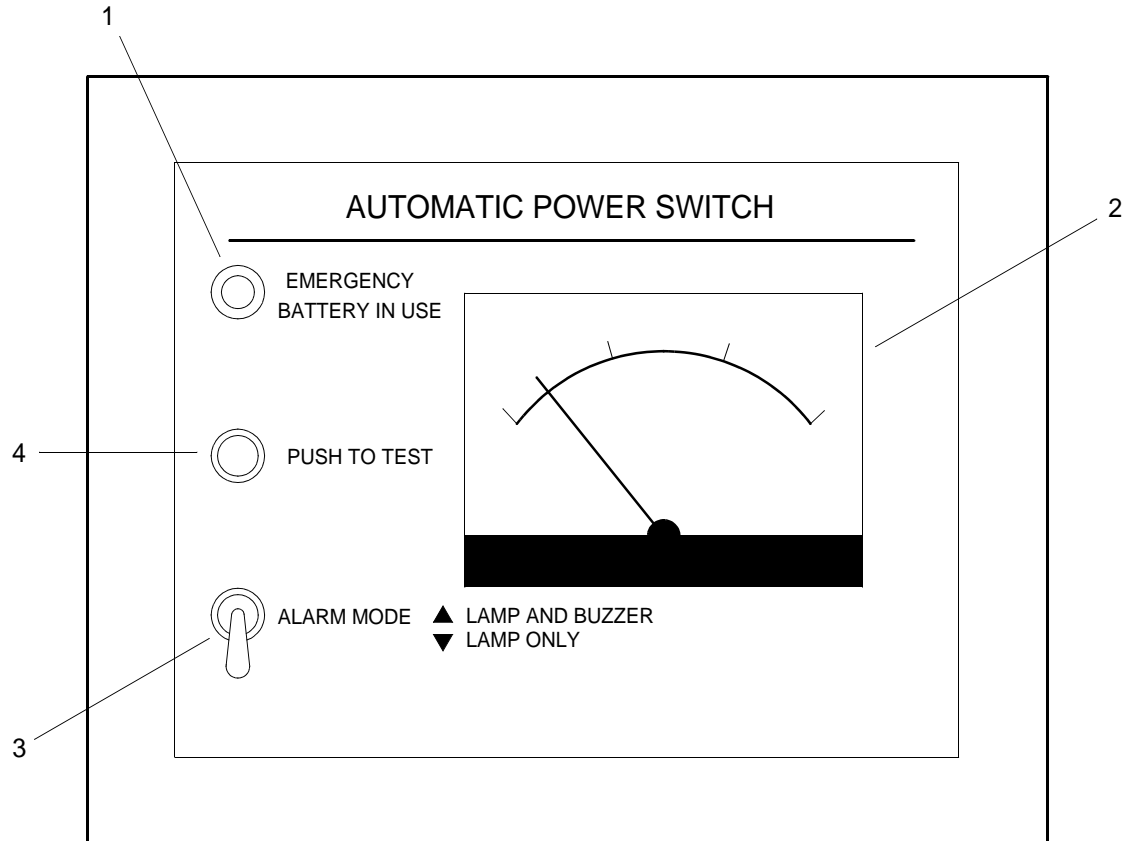
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATE AUTOMATIC POWER SWITCH

1. Place the alarm mode switch (3) in either lamp and buzzer (up) or lamp only (down) position.



2C040-1

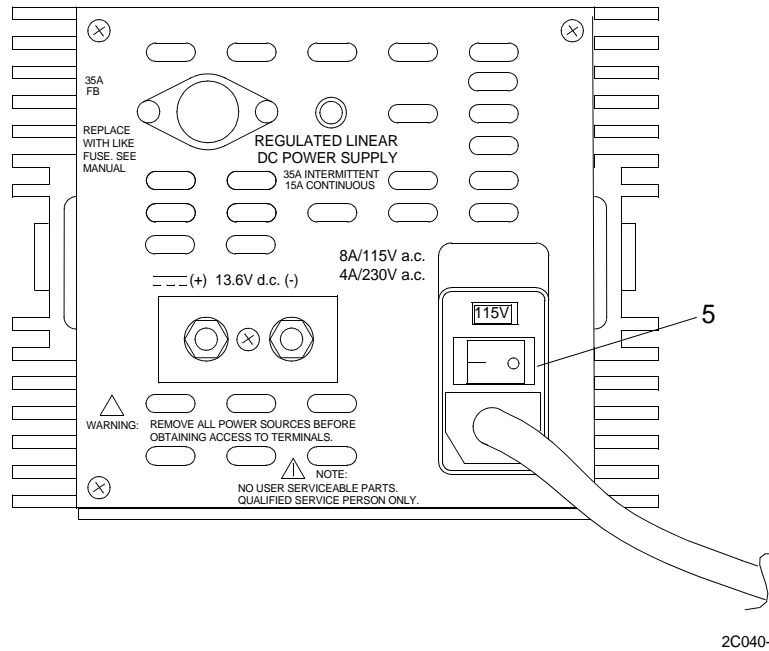
2. Check meter (2) to ensure electrical power is output to GMDSS components.

TEST AUTOMATIC POWER SWITCH

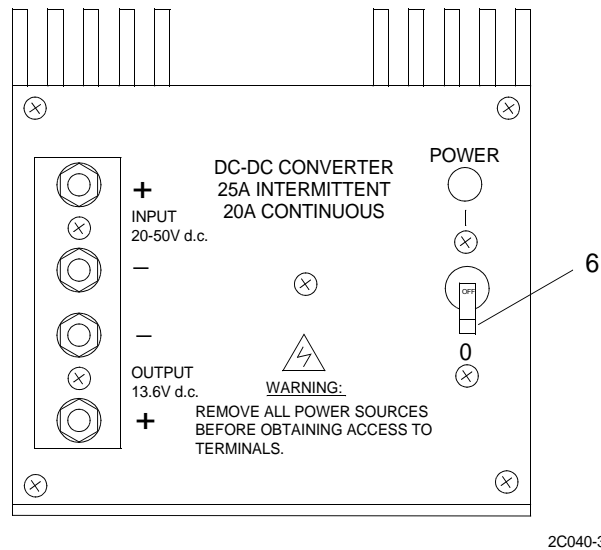
1. Place the alarm mode switch (3) in the lamp and buzzer (up) position.
2. Press the push to test switch (4) until the lamp (1) lights and the buzzer operates.
3. Place the alarm mode switch (3) in the lamp only (down) position.
4. Press the push to test switch (4) until the lamp (1) lights.

TEST THE AUTOMATIC POWER SWITCH RELAY

1. Place the GMDSS power supply power switch (5) in the ON position.



2. Place the GMDSS DC converter power switch (6) in the ON position.



3. Place the automatic power switch alarm mode switch (3) in the lamp and buzzer (up) position.
4. While observing the meter on the automatic power switch (2), move the GMDSS power supply power switch (5) to the OFF position.
5. Ensure that the voltage indication on the automatic power switch drops off and then returns to the original position and the lamp (1) lights and the buzzer sounds.
6. Place the GMDSS power supply power switch (5) in the ON position.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

TEST THE SEARCH AND RESCUE TRANSPONDER (SART)

WARNING

The lithium battery in the search and rescue transponder contains pressurized sulfur dioxide gas. The gas is toxic, and the battery must not be abused in any way that might cause the battery to rupture.

Do not heat, short circuit, crush, puncture, mutilate or disassemble batteries.

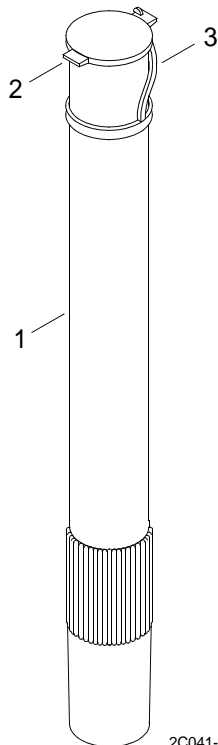
Do not use any battery which shows signs of damage. Damage can appear as bulging, disfigurement, a brown liquid on the outside, etc.

Failure to follow these instructions could result in an explosion or production of toxic gases that may kill or injure you.

NOTE

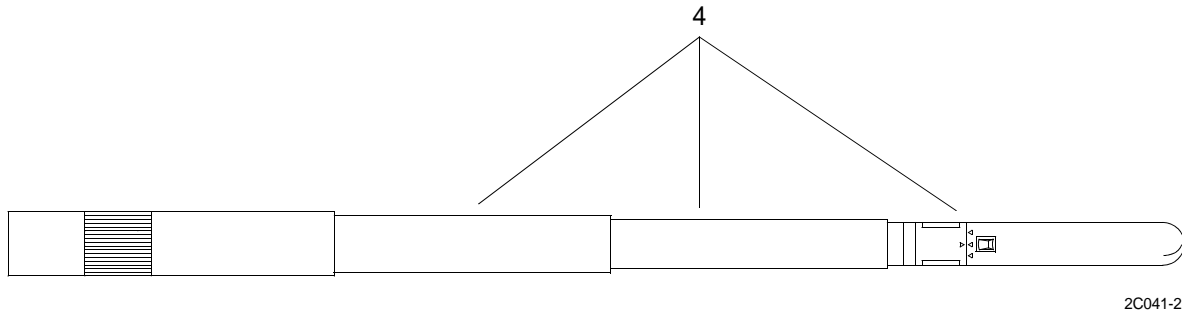
The self-test is to be performed at monthly intervals.

1. Keep the SART (1) upright and lift off the top cap (3) using tab (2).



2C041-1

- Fully extend the mast sections (4) by gently tilting the SART (1) forward until the mast sections (4) slide out.

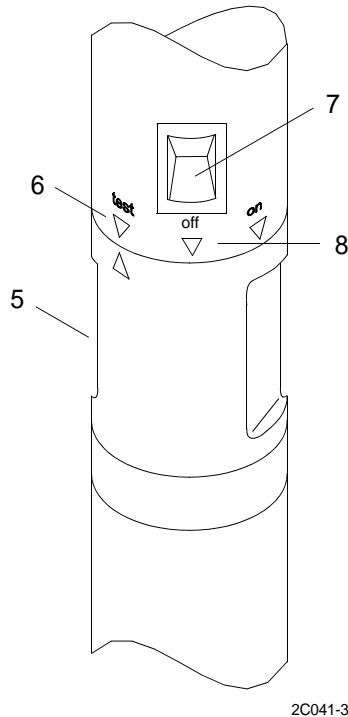


- Lock each section of the mast sections (4) by pulling and twisting each section.

NOTE

If the battery replacement date has passed, or will expire before the next test or during the next mission, the battery must be replaced.

- Rotate the switch (5) counterclockwise to the test position (6) and hold in position until the green indicator light (7) remains illuminated.



NOTE

The duration of the test should be as short as possible to prolong the life of the batte.

If the green light (7) fails to illuminate, the SART (1) has failed the self-test and the battery must be replaced.

- Rotate the switch (5) clockwise to the OFF position (8).

-
6. Push mast sections (4) back together.
 7. Push top cap (3) back into place.
 8. Install Search and Rescue Transponder (SART). (WP 0117 00)

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Materials/Parts

Battery
21-200032

Personnel Required

Seaman 88K

TEST THE LIFEBOAT RADIO

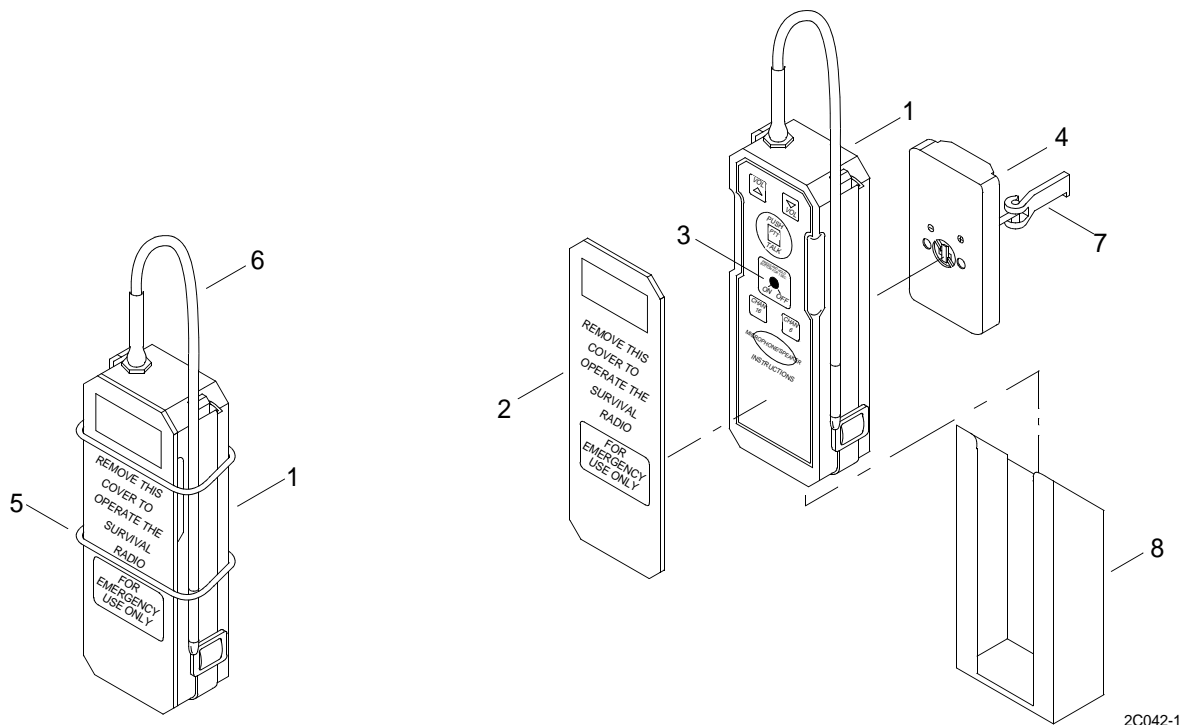
NOTE

This test requires that a separate VHF marine radio transceiver be used to monitor transmitted and received signals. Any transmissions effected for the purpose of testing the lifeboat radio shall be as brief as possible.

The recommended test message format is as follows: "<name of station receiving the test message> this is <name of station transmitting this text> <station call sign or call letters>".
example: "BLUE DUCK THIS IS MARY JANE WXT599".

When a second radio telephone or ship's receiver is utilized to monitor proper operation of the lifeboat radio, the test distance between devices should be kept to a maximum and the following message format should be observed: "<name of station transmitting this text> this is <name of station transmitting this text> mobile 1". Example: "MARY JANE THIS IS MARY JANE MOBILE 1 WXT599". If the unit to be tested is not on board the vessel containing the fixed station, "UNIT 1" should be used rather than "MOBILE 1".

1. Remove the lifeboat radio (1) from the lifeboat radio mount (8).



2C042-1

2. Remove the control panel protective cover (2).
 - a. Slide O-rings (5) down past end of antenna (6) and battery (4).
 - b. Remove the control panel protective cover (2).
3. Remove the lifeboat radio battery (4) from radio.

NOTE

The lifeboat radio must be tested with a spare battery.

4. Install spare battery (4).
 - a. Insert spare lifeboat battery (4) in upright position into lifeboat radio (1).
 - b. Activate battery (4) for testing.
 - {1} Grasp the activation indicator lever (7) and lift to break the safety seal. Turn lever (7) counterclockwise to open latch and seat the battery (4) in radio.
 - {2} Turn lever (7) clockwise to lock battery (4) in place.
5. Press and hold ON/OFF button (3) for one second.
6. Listen for the tone and the squelch action 3 seconds after activating the unit.

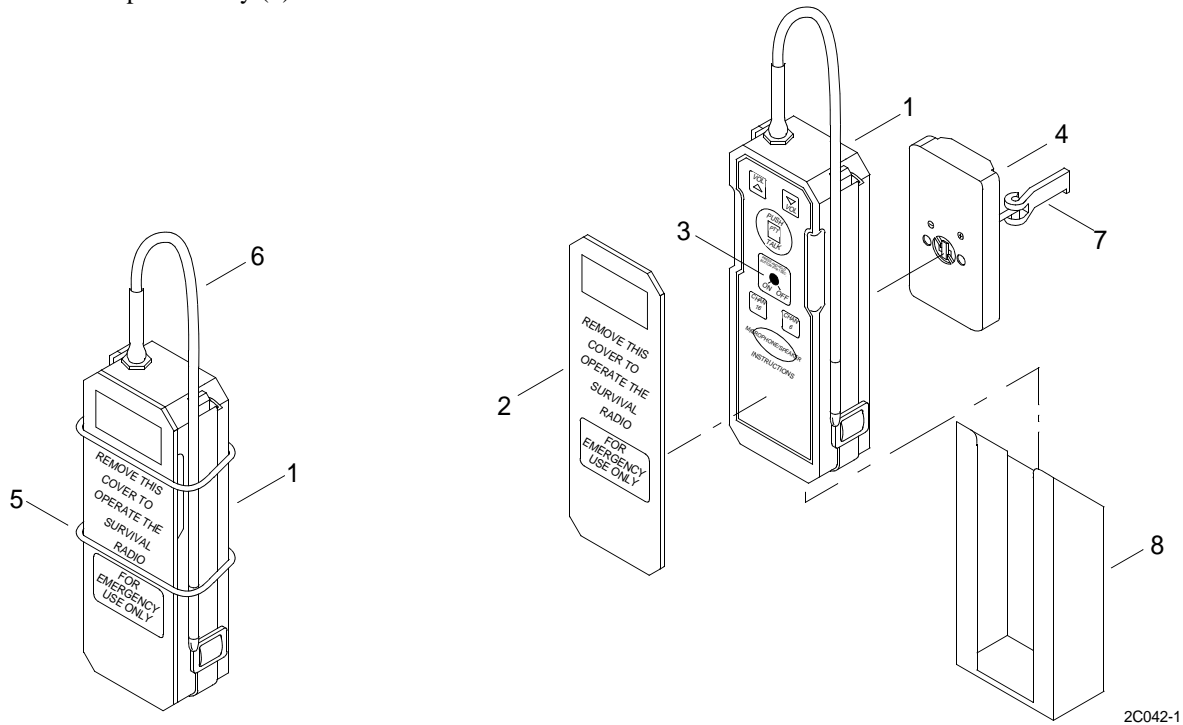
NOTE

The receiver tunes to channel 16 automatically when the unit is turned on.

7. Listen to any activity on the frequency (channel 16).
8. If no activity is detected, transmit the test message and have someone monitor the transmission.
9. If the test signal was not heard, replace the battery (4). (WP 0119 00)
10. If the test signal is still not heard, contact direct support maintenance.
11. Have someone return the call from the monitoring station to verify proper radiotelephone receiver operation.
12. If a response is not heard, contact direct support maintenance.
13. Press the channel 6 key to tune to channel 6.
14. Set the monitoring transceiver to channel 6 (156.3 MHz).
15. Listen to any activity on the frequency (channel 6).
16. If no activity is detected, transmit the test message and have someone monitor the transmission.
17. If the test signal is still not heard, contact direct support maintenance.
18. Have someone return the call from the monitoring station to verify proper radiotelephone receiver operation.
19. If a response is not heard, contact direct support maintenance.

20. Press ON/OFF button (3) to turn unit off.

21. Remove spare battery (4).



2C042-1

a. Deactivate battery (4).

{1} Grasp the activation indicator lever (7).

{2} Lift lever (7) and turn counterclockwise to open latch and deactivate battery.

b. Lift out spare battery (4).

22. Install the lifeboat radio battery (4).

NOTE

Do not activate battery at this time.

23. Install the control panel protective cover (2).

a. Bend antenna (6) back down and slide O-rings (5) up over battery (4) and end of antenna (6).

b. Install the control panel protective cover (2).

24. Replace the lifeboat radio (1) into the lifeboat radio mount (8).

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

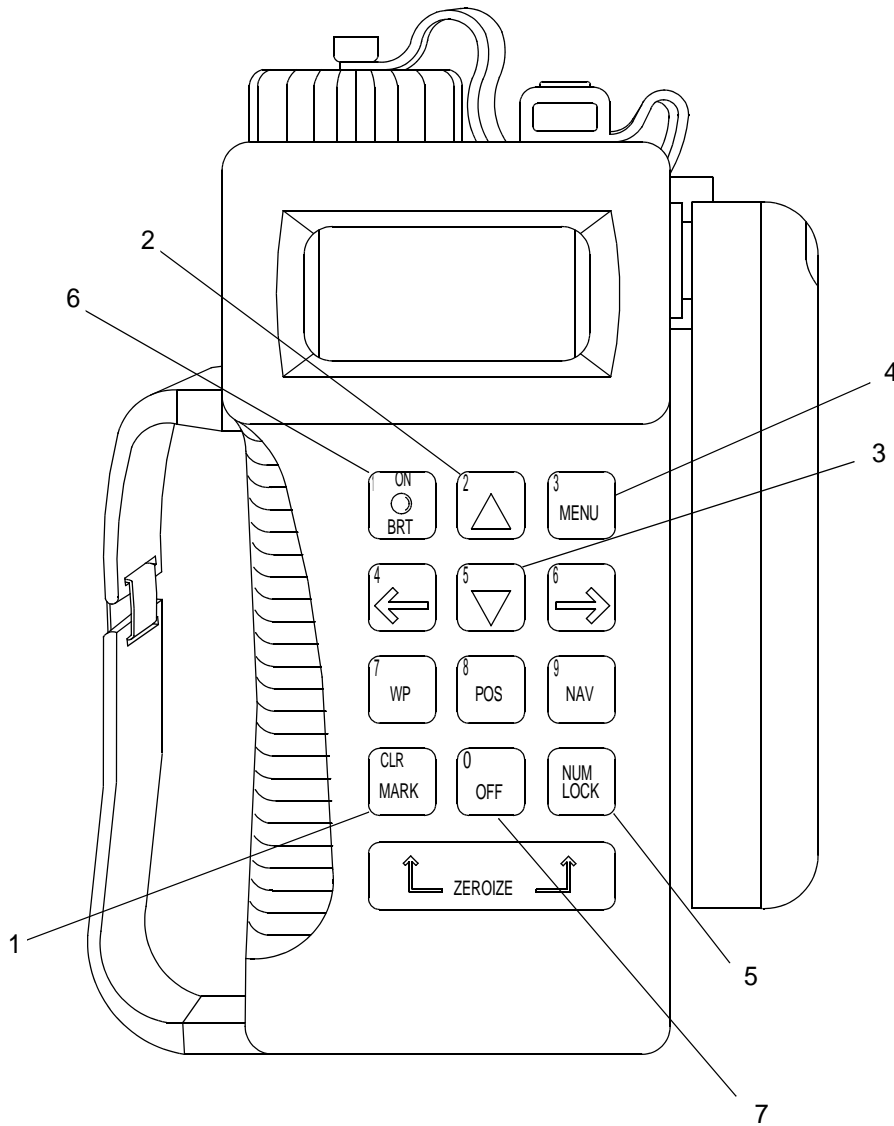
Personnel Required

Seaman 88K

**PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)
EMERGENCY PROCEDURES**

MARK POSITION OF MAN OVERBOARD

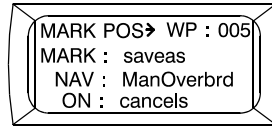
1. Immediately press the MARK key (1) when notified that a man is overboard to freeze the current position.



2C043-1

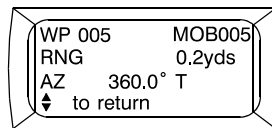
2. Ensure that MARK POS and the waypoints field is flashing after pressing MARK (1) initially.

- Use the UP ARROW key (2) or DOWN ARROW key (3) to keep this waypoint number or assign a different designation.



2C043-2

- Check to see if OVERWRITES appears on the display, indicating that a waypoint number chosen already exists.
- Press the MARK key (1) again to store the man overboard information.
- Navigate to the man overboard marked position to rescue the man overboard.



2C043-3

CRYPTO KEY ZEROIZE

CAUTION

This procedure zeroizes the crypto key only. To zeroize mission sensitive data, the PLGR zeroize must be performed. Failure to zeroize PLGR data could result in compromised information.

- Press the MENU key (4) to access the CRYPTO ZEROIZE menu.
- Select ACTIVATE.
- Press the UP ARROW key (2) or DOWN ARROW key (3) to acknowledge the message WARNING: ZEROIZE FAILED if zeroize fails.
- Repeat crypto zeroize one more time when the PLGR then changes to STANDBY mode.
- Send the faulty PLGR to depot maintenance for repair if failure repeats.
- Press the UP ARROW key (2) or DOWN ARROW key (3) to acknowledge the message WARNING: ALL KEYS ZEROIZED when the zeroize completes successfully.
- Ensure PLGR returns to Standby mode.

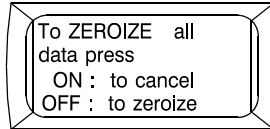
ZEROIZE PLGR

NOTE

The zeroize function is used only in emergencies to protect mission sensitive data stored in the PLGR. The zeroize sequence destroys all data entered into or collected by the PLGR.

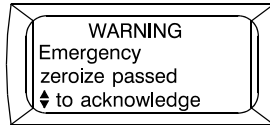
- Ensure that the PLGR is operational. Press CLR/MARK key (1) and NUM LOCK key (5) at the same time.

-
2. Press the OFF key (7) to zeroize when prompted.



2C043-4

3. Ensure that the PLGR turns off and on and displays a zeroize status.
4. Attempt to perform zeroize again if the display shows ZEROIZE FAILED.
5. Press the UP ARROW key (2) or DOWN ARROW key (3) to acknowledge if display shows EMERGENCY ZEROIZE PASSED.



2C043-5

END OF WORK PACKAGE

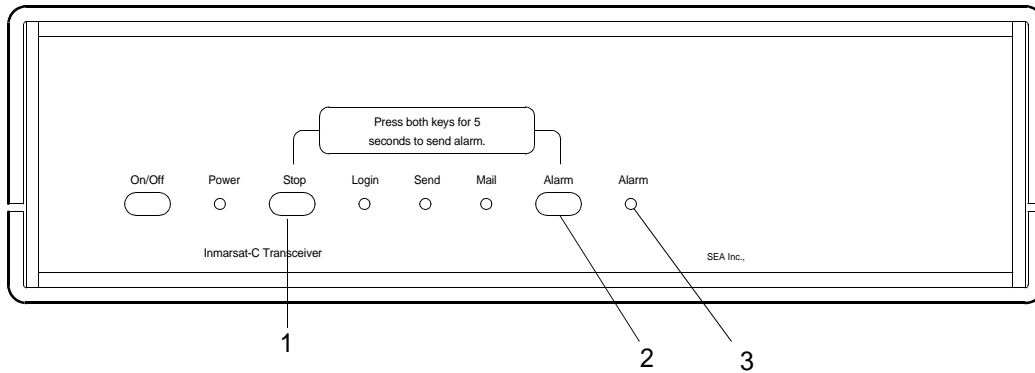
OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Seaman 88K

SEND DISTRESS USING THE INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM**SEND IMMEDIATE DISTRESS MESSAGE**

1. Press the STOP (1) and ALARM (2) buttons on the transceiver simultaneously to send an immediate MARITIME DISTRESS.



2C044-1

NOTE

After you have sent a maritime distress you may send a set or detailed message.

2. Hold buttons for at least 5 seconds until the alarm indicator (3) starts flashing.

SEND DETAILED DISTRESS MESSAGE

1. Type the message in the TEXT field of the editor on INMARSAT-C data terminal.

| | | | | | | | |
|----------------------------|------|----------|----------|--------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 7 47 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| HELP!!!! WE'RE SINKING!!!! | | | | | | | |
| ----- | | | | | | | |
| ASCII: | | | 29 Chars | Line | 1 Col 29 | | << Inserting |

2C044-2

2. Choose TRANSMIT by pressing ALT and T.
3. Press the TAB key to move the highlight one position to the right to the priority field '(*) ROUTINE'.

| | | | | | | | |
|---------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------|---------|--|--------------|
| West Atlantic | | | | INM-C - - - - 6 03 | | | |
| File | Edi | <Space> | | Transmit | | | |
| HELP!!!! W | | To: ► internet (●) Routine INET () Non-Urgent Spec. 7bit () Distress Land Station: [X] Request confirmation [] Print [X] Text in editor [X] Immediate transmission <SEND> | | | | | |
| ----- | | | | | | | |
| ASCII: | | | 1 Chars | Line | 1 Col 1 | | << Inserting |

2C044-3

NOTE

The address book may pop up when doing this. If the address field is empty, just select the first destination, as the address won't be used.

4. Press the DOWN ARROW twice to () DISTRESS and press SPACEBAR to select.

5. Ensure the address field shows SEARCH & RESCUE.

| | | | |
|---------------|-----|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| West Atlantic | | INM-C - - - - 12 15 | |
| File | Edi | <Space> | Transmit |
| HELP!!!! W | | To: SEARCH & RESCUE | |
| | | Land Station: 001 Southbury | <input type="checkbox"/> Routine <input type="checkbox"/> Non-Urgent <input checked="" type="checkbox"/> Distress |
| | | <input checked="" type="checkbox"/> Text in editor | <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission |
| | | <SEND> | |
| ASCII: | | 31 Chars | Line 1 Col 27 Inserting |

2C044-4

6. Press ENTER to move the highlight to SEND and press ENTER again to transmit.

NOTE

If the land station field is empty, the highlight will be positioned there instead. Press SPACEBAR to set the land station list and select a station. Once the station has been selected press the RIGHT ARROW key twice to send.

| | | | |
|---------------|-----|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| West Atlantic | | INM-C - - - - 12 16 | |
| File | Edi | <Space> | Transmit |
| HELP!!!! W | | To: SEARCH & RESCUE | |
| | | Land Station: 001 Southbury | <input type="checkbox"/> Routine <input type="checkbox"/> Non-Urgent <input checked="" type="checkbox"/> Distress |
| | | <input checked="" type="checkbox"/> Text in editor | <input checked="" type="checkbox"/> Request confirmation <input type="checkbox"/> Print <input checked="" type="checkbox"/> Immediate transmission |
| | | ▶ <SEND> | |
| ASCII: | | 31 Chars | Line 1 Col 27 Inserting |

2C044-5

7. Confirm the distress priority transmission by pressing ENTER.

SEND SET DISTRESS MESSAGE

1. Select the DISTRESS MENU.

| | | | | | | | |
|-----------------------------------------------------------------------------|------|----------|------|---------------------|----------|-----------|--------------|
| West Atlantic | | | | INM-C - - - - 12 22 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| HELP!!!! WE'RE SINKING!!!! | | | | | | | |
| | | | | Information | | | |
| This does not send a Distress Alert, it only sets the Distress Message. | | | | | | | |
| You must use the Transceivers front panel buttons to send a Distress Alert. | | | | | | | |
| Press any key to continue! | | | | | | | |
| ASCII: | | 32 Chars | | Line 2 Col 1 | | Inserting | |

2C044-6

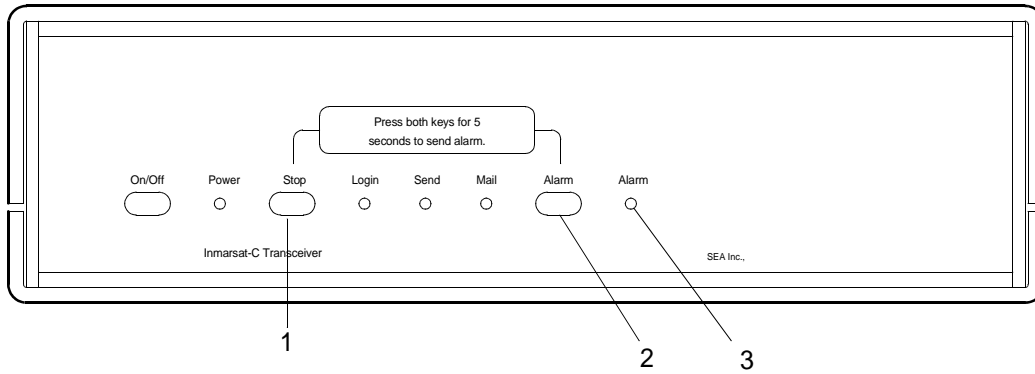
2. View the DISTRESS MESSAGE DIALOG.

| | | | | | | | |
|---------------|----------------------------------|---------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|--------------|
| West Atlantic | | | | INM-C - - - - 12 27 | | | |
| File | Edit | Transmit | Logs | Distress | Position | Options | Applications |
| HE | <Enter> Setting Distress Message | | | | | | |
| Land Sation: | | 001 Southbury | | <input type="checkbox"/> Unspecified <input type="checkbox"/> Explosion/fire <input type="checkbox"/> Flooding <input type="checkbox"/> Collision <input type="checkbox"/> Grounding <input type="checkbox"/> Listing <input checked="" type="checkbox"/> Sinking <input type="checkbox"/> Disabled & adrift <input type="checkbox"/> Abandoning ship <input type="checkbox"/> Req. Assistance <input type="checkbox"/> Piracy | | | |
| Latitude | | 37° 44,23 N | | | | | |
| Longitude | | 076° 45,22 W | | | | | |
| Course | | 151 Degrees | | | | | |
| Speed | | 2 Knots | | | | | |
| Updated at | | 00:00 UTC | | | | | |
| Status | | INVALID | | | | | |
| | | ▶ <OK> | | Inserting | | | |
| AS | | | | | | | |

2C044-7

- a. Edit the LAND STATION field, which will normally be filled in with the station that you used for your latest transmission, by pressing SPACEBAR.
- b. Enter your current position using the POSITION field if the status is INVALID.
- c. View the types available for MARITIME DISTRESS using the NATURE OF DISTRESS field.

3. Press the STOP key (1) and ALARM key (2) buttons on the transceiver simultaneously for at least 5 seconds until the alarm indicator (3) starts flashing once the message is set.



2C044-1

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

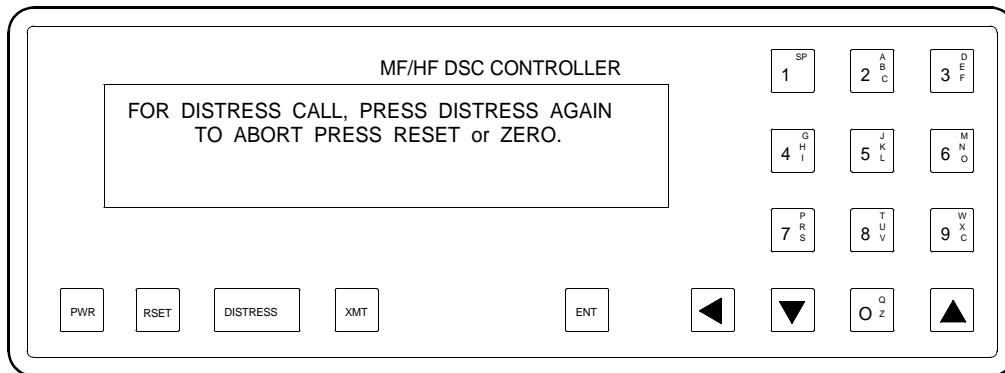
Seaman 88K

SEND DISTRESS USING DSC CONTROLLER

WARNING

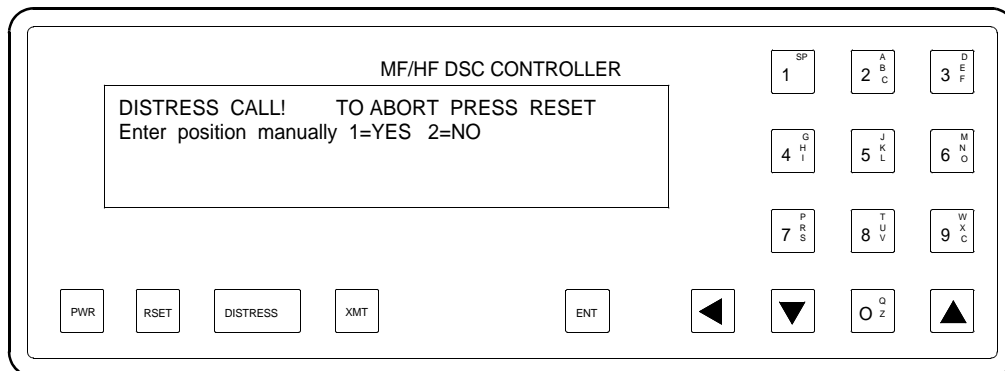
Do not attempt to send a distress using the DSC controller unless a MF/HF radio is installed. If a MF/HF radio is not installed, the distress will not be transmitted. Failure to follow this precaution could result in loss of life.

1. Press the DISTRESS key.



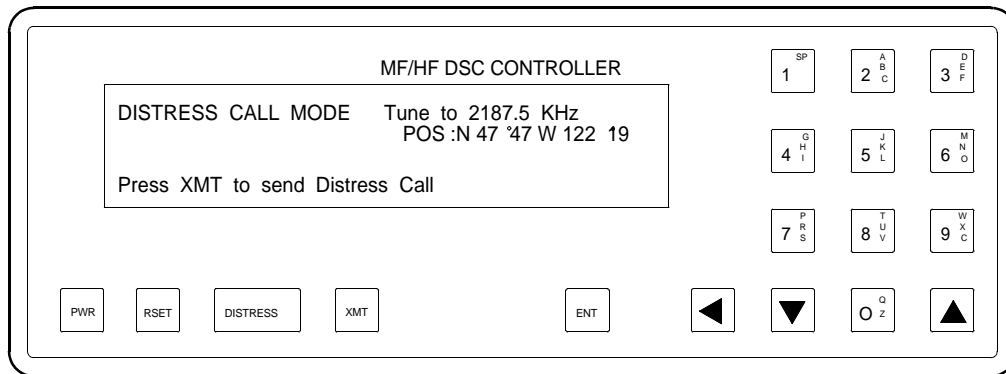
2C045-1

2. Press 0 or RSET to cancel distress calling procedure if the DISTRESS key was pressed accidentally.
3. Press the DISTRESS key a second time to enter Distress Calling mode if you wish to continue or the DSC controller will time out and return to its previous setting.
4. Check to see if the PLGR has a valid position, it is read automatically and is required once the Distress mode has been activated.



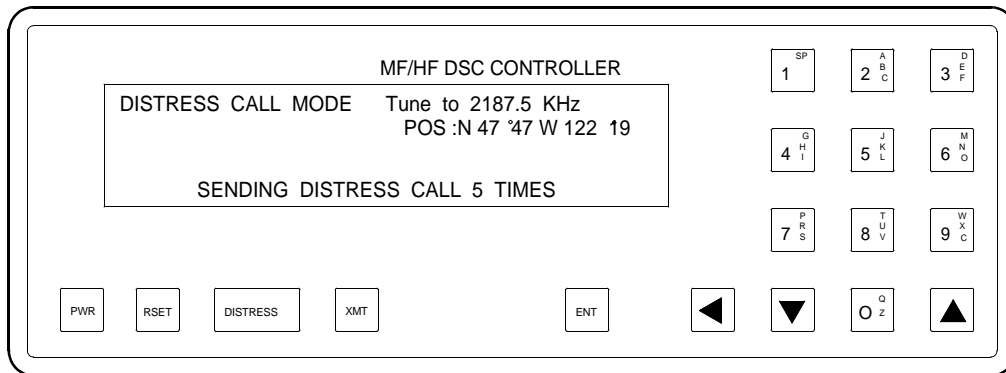
2C045-2

5. Press 2 to indicate that you do not wish to enter your position manually. If the PLGR does not have a valid position, go to step 8 for instructions on manually entering a position.



2C045-5

6. Press the XMT key to transmit distress call.

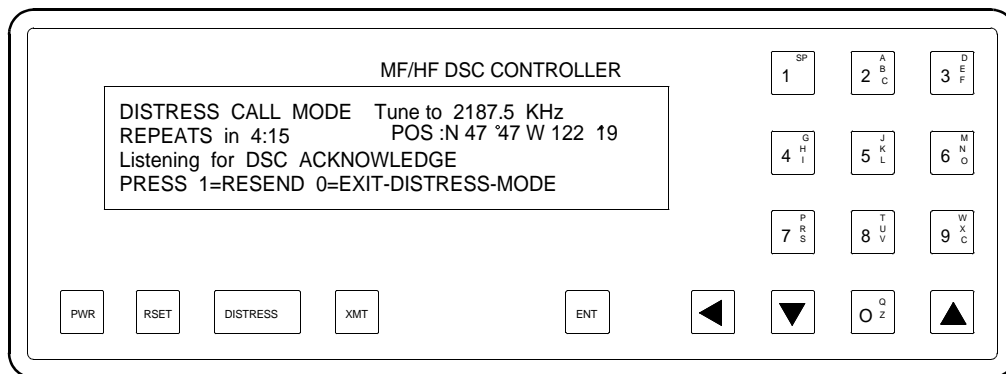


2C045-6

NOTE

Distress calls will be transmitted five times. Once the first signal has been sent, the DSC Controller will wait for an acknowledgement. Each consecutive distress signal will be preceded by a countdown.

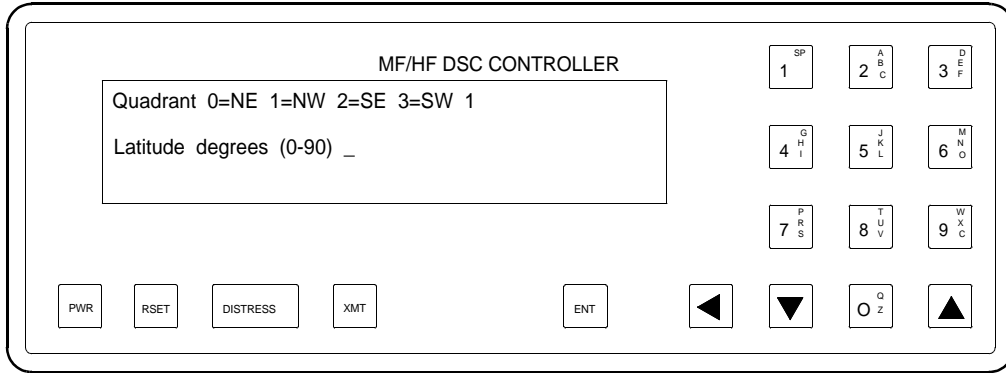
7. Press 1 if you wish to resend distress signal before the countdown time has elapsed.



2C045-7

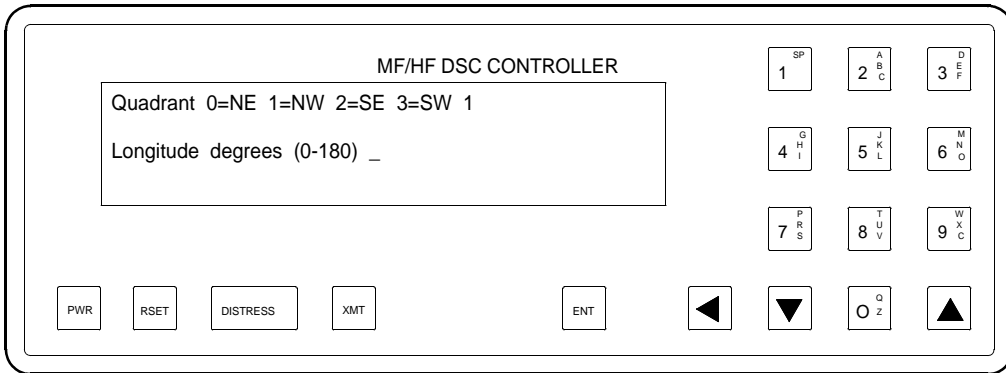
8. Press 1 to indicate that you wish to enter your position manually.

9. Enter the quadrant, followed by degrees and minutes of latitude.



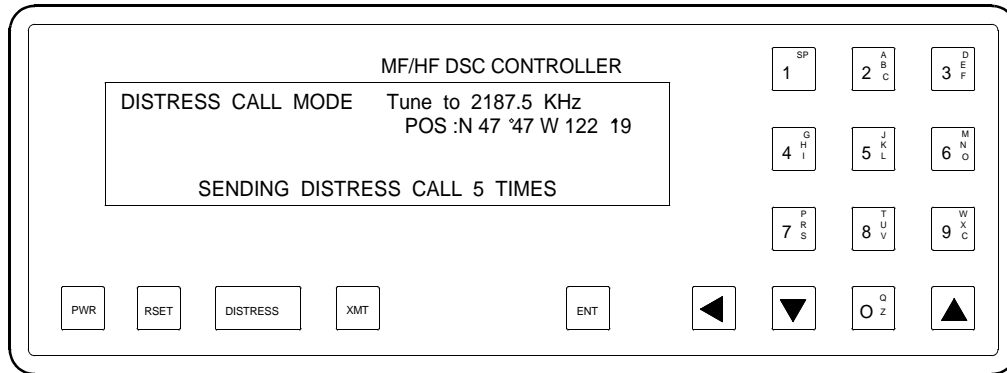
2C045-3

10. Enter the quadrant followed by the degrees and minutes of longitude.



2C045-4

11. Press XMT key to transmit distress call once the position is entered.

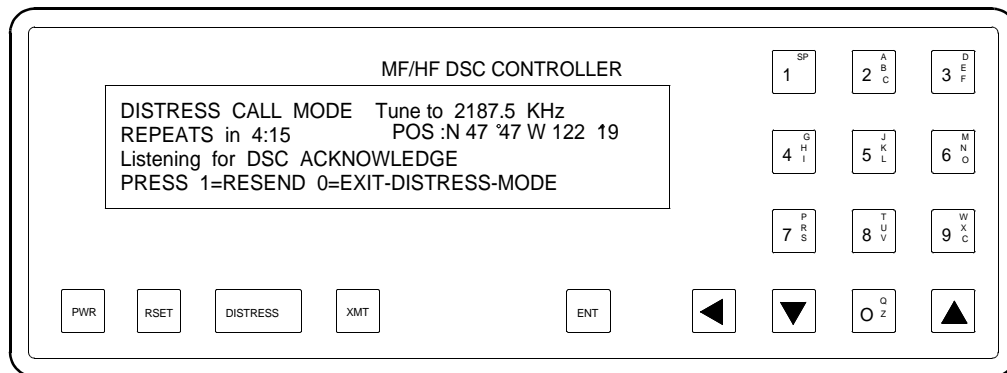


2C045-6

NOTE

Distress calls will be transmitted five times. Once the first signal has been sent, the DSC controller will wait for an acknowledgement. Each consecutive distress signal will be preceded by a countdown.

12. Press 1 if you wish to resend distress signal before the countdown time has elapsed.



2C045-7

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

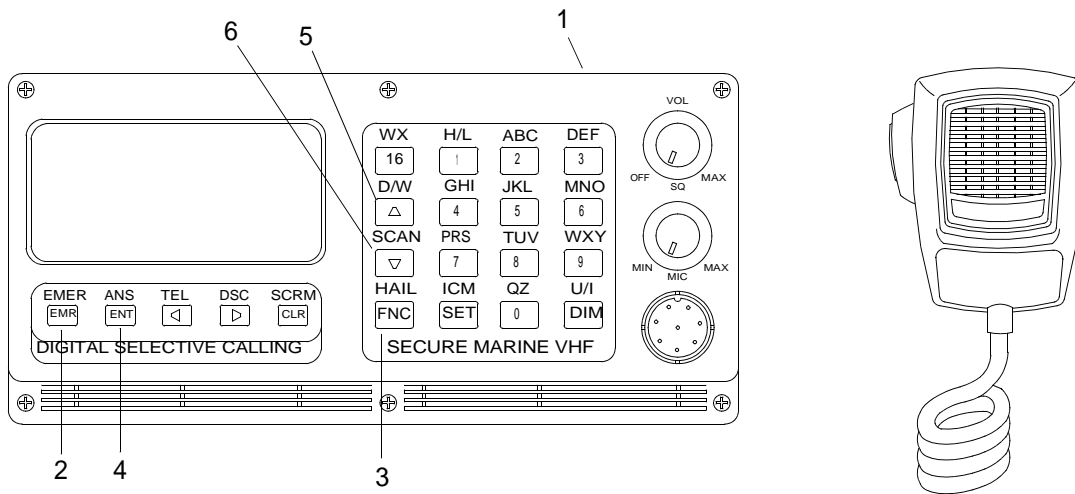
Personnel Required

Seaman 88K

SEND DISTRESS USING THE VHF/FM DSC TRANSCEIVER

GENERAL

1. Use the EMERGENCY mode to send a distress call, which will automatically includes the vessel's DSC call sign and LAT/LON position and can be sent only if the PLGR is operational.
2. Press the EMR key (2) or press the FNC key (3) and the EMR key (2) to access the EMERGENCY functions of the VHF/FM DSC transceiver (1).



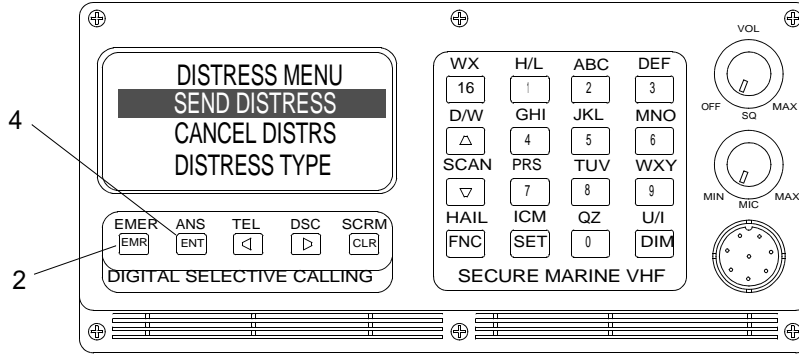
2C046-1

SEND DISTRESS

1. Press the EMR key (2) to go to the DISTRESS menu and to access and send a distress call.

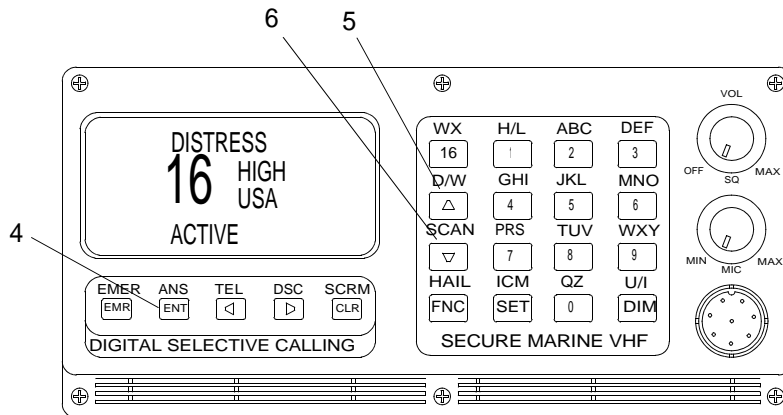
NOTE

The menu selection by default is the "SEND DISTRESS" option.



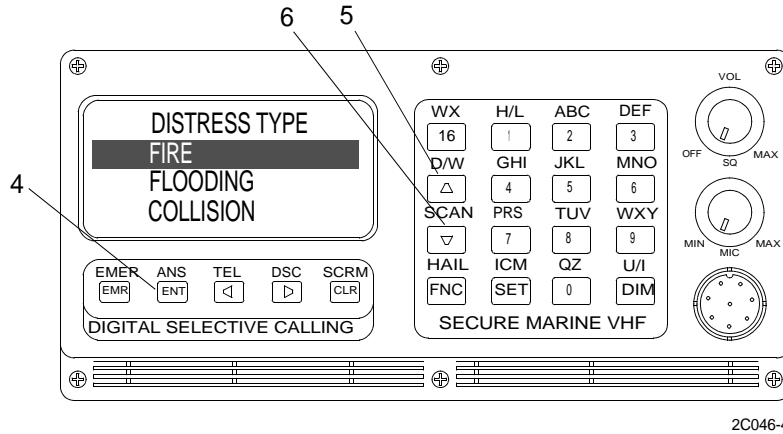
2C046-2

2. Press and hold the EMR key (2) or the ENT key (4) for five seconds until the DISTRESS CALL is transmitted and the time on the countdown indicator on the bottom line has elapsed.



2C046-3

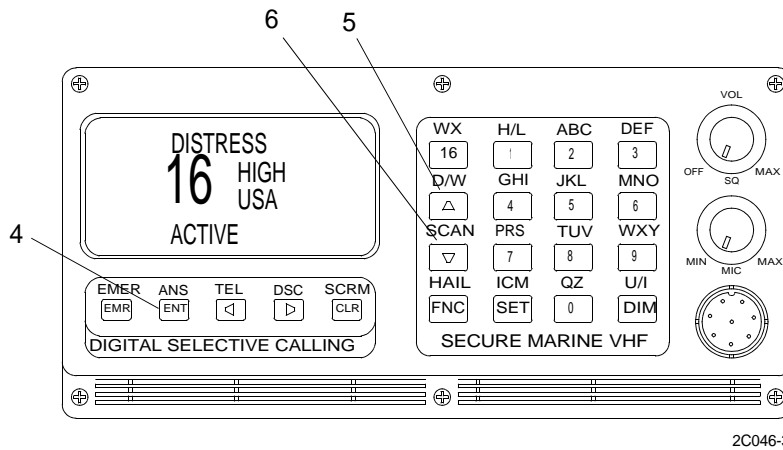
3. Select the type of distress with UP ARROW key (5) or DOWN ARROW key (6) and press the ENT key (4).



NOTE

If a DSC acknowledgement is not received from a shore station within two minutes, the distress call will be automatically repeated. Distress will continue to be rebroadcast every five minutes with an updated position until either acknowledged or cancelled. As a reminder that the EMERGENCY mode is active, the distress tone will sound for five seconds every thirty seconds.

4. Ensure that DISTRESS appears in the upper line of the display and ACTIVE appears in the lower line while waiting for an acknowledgement.



5. Press any key when acknowledgement is received, DISTRESS CALL ACKNOWLEDGEMENT PRESS ANY KEY is displayed and the distress call has been automatically cancelled.
6. Select the LAT/LON ENTRY option from the main DISTRESS menu using the option from the main DISTRESS menu using the UP ARROW key (5) or DOWN ARROW key (6) and press the ENT key (4).
7. Enter the latitude and longitude for the current position if the DSC CONTROLLER has no position from the PLGR and the screen is blank.
8. Press the corresponding key where the alpha character is located to enter the hemisphere.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

RECEIVE DISTRESS USING THE INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM

1. Press the ESC key to remove the pop up box and accompanying beep on the INMARSAT-C data terminal EGC screen that indicates a distress signal has been received.
2. Remove automatic printout of distress signal from the INMARSAT-C printer.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

PROCEDURE FOR RECEIVING MF/HF DSC CONTROLLER DISTRESS CALL**NOTE**

These procedures only apply if there is a MF/HF DSC CONTROLLER radio installed.

International rules state that the obligation to accept distress calls and messages is absolute in every case of every station without distinction and such messages must be accepted with priority over all other messages. All distress messages will be answered and the necessary steps immediately taken to give effect to them.

Coast Guard stations are much better placed to help as they have helicopters, lifeboats, hospitals and other rescue facilities at their disposal.

Always keep a pencil and notepad by the radio in case you receive a distress alert so you can write down the distress message.

When a DSC controller receives a distress alert it will sound an audible alarm. The alarm will continue to sound until a response is made.

1. Receive a distress message through the DSC controller.
 - a. Make no transmissions while waiting for acknowledgement and message.
 - b. Continue the watch on channel 16 until the distress alert has been acknowledged.
 - c. Plot the casualties position.
 - d. Write down the message transmitted on channel 16.
2. Take the following action to acknowledge an alert from a vessel within range of the coast:
 - a. Do nothing. Acknowledgements of a DSC alert by use of DSC is made only by coast stations and vessels fitted with Class A or Class B DSC controllers. If there is no response after a short interval, contact the coast guard and inform them of the distress situation. When the alert has been acknowledged, prepare for receiving the subsequent distress message. Finally, inform the master of the vessel of the contents of the distress message.
 - b. If there is no response after a short interval, contact the coast guard and inform them of the distress situation. When the alert has been acknowledged, prepare for receiving the subsequent distress message.
 - c. Inform the master of the vessel of the contents of the distress message.
3. Alert from a vessel outside coastal communication range and outside your vicinity:
 - a. Wait to see if another vessel, closer to the one in distress, acknowledges the call first.

-
- b. When the alert has been acknowledged, prepare for receiving the subsequent distress message. If no acknowledgement is heard, inform the master of the vessel of the contents of the distress message and follow the steps below:

{1} Acknowledge the distress as soon as possible. As there is no facility on a class D controller to acknowledge a distress alert by DSC, it will have to be done on channel 16 by voice.

{2} Follow the below procedures to transmit your acknowledgement of the distress alert:

EXAMPLE OF TRANSMISSION

MAYDAY

NAME OR MMSI NUMBER OF THE VESSEL
IN DISTRESS SPOKEN THREE TIMES.

"THIS IS"

NAME OF OWN VESSEL SPOKEN THREE TIMES.

"RECEIVED MAYDAY"

STATE THE ASSISTANCE YOU CAN PROVIDE.

2C048-1

4. Alert from a vessel out of coastal communication range close by:
- a. The DSC distress alert cycle of five calls will take approximately 3 seconds and is repeated randomly at between 3.5 and 4.5 minute intervals. If your acknowledgement coincides with a DSC repetition, acknowledge as soon as it is finished.
 - b. If you can render full assistance, ask the distressed vessel to cancel the DSC distress alert and inform the coast guard so that they don't assume the vessel has sunk.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITONS**

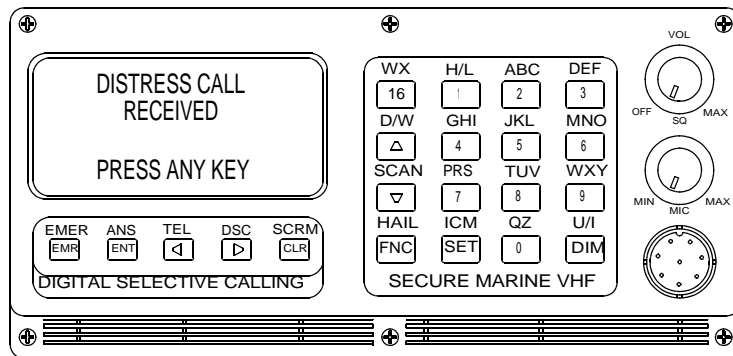
INITIAL SETUP:

Personnel Required

Seaman 88K

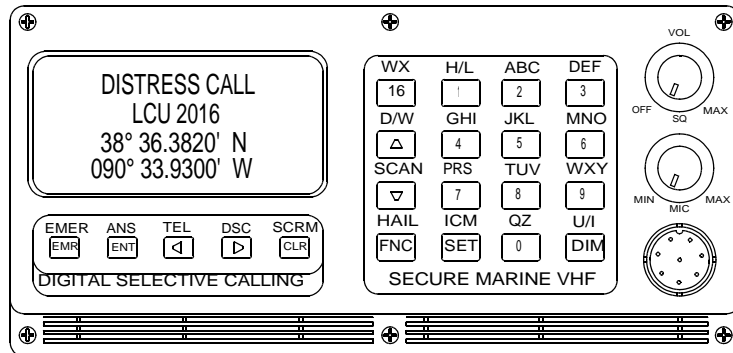
RECEIVING A DISTRESS USING THE VHF/FM DSC TRANSCEIVER

1. Press any key when a distress is received, a distress tone is heard on the radio and the DSC CONTROLLER has defaulted to the distress display.



2C049-1

2. Ensure that the vessel position and identification appears in the DSC CONTROLLER display.

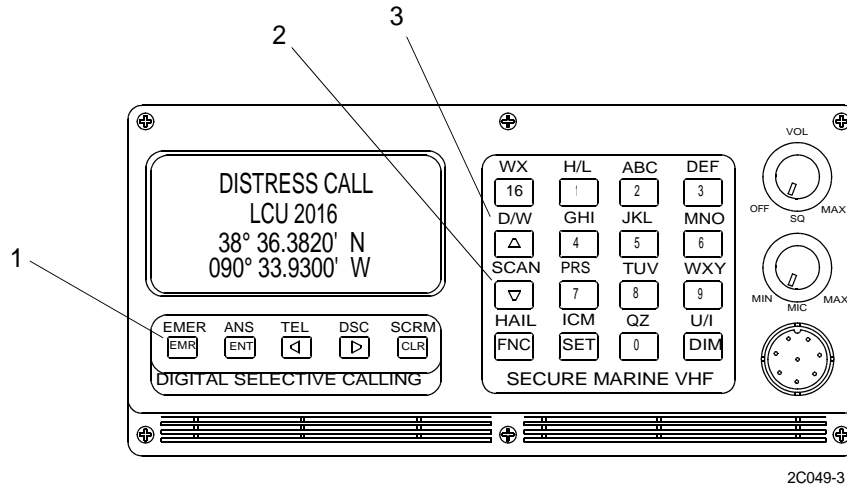


2C049-2

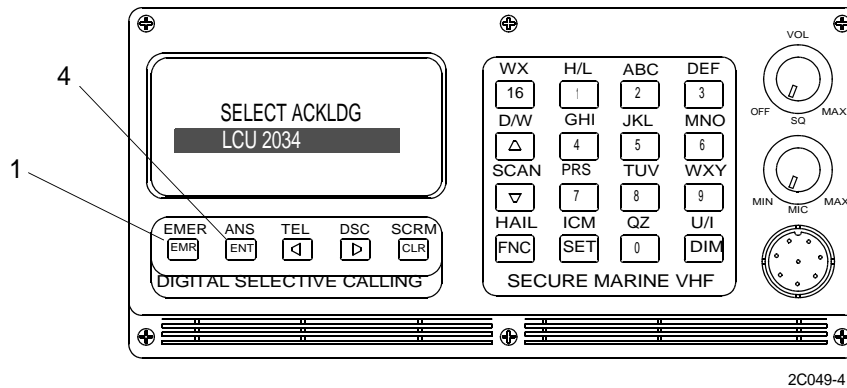
ACKNOWLEDGE DISTRESS**NOTE**

A distress call cannot be acknowledged for the first 80 seconds after receiving the call. This allows time for shore base stations to respond to the distress call.

1. Press the EMER key (1) to acknowledge a distress call that the DSC CONTROLLER has received.



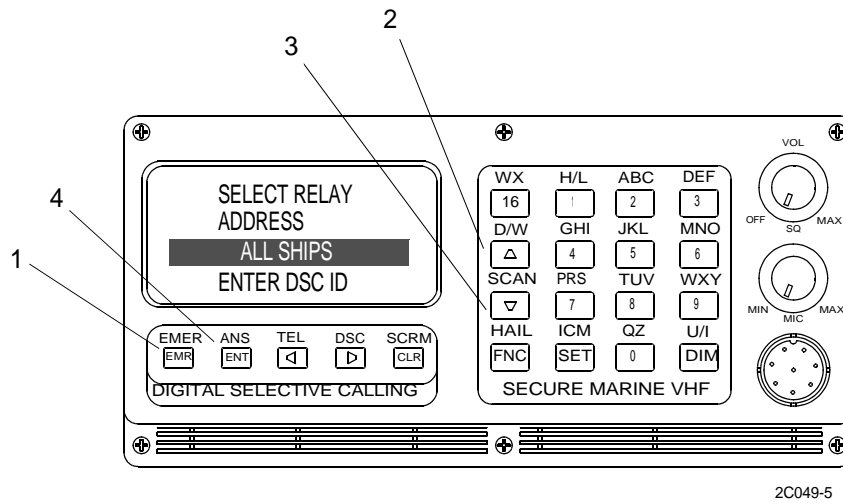
2. Select the DISTRESS ACK key option from the main distress menu with the UP ARROW key (2) or the DOWN ARROW key (3) and press the ENT key (4).
3. Select the distress log entry which corresponds to the distress call that is to be acknowledged and press the ENT key (4).

**DISTRESS RELAY****NOTE**

The DISTRESS RELAY option is not available for distress calls that have already been acknowledged.

1. Press the EMER key (1) to relay a distress call received by the DSC CONTROLLER.
2. Select DISTRS RELAY from the main distress menu with the UP ARROW key (2) or the DOWN ARROW key (3) and press the ENT key (4).

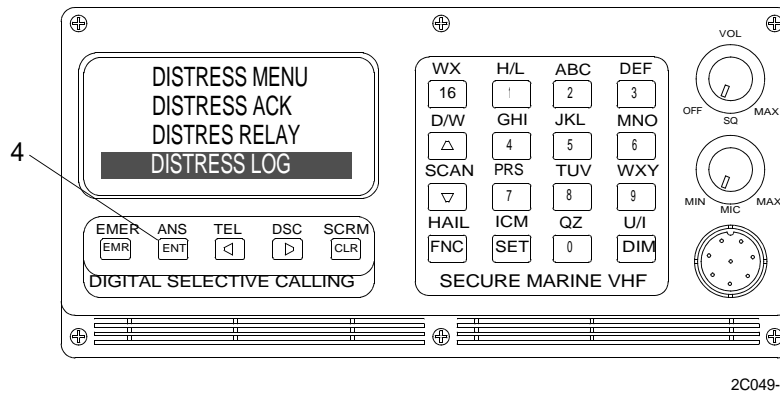
3. Select the DISTRESS LOG entry which corresponds to the distress call that is to be relayed and press the ENT key (4).
4. Press the ENT key (4) to send the distress relay with the ALL SHIPS option selected as the destination of the relay distress call.



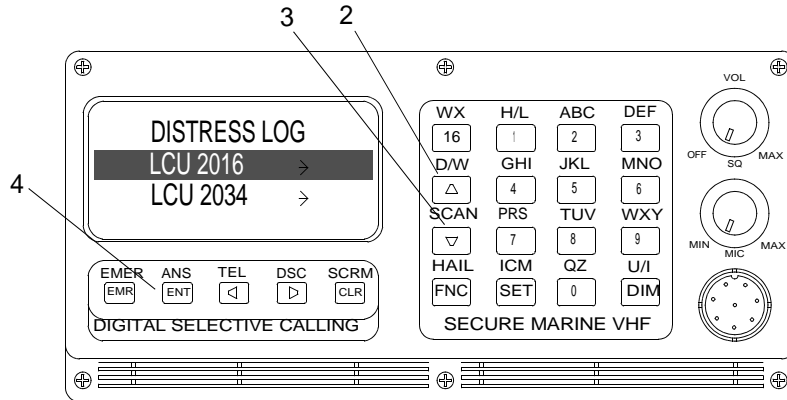
5. Press the ENT key (4) to send the distress relay with the DSC ID option selected if the DSC ID of the coast station is known.
6. Enter the DSC ID key in the space provided and press the ENT key (4) to send the distress relay.

DISTRESS LOG

1. Select the DISTRESS LOG from the main distress menu and press the ENT key (4) to view the distress log.

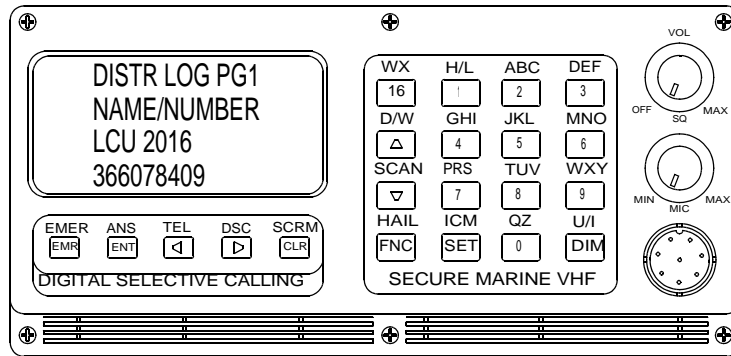


- Select a name or DSC number from the log using the UP ARROW key (2) or the DOWN ARROW key (3) and press ENT (4).



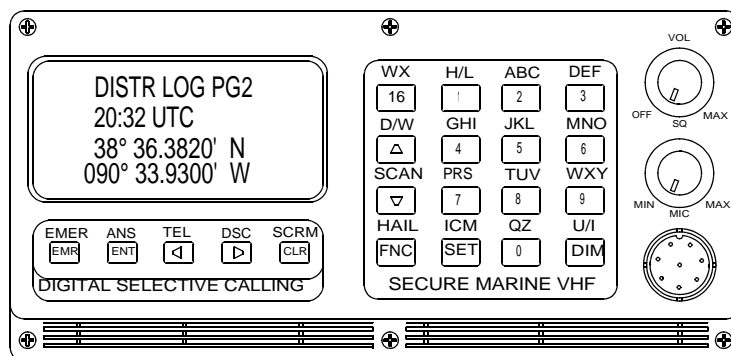
2C049-7

- Use the RIGHT ARROW key (2) to move through the rest of the distress log pages.
- View distress log page 1, if available, to learn the name and DSC ID number of the vessel that sent the distress call.



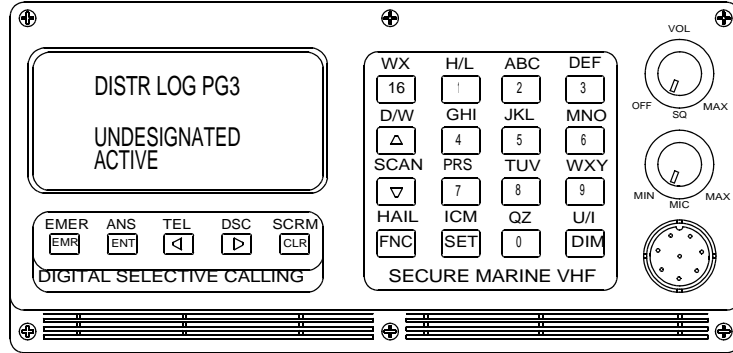
2C049-8

- View distress log page 2 to learn the latitude, longitude and time of position as received from the distress call.



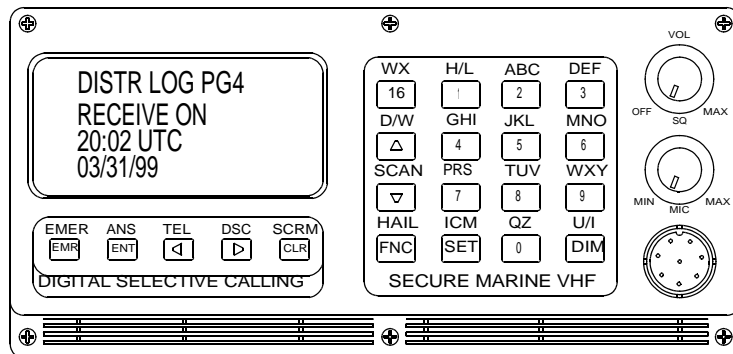
2C049-9

- View distress log page 3 to learn the status of the distress call, number of people onboard and the type of distress call.



2C049-10

- View distress log page 4 to learn the name and DSC ID number of the station that acknowledged the distress call.



2C049-11

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**Seaman 88K

CANCEL DISTRESS USING THE INMARSAT-C SATELLITE COMMUNICATIONS SYSTEM

1. Using the same procedures as those for e-mail, FAX and TELEX, notify the appropriate Rescue Coordination Center (RCC) to cancel the alert by sending a distress priority message through the same INMARSAT-C Coast Earth Station (CES).
2. Follow the example of DISTRESS MESSAGE cancellation as shown below.

```
NAME, CALL SIGN, INDENTITY NUMBER,  
POSITION  
  
Cancel my Inmarsat-C distress  
alert of DATE, TIME UTC  
=Master+
```

2C050-1

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

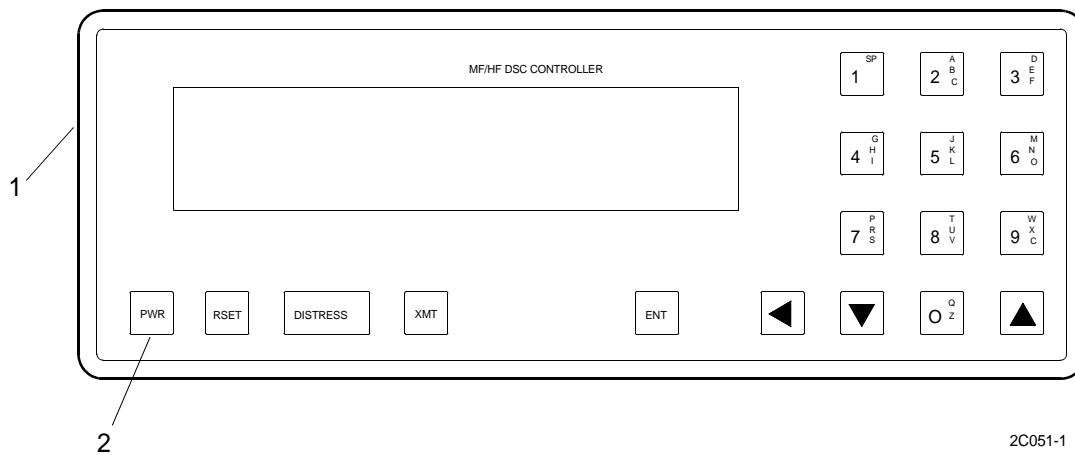
Personnel Required
Seaman 88K

CANCEL DISTRESS USING THE DIGITAL SELECTIVE CALLING (DSC) CONTROLLER

NOTE

These procedures only apply if there is a MF/HF DSC radio installed.

1. Immediately switch off DSC controller when the transmission of a false alert is detected.



- a. Locate the POWER button (2) on front of DSC controller control panel (1).
- b. Press POWER button (2) to turn off power.
2. Press POWER button (2) to turn on power.
3. Tune the DSC controller to all frequency bands that the distress was transmitted on.
4. Broadcast cancellation message to ALL STATIONS with the required information.

MF/HF message example:

All Stations, All Stations, All Stations
 This is NAME (vessel) CALL SIGN,
 DSC NUMBER, POSITION.
 Cancel my distress alert of
 DATE, TIME UTC,
 = Master NAME, CALL SIGN,
 DSC NUMBER, DATE, TIME UTC.

2C051-2

END OF WORK PACKAGE

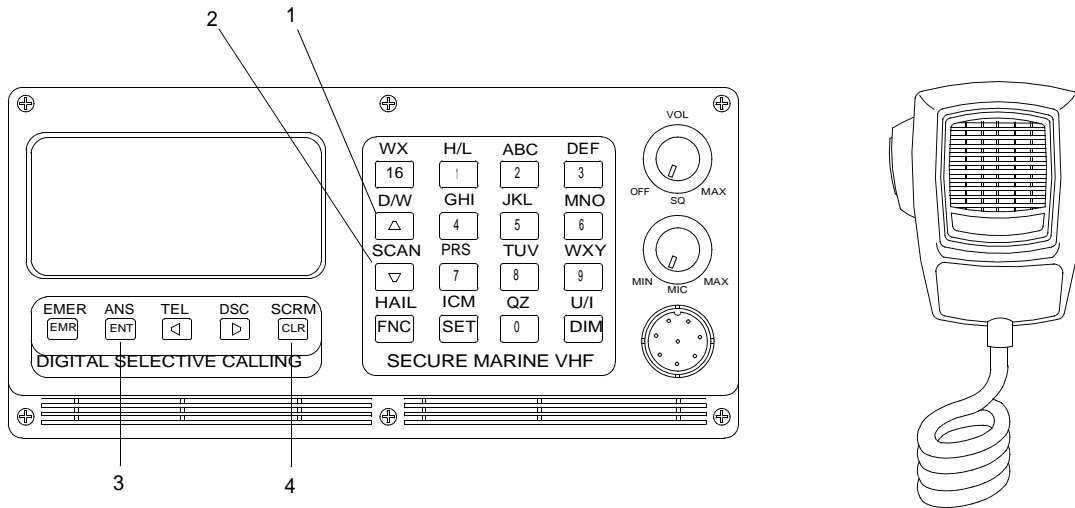
**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

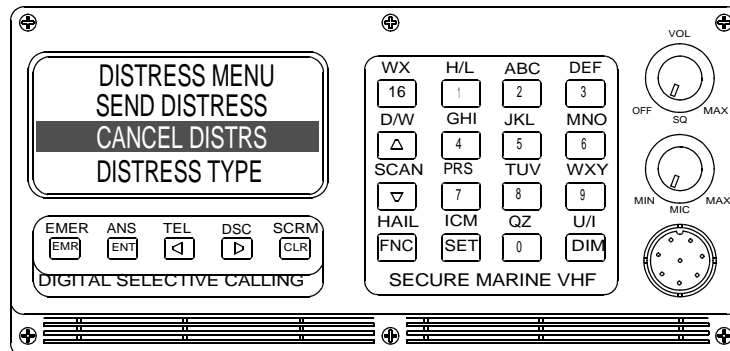
Seaman 88K

CANCEL DISTRESS USING THE VHF/FM DSC TRANSCEIVER



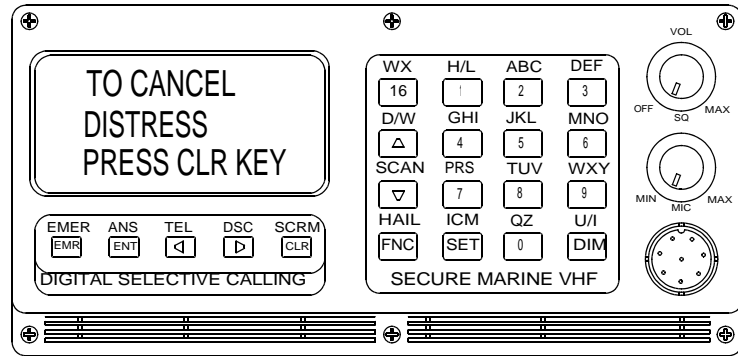
2C052-1

1. Use the UP ARROW key (1) or DOWN ARROW key (2) to select CANCEL DISTRS and press the ENT key (3).



3C047-2

- Press the CLR key (4) to cancel the distress.



3C047-3

- Tune the DSC transceiver to the channel that the distress was transmitted on.
- Broadcast cancellation message to ALL STATIONS with the required information.

VHF/FM message example:

All Stations, All Stations, All Stations
 This is NAME (vessel) CALL SIGN,
 DSC NUMBER, POSITION.

Cancel my distress alert of
 DATE, TIME UTC,
 = Master NAME, CALL SIGN,
 DSC NUMBER, DATE, TIME UTC.

2C052-4

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

Equipment Condition

Lifeboat Radio Removed. (WP 0151 00)

OPERATE THE LIFEBOAT RADIO (LBR)

WARNING

**EXPLOSION**

The lithium battery in the lifeboat radio contains pressurized sulfur dioxide gas. The gas is toxic, and the battery must not be abused in any way that might cause the battery to rupture.

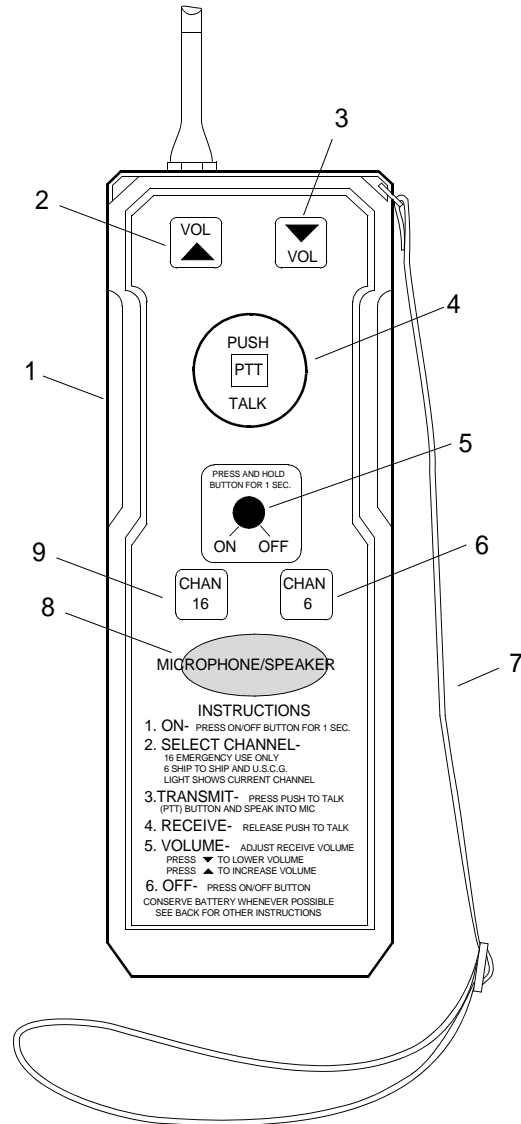
Do not heat, short circuit, crush, puncture, mutilate or disassemble batteries.

Do not use any battery which shows signs of damage. Damage can appear as bulging, disfigurement, a brown liquid on the outside, etc.

Failure to follow these instructions could result in an explosion or production of toxic gases that may kill or injure you.

1. Carry the LBR (1) onto the survival craft.

- Slide O-rings off control panel protective cover to remove cover.



2C053-1

- Secure strap (7) around wrist.
- Press the ON/OFF button (5) for one second to turn unit on.
- Repeat step 4 if the CHAN 16 button (9) does not stay lit.
- Listen for the tone and the squelch action three seconds after turning the unit on.
- If channel 6 is desired, press CHAN 6 (6) button to select.
- Press the PUSH TO TALK (PTT) button (4) to transmit.
- Speak loudly and clearly into the microphone/speaker (8) from a distance of approximately three to six inches.
- Both the UP VOLUME (2) and the DOWN VOLUME (3) indicators will remain lit during transmission.
- Release PTT button (4) to listen.

-
12. Adjust as required by pressing the UP VOLUME button (2) to increase volume or by pressing the DOWN VOLUME button (3) to decrease volume.
 13. Keep transmissions to a minimum to conserve battery power.
 14. Periodically verify that the CHAN 16 button (9) is lit to guard against accidental selection of channel 6.
 15. Press the ON/OFF button (5) to turn radio off.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

Equipment Condition

Search and Rescue Transponder (SART) Removed. (WP 0117 00)

OPERATE SEARCH AND RESCUE TRANSPONDER (SART)

WARNING

**EXPLOSION**

The lithium battery in the SART contains pressurized sulfur dioxide gas. The gas is toxic, and the battery must not be abused in any way that might cause the battery to rupture.

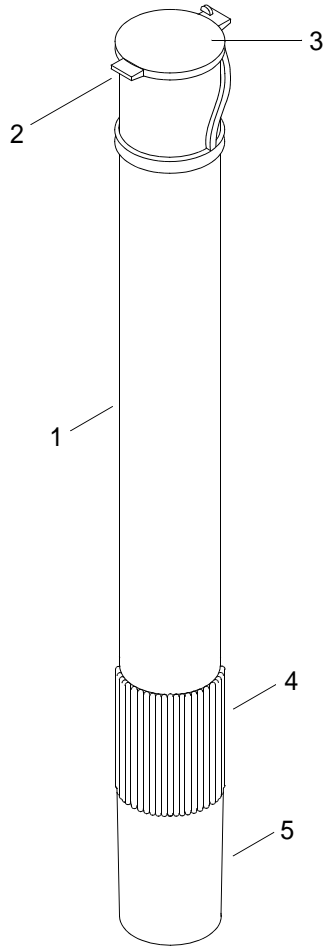
Do not heat, short circuit, crush, puncture, mutilate or disassemble batteries.

Do not use any battery which shows signs of damage. damage can appear as bulging, disfigurement, a brown liquid on the outside, etc.

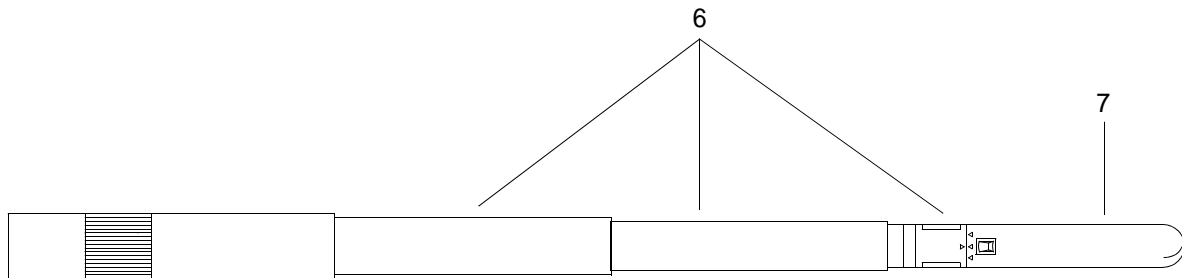
Failure to follow these instructions could result in an explosion or production of toxic gases that may kill or injure you.

1. Carry the SART (1) onto the survival craft.

2. Keep the SART (1) upright and lift off the top cap (3) using tab (2).

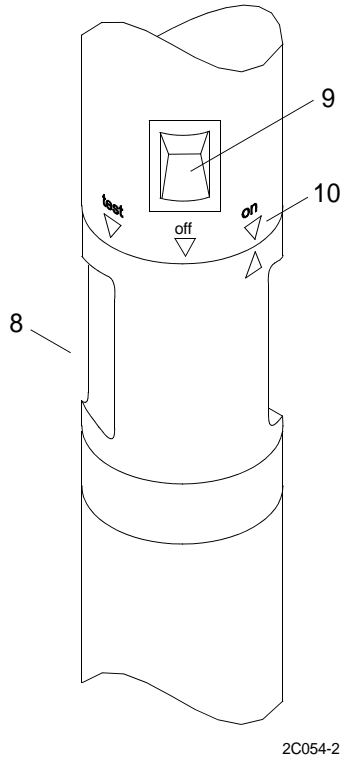


3. Fully extend the mast sections (6) by gently tilting the SART (1) forward until the mast sections (6) slide out.



4. Lock each section of the mast sections (6) by pulling and twisting each section.

5. Rotate the switch (8) clockwise to the on position (10) and lock into position, the green light (9) will slowly flash.



6. Insert the top (7) of the SART (1) through the survival craft observation port.
7. Insert the bottom of the SART (1) into the pocket.
8. Secure the SART (1) to the survival craft with lanyard (4).

NOTE

The SART (1) is now deployed and in the standby mode, the indicator light (9) will be slowly flashing green. When interrogated by a compatible airborne or shipboard radar, the indicator light (9) will be slowly flashing red.

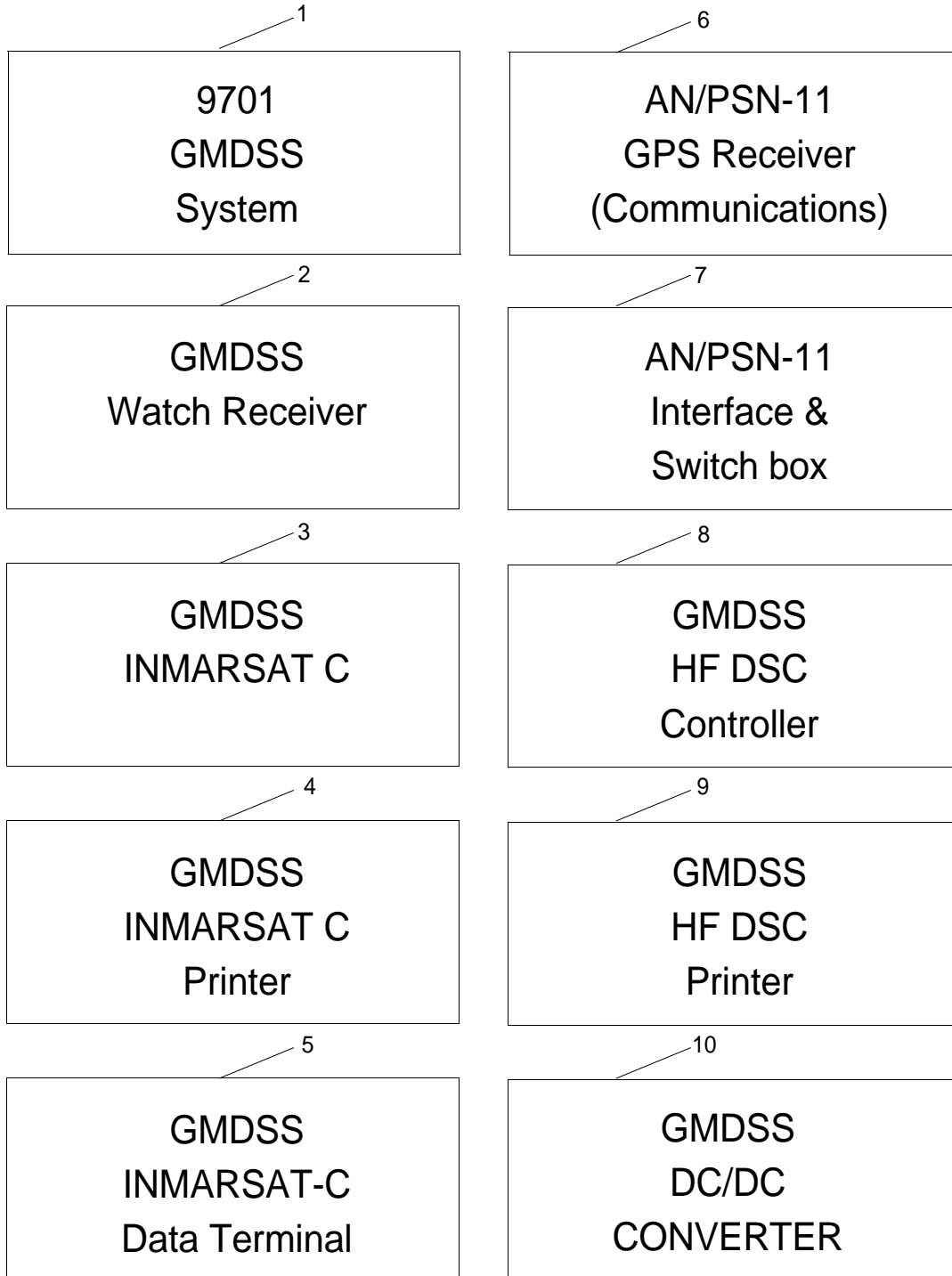
9. Close observation port around the SART (1).

END OF WORK PACKAGE

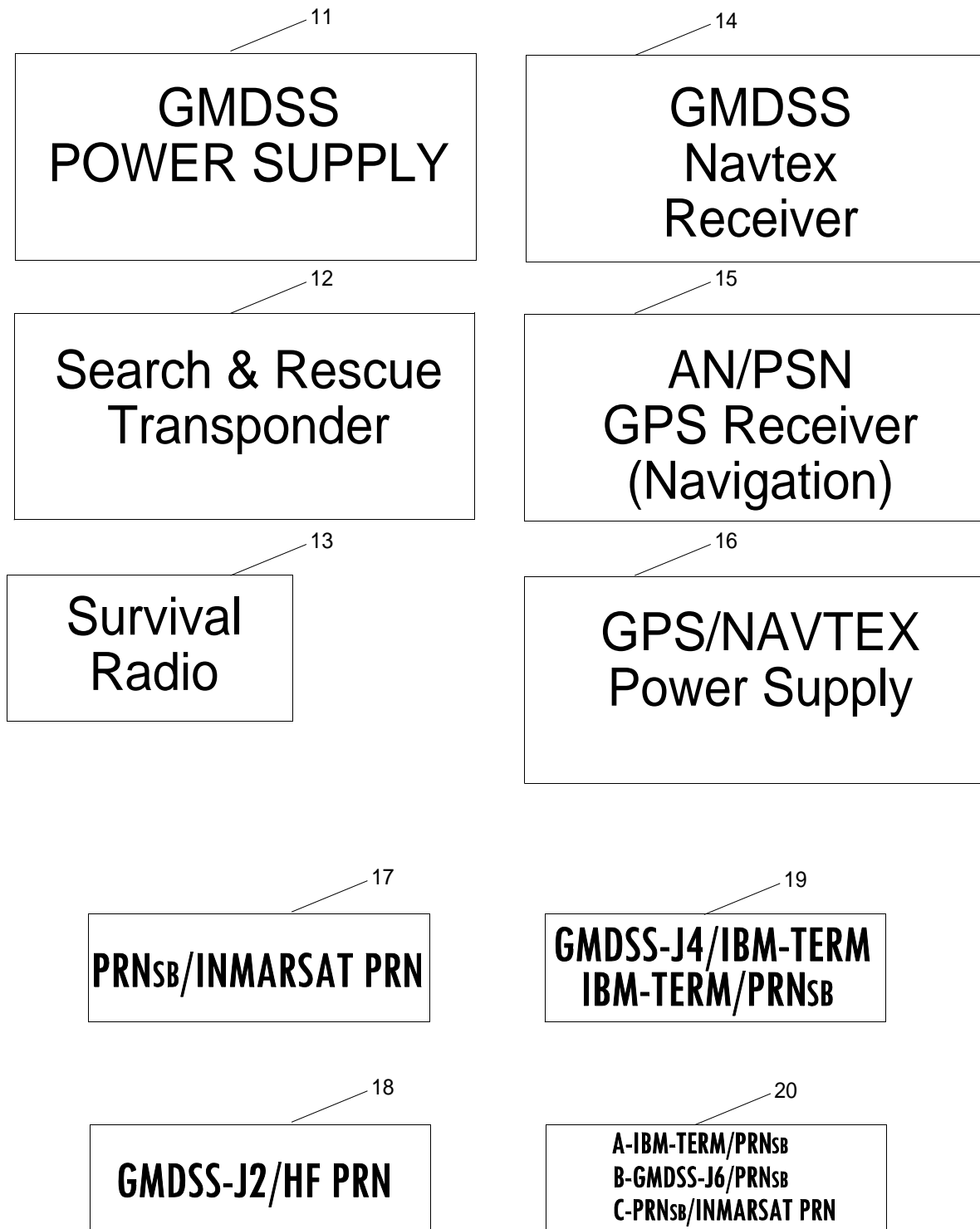
**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GMDSS COMPONENT DATA PLATE GUIDE**

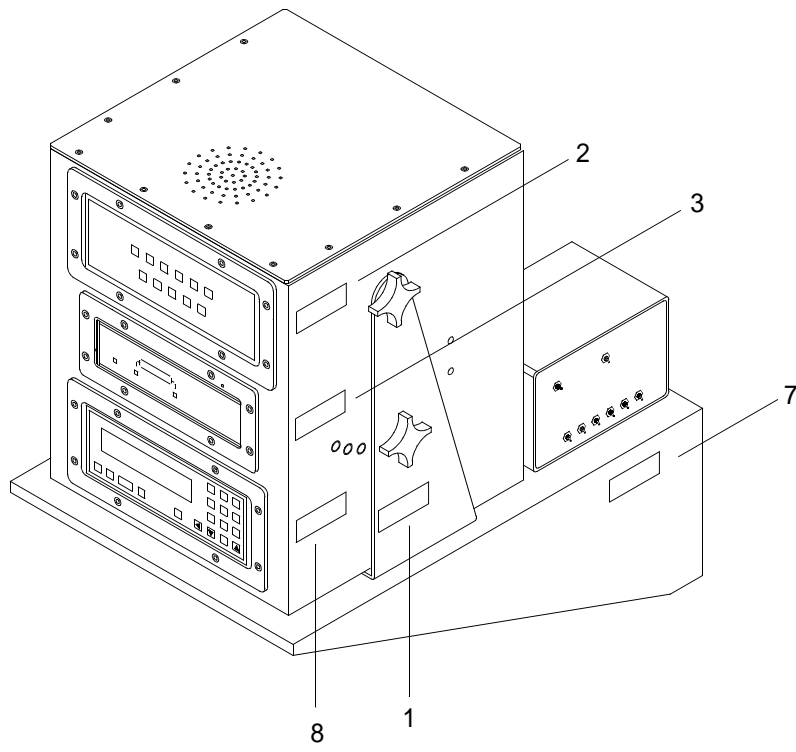
GMDSS DATA PLATE GUIDE

This work package illustrates all placards installed adjacent to or attached to the GMDSS major components.

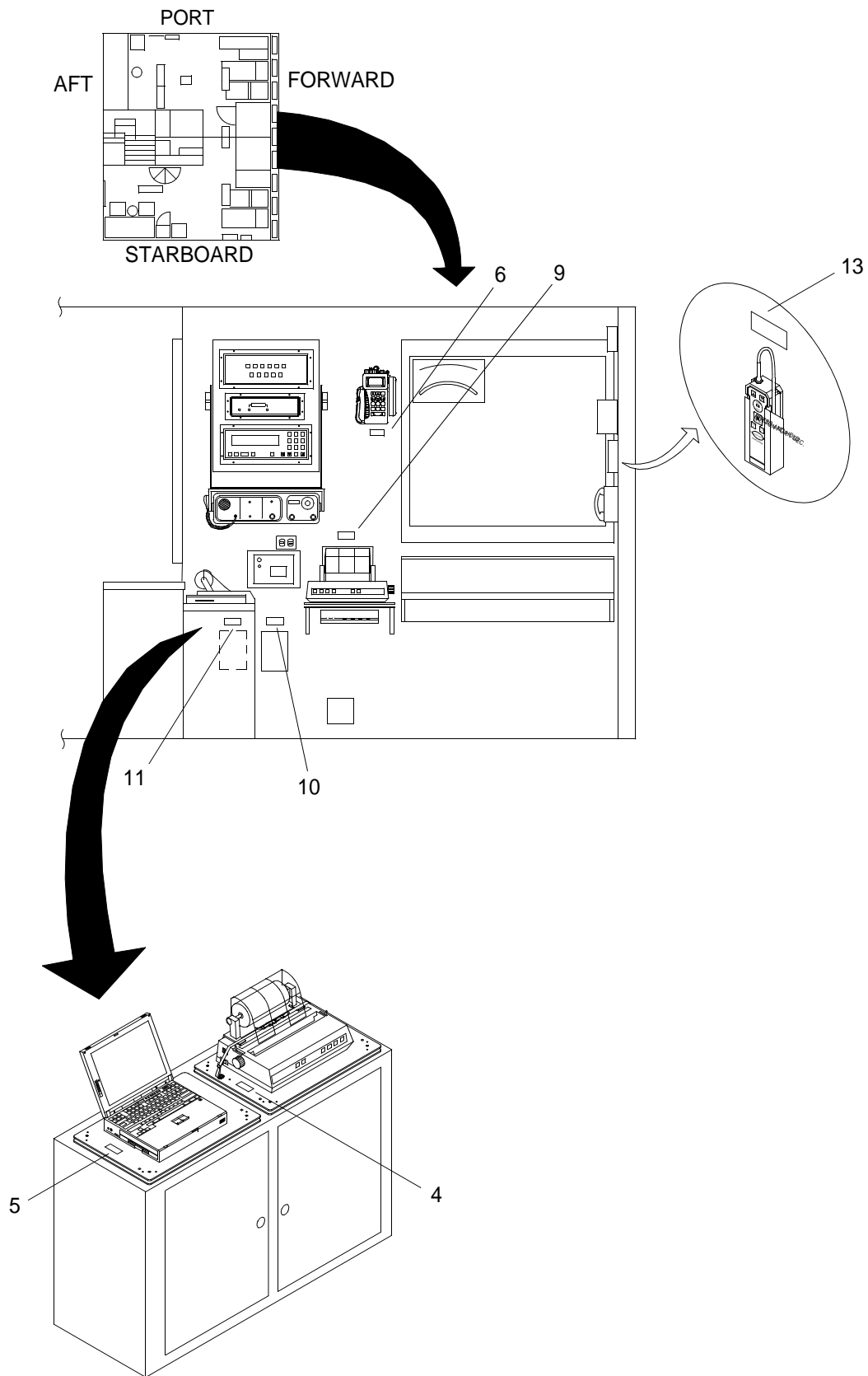


2C055-1

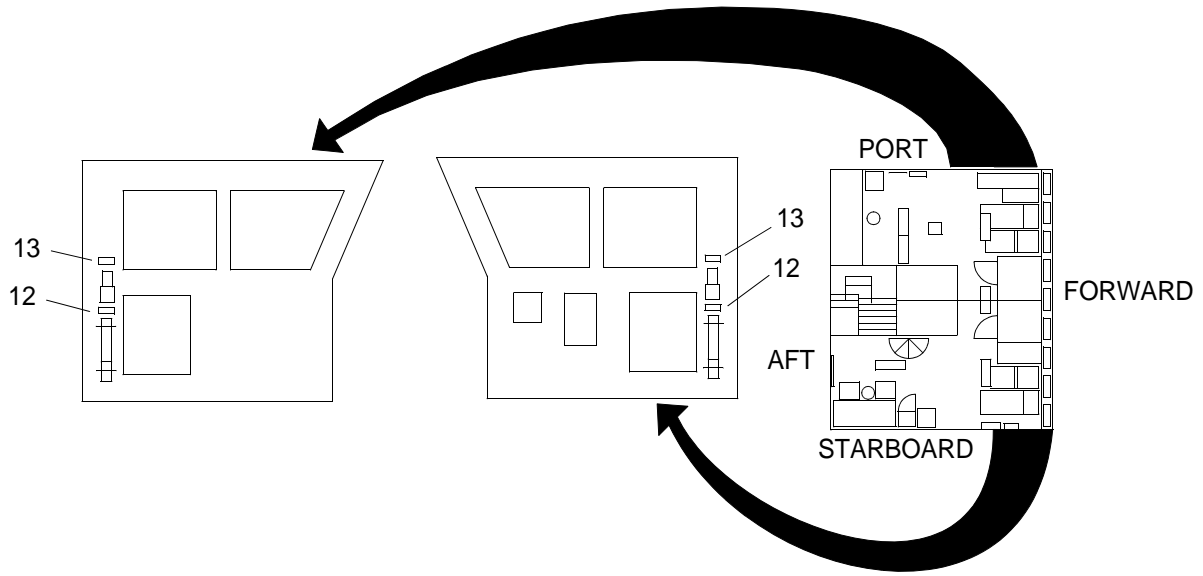




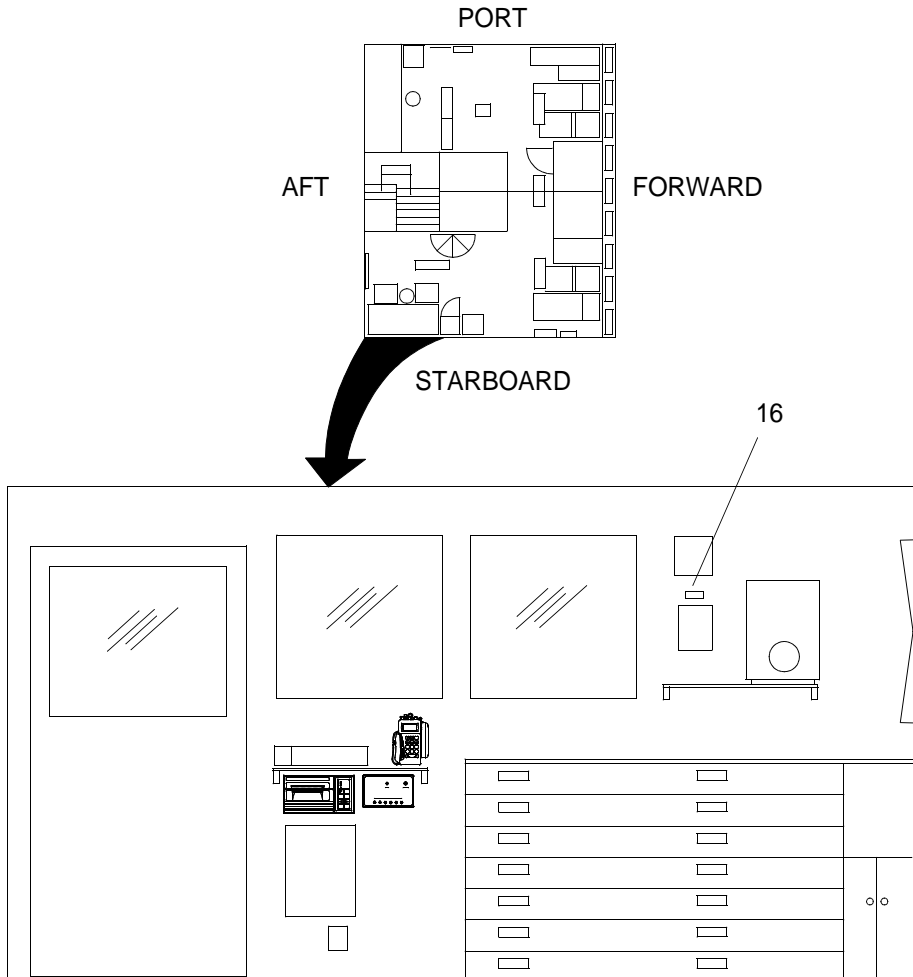
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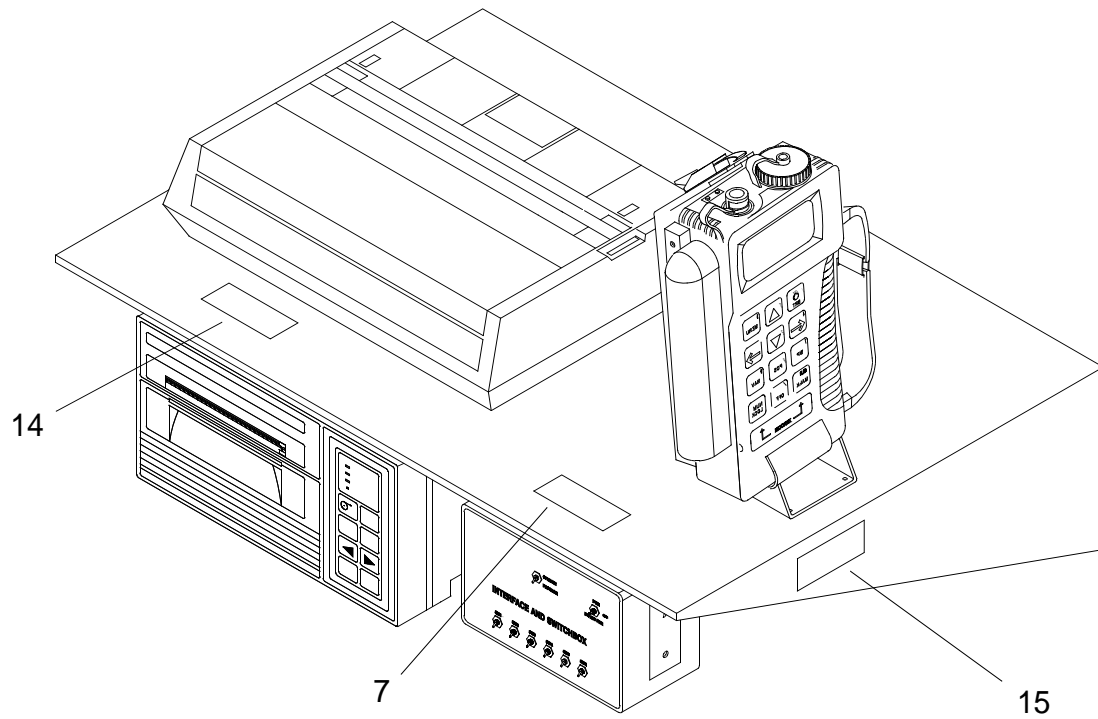
2C055-8



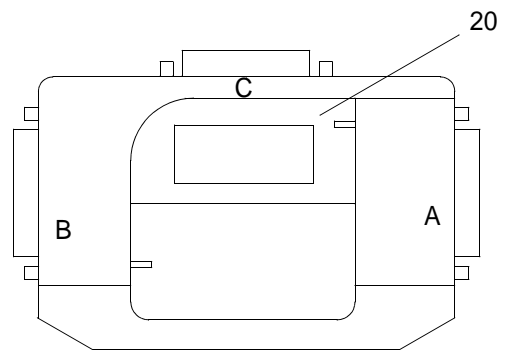
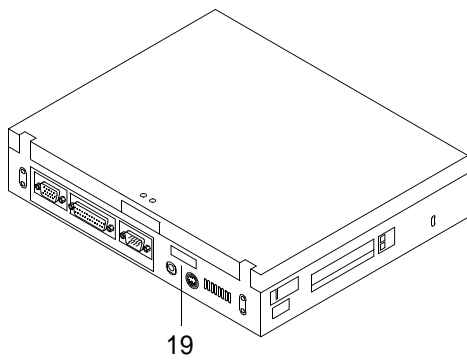
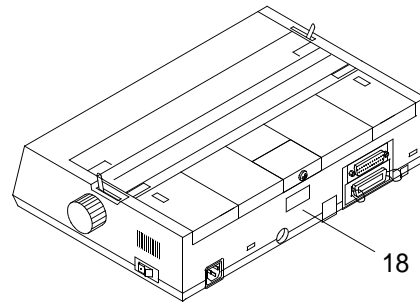
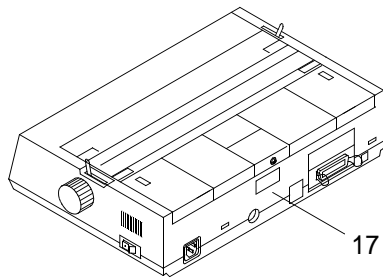
2C055-5



2C055-6



2C055-7



2C055-9

CHAPTER 3
TROUBLESHOOTING PROCEDURES FOR LCU 2000 GLOBAL
MARITIME DISTRESS AND SAFETY SYSTEM

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
UNIT MASTER MALFUNCTION/SYSTEM INDEX**

| MALFUNCTION/SYMP TOM | TROUBLESHOOTING PROCEDURE |
|-------------------------------------------------------------------------------|--------------------------------------|
| COMMUNICATION PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR) | |
| PLGR has no power. | WP 0057 00 |
| PLGR does not display a valid position. | WP 0058 00 |
| PLGR has cleared memory. | WP 0059 00 |
| DIGITAL SELECTIVE CALLING (DSC) CONTROLLER | |
| DSC controller has no power. | WP 0060 00 |
| DSC controller has wrong DSC number entered. | WP 0061 00 |
| DSC controller does not display a valid position. | WP 0062 00 |
| DSC controller will not transmit a distress. | WP 0063 00 |
| GMDSS 16/6 SURVIVAL RADIO | |
| Lifeboat radio will not pass test. | WP 0064 00 |
| Lifeboat radio has no power. | WP 0065 00 |
| Lifeboat radio will not receive. | WP 0066 00 |
| Lifeboat radio will not transmit. | WP 0067 00 |
| NAVIGATION PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR) | |
| PLGR has no power. | WP 0068 00 |
| PLGR does not display a valid position. | WP 0069 00 |
| PLGR power turns off during operation. | WP 0070 00 |
| NAVTEX RECEIVER | |
| NAVTEX receiver has no power. | WP 0071 00 |
| NAVTEX receiver will not print. | WP 0072 00 |
| SATELLITE COMMUNICATIONS SYSTEM | |
| IMMARSAT-C has no power. | WP 0073 00 |
| IMMARSAT-C data terminal has no power. | WP 0074 00 |
| SEASAT program does not appear on data terminal screen. | WP 0075 00 |

| MALFUNCTION/SYMPTOM | TROUBLESHOOTING PROCEDURE |
|-------------------------------------------------------------------|--------------------------------------|
| “TRANCEIVER NOT CONNECTED” appears on data terminal screen. | WP 0076 00 |
| Data terminal does not display a valid position. | WP 0077 00 |
| INMARSAT-C will not send messages. | WP 0078 00 |
| INMARSAT-C printer has no power. | WP 0079 00 |
| INMARSAT-C printer will not print. | WP 0080 00 |
| INMARSAT-C printer carriage will not move. | WP 0081 00 |
| SEARCH AND RESCUE TRANSPONDER (SART) | |
| Search and Rescue Transponder (SART) does not pass test. | WP 0082 00 |
| SERIAL PRINTER | |
| Serial printer has no power. | WP 0083 00 |
| Serial printer will not print. | WP 0084 00 |
| Serial printer carriage will not move. | WP 0085 00 |
| VHF/FM DIGITAL SELECTIVE CALLING (DSC) TRANCEIVER | |
| VHF/FM DSC transceiver has no power. | WP 0086 00 |
| VHF/FM DSC transceiver will not receive. | WP 0087 00 |
| VHF/FM DSC transceiver will not transmit. | WP 0088 00 |
| VHF/FM DSC transceiver does not display a valid position. | WP 0089 00 |
| MF/HF DIGITAL SELECTIVE CALLING (DSC) WATCH RECEIVER | |
| MF/HF DSC watch receiver has no power. | WP 0090 00 |
| MF/HF DSC watch receiver will not scan. | WP 0091 00 |
| MF/HF DSC watch receiver will not receive distress transmissions. | WP 0092 00 |

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

COMMUNICATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR) HAS NO POWER

SYMPTOM

No indication of power displayed in the PLGR display window.

MALFUNCTION

No power to PLGR.

CORRECTIVE ACTION

Turn PLGR on. Press the ON button on the PLGR.

SYMPTOM

Check power switch on the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

Power switch is in the OFF position.

CORRECTIVE ACTION

Turn power switch to on PWR position.

SYMPTOM

Check PLGR cable for secure connection to PLGR.

MALFUNCTION

PLGR cable not secure to PLGR connector.

CORRECTIVE ACTION

Securely attach PLGR cable to PLGR connector.

SYMPTOM

Check PLGR cable for secure connection to connector on back of the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

PLGR cable not secure to connector on back of the AN/PSN-11(V)1 interface and switchbox.

CORRECTIVE ACTION

Securely attach PLGR cable to connector on back of the AN/PSN-11(V)1 interface and switchbox.

SYMPTOM

Check power supply meter for indication of power.

MALFUNCTION

No indication of power displayed in power supply meter.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

COMMUNICATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR) DOES NOT DISPLAY A VALID POSITION

SYMPTOM

Current position shown in PLGR display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of PLGR. (WP 0024 00)

SYMPTOM

Check two external antenna connections on back of AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

PLGR external antenna cable connections on back of AN/PSN-11(V)1 interface and switchbox not securely tightened.

CORRECTIVE ACTION

Securely attach antenna cable connectors to antenna connector receptacles on back of AN/PSN-11(V)1 interface and switchbox.

SYMPTOM

Check external antenna connection on back of GPS antenna.

MALFUNCTION

External antenna cable connection on back of GPS antenna not securely tightened.

CORRECTIVE ACTION

Securely attach antenna cable connector to antenna connector receptacle on back of GPS antenna.

SYMPTOM

Current position shown in PLGR display is still invalid.

MALFUNCTION

Current position in PLGR display is invalid.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

COMMUNICATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR) HAS CLEARED MEMORY

SYMPTOM

PLGR memory has been cleared.

MALFUNCTION

“WARNING, THE RECEIVER HAS CLEARED MEMORY” appears in display.

CORRECTIVE ACTION

Perform initial set up of PLGR. (WP 0024 00)

SYMPTOM

PLGR failed to maintain memory.

MALFUNCTION

Low memory battery voltage or memory battery not installed.

CORRECTIVE ACTION

Replace memory battery. (WP 0100 00)

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

DIGITAL SELECTIVE CALLING (DSC) CONTROLLER HAS NO POWER

SYMPTOM

No indication of power displayed in the DSC controller display window.

MALFUNCTION

No power to DSC controller.

CORRECTIVE ACTION

Turn DSC controller on. Press the PWR button on the DSC Controller.

MALFUNCTION

S1 power switch on back of the 9701 console is in the OFF (down) position.

CORRECTIVE ACTION

Turn S1 switch to ON (up) position.

MALFUNCTION

Fuse on back of 9701 Console is blown.

CORRECTIVE ACTION

Replace fuse. (WP 0095 00)

MALFUNCTION

J5 external cable not securely connected to J5 receptacle on back of 9701 Console.

CORRECTIVE ACTION

Securely attach J5 external cable connector to J5 receptacle.

MALFUNCTION

No power through J5 cable to 9701 console from GMDSS junction box.

CORRECTIVE ACTION

Tighten or connect cable at the junction box or replace J5 external cable as necessary.
(WP 0149 00)

SYMPTOM

No power to DSC controller.

MALFUNCTION

No indication of power to DSC controller displayed in display window.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

DIGITAL SELECTIVE CALLING (DSC) CONTROLLER HAS WRONG DSC NUMBER ENTERED

SYMPTOM

Unit displays the wrong DSC number in the controller display window.

MALFUNCTION

Radio calls are not being received.

CORRECTIVE ACTION

Enter correct DSC number.

NOTE

The DSC number can only be changed twice. If the DSC number has already been changed, any further attempts to change the DSC number will prompt the message "USER ID CAN NO LONGER BE CHANGED" to appear. If this message appears, direct support maintenance must be contacted.

SYMPTOM

The DSC number has already been changed twice.

MALFUNCTION

Message "USER ID CAN NO LONGER BE CHANGED" appears in the display window.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

DIGITAL SELECTIVE CALLING (DSC) CONTROLLER DOES NOT DISPLAY A VALID POSITION

SYMPTOM

Current position shown in DSC controller display is invalid? Alarm will sound if current position is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of DSC controller. (WP 0019 00)

SYMPTOM

Current position shown in communications PLGR display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Troubleshoot communications PLGR for display of invalid position. (WP 0024 00)

SYMPTOM

Check operate/program switch on the communications interface and switchbox.

MALFUNCTION

Operate/program switch on the communications interface and switchbox is in the PROGRAM (down) position.

CORRECTIVE ACTION

Place the operate/program switch on the communications interface and switchbox in the OPERATE (up) position.

SYMPTOM

Check switch #1 on the communications interface and switchbox.

MALFUNCTION

Switch #1 on the communications interface and switchbox is in the DOWN position.

CORRECTIVE ACTION

Place switch # 1 on the communications interface and switchbox in the UP position.

SYMPTOM

Check communications PLGR cable for secure connection to PLGR.

MALFUNCTION

PLGR cable not secure to PLGR connector.

CORRECTIVE ACTION

Securely attach PLGR cable to PLGR connector.

SYMPTOM

Check PLGR cable for secure connection to J7 connector on back of the communications interface and switchbox.

MALFUNCTION

PLGR cable not secure to J7 connector on back of the communications interface and switchbox.

CORRECTIVE ACTION

Securely attach PLGR cable to J7 connector on back of the communications interface and switchbox.

SYMPTOM

Check cable for secure connection to J1 connector on back of the communications interface and switchbox.

MALFUNCTION

Cable not secure to J1 connector on back of the communications interface and switchbox.

CORRECTIVE ACTION

Securely attach cable to J1 connector on back of the communications interface and switchbox.

SYMPTOM

Check cable for secure connection to J3 connector on back of the 9701 console.

MALFUNCTION

Cable not secure to J3 connector on back of the 9701 console.

CORRECTIVE ACTION

Securely attach cable to J3 connector on back of the 9701 console.

SYMPTOM

Current position shown in PLGR display is still invalid.

MALFUNCTION

Current position in PLGR display is invalid.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

DIGITAL SELECTIVE CALLING (DSC) CONTROLLER WILL NOT TRANSMIT A DISTRESS

SYMPTOM

DSC controller will not transmit a distress call.

MALFUNCTION

The distress menu does not appear in the display after the DISTRESS button on the 9701 console is pressed.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**Seaman 88K

TROUBLESHOOTING PROCEDURE

LIFEBOAT RADIO WILL NOT PASS TEST

SYMPTOM

No tone and squelch is heard after radio is turned on.

MALFUNCTION

Low or dead battery.

CORRECTIVE ACTION

Replace battery and retest. (WP 0151 00) (WP 0042 00)

SYMPTOM

No activity detected on frequency.

MALFUNCTION

Low or dead battery.

CORRECTIVE ACTION

Replace battery and retest. (WP 0151 00) (WP 0042 00)

SYMPTOM

No test signal detected by monitoring station.

MALFUNCTION

Test signal not detected.

CORRECTIVE ACTION

Replace battery and retest. (WP 0151 00) (WP 0042 00)

SYMPTOM

No test signal detected by monitoring station after second test.

MALFUNCTION

Test signal not detected.

CORRECTIVE ACTION

Contact direct support maintenance.

SYMPTOM

No message received from the monitoring station.

MALFUNCTION

No message received from the monitoring station.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**Seaman 88K

TROUBLESHOOTING PROCEDURE

LIFEBOAT RADIO HAS NO POWER

SYMPTOM

Radio has no power.

MALFUNCTION

Radio is not turned on.

CORRECTIVE ACTION

Turn radio on. Press ON/OFF button on radio.

SYMPTOM

No power after radio is turned on.

MALFUNCTION

Dead battery.

CORRECTIVE ACTION

Replace battery and test radio. (WP 0119 00) (WP 0042 00)

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**Seaman 88K

TROUBLESHOOTING PROCEDURE

LIFEBOAT RADIO WILL NOT RECEIVE

SYMPTOM

No message received.

MALFUNCTION

Radio will not receive messages.

CORRECTIVE ACTION

Replace battery and test radio. (WP 0119 00) (WP 0042 00)

SYMPTOM

No message received after retest.

MALFUNCTION

Radio will not receive messages.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**Seaman 88K

TROUBLESHOOTING PROCEDURE

LIFEBOAT RADIO WILL NOT TRANSMIT

SYMPTOM

Message not received by monitoring station.

MALFUNCTION

Will not transmit messages.

CORRECTIVE ACTION

Replace battery and test radio.(WP 0119 00) (WP 0042 00)

SYMPTOM

Message not received by monitoring station after retest.

MALFUNCTION

Will not transmit messages.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

NAVIGATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)
HAS NO POWER

SYMPTOM

No indication of power displayed in the PLGR display window.

MALFUNCTION

No power to PLGR.

CORRECTIVE ACTION

Turn PLGR on. Press the ON button on the PLGR.

SYMPTOM

Check power switch on the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

Power switch is in the OFF position.

CORRECTIVE ACTION

Turn power switch to on PWR position.

SYMPTOM

Check PLGR cable for secure connection to PLGR.

MALFUNCTION

PLGR cable not secure to PLGR connector.

CORRECTIVE ACTION

Securely attach PLGR cable to PLGR connector.

SYMPTOM

Check PLGR cable for secure connection to connector on back of the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

PLGR cable not secure to connector on back of the AN/PSN-11(V)1 interface and switchbox.

CORRECTIVE ACTION

Securely attach PLGR cable to connector on back of the AN/PSN-11(V)1 interface and switchbox.

SYMPTOM

Check power supply meter for indication of power.

MALFUNCTION

No indication of power displayed in power supply meter.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

NAVIGATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)
DOES NOT DISPLAY A VALID POSITION

SYMPTOM

Current position shown in PLGR display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of PLGR. (WP 0024 00)

SYMPTOM

Check two external antenna connections on back of AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

PLGR external antenna cable connections on back of AN/PSN-11(V)1 interface and switchbox not
securely tightened.

CORRECTIVE ACTION

Securely attach antenna cable connectors to antenna connector receptacles on back of
AN/PSN-11(V)1 interface and switchbox.

SYMPTOM

Check external antenna connection on back of GPS antenna.

MALFUNCTION

External antenna cable connection on back of GPS antenna not securely tightened.

CORRECTIVE ACTION

Securely attach antenna cable connector to antenna connector receptacle on back of GPS antenna.

SYMPTOM

Current position shown in PLGR display is still invalid.

MALFUNCTION

Current position in PLGR display is invalid.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

NAVIGATION AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL POSITIONING RECEIVER (PLGR)
POWER TURNS OFF DURING OPERATION

SYMPTOM

No indication of power displayed in the PLGR display window.

MALFUNCTION

No power to PLGR.

CORRECTIVE ACTION

Turn PLGR on. Press the ON button on the PLGR.

SYMPTOM

Check power switch on the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

Power switch is in the OFF position.

CORRECTIVE ACTION

Turn power switch to PWR position.

SYMPTOM

Check PLGR cable for secure connection to PLGR.

MALFUNCTION

PLGR cable not secure to PLGR connector.

CORRECTIVE ACTION

Securely attach PLGR cable to PLGR connector.

SYMPTOM

Check PLGR cable for secure connection to connector on back of the AN/PSN-11(V)1 interface and switchbox.

MALFUNCTION

PLGR cable not secure to connector on back of the AN/PSN-11(V)1 interface and switchbox.

CORRECTIVE ACTION

Securely attach PLGR cable to connector on back of the AN/PSN-11(V)1 interface and switchbox.

SYMPTOM

Check power supply meter for indication of power.

MALFUNCTION

No indication of power displayed in power supply meter.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

NAVTEX RECEIVER HAS NO POWER

SYMPTOM

No power to NAVTEX receiver.

MALFUNCTION

NAVTEX receiver power switch is in the OFF position.

CORRECTIVE ACTION

Turn the NAVTEX receiver power switch to the ON position.

SYMPTOM

Check power at the power supply.

MALFUNCTION

Power switch on the power supply is in the OFF position.

CORRECTIVE ACTION

Turn power switch to ON position.

SYMPTOM

Check circuit breaker to ensure it has not shut off.

MALFUNCTION

Circuit breaker is in the OFF position.

CORRECTIVE ACTION

Set circuit breaker to the ON position.

SYMPTOM

Check Navigation AN/PSN -11(V)1 Precision Lightweight Global Positioning Receiver (PLGR) has power.

MALFUNCTION

No power to Navigation PLGR.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

NAVTEX RECEIVER WILL NOT PRINT

SYMPTOM

No power to NAVTEX receiver.

MALFUNCTION

NAVTEX receiver power switch is in the OFF position.

CORRECTIVE ACTION

Turn the NAVTEX receiver power switch to the ON position.

MALFUNCTION

NAVTEX printer paper is installed backwards.

CORRECTIVE ACTION

Load NAVTEX receiver with paper. (WP 0108 00)

MALFUNCTION

NAVTEX receiver is out of paper.

CORRECTIVE ACTION

Load NAVTEX receiver with paper. (WP 0108 00)

SYMPTOM

NAVTEX receiver still will not print.

MALFUNCTION

NAVTEX receiver will not print.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C HAS NO POWER

SYMPTOM

No power to INMARSAT-C transceiver.

MALFUNCTION

No power to INMARSAT-C transceiver.

CORRECTIVE ACTION

Press the INMARSAT-C PWR button to turn the power on to the transceiver.

MALFUNCTION

S1 switch on back of the 9701 console in the OFF (down) position.

CORRECTIVE ACTION

Turn the S1 power switch to the ON (up) position.

MALFUNCTION

Fuse on back of the 9701 console is blown.

CORRECTIVE ACTION

Replace fuse as necessary.

MALFUNCTION

J5 cable on back of the 9701 console is loose or disconnected.

CORRECTIVE ACTION

Connect or tighten cable on receptacle as necessary.

MALFUNCTION

No power to the J5 cable from the GMDSS junction box.

CORRECTIVE ACTION

Check for loose or disconnected wires in the GMDSS junction box. Tighten or connect wires as required.

MALFUNCTION

No power to INMARSAT-C transceiver.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C DATA TERMINAL HAS NO POWER

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

No power to INMARSAT-C data terminal.

CORRECTIVE ACTION

Turn data terminal power switch on. Push power switch to ON position and release.

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

Power cable not plugged in to jack on back of data terminal.

CORRECTIVE ACTION

Plug power cable into jack.

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

Power cable not plugged in to power source.

CORRECTIVE ACTION

Plug power cable into power source.

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

Battery not installed (if required).

CORRECTIVE ACTION

Install battery (if required). (WP 0122 00)

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

J4 cable connector not securely attached to receptacle on back of data terminal.

CORRECTIVE ACTION

Securely attach J4 cable to receptacle on back of data terminal.

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

J4 cable connector not securely attached to J4 receptacle on back of the 9701 console.

CORRECTIVE ACTION

Securely attach J4 cable to J4 receptacle.

SYMPTOM

No power to INMARSAT-C data terminal.

MALFUNCTION

No power to INMARSAT-C data terminal.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM SEASAT PROGRAM DOES NOT APPEAR ON DATA TERMINAL SCREEN

SYMPTOM

SEASAT program does not appear on data terminal screen.

MALFUNCTION

SEASAT program does not appear on data terminal screen.

CORRECTIVE ACTION

Reboot the computer and verify SEASAT program is showing on the screen.

MALFUNCTION

Data terminal initial setup is wrong.

CORRECTIVE ACTION

Perform data terminal initial setup. (WP 0007 00)

MALFUNCTION

Data terminal SEASAT program is corrupt.

CORRECTIVE ACTION

Reinstall SEASAT program in data terminal. (WP 0096 00)

MALFUNCTION

SEASAT program does not appear on data terminal screen.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM "TRANSCIVER NOT CONNECTED" APPEARS ON DATA TERMINAL SCREEN

SYMPTOM

Message "TRANSCIVER NOT CONNECTED" appears on data terminal screen.

MALFUNCTION

Initial Setup of data terminal wrong.

CORRECTIVE ACTION

Perform initial setup of data terminal. (WP 0007 00)

MALFUNCTION

J4 connector on back of 9701 console loose or disconnected.

CORRECTIVE ACTION

Tighten or connect J4 cable on the J4 receptacle as required.

MALFUNCTION

J4 cable connector (GMDSS-J4/IBM-TERM) on back of data terminal loose or disconnected.

CORRECTIVE ACTION

Tighten or connect J4 cable on the J4 receptacle as required.

MALFUNCTION

Bent pin(s) in receptacle for J4 cable on back of data terminal.

CORRECTIVE ACTION

Straighten bent pins as required.

MALFUNCTION

Improper installation of INMARSAT-C transceiver.

CORRECTIVE ACTION

Reinstall INMARSAT-C transceiver. WP 0121 00)

MALFUNCTION

Initial setup of INMRSAT-C transceiver wrong.

CORRECTIVE ACTION

Perform initial setup of INMARSAT-C transceiver. (WP 0008 00)

MALFUNCTION

Message "TRANCEIVER NOT CONNECTED" appears on data terminal screen.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM DATA TERMINAL DOES NOT DISPLAY A VALID POSITION

SYMPTOM

Current position shown in data terminal display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of data terminal. (WP 0007 00)

SYMPTOM

Current position shown in communications PLGR display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Troubleshoot communications PLGR for display of invalid position. (WP 0058 00)

SYMPTOM

Check operate/program switch on the communications interface and switchbox.

MALFUNCTION

Operate/program switch on the communications interface and switchbox is in the PROGRAM (down) position.

CORRECTIVE ACTION

Place the operate/program switch on the communications interface and switchbox in the OPERATE (up) position.

SYMPTOM

Check switch # 2 on the communications interface and switchbox.

MALFUNCTION

Switch # 2 on the communications interface and switchbox is in the DOWN position.

CORRECTIVE ACTION

Place switch # 2 on the communications interface and switchbox in the UP position.

SYMPTOM

Check communications PLGR cable for secure connection to PLGR.

MALFUNCTION

PLGR cable not secure to PLGR connector.

CORRECTIVE ACTION

Securely attach PLGR cable to PLGR connector.

SYMPTOM

Check PLGR cable for secure connection to J7 connector on back of the communications interface and switchbox.

MALFUNCTION

PLGR cable not secure to J7 connector on back of the communications interface and switchbox.

CORRECTIVE ACTION

Securely attach PLGR cable to J7 connector on back of the communications interface and switchbox.

SYMPTOM

Check cable for secure connection to J2 connector on back of the communications interface and switchbox.

MALFUNCTION

Cable not secure to J2 connector on back of the communications interface and switchbox.

CORRECTIVE ACTION

Securely attach cable to J2 connector on back of the communications interface and switchbox.

SYMPTOM

Check cable for secure connection to J3 connector on back of the 9701 console.

MALFUNCTION

Cable not secure to J3 connector on back of the 9701 console.

CORRECTIVE ACTION

Securely attach cable to J3 connector on back of the 9701 console.

SYMPTOM

Current position shown in PLGR display is still invalid.

MALFUNCTION

Current position in PLGR display is invalid.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C WILL NOT SEND MESSAGES

SYMPTOM

INMARSAT-C will not send a message.

MALFUNCTION

Data terminal initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of data terminal. (WP 0007 00)

MALFUNCTION

INMARSAT-C initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of INMARSAT-C. (WP 0008 00)

MALFUNCTION

INMARSAT-C antenna cable not tight or disconnected on J8 antenna receptacle on back of 9701 console.

CORRECTIVE ACTION

Tighten or connect antenna cable as necessary.

MALFUNCTION

INMARSAT-C antenna cable not tight or disconnected on INMARSAT-C antenna.

CORRECTIVE ACTION

Tighten or connect antenna cable as necessary.

MALFUNCTION

INMARSAT-C will not send a message.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C PRINTER HAS NO POWER

SYMPTOM

INMARSAT-C printer has no power.

MALFUNCTION

INMARSAT-C printer power switch is in the OFF position.

CORRECTIVE ACTION

Turn the power switch to the ON position.

MALFUNCTION

Printer power cable not plugged into the power receptacle on the back of the printer.

CORRECTIVE ACTION

Plug the power cord into the receptacle.

MALFUNCTION

Printer power cord not plugged into the power source.

CORRECTIVE ACTION

Plug the power cord into the power source.

MALFUNCTION

Power source has no power. Switch is in the OFF position.

CORRECTIVE ACTION

Turn power source on. Press power switch to the ON position.

MALFUNCTION

Power source not plugged into the wall receptacle.

CORRECTIVE ACTION

Plug the power source into the wall receptacle.

MALFUNCTION

Check E103-8 circuit breaker in the E103 circuit breaker panel.

CORRECTIVE ACTION

Reset E103-8 circuit breaker.

MALFUNCTION

INMARSAT-C printer has no power.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C PRINTER WILL NOT PRINT

SYMPTOM

INMARSAT-C printer will not print.

MALFUNCTION

INMARSAT-C printer initial setup wrong.

CORRECTIVE ACTION

Perform initial setup of INMARSAT-C printer. (WP 0015 00)

MALFUNCTION

Printer cables improperly installed or disconnected.

CORRECTIVE ACTION

Reconnect or tighten cables as required. (WP 0099 00)

MALFUNCTION

AUTOSWITCH INMARSAT-C printer cable not installed properly.

CORRECTIVE ACTION

Reconnect or tighten cables as required. (WP 0099 00)

MALFUNCTION

AUTOSWITCH INMARSAT-C data terminal cable not installed properly.

CORRECTIVE ACTION

Reconnect or tighten cables as required. (WP 0097 00)

MALFUNCTION

INMARSAT-C printer paper not installed properly.

CORRECTIVE ACTION

Reinstall paper as necessary. (WP 0111 00)

MALFUNCTION

INMARSAT-C printer will not print.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

SATELLITE COMMUNICATIONS SYSTEM INMARSAT-C PRINTER CARRIAGE WILL NOT MOVE

SYMPTOM

INMARSAT-C printer carriage did not move when printer was turned on.

MALFUNCTION

Power cord isn't plugged into the receptacle on the back of the printer.

CORRECTIVE ACTION

Plug power cord into receptacle as necessary.

MALFUNCTION

Power cord isn't plugged into the power source (wall receptacle or power strip).

CORRECTIVE ACTION

Plug power cord into power source as necessary.

MALFUNCTION

INMARSAT-C printer carriage will not move.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**Seaman 88K

TROUBLESHOOTING PROCEDURE

SEARCH AND RESCUE TRANSPONDER (SART) WILL NOT PASS TEST

SYMPTOM

No indication of a steady green light when the switch is rotated to the TEST position.

MALFUNCTION

Low or dead battery.

CORRECTIVE ACTION

Replace battery. (WP 0152 00)

MALFUNCTION

SART will not pass test.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SERIAL PRINTER HAS NO POWER

SYMPTOM

Serial printer has no power.

MALFUNCTION

Serial printer power switch is in the OFF position.

CORRECTIVE ACTION

Turn the power switch to the ON position.

MALFUNCTION

Printer power cable not plugged into the power receptacle on the back of the printer.

CORRECTIVE ACTION

Plug in the power cord into the receptacle.

MALFUNCTION

Printer power cord not plugged into the power source.

CORRECTIVE ACTION

Plug the power cord into the power source.

MALFUNCTION

Power source has no power. Switch is in the OFF position.

CORRECTIVE ACTION

Turn power source on. Press power switch to the ON position.

MALFUNCTION

Power source not plugged into the wall receptacle.

CORRECTIVE ACTION

Plug the power source into the wall receptacle.

MALFUNCTION

Check E103-8 circuit breaker in the E103 circuit breaker panel.

CORRECTIVE ACTION

Reset E103-8 circuit breaker.

MALFUNCTION

Serial printer has no power.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

SERIAL PRINTER WILL NOT PRINT

SYMPTOM

Serial printer will not print.

MALFUNCTION

Serial printer initial setup wrong.

CORRECTIVE ACTION

Perform initial setup of serial printer. (WP 0021 00)

MALFUNCTION

Printer cables improperly installed or disconnected.

CORRECTIVE ACTION

Reconnect or tighten cables as required. (WP 0146 00)

MALFUNCTION

J2 external cable not connected or properly connected to receptacle on back of printer.

CORRECTIVE ACTION

Reconnect or tighten cable as required. (WP 0146 00)

MALFUNCTION

J2 external cable not connected or properly connected to J2 receptacle on back of the 9701 console.

CORRECTIVE ACTION

Reconnect or tighten cable as required. (WP 0146 00)

MALFUNCTION

Serial printer paper not installed properly.

CORRECTIVE ACTION

Reinstall paper as necessary. (WP 0112 00)

MALFUNCTION

DSC controller initial setup wrong.

CORRECTIVE ACTION

Perform initial setup of DSC controller. (WP 0119 00)

MALFUNCTION

Serial printer will not print.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

SERIAL PRINTER CARRIAGE WILL NOT MOVE

SYMPTOM

Serial printer carriage did not move when printer was turned on.

MALFUNCTION

Power cord isn't plugged into the receptacle on the back of the printer.

CORRECTIVE ACTION

Plug power cord into receptacle as necessary.

MALFUNCTION

Power cord isn't plugged into the power source (wall receptacle or power strip).

CORRECTIVE ACTION

Plug power cord into power source as necessary.

MALFUNCTION

Serial printer carriage will not move.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

VHF/FM DIGITAL SELECTIVE CALLING (DSC) TRANSCEIVER HAS NO POWER

SYMPTOM

No indication of power displayed in the VHF/FM DSC transceiver display window.

MALFUNCTION

No power to DSC transceiver.

CORRECTIVE ACTION

Turn DSC transceiver on. Press the PWR button on the DSC transceiver.

SYMPTOM

No indication of power displayed in the VHF/FM DSC transceiver display window.

MALFUNCTION

Power switch on back of 9701 console is in the OFF (down) position.

CORRECTIVE ACTION

Turn power switch to ON (up) position.

SYMPTOM

No indication of power displayed in the VHF/FM DSC transceiver display window.

MALFUNCTION

No power to 9701 console from junction box.

CORRECTIVE ACTION

Replace power cable.

SYMPTOM

No power to DSC transceiver.

MALFUNCTION

No indication of power to DSC transceiver displayed in display window.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

VHF/FM DIGITAL SELECTIVE CALLING (DSC) TRANSCEIVER WILL NOT RECEIVE

SYMPTOM

VHF/FM DSC transceiver will not receive.

MALFUNCTION

Antenna cable on back of DSC transceiver loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

Antenna cable on transceiver antenna loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

VHF/FM antenna not receiving.

CORRECTIVE ACTION

Replace antenna as necessary.

MALFUNCTION

VHF/FM DSC transceiver will not receive.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

VHF/FM DIGITAL SELECTIVE CALLING (DSC) TRANSCEIVER WILL NOT TRANSMIT

SYMPTOM

VHF/FM DSC transceiver will not transmit.

MALFUNCTION

VHF/FM DSC transceiver initial setup wrong.

CORRECTIVE ACTION

Perform VHF/FM DSC transceiver initial setup. (WP 0031 00)

MALFUNCTION

Antenna cable on back of transceiver loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

Antenna cable on transceiver antenna loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

VHF/FM antenna not transmitting.

CORRECTIVE ACTION

Replace antenna as necessary.

MALFUNCTION

VHF/FM DSC transceiver will not transmit.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

VHF/FM DIGITAL SELECTIVE CALLING (DSC) TRANSCEIVER DOES NOT DISPLAY A VALID POSITION

SYMPTOM

Current position shown on VHF/FM DSC transceiver display is invalid.

MALFUNCTION

Initial setup procedures are incorrectly entered.

CORRECTIVE ACTION

Perform initial set up of VHF/FM DSC transceiver. (WP 0031 00)

MALFUNCTION

Antenna cable on back of DSC transceiver loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

Antenna cable on transceiver antenna loose or disconnected.

CORRECTIVE ACTION

Reconnect or tighten antenna cable as necessary.

MALFUNCTION

VHF/FM DSC transceiver does not display a valid position.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

MF/HF DIGITAL SELECTIVE CALLING (DSC) WATCH RECEIVER HAS NO POWER

SYMPTOM

No indication of power displayed on the MF/HF DSC watch receiver (power button not illuminated).

MALFUNCTION

No power to MF/HF DSC watch receiver.

CORRECTIVE ACTION

Turn MF/HF DSC watch receiver on. Press the PWR button on the MF/HF DSC watch receiver control panel (button will illuminate).

MALFUNCTION

S1 switch on back of the 9701 console in the OFF (down) position.

CORRECTIVE ACTION

Turn the S1 power switch to the ON (up) position.

MALFUNCTION

Fuse on back of the 9701 console is blown.

CORRECTIVE ACTION

Replace fuse as necessary. (WP 0095 00)

MALFUNCTION

J5 cable on back of the 9701 console is loose or disconnected.

CORRECTIVE ACTION

Connect or tighten cable on receptacle as necessary.

MALFUNCTION

No power to the J5 cable from the GMDSS junction box.

CORRECTIVE ACTION

Check for loose or disconnected wires in the GMDSS junction box. Tighten or connect wires as required.

MALFUNCTION

No indication of power displayed on the MF/HF DSC watch receiver (power button not illuminated).

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

MF/HF DIGITAL SELECTIVE CALLING (DSC) WATCH RECEIVER WILL NOT SCAN

SYMPTOM

MF/HF DSC watch receiver will not scan.

MALFUNCTION

MF/HF watch receiver scan button on the front control panel not turned on.

CORRECTIVE ACTION

Press the scan button on the front control panel to turn on the SCAN mode (scan button will illuminate).

MALFUNCTION

MF/HF DSC watch receiver will not scan.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Personnel Required

Seaman 88K

Equipment Condition

AC Generator Operating.

TROUBLESHOOTING PROCEDURE

MF/HF DIGITAL SELECTIVE CALLING (DSC) WATCH RECEIVER WILL NOT RECEIVE DISTRESS TRANSMISSIONS

SYMPTOM

MF/HF DSC watch receiver will not receive distress transmissions.

MALFUNCTION

MF/HF DSC watch receiver is not turned on.

CORRECTIVE ACTION

Press the PWR button on the front control panel to turn on. The button will illuminate when system is on.

MALFUNCTION

MF/HF DSC watch receiver antenna cable is loose or not connected to the J9 antenna connector on back of the 9701 console.

CORRECTIVE ACTION

Connect or tighten antenna cable connector as required.

MALFUNCTION

MF/HF DSC watch receiver antenna cable is loose or not connected to the 23 ft DSC antenna.

CORRECTIVE ACTION

Tighten or connect the antenna cable connector as required.

MALFUNCTION

MF/HF DSC watch receiver will not receive distress transmissions.

CORRECTIVE ACTION

Contact direct support maintenance.

END OF WORK PACKAGE

CHAPTER 4
MAINTENANCE INSTRUCTIONS FOR LCU 2000 GLOBAL
MARITIME DISTRESS AND SAFETY SYSTEM

OPERATOR AND UNIT MAINTENANCE
LSU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)
INTRODUCTION

INITIAL SETUP:**Personnel Required**Seaman 88K

INTRODUCTION**General**

Preventive Maintenance Checks and Services (PMCS) are performed to keep the Global Maritime Distress and Safety System (GMDSS) equipment in operating condition. The checks are used to find, correct, or report problems. Crew members are to do the PMCS as shown in the PMCS table. Preventive maintenance checks and services are performed every day the equipment is operated, using the PMCS table.

Before you begin operating the equipment, do "Before PMCS".

During operation, do "During PMCS".

After operation, do "After PMCS".

Do "Monthly PMCS" once a month. If the equipment has not been operated in a month, also do "After PMCS" at the same time.

If you are operating the equipment for the first time, do the "Monthly PMCS" the first time you do your "Before PMCS".

If you find something wrong when performing PMCS, fix it if you can, using troubleshooting procedures and/or maintenance procedures.

Global Maritime Distress and Safety System (GMDSS) Components

Clean the exterior of the components with a clean, dry cloth or a soft bristled brush.

Corrosion Prevention and Control (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

Corrosion is typically associated with rusting of metals or galvanic corrosion, which produces a white powder. The category of corrosion also includes deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of the materials may be a corrosion problem. If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words, such as "corrosion", "rust", "deterioration" or "cracking", will ensure that the information is identified as a CPC problem. The form should be submitted to the address specified in DA PAM 738-750.

**OPERATOR AND UNIT MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)
AND LUBRICATION SERVICES**

INITIAL SETUP:

Tools

Brush, Dusting (Item 1, WP 0166 00)

Materials/Parts

Rag (Item 6, WP 0167 00)

Personnel Required

Seaman 88K

Table 1. Preventive Maintenance Checks and Services. (PMCS)

| ITEM NO. | INTERVAL | MAN-HOURS | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|-----------|------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1 | Before | .1 | DSC VHF/FM Transceiver | Check for missing or damaged knobs or buttons. | |
| 2 | Before | .2 | DSC VHF/FM Transceiver | Check for missing or damaged microphone. | |
| 3 | Before | .1 | Watch Receiver | Check for missing or damaged buttons and inoperative call light indicator. | |
| 4 | Before | .1 | DSC Controller | Check for missing or damaged buttons, broken display and inoperative call light indicator. | |
| 5 | Before | .2 | INMARSAT-C Transceiver | Check for missing or broken buttons, broken or missing alarm guard and inoperative indicator lights. | |
| 6 | Before | .1 | Communications Interface Switchbox | Check for broken switches and loose cable connectors. | |
| 7 | Before | .2 | Communications PLGR | Check for broken display and loose interface cable connector. | |
| 8 | Before | .3 | INMARSAT-C Printer | Check for adequate paper supply, broken roll paper holder, collapsed shock mounts and loose connectors. | |
| 9 | Before | .2 | INMARSAT-C Data Terminal | Check for broken display, missing keys, collapsed shock mounts and loose connectors. | |

Table 1. Preventive Maintenance Checks and Services. (PMCS) (Continued)

| ITEM NO. | INTERVAL | MAN-HOURS | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|-----------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| 10 | Before | .3 | Serial Printer | Check for adequate paper supply, broken roll paper holder, collapsed shock mounts and loose connectors. | |
| 11 | Before | .1 | INMARSAT-C Data Terminal/ INMARSAT-C Printer Auto Switch | Check for loose connectors. | |
| 12 | Before | .1 | 9701 GMDSS Console | Check for broken power switch and loose connectors. | |
| 13 | Before | .2 | GMDSS Power Supply | Check for loose electrical connections and frayed wires. | |
| 14 | Before | .2 | GMDSS DC Converter | Check for loose electrical connections and frayed wires. | |
| 15 | Before | .3 | NAVTEX Receiver | Check for adequate paper supply, broken power switch and loose connectors. | |
| 16 | Before | .2 | Navigation Interface and Switchbox | Check for broken switches and loose cable connectors. | |
| 17 | Before | .2 | Navigation PLGR | Check for broken display and loose interface cable connector. | |
| 18 | Before | .2 | Navigation Power Supply | Check for loose electrical connections and frayed wires. | |
| 19 | Before | .2 | DSC VHF/FM Transceiver | Check for missing or damaged antenna. | |
| 20 | Before | .2 | NAVTEX Antenna | Check for missing or damaged antenna. | |
| 21 | Before | .2 | GPS Antennas | Check for missing or damaged antennas. | |
| 22 | Before | .2 | INMARSAT-C Antenna | Check for missing or damaged antenna. | |
| 23 | Before | .2 | Watch Receiver Antenna | Check for missing or damaged antenna. | |
| 24 | During | .3 | Communications Interface and Switchbox | Check that power switch is in PWR position, switches SW1 through SW3 are in the ON position and operate/program switch is in the OPERATE position. | |

Table 1. Preventive Maintenance Checks and Services. (PMCS) (Continued)

| ITEM NO. | INTERVAL | MAN-HOURS | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|-----------|------------------------------------|------------------------------------------------------------------|------------------------------------|
| 25 | During | .1 | Communications PLGR | Check for valid position. | |
| 26 | During | .2 | DSC VHF/FM Transceiver | Check transceiver USER SETUPS menu for valid position. | |
| 27 | During | .1 | INMARSAT-C Transceiver | Check for valid position. | |
| 28 | During | .1 | DSC Controller | Check for valid position. | |
| 29 | During | .4 | INMARSAT-C Transceiver | perform a link test. | |
| 30 | During | .2 | Watch Receiver | Check for proper operation. | |
| 31 | During | .2 | DSC VHF/FM Transceiver | Perform radio check. | |
| 32 | During | .1 | Navigation Interface and Switchbox | Check for power switch in PWR position. | |
| 33 | During | .1 | Navigation PLGR | Check PLGR for valid position. | |
| 34 | During | .2 | NAVTEX Receiver | Check NAVTEX receiver for proper operation. | |
| 35 | After | .2 | DSC VHF/FM Transceiver Antenna | Check antenna for damage that may have occurred during mission. | |
| 36 | After | .2 | NAVTEX Antenna | Check antenna for damage that may have occurred during mission. | |
| 37 | After | .2 | GPS Antennas | Check antennas for damage that may have occurred during mission. | |
| 38 | After | .2 | INMARSAT-C Antenna | Check antenna for damage that may have occurred during mission. | |
| 39 | After | .2 | Watch Receiver Antenna | Check antenna for damage that may have occurred during mission. | |
| 40 | After | .4 | GMDSS Components | Check for damage that may have occurred during mission. | |
| 41 | Monthly | .2 | DSC VHF/FM Antenna | Check antenna for damage and secure mounting. | |
| 42 | Monthly | .2 | GPS Antennas | Check antennas for damage and secure mounting. | |

Table 1. Preventive Maintenance Checks and Services. (PMCS) (Continued)

| ITEM NO. | INTERVAL | MAN-HOURS | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|-----------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------|
| 43 | Monthly | .2 | NAVTEX Antenna | Check antenna for damage and secure mounting. | |
| 44 | Monthly | .2 | INMARSAT-C Antenna | Check antenna for damage and secure mounting. | |
| 45 | Monthly | .3 | Antenna Cables Above Wheel House | Check exposed antenna cables for secure mounting, chafing and damage. | |
| 46 | Monthly | .2 | Watch Receiver Antenna | Check antenna for damage and secure mounting. | |
| 47 | Monthly | .3 | Watch Receiver Antenna Cable | Check exposed antenna cable for secure mounting, chafing and damage. | |
| 48 | Monthly | .3 | Installed Electric Cables | Check exposed GMDSS electrical wiring for secure mounting, chafing and damage. | |
| 49 | Monthly | .3 | Antenna Cables | Check exposed GMDSS antenna cables for secure mounting, chafing and damage. | |
| 50 | Monthly | .2 | 9701 GMDSS Console | Check electrical connectors for security. | |
| 51 | Monthly | .3 | Communication and Navigation Equipment, Search and Rescue Transponders and Lifeboat Radios | Remove dust and dirt using a clean, dry rag or soft bristled brush. | |
| 52 | Monthly | .2 | Search and Rescue Transponders | Check for secure mounting, damage and battery expiration date. | |
| 53 | Monthly | .2 | Lifeboat Radios | Check for secure mounting, damage and battery expiration date. | |
| 54 | Monthly | .2 | Search and Rescue Transponders | Test transponders. | |
| 55 | Monthly | .2 | Lifeboat Radios | Test lifeboat radios. | |
| 56 | 5 Years | .3 | Lifeboat Radios | Replace battery packs. | |

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE 9701 CONSOLE POWER FUSE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Fuse, 15Amp
 20-200024

Personnel Required

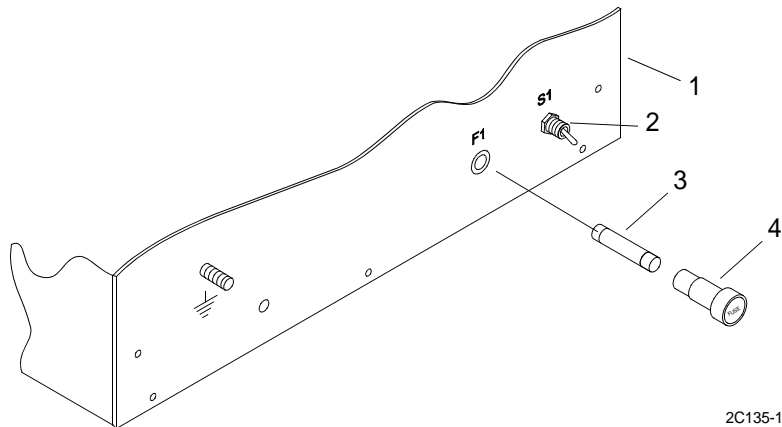
Engineer 88K

REMOVE 9701 CONSOLE POWER FUSE

WARNING

**ELECTRICAL**

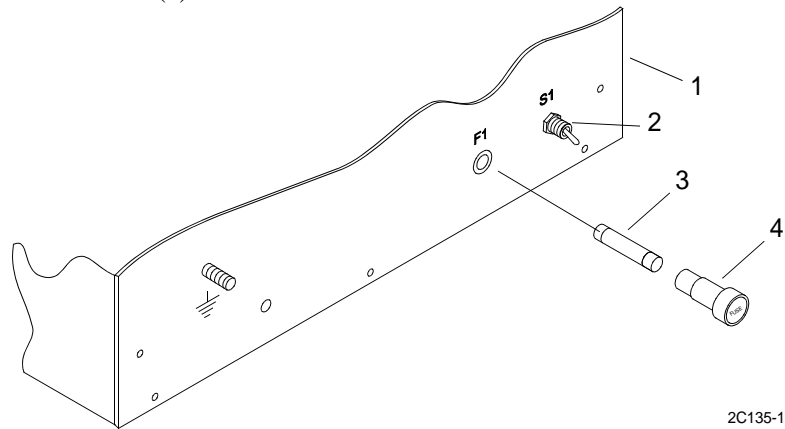
1. Turn power off at the GMDSS power supply. Place the switch in the OFF position.
2. Turn power off at the GMDSS DC converter. Place the switch in the OFF position.
3. Turn power off to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the OFF (down) position.



4. Remove fuse (3) and fuse holder (4).
 - a. Remove fuse holder (4) from 9701 console (1). Turn fuse holder (4) counterclockwise to loosen.
 - b. Remove fuse (3) from fuse holder (4).

INSTALL 9701 CONSOLE POWER FUSE

1. Install fuse (3) and fuse holder (4).



- a. Install fuse (3) into fuse holder (4).
 - b. Install fuse holder (4) into 9701 console (1). Turn fuse holder (4) clockwise to tighten.
2. Turn power on to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the ON (up) position.
 3. Turn power on at the GMDSS DC converter. Place the switch in the ON position.
 4. Turn power on at the GMDSS power supply. Place the switch in the ON position.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
INSTALL SEASAT 2 SOFTWARE**

INITIAL SETUP:**Materials/Parts**

SEASAT Floppy Diskette (Item 9, WP 0167 00)

Personnel Required

Seaman 88K

Equipment Condition

INMARSAT-C Data Terminal Turned On. (WP 0010 00)

INSTALL SEASAT SOFTWARE

1. Insert the SEASAT INSTALL floppy disk into the 3 1/2" drive.
2. At the DOS prompt, type A, press ENTER.
3. Type INSTALL, press ENTER.
4. INSTALL will show which directories that will be created.
5. When prompted, select ENGLISH as the language to install.
6. When the installation is complete, change to the SEASAT DIRECTORY. Type SEASAT press ENTER.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C DATA TERMINAL/INMARSAT-C
PRINTER AUTO SWITCH

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

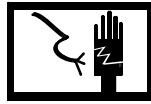
Auto Switch
 20-200027
 Hook and Pile Tape
 22-200002

Personnel Required

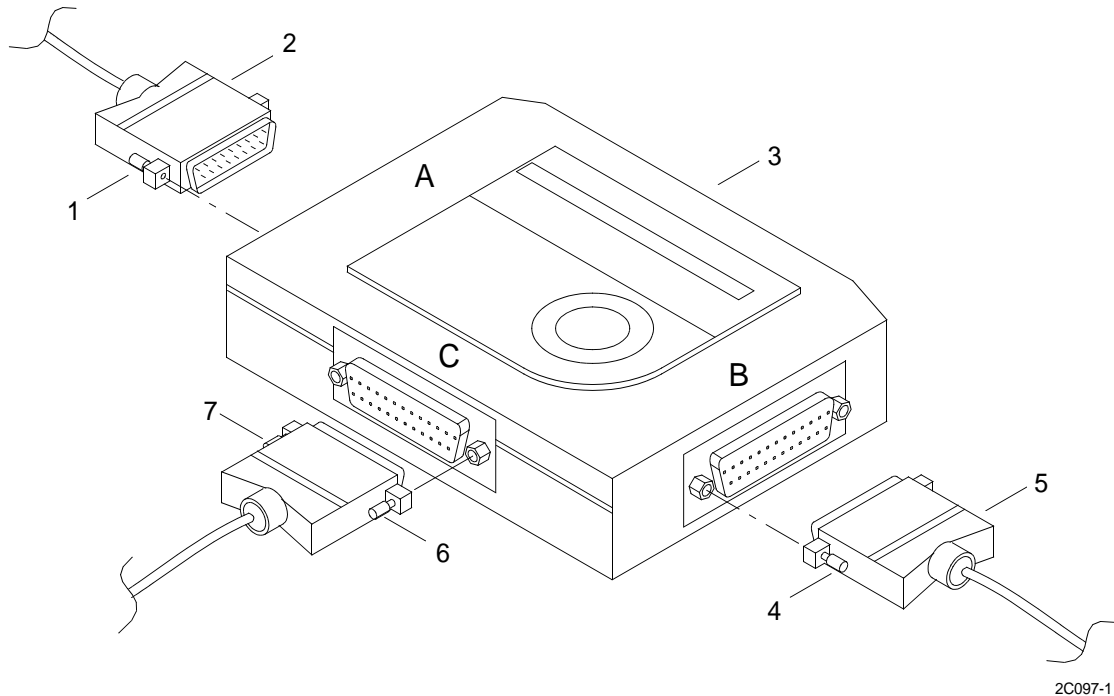
Seaman 88K

REMOVE INMARSAT-C DATA TERMINAL/INMARSAT-C PRINTER AUTO SWITCH

WARNING

**ELECTRICAL**

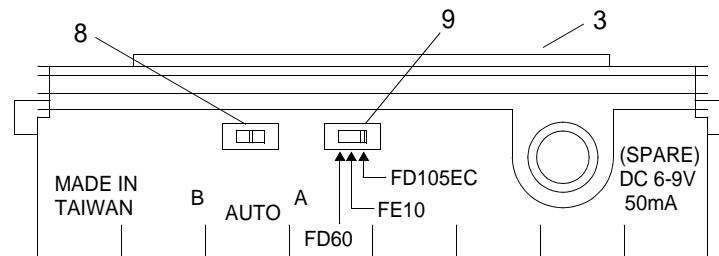
1. Turn power off at power strip located behind the 9701 console.
2. Loosen the mounting screws (1) on each side of the connector shell attached to port A.



3. Unplug the 25-pin port plug (2), tagged IBM-TERM/PRNSB, from the A port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
4. Loosen the mounting screws (4) on each side of the connector shell attached to port B.
5. Unplug the 25-pin port plug (5), tagged GMDSS-J6/PRNSB, from the B port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
6. Loosen the mounting screws (6) on each side of the connector shell attached to port C.
7. Unplug the 25-pin port plug (7), tagged PRNSB/INMARSAT PRN, from the C port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
8. Lift INMARSAT-C data terminal/INMARSAT-C printer auto switch (3) up to disconnect from hook and pile tape.

INSTALL INMARSAT-C DATA TERMINAL/INMARSAT-C PRINTER AUTO SWITCH

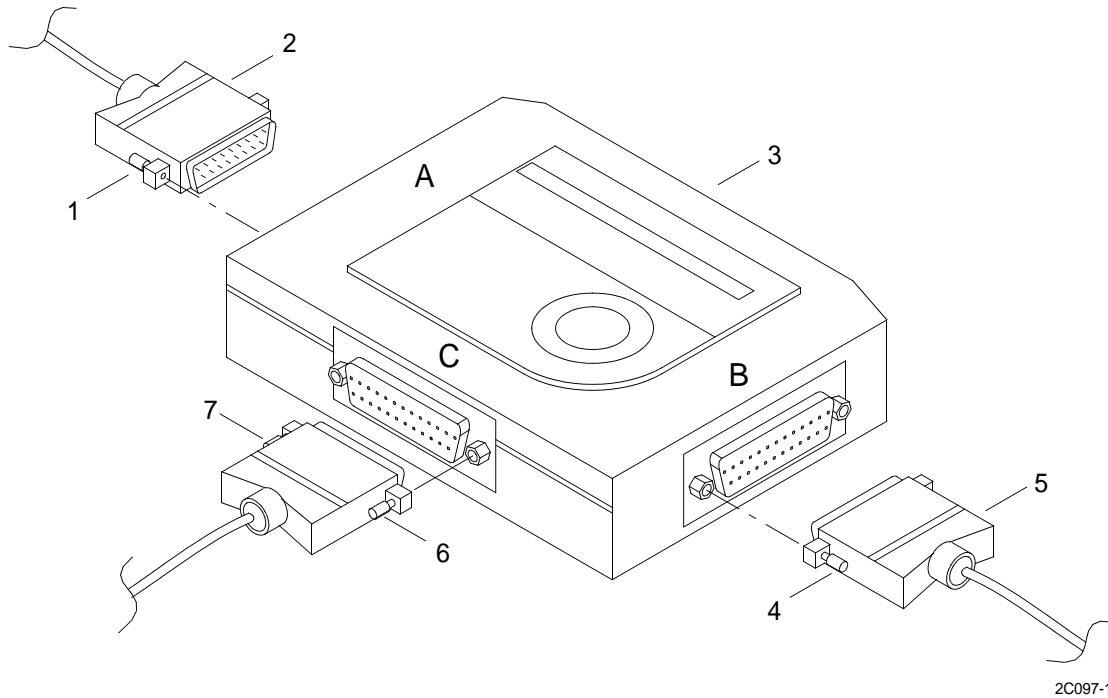
1. Obtain replacement INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
2. Turn auto switch over and install two strips of peel and stick hook and pile tape to underside.
3. Set switches on side of auto switch (3) as follows:



2C097-2

- a. Set switch (8) to AUTO position.
 - b. Set switch (9) to FD 10 SEC position.
4. Position auto switch and press down to attach to hook and pile tape.

5. Plug the 25-pin port plug (2), tagged IBM-TERM/PRNSB, into the A port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).



6. Tighten the mounting screws (1) on each side of the connector shell attached to port A.
7. Plug the 25-pin port plug (5), tagged GMDSS-J6/PRNSB, into the B port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
8. Tighten the mounting screws (4) on each side of the connector shell attached to port B.
9. Plug the 25-pin port plug (7), tagged PRNSB/INMARSAT PRN, into the C port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (3).
10. Tighten the mounting screws (6) on each side of the connector shell attached to port C.
11. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE AUTO SWITCH TO INMARSAT-C DATA
TERMINAL CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

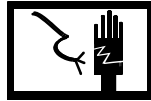
Auto Switch to INMARSAT-C Data Terminal Cable
 20-200034

Personnel Required

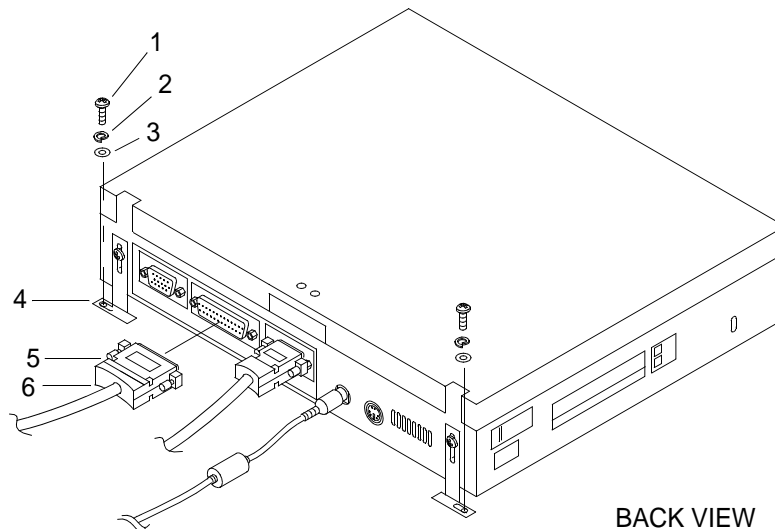
Seaman 88K

REPLACE AUTO SWITCH TO INMARSAT-C DATA TERMINAL CABLE

WARNING

**ELECTRICAL**

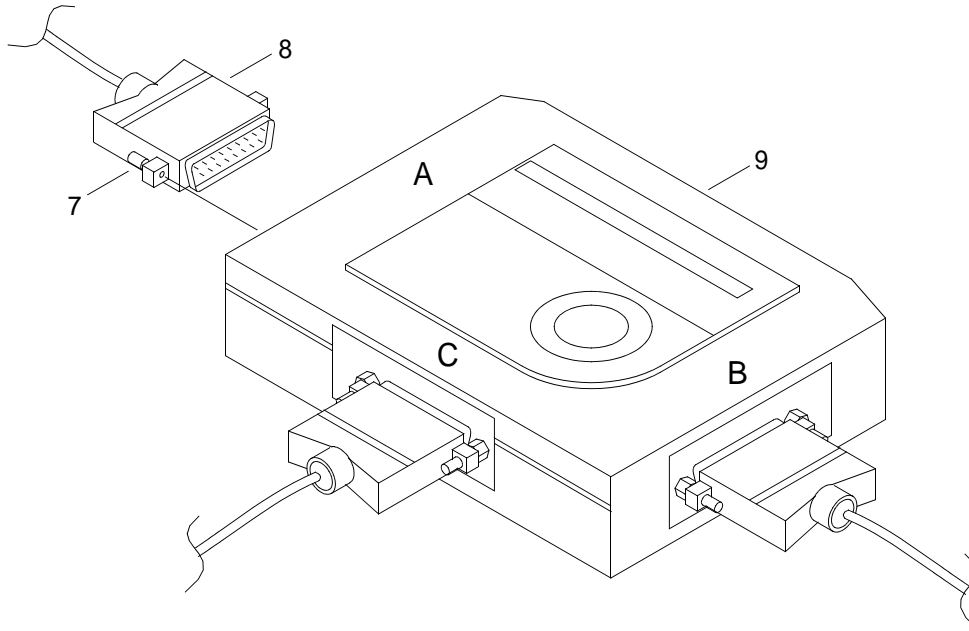
1. Turn power off at power strip located behind the 9701 console.
2. Remove screw (1), lock washer (2) and washer (3) from brackets (4) located on the back of each side of data terminal.

**BACK VIEW**

2C103-1

3. Lift up on front of data terminal to release terminal from hook and pile tape.
4. Slide data terminal forward to access rear of terminal.

5. Loosen the mounting screw (5) on each side of the parallel connector shell of the cable plug, tagged IBM-TERM/PRNSB.
6. Unplug the 25-pin port plug (6) from the port of the INMARSAT-C data terminal.
7. Cut and remove cable ties securing cables together back to the auto-switch.
8. Loosen the mounting screws (7) on each side of the connector shell attached to port A.

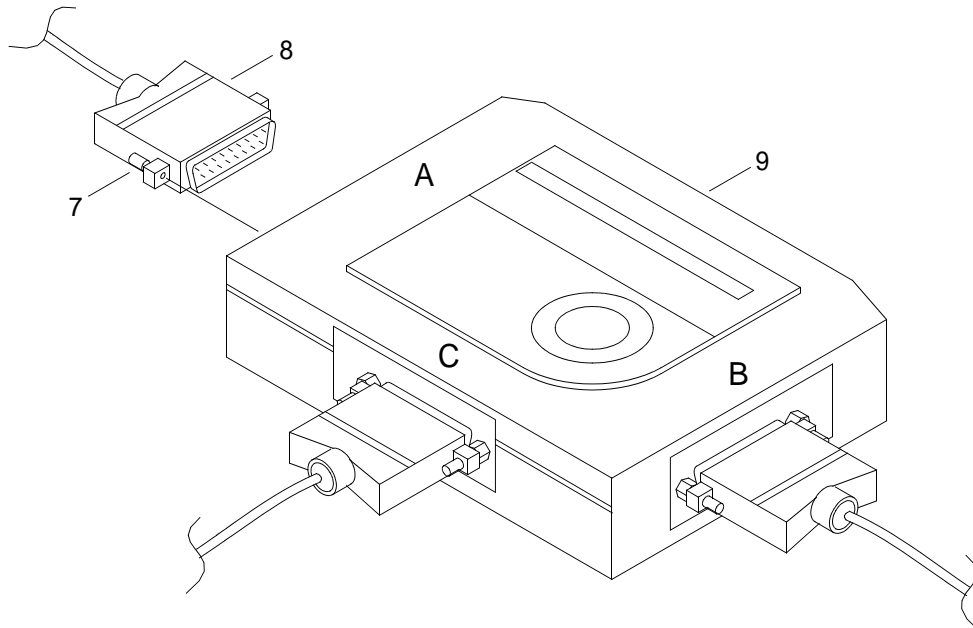


2C103-2

9. Unplug the 25-pin port plug (8), tagged IBM-TERM/PRNSB, from the A port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (9).

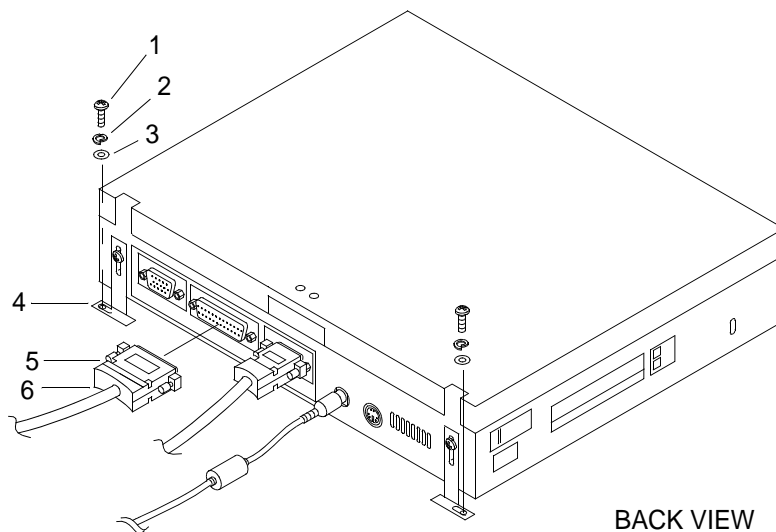
INSTALL AUTO SWITCH TO INMARSAT-C DATA TERMINAL CABLE

1. Plug the 25-pin port plug (8), tagged IBM-TERM/PRNSB, into the A port of the INMARSAT-C data terminal/ INMARSAT-C printer auto switch (9).



2C103-2

2. Tighten the mounting screws (7) on each side of the connector shell attached to port A.
3. Install cable ties securing cables together back to the data terminal.
4. Plug the 25-pin port plug (6), tagged IBM-TERM/PRNSB, into the port of the INMARSAT-C data terminal.



BACK VIEW

2C103-1

5. Tighten the mounting screw (5) on each side of the parallel connector shell attached to the INMARSAT-C data terminal.

-
6. Place data terminal aft on plate and press down on front of data terminal to attach terminal to hook and pile tape.
 7. Install washer (3), lock washer (2) and screw (1) in brackets located on the back of each side of data terminal (4).
 8. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE AUTO SWITCH TO INMARSAT-C PRINTER CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

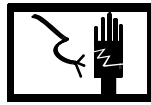
Auto Switch to INMARSAT-C Printer Cable
20-200033

Personnel Required

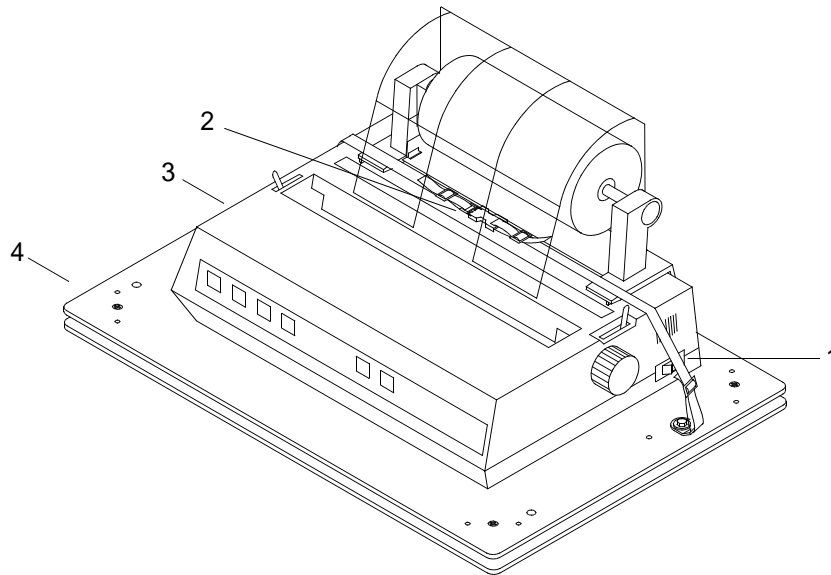
Seaman 88K

REMOVE AUTO SWITCH TO INMARSAT-C PRINTER CABLE

WARNING

**ELECTRICAL**

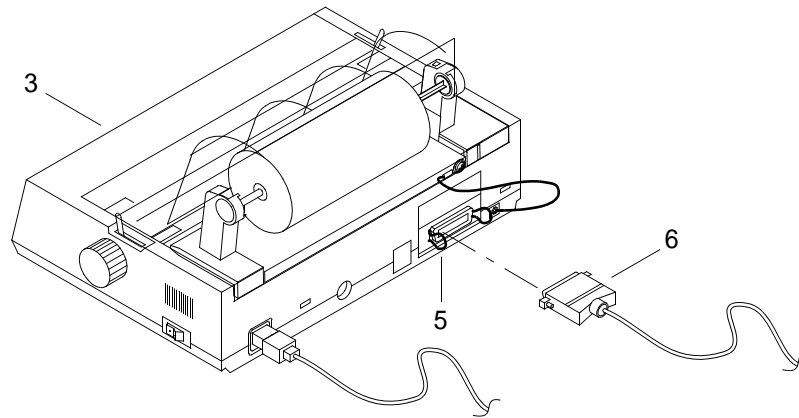
1. Turn power off at power strip located behind the 9701 console.
2. Make sure INMARSAT-C printer switch (1) is off.



2C104-1

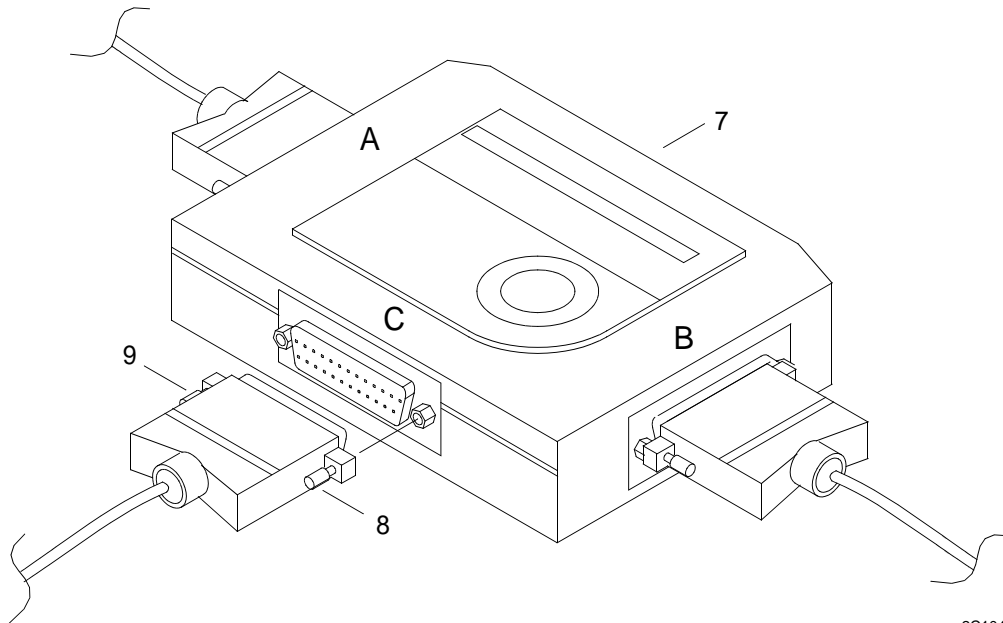
3. Release quick disconnect buckle (2) on strap that holds printer (3) on plate (3).
4. Lift up on front of printer (3) to release printer from hook and pile tape.

- Unclamp the wire clips (5) on the 36-pin parallel port plug (6), tagged PRNSB/INMARSAT PRN, from the back of the printer (3). Remove plug (6).



2C104-2

- Lift INMARSAT-C data terminal/INMARSAT-C printer auto switch (7) up to disconnect from hook and pile tape.
- Loosen the mounting screws (8) on each side of the connector shell attached to port C.



2C104-3

- Unplug the 25-pin port plug (9), tagged PRNSB/INMARSAT PRN, from the C port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (7).
- Remove cable ties attaching printer cable to other cables.

INSTALL AUTO SWITCH TO INMARSAT-C PRINTER CABLE

1. Plug the 25-pin port plug (9), tagged PRNSB/INMARSAT PRN, into the C port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (7).
2. Tighten the mounting screws (8) on each side of the connector shell attached to port C.
3. Position auto switch (7) and press down to attach to hook and pile tape.
4. Install 36-pin parallel port plug (6), tagged PRNSB/INMARSAT PRN, to the back of the printer (4). Clamp the wire clips on the plug (5).
5. Position printer (3) and press down to attach printer with hook and pile tape.
6. Place strap around printer (3) and attach quick release buckle (5).
7. Install cable ties to secure printer cable to other cables.
8. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GPS RECEIVER
REPLACE AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GPS
RECEIVER MEMORY BATTERY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Battery, Non rechargeable
VE461-5013-0001

Personnel Required

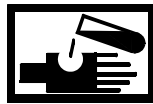
Seaman 88K

Equipment Condition

AN/PSN-11 (V)1 Precision Lightweight Receiver Removed. (WP 0104 00) (WP 0102 00)

REMOVE MEMORY BATTERY

WARNING



CHEMICAL



EXPLOSION



VAPOR

CAUTION

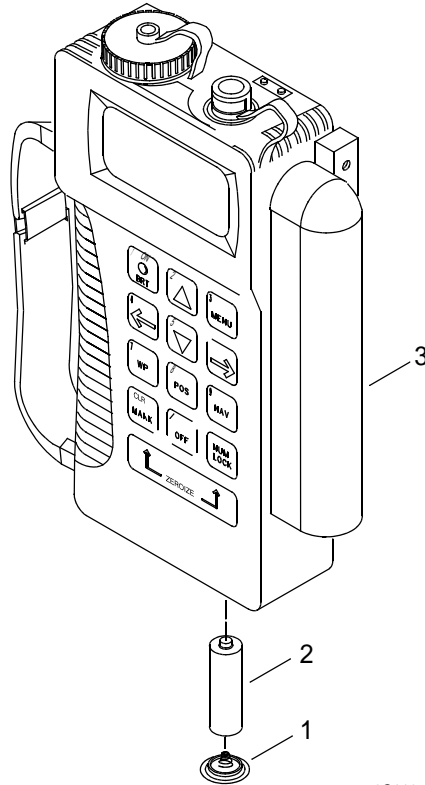
To prevent equipment damage, use only an LS6 lithium thionyl chloride battery or approved equivalent.

Even though the memory battery appears to be the same as the AA power batteries, it is not. The voltage of the AA power batteries is not high enough for it to serve as a memory battery. Placing AA power batteries in the AN/PSN-11 (V)1 for memory batteries could damage the unit or cause the unit to be inoperable.

The AN/PSN-11(V)1 must have a live main power source (battery or external) connected while replacing the memory battery or all memory will be lost.

1. Remove the memory battery cover (1) (bottom of the unit) by turning it counterclockwise with a flat-tip screwdriver. Tilt the unit (3) right side up to slide battery (2) out.
2. Dispose of the old battery per standard battery disposition procedures.

3. Inspect the gasket on the battery cover (1) for damage and dirt. Clean if necessary.



2C116-1

INSTALL MEMORY BATTERY

1. Install the battery (2) positive (+) end first.
2. Tighten memory battery cover (1) by turning it in a clockwise direction until snug, using a flat tip screwdriver.
3. Check the display. If the WARNING message PLGR HAS CLEARED MEMORY appears, perform initial setup of PLGR. (WP 0024 00)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
INSTALL AND REMOVE PRECISION LIGHTWEIGHT GLOBAL
POSITIONING RECEIVER (PLGR) BATTERY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Battery, Non-rechargeable
 0442-0027

Personnel Required

Seaman 88K

Equipment Condition

AN/PSN-11 (V)1 Precision Lightweight Receiver Removed (WP 0104 00) (WP 0102 00)

INSTALL PLGR BATTERY

WARNING

**CHEMICAL****EXPLOSION****VAPOR**

Before applying external power, remove BA-5800 battery to prevent personal injury and equipment damage.

CAUTION

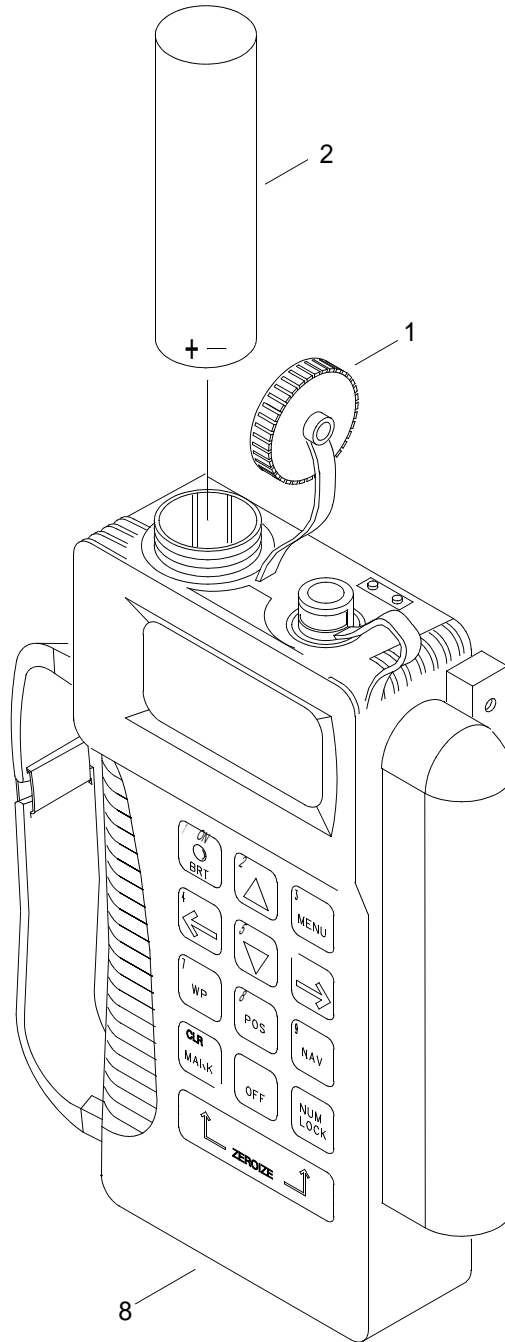
To ensure proper AN/PSN-11(V)1 operation when installing or replacing both the power and memory batteries, ensure the power battery is installed or ship's power is connected prior to memory battery replacement.

NOTE

The BA-5800/U lithium sulphur dioxide (LiSO₂) battery is the secondary power source for the AN/PSN-11(V)1 and contains a feature called the Complete Discharge Device (CDD). The CDD is a small switch located under a removable seal at the top of the BA-5800/U. Its purpose is to consume remaining lithium in the battery after use and before disposal. Press the CDD button and place the BA-5800/U in a ventilated, non-occupied area for 5 days. This is sufficient time to ensure that the CDD feature has drained the lithium. The BA-5800/U can then be disposed of as a non-hazardous waste in most areas. Always coordinate with local installation/environmental office/officer to ensure conformance with federal, state and local environmental regulations.

1. Remove the power battery cover (1) (top of the unit) by twisting it counterclockwise.

2. Inspect the gasket on the battery cover (1) for damage and dirt. Clean if necessary.



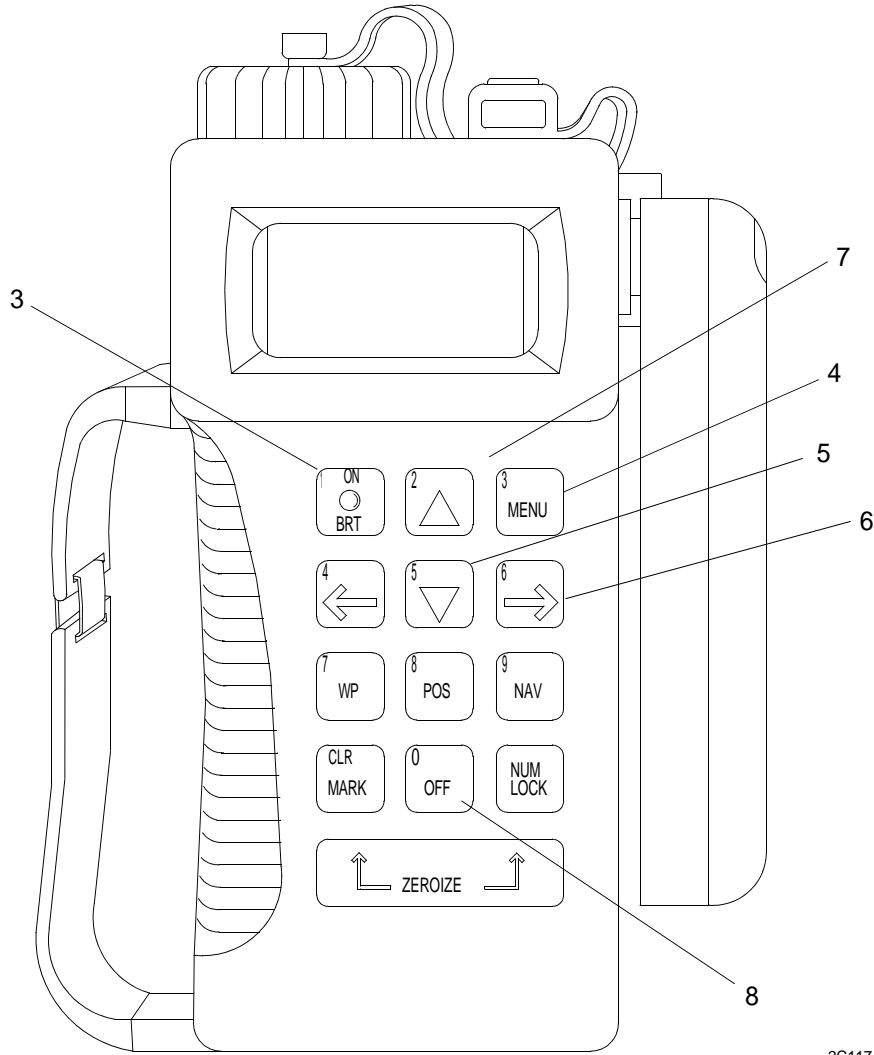
2C117-1

NOTE

If a nickel cadmium (rechargeable) battery is installed, check to be sure it is fully charged and align the battery keying with the battery compartment.

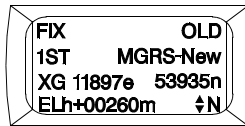
3. Install the battery (2) marked (+ -) end first.
4. Install the power battery cover (1) (top of the unit) by twisting it clockwise.

5. Press the ON key (3) to turn the PLGR on.



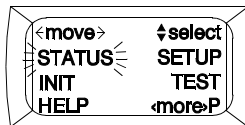
2C117-2

6. When the above screen is displayed, press the MENU key (4).



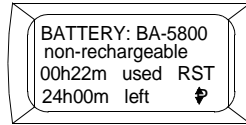
2C117-3

7. When STATUS flashes on screen, press the DOWN ARROW key (5) twice.



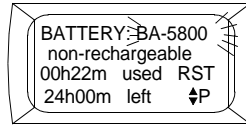
2C117-4

8. Press RIGHT ARROW (6) to check type of battery.



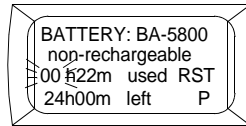
2C117-5

9. Press RIGHT ARROW (6) to select the battery type, either BA-5800 lithium, AA-Lithium or AA-Alkaline.



2C117-6

10. Press RIGHT ARROW (6) to move to hour/minute display. Then using UP/DOWN ARROWS (5,7) enter the amount of time the battery has been used. For example, if a used battery is installed with 1.5 hours of use, enter 0130 (hours and minutes). If a new battery is installed, enter 0000 (or activate the RST (reset) field). This time is to be updated each time a different battery is installed.



2C117-7

REMOVE PLGR BATTERY

1. Press the PLGR power OFF key (8).
2. Remove the power battery cover (1) (top of the unit) by twisting it counter clockwise. Tilt the unit (8) upside down to slide battery (2) out into your hand.
3. Dispose of the old battery per standard battery disposition procedures.
4. Install AN/PSN-11 (V)1 Precision Lightweight Receiver. (WP 0102 00) (WP 0104 00)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE COMMUNICATION PLGR

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

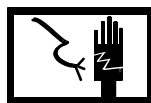
Communication PLGR
822-0077-103

Personnel Required

Seaman 88K

REMOVE COMMUNICATION PLGR

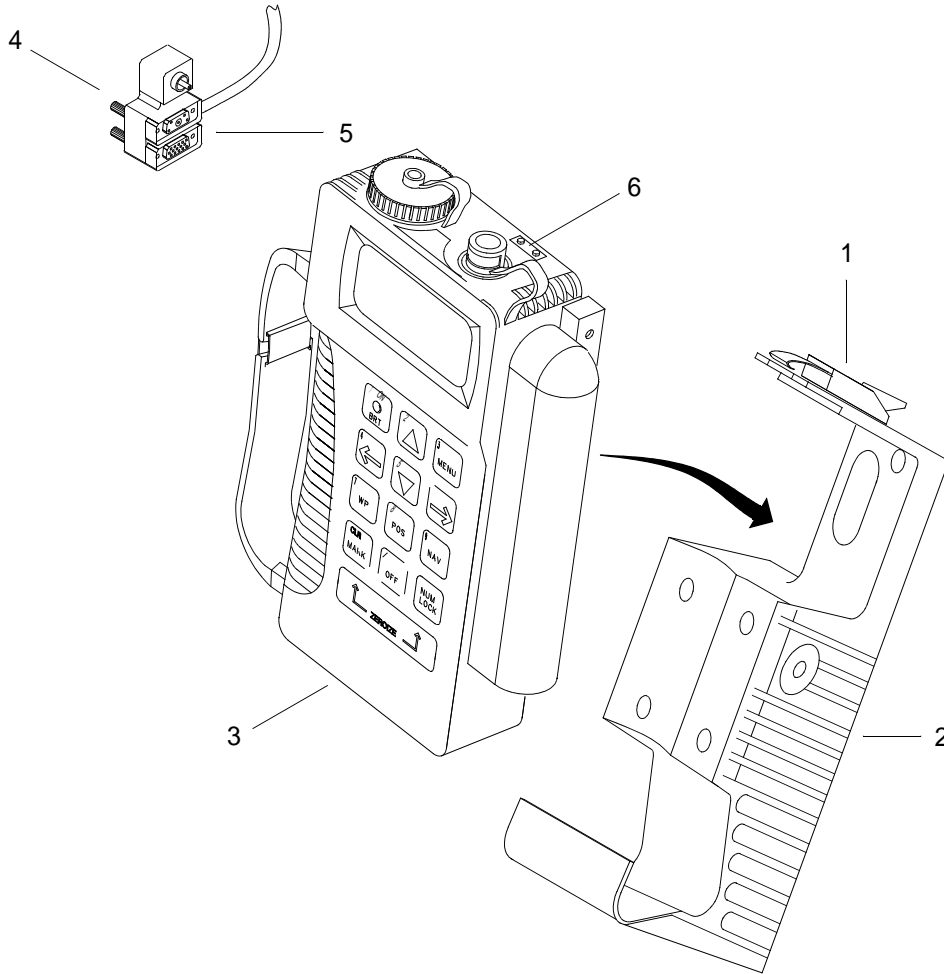
WARNING



ELECTRICAL

1. Turn power off on AN/PSN-11(V)1 PLGR.
2. Turn power off at the communication interface and switchbox. Place the switch in the OFF (center) position.

3. Lift up and release clip (1) on top of PLGR mounting base (2).



2C128-1

INSTALL COMMUNICATION PLGR

1. Position and install PLGR cable connector (5) on PLGR (3) and tighten four knurled screws (4).
2. Position PLGR (3) on PLGR mounting base (2), base first.
3. Align mounting base retaining clip (1) with clip retainer (6) and snap shut.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE AN/PSN-11(V)1 PRECISION LIGHTWEIGHT GLOBAL
POSITIONING SYSTEM RECEIVER (PLGR) INTERFACE CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Electrical Cable Assembly
 50-200027

Personnel Required

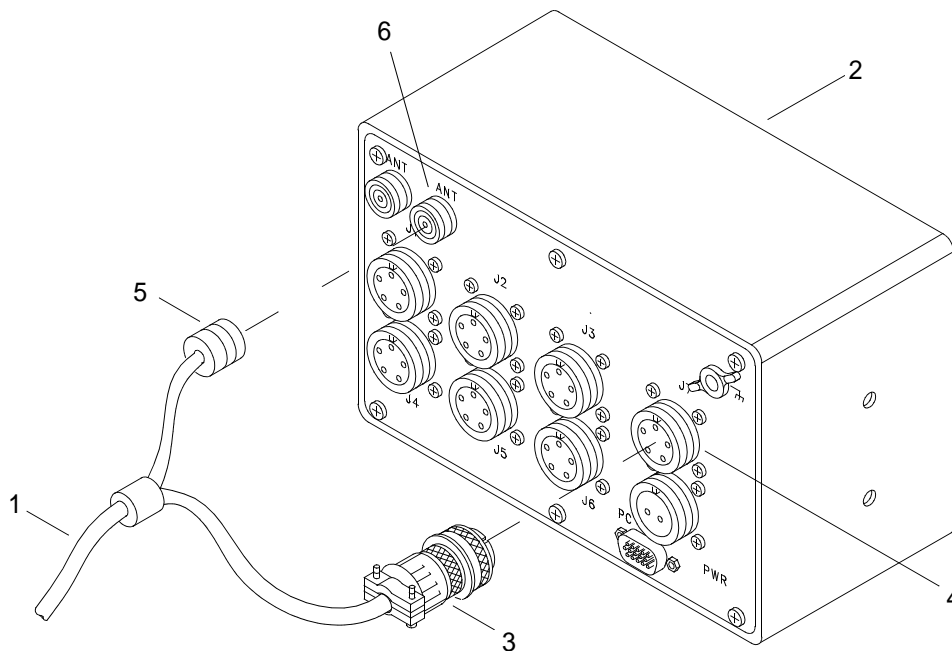
Engineer 88K

Equipment Condition

Power Off at Interface and Switchbox. (WP 0023 00) (WP 0030 00)

REMOVE PRECISION LIGHTWEIGHT GLOBAL POSITIONING SYSTEM RECEIVER (PLGR) INTERFACE CABLE

1. Disconnect Global Positioning System (GPS) interface cable (1) from switchbox (2).



2C127-1

- a. Grasp the GPS interface cable connector (3) and turn counterclockwise to remove from J-7 connector (4) on switchbox (2).
- b. Disconnect interface cable connector from J-7 connector.

2. Disconnect GPS antenna coaxial cable (5) from switchbox (2).
 - a. Grasp the GPS antenna coaxial cable connector (6) and turn counterclockwise to remove connector (5) from antenna connector (6) on switchbox (2).
 - b. Disconnect antenna coaxial cable connector from antenna connector.
3. Remove AN/PSN-11(V)1 PLGR. (WP 0102 00) (WP 0104 00)

**INSTALL PRECISION LIGHTWEIGHT GLOBAL POSITIONING SYSTEM RECEIVER (PLGR)
INTERFACE CABLE**

1. Install AN/PSN-11(V)1 PLGR. (WP 0102 00) (WP 0104 00)
2. Connect GPS antenna coaxial cable connector (5) to switchbox (2).
 - a. Align antenna coaxial cable connector (5) with antenna connector (6) on switchbox (2).
 - b. Connect antenna coaxial cable connector (5) from antenna connector (6) on switchbox (2). Turn clockwise to tighten connector.
3. Connect GPS interface cable (1) to switchbox (2).
 - a. Align keyway of the GPS interface cable connector (3) with the keyway of J-7 connector (4).
 - b. Connect interface cable connector to J-7 connector and turn clockwise to tighten connector.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

GMDSS PLGR

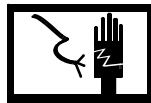
822-0077-103

Personnel Required

Engineer 88K

REMOVE NAVIGATION PLGR

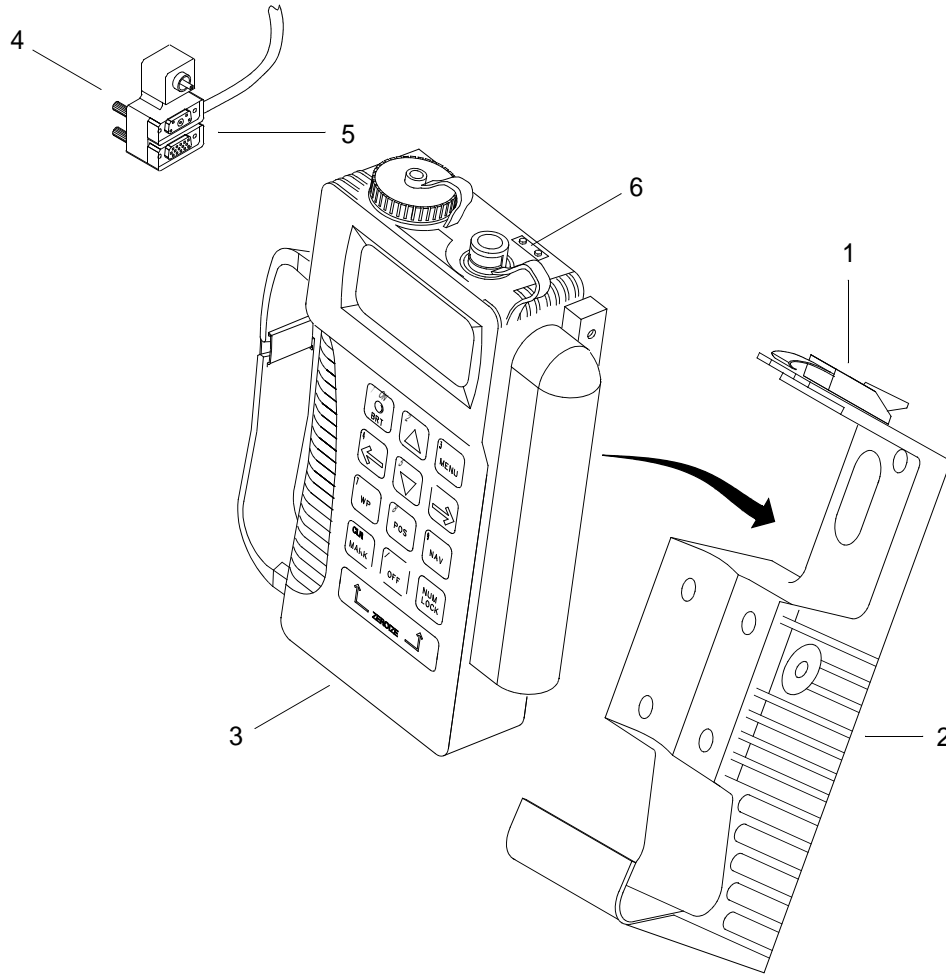
WARNING



ELECTRICAL

1. Turn power off at the navigation interface and switchbox. Place the power switch in the OFF (center) position.
2. Turn power off on AN/PSN-11(V)1 PLGR.

- Lift up and release clip (1) on top of PLGR mounting base (2).



2C119-1

- Remove PLGR (3) from PLGR mounting base (2).
- Loosen four knurled screws (4) on PLGR cable connector (5) and remove cable from PLGR (3).

INSTALL NAVIGATION PLGR

- Position and install PLGR cable connector (5) on PLGR (3) and tighten four knurled screws (4).
- Position PLGR (3) on PLGR mounting base (2), base first.
- Align mounting base retaining clip (1) with clip retainer (6) and snap shut.
- Turn power on at the navigation interface and switchbox. Place the power switch in the ON (up) position.
- Turn AN/PSN-11(V)1 PLGR power on.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR INTERFACE CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

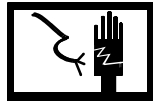
Navigation PLGR Interface Cable
 50-200027

Personnel Required

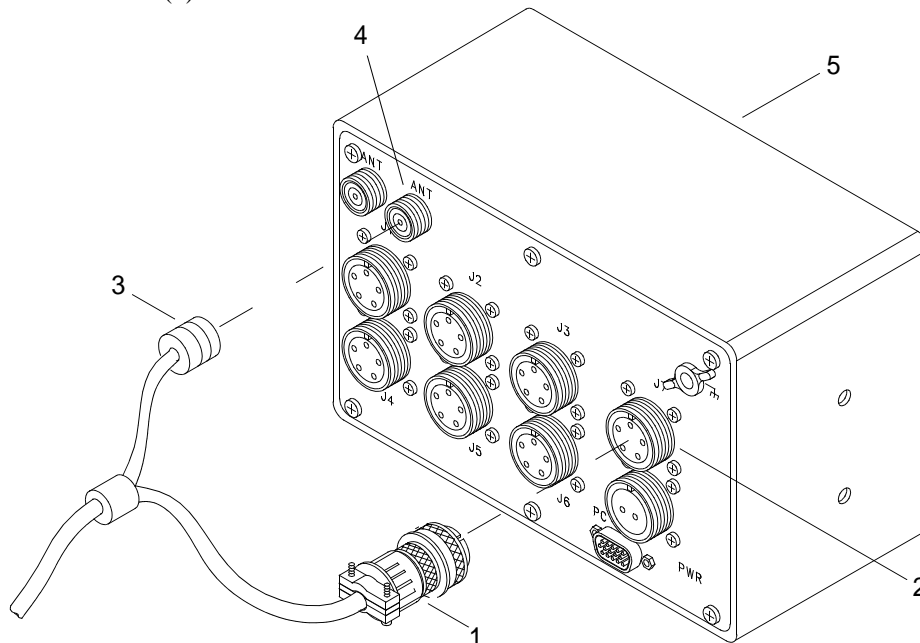
Seaman 88K

REMOVE NAVIGATION PLGR INTERFACE CABLE

WARNING

**ELECTRICAL**

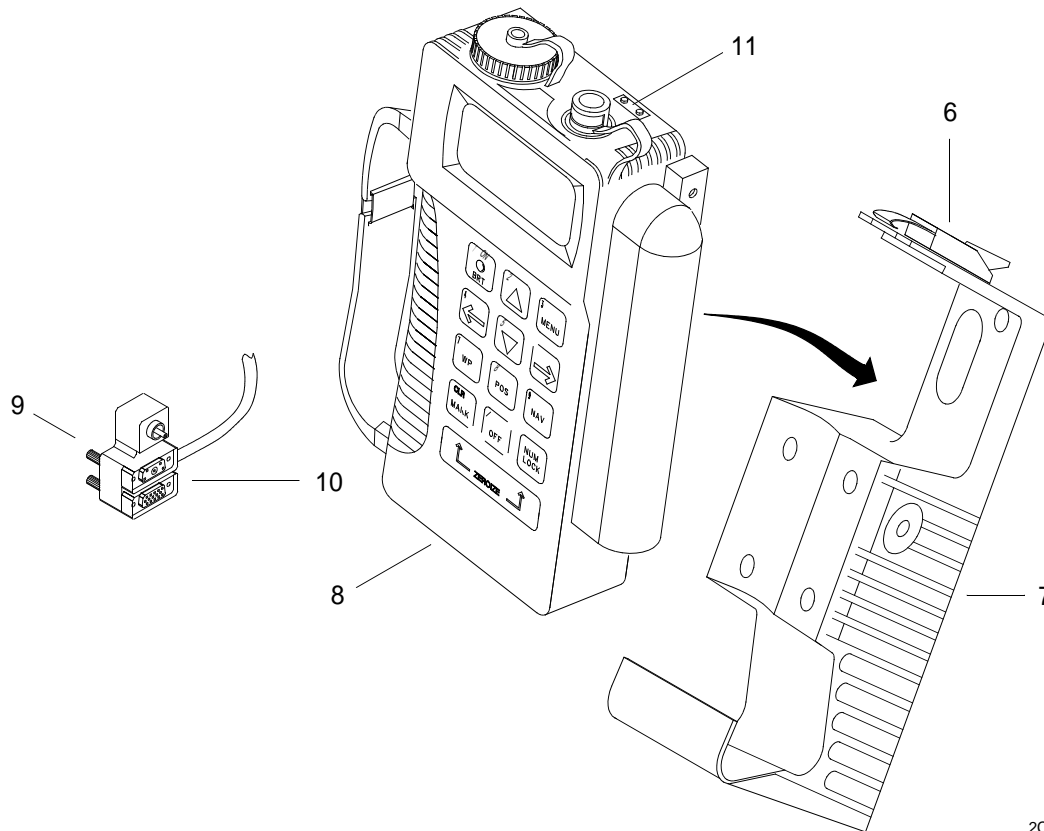
1. Turn power off at the navigation PLGR/NAVTEX power supply. Place the switch in the OFF (down) position.
2. Loosen the connector shell of the cable plug (1), tagged PLGRSB-J7/PLGR, on the back of the AN/PSN-11(V)1 interface and switchbox (5).



2C118-1

3. Unplug the PLGR cable plug (1) from the port (2) of the AN/PSN-11(V)1 interface and switchbox (5) back.

4. Detach antenna coaxial lead (3) from the port (4) of the AN/PSN-11(V)1 interface and switchbox (5) back.
5. Lift up and release clip (6) on top of PLGR mounting base (7).



2C118-2

6. Remove PLGR (8) from PLGR mounting base (7).
7. Loosen four knurled screws (9) on PLGR cable connector (10) and remove cable from PLGR (8).
8. Cut nylon cable ties and remove navigation PLGR interface cable.

INSTALL NAVIGATION PLGR INTERFACE CABLE

1. Position and install PLGR cable connector (10) on PLGR (8) and tighten four knurled screws (9).
2. Position PLGR (8) on PLGR mounting base (7), base first.
3. Align mounting base retaining clip (6) with clip retainer (11) and snap shut.
4. Attach antenna coaxial lead (3) to the port (4) of the AN/PSN-11(V)1 Interface and Switchbox (5) back.
5. Plug the PLGR cable plug (1) into the port (2) of the AN/PSN-11(V)1 interface and switchbox (5) back.
6. Tighten the connector shell of the cable plug (1), tagged PLGRSB-J7/PLGR, on the back of the AN/PSN-11(V)1 Interface and Switchbox (5).
7. Secure navigation PLGR interface cable with nylon cable ties.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE VHF/FM DSC TRANSCEIVER MICROPHONE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

VHF/FM DSC Transceiver Microphone
 21-200001

Personnel Required

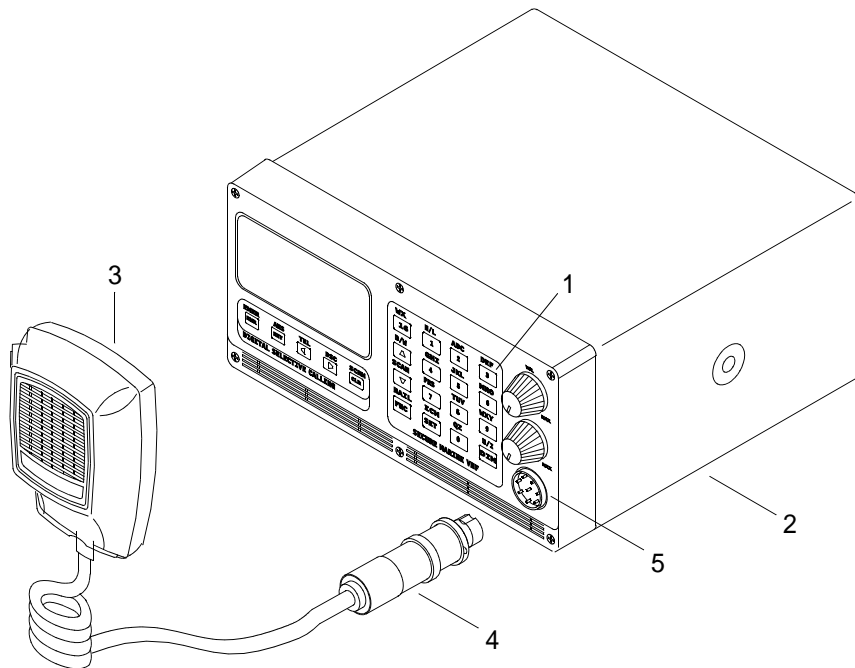
Seaman 88K

REMOVE VHF/FM DSC TRANSCEIVER MICROPHONE

WARNING

**ELECTRICAL**

1. Turn power off (1) at the VHF/FM DSC receiver (2). Place the switch in the OFF position.



2C144-1

2. To remove microphone (3) from VHF/FM DSC receiver (2), grasp microphone connector (4) and turn knurled nut (4) counterclockwise and remove from connector port (5).

INSTALL VHF/FM DSC TRANSCEIVER MICROPHONE

1. Line up keyway on microphone connector (4) with keyway on VHF/FM DSC connector port (5).
2. Insert connector (4) and tighten knurled nut clockwise to install.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVTEX RECEIVER POWER FUSE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

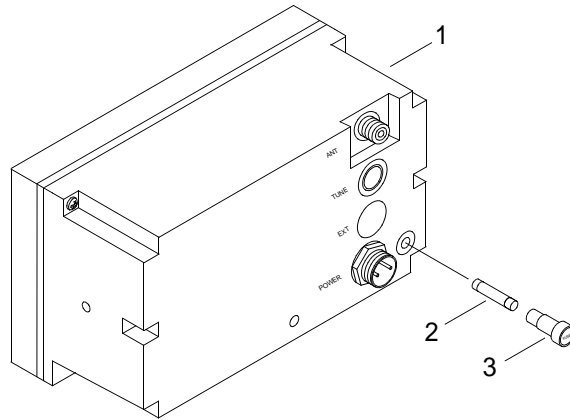
Fuse, 3 Amp 5 X 20 mm
20-200026

Personnel Required

Seaman 88K

REMOVE NAVTEX RECEIVER POWER FUSE

1. Turn power off at the navigation power supply. Place the switch in the OFF position.
2. Remove fuse holder (3) from NAVTEX receiver (1).



2C133-2

- a. Remove fuse holder (3) from NAVTEX receiver (1). Turn fuse holder (3) counterclockwise to loosen.
 - b. Remove fuse holder (3).
3. Remove fuse (2) from fuse holder (3).

INSTALL NAVTEX RECEIVER POWER FUSE

1. Install fuse (2) into fuse holder (3).
2. Install fuse holder (3) into NAVTEX receiver (1). Turn fuse holder (3) clockwise to tighten.
3. Turn power on at the navigation power supply. Place the switch in the ON position.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVTEX PAPER**

INITIAL SETUP:

Materials/Parts

Thermal Paper (Item 12, WP 0167 00)

Personnel Required

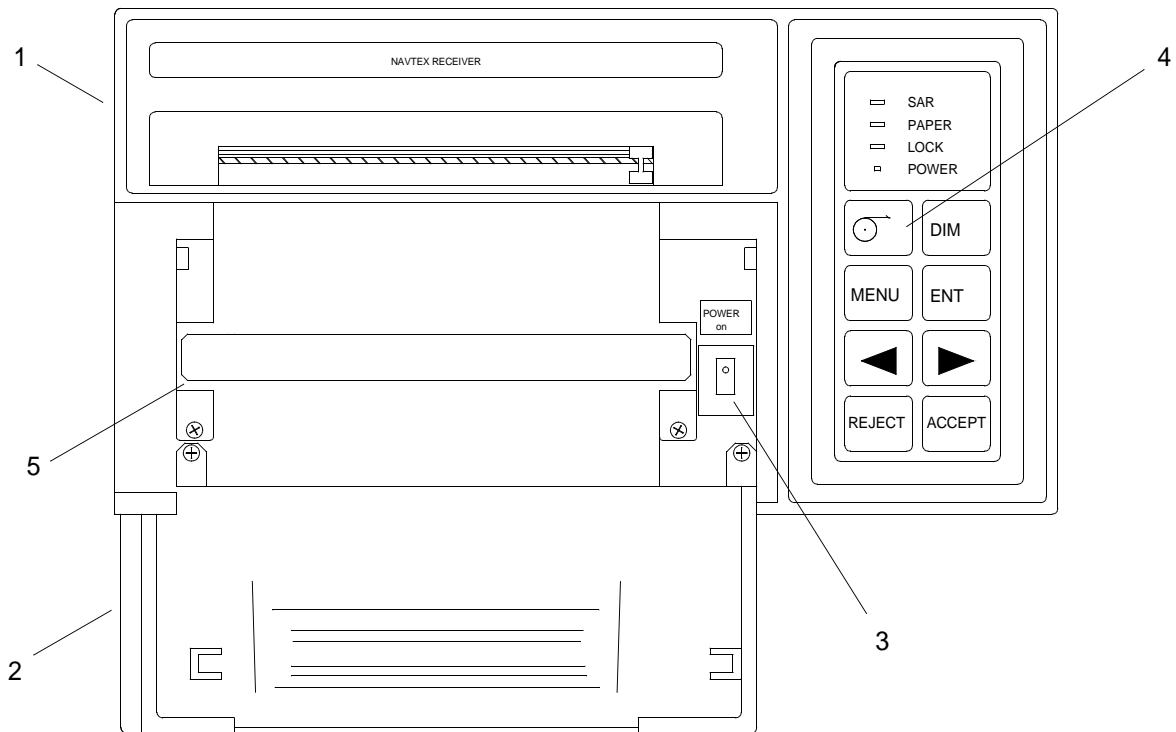
Seaman 88K

REMOVE NAVTEX PAPER

NOTE

Red marking will appear when approximately 1 yard of paper remains. The paper light will activate when paper runs out. Messages received during paper outage will be saved. Printing will resume after paper is replaced.

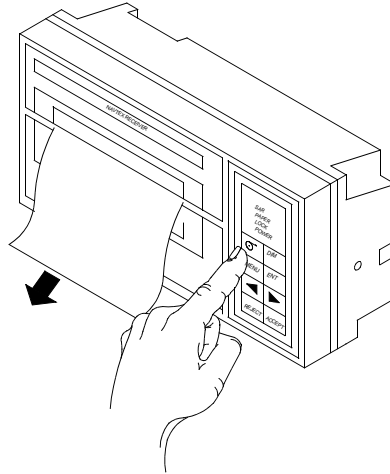
1. On NAVTEX receiver (1), lower paper cover (2) to access power ON/OFF switch (3).



2C132-2

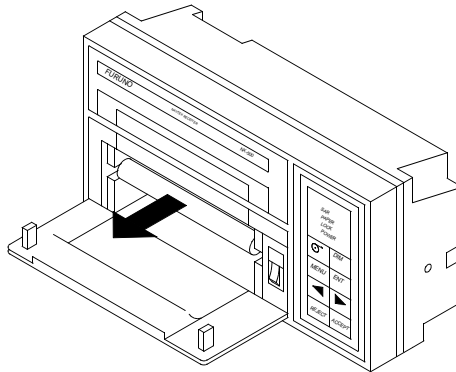
2. Place power switch (3) on.

3. Press FEED key (4) to draw out remaining paper.



2C132-3

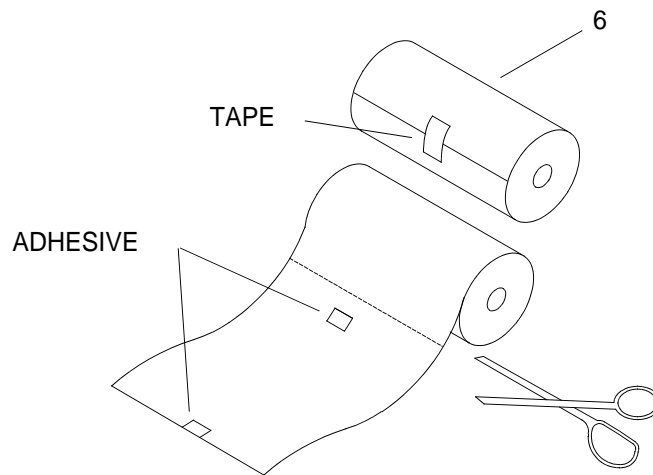
4. Remove paper spool (5).



2C132-4

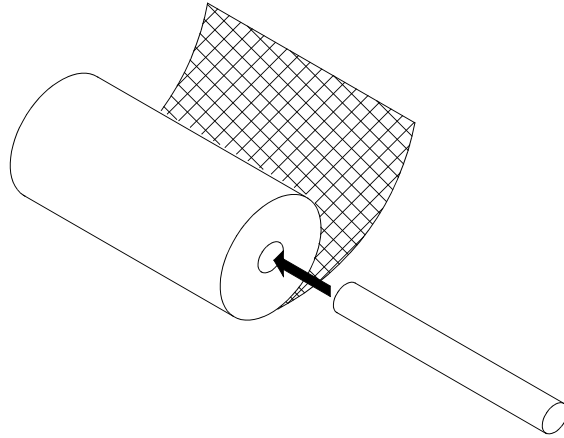
INSTALL NAVTEX PAPER

1. Obtain new paper roll (6). To prevent paper jamming, trim end of new paper roll far enough to remove tape adhesive.



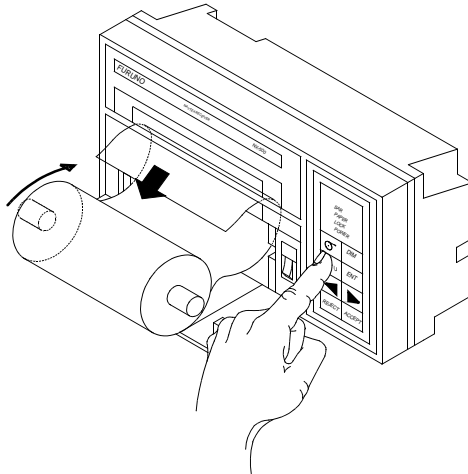
2C132-5

2. Insert paper spool (5) through center of paper roll (6) so that the paper unrolls from the bottom.



2C132-6

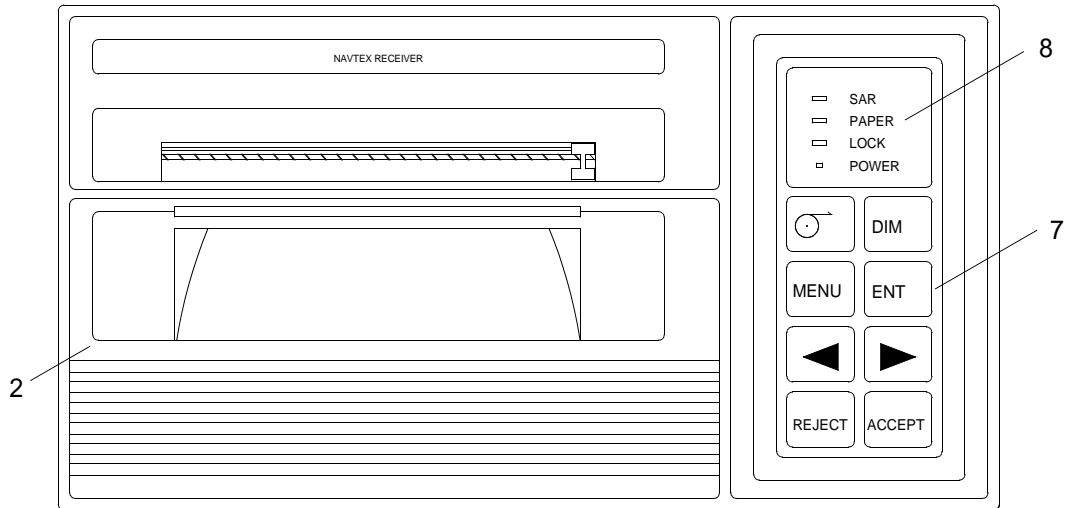
3. Insert paper into the paper insertion slot just above the paper container and press FEED key (4) until paper extends from front of feeder.



2C132-7

4. Position paper roll (6) and spool (5) in NAVTEX receiver (1).
5. Press FEED key (4) until paper is wrinkle free. Position alignment will be made automatically.

6. Close paper cover (2) on NAVTEX receiver (1).



2C132-1

7. Press ENT key (7) to complete paper replacement.
8. Paper light (8) will go out.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C PRINTER ROLL PAPER HOLDER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

INMARSAT-C Printer Roll Paper Holder
21-00025

Personnel Required

Seaman 88K

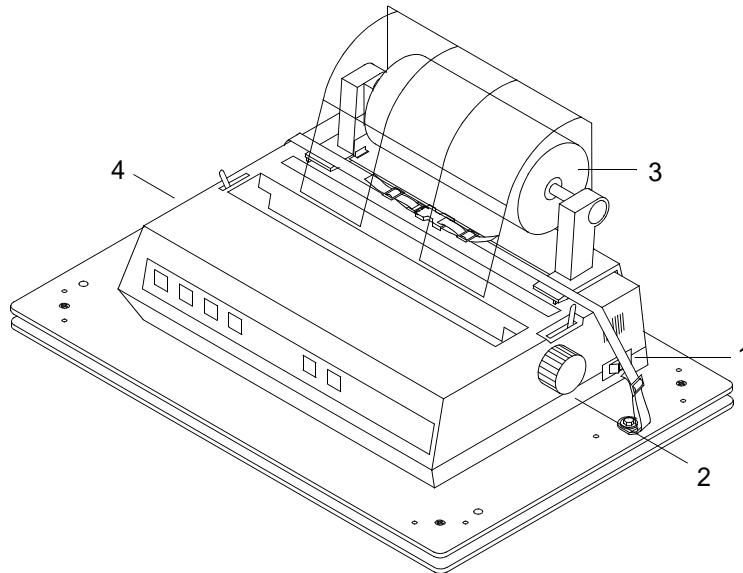
REMOVE SERIAL PRINTER ROLL PAPER HOLDER

WARNING



ELECTRICAL

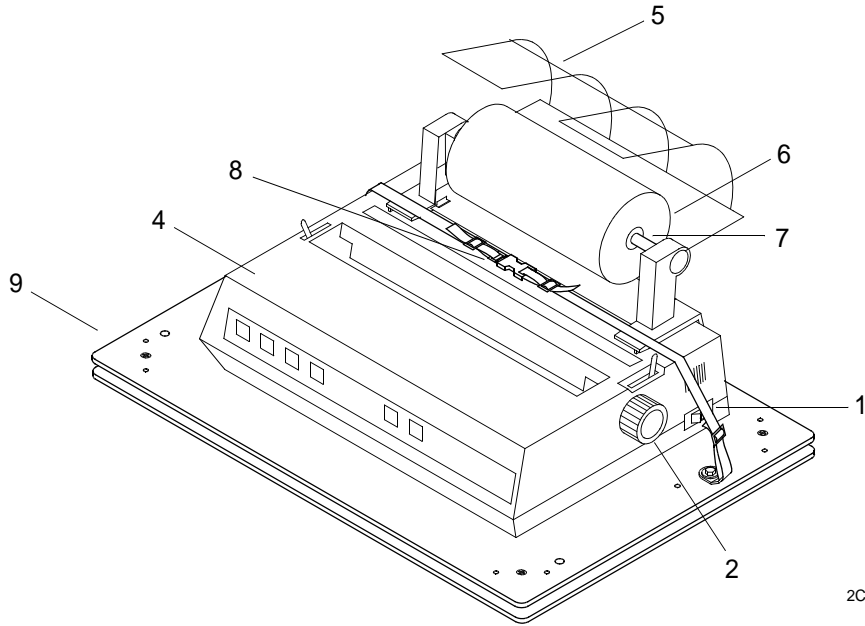
1. Make sure serial printer switch (1) is off.



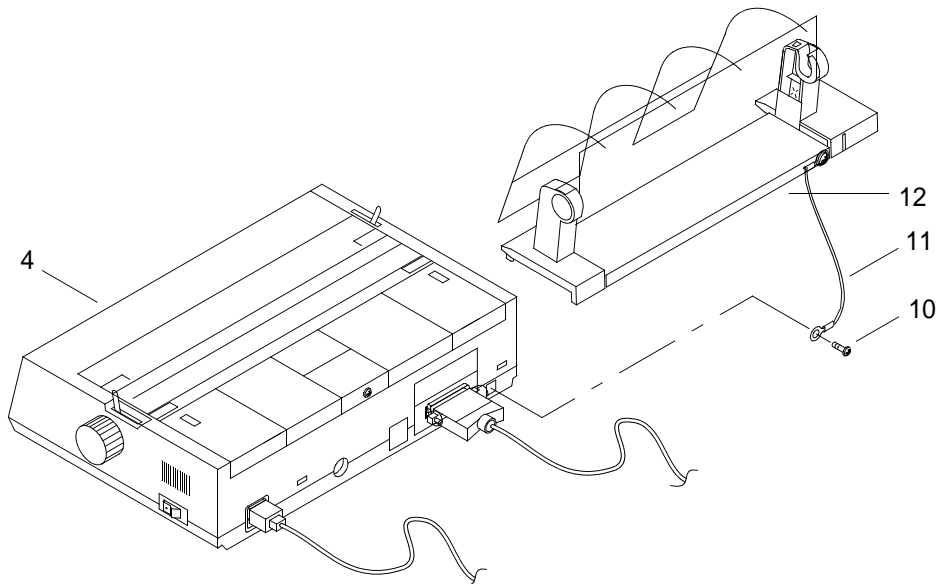
2C099-1

2. Rotate the platen knob (2) counterclockwise to remove paper (3) from the printer (4).

3. Push back the paper separator (5).



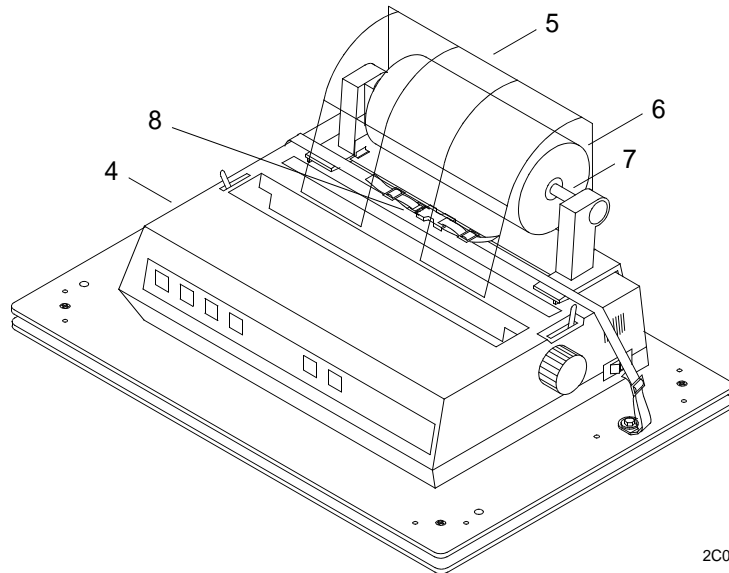
4. Remove the paper roll (6) and the paper roller (7).
5. Release quick disconnect buckle (8) on strap that holds printer (4) on plate (9).
6. Lift up on front of printer (4) to release printer (4) from hook and pile tape.
7. Slide printer (4) forward and remove screw (10) from ground wire (11) on printer (4).



8. Slide paper stand (12) forward and remove.

INSTALL SERIAL PRINTER ROLL PAPER HOLDER

1. Obtain replacement paper stand (12) and install. Place paper stand (12) on printer (4) and slide aft.
2. Install screw (10) and ground wire (11) on printer (4).
3. Position printer (4) and press down to attach printer (4) with hook and pile tape.
4. Install the paper roll (6) and the paper roller (7).



2C099-4

5. Place strap around printer (4) and attach quick release buckle (8). Lower paper separator (5).
6. Feed paper into printer (4). (WP 0111 00)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C PRINTER INK CARTRIDGE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

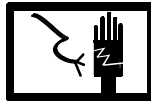
INMARSAT-C Printer Ink Cartridge
21-200033

Personnel Required

Seaman 88K

REMOVE INMARSAT-C PRINTER INK CARTRIDGE

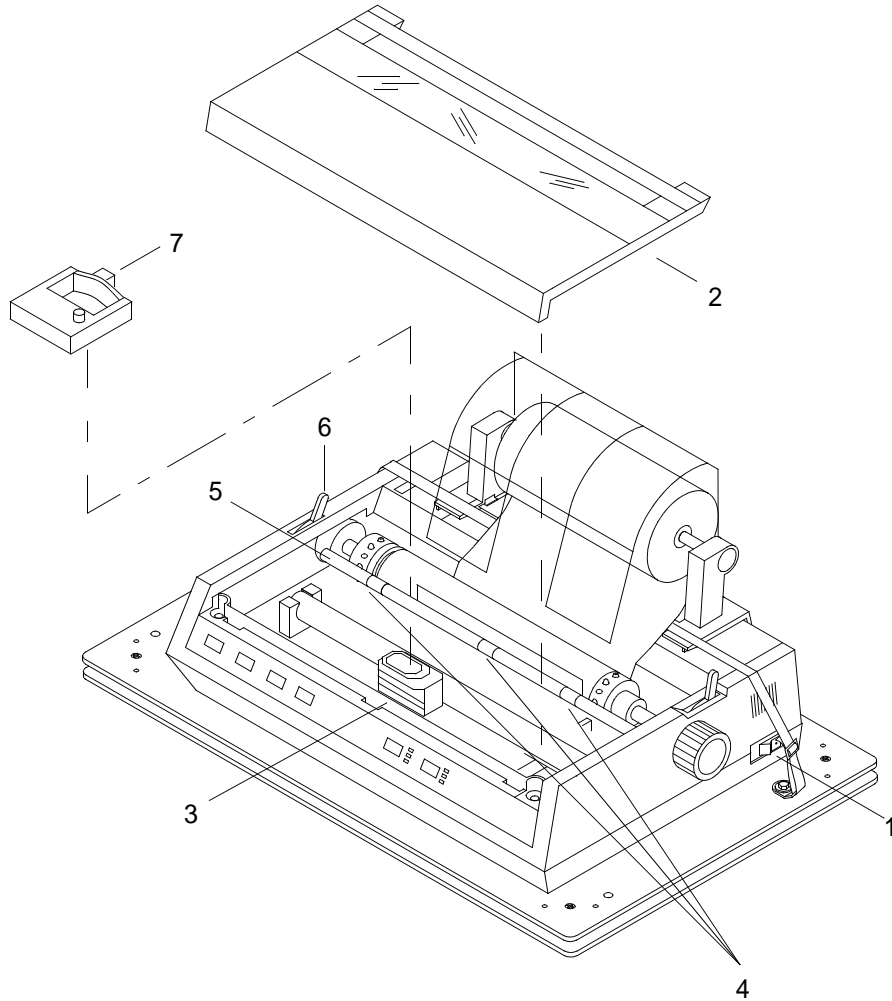
WARNING



ELECTRICAL

1. Place INMARSAT-C printer power switch (1) in the OFF position.

2. Lift off the INMARSAT-C printer access cover (2).



2C100-1

WARNING

The printhead can get very hot during extended periods of printing. Be sure to let it cool off before you touch it. Failure to do so could result in burns to fingers.

3. Center the printhead (3) so that it's away from the bail rollers (4). Make sure the bail (5) is closed and bail lever (6) is in the aft position.
4. Lift up on the ink cartridge (7) closest to bail (5) and tilt and slide cartridge (7) out of the printhead plate area closest to the front of the INMARSAT-C printer.

INSTALL INMARSAT-C PRINTER INK CARTRIDGE

1. Obtain replacement ink cartridge (7) and with the knob side up, tilt the ink cartridge (7) onto the printhead (3) plate so that it slides into the area of the plate that is closest to the front of the INMARSAT-C printer.

NOTE

If the ribbon will not load easily, turn the blue knob slightly until the x-shaped notch on the bottom of the ribbon cartridge aligns with the x-shaped insert on the ribbon plate.

2. Lower the ink cartridge (7) over the printhead (3), aligning the tabs with the inserts on the printhead plate.

NOTE

Do not remove the clear plastic ribbon shield from the ribbon cartridge.

3. Press on the ink cartridge (7) until it snaps into place.
4. Install INMARSAT-C printer access cover (2).
5. Place INMARSAT-C printer power switch (1) in the ON position.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C PRINTER PAPER

INITIAL SETUP:**Materials/Parts**

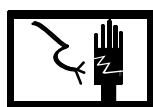
Paper Roll
21-200024

Personnel Required

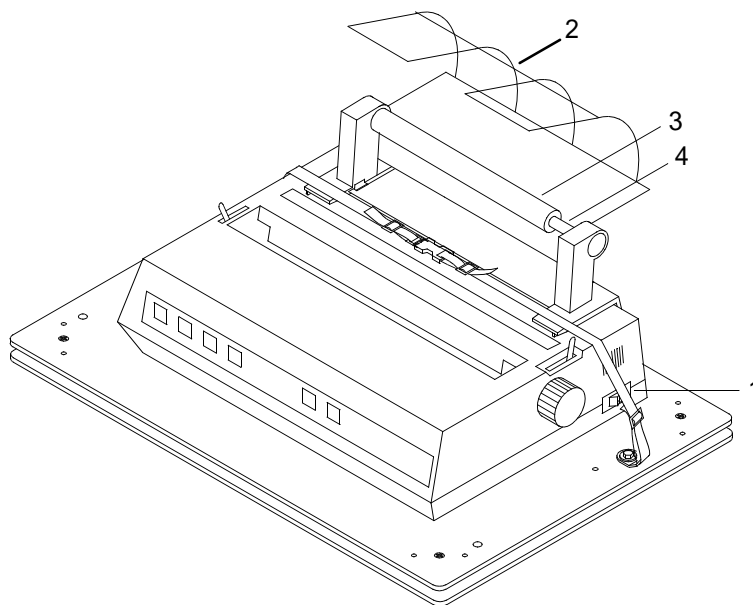
Seaman 88K

REMOVE INMARSAT-C PRINTER PAPER

WARNING

**ELECTRICAL**

1. Make sure INMARSAT-C printer switch (1) is off.

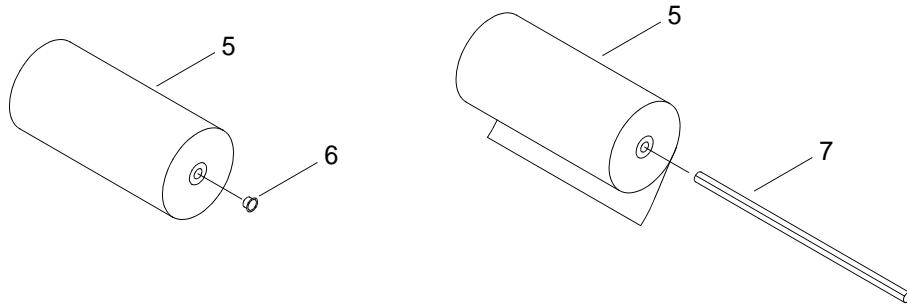


2C098-2

2. Push back the paper separator (2).
3. Remove the empty paper roll (3) and the paper roller (4).

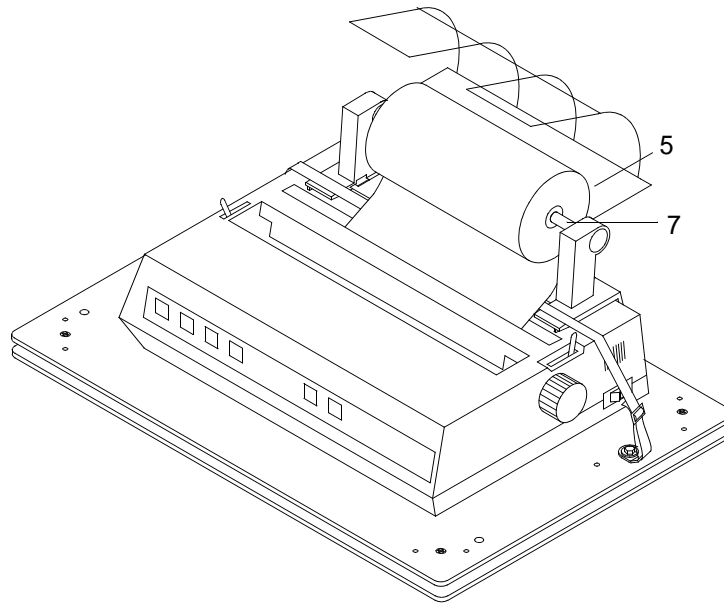
INSTALL INMARSAT-C PRINTER PAPER

1. Obtain new paper roll (5). Remove metal inserts (6) from ends of paper roll (5).



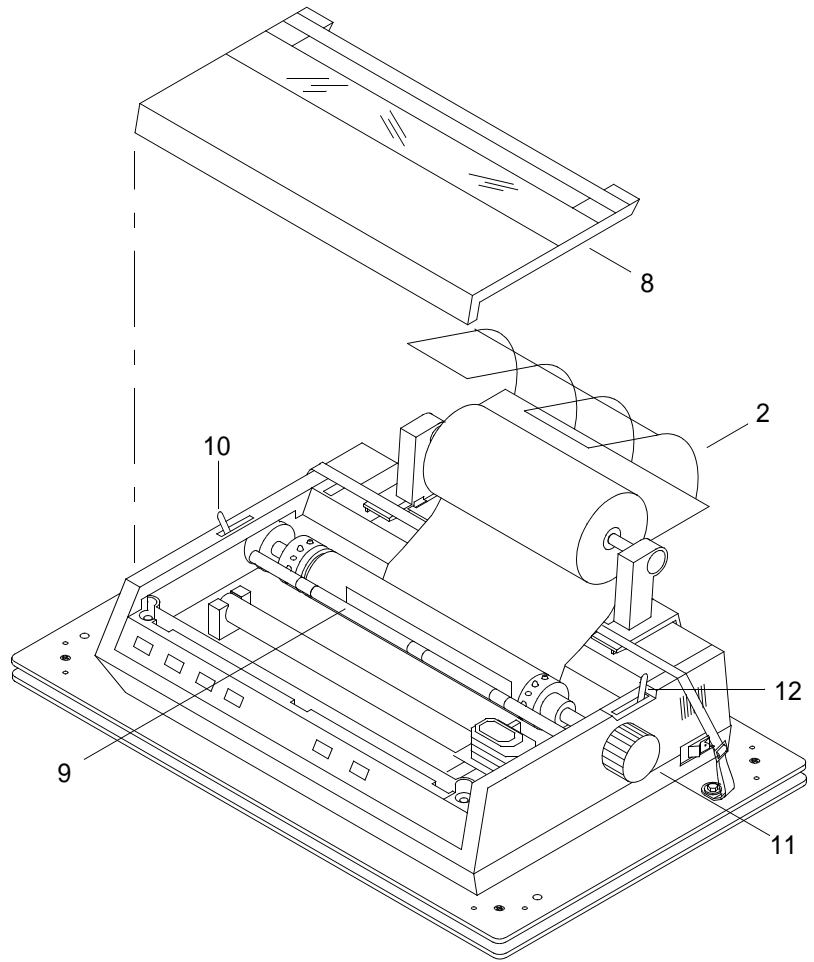
2C098-4

2. Slide the paper roller (7) into the roll of paper (5) so that the paper unrolls from the bottom.



2C098-5

3. Feed the paper (5) into the printer and behind the paper feed roller. Replace the paper roller (7) and paper (5).



4. Remove the access cover (8) and raise the paper bail (9) by moving lever (10) forward.
5. Roll the paper forward by rotating the platen knob (11) clockwise.
6. Lower the paper separator (2) so that the paper enters the printer from under the paper separator (2) and exits the printer going over the paper separator (2).
7. Make sure the paper separator lever (12) is in the CLOSED (back) position.
8. Lower the bail (9) by placing the bail lever (10) to the aft position and replace the access cover (8).

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SERIAL PRINTER PAPER

INITIAL SETUP:**Materials/Parts**

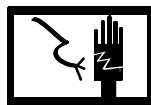
Paper, Printer (Item 5, WP 0167 00)

Personnel Required

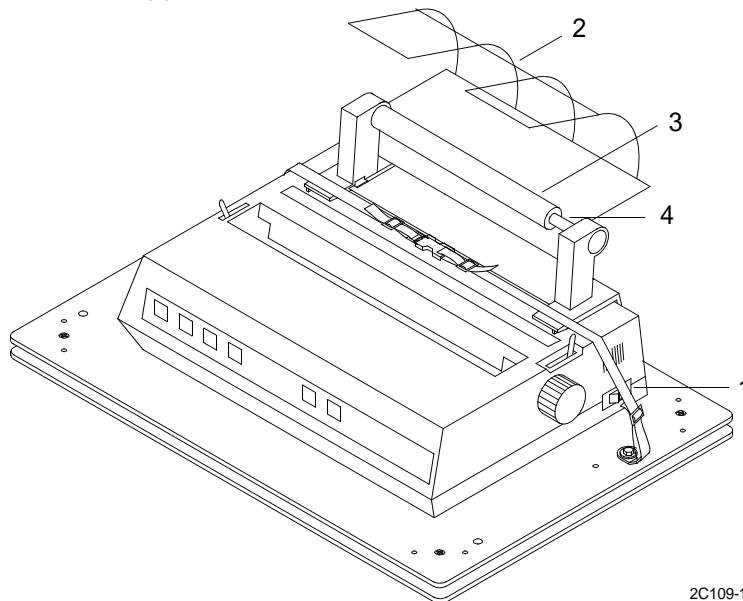
Seaman 88K

REMOVE SERIAL PRINTER PAPER

WARNING

**ELECTRICAL**

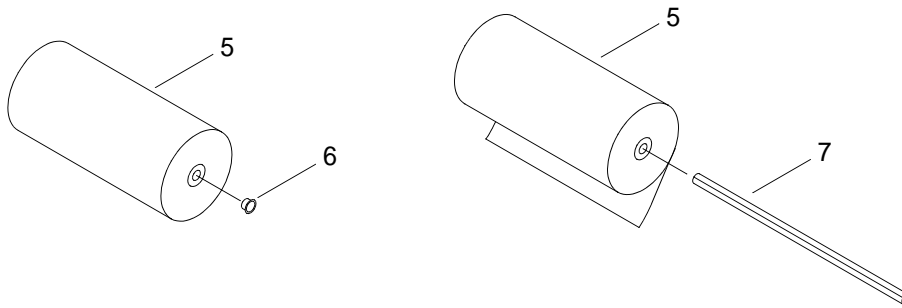
1. Make sure serial printer switch (1) is off.



2. Push back the paper separator (2).
3. Remove the empty paper roll (3) and the paper roller (4).

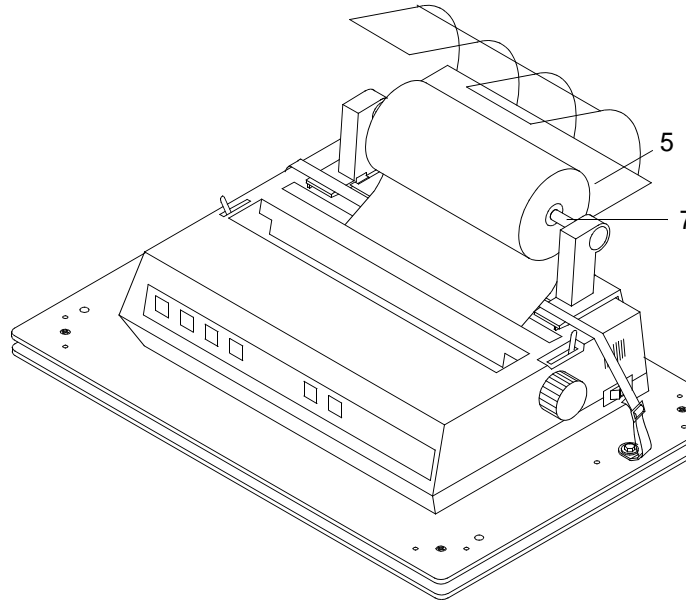
INSTALL SERIAL PRINTER PAPER

1. Obtain new paper roll (5). Remove metal inserts (6) from ends of paper roll (5).



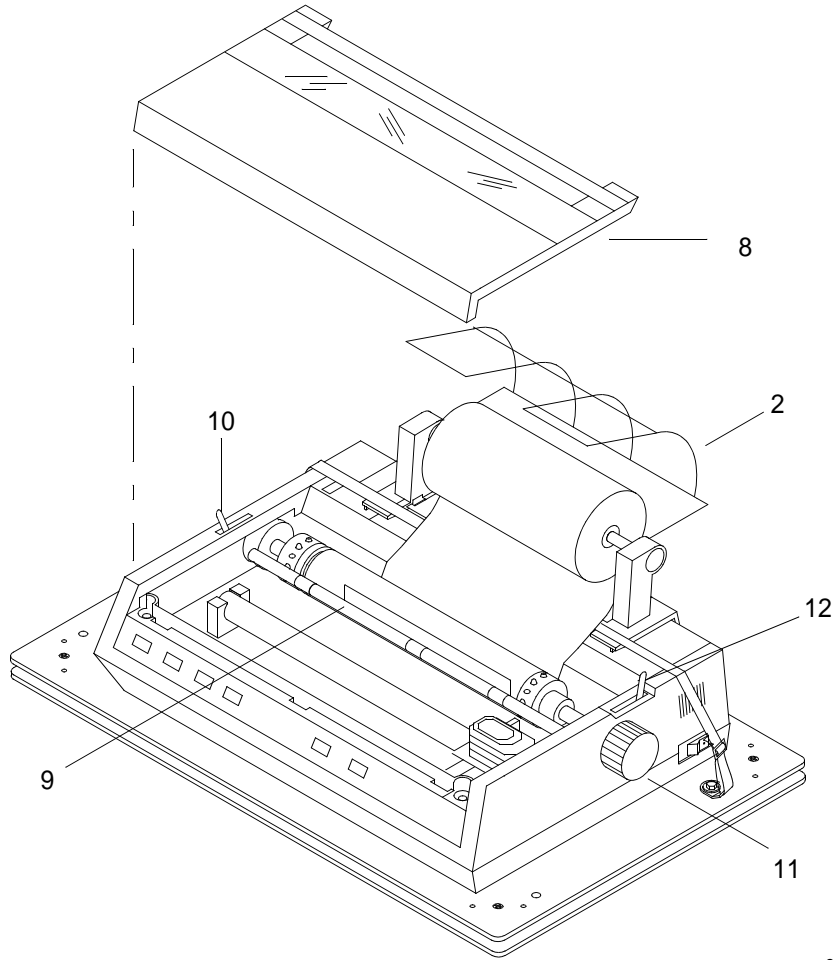
2C109-2

2. Slide the paper roller (7) into the roll of paper (5) so that the paper unrolls from the bottom.



2C109-3

3. Install the paper roller (7) and paper (5). Feed the paper (5) into the printer and behind the paper feed roller.



2C109-4

4. Remove the access cover (8) and raise the paper bail (9) by moving bail lever (10) forward.
5. Roll the paper (5) forward by rotating the platen knob (11) clockwise.
6. Lower the paper separator (2) so that the paper (5) enters the printer from under the paper separator (2) and exits the printer going over the paper separator (2).
7. Make sure the paper separator lever (12) is in the CLOSED (back) position.
8. Lower the bail (9) by placing the bail lever (10) to the aft position and replace the access cover (8).

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SERIAL PRINTER INK CARTRIDGE

INITIAL SETUP:**Materials/Parts**

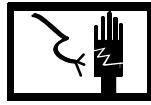
Serial Printer Ink Cartridge
21-200033

Personnel Required

Seaman 88K

REMOVE SERIAL PRINTER INK CARTRIDGE

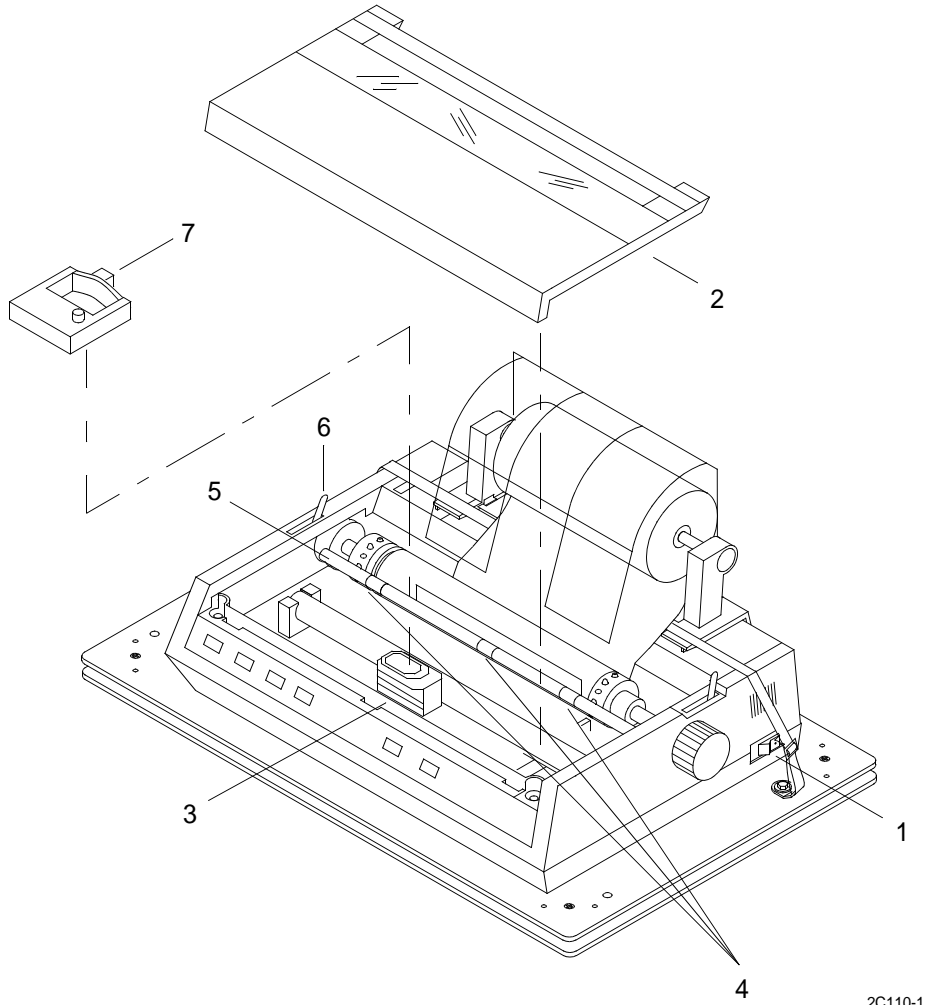
WARNING



ELECTRICAL

1. Make sure serial printer switch (1) is off.

2. Lift off the serial printer access cover (2).



2C110-1

WARNING

The printhead can get very hot during extended periods of printing. Be sure to let it cool off before you touch it. Failure to do so could result in burns to fingers.

3. Center the printhead (3) so that it's away from the bail rollers (4). Make sure the bail (5) is closed and bail lever (6) is in the aft position.
4. Lift up on the ink cartridge (7) closest to bail and tilt and slide cartridge (7) out of the printhead plate area closest to the front of the INMARSAT-C printer.

INSTALL SERIAL PRINTER INK CARTRIDGE

1. Obtain replacement ink cartridge (7) and with the knob side up, tilt the ink cartridge (7) onto the printhead (3) plate so that it slides into the area of the plate that is closest to the front of the serial printer.

NOTE

If the ribbon will not load easily, turn the blue knob slightly until the x-shaped notch on the bottom of the ribbon cartridge aligns with the x-shaped insert on the ribbon plate.

2. Lower the ink cartridge (7) over the printhead (3), aligning the tabs with the inserts on the printhead plate.

NOTE

Do not remove the clear plastic ribbon shield from the ribbon cartridge.

3. Press down on the ink cartridge until it snaps into place (7).
4. Install serial printer access cover (2).
5. Turn power switch (1) to ON position.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SERIAL PRINTER ROLL PAPER HOLDER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Serial Printer Roll Paper Holder

21-200025

Hook and Pile Tape

22-200001

Personnel Required

Seaman 88K

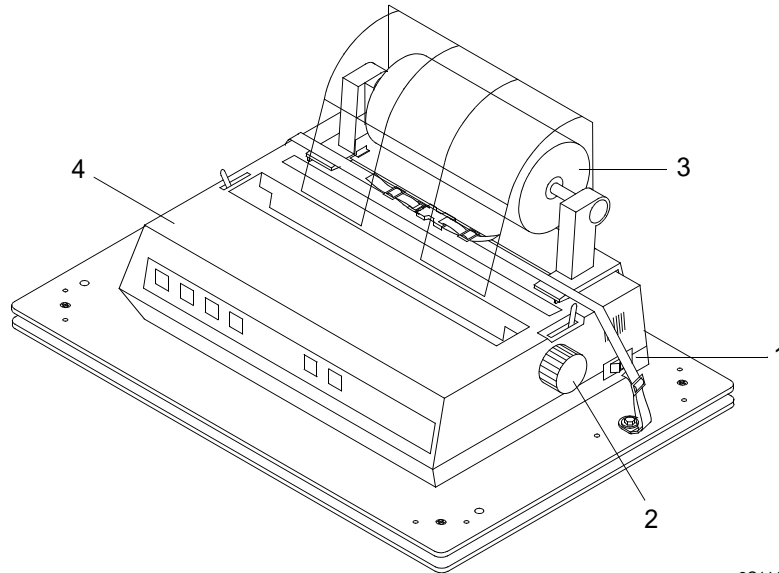
REMOVE SERIAL PRINTER ROLL PAPER HOLDER

WARNING



ELECTRICAL

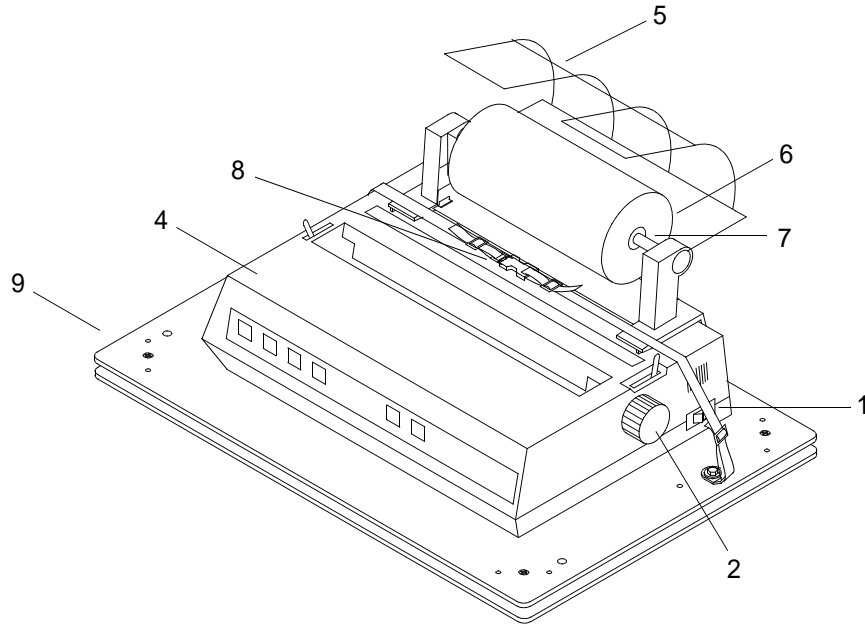
1. Make sure serial printer switch (1) is off.



2C111-1

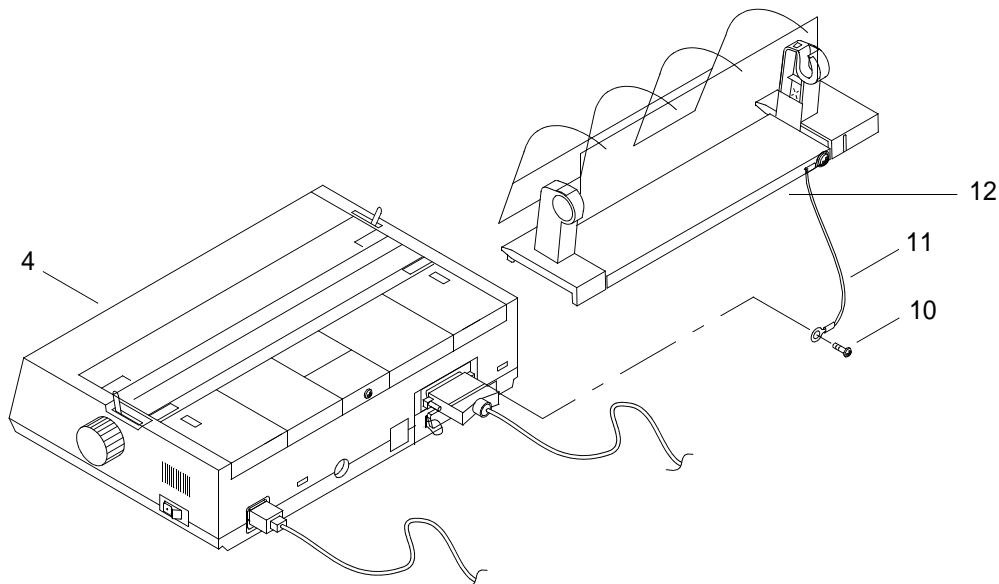
2. Rotate the platen knob (2) counterclockwise to remove paper (3) from the printer (4).

3. Push back the paper separator (5).



2C111-2

4. Remove the paper roll (6) and the paper roller (7).
5. Release quick disconnect buckle (8) on strap that holds printer (4) on plate (9).
6. Lift up on front of printer (4) to release printer from hook and pile tape.
7. Slide printer forward and remove screw (10) from ground (11) wire on printer (4).

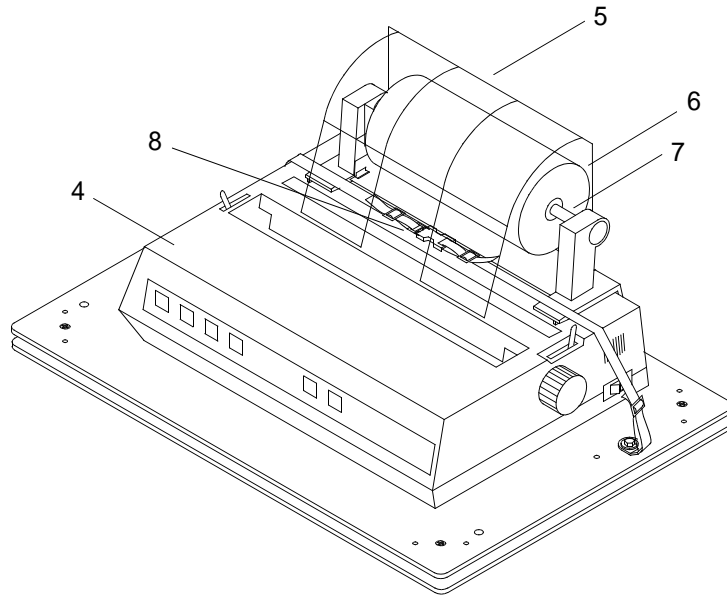


2C111-3

8. Slide paper stand (12) forward and remove.

INSTALL SERIAL PRINTER ROLL PAPER HOLDER

1. Obtain replacement paper stand (12) and install. Place paper stand (12) on printer (4) and slide aft.
2. Install screw (10) and ground wire (11) on printer (4).
3. Position printer (4) and press down to attach printer (4) with hook and pile tape.
4. Install the paper roll (6) and the paper roller (7).



2C111-4

5. Place strap around printer (4) and attach quick release buckle (8). Lower paper separator (5).
6. Feed paper into printer. (WP 0111 00)
7. Place power switch (1) in the on position.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR/NAVTEX POWER SUPPLY FUSE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

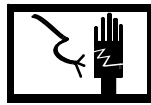
Fuse, AGC 2Amp
20-200035

Personnel Required

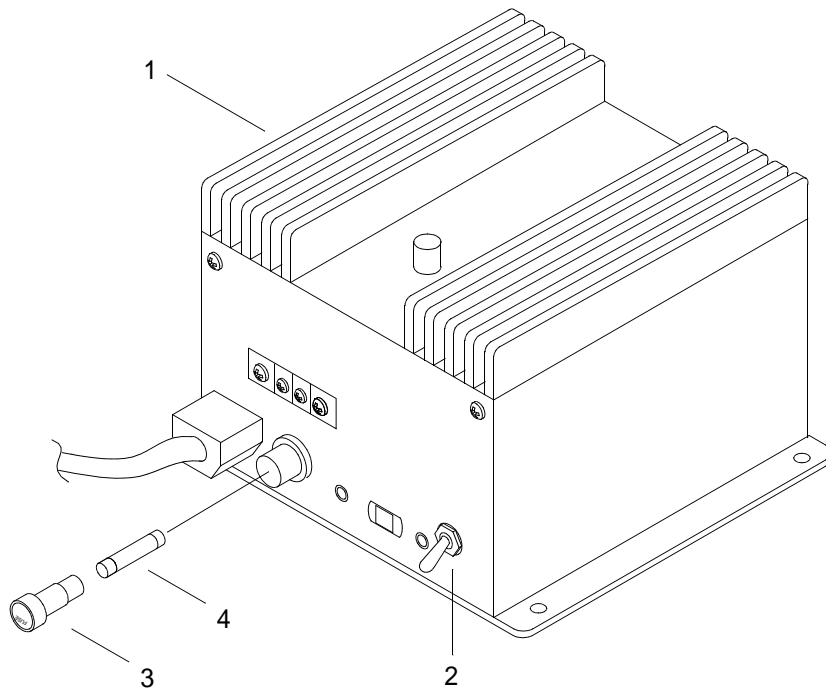
Seaman 88K

REMOVE NAVIGATION PLGR/NAVTEX POWER SUPPLY FUSE

WARNING

**ELECTRICAL**

1. Turn power off at circuit breaker 19 on EP 103 circuit breaker panel.
2. On back of navigation PLGR/NAVTEX power supply (1), place power switch (2) to OFF position.



3. On back of navigation PLGR/NAVTEX power supply (1), loosen cap (3) of fuse holder and remove fuse (4).

INSTALL NAVIGATION PLGR/NAVTEX POWER SUPPLY FUSE

1. On back of navigation PLGR/NAVTEX power supply (1), install fuse (4) in fuse holder and tighten cap (3) on fuse holder.
2. Turn power on at circuit breaker 19 on EP 103 circuit breaker panel.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE GMDSS POWER SUPPLY FUSE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 4, WP 0166 00)

Materials/Parts

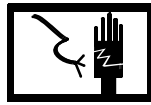
Fuse, 35Amp
20-200008

Personnel Required

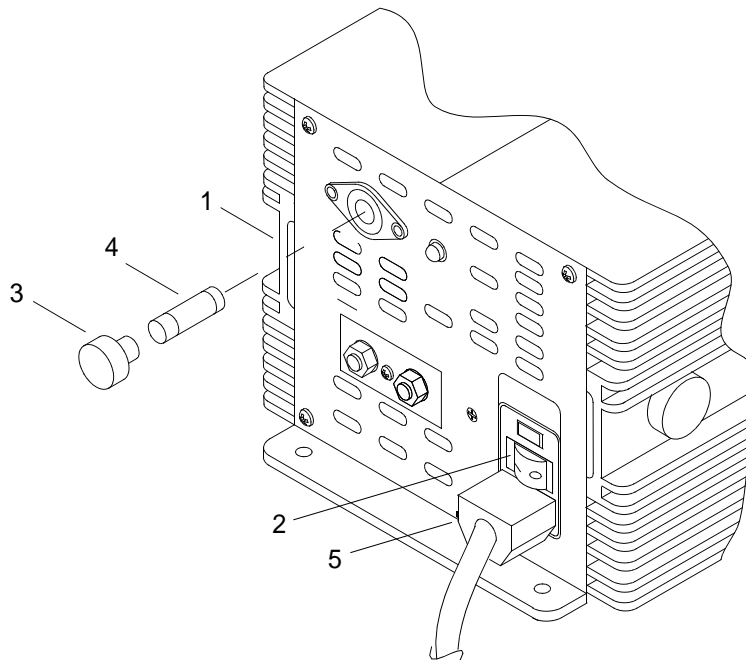
Seaman 88K

REMOVE GMDSS POWER SUPPLY FUSE

WARNING

**ELECTRICAL**

1. Turn power off at the GMDSS power supply. Place the switch (2) in the OFF position.
2. Unplug power cord (5) from power receptacle outlet.
3. On front of GMDSS power supply (1), loosen cap (3) of fuse holder and remove fuse (4).



2C136-1

INSTALL GMDSS POWER SUPPLY FUSE

1. On front of GMDSS power supply (1), install fuse (4) in fuse holder (3) and install in GMDSS power supply and tighten cap.
2. Plug power cord (5) into power receptacle outlet.
3. Turn power on at the GMDSS power supply. Place the switch (2) in the ON position.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SEARCH AND RESCUE TRANSPONDER (SART)

INITIAL SETUP:**Materials/Parts**

Search and Rescue Transponder (SART)
50-200070

Personnel Required

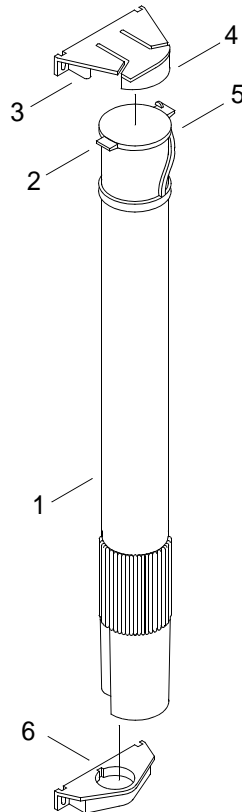
Seaman 88K

REMOVE SART

WARNING

**CHEMICAL****EXPLOSION****VAPOR**

1. Lift up tab (4) on upper mounting bracket (3) with one hand.



2C146-1

2. Grasp SART (1) with other hand, near the top of SART and pull inboard.
3. Lift SART (1) out of lower mounting bracket (6).

INSTALL SART

1. Set bottom of SART (1) into lower mounting bracket (6).
2. Lift up tab (4) on upper mounting bracket (3).
3. Push top of SART (1) into upper mounting bracket (3).
4. Rotate top cap (5), if needed, to align tab (2) with opening in upper mounting bracket (3).
5. Push down on tab (4) to lock SART (1) into place.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE LIFEBOAT RADIO

INITIAL SETUP:**Materials/Parts**

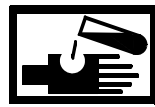
Lifeboat Radio
50-200059

Personnel Required

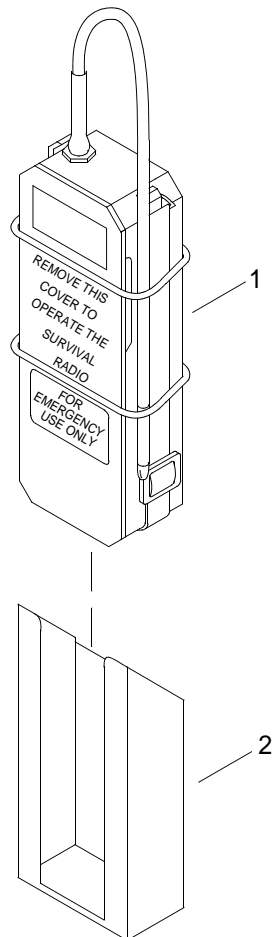
Seaman 88K

REMOVE LIFEBOAT RADIO (LBR)

WARNING

**CHEMICAL****EXPLOSION****VAPOR**

1. Grasp LBR (1) firmly.



2C149-1

2. Lift out LBR (1) from mounting bracket (2).

INSTALL LIFEBOAT RADIO (LBR)**NOTE**

The wrist strap, front cover plate, antenna end and lanyard should be secured under the retaining rings.

1. Position LBR (1) above mounting bracket (2).
2. Insert LBR (1) into mounting bracket (2).

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE LIFEBOAT RADIO (LBR) BATTERY

INITIAL SETUP:

Materials/Parts

Lifeboat Radio Battery
 21-200032

Personnel Required

Seaman 88K

Equipment Condition

Lifeboat Radio Removed. (WP 0118 00)

REMOVE LIFEBOAT RADIO BATTERY

WARNING



CHEMICAL

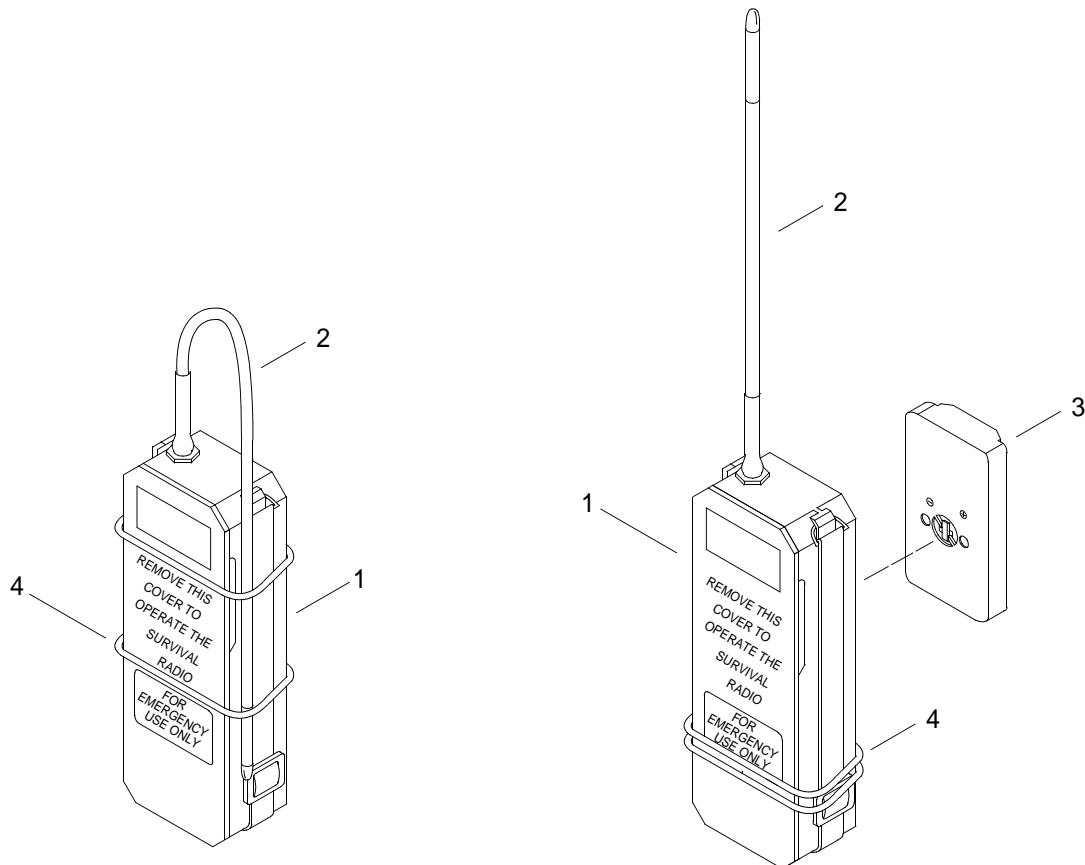


EXPLOSION



VAPOR

- Slide O-rings (4) down past end of antenna (2) and battery (3) and remove from lifeboat radio (1).



2C151-1

2. Lift out battery (3).

INSTALL LIFEBOAT RADIO BATTERY

NOTE

Do not activate battery until an emergency condition exists requiring use of the radio.

1. Place battery (3) in lifeboat radio (1).
2. Bend antenna (2) back down and slide o-rings (4) up over battery (3) and end of antenna (2).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE MF/HF DIGITAL SELECTIVE CALLING (DSC)
WATCH RECEIVER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

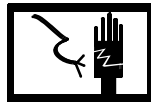
MF/HF DSC Watch Receiver
 CAI-9701-7001
 MF/HF DSC Watch Receiver
 CAI-9701-7000

Personnel Required

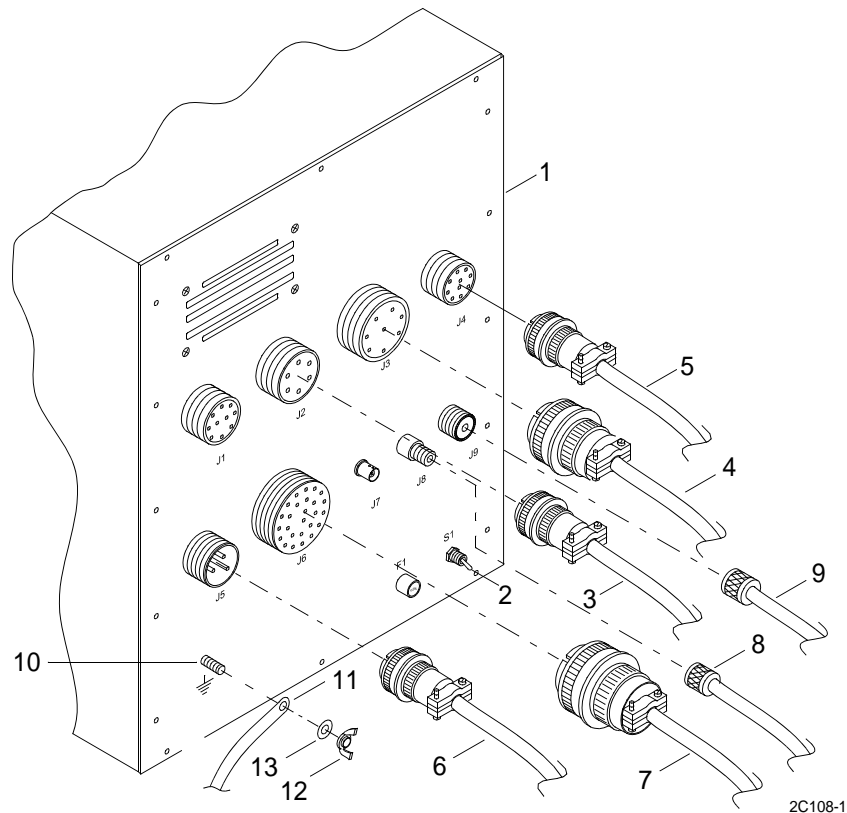
Engineer 88L

REMOVE MF/HF DSC WATCH RECEIVER

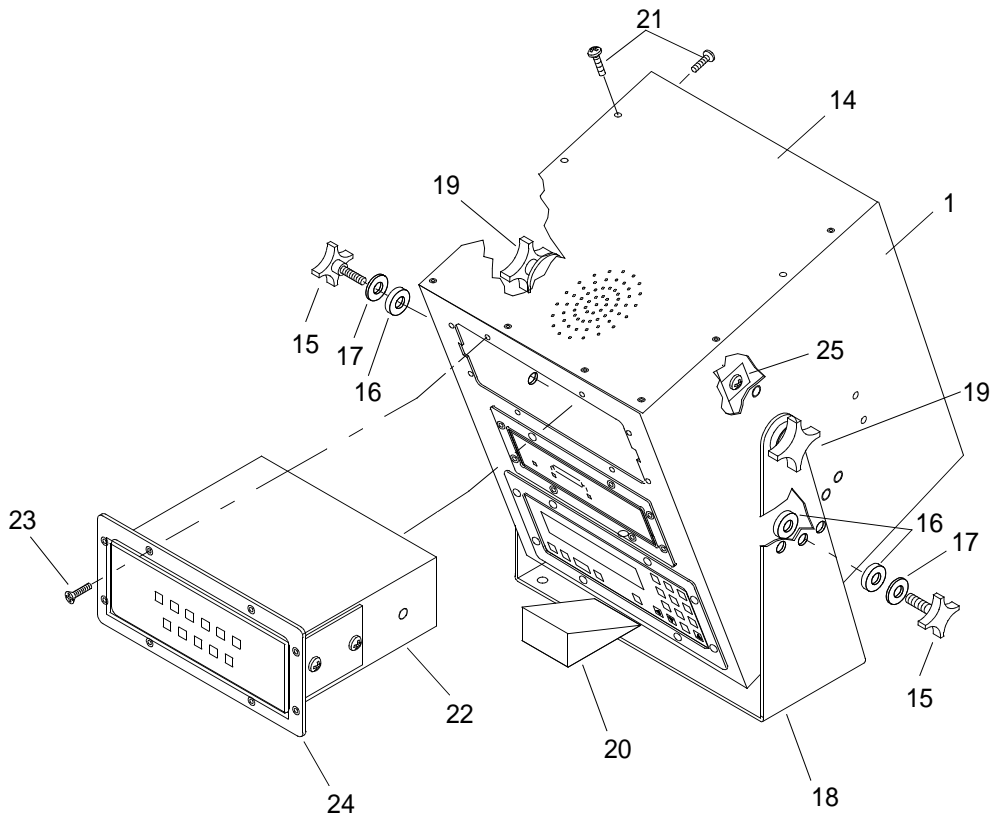
WARNING

**ELECTRICAL**

1. Turn power off to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the OFF (down) position.



2. Turn power off at the GMDSS power supply. Place the switch in the OFF (down) position.
3. Turn power off at the GMDSS DC converter. Place the switch in the OFF (down) position.
4. Disconnect J2 external cable (3) from back of the 9701 console (1).
5. Disconnect J3 external cable (4) from back of the 9701 console (1).
6. Disconnect J4 external cable (5) from back of the 9701 console (1).
7. Disconnect J5 external cable (6) from back of the 9701 console (1).
8. Disconnect J6 external cable (7) from back of the 9701 console (1).
9. Disconnect J8 antenna coaxial cable (8) from back of the 9701 console (1).
10. Disconnect J9 antenna coaxial cable (9) from back of the 9701 console (1).
11. Disconnect ground strap (11) from ground stud (10) on back of the 9701 console (1).
 - a. Remove wing nut (12) and washer (13) from ground stud (10).
 - b. Remove ground strap (11).



2C108-2

12. Remove the top cover (14) from the 9701 console (1).
 - a. Tilt the 9701 console (1) forward to allow the removal of the top cover (14).

{1} Remove small knob (15), felt washers (16) and PVC washers (17) from both sides of the 9701 console (1) and the mount bracket (18).

{2} Loosen large knob (19) on both sides of the 9701 console (1) and the mount bracket (18).

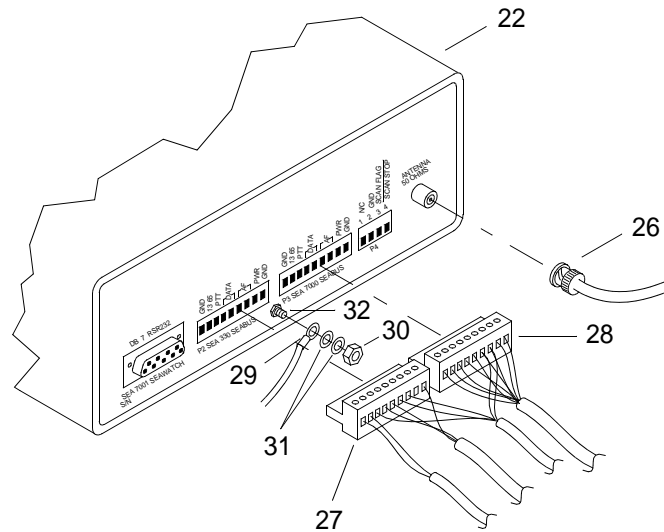
- b. Tilt the 9701 console (1) approximately 25 deg angle. Place a wedge (block of wood) (20) between the 9701 console (1) and the mount bracket (18) to keep the console tilted at this angle.
- c. Tighten large knob (19) on both sides of the 9701 console (1) and the mount bracket (18) to keep the console (1) tilted during disassembly.
- d. Remove top cover (14).

{1} Remove 13 screws (21) that secure top cover to 9701 console (1).

{2} Remove top cover (14).

13. Remove MF/HF DSC watch receiver (22).

- a. Remove eight mounting screws (23) from front of MF/HF DSC watch receiver faceplate (24).
- b. Loosen two captive fasteners (25) (one each side of MF/HF DSC watch receiver) that secure the MF/HF DSC watch receiver (22) to the mounts on the inside of the 9701 console (1).



2C108-3

- c. Disconnect antenna coaxial connector (26) from antenna receptacle on back of MF/HF DSC watch receiver (22).
- d. Disconnect P2 connector (27) from back of MF/HF DSC watch receiver (22).

CAUTION

When disconnecting the P2 and P3 connectors from the back of the MF/HF DSC watch receiver, use extreme caution. Pull the connectors straight out. Do not twist or turn the connector in any way. Do not break or damage any wires attached to the connectors. Failure to comply could result in equipment/connector damage and/or failure.

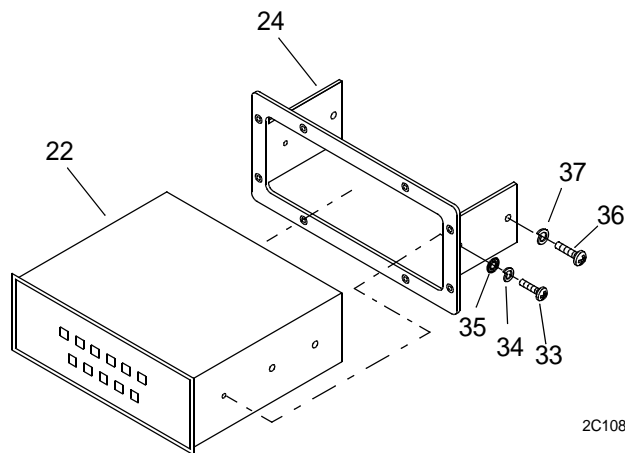
{1} Grasp the connector (27) and pull straight outward to disconnect.

- {2} Disconnect P2 connector (27) from the receptacle.
- e. Disconnect P3 connector (28) from back of MF/HF DSC watch receiver (22).
- {1} Grasp the connector (28) and pull straight outward to disconnect.
- {2} Disconnect P3 connector (28) from the receptacle.
- f. Disconnect ground wire (29) from back of MF/HF DSC watch receiver (22).
- {1} Remove nut (30) and washer (31) from ground stud (32) on back of MF/HF DSC watch receiver (22).
- {2} Remove wire (29) from ground stud (32).
- g. Grasp front of MF/HF DSC watch receiver (22) and pull outward to remove from the 9701 console (1).

NOTE

While pulling the MF/HF DSC watch receiver outward, slightly tilt the front of the MF/HF DSC watch receiver downward to clear the mounts on the inside of the 9701 console.

- h. Remove the MF/HF DSC watch receiver (22).
14. Remove the faceplate (24) from the MF/HF DSC watch receiver (22).

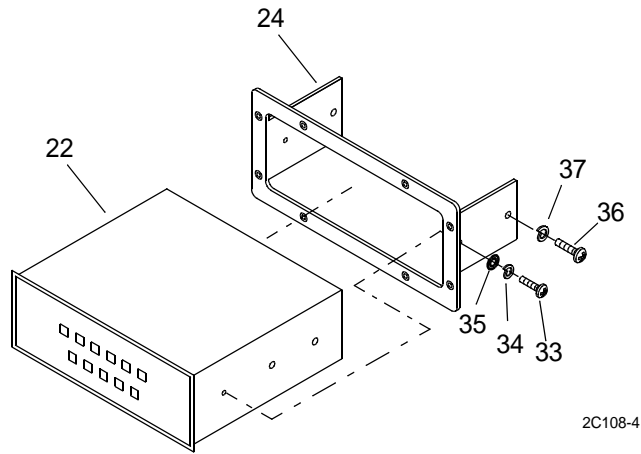


2C108-4

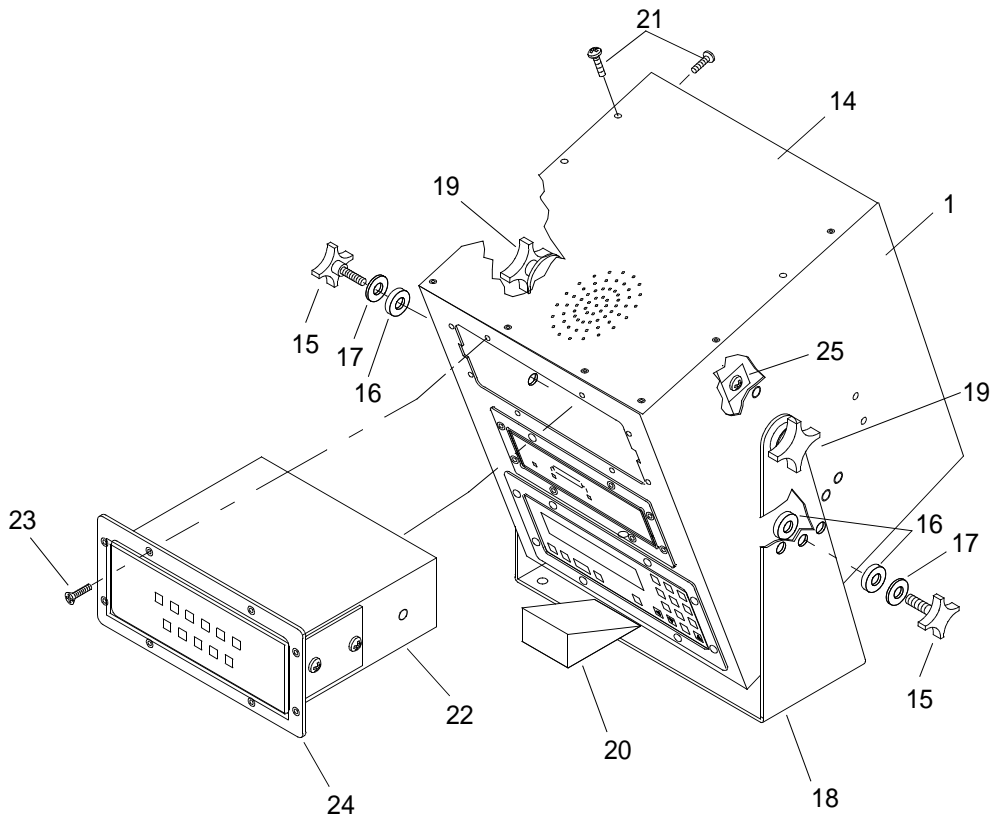
- a. Remove bolt (33), lockwasher (34) and flat washer (35) from each side of the MF/HF DSC watch receiver (22).
- b. Remove screw (36) and flat washer (37) from each side of the MF/HF DSC watch receiver (22).
- c. Remove faceplate (24).

INSTALL MF/HF DSC WATCH RECEIVER

1. Install the faceplate (24) on the MF/HF DSC watch receiver (22).



- a. Align faceplate (24) with the mounting holes on the MF/HF DSC watch receiver (22).
- b. Install screw (36) and flat washer (37) in each side of the MF/HF DSC watch receiver (22). Do not tighten screw at this time.
- c. Install bolt (33), lockwasher (34) and flat washer (35) in each side of the MF/HF DSC watch receiver (22).
- d. Tighten two screws (36) and two bolts (33).



2. Install MF/HF DSC watch receiver (22).

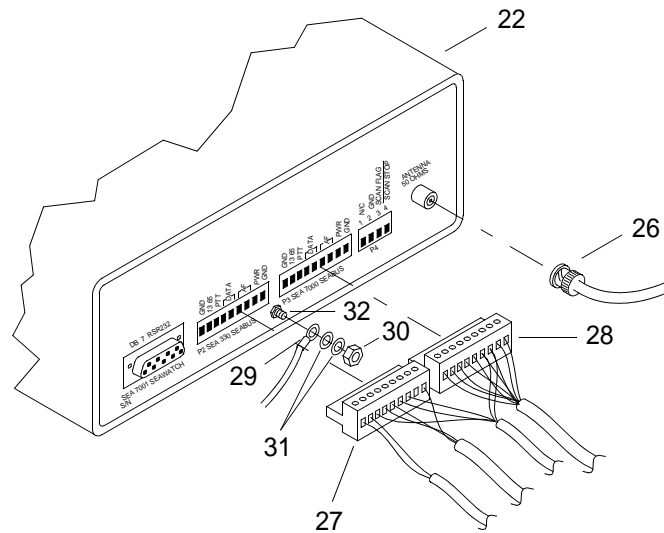
CAUTION

When disconnecting the P2 and P3 connectors from the back of the MF/HF DSC watch receiver, use extreme caution not to break or damage any wires attached to the connectors. Failure to comply could result in equipment damage and failure.

NOTE

While pushing the MF/HF DSC watch receiver inward, slightly tilt the front of the MF/HF DSC watch receiver downward to clear the mounts on the inside of the 9701 console.

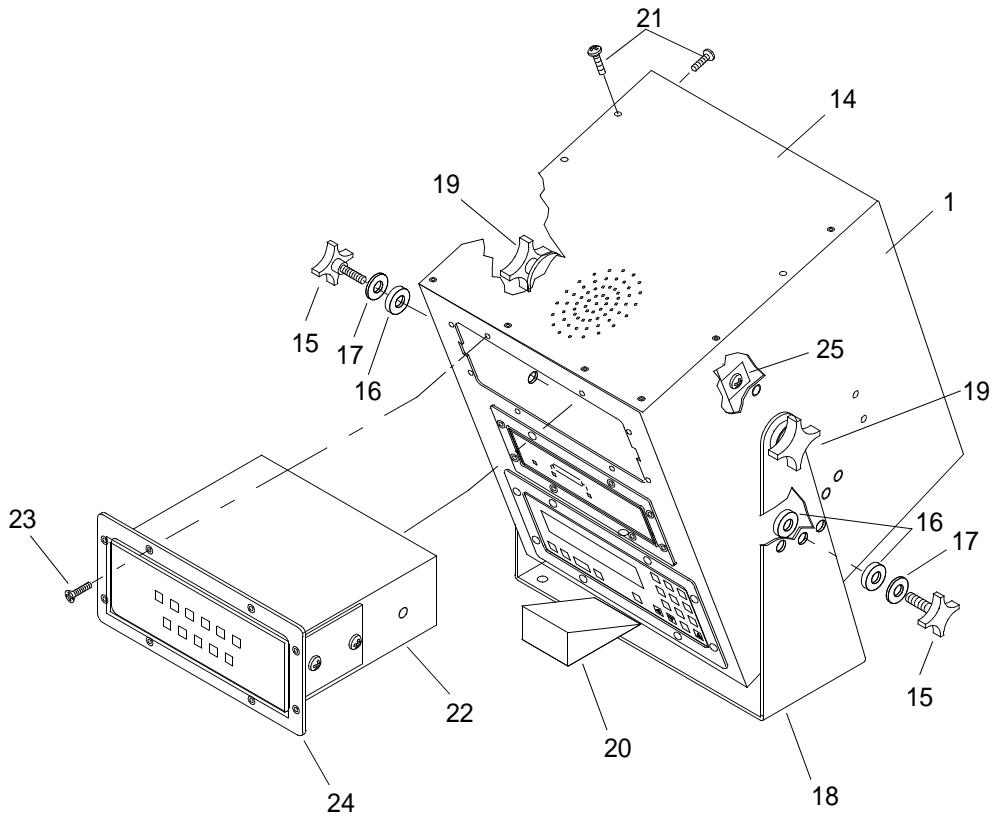
- a. Grasp front of MF/HF DSC watch receiver (22) and push inward to install into the 9701 console (1).



2C108-3

- b. Connect ground wire (29) on the back of MF/HF DSC watch receiver (22).
- { 1 } Install wire (29) on ground stud (32).
 - { 2 } Install washer (31) and nut (30) on ground stud (32) on back of MF/HF DSC watch receiver (22).
- c. Connect P2 connector (27) from back of MF/HF DSC watch receiver (22).
- { 1 } Grasp the connector (27) and push inward to connect the connector to the watch receiver (22).
 - { 2 } Connect P2 connector (27) to the watch receiver (22).
- d. Connect P3 (28) connector to the back of MF/HF DSC watch receiver (22).
- { 1 } Grasp the connector (28) and push inward to connect the connector to the watch receiver (22).
 - { 2 } Connect P3 connector (28) to the watch receiver (22).

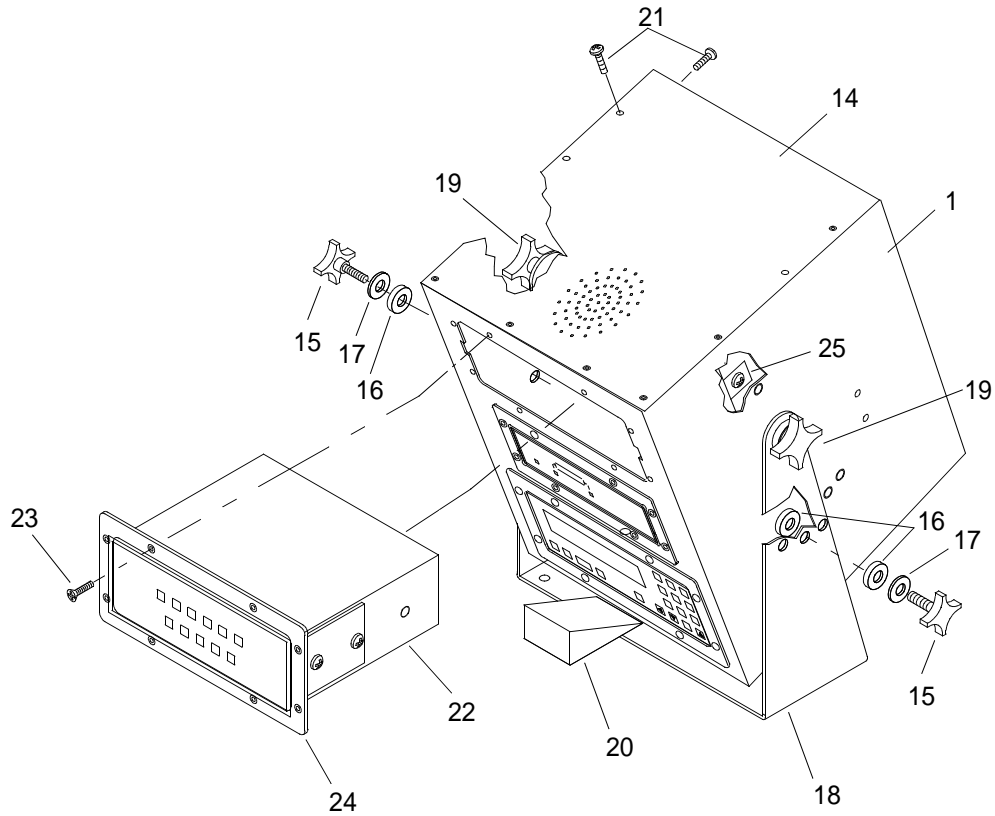
- e. Connect antenna coaxial connector (26) to the antenna receptacle on back of MF/HF DSC watch receiver (22).



2C108-2

- f. Install eight mounting screws (23) into front of MF/HF DSC watch receiver faceplate (24).
- g. Tighten two captive fasteners (25) (one each side of MF/HF DSC watch receiver) that secure the MF/HF DSC watch receiver (22) to the mounts on the inside of the 9701 console (1).

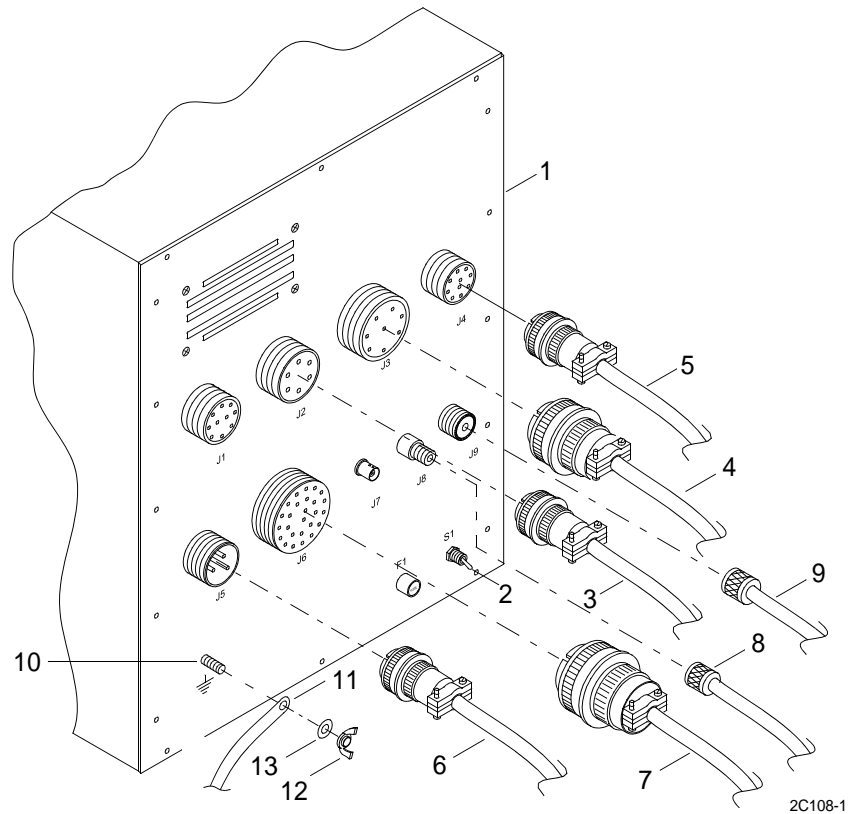
3. Install the top cover (14) on the 9701 console (1).



2C108-2

- a. Install top cover (14).
 - {1} Align top cover (14) with mounting holes in the top of the 9701 console (1).
 - {2} Install thirteen screws (21) that secure top cover to 9701 console (1). Tighten screws.
- b. Remove the wedge (block of wood) (20) from between the 9701 console (1) and the mount bracket (18) to allow the 9701 console (1) to swing back into the upright position.
- c. Tighten the large knob (19) on both sides of the 9701 console (1) and the mount bracket (18).
- d. Install PVC washers (17), felt washers (16) and the small knob (15) 'on both sides of the 9701 console (1) and the mount bracket (18).

4. Connect ground strap (11) on ground stud (10) on back of the 9701 console (1).



- a. Install ground strap (11) on ground stud (10).
 - b. Install washer (13) and wing nut (12) on ground stud (10). Tighten wing nut.
5. Connect J9 antenna coaxial cable (9) to J9 antenna connector on back of the 9701 console (1).
 6. Connect J8 antenna coaxial cable (8) to J8 antenna connector on back of the 9701 console (1).
 7. Connect J6 external cable (7) to J6 receptacle on back of the 9701 console (1).
 8. Connect J5 external cable (6) to J6 receptacle on back of the 9701 console (1).
 9. Connect J4 external cable (5) to J6 receptacle on back of the 9701 console (1).
 10. Connect J3 external cable (4) to J6 receptacle on back of the 9701 console (1).
 11. Connect J2 external cable (3) to J6 receptacle on back of the 9701 console (1).
 12. Turn power on at the GMDSS DC converter. Place the switch in the ON (up) position.
 13. Turn power on at the GMDSS power supply. Place the switch in the ON (up) position.
 14. Turn power on to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the ON (up) position.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C TRANSCEIVER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

INMARSAT-C Transceiver
CAI-9701-6003H

Personnel Required

Engineer 88L

Equipment Condition

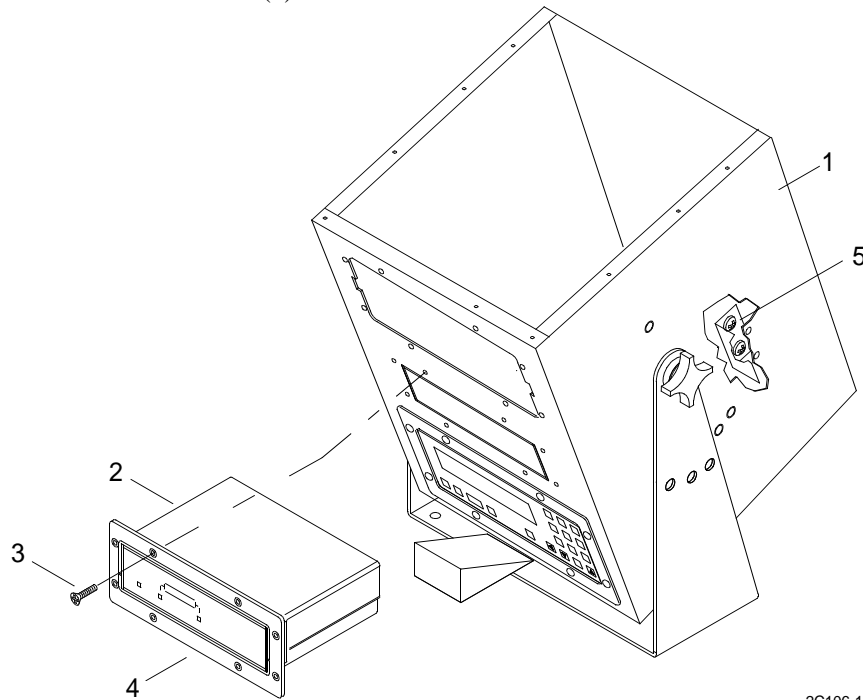
MF/HF DSC Watch Receiver Removed. (WP 0120 00)

REMOVE INMARSAT-C TRANSCEIVER

WARNING

**ELECTRICAL**

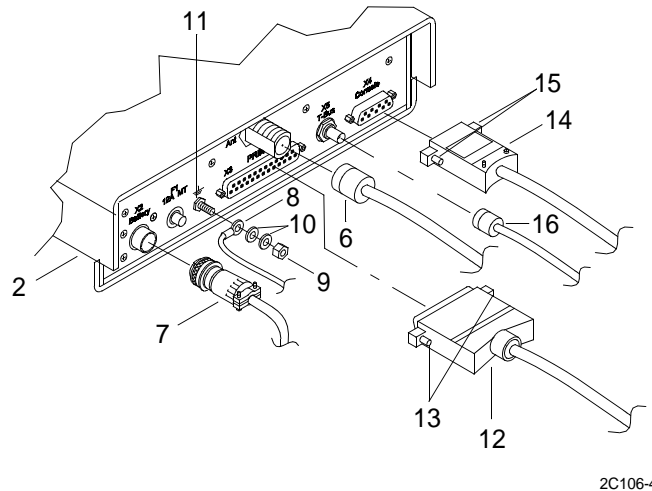
1. Remove INMARSAT-C transceiver (2).



2C106-1

- a. Remove eight mounting screws (3) from front of INMARSAT-C transceiver faceplate (4).

- b. Loosen four camlock fasteners (5) (two each side of INMARSAT-C transceiver) that secure the INMARSAT-C transceiver (2) to the mounts on the inside of the 9701 console (1).
- c. Disconnect X1 antenna coaxial connector (6) from antenna receptacle on back of INMARSAT-C transceiver (2).



2C106-4

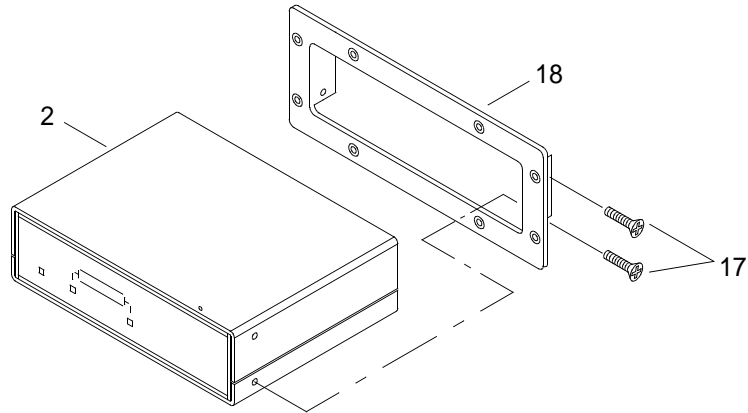
- d. Disconnect the power cable (7) from X2 cable receptacle on back of INMARSAT-C transceiver (2).
- e. Disconnect ground wire (8) from back of INMARSAT-C transceiver (2).
 - {1} Remove nut (9) and two washers (10) from ground stud (11) on back of INMARSAT-C transceiver (2).
 - {2} Remove wire (8) from ground stud (11).
- f. Disconnect the X3 printer cable (12) from the receptacle on back of the INMARSAT-C transceiver (2).
 - {1} Turn mounting screws (13) counterclockwise to loosen printer cable (12) from receptacle.
 - {2} Disconnect printer cable (12).
- g. Disconnect X4 console cable (14) from the receptacle on back of the INMARSAT-C transceiver (2).
 - {1} Turn mounting screws (15) counterclockwise to loosen cable (14) from receptacle.
 - {2} Disconnect cable (13).
- h. Disconnect X5 T-BUS antenna coaxial cable (16) from antenna connector on back of the INMARSAT-C transceiver (2).
- i. Grasp front of INMARSAT-C transceiver (2) and pull outward to remove from the 9701 console (1).

NOTE

While pulling the INMARSAT-C transceiver outward, slightly tilt the front of the INMARSAT-C transceiver downward to clear the mounts on the inside of the 9701 console.

- j. Remove the INMARSAT-C transceiver (2).

2. Remove the faceplate (18) from the INMARSAT-C transceiver (2).

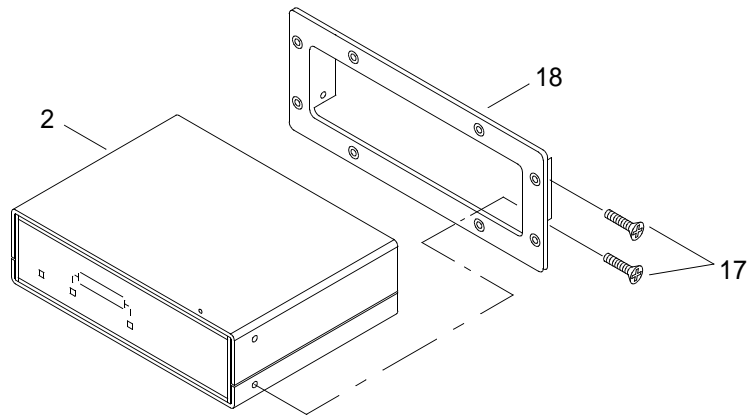


2C106-3

- a. Remove four screws (17) (two from each side of the faceplate) that secures the faceplate (18) to the INMARSAT-C transceiver (2).
- b. Remove faceplate (18).

INSTALL INMARSAT-C TRANSCEIVER

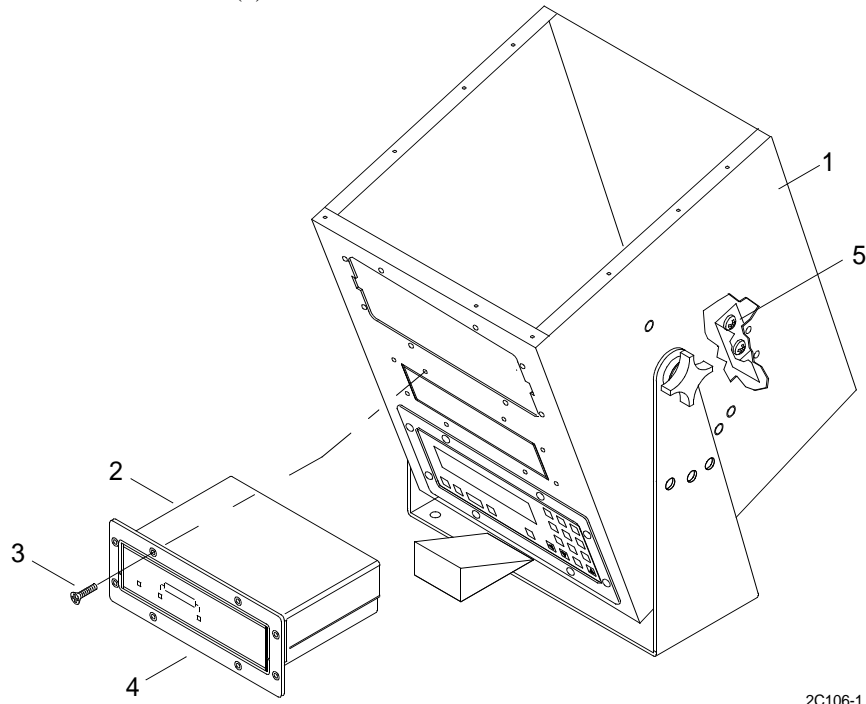
1. Perform initial setup of INMARSAT-C transceiver. (WP 0008 00)
2. Install the faceplate (18) on the INMARSAT-C transceiver (2).



2C106-3

- a. Align faceplate (18) with mounting holes on the INMARSAT-C transceiver (2).
- b. Install four screws (17) (two on each side of the faceplate) that secures the faceplate (18) to the INMARSAT-C transceiver (2).

3. Install INMARSAT-C transceiver (2).

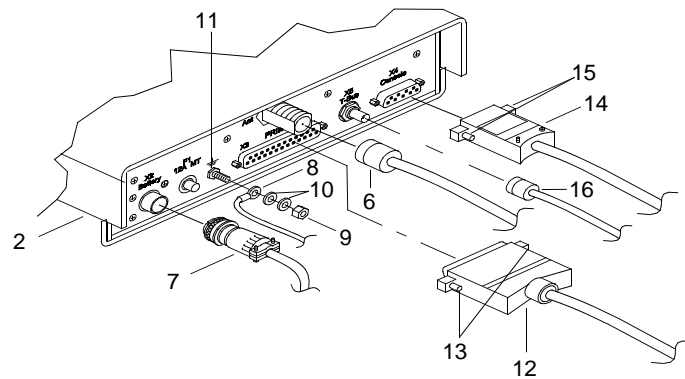


2C106-1

NOTE

While pushing the INMARSAT-C transceiver inward, slightly tilt the front of the INMARSAT-C transceiver downward to clear the mounts on the inside of the 9701 console.

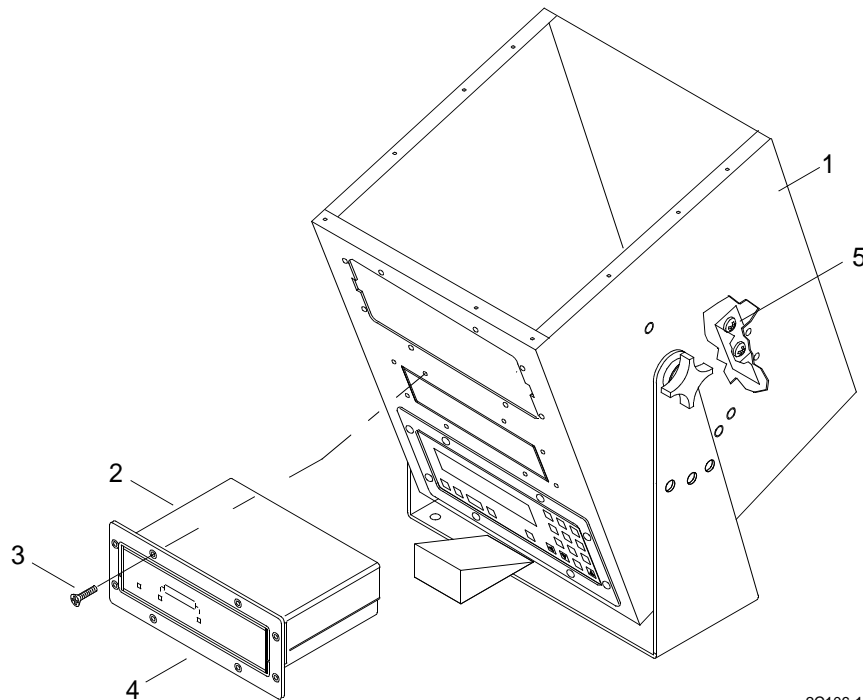
- a. Grasp front of INMARSAT-C transceiver (2) and push inward to install in the 9701 console (1).
- b. Connect X5 T-BUS antenna coaxial cable (16) to the antenna connector on back of the INMARSAT-C transceiver (2).



2C106-4

- c. Connect X4 console cable (14) to the receptacle on back of the INMARSAT-C transceiver (2).
 - {1} Turn mounting screws (15) clockwise to tighten cable (14) on receptacle.
 - {2} Connect cable (13).
- d. Connect the X3 printer cable (12) to the receptacle on back of the INMARSAT-C transceiver (2).

- {1} Turn mounting screws (13) clockwise to tighten printer cable (12) on receptacle.
- {2} Connect printer cable (12).
- e. Connect ground wire (8) on back of INMARSAT-C transceiver (2).
- {1} Install wire (8) on ground stud (11).
- {2} Install two washers (10) and nut (9) on ground stud (11) on back of INMARSAT-C transceiver (2).
- f. Connect the power cable (7) on X2 cable receptacle on back of INMARSAT-C transceiver (2).
- g. Connect X1 antenna coaxial connector (6) on antenna receptacle on back of INMARSAT-C transceiver (2).
- h. Tighten four camlock fasteners (5) (two each side of INMARSAT-C transceiver) that secure the INMARSAT-C transceiver (2) to the mounts on the inside of the 9701 console (1).



2C106-1

- {1} Align four camlock fasteners (5) (two on each side of INMARSAT-C transceiver) with the mounts on the inside of the 9701 console (1).
 - {2} Tighten camlock fasteners (5). Turn counterclockwise.
 - i. Install eight mounting screws (3) that mounts the INMARSAT-C transceiver (2) in the 9701 console (1).
 - {1} Align the faceplate (4) of the INMARSAT-C (2) with the mounting holes of the 9701 console (1).
 - {2} Install eight screws (3).
4. Install MF/HF DSC watch receiver. (WP 0120 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C DATA TERMINAL BATTERY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

INMARSAT-C Data Terminal Battery

21-200038

Hook and Pile Tape

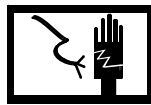
22-200001

Personnel Required

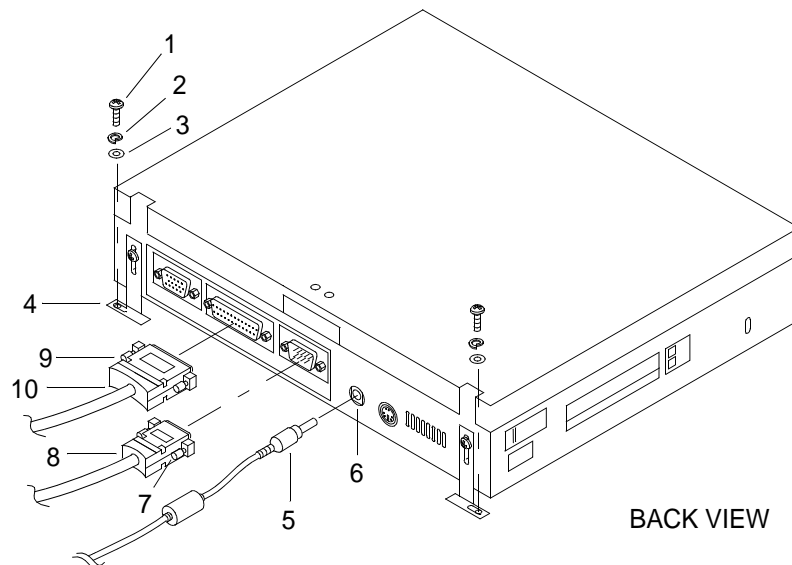
Engineer 88L

REMOVE INMARSAT-C DATA TERMINAL BATTERY

WARNING

**ELECTRICAL**

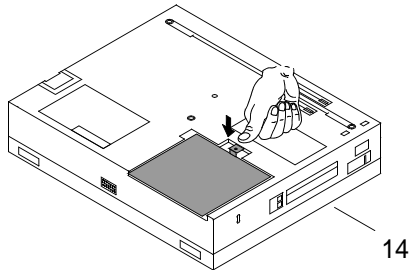
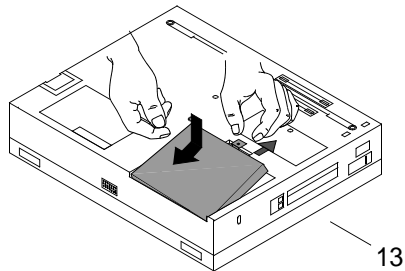
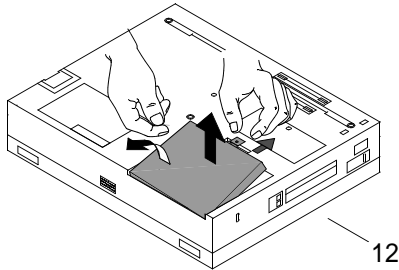
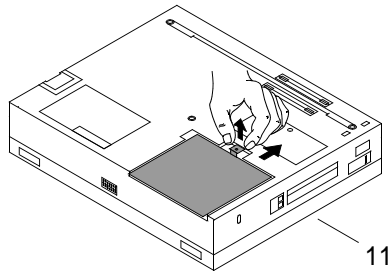
1. Turn power off at power strip located behind the 9701 console.
2. Remove screw (1), lock washer (2) and washer (3) from brackets (4) located on the back of each side of data terminal.



2C095-1

3. Lift up on front of data terminal to release terminal from hook and pile tape.
4. Slide data terminal forward to access rear of terminal.

5. Remove AC adapter cable (5) plug from power jack (6).
6. Loosen the mounting screw (7) on each side of the serial connector shell of the J4 cable plug, tagged GMDSS-J4/IBM-TERM. Unplug the 9-pin plug (8) from the port of the INMARSAT-C data terminal.
7. Loosen the mounting screw (9) on each side of the connector shell of the cable plug, tagged IBM-TERM/PRNSB. Unplug the 25-pin port plug (10) from the port of the INMARSAT-C data terminal.
8. Make sure LCD is closed and carefully turn data terminal upside down.
9. Pull the battery pack lock (11) upward and slide it toward the rear of the terminal.

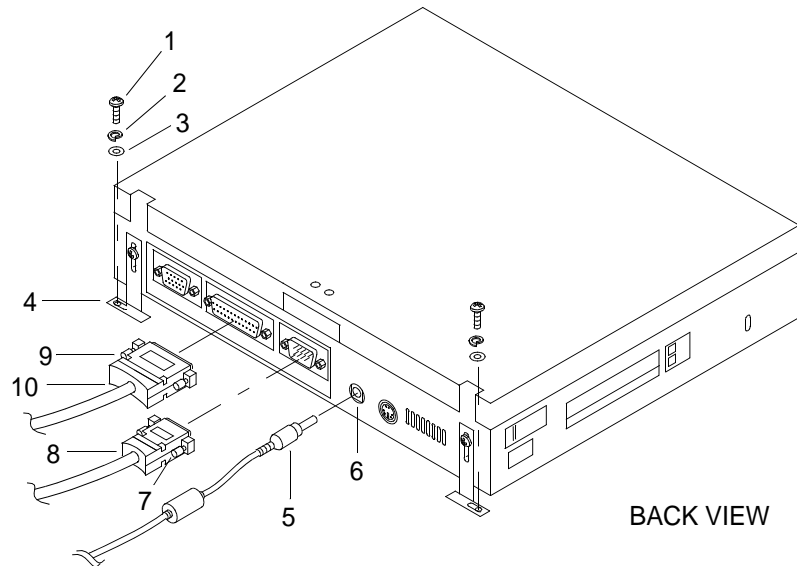


2C095-2

10. Using the notch (12) beside the battery pack, lift the battery pack from the terminal.

INSTALL INMARSAT-C DATA TERMINAL BATTERY

1. Install a battery pack (13) and slide the battery pack lock toward the rear.
2. Push the battery pack lock (14) downward.
3. Turn data terminal right side up.
4. Plug the 25-pin port plug (10), tagged IBM-TERM/PRNSB, into the port of the INMARSAT-C data terminal. Tighten the mounting screw (9) on each side of the connector shell attached to the INMARSAT-C data terminal.



2C095-1

5. Plug the 9-pin plug (8), tagged GMDSS-J4/IBM-TERM, into the port of the INMARSAT-C data terminal. Tighten the mounting screw (7) on each side of the serial connector shell of the J4 cable plug.
6. Install AC adapter cable plug (5) into the power jack (6).
7. Slide data terminal aft.
8. Press down on front of data terminal to attach terminal to hook and pile tape.
9. Install washer (3), lock washer (2) and screw (1) in brackets located on the back of each side of data terminal.
10. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE MF/HF DIGITAL SELECTIVE CALLING
(DSC) CONTROLLER

INITIAL SETUP:

Tools

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

MF/HF DSC Controller
 CAI-9701-7000

Personnel Required

Engineer 88L

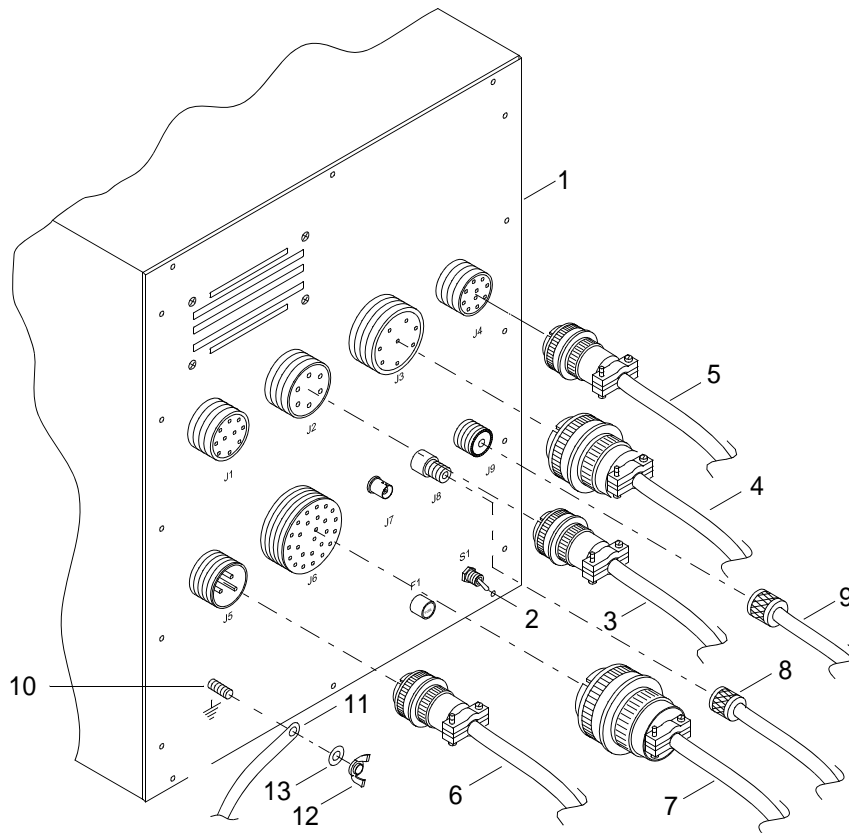
REMOVE MF/HF DSC CONTROLLER

WARNING



ELECTRICAL

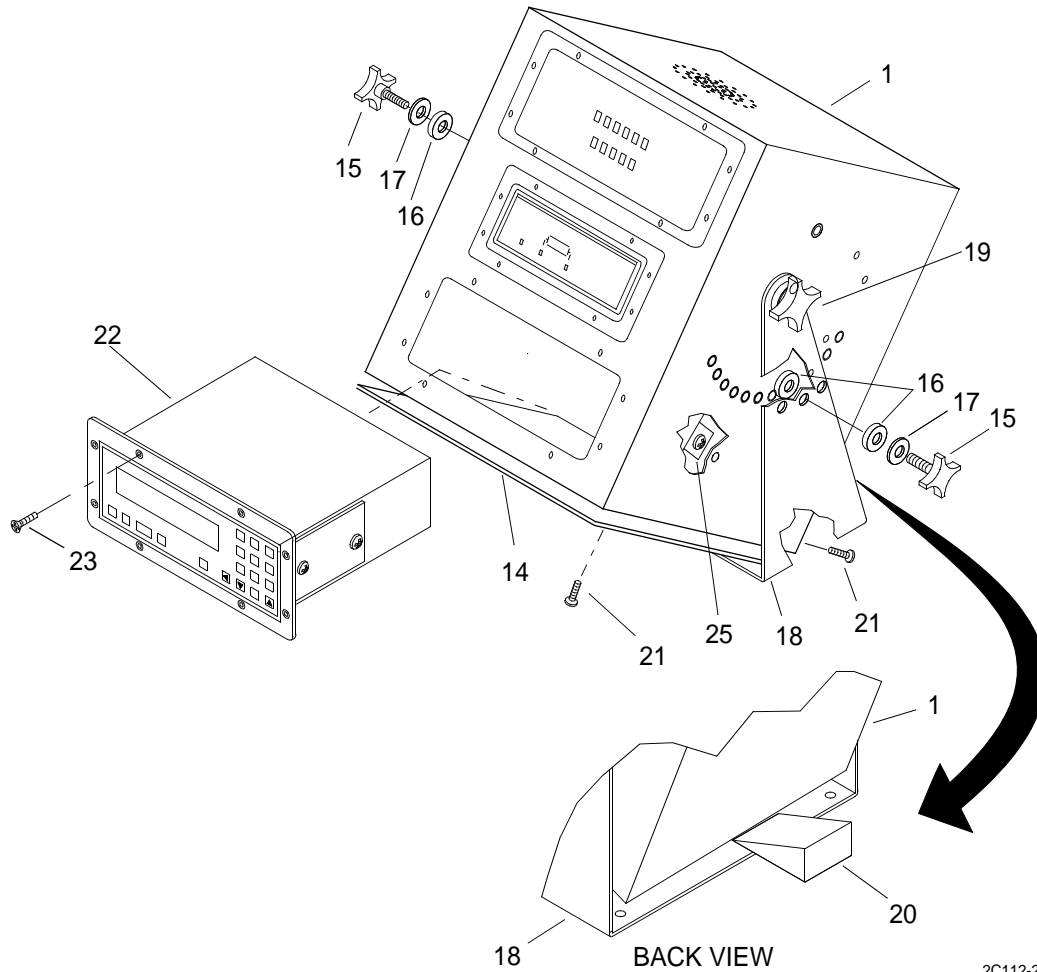
1. Turn power off to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the OFF (down) position.



2C112-1

2. Turn power off at the GMDSS power supply. Place the switch in the OFF (down) position.
3. Turn power off at the GMDSS DC converter. Place the switch in the OFF (down) position.
4. Disconnect J2 external cable (3) from back of the 9701 console (1).
5. Disconnect J3 external cable (4) from back of the 9701 console (1).
6. Disconnect J4 external cable (5) from back of the 9701 console (1).
7. Disconnect J5 external cable (6) from back of the 9701 console (1).
8. Disconnect J6 external cable (7) from back of the 9701 console (1).
9. Disconnect J8 antenna coaxial cable (8) from back of the 9701 console (1).
10. Disconnect J9 antenna coaxial cable (9) from back of the 9701 console (1).
11. Disconnect ground strap (11) from ground stud (10) on back of the 9701 console (1).
 - a. Remove wing nut (12) and washer (13) from ground stud (10).
 - b. Remove ground strap (11).

12. Remove the bottom cover (14) from the 9701 console (1).



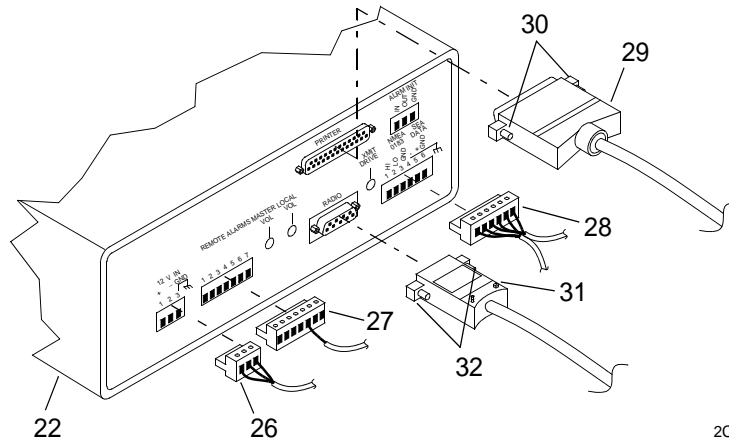
2C112-2

- a. Tilt the 9701 console (1) backwards to allow the removal of the bottom cover (14).
 - {1} Remove small knob (15), felt washers (16) and PVC washers (17) from both sides of the 9701 console (1) and the mount bracket (18).
 - {2} Loosen large knob (19) on both sides of the 9701 console (1) and the mount bracket (18).
- b. Tilt the 9701 console (1) to approximately a 25 degree angle. Place a wedge (block of wood) (20) between the 9701 console (1) and the mount bracket (18) to keep the console tilted at this angle.
- c. Tighten large knob (19) on both sides of the 9701 console (1) and the mount bracket (18) to keep the console tilted during disassembly.
- d. Remove bottom cover (14).
 - {1} Remove 13 screws (21) that secure bottom cover to 9701 console (1).
 - {2} Remove bottom cover (14).

13. Remove MF/HF DSC controller (22).

- a. Remove eight mounting screws (23) from front of MF/HF DSC controller faceplate (24).

- b. Loosen captive fasteners (25) (one each side of MF/HF DSC controller) that secure the MF/HF DSC controller (22) to the mounts on the inside of the 9701 console (1).
- c. Disconnect small electrical connector (26) from back of MF/HF DSC controller (22).



2C112-3

CAUTION

When disconnecting the electrical connectors from the back of the MF/HF DSC controller, use extreme caution. Pull the connectors straight out. Do not twist or turn the connector in any way. Do not break or damage any wires attached to the connectors. Failure to comply could result in equipment/connector damage and/or failure.

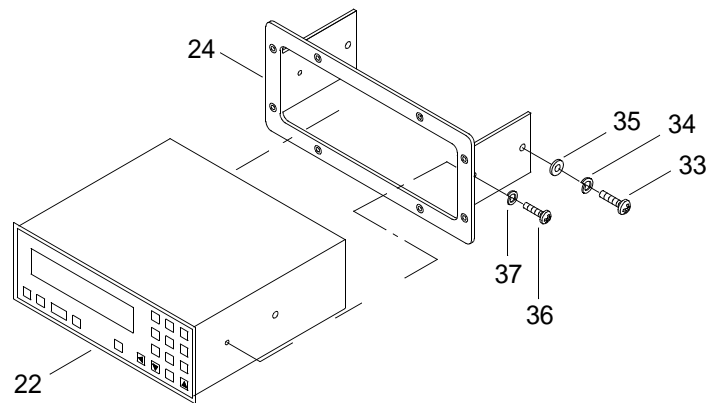
- {1} Grasp the connector (26) and pull straight outward to disconnect.
- {2} Disconnect electrical connector (26) from the receptacle.
- d. Disconnect remote alarms electrical connector (27) from back of MF/HF DSC controller (22).
 - {1} Grasp the connector (27) and pull straight outward to disconnect.
 - {2} Disconnect electrical connector (27) from the receptacle.
- e. Disconnect the NMEA SEA DATA electrical connector (28) from the receptacle on back of the MF/HF DSC controller (22).
 - {1} Grasp the connector (28) and pull straight outward to disconnect.
 - {2} Disconnect electrical connector (28) from the receptacle.
- f. Disconnect the printer cable (29) from the receptacle on back of the MF/HF DSC controller (22).
 - {1} Turn mounting screws (30) counterclockwise to loosen cable (29) from receptacle.
 - {2} Disconnect printer cable (29).

- g. Disconnect the radio cable (31) from the receptacle on back of the MF/HF DSC controller (22).
 - {1} Turn mounting screws (32) counterclockwise to loosen cable (31) from receptacle.
 - {2} Disconnect cable (31).
- h. Grasp front of MF/HF DSC controller (22) and pull outward to remove from the 9701 console (1).

NOTE

While pulling the MF/HF DSC controller outward, slightly tilt the front of the MF/HF DSC controller downward to clear the mounts on the inside of the 9701 console.

- i. Remove the MF/HF DSC controller (22).
14. Remove the faceplate (24) from the MF/HF DSC controller (22).



2C112-4

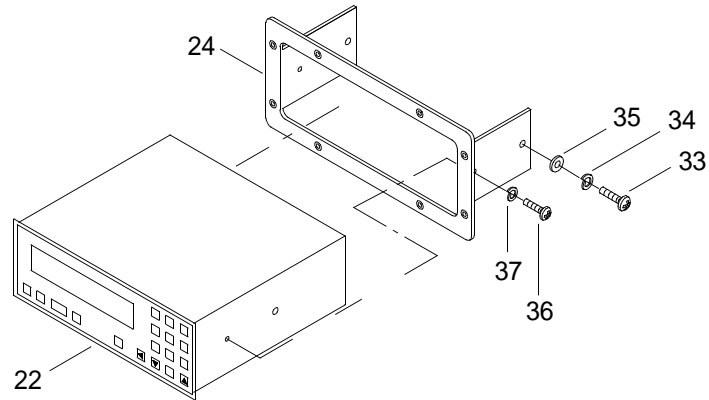
- a. Remove bolt (33), lockwasher (34) and flat washer (35) from each side of the MF/HF DSC controller (22).
- b. Remove screw (36) and flat washer (37) from each side of the MF/HF DSC controller (22).
- c. Remove faceplate (24).

UNPACK MF/HF DIGITAL SELECTIVE CALLING (DSC) CONTROLLER

1. Remove DSC controller from shipping box.
 - a. Open top of shipping box.
 - b. Remove packing material.
 - c. Remove DSC controller.
2. Remove DSC controller from protective plastic bag.
3. Verify serial number embossed on outside of box with the serial number stamped on the back of DSC controller.

INSTALL MF/HF DSC CONTROLLER

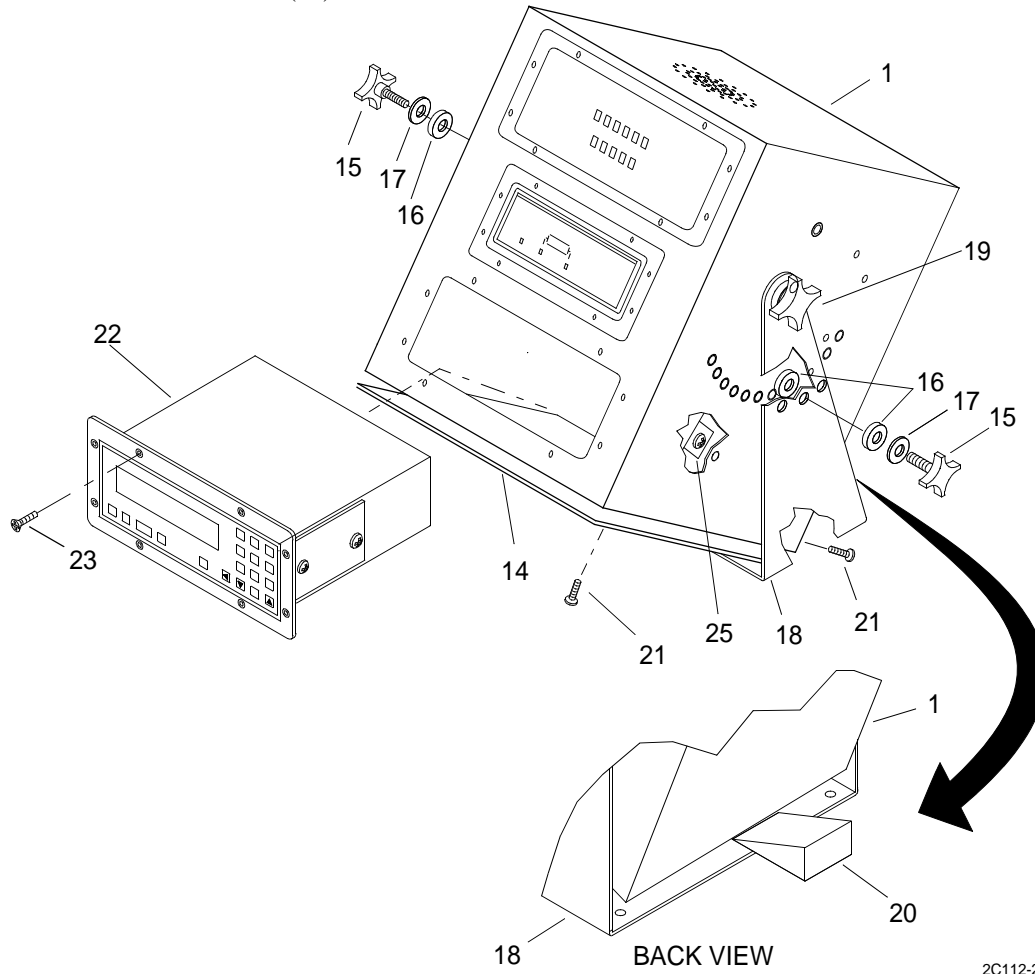
1. Install the faceplate (24) on the MF/HF DSC controller (22).



2C112-4

- a. Align faceplate (24) with the mounting holes on the MF/HF DSC controller (22).
- b. Install screw (36) and flat washer (37) in each side of the MF/HF DSC controller (22). Do not tighten screw at this time.
- c. Install bolt (33), lockwasher (34) and flat washer (35) in each side of the MF/HF DSC controller (22).
- d. Tighten two screws (36) and two bolts (33).

2. Install MF/HF DSC controller (22).

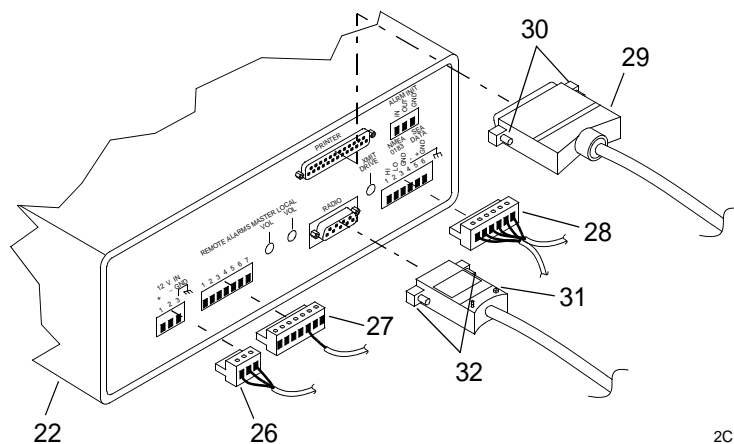


2C112-2

NOTE

While pushing the MF/HF DSC controller inward slightly, tilt the front of the MF/HF DSC controller downward to clear the mounts on the inside of the 9701 console.

- a. Grasp front of MF/HF DSC controller (22) and push inward to install into the 9701 console (1).
- b. Connect the radio cable (31) to the receptacle on back of the MF/HF DSC controller (22).



2C112-3

{1} Turn mounting screws (32) clockwise to tighten cable (31) onto receptacle.

{2} Connect cable (31).

- c. Connect the printer cable (29) to the receptacle on back of the MF/HF DSC controller (22).

{1} Turn mounting screws (30) clockwise to tighten cable (29) onto receptacle.

{2} Connect printer cable (29).

CAUTION

When connecting the electrical connectors to the back of the MF/HF DSC controller, use extreme caution. Push the connectors straight in. Do not twist or turn the connector in any way. Do not break or damage any wires attached to the connectors. Failure to comply could result in equipment/connector damage and/or failure.

- d. Connect the NMEA SEA DATA electrical connector (28) to the receptacle on back of the MF/HF DSC controller (22).

{1} Grasp the connector (28) and push straight inward to connect.

{2} Connect electrical connector (28) to receptacle.

- e. Connect remote alarms electrical connector (27) to receptacle on back of MF/HF DSC controller (22).

{1} Grasp the connector (27) and push straight inward to connect.

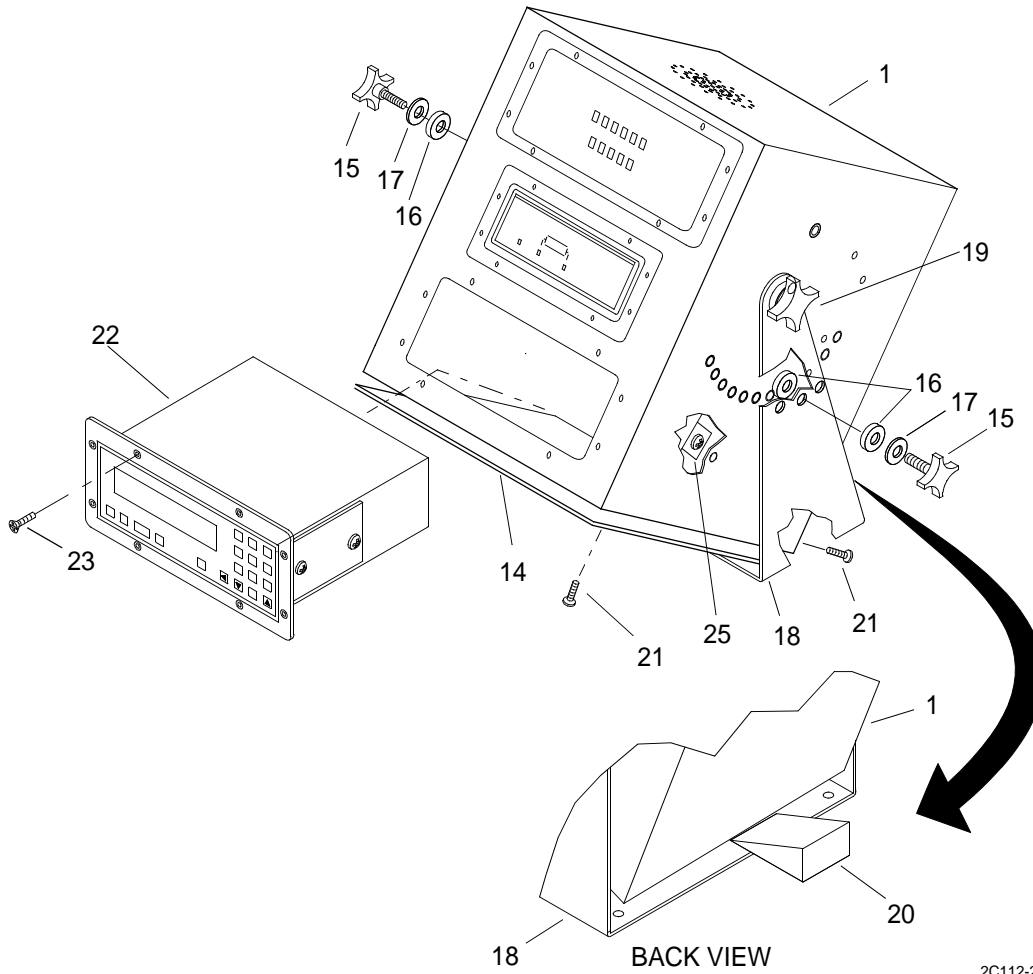
{2} Connect electrical connector (27) to receptacle.

- f. Connect small electrical connector (26) to receptacle on back of MF/HF DSC controller (22).

{1} Grasp the connector (26) and push straight inward to connect.

{2} Connect electrical connector (26) from the receptacle.

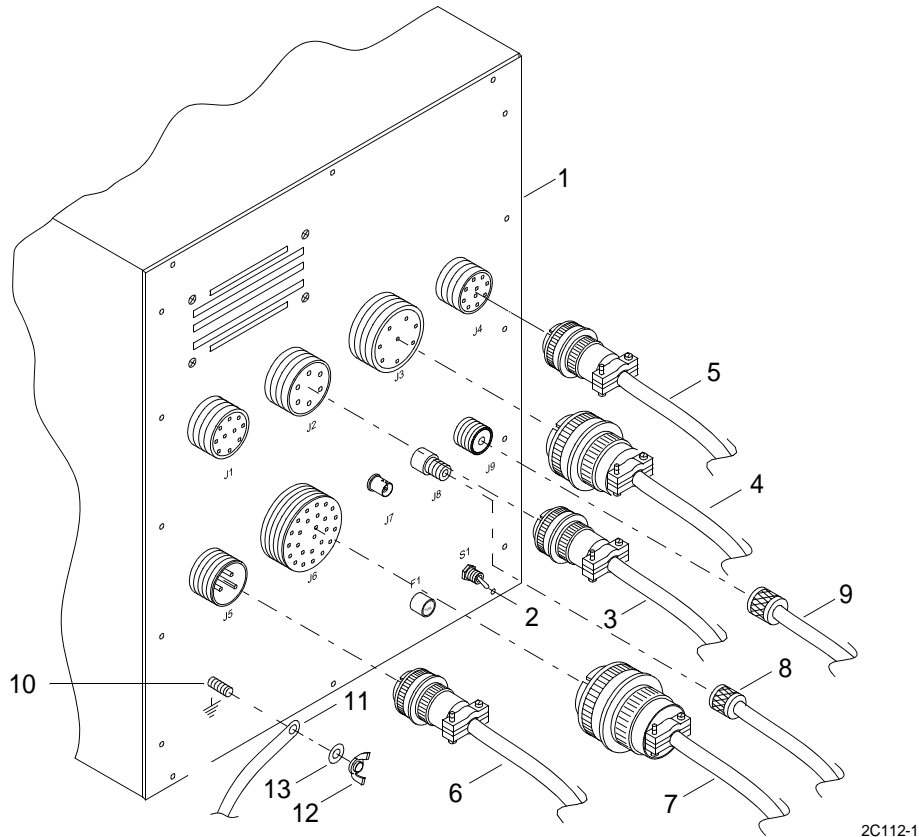
- g. Install eight mounting screws (23) into front of MF/HF DSC controller faceplate (24).



2C112-2

- h. Tighten captive fasteners (25) (one each side of MF/HF DSC controller) that secure the MF/HF DSC watch receiver (22) to the mounts on the inside of the 9701 console (1).

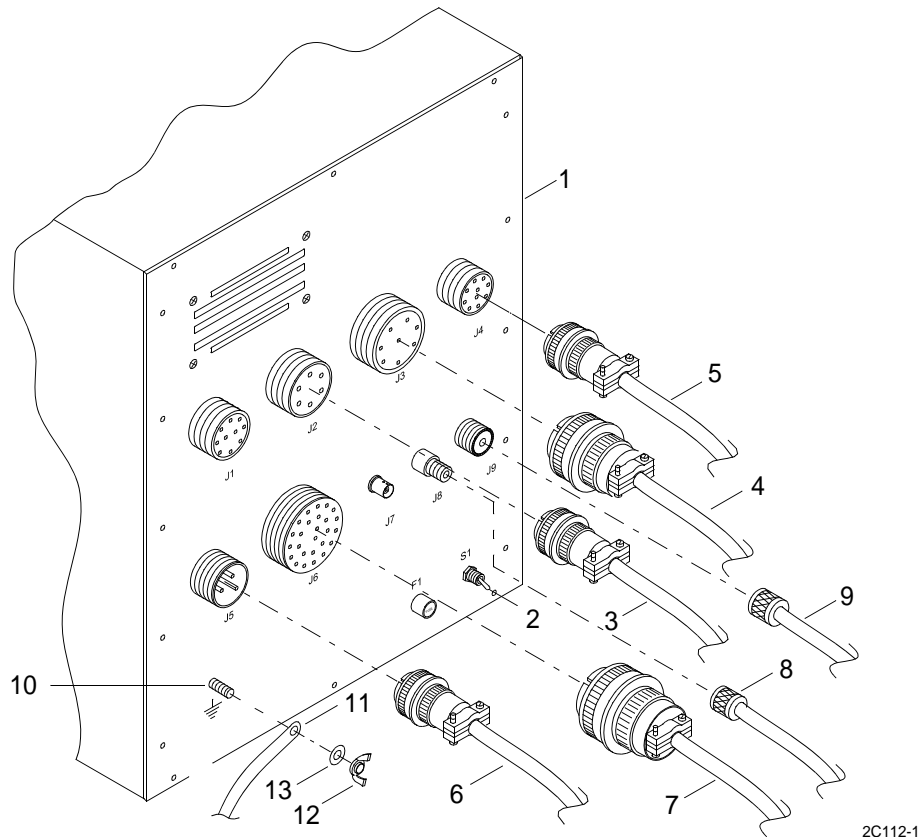
3. Install the bottom cover (14) on the 9701 console (1).



2C112-1

- a. Install bottom cover (14).
 - {1} Align bottom cover (14) with mounting holes in the top of the 9701 console (1).
 - {2} Install 13 screws (21) that secure bottom cover to 9701 console (1). Tighten screws.
- b. Remove the wedge (block of wood) (20) from between the 9701 console (1) and the mount bracket (18) to allow the 9701 console (1) to swing back into the upright position.
- c. Tighten the large knob (19) on both sides of the 9701 console (1) and the mount bracket (18).
- d. Install PVC washers (17), felt washers (16) and the small knob (15) on both sides of the 9701 console (1) and the mount bracket (18).

4. Connect ground strap (11) on ground stud (10) on back of the 9701 console (1).



2C112-1

- a. Install ground strap (11) on ground stud (10).
 - b. Install washer (13) and wing nut (12) on ground stud (10). Tighten wing nut (12).
5. Connect J9 antenna coaxial cable (9) to J9 antenna connector on back of the 9701 console (1).
 6. Connect J8 antenna coaxial cable (8) to J8 antenna connector on back of the 9701 console (1).
 7. Connect J6 external cable (7) to J6 receptacle on back of the 9701 console (1).
 8. Connect J5 external cable (6) to J6 receptacle on back of the 9701 console (1).
 9. Connect J4 external cable (5) to J6 receptacle on back of the 9701 console (1).
 10. Connect J3 external cable (4) to J6 receptacle on back of the 9701 console (1).
 11. Connect J2 external cable (3) to J6 receptacle on back of the 9701 console (1).
 12. Turn power on at the GMDSS DC converter. Place the switch in the ON (up) position.
 13. Turn power on at the GMDSS power supply. Place the switch in the ON (up) position.
 14. Turn power on to the 9701 console (1). Place the S1 switch (2) on back of the 9701 console (1) in the ON (up) position.
 15. Perform initial setup of DSC controller. (WP 0119 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION INTERFACE AND SWITCHBOX

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

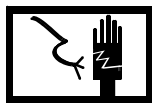
Navigation Interface and Switchbox
9801

Personnel Required

Engineer 88L

REMOVE NAVIGATION INTERFACE AND SWITCHBOX

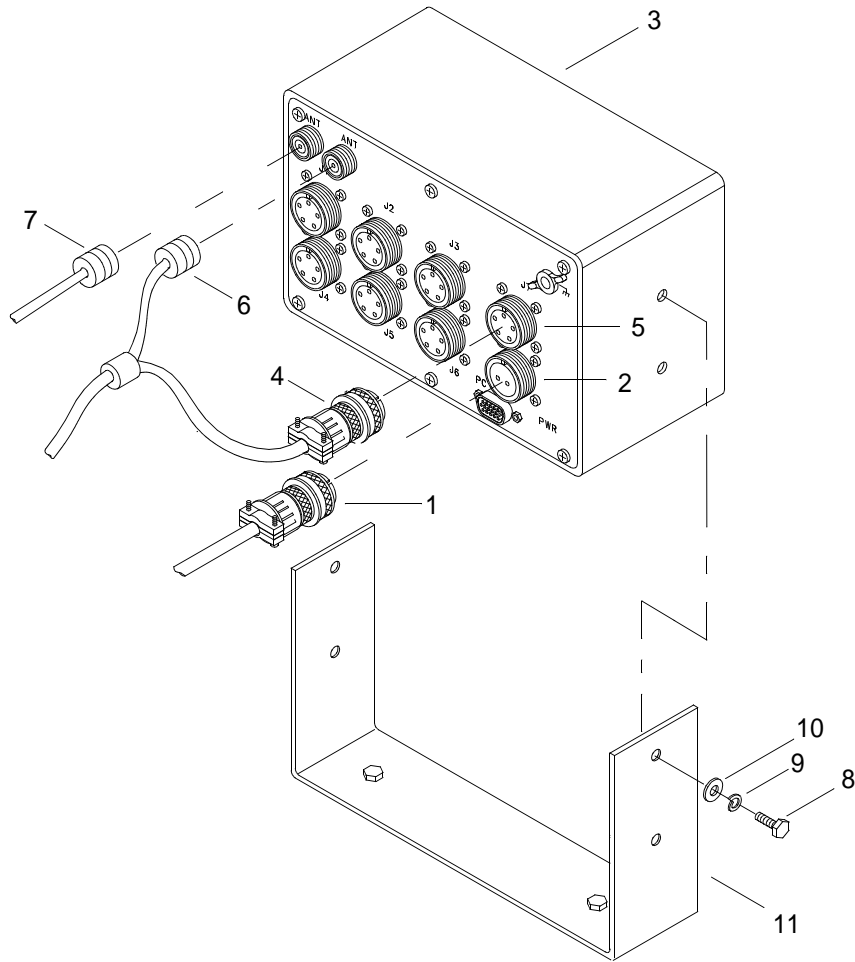
WARNING



ELECTRICAL

1. Turn power off at the navigation PLGR/NAVTEX power supply. Place the switch in the OFF position.
2. Loosen the connector shell of the power cable plug (1), tagged PLGRSB-PWR/DC POWER, on the back of the interface and switchbox (3).

- Unplug the power cable plug (1) from the port (2) of the interface and switchbox (3) back.



2C120-1

- Loosen the connector shell of the cable plug (4), tagged PLGRSB-J7/PLGR, on the back of the interface and switchbox (3).
- Unplug the PLGR cable plug (4) from the port (5) of the interface and switchbox (3) back.
- Detach 2 antenna coaxial leads (6 and 7) from the interface and switchbox (3) back.
- Remove four bolts (8), lock washers (9) and flat washers (10) from mounting bracket (11).

INSTALL NAVIGATION INTERFACE AND SWITCHBOX

- Position and install interface and switchbox on mounting bracket (11) with four bolts (8), lock washers (9) and flat washers (10).
- Attach 2 antenna coaxial leads (6 and 7) to the interface and switchbox (3) back.
- Plug the cable plug (4) into the port (5) of the interface and switchbox (3) back.
- Tighten the connector shell of the PLGR cable plug (4), tagged PLGRSB-J7/PLGR, on the back of the interface and switchbox (3).

-
5. Plug the power cable plug (1) into the port (2) of the interface and switchbox (3) back.
 6. Tighten the connector shell of the power cable plug (1), tagged PLGRSB-PWR/DC POWER, on the back of the interface and switchbox (3).
 7. Turn power on at the navigation PLGR/NAVTEX power supply. Place the switch in the ON position.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION INTERFACE AND SWITCHBOX MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Navigation Interface and Switchbox Mount
50-200026

Personnel Required

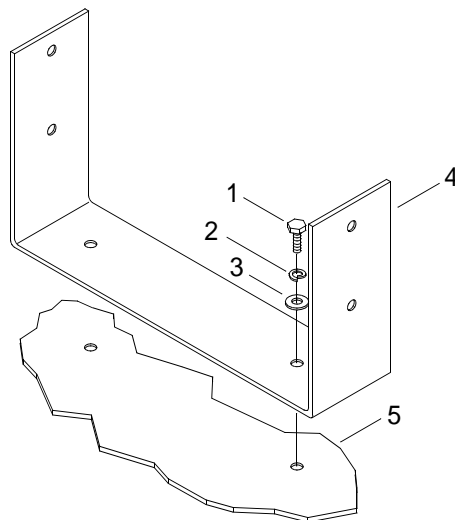
Engineer 88L

Equipment Condition

Navigation Interface and Switchbox Removed. (WP 0124 00)

REMOVE NAVIGATION INTERFACE AND SWITCHBOX MOUNT

1. Remove two bolts (1), lock washers (2) and flat washers (3).



2C121-1

2. Remove mounting bracket (4) from mounting surface (5).

INSTALL NAVIGATION INTERFACE AND SWITCHBOX MOUNT

1. Position mounting bracket (4) on mounting surface (5).
2. Install two bolts (1), lock washers (2) and flat washers (3) through mounting bracket (4) and into mounting surface (5).
3. Tighten bolts.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE COMMUNICATIONS INTERFACE AND SWITCHBOX

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

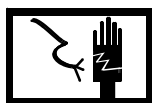
Communications Interface and Switchbox
9801

Personnel Required

Engineer 88L

REMOVE COMMUNICATIONS INTERFACE AND SWITCHBOX

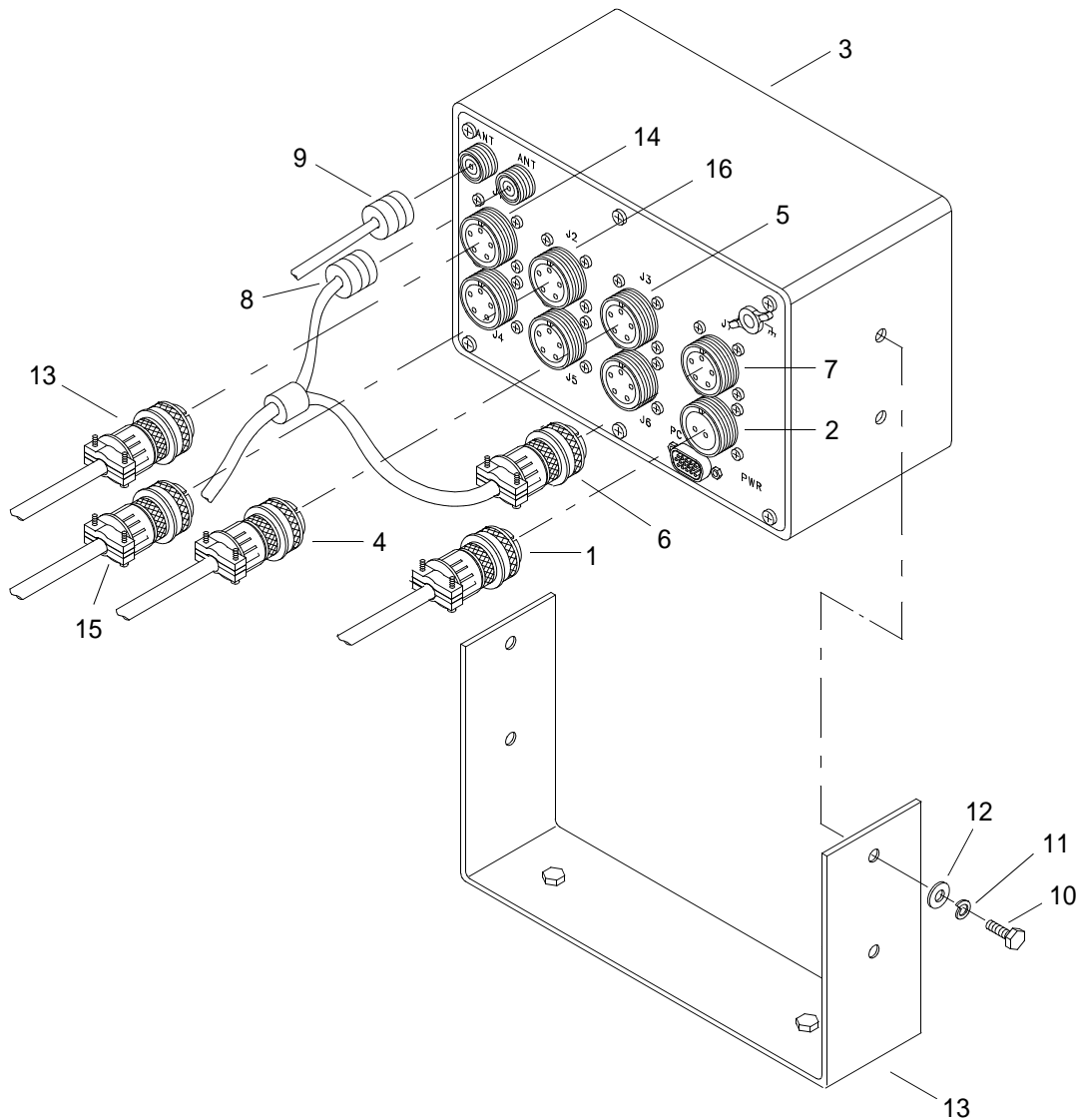
WARNING



ELECTRICAL

1. Turn power off at the GMDSS power supply. Place the switch in the OFF (down) position.
2. Turn power off at the GMDSS DC converter. Place the switch in the OFF (down) position.

- Loosen the connector shell of the power cable plug (1) tagged PLGRSB-PWR/DC POWER on the back of the interface and switchbox (3).



2C129-1

- Unplug the power cable plug (1) from the port (2) of the interface and switchbox (3) back.
- Loosen the connector shell of the VHF/FM DSC transceiver cable plug (4), tagged PLGRSB-J3/ROSS DSC, on the back of the interface and switchbox (3).
- Unplug the VHF/FM DSC transceiver cable plug (4) from the port (5) of the interface and switchbox (3) back.
- Loosen the connector shell of the PLGR cable plug (4), tagged PLGRSB-J7/PLGR, on the back of the interface and switchbox (3).
- Unplug the PLGR cable plug (4) from the port (5) of the interface and switchbox (3) back.
- Loosen the connector shell of the cable plug (13), tagged PLGRSB-J1/GMDSS J3 HF, on the back of the interface and switchbox (3).

-
10. Unplug the cable plug (13) from the port (14) of the interface and switchbox (3) back.
 11. Loosen the connector shell of the cable plug (15), tagged PLGRSB-J2/GMDSS J3 C, on the back of the interface and switchbox (3).
 12. Unplug the cable plug (15) from the port (16) of the interface and switchbox (3) back.
 13. Detach 2 antenna coaxial leads (8) and (9) from the interface and switchbox (3) back.
 14. Remove 4 bolts (10), lock washers (11), and flat washers (12) from mounting bracket (13).

INSTALL COMMUNICATIONS INTERFACE AND SWITCHBOX

1. Position and install interface and switchbox on mounting bracket (13) with four bolts (10), lock washers (11), and flat washers (12).
2. Attach two antenna coaxial leads (8) and (9) to the interface and switchbox (3) back.
3. Plug the cable plug (13) into the port (14) of the interface and switchbox (3) back.
4. Tighten the connector shell of the cable plug (13), tagged PLGRSB-J1/GMDSS J3 HF, on the back of the interface and switchbox (3).
5. Plug the cable plug (15) into the port (16) of the interface and switchbox (3) back.
6. Tighten the connector shell of the cable plug (15), tagged PLGRSB-J2/GMDSS J3 C, on the back of the interface and switchbox (3).
7. Plug the PLGR cable plug (6) into port (7) of the interface and switchbox (3) back.
8. Tighten the connector shell of the PLGR cable plug (6), tagged PLGRSB-J7/PLGR, on the back of the interface and switchbox (3).
9. Plug the VHF/FM DSC transceiver cable plug (4) into the port (5) of the interface and switchbox (3) back.
10. Tighten the connector shell of the VHF/FM DSC transceiver cable plug (4), tagged PLGRSB-J3/ROSS DSC, on the back of the interface and switchbox (3).
11. Plug the power cable plug (1) into the port (2) of the interface and switchbox (3) back.
12. Tighten the connector shell of the power cable plug (1), tagged GMDSS POWER, on the back of the interface and switchbox (3).
13. Turn power on at the GMDSS DC converter. Place the switch in the ON (up) position.
14. Turn power on at the GMDSS power supply. Place the switch in the ON (up) position.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE COMMUNICATIONS INTERFACE AND
SWITCHBOX MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Communications Interface and Switchbox Mount
50-200026

Personnel Required

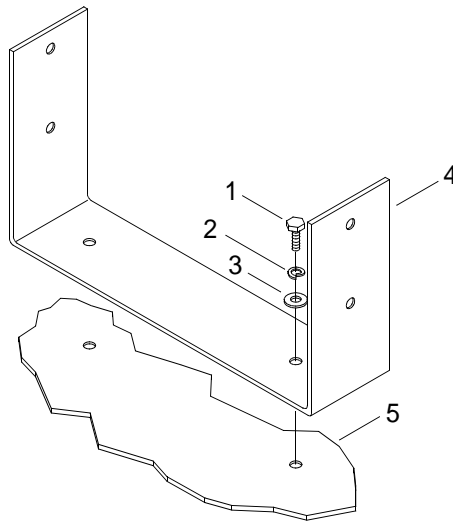
Engineer 88L

Equipment Condition

Communications Interface and Switchbox Removed. (WP 0126 00)

REMOVE COMMUNICATIONS INTERFACE AND SWITCHBOX MOUNT

1. Remove two bolts (1), lock washers (2) and flat washers (3).



2C130-1

2. Remove mounting bracket (4) from mounting surface (5).

INSTALL COMMUNICATIONS INTERFACE AND SWITCHBOX

1. Position mounting bracket (4) on mounting surface (5).
2. Install two bolts (1), lock washers (2) and flat washers (3) through mounting bracket (4) and into mounting surface (5) and tighten bolts.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE COMMUNICATIONS PLGR MOUNTING BASE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Communications PLGR Mounting Base
12967998

Personnel Required

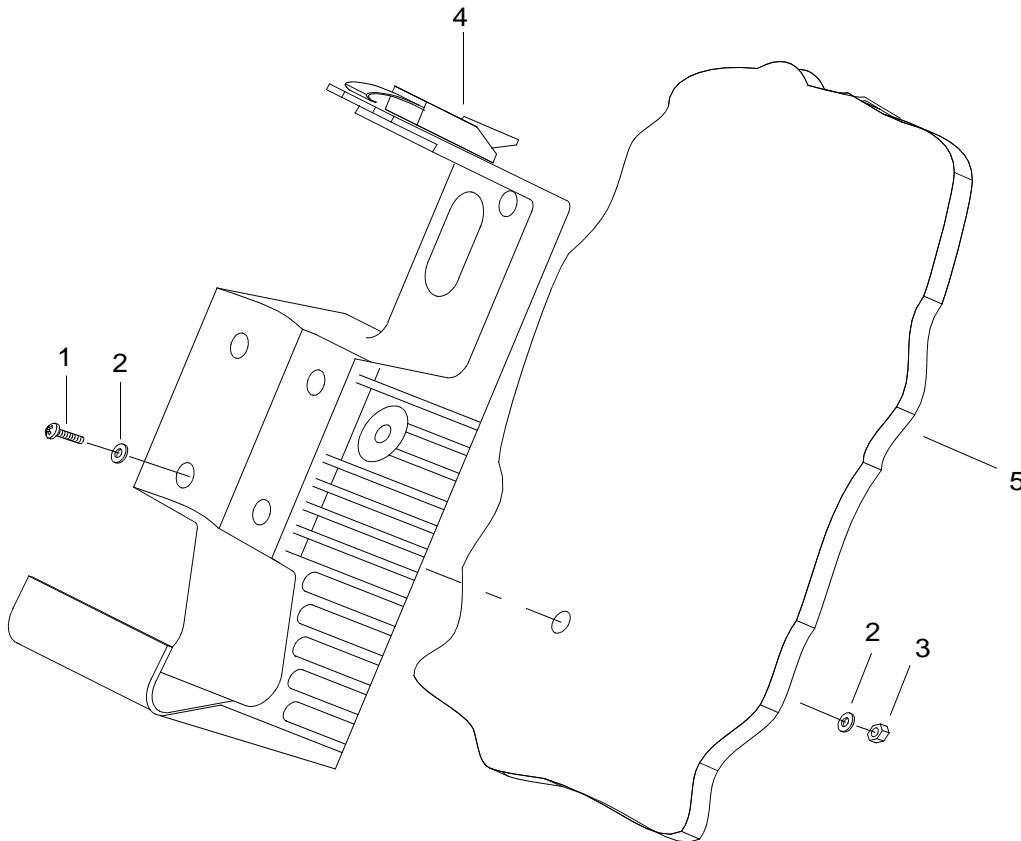
Engineer 88L
2

Equipment Condition

AN/PSN-11(V)1 PLGR Removed. (WP 0102 00)

REMOVE COMMUNICATIONS PLGR MOUNTING BASE

1. Remove four screws (1), washers (2) and nuts (3).



2C131-1

2. Remove mounting bracket (4) from bulkhead (5).

INSTALL COMMUNICATIONS INTERFACE AND SWITCHBOX

1. Position mounting bracket (4) on bulkhead surface (5).
2. Install four screws (1) and washers (2) through mounting bracket (4) and mounting surface (5) and secure with nuts (3).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR MOUNTING BASE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Navigation PLGR Mounting Base
12967998

Personnel Required

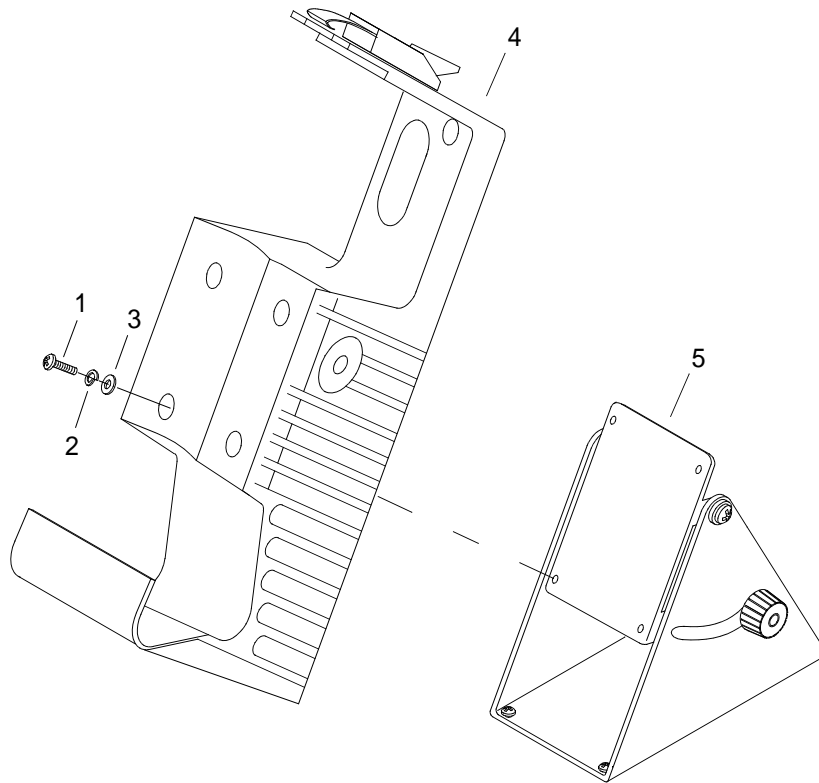
Engineer 88L

Equipment Condition

Navigation PLGR Removed. (WP 0104 00)

REMOVE NAVIGATION PLGR MOUNTING BASE

1. Remove four screws (1), lock washers (2) and washers (3).



2C122-1

2. Remove mounting bracket (4) from PLGR mounting base (5).

INSTALL NAVIGATION PLGR MOUNTING BASE

1. Position mounting bracket (4) on PLGR mounting base (5).
2. Install four screws (1), lock washers (2) and flat washers (3) through mounting bracket (4) and PLGR mounting base (5) and tighten.
3. Install navigation PLGR. (WP 0104 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR PIVOT MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 4, WP 0166 00)

Materials/Parts

Navigation PLGR Pivot Mount
50-200022 REV A

Personnel Required

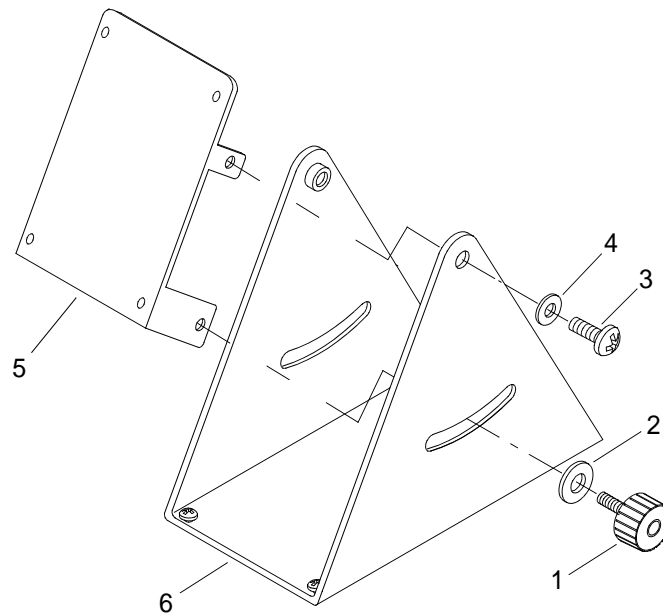
Engineer 88L

Equipment Condition

Navigation PLGR Removed. (WP 0104 00)
Navigational PLGR Mounting Base Removed. (WP 0129 00)

REMOVE NAVIGATION PLGR PIVOT MOUNT

1. Remove two friction knobs (1) from PLGR pivot mount (5).



2C123-1

2. Remove two screws (3) and nylon washers (4) from PLGR pivot mount (5).
3. Remove PLGR pivot mount (5) from PLGR pivot base (6).

INSTALL NAVIGATION PLGR PIVOT MOUNT

1. Position PLGR pivot mount (5) on PLGR pivot base (6).
2. Install two friction knobs (1) through PLGR pivot base (6) and into pivot mount (5).
3. Install two screws (3) and nylon washers (4) through pivot base (6) and into PLGR pivot mount (5).
4. Install navigation PLGR. (WP 0104 00)
5. Install navigational PLGR mounting base. (WP 0129 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR PIVOT BASE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Navigation PLGR Pivot Base
50-200023 REV A

Personnel Required

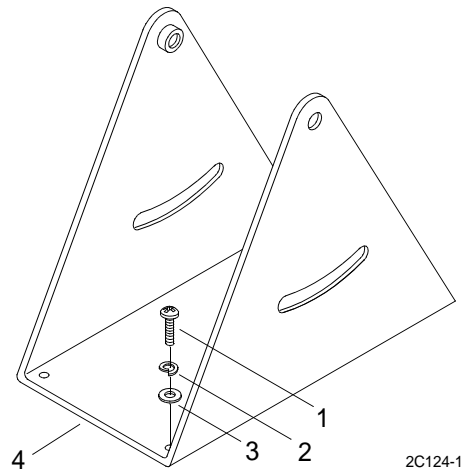
Engineer 88L

Equipment Condition

Remove Navigation PLGR. (WP 0104 00)
Remove Navigational PLGR Mounting Base. (WP 0129 00)
Remove Navigational PLGR Pivot Mount. (WP 0130 00)

REMOVE NAVIGATION PLGR PIVOT BASE

1. Remove screw (1), lock washer (2) and flat washers (3) from each corner of the PLGR pivot mount (4).



2. Remove PLGR pivot mount (4) from mounting surface.

INSTALL NAVIGATION PLGR PIVOT BASE

1. Position PLGR pivot mount (4) on mounting surface.
2. Install screw (1), lock washer (2) and flat washers (3) in each corner of the PLGR pivot mount (4).
3. Install navigation PLGR. (WP 0104 00)
4. Install navigational PLGR mounting base. (WP 0129 00)
5. Install navigational PLGR pivot mount. (WP 0130 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE VHF/FM DSC TRANSCEIVER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

VHF/FM DSC Transceiver
CAI-500-VHF-DSC

Personnel Required

Engineer 88L

Equipment Condition

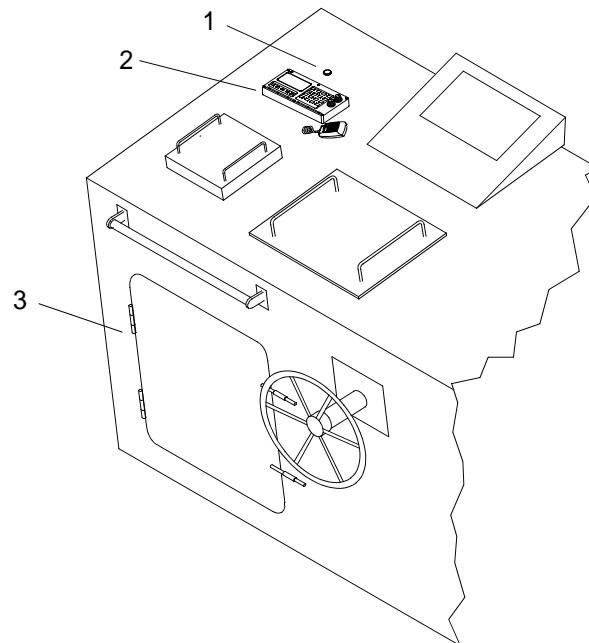
VHF/FM DSC Transceiver Microphone Removed. (WP 0106 00)

REMOVE VHF/FM DSC TRANSCEIVER

WARNING

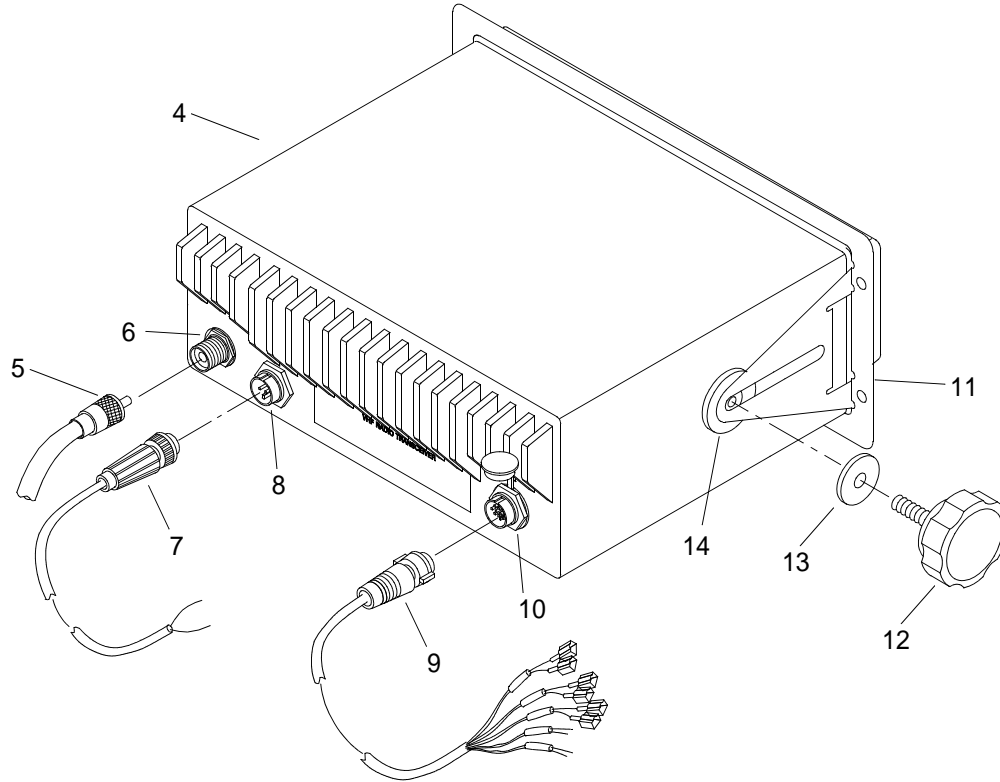
**ELECTRICAL**

1. Turn power off at GMDSS emergency battery switch (1), just forward of the VHF/FM DSC receiver (2).
2. Turn power off at VHF/FM DSC transceiver power supply.
3. Gain access to VHF/FM DSC transceiver back and mount through door (3) in wheel house console.



2C145-1

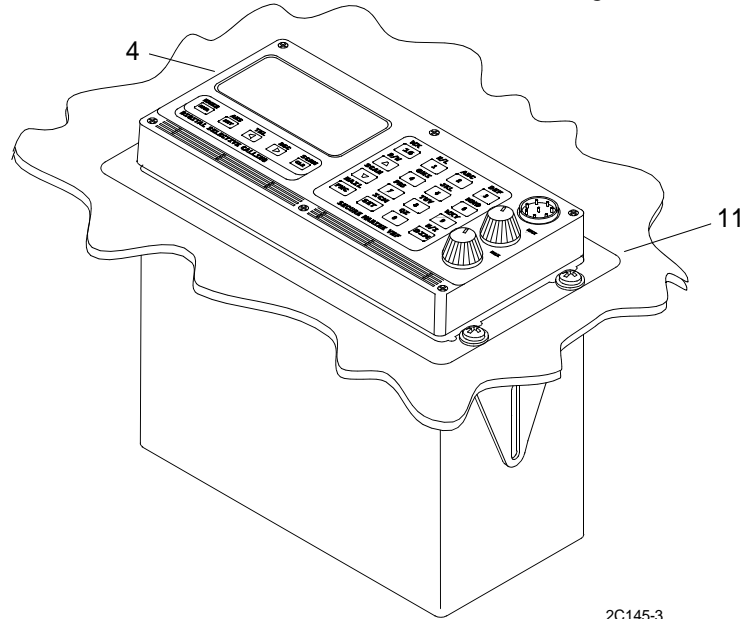
4. On VHF/FM DSC transceiver back (4), loosen knurled connector shell (5) on antenna lead and unplug from port (6).



2C145-2

5. On VHF/FM DSC transceiver back, loosen knurled connector shell (7) on power cable and unplug from port (8).
6. On VHF/FM DSC transceiver back, loosen knurled connector shell (9) on interface cable, tagged PLGRSB-J3/ROSS DSC, and unplug from port (10).
7. On VHF/FM DSC transceiver mount (11), loosen and remove friction knobs (12), flat washers (13) and rubber washers (14) from VHF/FM DSC transceiver (4) and mount (11).

- From top of console, remove VHF/FM DSC transceiver (4) from mounting bracket (11).



2C145-3

INSTALL VHF/FM DSC TRANSCEIVER

- On top of console, position and install VHF/FM DSC transceiver (4) into mounting bracket (11).
- On VHF/FM DSC transceiver back, insert friction knobs (12) and flat washers (13) through mounting bracket (11) and rubber washers (14) into VHF/FM DSC transceiver (4) and tighten friction knobs (12) to secure.
- On VHF/FM DSC transceiver back, plug interface cable, tagged PLGRSB-J3/ROSS DSC, into port (10) and tighten knurled connector shell (9).
- On VHF/FM DSC transceiver back, plug power cable into port (8) and tighten knurled connector shell (7).
- On VHF/FM DSC transceiver back, plug antenna (5) into port and tighten knurled connector shell (6).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVTEX RECEIVER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

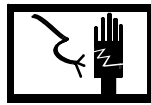
NAVTEX Receiver
 50-200054

Personnel Required

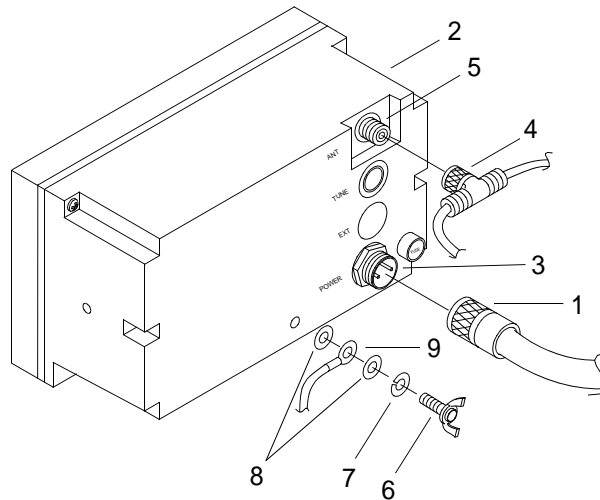
Engineer 88L

REMOVE NAVTEX RECEIVER

WARNING

**ELECTRICAL**

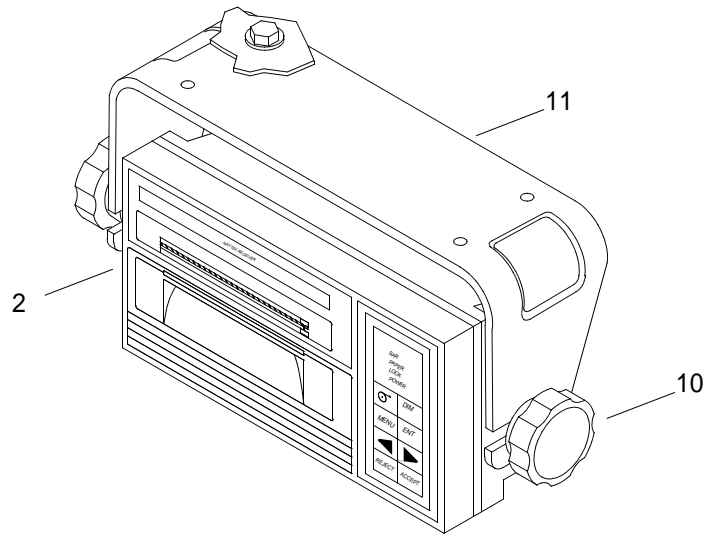
1. Turn power off at the navigation power supply. Place the switch in the OFF position.
2. Loosen the connector shell of the cable plug (1), tagged NAVTEX-PWR/DC POWER, on the back of the NAVTEX receiver (2).



2C134-1

3. Unplug the NAVTEX-PWR/DC POWER cable plug (1) from the port (3) of the NAVTEX receiver (2) back.
4. Loosen the connector shell of the antenna coaxial leads tee fitting (4) from the NAVTEX receiver (2) back.
5. Unplug the coaxial leads tee fitting (4) from the port (5) of the NAVTEX receiver (2) back.

- Remove winghead screw (6), lock washer (7), and flat washers (8) from NAVTEX receiver (2) back and remove ground wire (9).



2c134-2

- Loosen knurled knob (10) on each side of NAVTEX receiver (2) and remove from mount (11).

INSTALL NAVTEX RECEIVER

- Position NAVTEX receiver (2) on mounting bracket (11) and secure by tightening knurled nut (10) on each side.
- Plug coaxial leads tee fitting (4) into the port (5) on the NAVTEX receiver (2) back.
- Tighten the connector shell of the antenna coaxial leads tee fitting (4) on the NAVTEX receiver (2) back.
- Plug the NAVTEX-PWR/DC POWER cable plug (1) into the port (3) of the NAVTEX receiver (2) back.
- Tighten the connector shell NAVTEX-PWR/DC POWER cable plug (1) on the NAVTEX receiver (2) back.
- Install lock washer (7), flat washer (8), ground wire (9), and flat washer (8) on winghead screw (6) and install on NAVTEX receiver (2) base and tighten.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVTEX RECEIVER MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

NAVTEX Receiver Mount
21-200026

Personnel Required

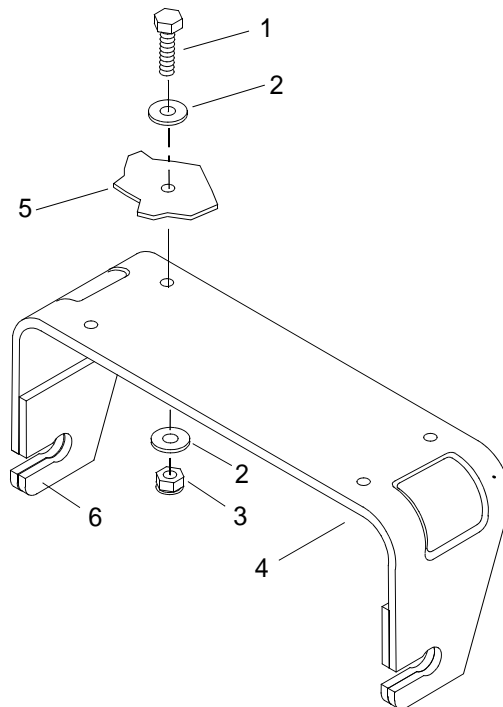
Engineer 88L

Equipment Condition

NAVTEX Receiver Removed. (WP 0133 00)

REMOVE NAVTEX RECEIVER MOUNT

1. Remove bolt (1), washers (2) and nut (3) from NAVTEX receiver mount (4) and mounting structure (5).



2C133-1

2. Remove NAVTEX receiver mount (4).

INSTALL NAVTEX RECEIVER MOUNT

1. Attach self adhesive pads (6) to either side of NAVTEX receiver mount (4).
2. Position NAVTEX receiver mount (4) on mounting structure (5).
3. Place washer (2) on bolt (1) and insert through NAVTEX receiver mount (4) and structure (5).
4. Place washer (2) and nut (3) on bolt (2) and tighten.
5. Install NAVTEX receiver. (WP 0133 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C DATA TERMINAL

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 1, WP 0166 00)

Materials/Parts

INMARSAT-C Data Terminal

50-200050

Hook and Pile Tape

22-200001

Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

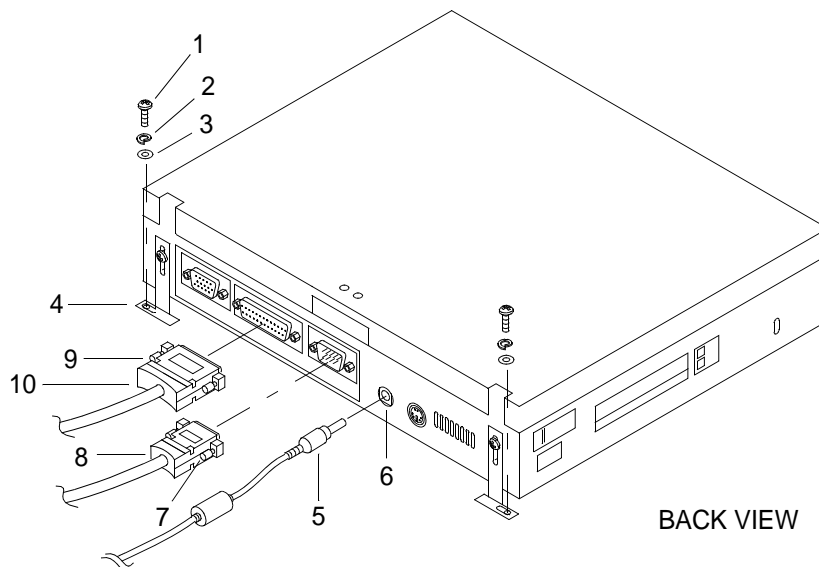
Engineer 88L

REMOVE INMARSAT-C DATA TERMINAL

WARNING

**ELECTRICAL**

1. Turn power off at power strip located behind the 9701 console.
2. Remove screw (1), lock washer (2) and washer (3) from brackets (4) located on the back of each side of data terminal.



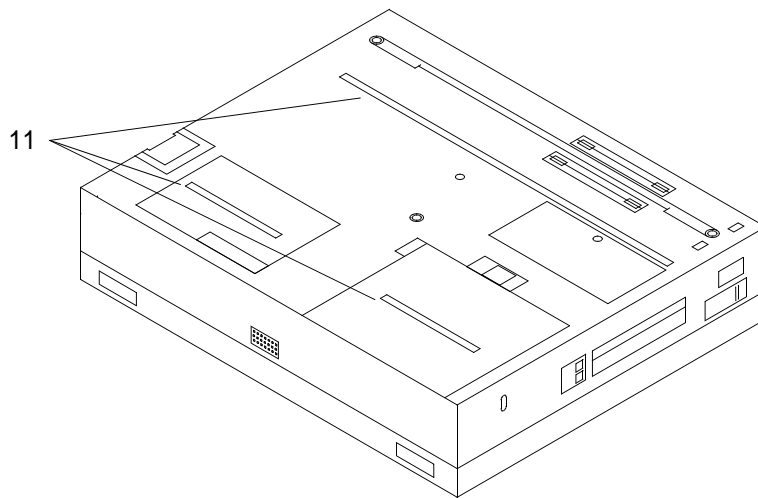
2C101-1

3. Lift up on front of data terminal to release terminal from hook and pile tape.
4. Slide data terminal forward to access rear of terminal.

5. Remove AC adapter cable plug (5) from power jack (6).
6. Loosen the mounting screw (7) on each side of the serial connector shell of the J4 cable plug, tagged GMDSS-J4/IBM-TERM.
7. Unplug the 9-pin plug (8) from the port of the INMARSAT-C data terminal.
8. Loosen the mounting screw (9) on each side of the parallel connector shell of the cable plug, tagged IBM-TERM/PRNSB.
9. Unplug the 25-pin port plug (10) from the port of the INMARSAT-C data terminal.
10. Remove cable ties from cables, unplug AC adapter cable from 9701 power strip and remove adapter cable.

INSTALL INMARSAT-C DATA TERMINAL

1. Make sure LCD is closed and carefully turn data terminal upside down.
2. Attach peel and stick hook and pile tape (11) to underside of data terminal.

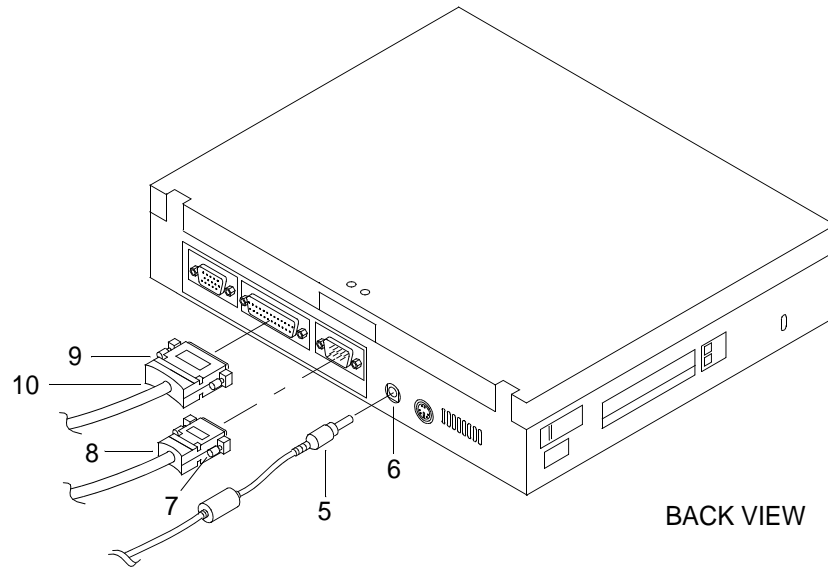


BOTTOM VIEW

2C101-2

3. Turn data terminal right side up.

4. Plug the 25-pin port plug (10), tagged IBM-TERM/PRNSB, into the port of the INMARSAT-C data terminal.



2C101-3

5. Tighten the mounting screw (9) on each side of the parallel connector shell attached to the INMARSAT-C data terminal.
6. Attach peel and stick hook and pile tape to underside of AC adapter and attach behind 9701 power strip.
7. Install cable ties around cables and plug AC adapter cable into 9701 power strip.
8. Plug the 9-pin plug (8), tagged GMDSS-J4/IBM-TERM, into the port of the INMARSAT-C data terminal.
9. Tighten the mounting screw (7) on each side of the serial connector shell of the J4 cable plug.
10. Install AC adapter cable plug (5) into the power jack (6).
11. Place data terminal aft on plate and press down on front and back of data terminal to attach terminal to hook and pile tape.
12. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C TRANSCEIVER POWER FUSE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Fuse, 12 Amp 5X20mm
20-200025

Personnel Required

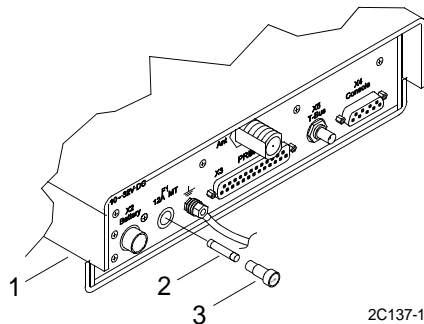
Engineer 88L

Equipment Condition

Remove INMARSAT-C Transceiver. (WP 0121 00)

REMOVE INMARSAT-C TRANSCEIVER POWER FUSE

1. Remove fuse holder (3) from INMARSAT-C transceiver (1).



- a. Remove fuse holder (3) from INMARSAT-C transceiver (1). Turn fuse holder (3) counterclockwise to loosen.
 - b. Remove fuse holder (3).
2. Remove fuse (2) from fuse holder (3).

INSTALL INMARSAT-C POWER FUSE

1. Install fuse (2) into fuse holder (3).
2. Install fuse holder (3) into INMARSAT-C transceiver (1). Turn fuse holder (3) clockwise to tighten.
3. Install INMARSAT-C transceiver (1). (WP 0121 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE INMARSAT-C PRINTER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

INMARSAT-C Parallel Printer

50-200055

Hook and Pile Tape

22-200001

Personnel Required

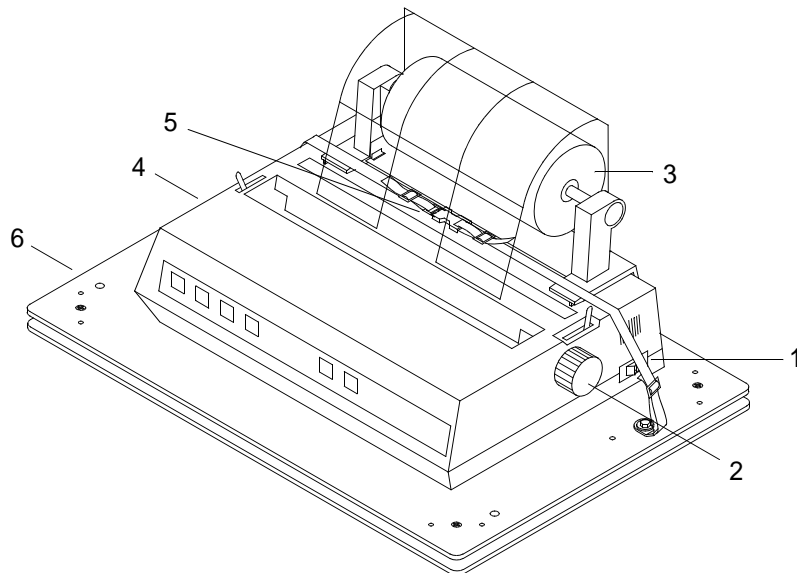
Engineer 88L

REMOVE INMARSAT-C PRINTER

WARNING

**ELECTRICAL**

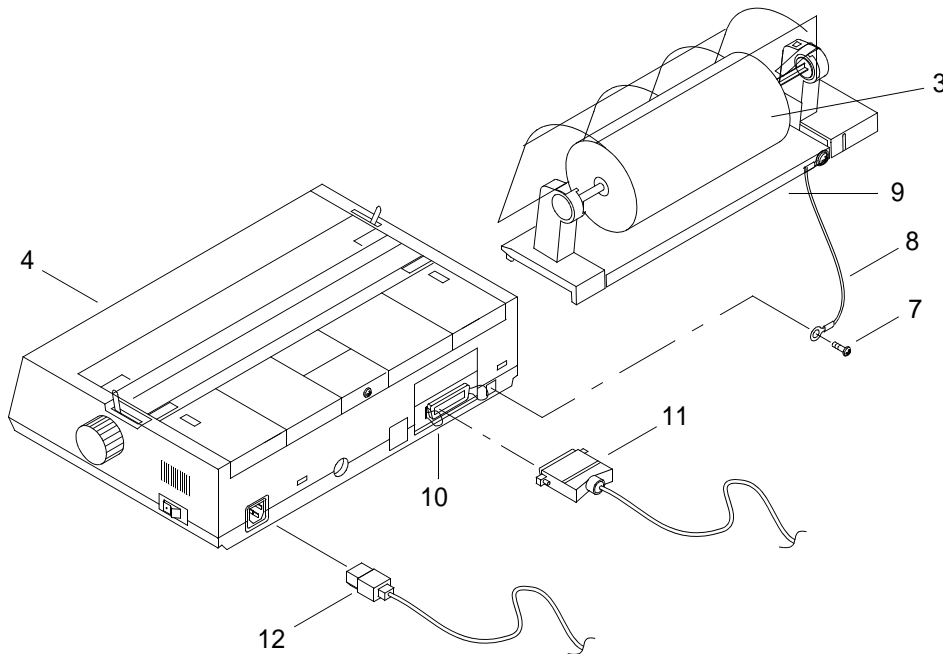
1. Turn power off at power strip located behind the 9701 console.
2. Make sure INMARSAT-C printer switch (1) is off.



2C107-1

3. Rotate the platen knob (2) counterclockwise to remove paper (3) from the printer (4).
4. Release quick disconnect buckle (5) on strap that holds printer (4) on plate (6).

5. Lift up on front of printer (4) to release printer from hook and pile tape.
6. Slide printer forward and remove screw (7) from ground (8) wire on printer (4).



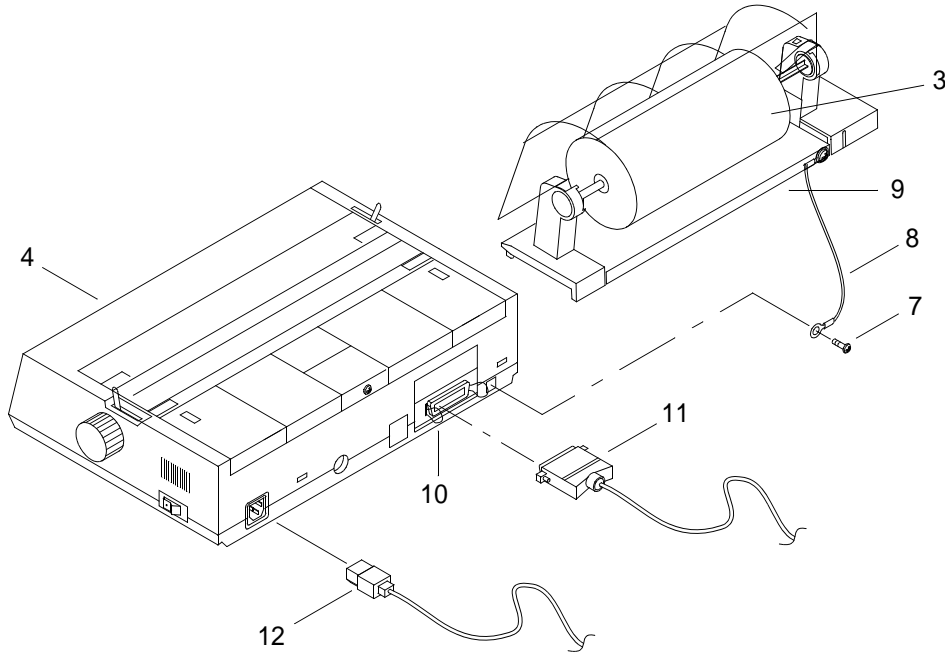
2C107-2

7. Raise the back of the paper stand and slide forward. Remove the roll paper stand (9) and paper roll (3).
8. Unclamp the wire clips (10) on the 36-pin parallel port plug (11), tagged PRNSB/INMARSAT PRN, from the back of the printer (4). Remove plug (11).
9. Remove power plug (12) from back of printer (4).
10. Remove INMARSAT-C printer (4).

INSTALL INMARSAT-C PRINTER

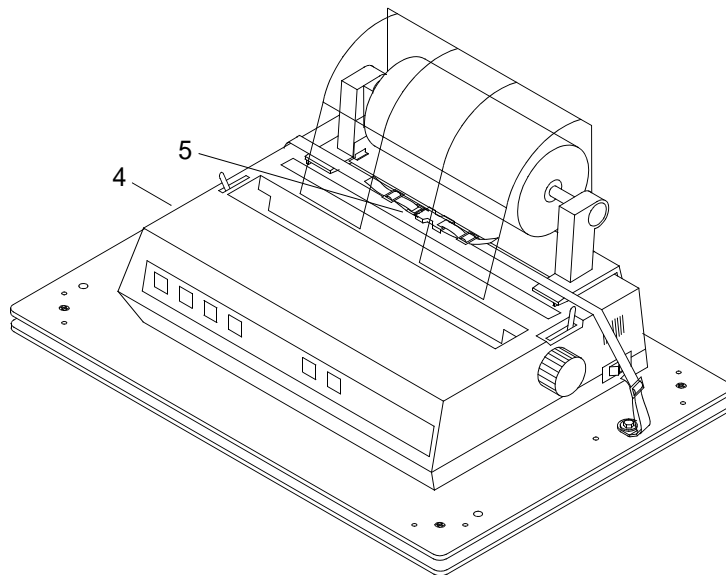
1. Obtain replacement INMARSAT-C printer.
2. Perform initial setup of INMARSAT-C printer. (WP 0015 00)
3. Carefully turn printer over and install self sticking hook and pile tape.

4. Place printer on plate and connect power plug (12) to printer (4).



2C107-2

5. Install 36-pin parallel port plug (11), tagged PRNSB/INMARSAT PRN, to the back of the printer (4). Clamp the wire clips on the plug (10).
6. Install the paper roll (3) and paper stand (9). Place stand on printer and slide aft.
7. Install screw (7) and ground wire (8) on printer (4).
8. Position printer and press down to attach printer with hook and pile tape.
9. Place strap around printer (4) and attach quick release buckle (5).



2C107-3

10. Feed paper into printer. (WP 0111 00)

11. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SERIAL PRINTER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

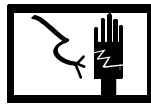
Serial Printer
50-200056M
Hook and Pile Tape
22-200001

Personnel Required

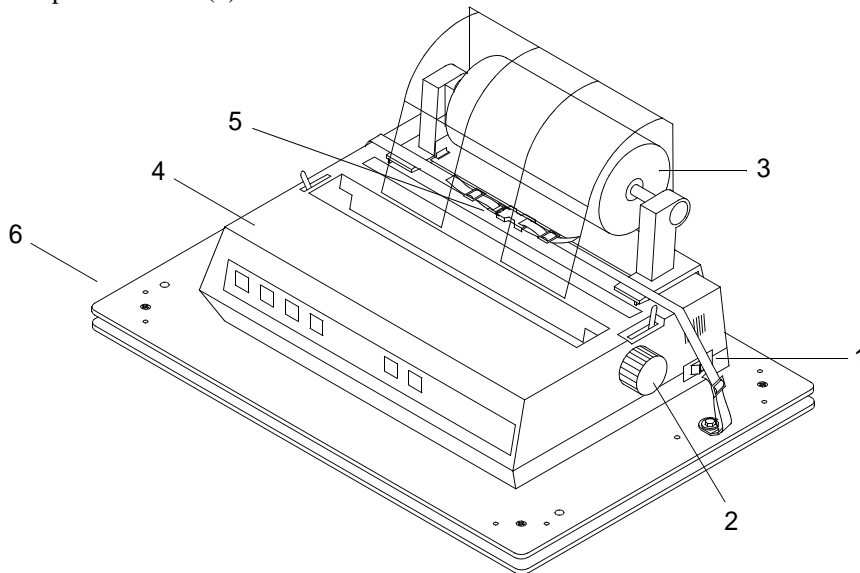
Engineer 88L

REMOVE SERIAL PRINTER

WARNING

**ELECTRICAL**

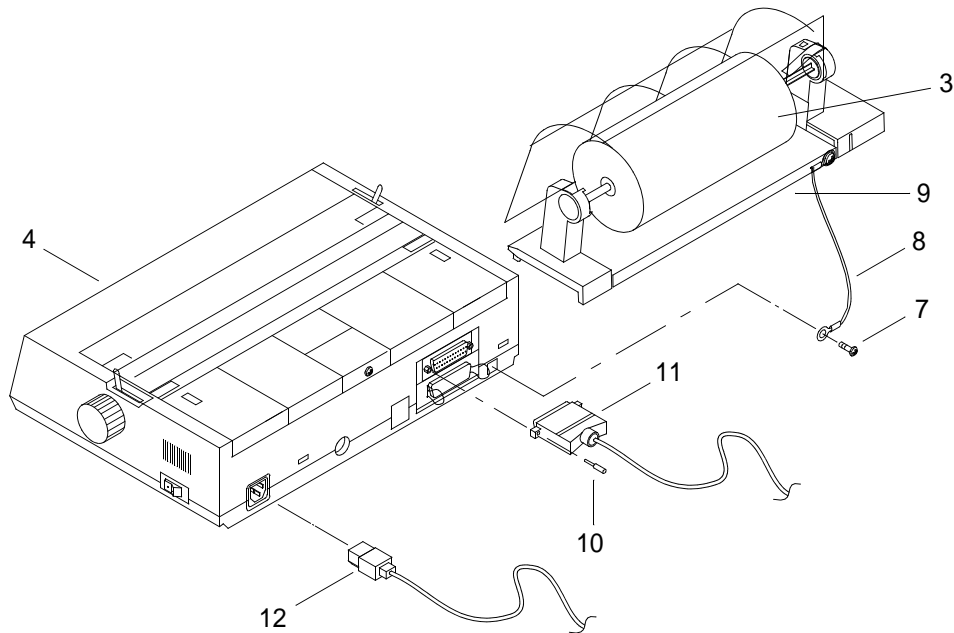
1. Turn power off at power strip located behind the 9701 console.
2. Make sure serial printer switch (1) is off.



2C114-1

3. Rotate the platen knob (2) counterclockwise to remove paper (3) from the printer (4).
4. Release quick disconnect buckle (5) on strap that holds printer (4) on plate (6).

5. Lift up on front of printer (4) to release printer from hook and pile tape.
6. Slide printer forward and remove screw (7) from ground wire (8) on printer (4).



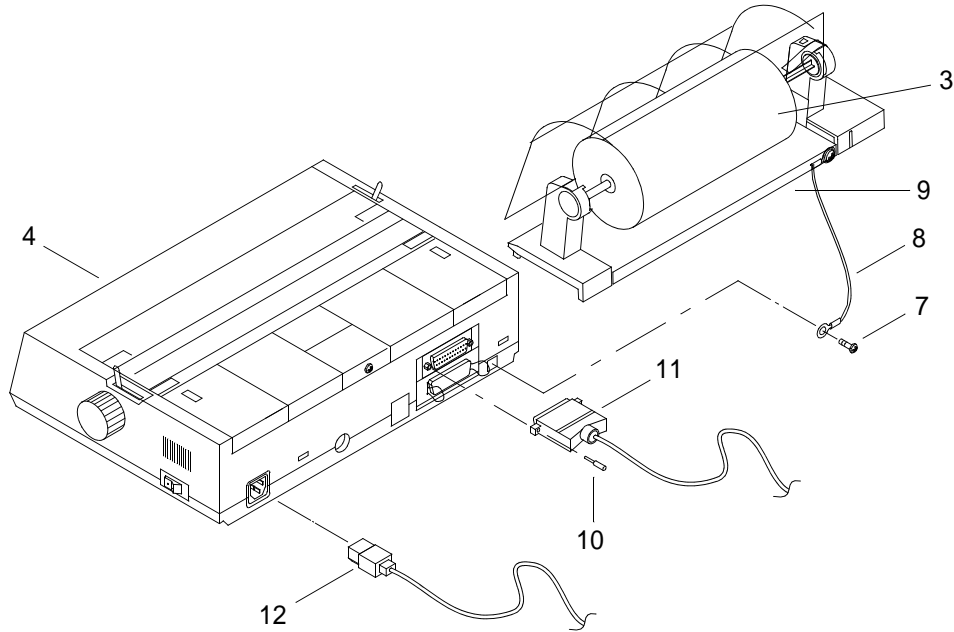
2C114-2

7. Raise the back of the paper stand (9) and slide forward. Remove the roll paper stand (9) and paper roll (3).
8. Loosen the mounting screws (10) on each side of the serial port connector shell (11).
9. Unplug the 25-pin port plug (11), tagged GMDSS-J2/HF PRN, from the back of the printer (4).
10. Remove plug (11).
11. Remove power plug (12) from back of printer (4).
12. Remove serial printer (4).

INSTALL SERIAL PRINTER

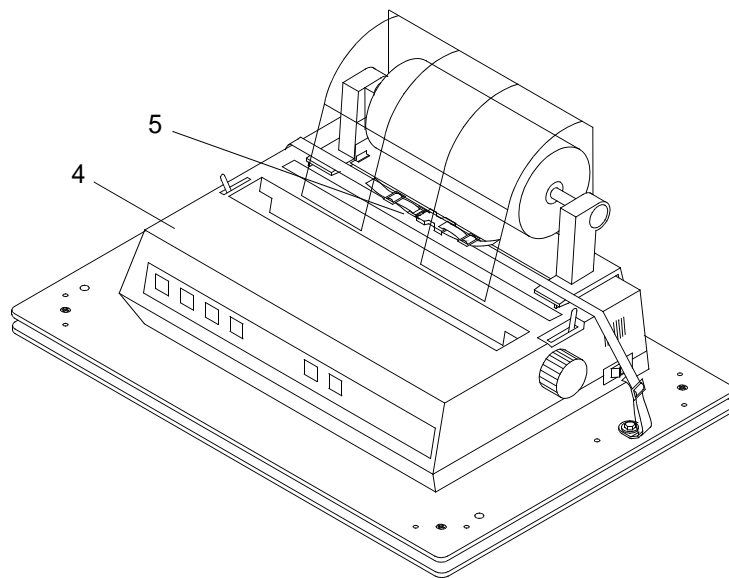
1. Obtain replacement serial printer (4).
2. Perform initial setup of serial printer. (WP 0015 00)
3. Carefully turn printer over and install self sticking hook and pile tape.

- Place printer (4) on plate (6) and connect power plug (12) to printer (4).



2C114-2

- Install 25-pin parallel port plug (11), tagged GMDSS-J2/HF PRN, to the back of the printer (4).
- Tighten mounting screws (10) on each side of the serial port connector shell (11).
- Install the paper roll (3) and paper stand (9). Place stand (9) on printer (4) and slide aft.
- Install screw (7) and ground wire (8) on printer (4).
- Position printer (4) and press down to attach printer with hook and pile tape.
- Place strap around printer (4) and attach quick release buckle (5).



2C114-3

11. Feed paper into printer. (WP 0112 00)

12. Turn power on at power strip located behind the 9701 console.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE DATA TERMINAL/PRINTER MOUNTING
PLATE SHOCK MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Shock Mount
07-200009

Personnel Required

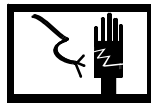
Engineer 88L

Equipment Condition

Remove INMARSAT-C Data Terminal. (WP 0135 00)
Remove INMARSAT-C Printer. (WP 0137 00)
Remove Serial Printer. (WP 0138 00)

REMOVE DATA TERMINAL/PRINTER MOUNTING PLATE SHOCK MOUNT

WARNING

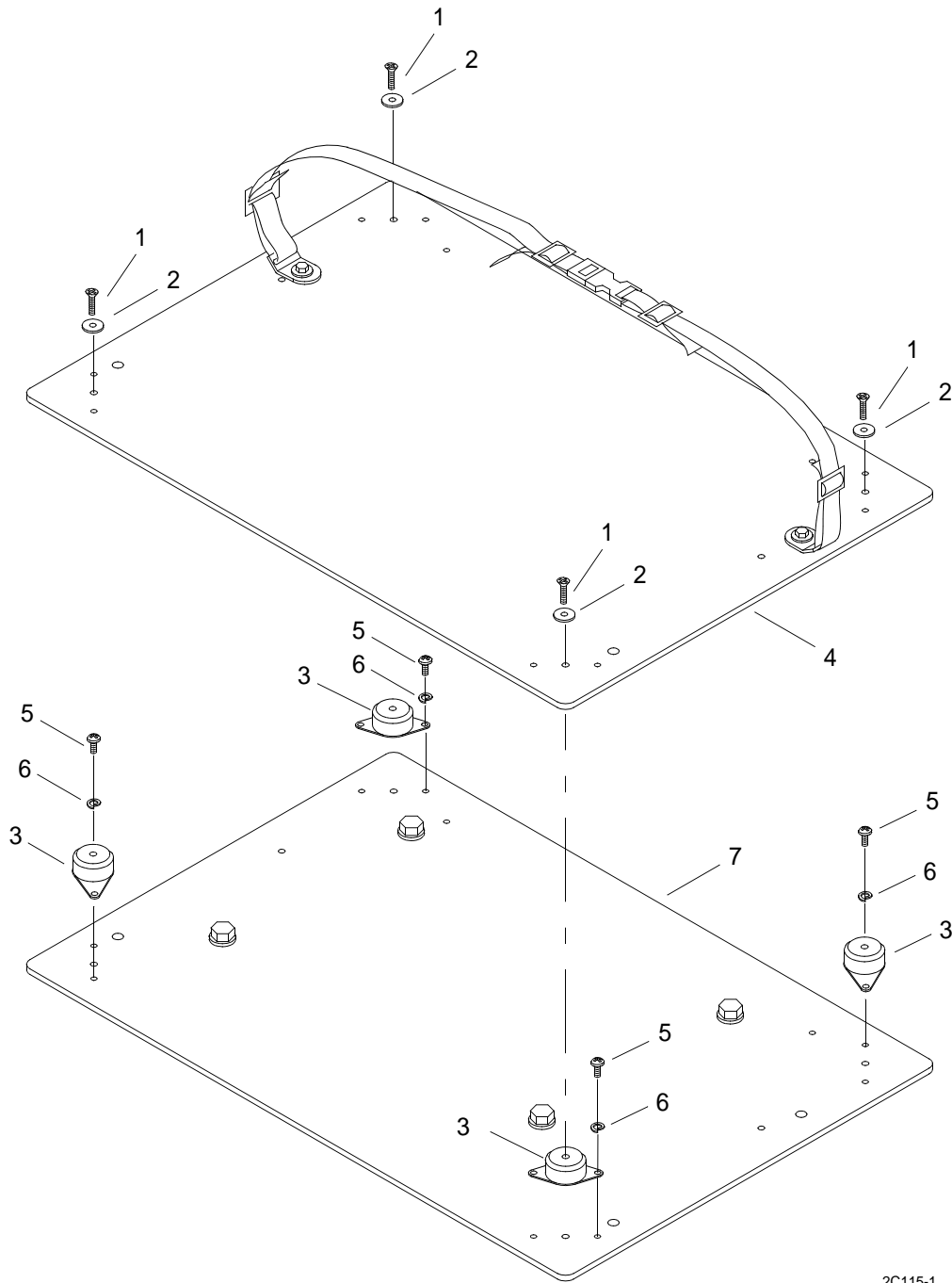


ELECTRICAL

NOTE

This task is typical for the replacement of any shock mount. Equipment conditions apply only to the shock mount being replaced.

1. Remove bolt (1) and washer (2) that secures top mounting plate (4) to each shock mount (3).



2C115-1

2. Remove top mounting plate (4).
3. Remove screw (5) and lock washer (6) from each side of defective shock mount (3).

INSTALL DATA TERMINAL/PRINTER MOUNTING PLATE SHOCK MOUNT

1. Position shock mount (3) on lower mounting plate (7).
2. Install screw (5) and lock washer (6) through each side of shock mount (3) and secure to lower mounting plate (7).
3. Position top mounting plate (4) on shock mounts (3).

-
4. Secure top mounting plate (3) to each shock mount with bolt (1) and washer (2).
 5. Install INMARSAT-C data terminal. (WP 0135 00)
 6. Install INMARSAT-C printer. (WP 0137 00)
 7. Install serial printer. (WP 0138 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE NAVIGATION PLGR/NAVTEX POWER SUPPLY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Power Supply
50-200062

Personnel Required

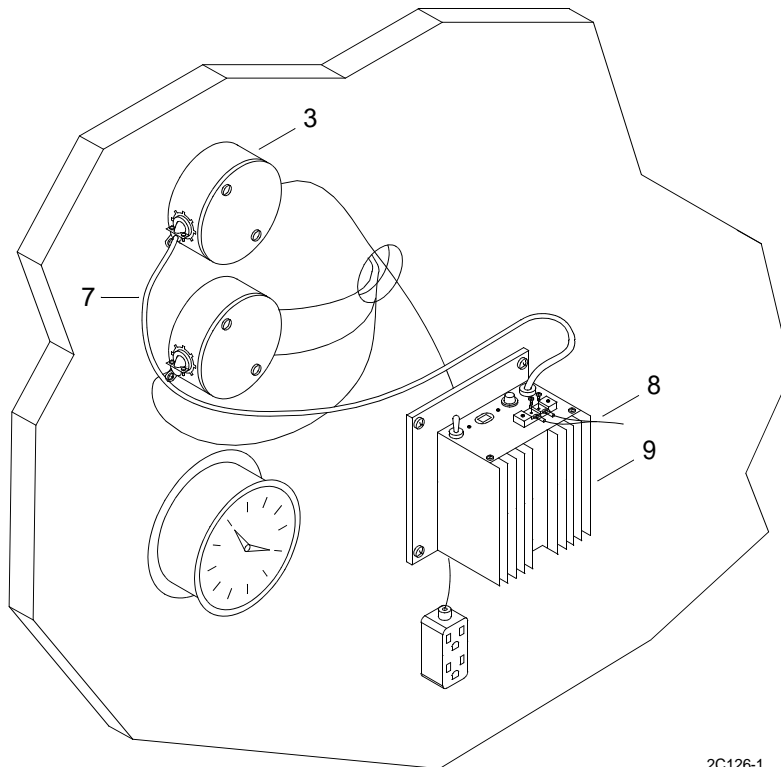
Engineer 88L

REMOVE NAVIGATION PLGR/NAVTEX POWER SUPPLY

WARNING

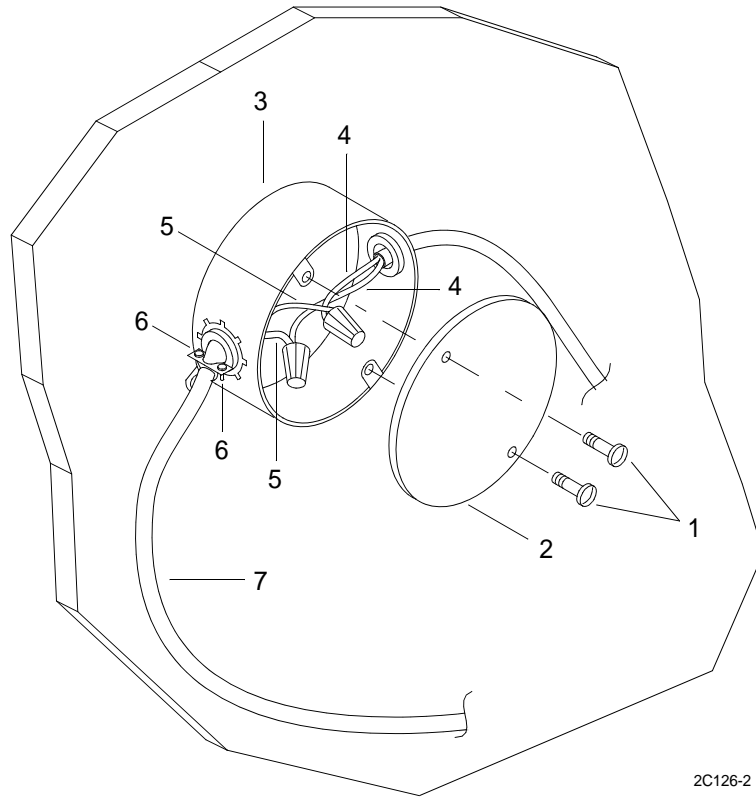
**ELECTRICAL**

1. Turn power off at circuit breaker 19 in EP103 circuit breaker panel.
2. Open wiring junction box (3) above chart table.



2C126-1

- a. Remove two screws (1) attaching cover (2) to junction box (3).



2C126-2

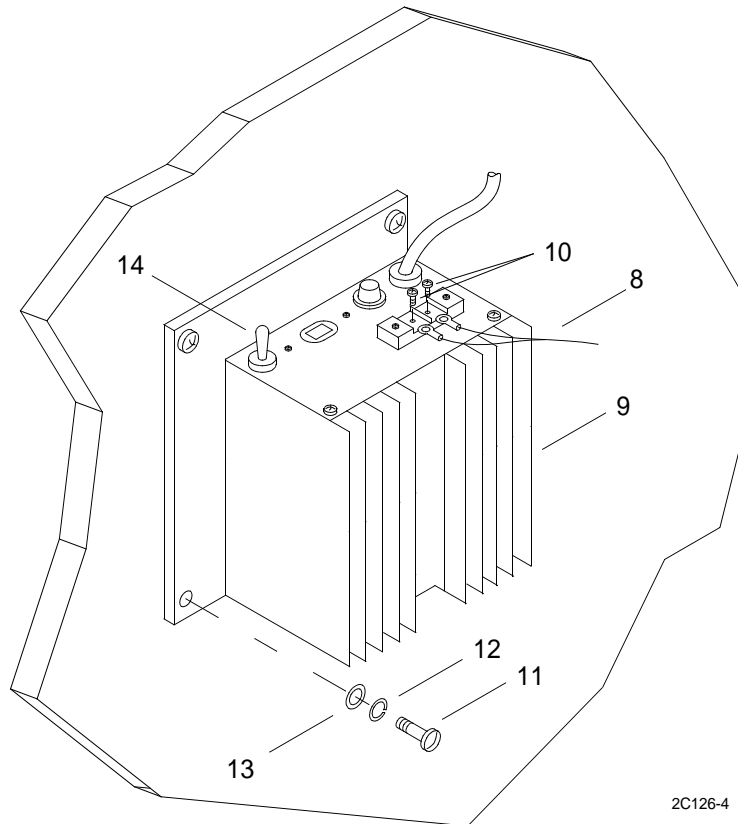
- b. Remove junction box cover (3).

NOTE

Mark or tag ship's power wires before detaching power supply wires in junction box.

3. Detach power input wires (4) from power supply wires (5).
4. Loosen clamp screws (6) on junction box (3) securing power supply wires (7).
5. Detach power supply wires (7) from junction box (3).

6. Remove power output wires (8) from power supply (9).

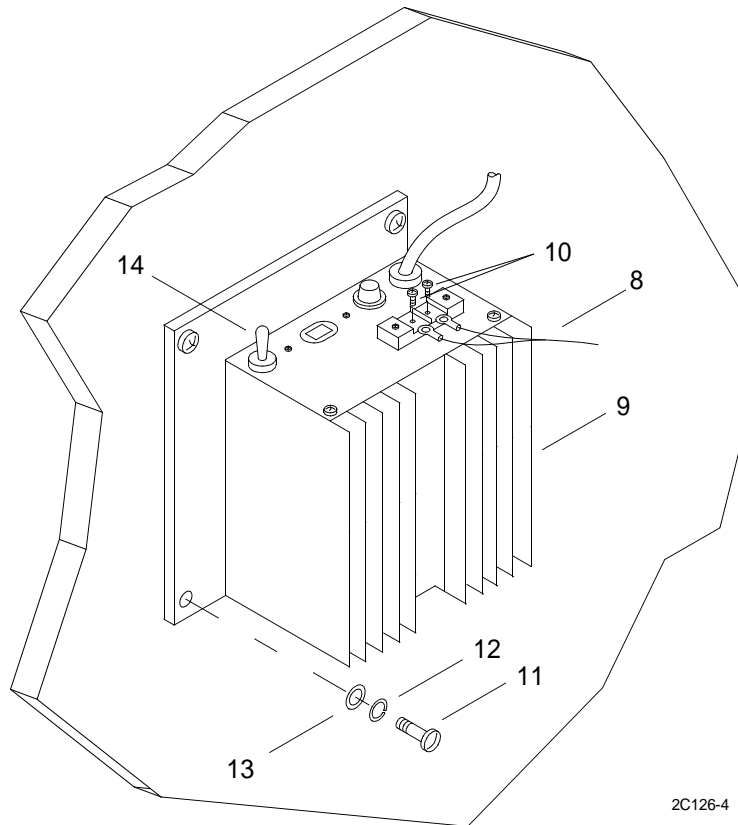


2C126-4

- a. Remove screws (10) attaching output wires (8) to power supply terminals.
 - b. Remove wires (8).
7. Remove four screws (11), lock washers (12) and washers (13) attaching the power supply (9) to the bulkhead.
8. Remove power supply from bulkhead.

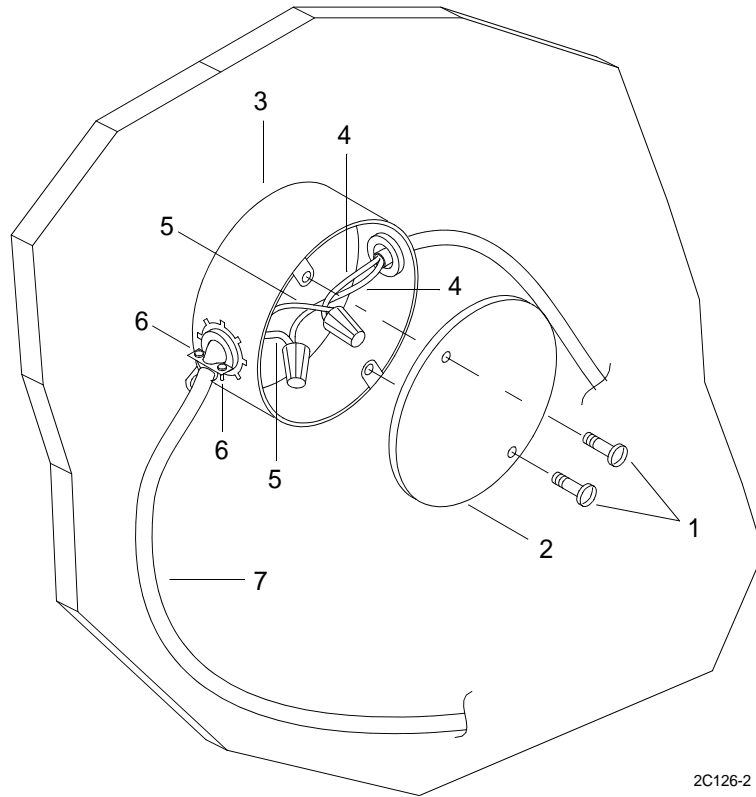
INSTALL NAVIGATION PLGR/NAVTEX POWER SUPPLY

1. Position power supply (9) on bulkhead above chart table.



2. Align mount holes in power supply with holes in bulkhead.
3. Install four flat washers (13), lock washers (12) and screws (11).
4. Tighten screws (11).
5. Install power output wires (8) on power supply output terminals.
 - a. Remove two screws (10) from power supply output terminals.
 - b. Install power output wires (8) on terminals.
 - c. Install two screws (10) through output wire terminals into power supply terminals.

6. Attach power supply input wires (4) to power wires (5) in junction box (3).



2C126-2

7. Tighten junction box wire clamp screws (6).
8. Install junction box cover (2).
 - a. Align holes in cover (2) with holes in junction box (3).
 - b. Install two screws (1) through cover (2) into junction box (3).
 - c. Tighten screws (1).
9. Turn power on at circuit breaker 19 in EP103 circuit breaker panel.
10. Turn power supply switch (14) to the ON position. Verify that NAVTEX and navigation PLGR are operational.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE GMDSS POWER SUPPLY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

GMDSS Power Supply
50-200061

Personnel Required

Engineer 88L

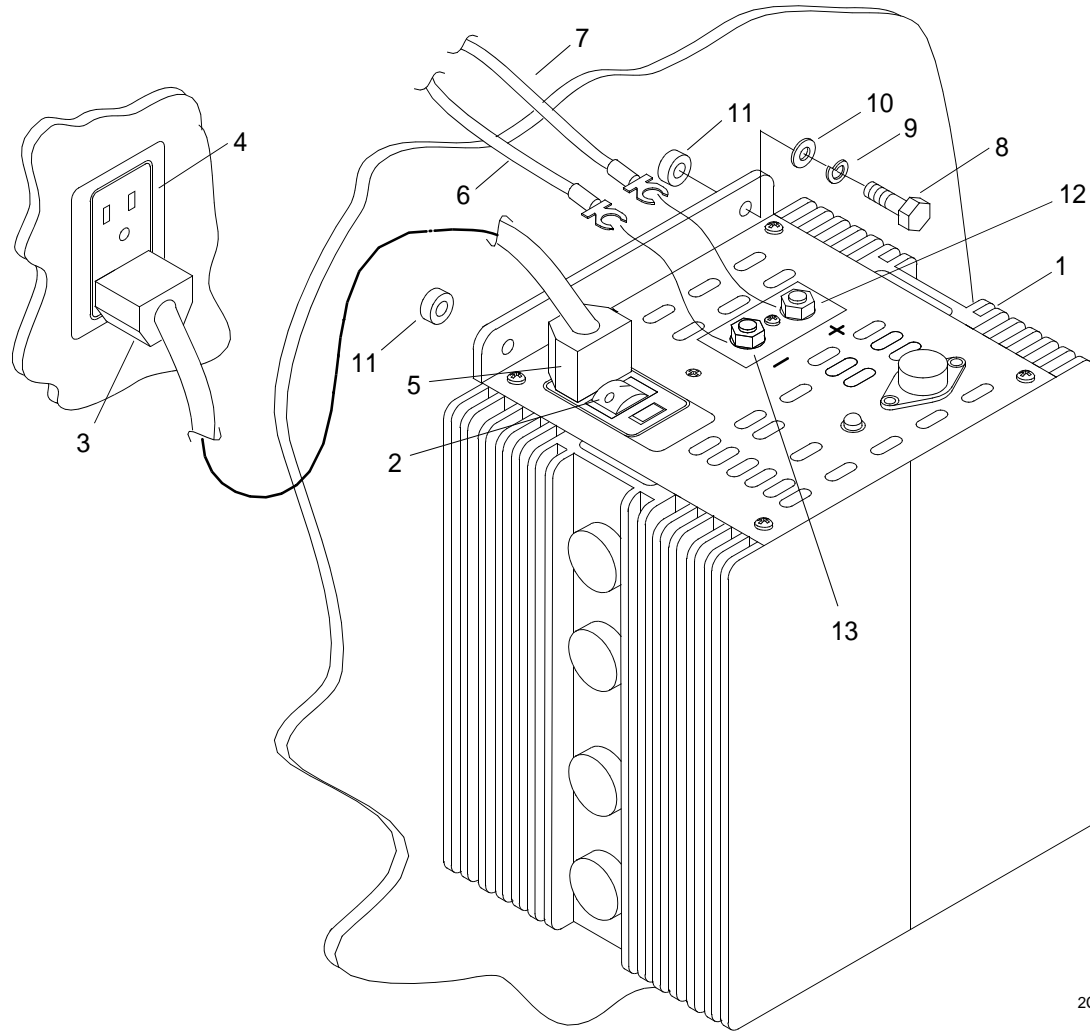
REMOVE GMDSS POWER SUPPLY

WARNING

**ELECTRICAL**

1. Turn power off at the GMDSS power supply (1). Place the switch (2) in the OFF position.
2. Unplug power cord (3) from power receptacle outlet (4).
3. Unplug power cord (5) from GMDSS power receptacle.

- Loosen (12) nut on positive post (+) and remove positive wire (7).



2C142-1

- Loosen nut (13) on negative post (-) and remove negative wire (6).
- Remove four bolts (8), lock washers (9), and flat washers (10) from GMDSS power supply mounting structure stand-offs (11).

INSTALL GMDSS POWER SUPPLY

- Position and align GMDSS power supply (1) to mounting structure stand-offs (11).
- Install four bolts (8), lock washers (9), and flat washers (10) through GMDSS power supply (1) and into mounting structure stand-offs (11). Tighten bolts (8).
- Install negative wire (6) on negative post (-) and tighten nut (13).
- Install positive wire (7) on positive post (+) and tighten nut (12).
- Plug power cord (5) into GMDSS power receptacle.
- Plug power cord (3) into power receptacle outlet (4).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE GMDSS DC CONVERTER

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)
Fuse Puller (Item 7, WP 0166 00)

Materials/Parts

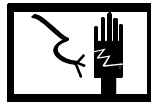
GMDSS DC Converter
50-200063

Personnel Required

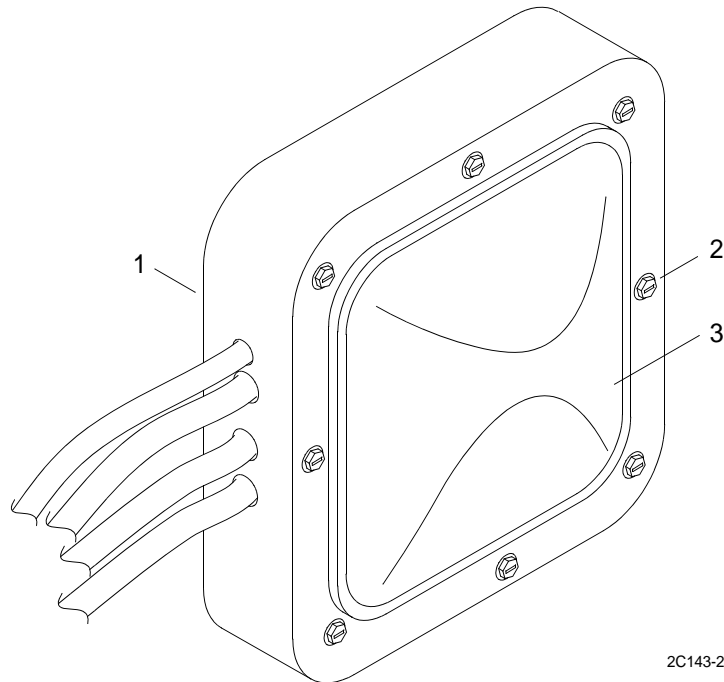
Engineer 88L

REMOVE GMDSS DC CONVERTER

WARNING

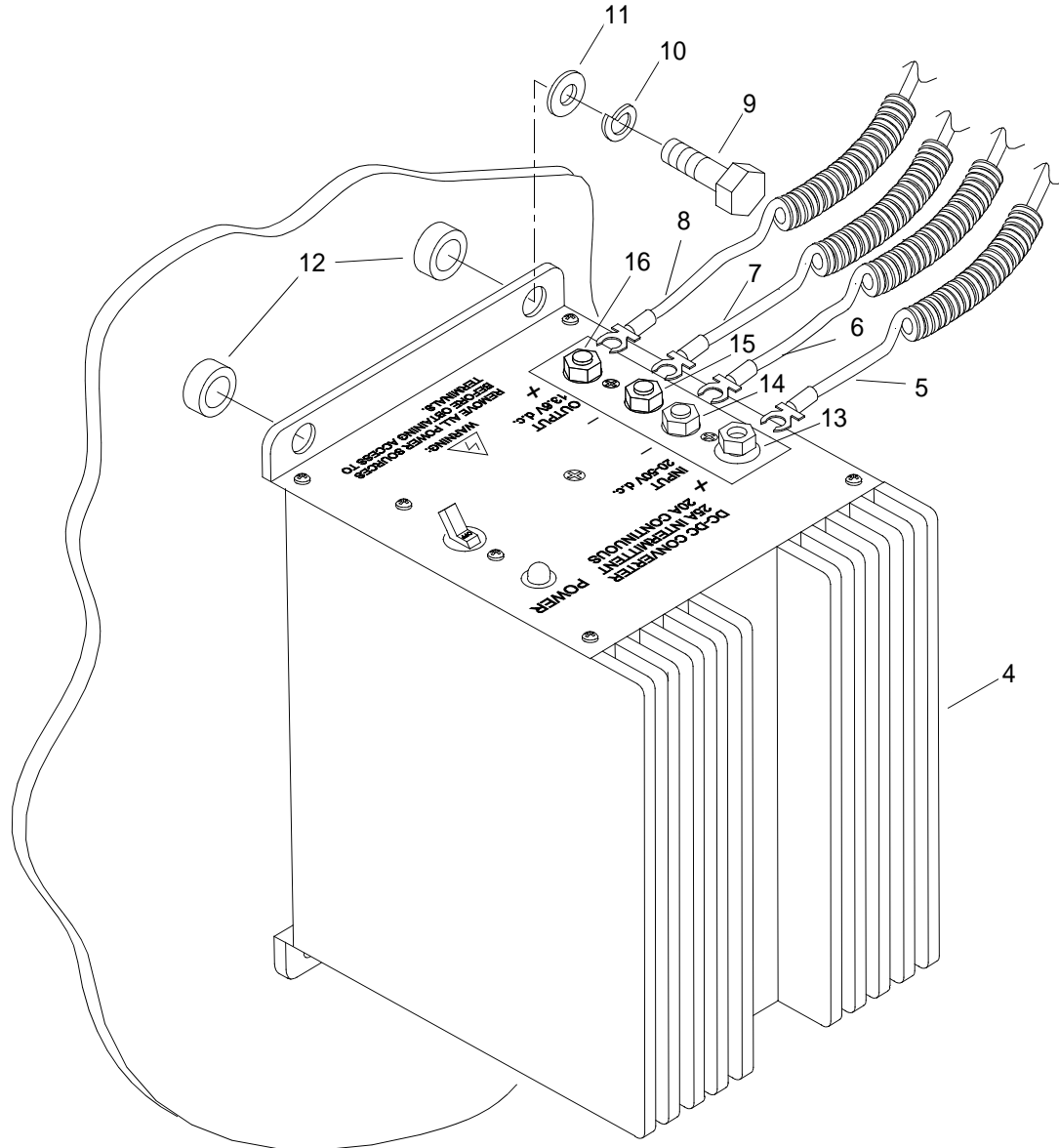
**ELECTRICAL**

1. In radio room, locate fuse box (1) and loosen captive screws (2) 1/4 turn and remove fuse box cover (3).



2. Using fuse puller, remove fuses.

- On DC converter (4), loosen nut (13) on INPUT 20-50VDC positive post (+) and remove positive wire and terminal (5) from post.



2C143-1

- On DC converter (4), loosen nut (14) on INPUT 20-50V d.c. negative post (-) and remove negative wire and terminal (6) from post.
- On DC converter (4), loosen nut (15) on INPUT 13.6VDC negative post (+) and remove positive wire and terminal (7) from post.
- On DC converter (4), loosen nut (16) on INPUT 13.6VDC positive post (-) and remove negative wire and terminal (8) from post.
- Remove four bolts (9), lock washers (10) and flat washers (11) from GMDSS DC converter mounting structure stand-offs (12).

INSTALL GMDSS POWER SUPPLY

1. Position and align GMDSS DC converter (4) to mounting structure stand-offs (12).
2. Install four bolts (9), lock washers (10) and flat washers (11) through GMDSS DC converter (4) and into mounting structure stand-offs (12). Tighten bolts (9).
3. On DC converter (4), attach INPUT 13.6VDC positive wire and terminal (8) on negative post (-) and tighten nut (16).
4. On DC converter (4), attach INPUT 13.6VDC negative wire (7) on positive post (+) and tighten nut (15).
5. On DC converter (4), attach INPUT 20-50VDC negative wire (6) on negative post (-) and tighten nut (14).
6. On DC converter (4), attach INPUT 20-50VDC positive wire (5) on positive post (+) and tighten nut (13).
7. In radio room fuse box (1) install fuses.
8. Position fuse box cover (3) and secure using 1/4 turn captive screws (2).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE GMDSS POWER JUNCTION BOX TERMINAL BLOCK

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

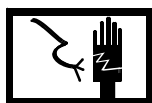
Junction Box Terminal Block
20-200030

Personnel Required

Engineer 88L

REMOVE JUNCTION BOX TERMINAL BLOCK

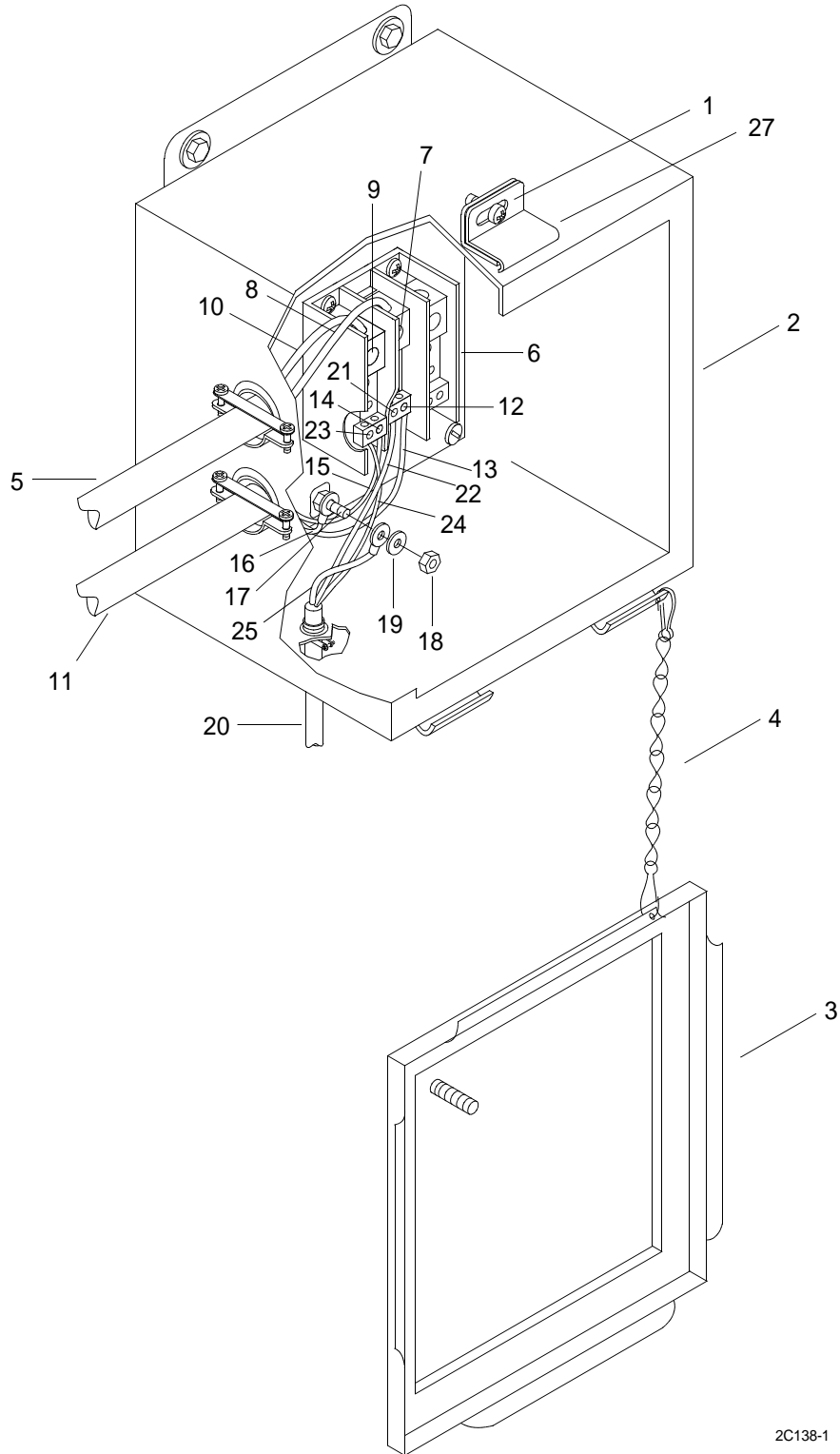
WARNING



ELECTRICAL

1. Turn power off at the GMDSS power supply. Place the switch in the OFF position.
2. Turn power off at the GMDSS DC converter. Place the switch in the OFF position.

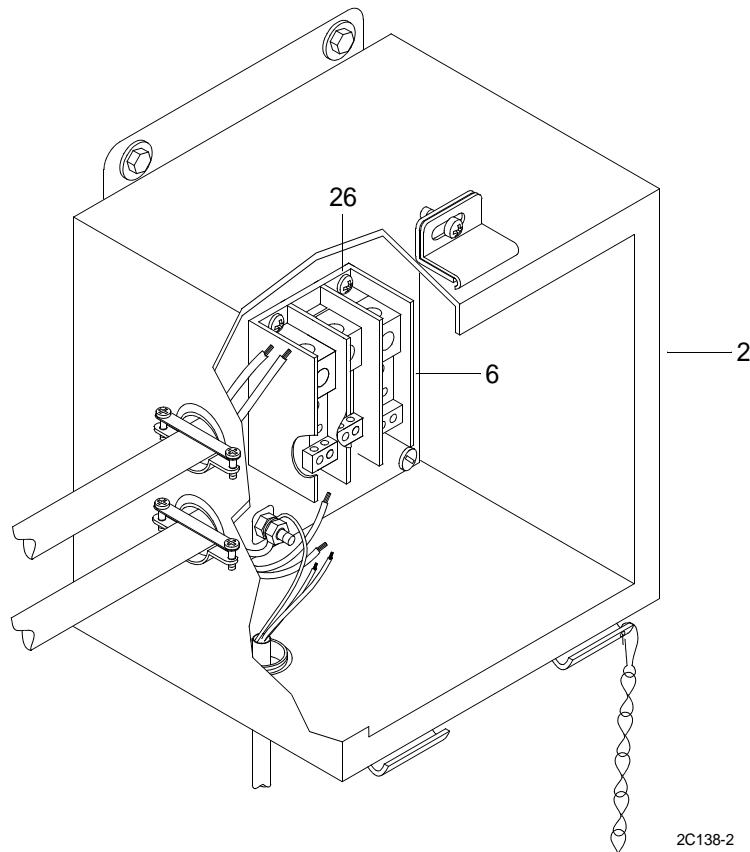
3. Loosen screw (1) located on top of junction box (2), lift bracket (27), remove cover (3) and let hang by chain (4).



2C138-1

4. Disconnect GMDSS POWER cable (5) from junction box terminal block (6).
- a. Loosen screw (7) on junction box terminal block (6) and remove GMDSS POWER cable negative wire (8).

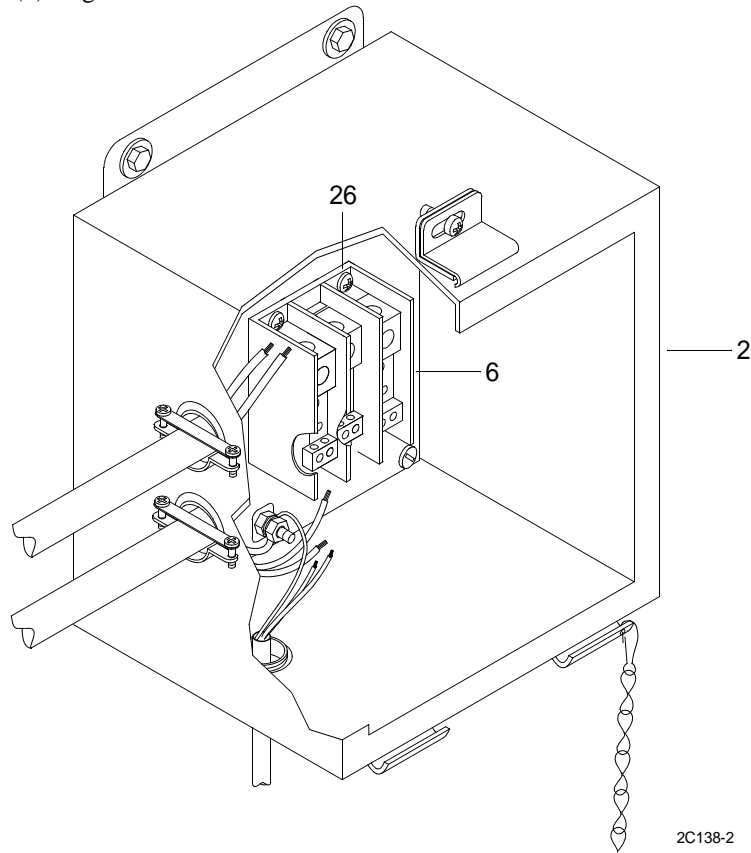
- b. Loosen screw (9) on junction box terminal block (6) and remove GMDSS POWER cable positive wire (10).
5. Disconnect J5 cable (11) from junction box terminal block (6).
 - a. Loosen screw (12) on junction box terminal block (6) and remove J5 cable negative wire (13).
 - b. Loosen screw (14) on junction box terminal block (6) and remove J5 cable positive wire (15).
 - c. Disconnect J5 cable ground wire (16) from ground stud (17).
 - {1} Remove nut (18) and washer (19).
 - {2} Disconnect J5 cable ground wire (16) from ground stud (17).
6. Disconnect PLGRSB-PWR/DC POWER cable (20) from junction box terminal block (6).
 - a. Loosen screw (21) on junction box terminal block (6) and remove PLGRSB-PWR/DC POWER cable negative wire (22).
 - b. Loosen screw (23) on junction box terminal block (6) and remove PLGRSB-PWR/DC POWER cable positive wire (24).
 - c. Disconnect PLGRSB-PWR/DC POWER cable ground wire (25) from ground stud (17).
7. Remove screw (26) from each corner of junction box terminal block (6) and remove terminal block (6) from junction box (2).



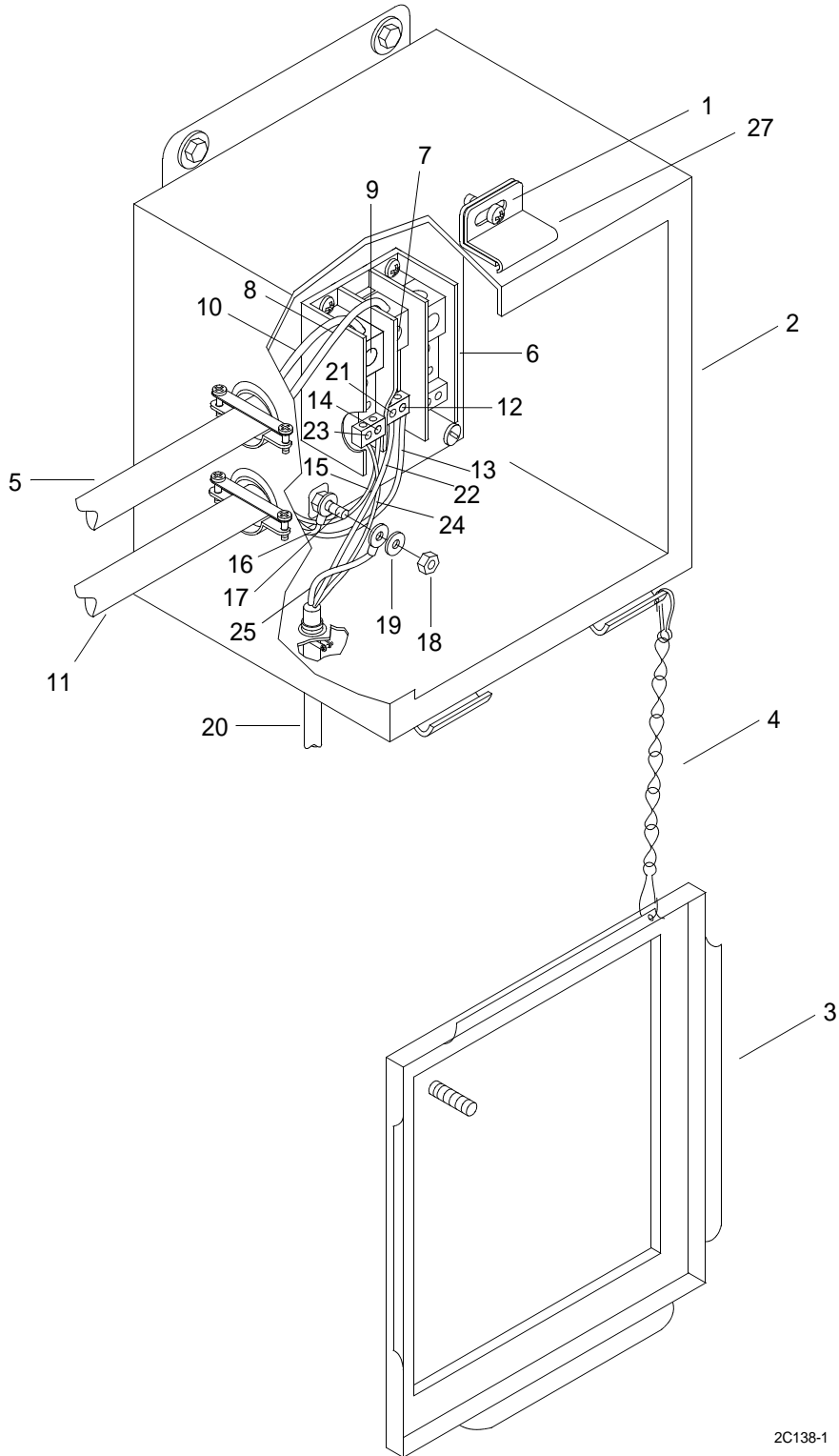
INSTALL JUNCTION BOX TERMINAL BLOCK**NOTE**

Refer to wiring diagrams work package (WP 0154 00) for correct placement of wires in junction box.

1. Align terminal block (6) with holes in junction box (2) and install four screws (26) into each corner of junction box terminal block (6). Tighten screws.

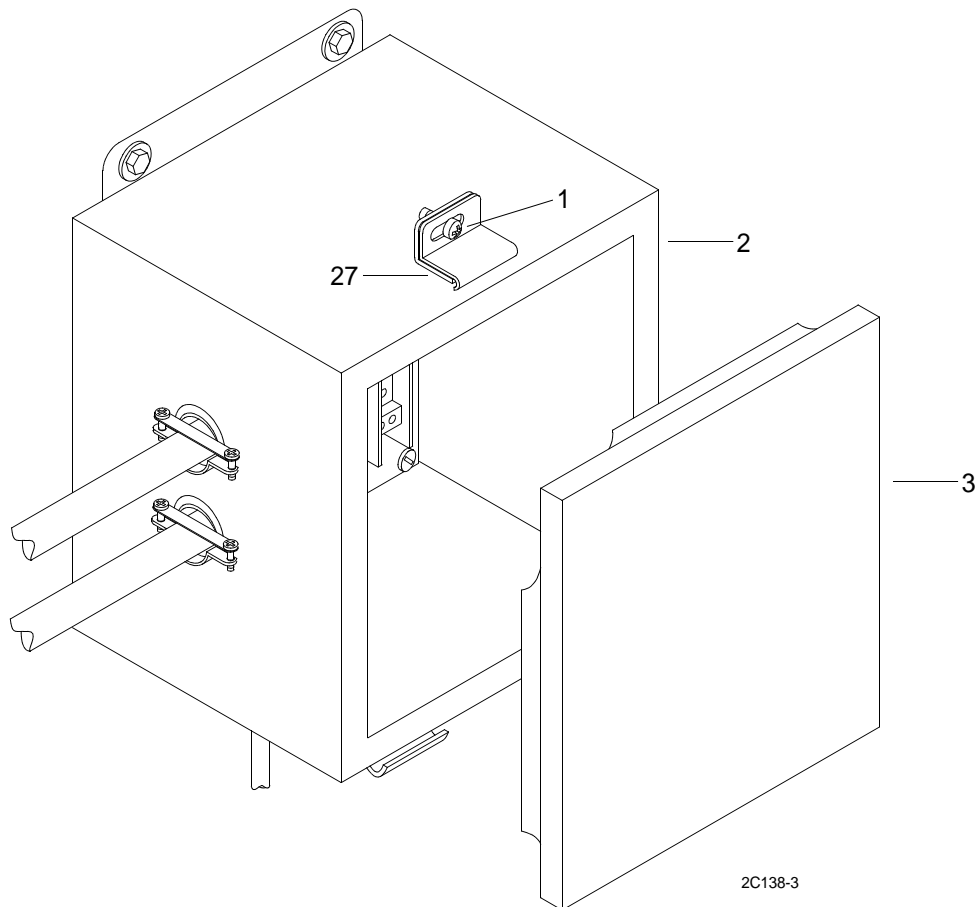


2. Connect PLGRSB-PWR/DC POWER cable (20) to junction box terminal block (6).



2C138-1

- a. Loosen screw (21) and insert PLGRSB-PWR/DC POWER cable negative wire (22) in junction box terminal block (6). Tighten screw.
 - b. Loosen screw (23) and insert PLGRSB-PWR/DC POWER cable positive wire (24) in junction box terminal block (6). Tighten screw.
 - c. Connect PLGRSB-PWR/DC POWER cable ground wire (25) to ground stud (17).
3. Connect J5 cable (11) from junction box terminal block (6).
 - a. Loosen screw (12) and insert J5 cable negative wire (13) in junction box terminal block (6). Tighten screw.
 - b. Loosen screw (14) and insert J5 cable positive wire (15) in junction box terminal block (6). Tighten screw.
 - c. Connect J5 cable ground wire (16) to ground stud (17). Install nut (18) and washer (19). Tighten nut.
 4. Connect GMDSS POWER (5) cable to junction box terminal block (6).
 - a. Loosen screw (7) and insert GMDSS POWER cable negative wire (8) in junction box terminal block (6). Tighten screw.
 - b. Loosen screw (9) insert GMDSS POWER cable positive wire (10) in junction box terminal block (6). Tighten screw.
 5. Install cover (4) on junction box (2).



-
- a. Align cover (4) on junction box (2) and place bracket (27) over edge on cover (4).
 - b. Tighten screw (1) to secure cover (4).
6. Turn power on at the GMDSS DC converter. Place the switch in the ON position.
 7. Turn power on at the GMDSS power supply. Place the switch in the ON position.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE GMDSS POWER JUNCTION BOX

INITIAL SETUP:

Tools

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Junction Box
 20-200028

Personnel Required

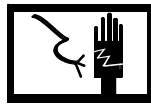
Engineer 88L
 2

Equipment Condition

GMDSS Junction Box Terminal Block Removed. (WP 0143 00)

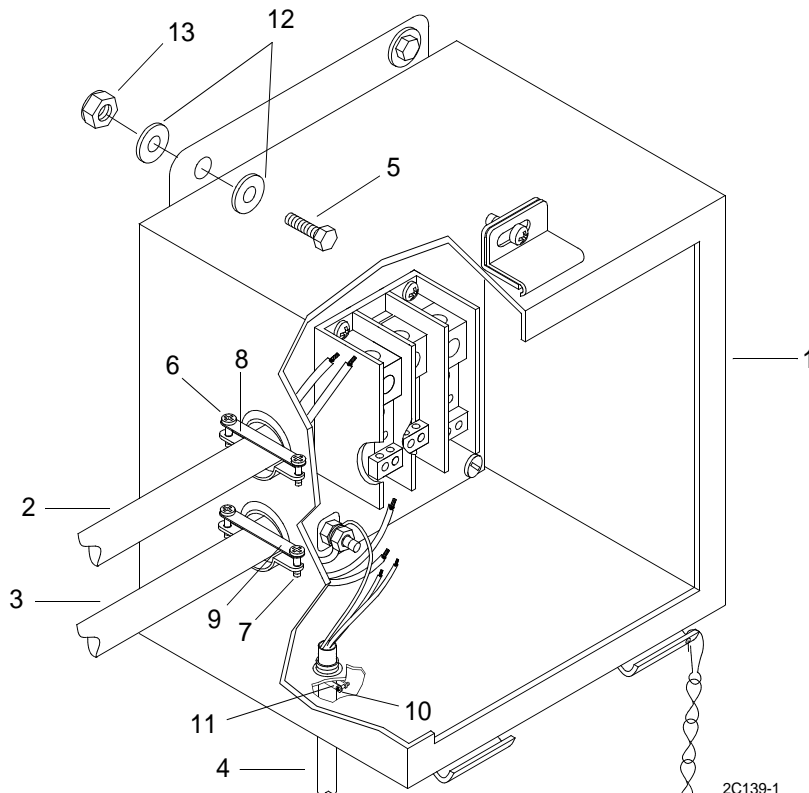
REMOVE JUNCTION BOX

WARNING



ELECTRICAL

1. Remove GMDSS POWER cable (2) from junction box (1).

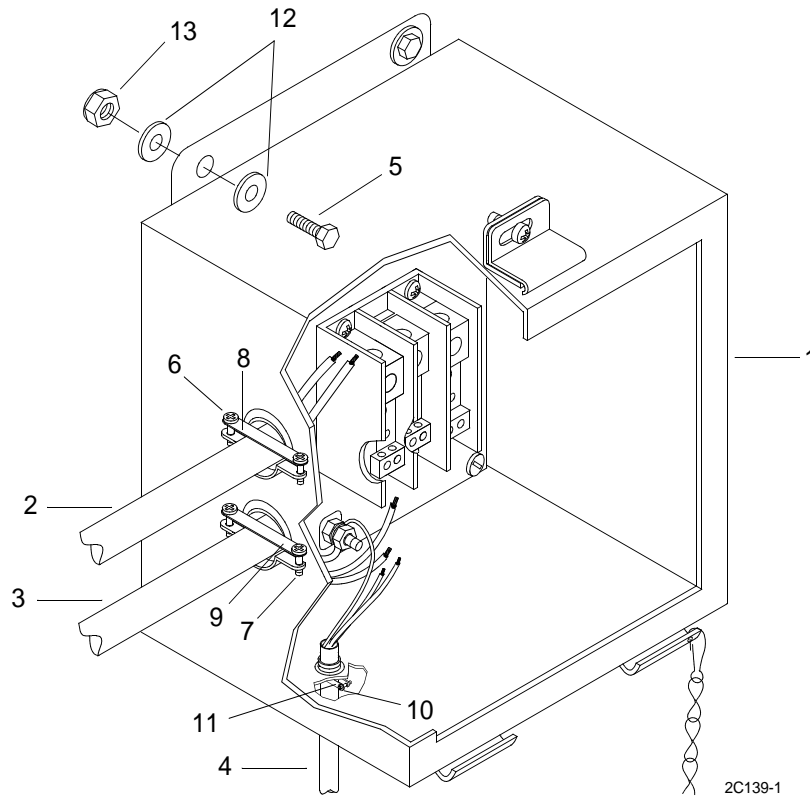


2C139-1

- a. Loosen two screws (6) on clamp (8).
 - b. Pull GMDSS POWER cable (2) from junction box (1).
2. Remove J5 cable (3) from junction box (1).
 - a. Loosen two screws (7) on clamp (9).
 - b. Pull J5 cable (3) from junction box (1).
 3. Remove PLGRSB-PWR/DC POWER cable (4) from junction box (1).
 - a. Loosen two screws (10) on clamp (11).
 - b. Pull PLGRSB-PWR/DC POWER cable (4) from junction box (1).
 4. Remove four bolts (5), eight washers (12) and four nuts (13). Remove junction box (1).

INSTALL JUNCTION BOX

1. Align junction box (1) with mounting holes and install four bolts (5), eight washers (12) and four nuts (13). Tighten bolts (5) and nuts (13).



2C139-1

2. Install PLGRSB-PWR/DC POWER cable (4) in junction box (1).
 - a. Push PLGRSB-PWR/DC POWER cable (4) into junction box (1).
 - b. Tighten two screws (10) on clamp (11) to secure cable.

-
3. Install J5 cable (3) in junction box (1).
 - a. Push J5 cable (3) into junction box (1).
 - b. Tighten two screws (7) on clamp (9) to secure cable.
 4. Install GMDSS POWER cable (2) in junction box (1).
 - a. Push GMDSS POWER cable (2) into junction box (1).
 - b. Tighten two screws (6) on clamp (8) to secure cable.
 5. Install junction box terminal block. (WP 0143 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE COMMUNICATIONS PLGR POWER CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

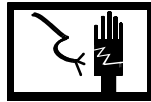
Communications Power Cable
50-200027

Personnel Required

Engineer 88L

REMOVE PLGR COMMUNICATIONS POWER CABLE

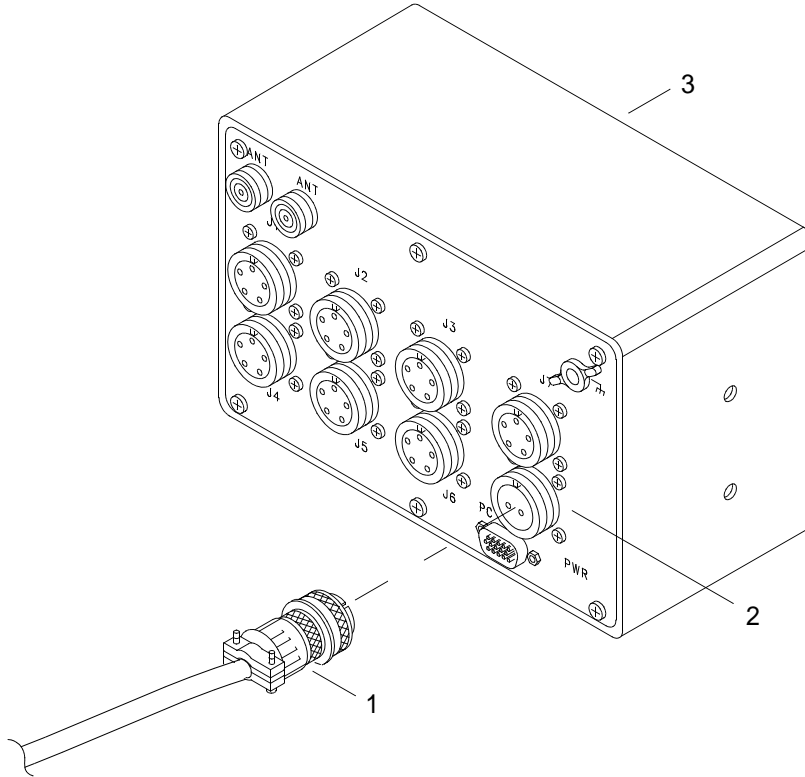
WARNING



ELECTRICAL

1. Turn power off at GMDSS power supply. Place the switch in the OFF position.
2. Turn power off at GMDSS DC converter. Place the switch in the OFF position.

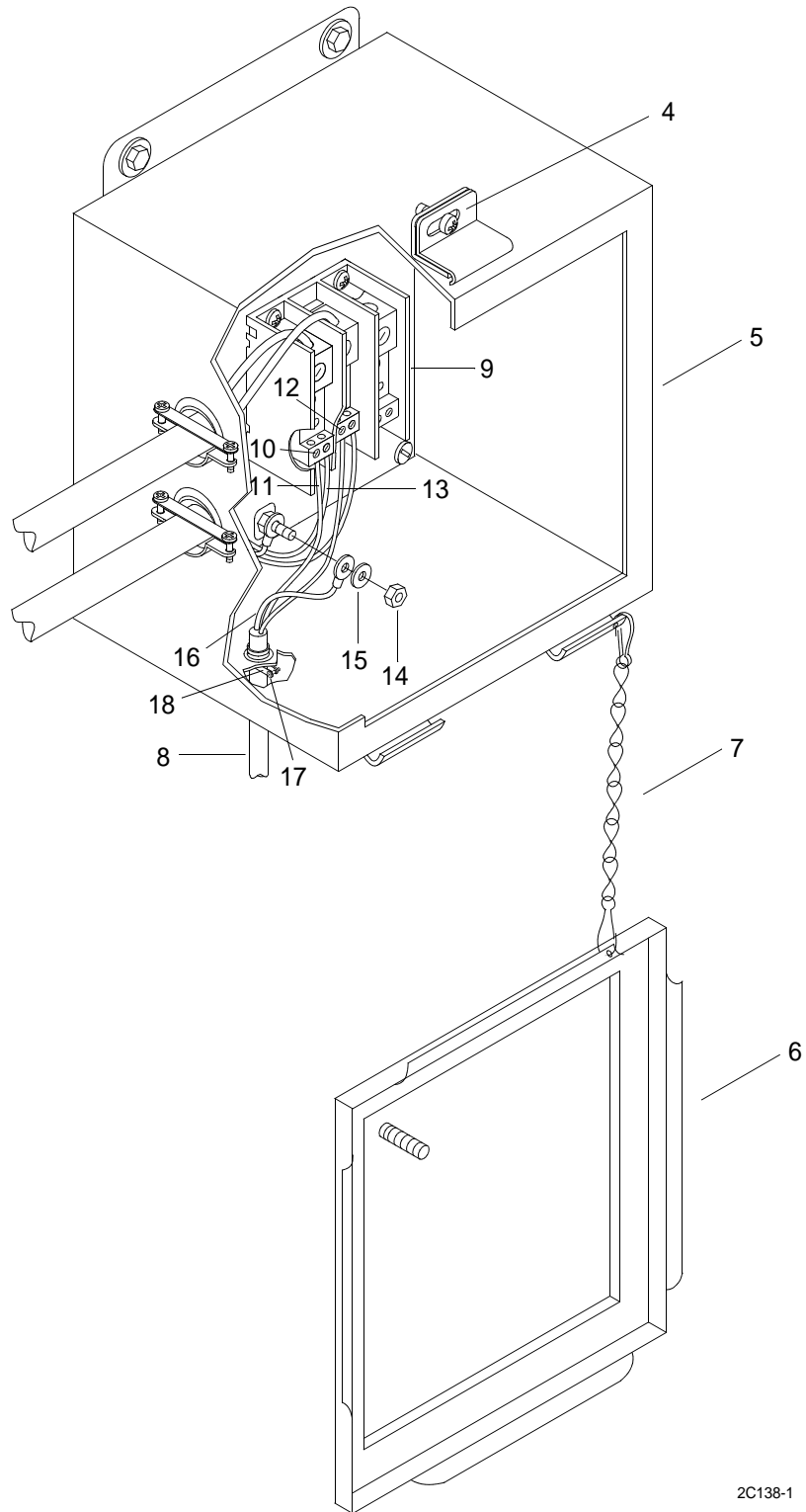
3. Loosen the connector shell of the power cable plug (1) tagged GMDSS POWER on the back of the AN/PSN-11 interface and switchbox.



2C141-6

4. Unplug the power cable plug (1) from the port (2) of the AN/PSN-11 interface and switchbox (3) back.

5. Loosen screw (4) located on top of junction box (5), remove cover (6) and let hang by chain (7).

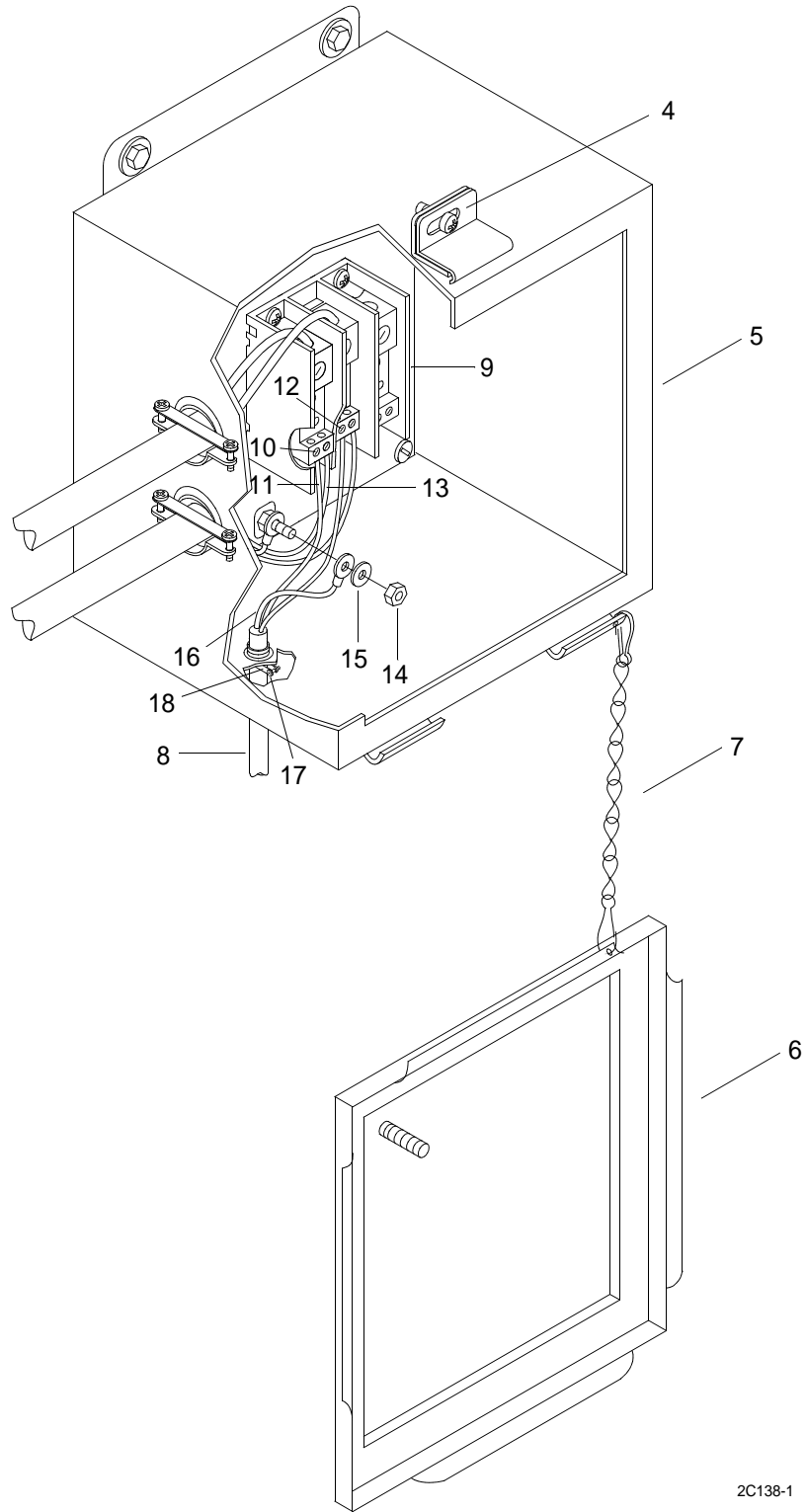


2C138-1

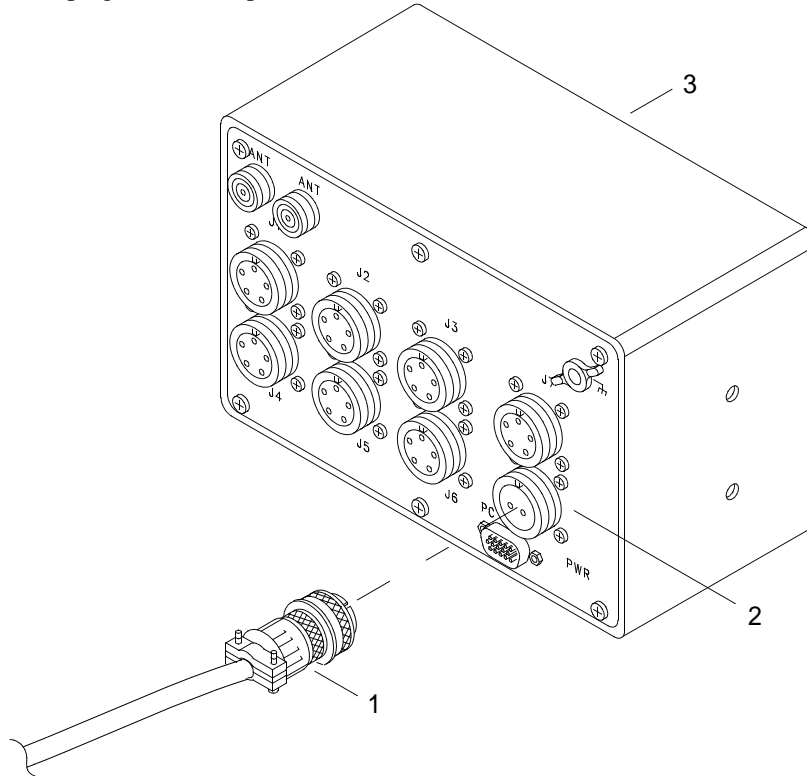
6. Disconnect PLGRSB-PWR/DC POWER cable (8) from junction box terminal block (9).
 - a. Loosen screw (10) on junction box terminal block (9) and remove PLGRSB-PWR/DC POWER cable negative wire (11).
 - b. Loosen screw (12) on junction box terminal block (9) and remove PLGRSB-PWR/DC POWER cable positive wire (13).
 - c. Remove nut (14) and washer (15) from ground stud and remove PLGRSB-PWR/DC POWER cable ground wire (16).
 - d. Loosen screws (17) on junction box cable clamp (18) to release GMDSS PLGR communications power cable (8).
 - e. Remove GMDSS PLGR communications power cable (8) from junction box (5).
7. Remove nylon cable ties that secures GMDSS PLGR communications power cable to other cables.

INSTALL COMMUNICATIONS PLGR POWER CABLE

1. Insert PLGRSB-PWR/DC POWER cable (8) into junction box and connect to terminal block (9).



- a. Loosen screw (10) and insert PLGRSB-PWR/DC POWER cable negative wire (11) in junction box terminal block (9). Tighten screw (10).
 - b. Loosen screw (12) and insert PLGRSB-PWR/DC POWER cable positive wire (13) in junction box terminal block (9). Tighten screw (12).
 - c. Install PLGRSB-PWR/DC POWER cable ground wire (16) to ground stud and secure with washer (15) and nut (14).
 - d. Tighten screws (17) on junction box cable clamp (18) to secure GMDSS PLGR communications power cable (8).
2. Plug the power cable plug (1) into the port (2) of the AN/PSN-11 interface and switchbox (3) back.



2C141-6

3. Tighten the connector shell of the power cable plug (1), tagged GMDSS POWER, on the back of the AN/PSN-11 interface and switchbox.
4. Install nylon cable ties that secures GMDSS PLGR communications power cable to other cables.
5. Turn power on at the GMDSS DC converter. Place the switch in the ON position.
6. Turn power on at the GMDSS power supply. Place the switch in the ON position.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE J2 EXTERNAL CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 4, WP 0166 00)

Materials/Parts

J2 External Cable

50-200064

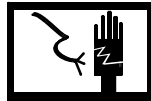
Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

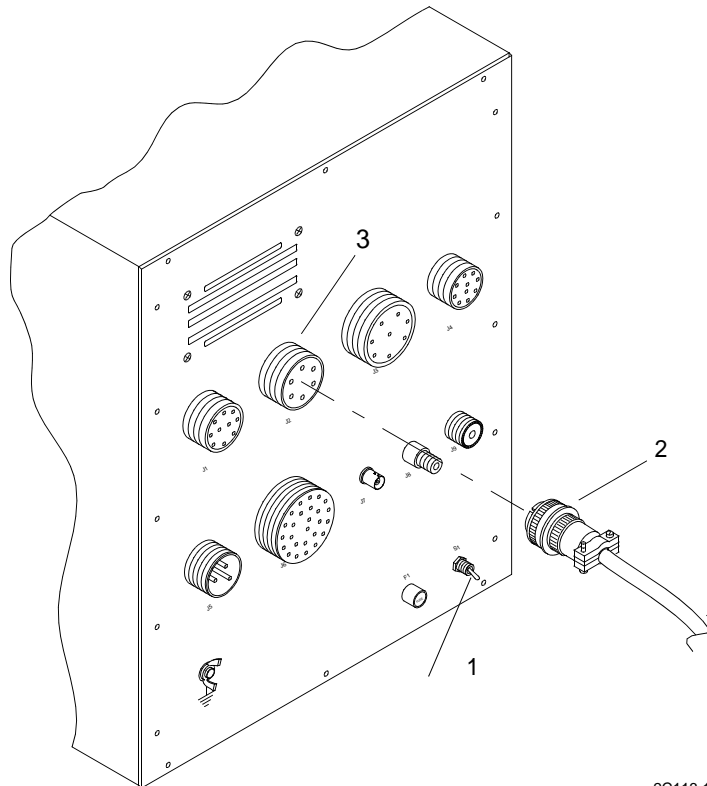
Engineer 88L

REMOVE J2 EXTERNAL CABLE

WARNING

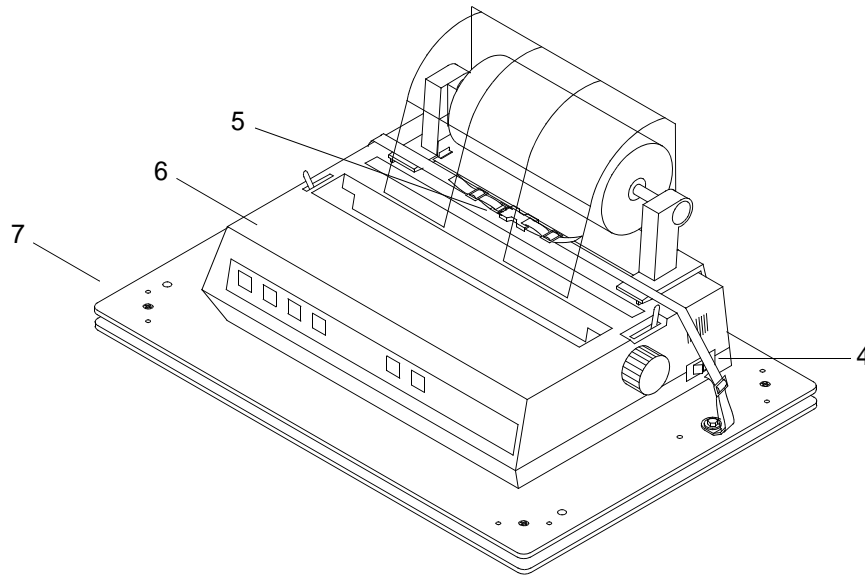
**ELECTRICAL**

1. On back of 9701 console place switch S1 (1) to OFF position (down).



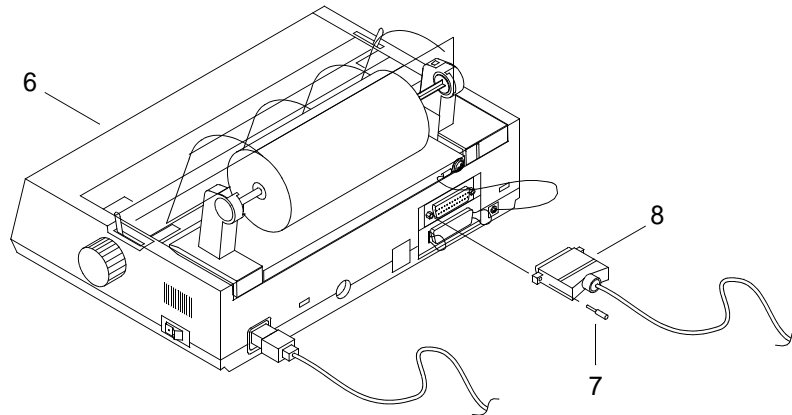
2C113-1

2. Loosen the connector shell of the J2 cable plug (2), tagged GMDSS-J2/HF PRN, on the back of the 9701 console.
3. Unplug the J2 cable plug (2) from the port (3) of the 9701 console back.
4. Make sure serial printer power switch is OFF.



2C113-2

5. Release quick disconnect buckle (5) on strap that holds printer (6) on plate (7).
6. Lift up on front of printer (6) to release printer from hook and pile tape.



2C113-3

7. Loosen the mounting screw (7) on each side of the J2 parallel port plug shell, tagged GMDSS-J2/HF PRN, from the back of the printer (6). Remove plug (8).
8. Remove nylon cable ties that secure J2 external cable to other cables.

INSTALL J2 EXTERNAL CABLE

1. Plug the J2 plug (2), tagged GMDSS-J2/HF PRN, into the port (3) of the 9701 console back.
2. Tighten the connector shell of the J2 cable plug (2).
3. Plug the J2 cable plug (8), tagged GMDSS-J2/HF PRN, into the port of the serial data printer. Tighten mounting screw (7) on each side of the J2 parallel port plug shell.
4. Install nylon cable ties and secure J2 external cable to other cables.
5. Position printer and press down to attach printer with hook and pile tape.
6. Place strap around printer and attach quick release buckle (5).
7. On back of 9701 console place switch S1 (1) to ON position (up).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE J3 EXTERNAL CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

J3 External Cable

50-200065

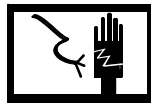
Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

Engineer 88L

REMOVE J3 EXTERNAL CABLE

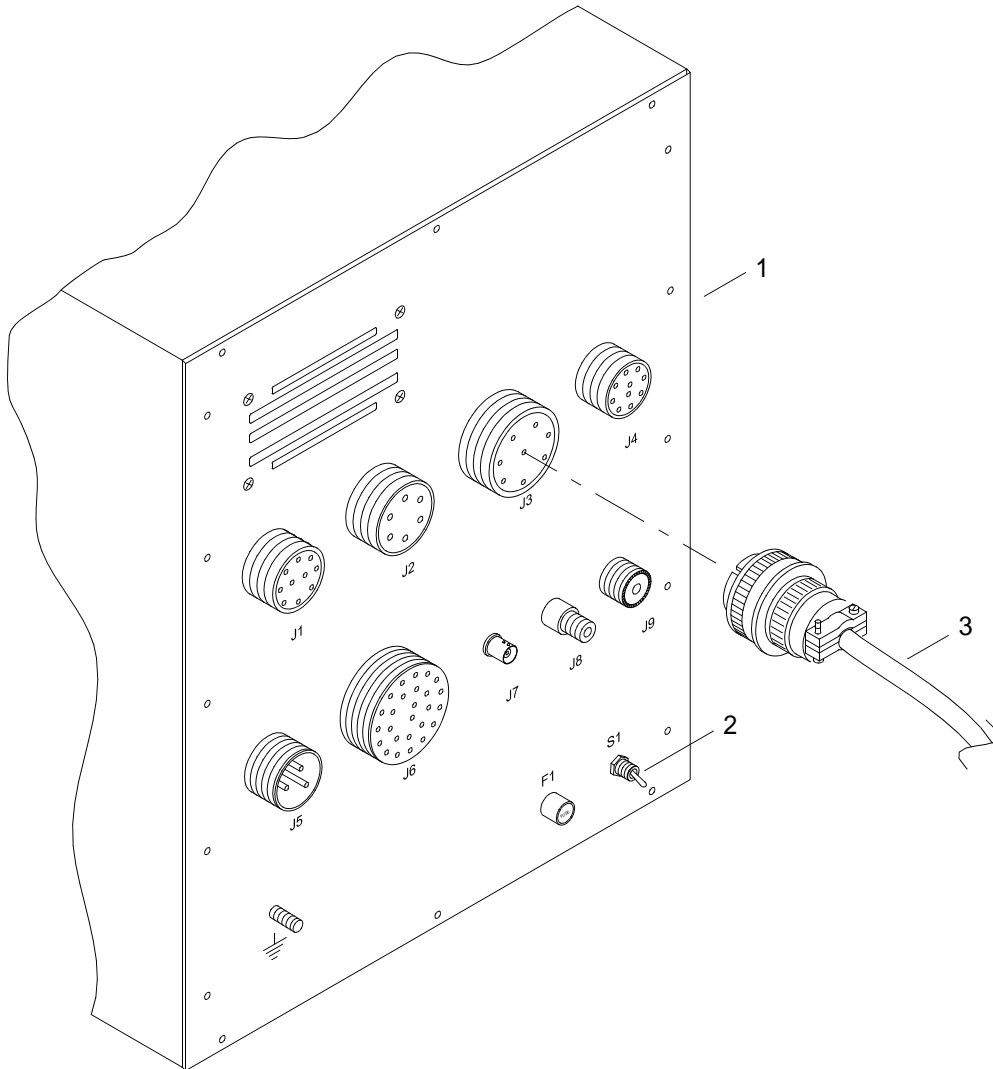
WARNING



ELECTRICAL

1. Turn power switch to OFF (center) position on front of communications interface and switchbox.

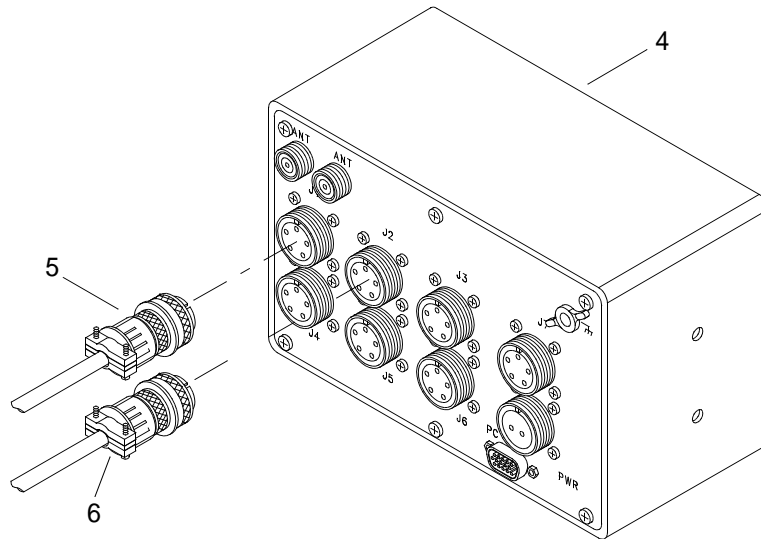
2. Turn power off on back of 9701 console. Place switch S1 to OFF (down) position.



2C132-8

3. Loosen the connector shell of the J3 cable plug (3), tagged GMDSS-J3/PSN11 J-BOX, on the back of the 9701 console.
4. Unplug the J3 cable plug (3) from the J3 connector of the 9701 console back (1).

- Loosen the connector shell of the J1 cable plug (5), tagged PLGRSB-J1/GMDSS J3 HF, from the J1 connector on the back of the communications interface and switchbox (4).

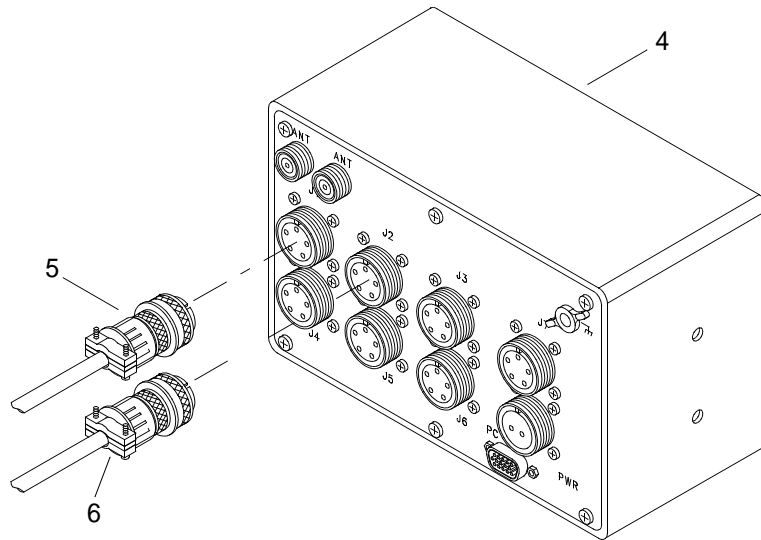


2C132-9

- Unplug the J1 cable plug (5) from the J1 connector of the communications interface and switchbox back (4).
- Loosen the connector shell of the J2 cable plug (6), tagged PLGRSB-J2/GMDSS J3 C, from the J2 connector on the back of the communications interface and switchbox (4).
- Unplug the J2 cable plug (6) from the J2 connector of the communications interface and switchbox back (4).
- Remove nylon cable ties securing J3 cable.
- Remove J3 cable.

INSTALL J3 EXTERNAL CABLE

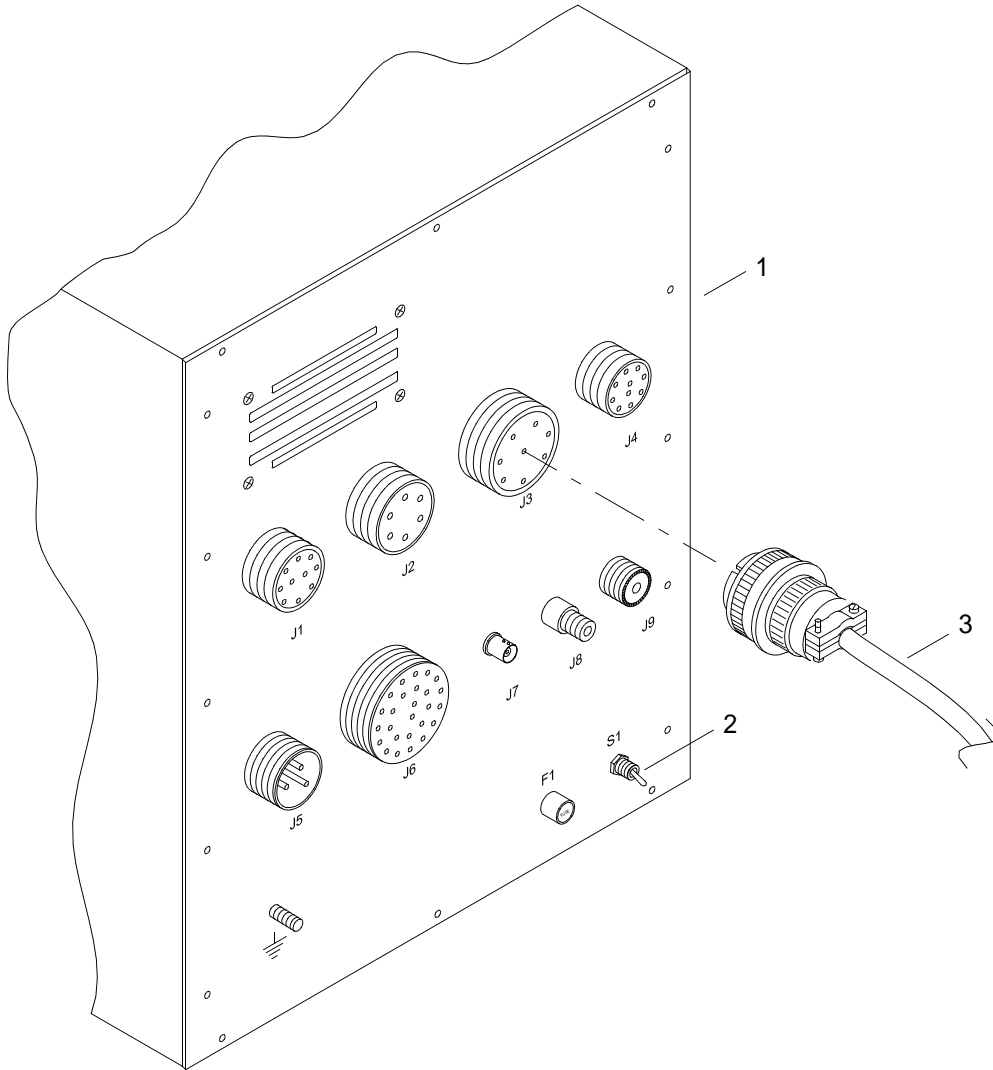
1. Connect the connector shell of the J2 cable plug (6), tagged PLGRSB-J2/GMDSS J3 C, to the J2 connector on the back of the communications interface and switchbox (4).



2C132-9

2. Tighten the J2 cable plug (6) on the J2 connector of the communications interface and switchbox back (4).
3. Connect the connector shell of the J1 cable plug (5), tagged PLGRSB-J1/GMDSS J3 HF, to the J1 connector on the back of the communications interface and switchbox (4).
4. Tighten the J1 cable plug (5) on the J1 connector of the communications interface and switchbox back (4).

5. Plug the J3 cable plug (3), tagged GMDSS-J3/PSN11 J-BOX, onto the J3 connector of the 9701 console back (1).



2C132-8

6. Tighten the connector shell of the J3 cable plug (3) on the back of the 9701 console (1).
7. Secure J3 cable with nylon cable ties.
8. On back of 9701 console place power switch S1 to ON (up) position.
9. Turn power switch to ON (center) position on front of communications interface and switchbox.

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE J4 EXTERNAL CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 1, WP 0166 00)

Materials/Parts

J4 External Cable

50-200066

Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

Engineer 88L

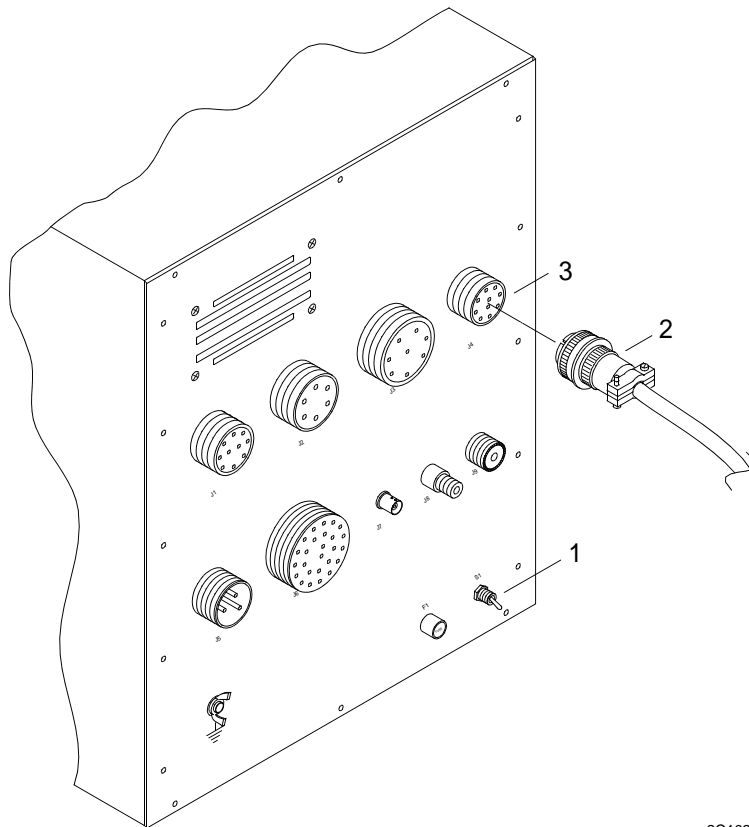
REMOVE J4 EXTERNAL CABLE

WARNING



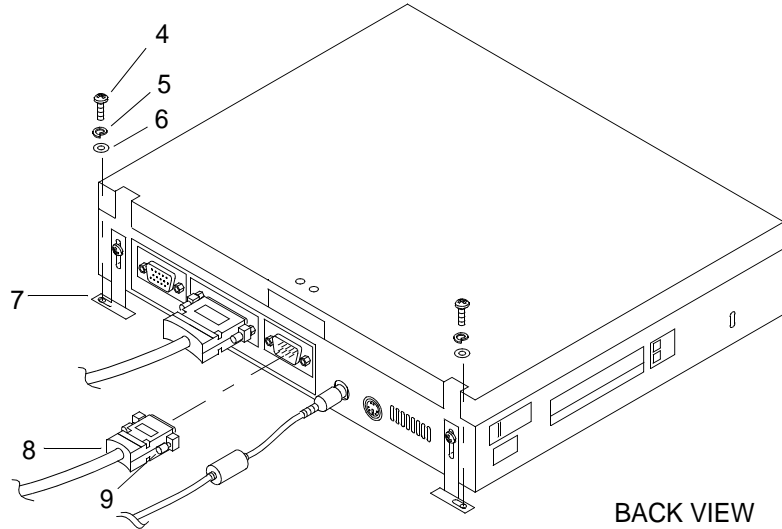
ELECTRICAL

1. On back of 9701 console place switch S1 (1) to OFF position (down).



2C102-1

- Loosen the connector shell of the J4 cable plug (2), tagged GMDSS-J4/IBM-TERM, on the back of the 9701 console.



2C102-2

- Unplug the J4 cable plug (2) from the port (3) of the 9701 console back.
- Remove screw (4), lock washer (5), and washer (6) from bracket (7) located on the back of each side of data terminal.
- Lift up on front of data terminal to release terminal from hook and pile tape.
- Slide data terminal forward to access rear of terminal.
- Loosen the mounting screw (9) on each side of the connector shell of the J4 cable plug (9), tagged GMDSS-J4/IBM-TERM.
- Unplug the J4 cable plug (9) from the port of the data terminal.
- Remove nylon cable ties securing J4 external cable to other cables.
- Remove J4 cable.

INSTALL J4 EXTERNAL CABLE

- Plug the J4 plug (2), tagged GMDSS-J4/IBM-TERM, into the port (3) of the 9701 console back.
- Tighten the connector shell of the J4 cable plug (2).
- Plug the J4 cable plug (9), tagged GMDSS-J4/IBM-TERM, into the port of the INMARSAT-C data terminal.
- Tighten the mounting screw (8) on each side of the serial connector shell of the J4 cable plug (9).
- Install nylon cable ties and secure J4 external cable to other cables.
- Slide data terminal aft.
- Press down on front and back of data terminal to attach terminal to hook and pile tape.

-
8. Install washer (6), lock washer (5) and screw (4) in bracket located on the back of each side of data terminal (7).
 9. On back of 9701 console, place switch S1 (1) to ON position (up).

END OF WORK PACKAG

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE J5 EXTERNAL CABLE

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 4, WP 0166 00)

Materials/Parts

J5 External Cable

50-200067

Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

Engineer 88L

REMOVE J5 EXTERNAL CABLE

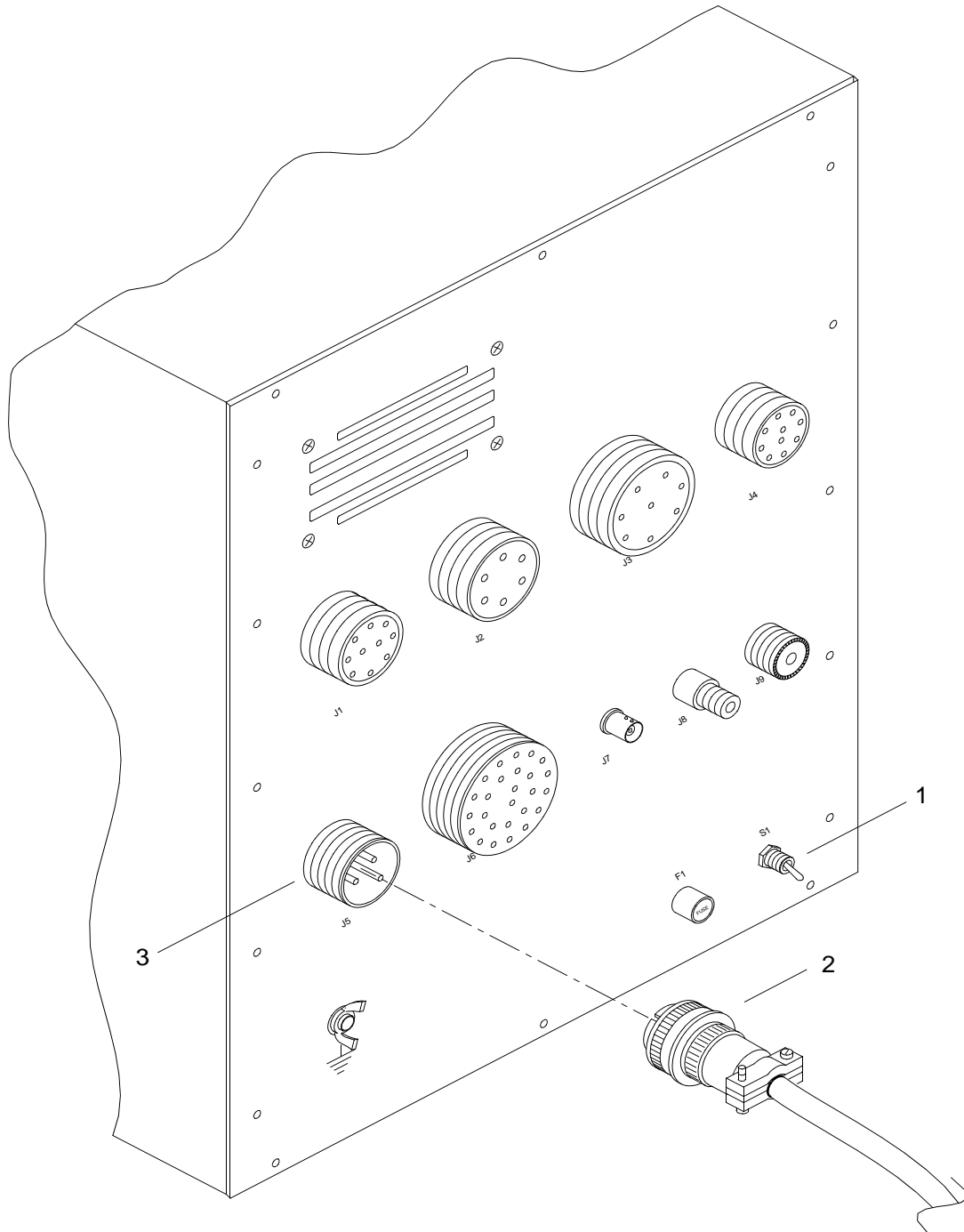
WARNING



ELECTRICAL

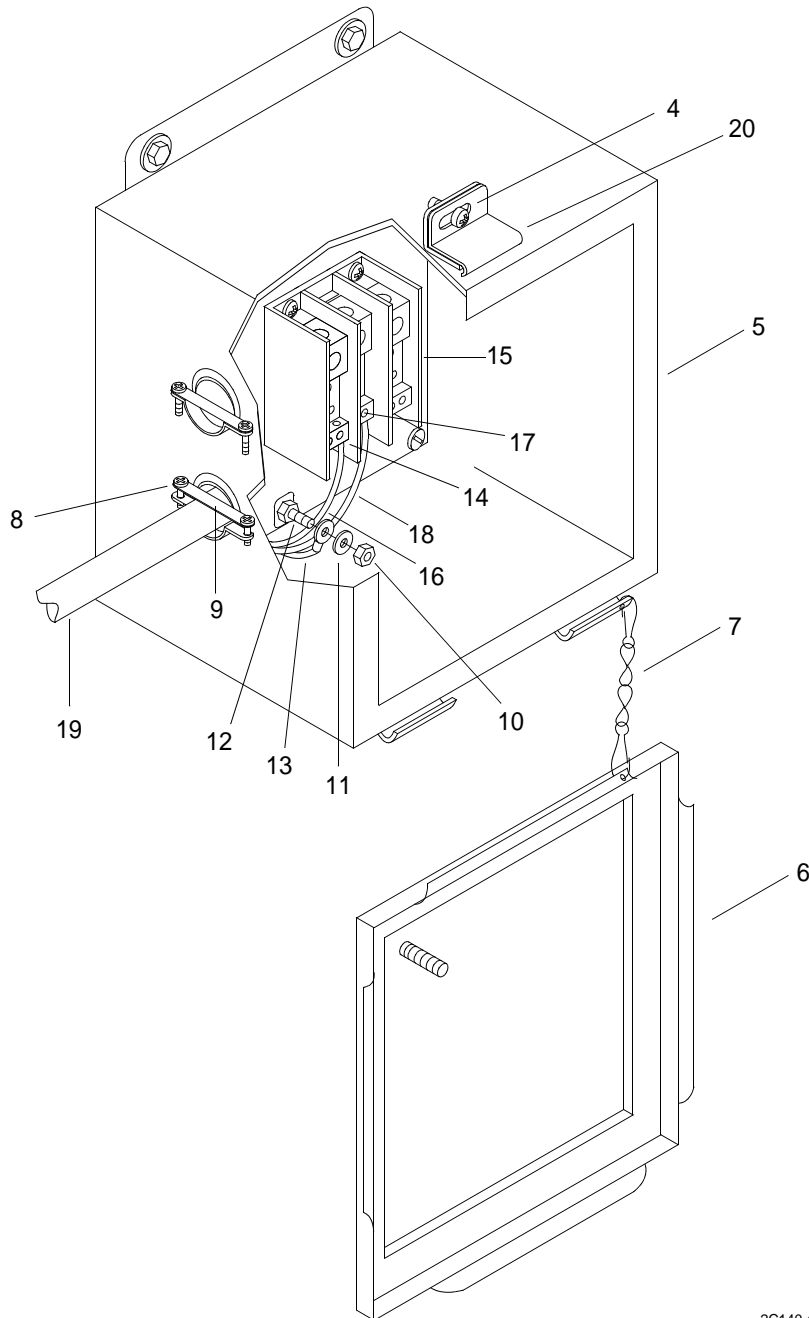
1. Turn power off at the GMDSS power supply. Place the switch in the OFF position.
2. Turn power off at the GMDSS DC converter. Place the switch in the OFF position.

3. Turn switch S1 (1) to OFF (down) position on back of 9701 console.



4. Loosen the connector shell of the J5 cable plug (2), tagged GMDSS-J5/DC POWER, on the back of the 9701 console.
5. Unplug the J5 cable plug (2) from the J5 connector (3) on the back of the 9701 console.

6. Loosen screw (4) located on top of junction box (5), lift bracket (20), remove cover (6) and let hang by chain (7).



2C140-1

7. Loosen two screws (8) on junction box cable clamp (9).
8. Remove nut (10) and washer (11) from ground stud (12) and remove J5 cable ground wire (13).
9. Loosen screw (14) on junction box terminal block (15) and remove J5 cable positive wire (16).
10. Loosen screw (17) on junction box terminal block (15) and remove J5 cable negative wire (18).
11. Remove nylon cable ties securing wires inside junction box.
12. Pull J5 cable (19) and wires through cable clamp (9).

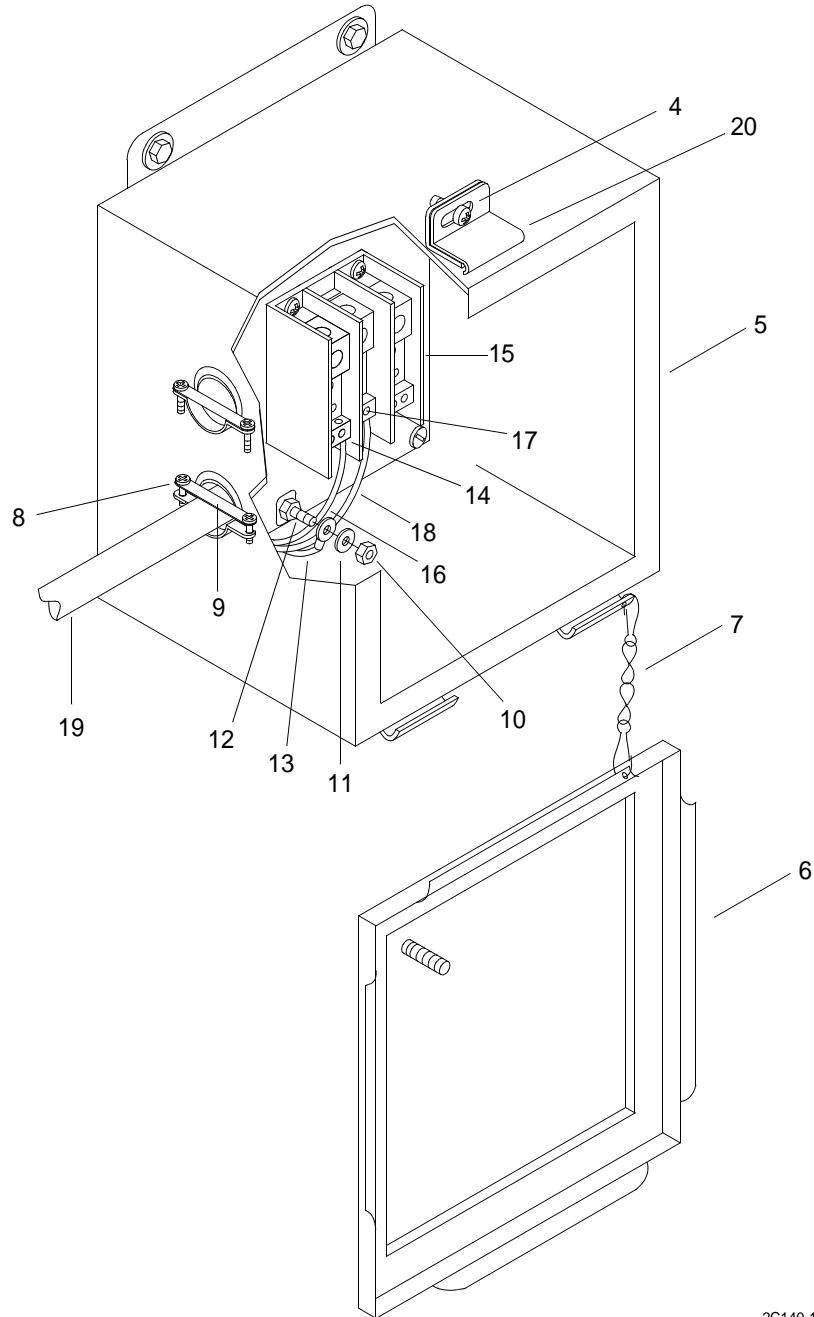
13. Cut and remove nylon cable ties that secure J5 cable.

INSTALL J5 EXTERNAL CABLE

NOTE

Refer to wiring diagrams work package (WP 0154 00) for correct placement of wires in junction box.

1. Push J5 cable (19) and wires through cable clamp (9).



2C140-1

2. Loosen screw (17) on junction box terminal block (15) and insert J5 cable negative wire (18). Tighten screw (17).

3. Loosen screw (14) on junction box terminal block (15) and insert J5 cable positive wire (16). Tighten screw (14).
4. Remove nut (10) and washer (11) from ground stud (12) and install J5 cable ground wire (13). Install washer (11) and nut (10) on ground stud (12). Tighten nut (10).
5. Tighten screws (8) on junction box cable clamp (9).
6. Secure wires in junction box with nylon cable ties.
7. Align cover (6) on junction box (15) and tighten screw (4) located on top of junction box (15).
8. Plug the J5 cable plug (2), tagged GMDSS-J5/DC POWER, into the J3 connector (3) on the back of the 9701 console.
9. Tighten the connector shell of the J5 cable plug (2), tagged GMDSS-J5/DC POWER, on the back of the 9701 console.
10. Install nylon cable ties to secure J5 cable.
11. Turn power on at the GMDSS DC converter. Place the switch in the ON position.
12. Turn power on at the GMDSS power supply. Place the switch in the ON position.
13. Turn switch S1 (1) to ON (up) position on back of 9701 console.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE J6 EXTERNAL CABLE**

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit, (Item 4, WP 0166 00)

Materials/Parts

J6 External Cable

50-200068

Tie, Cable, Nylon (Item 13, WP 0167 00)

Personnel Required

Engineer 88L

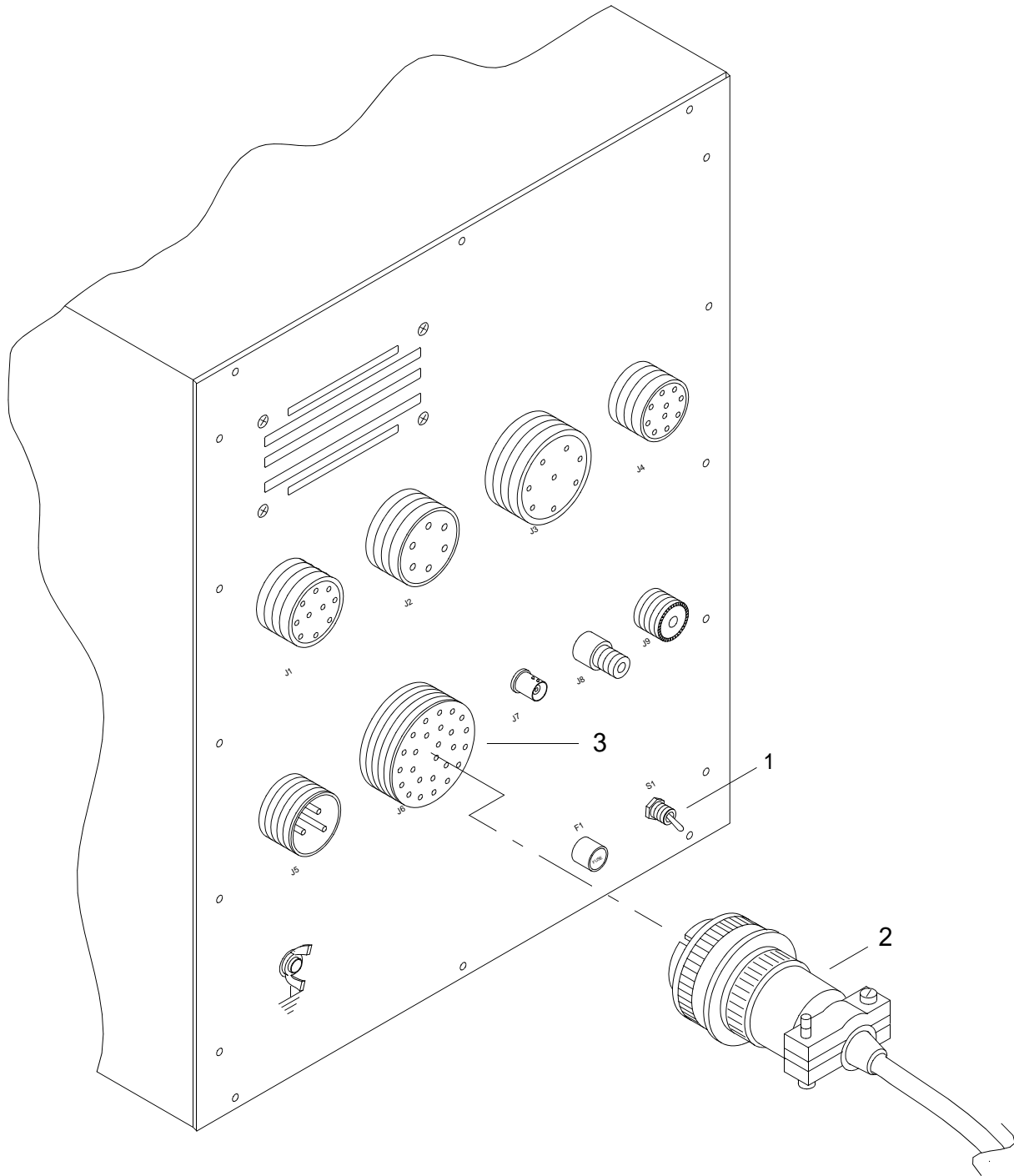
REMOVE J6 EXTERNAL CABLE

WARNING



ELECTRICAL

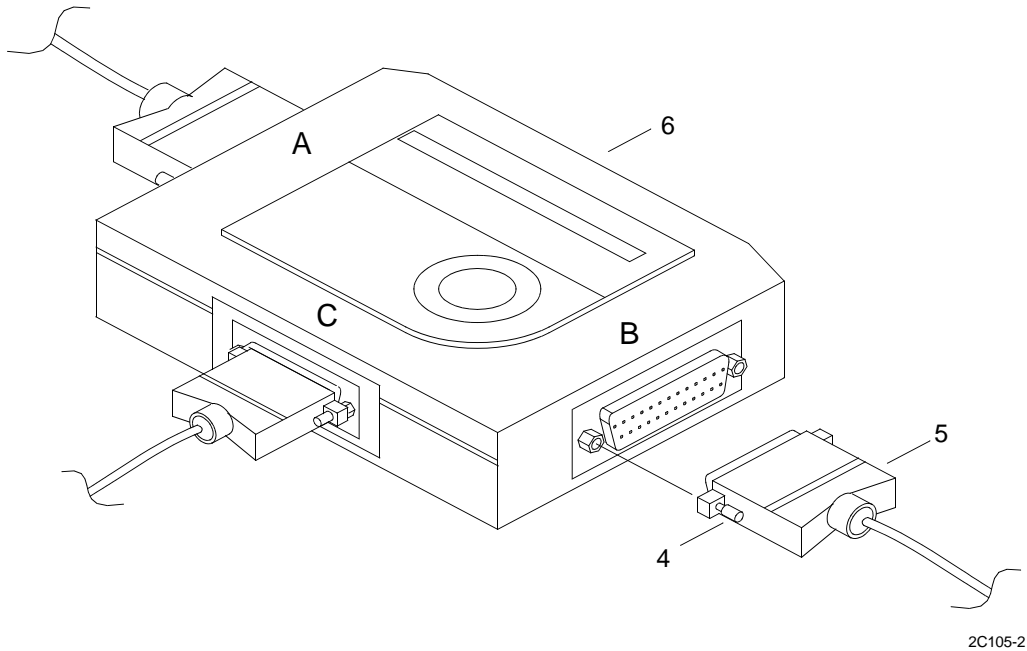
1. On back of 9701 console, place switch S1 (1) to OFF position (down).



2C105-1

2. Loosen the connector shell of the J6 cable plug (2), tagged GMDSS-J6/PRNSB, on the back of the 9701 console.
3. Unplug the J6 cable plug (2) from the port (3) of the 9701 console back.

- Loosen the mounting screws (4) on each side of the connector shell attached to port B.



- Unplug the 25-pin port plug (5), tagged GMDSS-J6/PRNSB, from the B port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (6).
- Remove nylon cable ties securing J6 external cable to other cables.

INSTALL J6 EXTERNAL CABLE

- Plug the J6 cable plug (2), tagged GMDSS-J6/PRNSB, into the port (3) of the 9701 console back.
- Tighten the connector shell of the J6 cable plug (2).
- Plug the J6 cable port plug (5), tagged GMDSS-J6/PRNSB, into the B port of the INMARSAT-C data terminal/INMARSAT-C printer auto switch (6).
- Tighten the mounting screws (4) on each side of the connector shell attached to port B.
- Position auto switch and press down to attach to hook and pile tape.
- Install nylon cable ties and secure J6 external cable to other cables.
- On back of 9701 console, place switch S1 (1) to ON position (up).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SEARCH AND RESCUE TRANSPONDER (SART)
MOUNTING BRACKETS

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

SART Bracket Set
 21-200039

Personnel Required

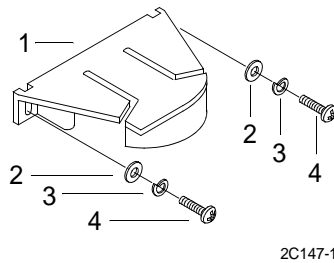
Engineer 88L

Equipment Condition

Search and Rescue Transponder Removed. (WP 0117 00)

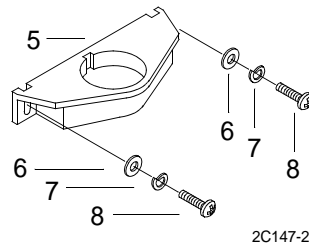
REMOVE SEARCH AND RESCUE TRANSPONDER (SART) MOUNTING BRACKETS

1. Remove upper mounting bracket (1).



- a. Remove two screws (4), washers (2) and lock washers (3).
- b. Remove mounting bracket (1).

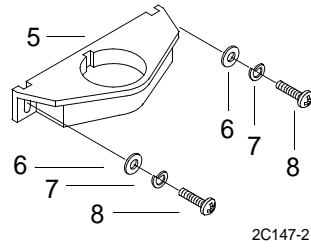
2. Remove lower mounting bracket (5).



- a. Remove two screws (8), washers (6) and lock washers (7).
- b. Remove mounting bracket (5).

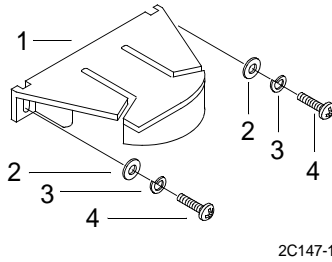
INSTALL SEARCH AND RESCUE TRANSPONDER (SART) MOUNTING BRACKETS

1. Install lower mounting bracket (5).



- a. Align bracket (5) with mounting holes.
- b. Install washers (6), lock washers (7) and two screws (8).
- c. Tighten screws (8).

2. Install upper mounting bracket (1).



- a. Align bracket (1) with mounting holes.
- b. Install washers (2), lock washers (3) and two screws (4).
- c. Tighten screws (4).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE SEARCH AND RESCUE TRANSPONDER (SART) BATTERY

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Battery Pack
21-200029

Personnel Required

Engineer 88L

Equipment Condition

Search and Rescue Transponder Removed. (WP 0117 00)

REMOVE SEARCH AND RESCUE TRANSPONDER (SART) BATTERY

WARNING



CHEMICAL

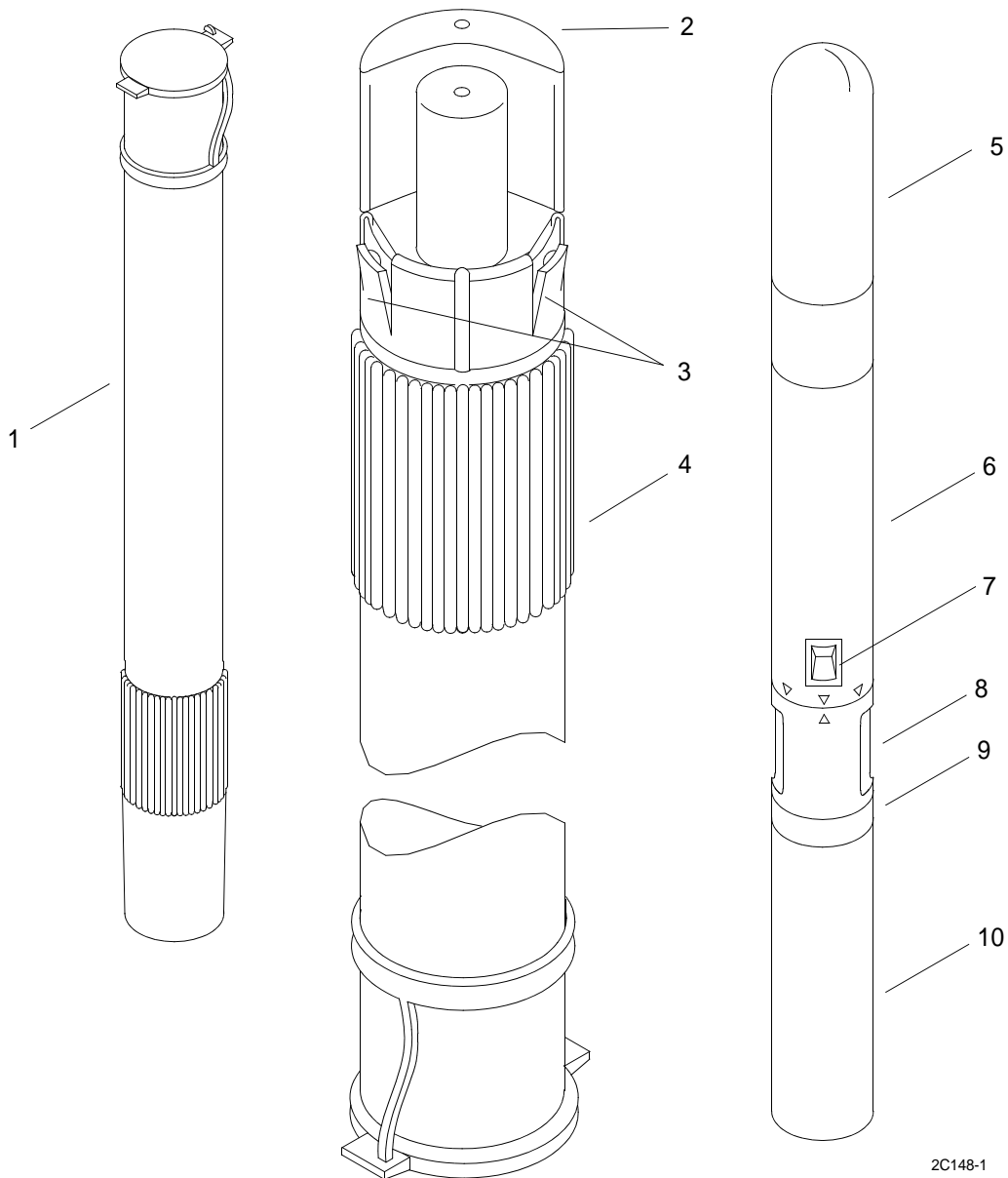


EXPLOSION



VAPOR

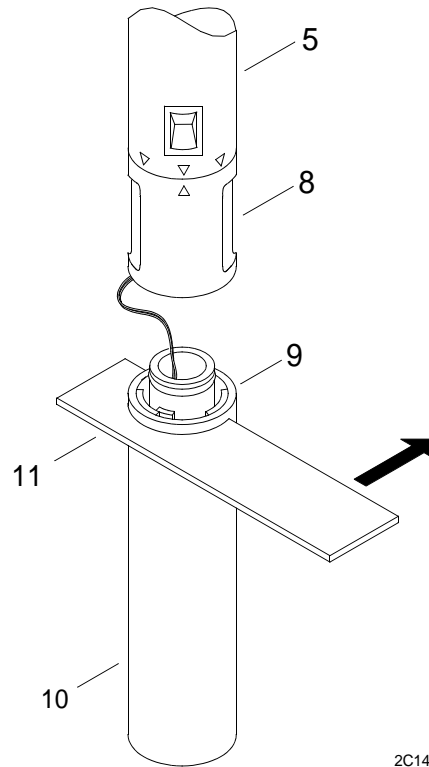
1. Holding SART (1) upside down, pull out two tabs (3) slightly.



2C148-1

- a. Pull off bottom cap (2).
- b. Care should be taken to prevent lanyard from pulling out of bottom cap (2).
3. Remove transmitter/battery assembly (6).
4. Hold the SART (1) horizontally.
 - a. Hold hand over end of SART (1).
 - b. Rotate slightly until transmitter (5) assembly is exposed.
5. Hold transmitter/battery assembly (6) vertically.

6. While holding battery (10) with one hand, rotate spanner (11) to unlock locking ring (9).



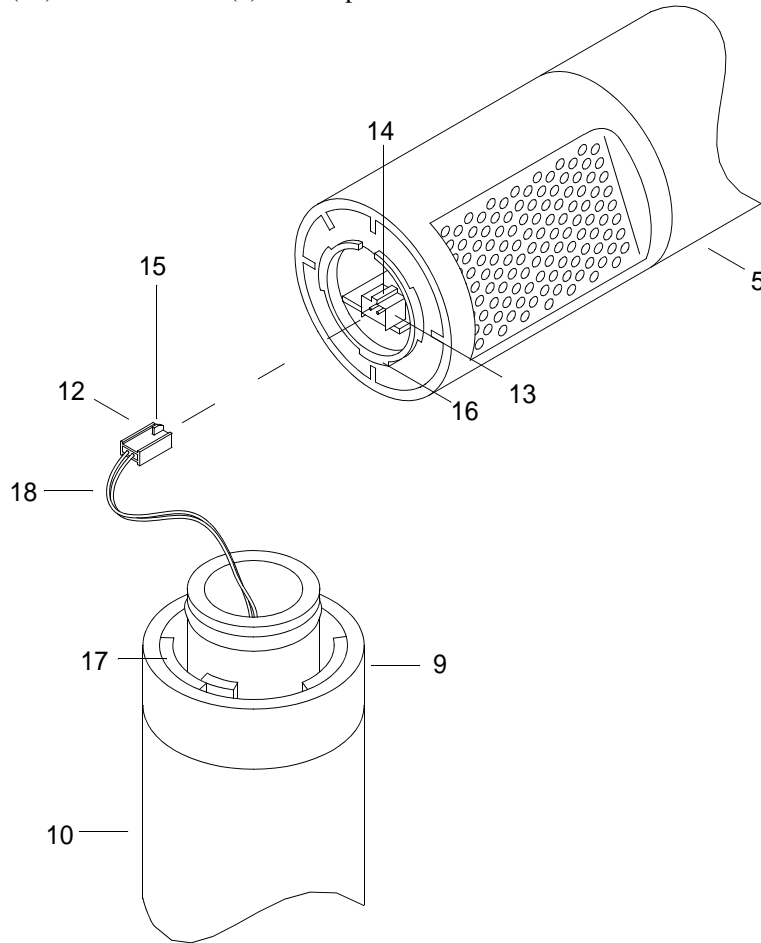
2C148-2

NOTE

Do not remove or operate the switch to ensure the return spring remains engaged.

7. Disconnect battery (10) from transmitter (5), leaving wire connected.

8. Hold battery (10) and transmitter (5) with exposed ends visible.



2C148-3

- a. Insert screwdriver between cable connectors (12,13).
 - b. Very gently pry to free tab (15) from slot (14).
 - c. With screwdriver still in place, grasp cable connector (12) with thumb and index finger.
 - d. Pull connector (12) to remove.
9. Discard old battery in accordance with standard battery disposition instructions.

INSTALL SEARCH AND RESCUE TRANSPONDER (SART) BATTERY

1. Align tab (15) on new battery connector with slot (14) on transmitter connector (13).
2. Insert battery connector (12) into transmitter connector (13) until it clicks into place.
3. Gently pull on the connector (12) to ensure that it is locked in place.
4. Coil excess wire (18) in battery cavity.

-
5. Align tabs on transmitter (16) with tabs on battery (10) and locking ring (9).

NOTE

Ensure the sealing ring remains in groove.

Correct alignment is required for assembly.

Rotate locking ring and battery if needed to align.

C-spanner tool is provided with replacement battery.

6. Tighten locking ring clockwise (19) approximately 15 degrees using C-spanner tool (11) to fasten locking ring.
7. Perform a Search and Rescue Transponder test. (WP 0041 00)
8. Slide transponder/battery (6) assembly, nose first, back into SART (1).
9. Slide bottom cap onto telescopic pole.
 - a. Ensure the lanyard is secured within the bottom cap.
 - b. Align tabs on bottom cap with holes on telescopic pole.
 - c. Gently lift out on tabs (3) to clear edge of SART (1).
 - d. Slide bottom cap (2) until tabs are secured in holes on SART (1).
 - e. Push down on tabs, if necessary.
10. Install Search and Rescue Transponder. (WP 0117 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPLACE LIFEBOAT RADIO MOUNT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)

Materials/Parts

Mount, Lifeboat Radio
50-200060

Personnel Required

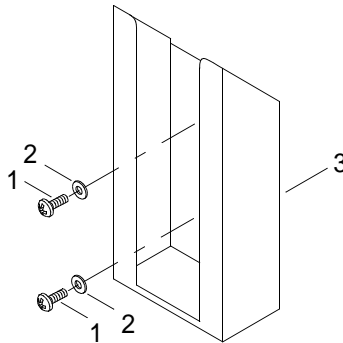
Engineer 88L

Equipment Condition

Lifeboat Radio Removed. (WP 0118 00)

REMOVE LIFEBOAT RADIO MOUNT

1. Remove two screws (1) and flat washers (2) from lifeboat radio mount (3).



2C150-1

2. Remove mount (3).

INSTALL LIFEBOAT RADIO MOUNT

1. Align holes in bulkhead with slots in lifeboat radio mount (3).
2. Install flat washers (2) and screws (1).
3. Tighten screws (1).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GMDSS WIRING DIAGRAMS**

GMDSS WIRING DIAGRAMS

This work package contains all required wiring diagrams for the Global Maritime Distress and Safety System (GMDSS). Wiring diagrams are provided for all electrical and electronic systems and circuits.

All components requiring direct current power have redundant power capability. In the event of an alternating current power failure, all components requiring direct current power are powered by the GMDSS emergency batteries.

All components requiring alternating current power are connected through the emergency power circuit. In the event normal alternating current is not available, the GMDSS components will be supplied with emergency alternating current by the ship's emergency generator.

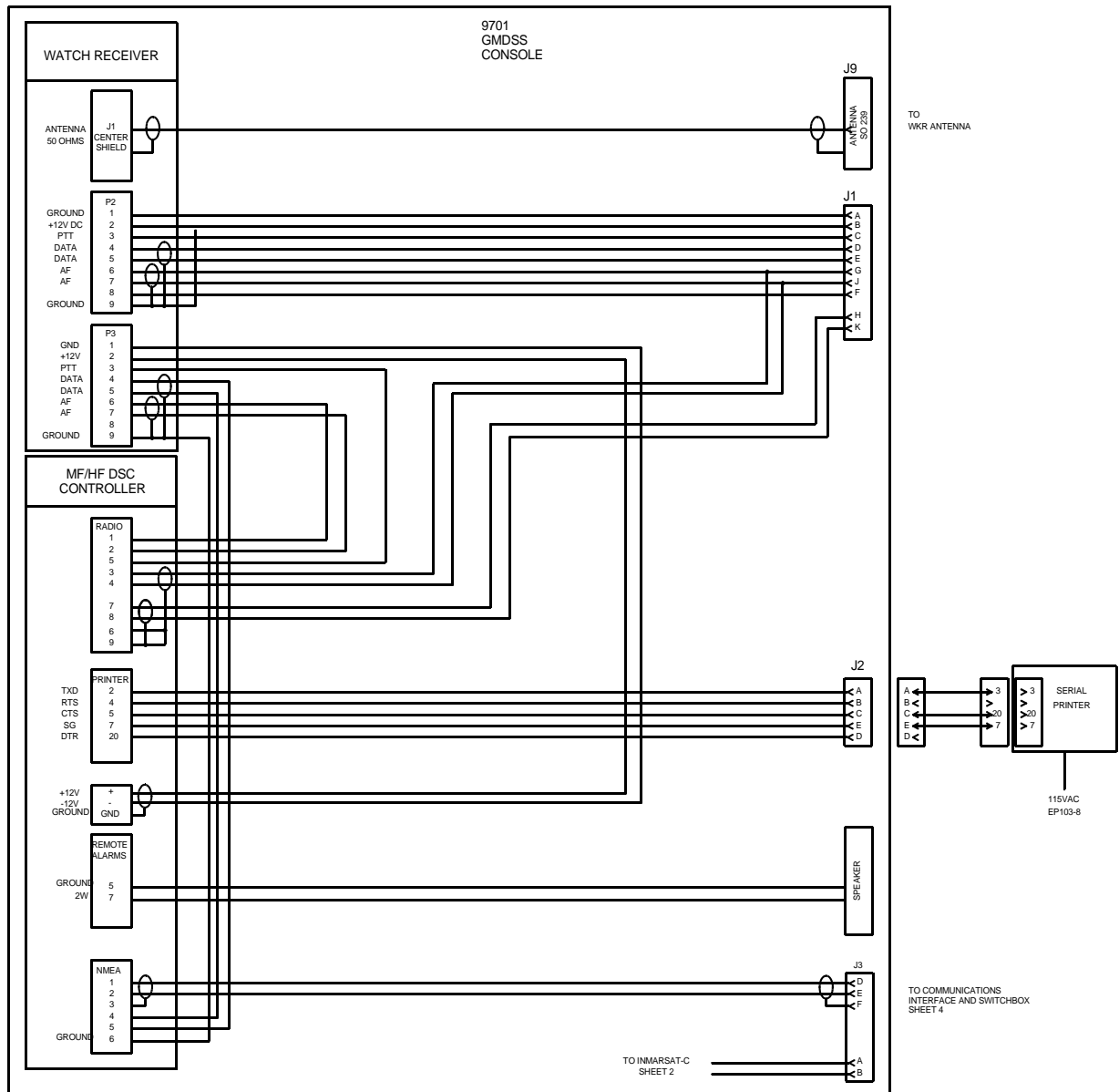


Figure 1. LCU 2000 GMDSS Wiring (Sheet 1 of 6).

9701 GMDSS CONSOLE

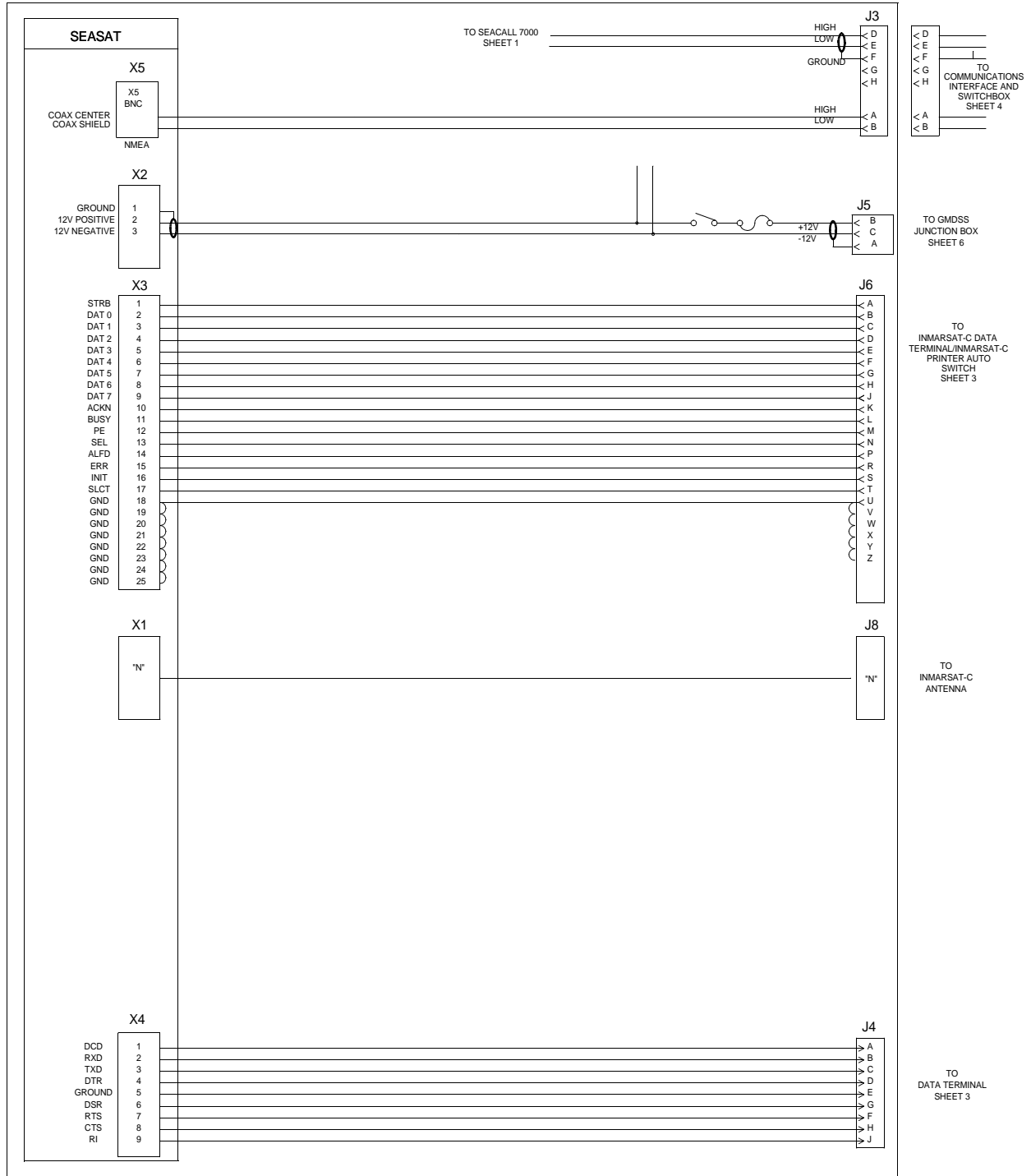


Figure 1. LCU 2000 GMDSS Wiring (Sheet 2 of 6).

2C151-4

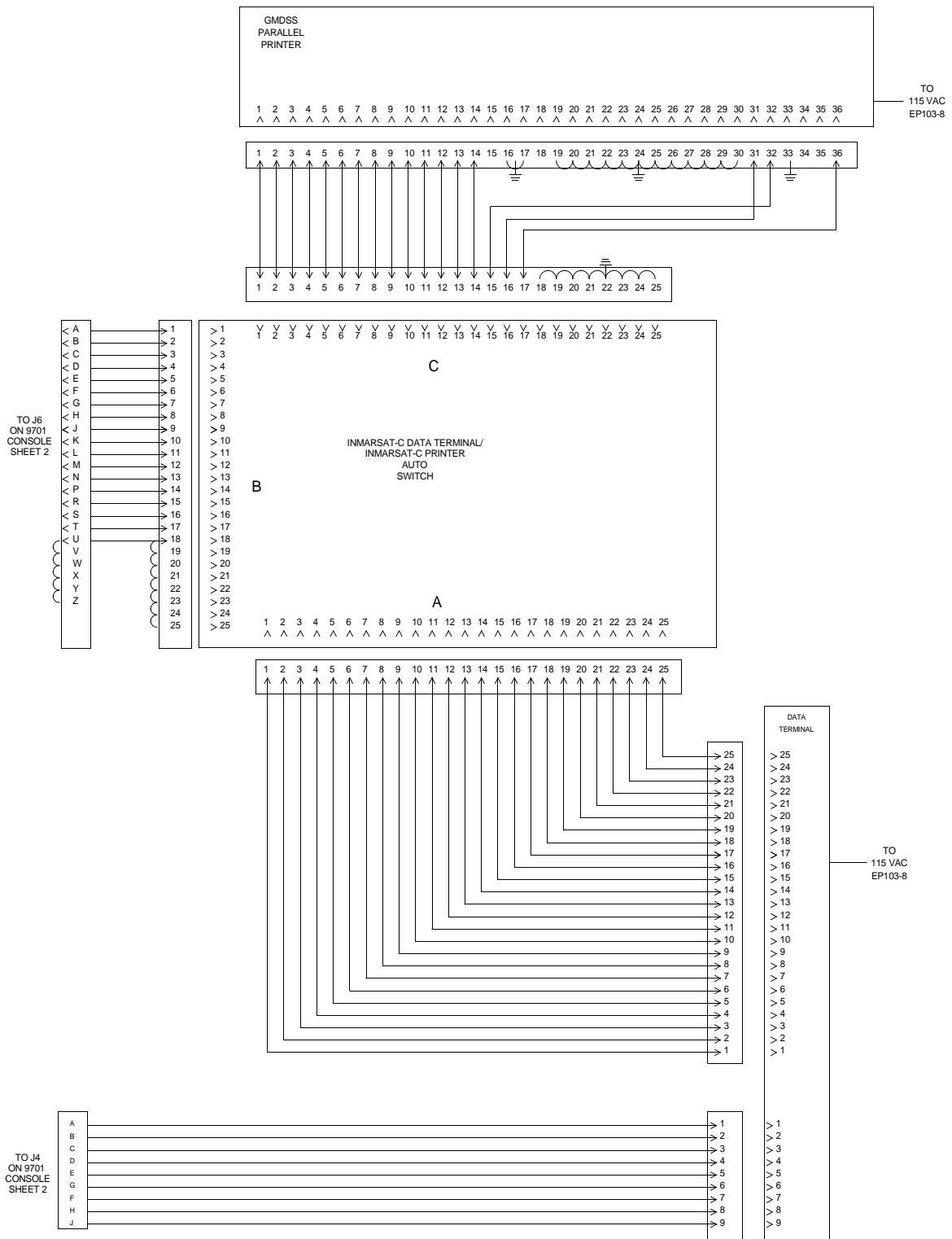


Figure 1. LCU 2000 GMDSS Wiring (Sheet 3 of 6).

2C151-3

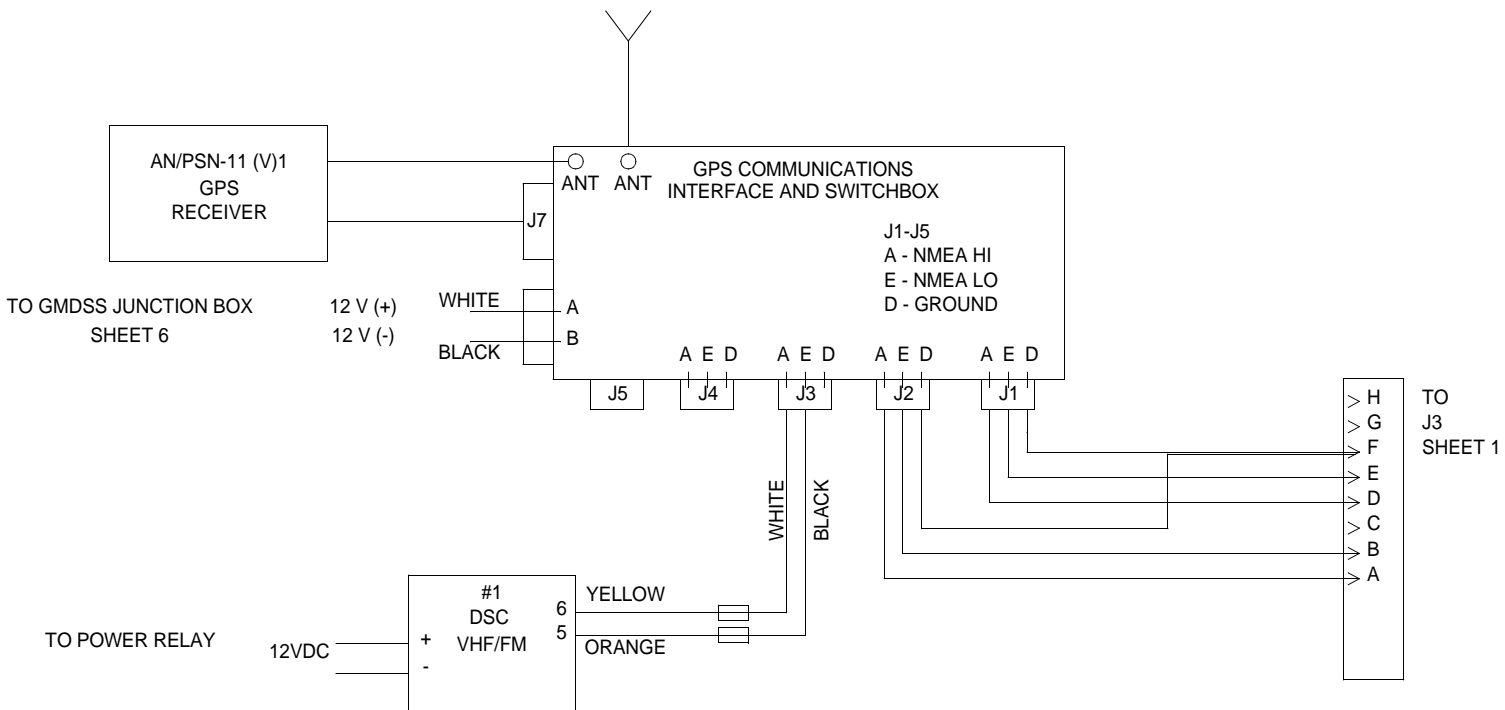


Figure 1. LCU 2000 GMDSS Wiring (Sheet 4 of 6).

2C151-5

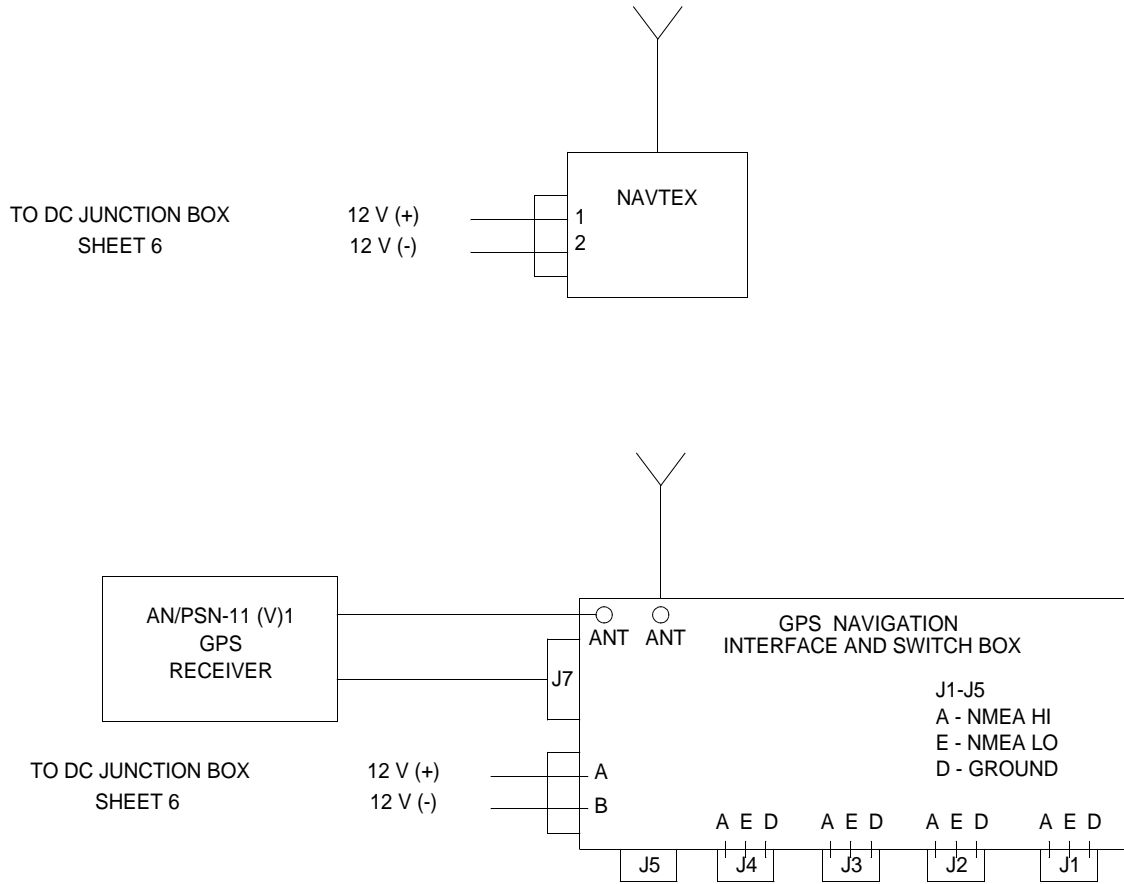


Figure 1. LCU 2000 GMDSS Wiring (Sheet 5 of 6).

2C151-7

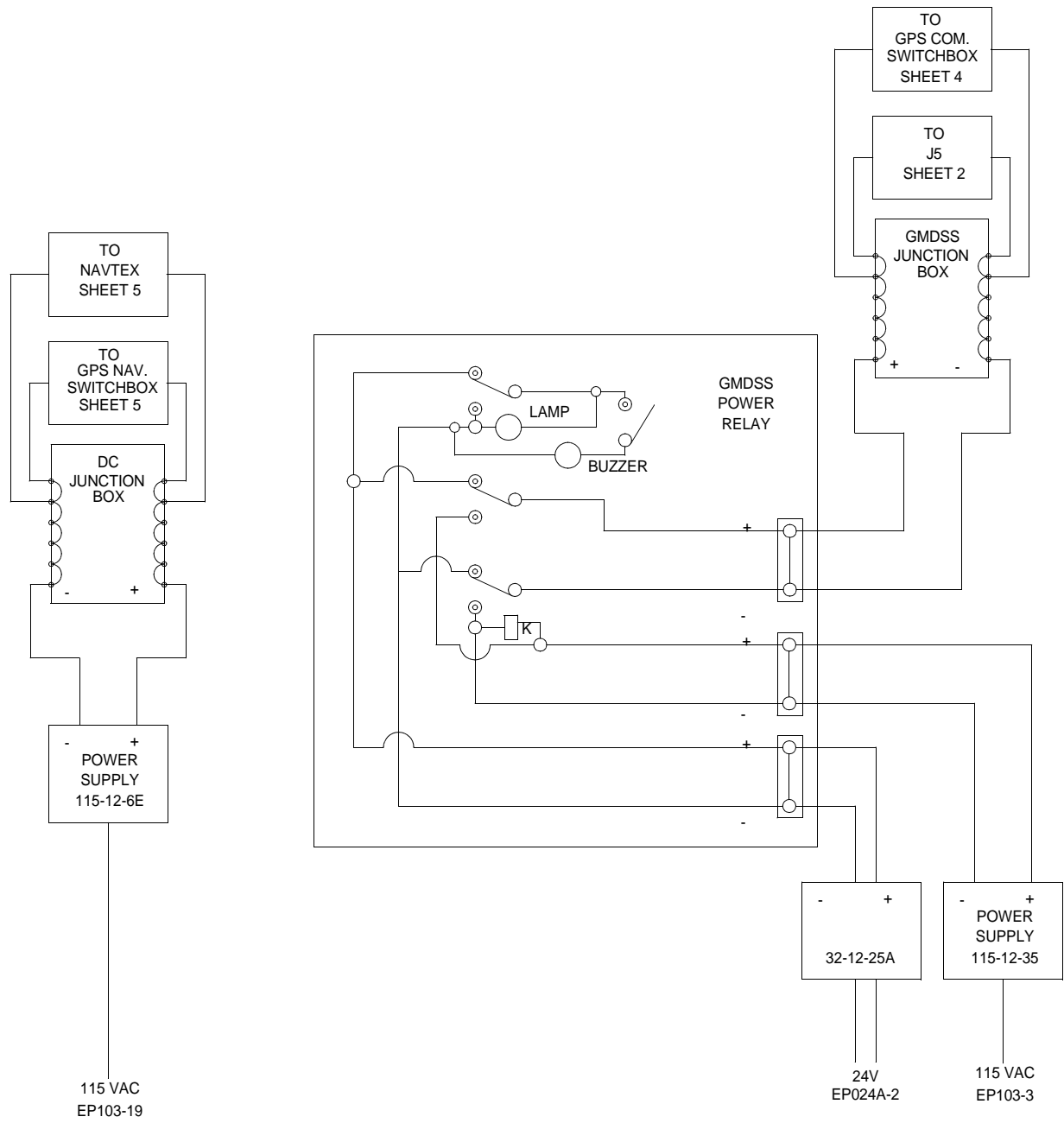


Figure 1. LCU 2000 GMDSS Wiring (Sheet 6 of 6).

2C151-8

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
GROUND CEN EQUIPMENT

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)
Drill Grinder Attachment (Item 5, WP 0166 00)
Drill, Electric (Item 3, WP 0166 00)
Thread Cutting Tap (Item 9, WP 0166 00)
Punch and Die Set (Item 8, WP 0166 00)
Twist Drill Set (Item 2, WP 0166 00)
Tapand Reamer Wrench (Item 10, WP 0166 00)

Materials/Parts

Anti-Seize (Item 1, WP 0167 00)
Copper Strapping (Item 2, WP 0167 00)
Stainless Steel Strapping (Item 10, WP 0167 00)
Form-a -Gasket 2 (Item 4, WP 0167 00)
Thread Cutting Oil, (Item 11, WP 0167 00)

Personnel Required

Seaman 88K

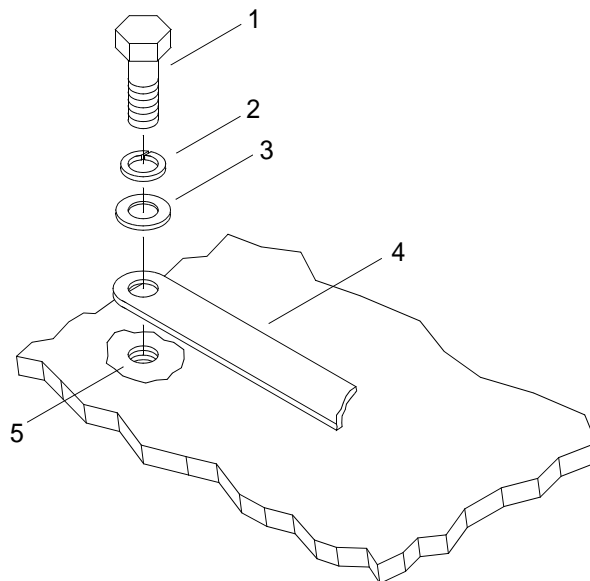
INSTALL INTERIOR GROUNDING STRAP**NOTE**

Grounding surface must be at least 1/4" thick steel and welded to the deck or bulkhead.

Grounding hole should be in close proximity to grounding stud on equipment.

Before drilling, ensure that back side of surface to be drilled is free of any obstacles.

1. Locate position to drill hole for the grounding strap (4).

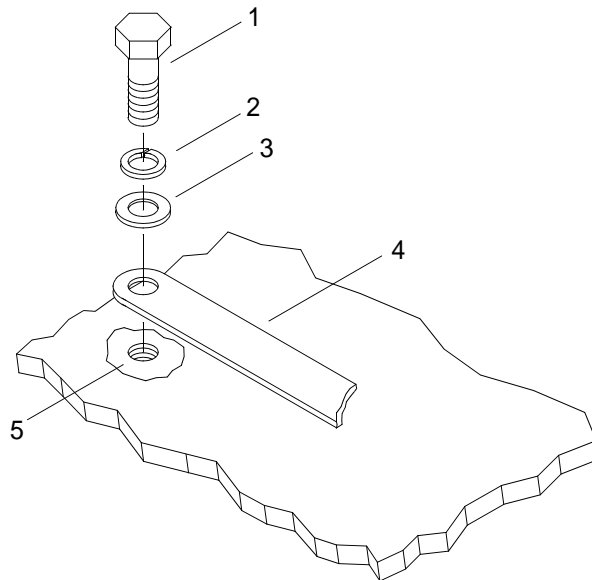


2C153-1

2. Drill and tap a 1/4-20 or 3/8-16 hole. Use thread cutting oil, drill, tap, tap wrench and drill set.
3. Cut copper grounding strap (4), allowing enough length to reach from tapped hole to ground stud on equipment.
4. Punch hole into end of copper grounding strap (4) corresponding with the size of the ground stud on the equipment. Use punch and die set.
5. Punch hole into opposite end of grounding strap (4) corresponding with the size of tapped hole (5) drilled in step two. Use punch and die set.
6. Expose bare metal immediately around tapped hole (5) using grinder to remove paint and primer. Use drill and grinder attachment.
7. Apply anti-sieze onto exposed metal.
8. Insert bolt (1) through lock washer (2), washer (3), grounding strap (4) and into threaded hole (5).
9. Tighten bolt (1).
10. Wipe off excess anti-sieze.
11. Remove nut and washers from ground stud on equipment.
12. Insert other end of grounding strap, washers and nut onto the ground stud on equipment.
13. Tighten nut.

INSTALL EXTERIOR GROUNDING STRAP

1. Locate position to drill hole for the grounding strap (4).



2C153-1

2. Drill and tap a 1/4-20 or 3/8-16 hole. Use thread cutting oil, drill, tap, tap wrench, and drill set.
3. Cut stainless steel grounding strap (4), allowing enough length to reach from tapped hole to ground stud on equipment.

-
4. Punch hole into end of stainless steel grounding strap (4) corresponding with the size of the ground stud on the equipment. Use punch and die set.
 5. Punch hole into opposite end of grounding strap (4) corresponding with the size of tapped hole (5) drilled in step two. Use punch and die set.
 6. Expose bare metal immediately around tapped hole (5) using grinder to remove paint and primer. Use drill and grinder attachment.
 7. Apply anti-sieze onto exposed metal.
 8. Insert bolt (1) through lock washer (2), washer (3), grounding strap (4), and into threaded hole (5).
 9. Tighten bolt (1).
 10. Apply Form-a-Gasket 2 over bolt (1), washers (2), and end of grounding strap (4).
 11. Mount opposite end of ground strap onto equipment.
 12. Apply Form-a-Gasket 2 over bolt (1), washers (2) and end of grounding strap (4).

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
WATERPROOF EXTERNAL ANTENNA CONNECTORS

INITIAL SETUP:**Tools**

General Mechanics Rail and Marine Tool Kit (Item 4, WP 0166 00)
Knife, (Item 6, WP 0166 00)

Materials/Parts

Rubber Tape (Item 7, WP 0167 00)
Electrical Tape (Item 3, WP 0167 00)
Scotch-Kote (Item 8, WP 0167 00)

Personnel Required

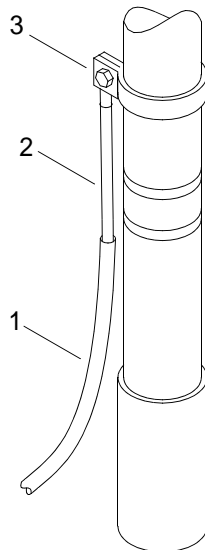
Seaman 88K

REMOVE EXISTING ANTENNA CONNECTOR WATERPROOFING

CAUTION

When removing tape, care should be taken to avoid cutting cables. Cutting the cables could cause damage to equipment.

1. Peel off electrical tape from outer insulation (1), cable (2) and connector (3).



2C154-2

- a. Score any remaining electrical tape with sharp utility knife.
 - b. Remove electrical tape.
 - c. Repeat, if necessary, to expose rubber tape.
2. Peel off rubber tape.
 - a. Score any remaining rubber tape with sharp utility knife.

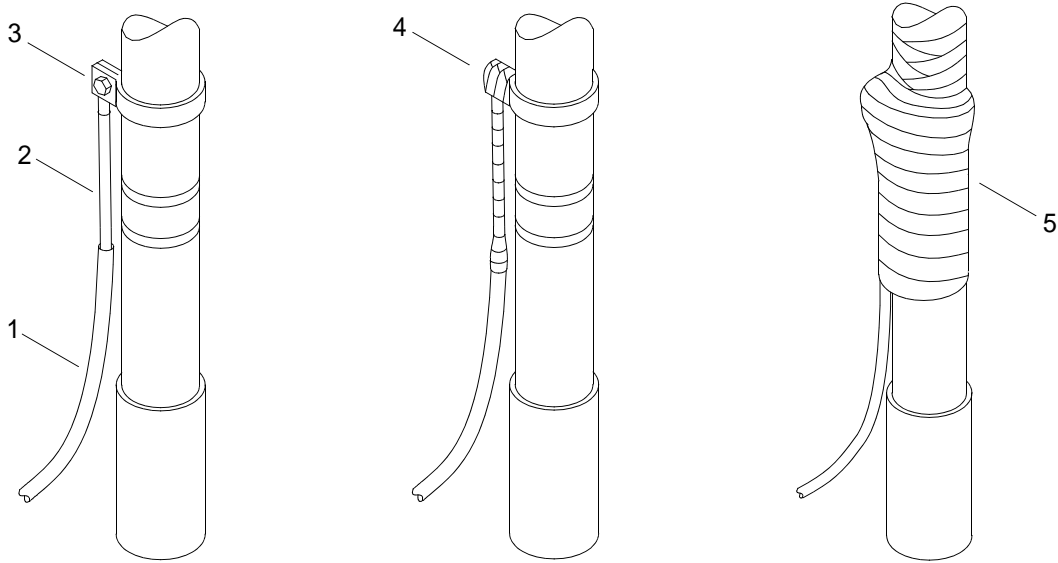
- b. Remove rubber tape.
- c. Repeat if necessary to expose connector.

REPLACE ANTENNA CONNECTOR WATERPROOFING**NOTE**

Ensure that the connection is secured and that the cable is secured in the connector.

1. Wrap rubber tape around cable (1), approximately one inch below the edge of the outer insulation (2), stretching the tape tightly.
2. Continue wrapping rubber tape around cable (1) and connector (3), stretching tightly to make a tight seal, and overlapping the previous layer by approximately 75%.
3. Cut rubber tape with knife.
4. Apply a second layer of rubber tape (4) by repeating steps 1, 2, and 3.
5. Apply electrical tape around cable (1) approximately one inch below the edge of the rubber tape stretching the tape slightly.
6. Continue wrapping electrical tape around cable (1) and connector (3), stretching slightly, and overlapping previous layer by approximately 50%.
7. Apply a second layer of electrical tape (5) starting at the connector and working towards the cable.
8. Continue past the first layer approximately one inch. The final three wraps should not be stretched in order to prevent unravelling.
9. Cut tape with knife.
10. Wrap rubber tape around cable (1) and antenna, stretching the tape tightly.
11. Cut rubber tape with knife.
12. Wrap electrical tape around antenna and cable (1), stretching slightly, over rubber tape. Overlap previous layer of tape by approximately 50%.
13. Cut electrical tape with knife.

14. Apply Scotch-Kote on electrical tape, covering completely, and extending onto cable and antenna 1/2 inch. Allow Scotch-Kote to dry.



2C154-1

15. Apply a second coat of Scotch-Kote on the electrical tape, covering completely, and extending onto cable and antenna 1/2 inch.

REMOVE EXISTING WATERPROOFING ON EXTERNAL CONNECTORS

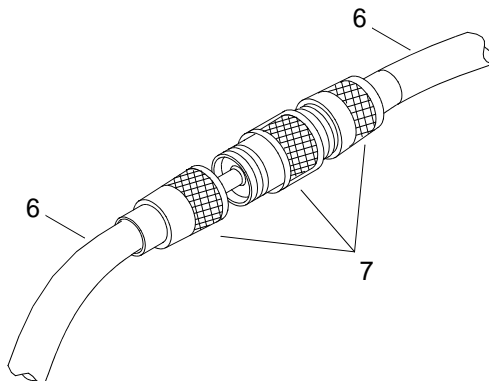
CAUTION

When cutting tape, care should be taken to avoid cutting cables. Cutting the cables could cause damage to equipment.

NOTE

Ensure that the connection is secured and that the cable is secured in the connector.

1. Remove all electrical tape from insulation and cables (6) and connectors (7).

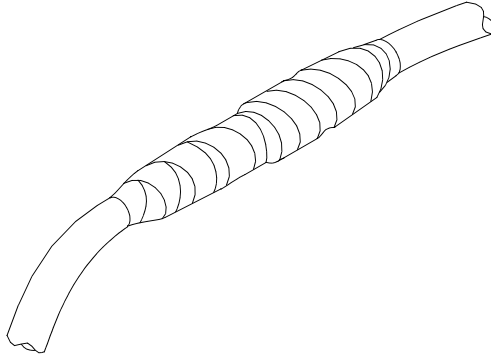


2C154-3

2. Remove all rubber tape from insulation and cables (6) and connectors (7).

REPLACE WATERPROOFING ON EXTERNAL CONNECTORS

1. Wrap rubber tape around cables (6) and connectors (7), approximately one inch beyond the edge of the metal connector shell, stretching tightly as you go.
2. Continue wrapping rubber tape around cables (6) and past opposite end of connector (7), stretching tight to make a tight seal, and overlapping the previous layer by approximately 75%.
3. Cut rubber tape with knife.
4. Apply a second layer of tape by repeating steps 1, 2 and 3.
5. Wrap electrical tape around cable approximately one inch below the edge of the rubber tape.
 - a. Stretch slightly, not allowing any wrinkles or gaps in tape.
 - b. Continue wrapping electrical tape around cable and connector, overlapping previous layer by 50%.
6. Cut tape with knife.
7. Apply a second layer by repeating steps 4, 5 and 6.
8. Continue past the first layer approximately one inch. The final three wraps should not be stretched in order to prevent unravelling.
9. Cut tape with knife.
10. Apply two coats of Scotch-Kote on electrical tape, covering completely, and extending onto cable (6) 1/2 inch. Allow to dry between coats.



2C154-4

END OF WORK PACKAGE

CHAPTER 5

**SUPPORTING INFORMATION FOR LCU 2000 GLOBAL
MARITIME DISTRESS AND SAFETY SYSTEM**

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REFERENCES**

REFERENCES

This work package lists all field manuals, forms, technical bulletins, technical manuals and miscellaneous publications referenced in this manual.

MISCELLANEOUS PUBLICATIONS

| | |
|-----------------------|----------------------------------------------------------------------------------------|
| SEACALL 7000 MF/HF | Digital Selective Calling Controller Operators Manual |
| SEAWATCH 7001 MF/HF | GMDSS Watch Receiver Operators Manual |
| SEASAT 2 INMARSAT-C | Satellite Communication System Operators Manual |
| Furuno NAVTEX | Receiver Model NX-500 Operators Manual |
| Furuno NAVTEX | Receiver Model NX-500 Service Manual |
| LO-KATA SART 9 | IM User Manual |
| DSC 500 | Digital Selective Call Marine VHF Transceiver Operator Manual |
| OKIDATA MICROLINE 184 | Turbo Printer Handbook |
| GMDSS 16/6 | Survival Radio, Model ACR/SR-102 Maintenance and Operation Instruction Manual (Rev A.) |
| ThinkPad 380/380D | User's Guide |

TECHNICAL BULLETINS

| | |
|---------------------|----------------------------------------------------------------------------------|
| TB 11-5825-291-10-2 | Soldier's Guide for the PLGR (Precision Lightweight GPS Receiver), AN/PSN-11(V)1 |
| TB 11-5825-291-10-3 | Soldier's Guide for the PLGR (Precision Lightweight GPS Receiver), AN/PSN-11(V)1 |

TECHNICAL MANUALS

| | |
|-------------------|--------------------------------------------------------------------------------------------------|
| TM-11-5825-291-13 | Satellite Signals Navigation Sets Operations and Maintenance Manual, AN/PSN-11 and AN/PSN-11(V)1 |
|-------------------|--------------------------------------------------------------------------------------------------|

FORMS

DA FORM 2028 Instructions for Reporting Errors and Recommending Improvements

**OPERATOR MAINTENANCE
GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
MAINTENANCE ALLOCATION CHART (MAC)
INTRODUCTION**

THE ARMY MAINTENANCE SYSTEM MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various levels under the standard Army Maintenance System concept.

The MAC, immediately following the introduction, 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 shall be consistent with the capacities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

The tools and test equipment requirements, immediately following the MAC, if applicable, list the tools and test equipment, both special tools and common tool sets, required for each maintenance function as referenced from the MAC.

The remarks, immediately following the tools and test equipment requirements, if applicable, contain supplemental instructions and explanatory notes for a particular maintenance function.

MAINTENANCE FUNCTIONS

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination, e.g., by sight, sound or feel. This includes scheduled inspection and gaugings and evaluation of cannon tubes.
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. Service. Operations required periodically to keep an item in proper operating conditions; e.g., to clean, includes decontaminate, when required, to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids or gases. This includes scheduled exercising and purging of recoil mechanisms.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring and diagnostic equipment 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.

-
7. 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.
 8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
 9. Repair. The application of the maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures and maintenance actions 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.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services - inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting - 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).

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

Actions - welding, grinding, riveting, straightening, facing, machining and/or resurfacing.

10. 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. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
11. 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 maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

EXPLANATION OF COLUMNS IN THE MAC

Column (1) - Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

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

Column (3) - Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.

Column (4) - Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The

work time figures represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C - Operator or crew maintenance

O - Unit maintenance

F - Direct support maintenance

L - Specialized Repair Activity (SRA)

H - General support maintenance

D - Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4) and an associated reference code is used in the remarks column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) - Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) - Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

EXPLANATION OF COLUMNS IN THE TOOLS AND TEST EQUIPMENT REQUIREMENTS

Column (1) - Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) - Maintenance level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) - Nomenclature. Name or identification of the tool or test equipment.

Column (4) - National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) - Tool Number. The manufacturer's part number, model number, or type number.

EXPLANATION OF THE COLUMNS IN THE REMARKS

Column (1) - Remarks Code. The code recorded in column (6) of the MAC.

Column (2) - Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

**OPERATOR MAINTENANCE
GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
MAINTENANCE ALLOCATION CHART (MAC)**

Table 1. Maintenance Allocation Chart.

| (1) GROUP NO. | (2) COMPONENT/ ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE LEVEL | | | | | (5) TOOLS AND EQUIP REF CODE | (6) REMARKS CODE |
|---------------------|--------------------------------------------|--------------------------------|--------------------------|-----|-------------------|--------------------|-------|---------------------------------------------|------------------------|
| | | | UNIT | | DIRECT SUPPORT | GENERAL SUPPORT | DEPOT | | |
| | | | C | O | F | H | D | | |
| 00 | GMDSS | Inspect | 0.5 | | | | | A | |
| 01 | CONSOLE ASSEMBLY | Inspect | 0.5 | | | | | A | |
| | | Test | 0.5 | | | | | B | |
| | | Repair | 0.5 | | | | | | |
| 0101 | DSC WATCH RECEIVER | Inspect | 0.1 | | | | | A | |
| | | Replace | | 1.0 | | | | | |
| | | Repair | | | | | | J | |
| 0102 | INMARSAT-C | Inspect | 0.1 | | | | | A | |
| | | Replace | | 0.3 | | | | | |
| | | Repair | | 0.5 | | | | D,J | |
| 0103 | DSC CONTROLLER | Inspect | 0.1 | | | | | A | |
| | | Adjust | 0.2 | | | | | | |
| | | Replace | | 1.5 | | | | | |
| | | Repair | | | | | | J | |
| 02 | INTERFACE SWITCHBOX | Inspect | 0.1 | | | | | A | |
| | | Replace | | 0.5 | | | | | |
| | | Repair | | | | | | J | |
| 03 | NAVIGATION SET, SATELLITE SIGNALS | Inspect | 0.1 | | | | | A | |

Table 1. Maintenance Allocation Chart. (Continued)

| (1) GROUP NO. | (2) COMPONENT/ ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE LEVEL | | | | | (5) TOOLS AND EQUIP REF CODE | (6) REMARKS CODE |
|---------------------|-------------------------------|--------------------------------|--------------------------|-----|-------------------|--------------------|-------|---------------------------------------------|------------------------|
| | | | UNIT | | DIRECT SUPPORT | GENERAL SUPPORT | DEPOT | | |
| | | | C | O | F | H | D | | |
| 04 | VHF/FM TRANSCEIVER | Adjust | 0.2 | | | | | | |
| | | Replace | 0.3 | | | | | | |
| | | Repair | 0.1 | | | | | E,K | |
| | | Inspect | 0.1 | | | | | A | |
| | | Replace | | 0.5 | | | | | |
| 05 | NAVTEX RECEIVER | Repair | 0.1 | | | | | F,J | |
| | | Inspect | 0.1 | | | | | A | |
| | | Adjust | 0.2 | | | | | | |
| | | Replace | | 0.5 | | | | | |
| 06 | DATA TERMINAL | Repair | 0.1 | | | | | G,J | |
| | | Inspect | 0.1 | | | | | A | |
| | | Adjust | 0.2 | | | | | | |
| | | Replace | | 0.7 | | | | | |
| | | Repair | | 0.1 | | | | J,L | |
| 07 | PRINTERS | | | | | | | | |
| 0701 | INMARSAT-C PRINTER | Inspect | 0.1 | | | | | A | |
| | | Adjust | 0.1 | | | | | | |
| | | Replace | | 0.7 | | | | | |
| | | Repair | 0.1 | | | | | H,J | |
| 0702 | SERIAL PRINTER | Inspect | 0.1 | | | | | A | |
| | | Adjust | 0.1 | | | | | | |

Table 1. Maintenance Allocation Chart. (Continued)

| (1) GROUP NO. | (2) COMPONENT/ ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE LEVEL | | | | | (5) TOOLS AND EQUIP REF CODE | (6) REMARKS CODE |
|------------------|------------------------------------------------|-----------------------------|--------------------------|-----|----------------|-----------------|-------|---------------------------------|---------------------|
| | | | UNIT | | DIRECT SUPPORT | GENERAL SUPPORT | DEPOT | | |
| | | | C | O | F | H | D | | |
| 08 | POWER SUPPLIES | Replace | | 0.7 | | | | | |
| | | Repair | 0.1 | | | | | H,J | |
| 0801 | NAVIGATION POWER SUPPLY | Inspect | 0.1 | | | | | A | |
| 0802 | GMDSS POWER SUPPLY | Replace | | 1.0 | | | | | |
| | | Repair | 0.1 | | | | | D,J | |
| | | Inspect | 0.1 | | | | | A | |
| 09 | POWER CONVERTER | Replace | | 1.0 | | | | | |
| | | Repair | 0.1 | | | | | D,J | |
| | | Inspect | 0.1 | | | | | A | |
| 10 | EXTERNAL ELECTRICAL CABLES J2, J3, J4, J5 & J6 | Replace | | 1.0 | | | | | |
| | | Repair | | | | | | J | |
| 11 | POWER JUNCTION BOX | Inspect | 0.2 | | | | | A | |
| | | Replace | | 1.5 | | | | | |
| | | Repair | | | | | | I | |
| | | Inspect | 0.1 | | | | | A | |
| | | Replace | | 2.0 | | | | | |
| | | Repair | | 1.0 | | | | | |

Table 2. Remarks for LCU 2000 Global Maritime Distress Safety System.

| REMARKS CODE | REMARKS |
|-------------------------|--------------------------------------------------------------------------------------------------|
| A | Preventative Maintenance Checks and Services (PMCS) |
| B | Functional Test |
| C | Repair at operator/crew level is limited to replacing the fuse. |
| D | Repair at unit level is limited to replacing the fuse. |
| E | Repair at operator/crew level is limited to replacing the batteries. |
| F | Repair at operator/crew level is limited to replacing the microphone. |
| G | Repair at operator/crew level is limited to replacing the paper roll and fuse. |
| H | Repair at operator/crew level is limited to replacing the paper, paper holder and ink cartridge. |
| I | Repair at Direct Support |
| J | Complete repair performed by Specialized Repair Activity (SRA) |
| K | Complete repair performed at Depot |
| L | Repair at unit level is limited to replacing the batteries. |

**UNIT LEVEL MAINTENANCE
GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPAIR PARTS LIST INTRODUCTION**

SCOPE

This Repair Parts and Special Tools List (RPSTL) lists and authorizes spares and repair parts; special tools, special Test, Measurement and Diagnostic Equipment (TMDE); and other special support equipment for the performance of organizational maintenance of the Global Maritime Distress and Safety System. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

GENERAL

In addition to the introduction work package, this RPSTL is divided into the following work packages.

1. **Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for the replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for repairable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. **Specials Tools List Work Packages.** Work packages containing lists of special tools, special TMDE and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the Description and Usable On Code (UOC) column). Tools that are components of the common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference indexes work packages in this RPSTL: The National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. Column (1). Indicates the number used to identify items called out in the illustration.

SMR CODE Column (2). The SMR code containing supply/requisitioning information, maintenance level authorization criteria and disposition instruction, as shown in the following breakout.

| <u>Source</u> <u>Code</u> | <u>Maintenance</u> <u>Code</u> | <u>Recoverability</u> <u>Code</u> |
|-------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------|
| <u>—</u> <u>xx</u> | <u>—</u> <u>xx</u> | <u>—</u> <u>x</u> |
| 1st two positions: How to get an item. | 3rd position: Who can install replace, or use the item. | 4th position: Who can do complete repair* on the item. |
| | | 5th position: Who determines disposition action on unserviceable items. |

*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to the failed item.

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of the item/equipment. Explanations of source codes follow:

Source Code**Application/Explanation**

| | |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PA | Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code. |
| PB | |
| PD | |
| PC | |
| PE | |
| PF | |

NOTE

Items coded PC are subjected to deterioration.

| | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KD | Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied. |
| KF | |
| KB | |
| MO-Made at unit/AVUM level | Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the Description And Usable On Code (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance. |
| MF-Made at DS/AVIM level | |
| MH-Made at GS level | |
| ML-Made at SRA | |
| MD-Made at depot | |
| AO-Assembled by unit/ AVUM level | Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance. |
| AF-Assembled by DS/ AVIM level | |
| AH-Assembled by GS/level | |
| AL-Assembled by SRA | |
| AD-Assembled by depot | |
| XA | Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below) |
| XB | If an item is not available from salvage, order it using the CAGEC and P/N. |

| | |
|----|-----------------------------------------------------------------------------------------------------------------------------------|
| XC | Installation drawings, diagrams, instruction sheets, field service drawings; identified by the manufacturers's P/N. |
| XD | Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given, if no NSN is available. |

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

**Maintenance
Code _____**

Application/Explanation

- C - Crew or operator maintenance done within unit/AVUM maintenance.
- O - Unit level/AVUM maintenance can remove, replace and use the item.
- F - Direct support/AVIM maintenance can remove, replace and use the item.
- H - General support maintenance can remove, replace and use the item.
- L - Specialized repair activity can remove, replace and use the item.
- D - Depot can remove, replace, and use the item.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

**Maintenance
Code _____**

Application/Explanation

- O - Unit/AVUM is the lowest level that can do complete repair of the item.
- F - Direct support/AVIM is the lowest level that can do complete repair of the item.
- H - General support is the lowest level that can do complete repair of the item.
- L - Specialized repair activity is the lowest level that can do complete repair of the item.

-
- D - Depot is the lowest level that can do complete repair of the item.
- Z - Nonreparable. No repair is authorized.
- B - No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes assigned to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability

Code **Application/Explanation**

- Z - Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
- O - Repairable item. When uneconomically repairable, condemn and dispose of the item at the unit level.
- F - Repairable item. When uneconomically repairable, condemn and dispose of the item at the direct support level.
- H - Repairable item. When uneconomically repairable, condemn and dispose of the item at general support level.
- D - Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
- L - Repairable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
- A - Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical, material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

NSN Column (3). The NSN for the item is listed in this column.

CAGEC Column (4). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor or Government agency/activity that supplies the item.

PART NUMBER Column (5). Indicates the primary number used by the manufacturer (individual, company, firm, corporation or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different P/N from the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) COLUMN (6). This column includes the following information:

1. The federal item name and, when required, a minimum description to identify the item.
2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.

3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from Electromagnetic Pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tool lists work packages.

QTY Column (7). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for the functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS.

1. National Stock Number (NSN) Index Work Package.

STOCK NUMBER Column. This column lists the NSN in National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

| |
|-------------------------|
| <u>NSN</u> |
| (e.g. 5385-01-574-1476) |
| NIIN |

When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts lists and special tools work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations, which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work package.

ITEM Column. This item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N Is Known.

First. If you have the P/N and not the NSN, look in the PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
REPAIR PARTS LIST

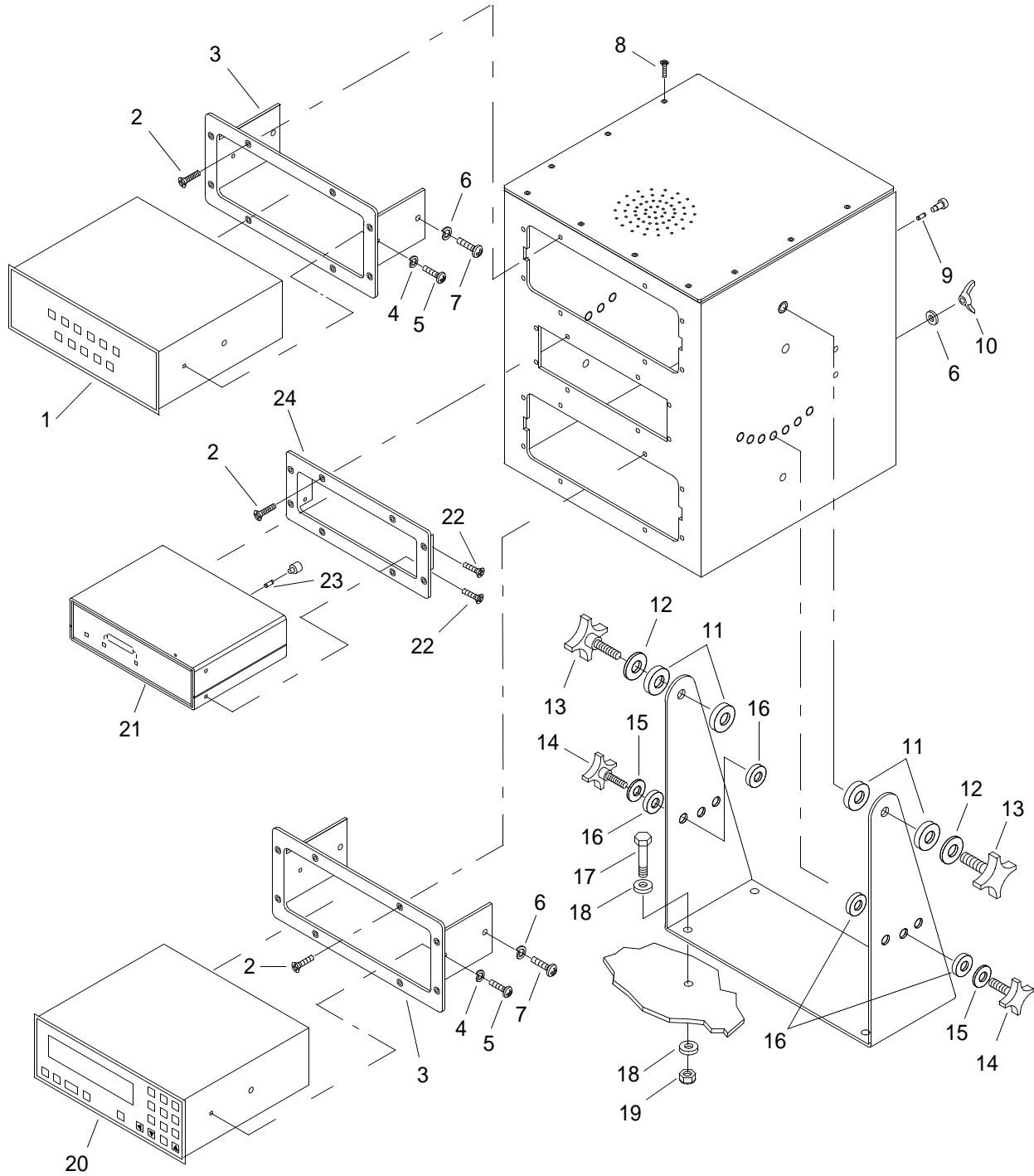


Figure 1. Console Assembly

2C159-1

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 01 | | | | | | |
| FIG. 1 CONSOLE ASSEMBLY | | | | | | |
| 1 | XDODD | | OJDM6 | CAI-9701-7001 | DSC WATCH RECEIVER..... | 1 |
| 2 | XDOZZ | | OJDM6 | 03-103F07 | SCREW (10-32 X 3/4)..... | 24 |
| 3 | XDOZZ | | OJDM6 | 50-200005-1 | FACEPLATE, LARGE..... | 2 |
| 4 | XDOZZ | | OJDM6 | 03-067000 | WASHER, LOCK (#6)..... | 5 |
| 5 | XDOZZ | | OJDM6 | 03-062C05 | SCREW (6-32 X 1/2)..... | 4 |
| 6 | XDOZZ | | OJDM6 | 03-257000 | WASHER, LOCK (1/4)..... | 4 |
| 7 | XDOZZ | | OJDM6 | 03-252C06 | SCREW (1/4-20 X 5/8)..... | 4 |
| 8 | XDOZZ | | OJDM6 | 03-063C05 | SCREW (6-32 X 1/2)..... | 36 |
| 9 | XDOZZ | | OJDM6 | 20-200024 | FUSE (AGC 15A)..... | 1 |
| 10 | XDOZZ | | OJDM6 | 03-258C00 | NUT, WING (1/4)..... | 1 |
| 11 | XDOZZ | | OJMD6 | 07-200003 | WASHER, FELT..... | 4 |
| 12 | XDOZZ | | OJMD6 | 07-200007 | WASHER, PVC..... | 2 |
| 13 | XDOZZ | | OJMD6 | 07-200004 | KNOB..... | 2 |
| 14 | XDOZZ | | OJMD6 | 07-200005 | KNOB..... | 2 |
| 15 | XDOZZ | | OJMD6 | 07-200008 | WASHER, PVC..... | 2 |
| 16 | XDOZZ | | OJDM6 | 07-200006 | WASHER, FELT..... | 4 |
| 17 | XDOZZ | | OJDM6 | 03-381C12 | BOLT (3/8-16 X 1 1/4)..... | 4 |
| 18 | XDOZZ | | OJMD6 | 03-386008 | WASHER, FLAT (3/8 ID X 7/8 OD)..... | 8 |
| 19 | XDOZZ | | OJDM6 | 03-384C00 | NUT, LOCK (3/8-16)..... | 4 |
| 20 | XDOZZ | | OJDM6 | CAI-9701-7000 | DSC CONTROLLER..... | 1 |
| 21 | XDODD | | OJDM6 | CAI-9701-6003H | INMARSAT-C..... | 1 |
| 22 | XDOZZ | | OJMD6 | 03-M430M8 | SCREW (M4-0.7 X 8)..... | 4 |
| 23 | XDOZZ | | OJDM6 | 20-200025 | FUSE (5 X 20MM 12A)..... | 1 |
| 24 | XDOZZ | | OJDM6 | 50-200005-2 | FACEPLATE, SMALL..... | 1 |
| END OF FIGURE | | | | | | |

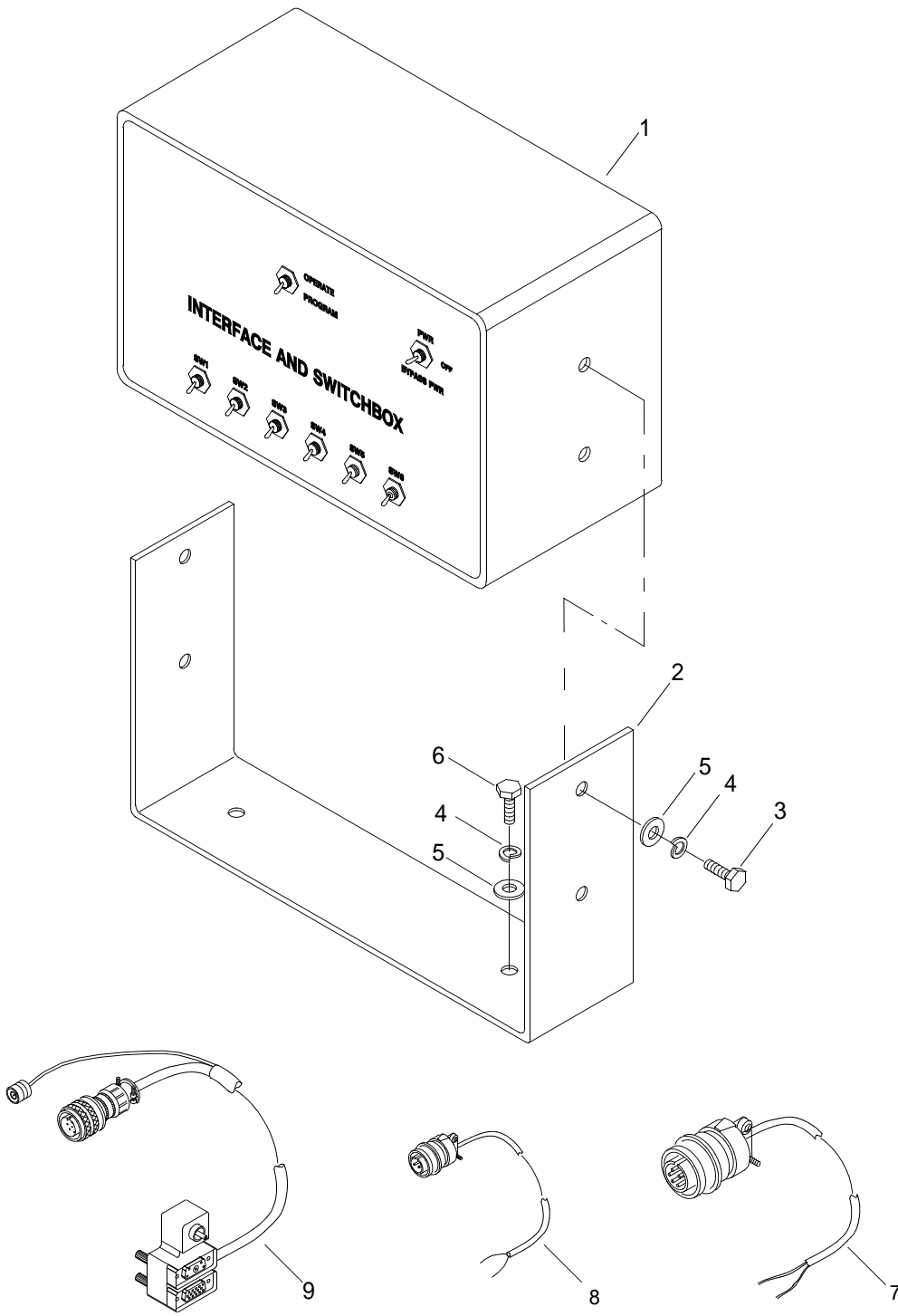


Figure 2. Interface and Switchbox

2C159-2

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 02 | | | | | | |
| FIG. 2 INTERFACE AND SWITCHBOX | | | | | | |
| 1 | XDODD | | 0JDM6 | 9801 | INTERFACE AND SWITCHBOX.. | 1 |
| 2 | XDOZZ | | 0JDM6 | 50-200026 | MOUNT BRACKET..... | 1 |
| 3 | XDOZZ | | 0JMD6 | 03-251C06 | BOLT (1/4-20 X 5/8)..... | 4 |
| 4 | XDOZZ | | 0JDM6 | 03-257000 | WASHER, LOCK (1/4)..... | 6 |
| 5 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4 ID X 5/8 OD)..... | 6 |
| 6 | XDOZZ | | 0JDM6 | 03-251C07 | BOLT (1/4-20 X 3/4)..... | 2 |
| 7 | XDOFF | | 0JDM6 | 50-200025 | ELECTRICAL CABLE ASSEMBLY..... | 1 |
| 8 | XDOFF | | 0JDM6 | 50-200028 | ELECTRICAL CABLE ASSEMBLY..... | 1 |
| 9 | XDOFF | | 0JDM6 | 50-200027 | ELECTRICAL CABLE ASSEMBLY..... | 1 |
| END OF FIGURE | | | | | | |

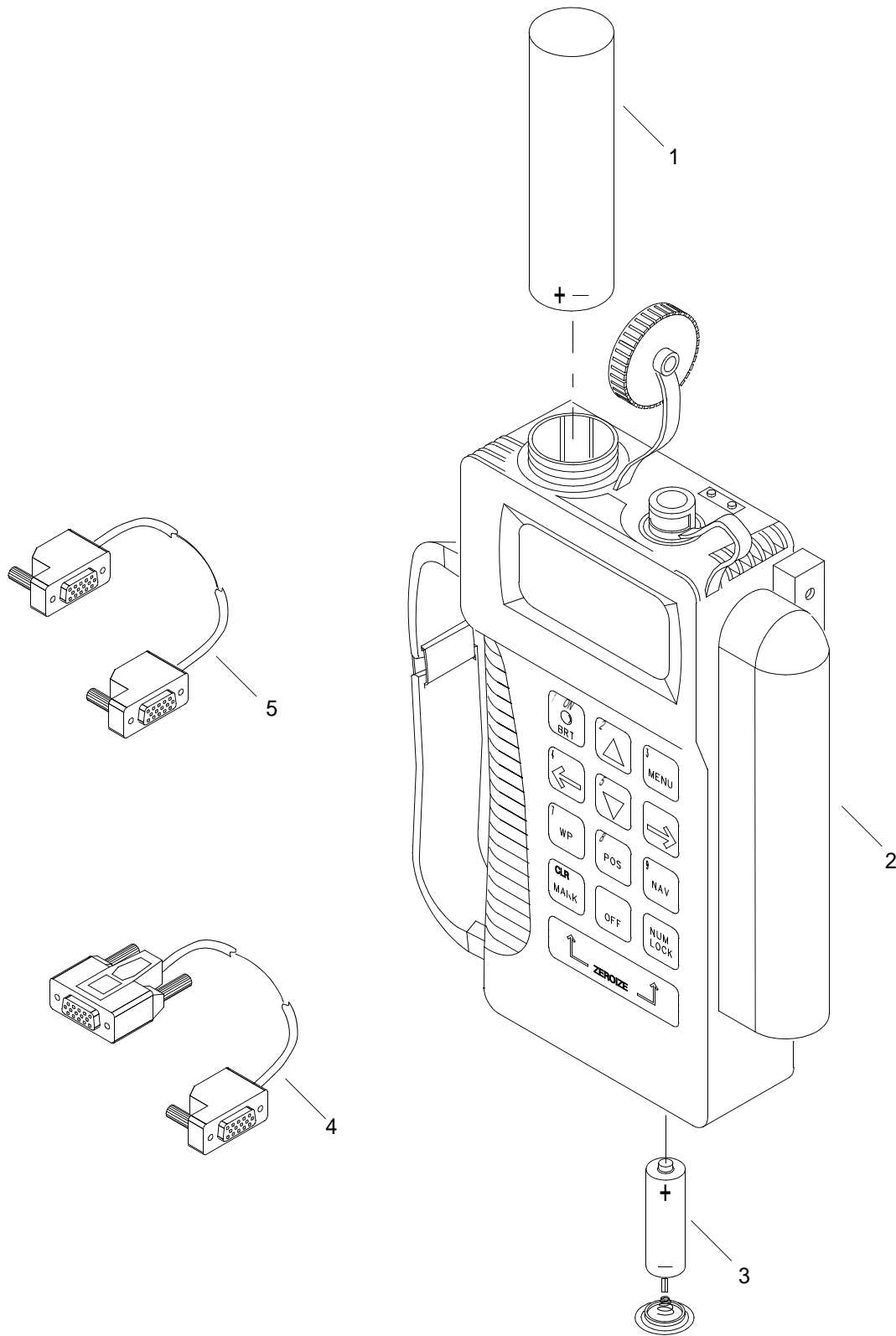


Figure 3. Navigation Set, Satellite Signals (Sheet 1 of 2)

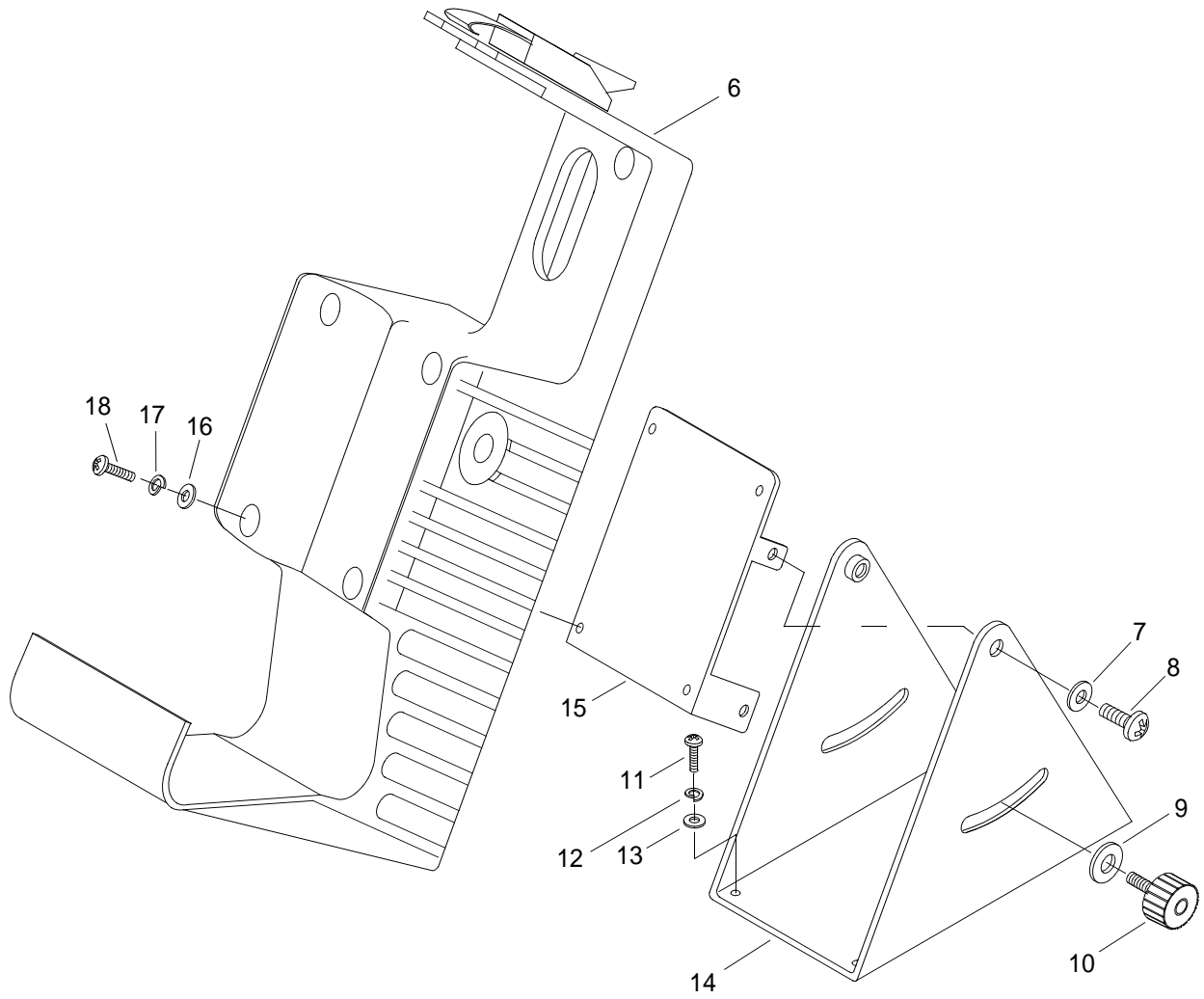


Figure 3. Navigation Set, Satellite Signals (Sheet 2 fo 2)

2C159-4

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------------------------------------|--------------------|------------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 03 | | | | | | |
| FIG. 3 NAVIGATIONAL SET, SATELLITE SIGNALS | | | | | | |
| 1 | PACZZ | 6135-99-760-9742 | U45596 | 0442-0027 | BATTERY, NONRECHARGEABLE..... | 1 |
| 2 | PAODD | 5825-01-395-3513 | 13499 | 822-0077-103 | NAVIGATIONAL SET, SATELLITE SIGNALS..... | 1 |
| 3 | PACZZ | 6135-01-301-8776 | 51215 | VE461-5013-001 | BATTERY, NONRECHARGEABLE..... | 1 |
| 4 | PAOZZ | 6150-01-375-8664 | 98752 | 9728556-10 | CABLE ASSEMBLY, SPECIAL..... | 1 |
| 5 | PAOZZ | 6150-01-375-8663 | 98752 | 9728556-30 | CABLE ASSEMBLY, SPECIAL..... | 1 |
| 6 | PAOZZ | 5975-01-375-1302 | 19200 | 12967998 | MOUNTING BASE, ELECTRICAL..... | 1 |
| 7 | XDOZZ | | 0JDM6 | 07-200016 | WASHER, NON-METALLIC..... | 2 |
| 8 | XDOZZ | | 0JMD6 | 03-252C06 | SCREW (1/4-20 X 5/8)..... | 2 |
| 9 | XDOZZ | | 0JDM6 | 07-200015 | WASHER, NON-METALLIC..... | 2 |
| 10 | XDOZZ | | 0JDM6 | 07-200002 | KNOB..... | 2 |
| 11 | XDOZZ | | 0JDM6 | 03-102F07 | SCREW (10-32 X 3/4)..... | 4 |
| 12 | XDOZZ | | 0JDM6 | 03-107000 | WASHER, LOCK (#10)..... | 4 |
| 13 | XDOZZ | | 0JDM6 | 03-106004 | WASHER, FLAT (#10)..... | 4 |
| 14 | XDOZZ | | 0JDM6 | 50-200023 REV A | PIVOT BASE..... | 1 |
| 15 | XDOZZ | | 0JDM6 | 50-200022 REV A | PIVOT PLATE..... | 1 |
| 16 | XDOZZ | | 0JDM6 | 03-086000 | WASHER, FLAT (#8)..... | 4 |
| 17 | XDOZZ | | 0JDM6 | 03-087000 | WASHER, LOCK (#8)..... | 4 |
| 18 | XDOZZ | | 0JDM6 | 03-082C05 | SCREW (8-32 X 1/2)..... | 4 |
| END OF FIGURE | | | | | | |

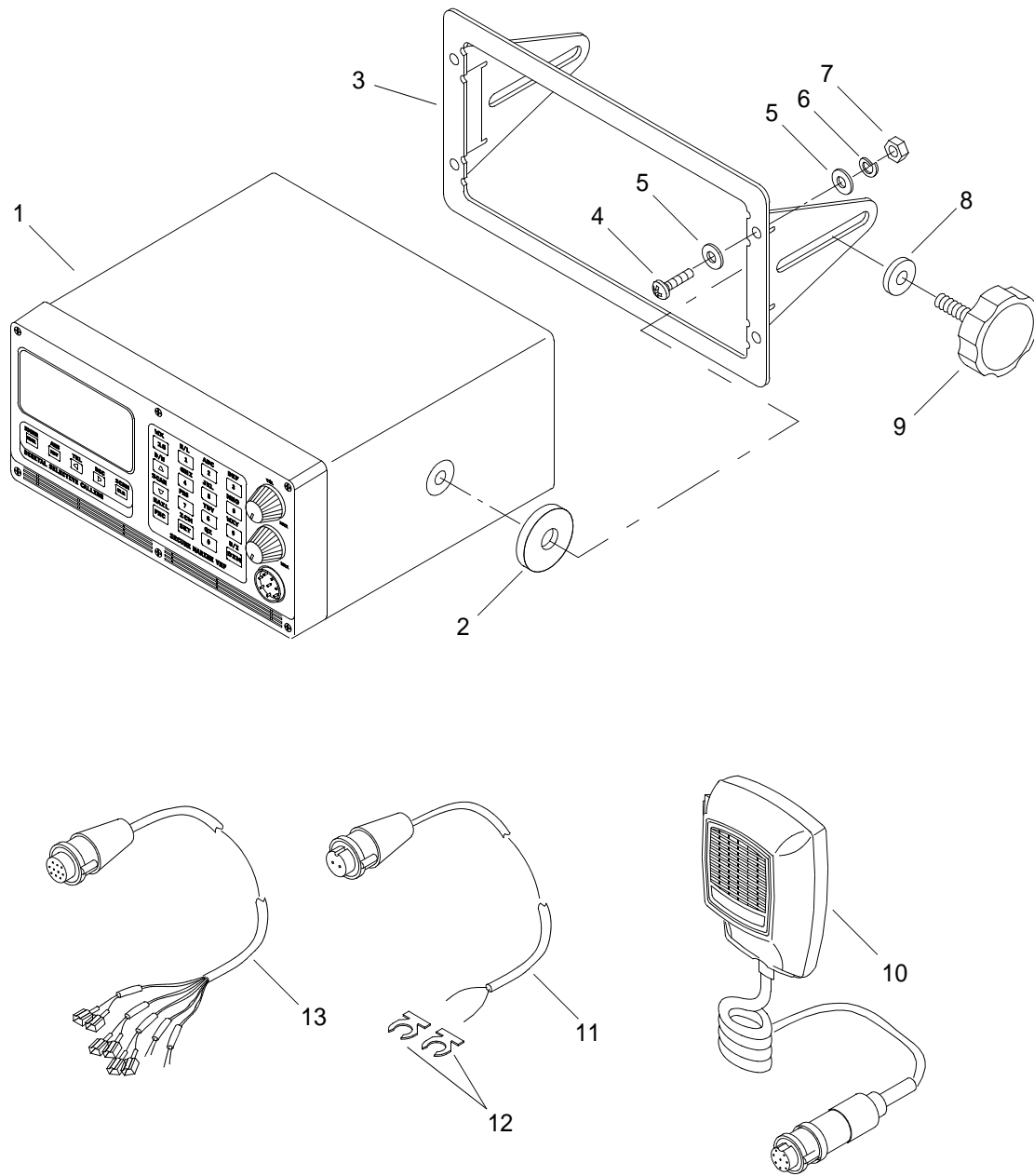


Figure 4. VHF/FM Transceiver

2C159-5

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 04 | | | | | | |
| FIG. 4 VHF/FM TRANCEIVER | | | | | | |
| 1 | XDODD | | 0JDM6 | CAI 500 VHF-DSC | VHF/FM TRANCEIVER..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 21-200031 | WASHER, CUSHIONED..... | 2 |
| 3 | XDOZZ | | 0JDM6 | 21-200003 | DECK MOUNT..... | 1 |
| 4 | XDOZZ | | 0JDM6 | 03-102F10 | SCREW (10-32 X 1)..... | 4 |
| 5 | XDOZZ | | 0JDM6 | 03-106004 | WASHER, FLAT (#10)..... | 8 |
| 6 | XDOZZ | | 0JDM6 | 03-107000 | WASHER, LOCK (#10)..... | 4 |
| 7 | XDOZZ | | 0JMD6 | 03-105F00 | NUT (10-32)..... | 4 |
| 8 | XDOZZ | | 0JDM6 | 03-256000 | WASHER, FLAT (1/4)..... | 2 |
| 9 | XDOZZ | | 0JDM6 | 21-200030 | KNOB..... | 2 |
| 10 | XDOZZ | | 0JDM6 | 21-200001 | MICROPHONE..... | 1 |
| 11 | XDOZZ | | 0JDM6 | 21-200005 | ELECTRICAL CABLE..... | 1 |
| 12 | XDOZZ | | 0JDM6 | 20-200004 | TERMINAL LUG..... | 2 |
| 13 | XDOZZ | | 0JDM6 | 21-200004 | ELECTRICAL CABLE..... | 1 |
| END OF FIGURE | | | | | | |

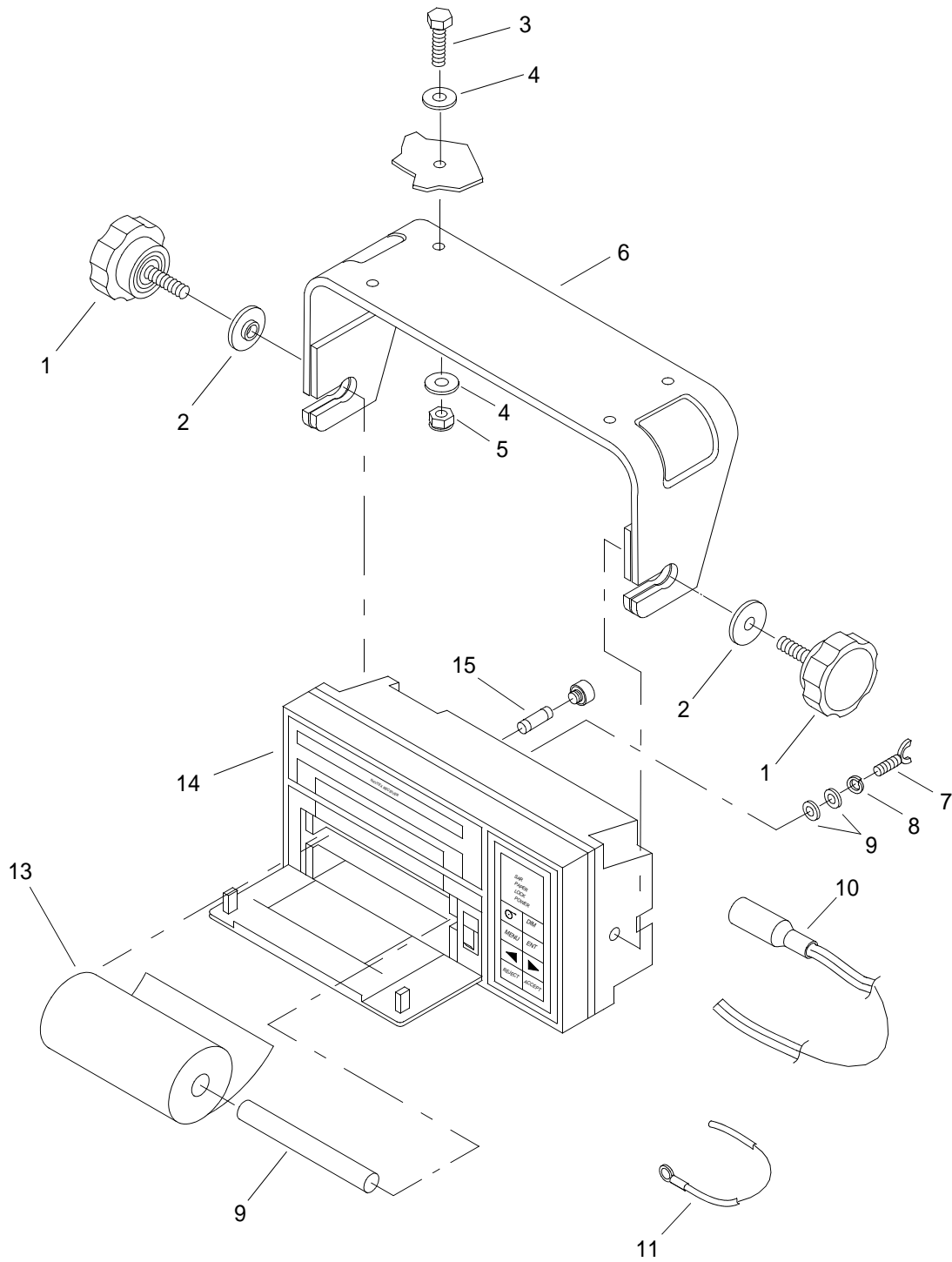


Figure 5. NAVTEX Receiver

2C159-6

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 05 | | | | | | |
| FIG. 5 NAVTEX RECEIVER | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 21-200027 | KNOB..... | 2 |
| 2 | XDOZZ | | 0JDM6 | 21-200028 | WASHER..... | 2 |
| 3 | XDOZZ | | 0JDM6 | 03-251C10 | BOLT (1/4-20 X 1)..... | 4 |
| 4 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4)..... | 8 |
| 5 | XDOZZ | | 0JDM6 | 03-254C00 | NUT. LOCK (1/4-20)..... | 4 |
| 6 | XDOZZ | | 0JDM6 | 21-200026 | MOUNT..... | 1 |
| 7 | XDOZZ | | 0JDM6 | 21-200040 | NUT, WING, STUD..... | 1 |
| 8 | XDOZZ | | 0JDM6 | 03-107000 | WASHER, LOCK (#10)..... | 1 |
| 9 | XDOZZ | | 0JMD6 | 03-106004 | WASHER, FLAT (#10)..... | 2 |
| 10 | XDOZZ | | 0JMD6 | 21-200036 | ELECTRICAL WIRE..... | 1 |
| 11 | XDOZZ | | 0JMD6 | 21-200037 | ELECTRICAL WIRE..... | 1 |
| 12 | XDOZZ | | 0JMD6 | 21-200035 | PAPER SHAFT..... | 1 |
| 13 | XDOZZ | | 0JMD6 | 21-200023 | THERMAL PAPER..... | 1 |
| 14 | XDODD | | 0JMD6 | 50-200054 | NAVTEX RECEIVER..... | 1 |
| 15 | XDOZZ | | 0JMD6 | 20-200026 | FUSE (5 X 20MM 3A)..... | 1 |
| END OF FIGURE | | | | | | |

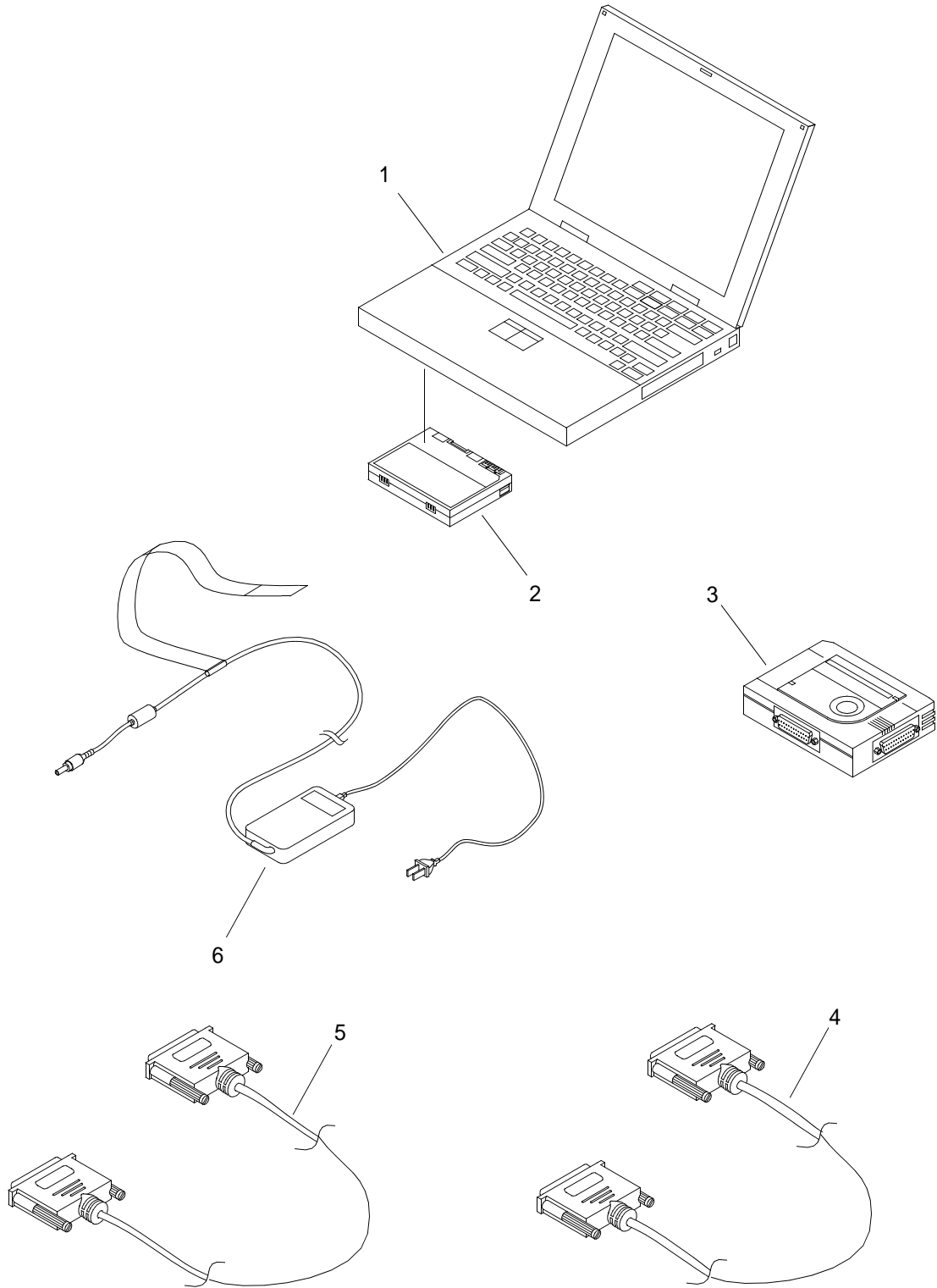


Figure 6. Data Terminal

2C159-9

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 06 | | | | | | |
| FIG. 6 DATA TERMINAL | | | | | | |
| 1 | XDODD | | 0JDM6 | 50-200050 | DATA TERMINAL | 1 |
| 2 | XDOZZ | | 0JDM6 | 21-200038 | BATTERY | 1 |
| 3 | XDOZZ | | 0JDM6 | 20-200027 | PRINTER AUTO SWITCH | 1 |
| 4 | XDOZZ | | 0JMD6 | 20-200034 | PRINTER CABLE | 1 |
| 5 | XDOZZ | | 0JMD6 | 20-200033 | PRINTER CABLE | 1 |
| 6 | XDOZZ | | 0JMD6 | 21-200034 | AC ADAPTER | 1 |
| END OF FIGURE | | | | | | |

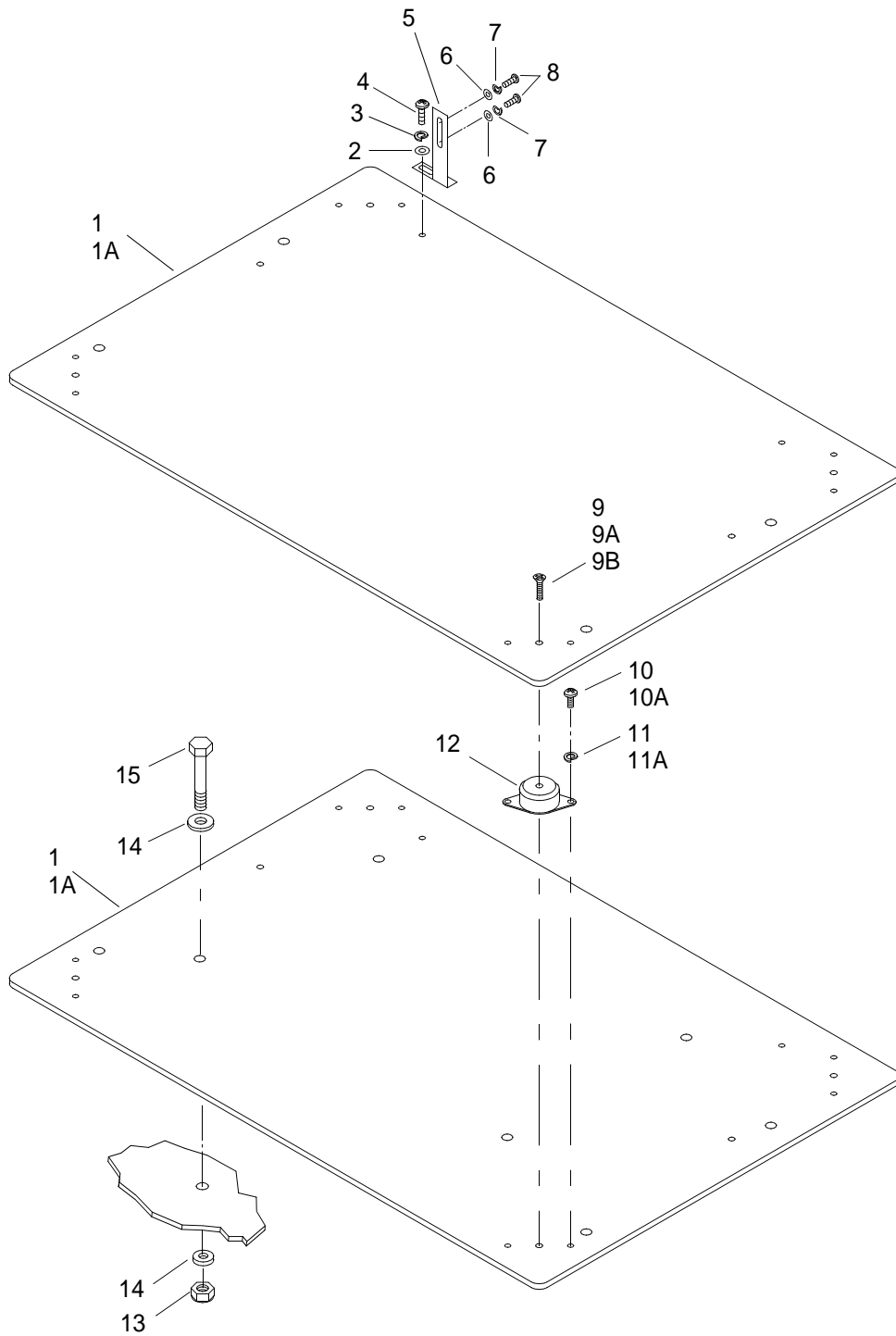


Figure 7. Data Terminal Mount

2C159-10

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 06 | | | | | | |
| FIG. 7 DATA TERMINAL MOUNT | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200038 REV A | PLATE..... | 2 |
| 1A | XDOZZ | | 0JDM6 | 50-200038 | PLATE..... | N/A |
| 2 | XDOZZ | | 0JDM6 | 03-086000 | WASHER, FLAT (8-32X 1/2)..... | 2 |
| 3 | XDOZZ | | 0JDM6 | 03-087000 | WASHER, LOCK (#8)..... | 2 |
| 4 | XDOZZ | | 0JDM6 | 03-082C05 | SCREW (8-32 X 1/2)..... | 2 |
| 5 | XDOZZ | | 0JDM6 | 50-200069 | BRACKET SET..... | 1 |
| 6 | XDOZZ | | 0JDM6 | 03-036000 | WASHER, FLAT (#3)..... | 4 |
| 7 | XDOZZ | | 0JDM6 | 03-034000 | WASHER, LOCK (#3)..... | 4 |
| 8 | XDOZZ | | 0JDM6 | 06-200001 | SCREW (3/56 X 1/2)..... | 4 |
| 9 | XDOZZ | | 0JDM6 | 03-063C03 | SCREW (6-32 X 3/8)..... | 4 |
| 9A | XDOZZ | | 0JDM6 | 03-061C03 | BOLT (6-32 X 3/8)..... | 4 |
| 9B | XDOZZ | | 0JDM6 | 03-066000 | WASHER, FLAT (#6)..... | 4 |
| 10 | XDOZZ | | 0JDM6 | 03-062C02 | SCREW (6-32 X 1/4)..... | 8 |
| 10A | XDOZZ | | 0JDM6 | 03-082C02 | SCREW (8-32 X 1/4)..... | 8 |
| 11 | XDOZZ | | 0JDM6 | 03-067000 | WASHER, LOCK (#6)..... | 8 |
| 11A | XDOZZ | | 0JDM6 | 03-087000 | WASHER, LOCK (#8)..... | 8 |
| 12 | XDOZZ | | 0JDM6 | 07-200009 | SHOCK MOUNT..... | 4 |
| 13 | XDOZZ | | 0JDM6 | 03-254C00 | NUT, LOCK (1/4-20)..... | 4 |
| 14 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4 X 5/8)..... | 4 |
| 15 | XDOZZ | | 0JDM6 | 03-251C25 | BOLT (1/4-20 X 2 1/2)..... | 4 |
| END OF FIGURE | | | | | | |

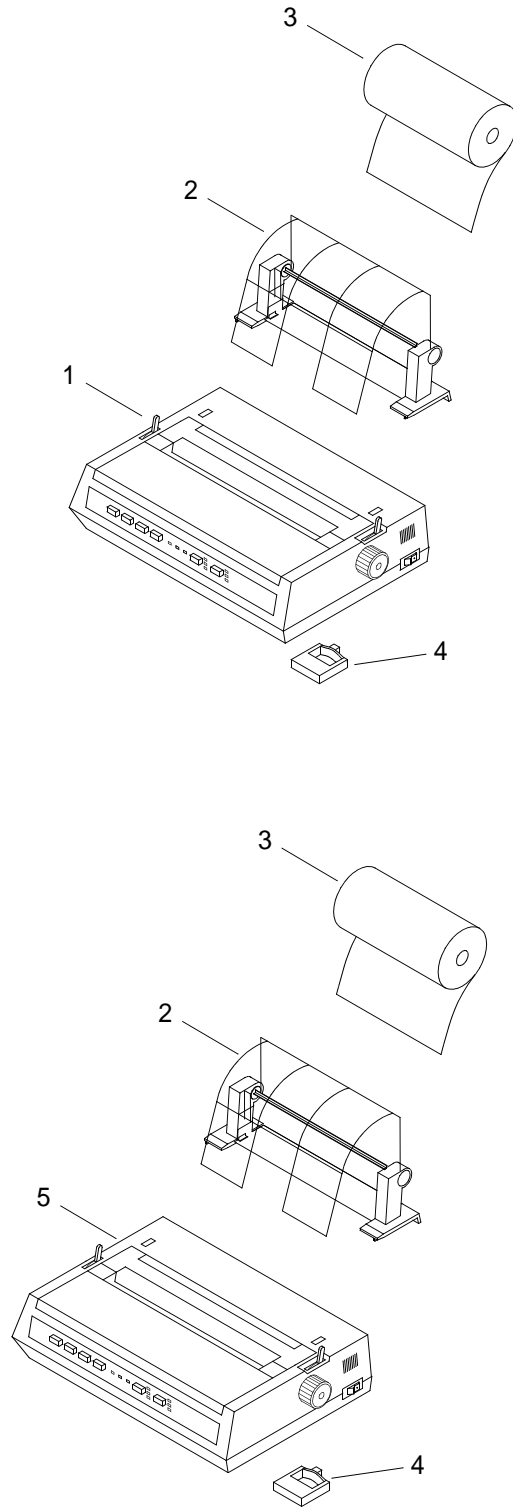


Figure 8. Printers

2C159-7

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 07 | | | | | | |
| FIG. 8 PRINTERS | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200056 | SERIAL PRINTER..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 21-200025 | PAPER ROLL HOLDER..... | 1 |
| 3 | XDOZZ | | 0JDM6 | 21-200024 | PAPER ROLL..... | 1 |
| 4 | XDOZZ | | 0JDM6 | 21-200033 | PRINTER CARTRIDGE..... | 1 |
| 5 | XDOZZ | | 0JDM6 | 50-200055 | INMARSAT-C PRINTER..... | 1 |
| END OF FIGURE | | | | | | |

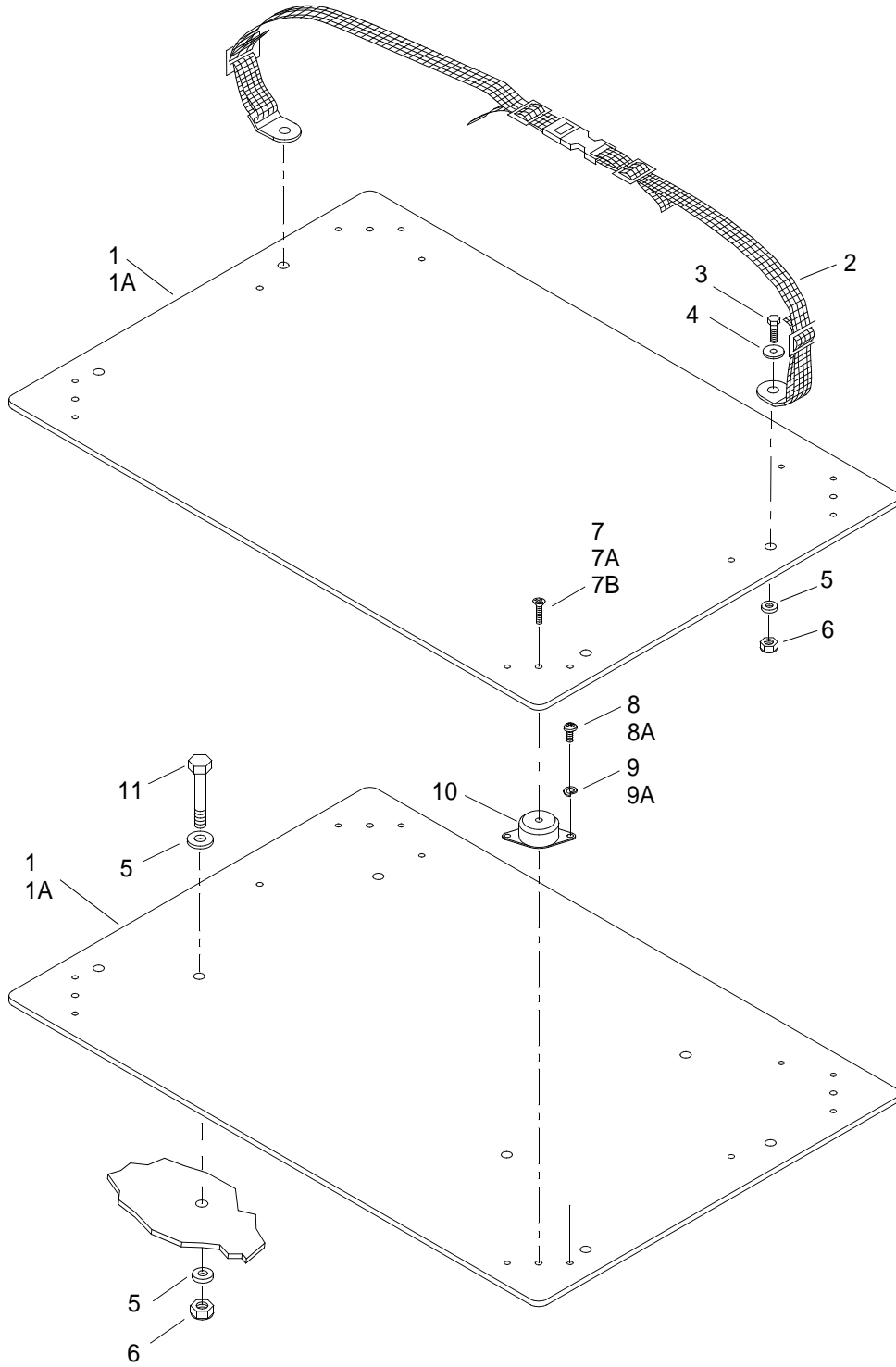


Figure 9. Printer Mount

2C159-8

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 07 | | | | | | |
| FIG. 9 PRINTER MOUNT | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200038 REV A | PLATE..... | 2 |
| 1A | XDOZZ | | 0JDM6 | 50-200038 | PLATE..... | N/A |
| 2 | XDOZZ | | 0JDM6 | 07-200010 | STRAP ASSEMBLY..... | 1 |
| 3 | XDOZZ | | 0JDM6 | 03-251C07 | BOLT (1/4-20 X 3/4)..... | 2 |
| 4 | XDOZZ | | 0JDM6 | 03-256012 | WASHER, FLAT (1/4 ID X 1 1/4 OD)..... | 2 |
| 5 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4 ID X 5/8 OD)..... | 6 |
| 6 | XDOZZ | | 0JDM6 | 03-254C00 | NUT, LOCK (1/4-20)..... | 6 |
| 7 | XDOZZ | | 0JDM6 | 03-063C03 | SCREW (6-32 X 3/8)..... | 4 |
| 7A | XDOZZ | | 0JDM6 | 03-061C03 | BOLT (6-32 X 3/8)..... | 4 |
| 7B | XDOZZ | | 0JDM6 | 03-066000 | WASHER, FLAT (#6)..... | 4 |
| 8 | XDOZZ | | 0JDM6 | 03-062C02 | SCREW (6-32 X 1/4)..... | 8 |
| 8A | XDOZZ | | 0JDM6 | 03-082C02 | SCREW (8-32 X 1/4)..... | 8 |
| 9 | XDOZZ | | 0JDM6 | 03-067000 | WASHER, LOCK (#6)..... | 8 |
| 9A | XDOZZ | | 0JDM6 | 03-087000 | WASHER, LOCK (#8)..... | 8 |
| 10 | XDOZZ | | 0JDM6 | 07-200009 | SHOCK MOUNT..... | 4 |
| 11 | XDOZZ | | 0JDM6 | 03-251C25 | BOLT (1/4-20 X 2 1/2)..... | 4 |
| END OF FIGURE | | | | | | |

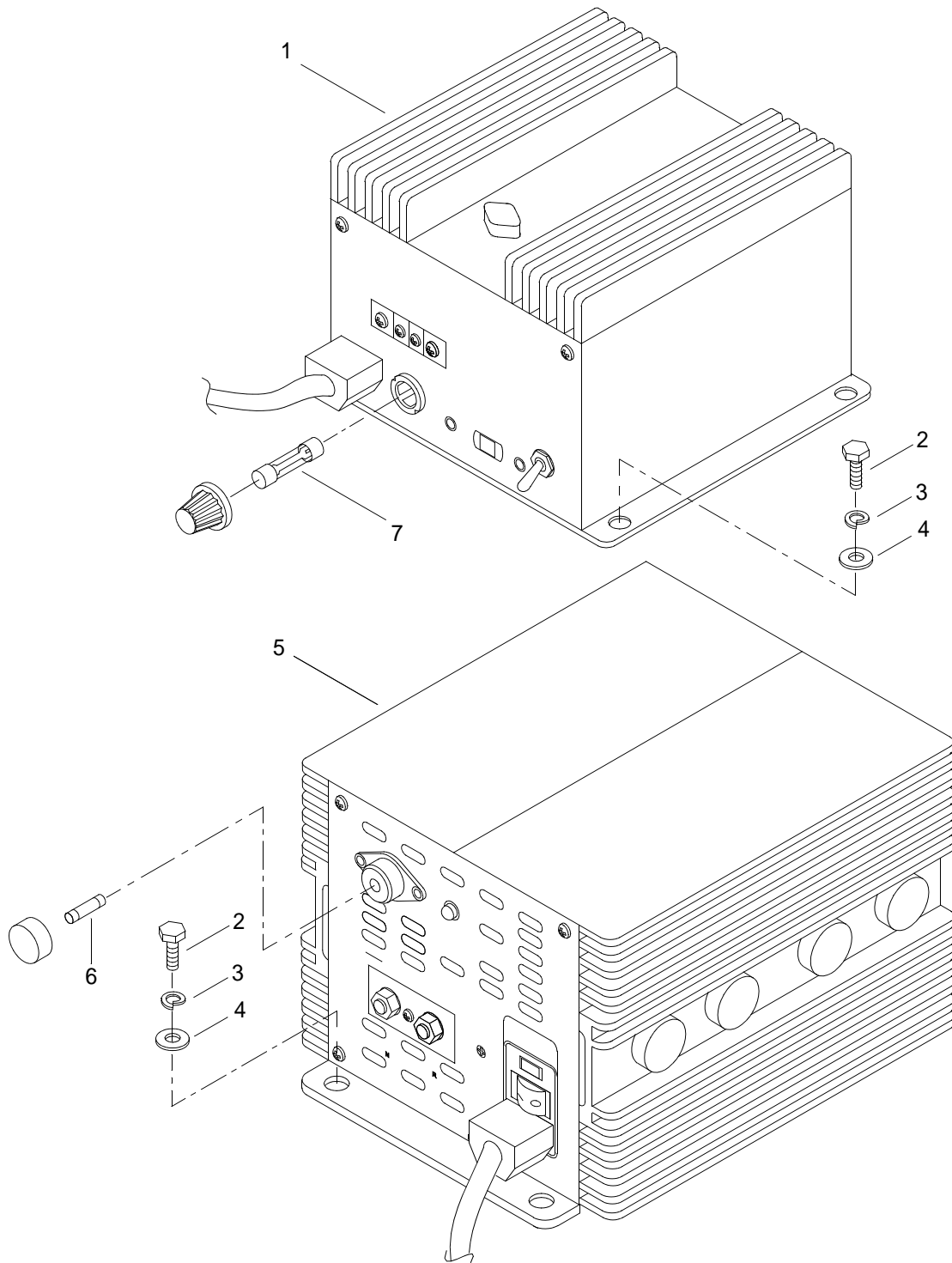


Figure 10. Power Supplies

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 08 | | | | | | |
| FIG. 10 POWER SUPPLIES | | | | | | |
| 1 | XDODD | | 0JDM6 | 50-200062 | NAVIGATION POWER SUPPLY..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 03-251C07 | BOLT (1/4-20 X 3/4)..... | 4 |
| 3 | XDOZZ | | 0JDM6 | 03-257000 | WASHER, LOCK (1/4)..... | 4 |
| 4 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4)..... | 4 |
| 5 | XDODD | | 0JDM6 | 50-200061 | GMDSS POWER SUPPLY..... | 1 |
| 6 | XDOZZ | | 0JDM6 | 20-200008 | FUSE (AGC-35A)..... | 1 |
| 7 | XDOZZ | | 0JDM6 | 20-200035 | FUSE (AGC-2A)..... | 1 |
| END OF FIGURE | | | | | | |

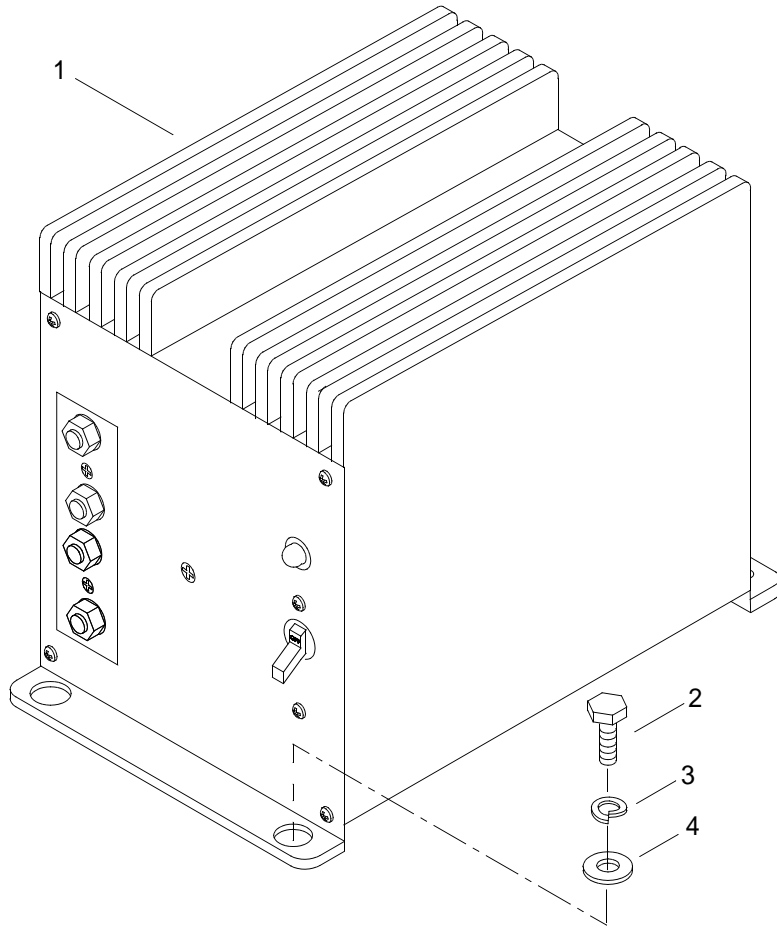


Figure 11. Power Converter

2C159-13

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 09 | | | | | | |
| FIG. 11 POWER CONVERTER | | | | | | |
| 1 | XDODD | | 0JDM6 | 50-200063 | POWER CONVERTER..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 03-251C07 | BOLT (1/4-20 X 3/4)..... | 4 |
| 3 | XDOZZ | | 0JDM6 | 03-257000 | WASHER, LOCK (1/4)..... | 4 |
| 4 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4)..... | 4 |
| END OF FIGURE | | | | | | |

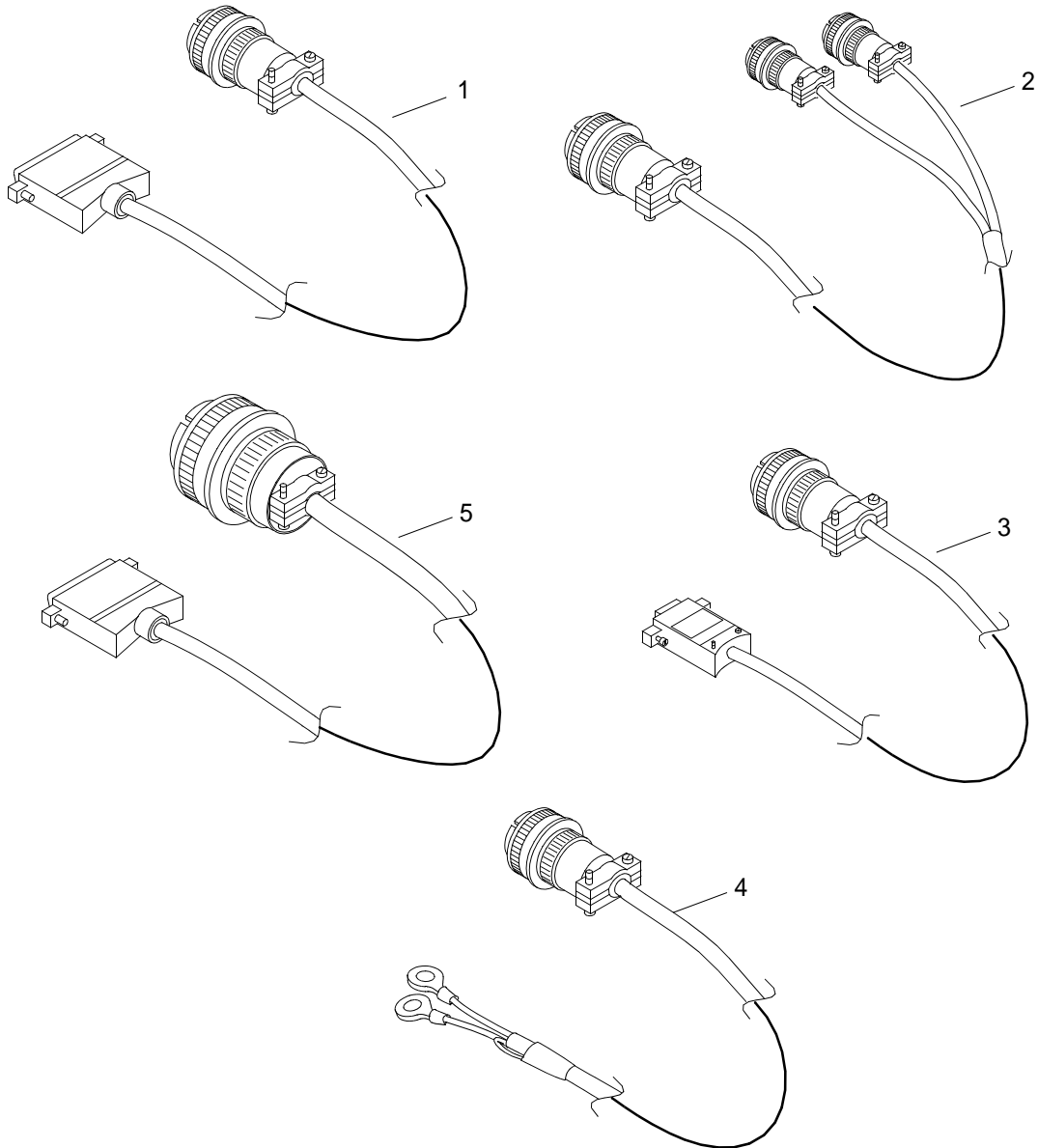


Figure 12. External Electrical Cables

2C159-16

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 10 | | | | | | |
| FIG. 12 EXTERNAL ELECTRICAL CABLES | | | | | | |
| 1 | XDOFF | | 0JDM6 | 50-200064 | ELECTRICAL CABLE (J2)..... | 1 |
| 2 | XDOFF | | 0JDM6 | 50-200065 | ELECTRICAL CABLE (J3)..... | 1 |
| 3 | XDOFF | | 0JDM6 | 50-200066 | ELECTRICAL CABLE (J4)..... | 1 |
| 4 | XDOFF | | 0JDM6 | 50-200067 | ELECTRICAL CABLE (J5)..... | 1 |
| 5 | XDOFF | | 0JDM6 | 50-200068 | ELECTRICAL CABLE (J6)..... | 1 |
| END OF FIGURE | | | | | | |

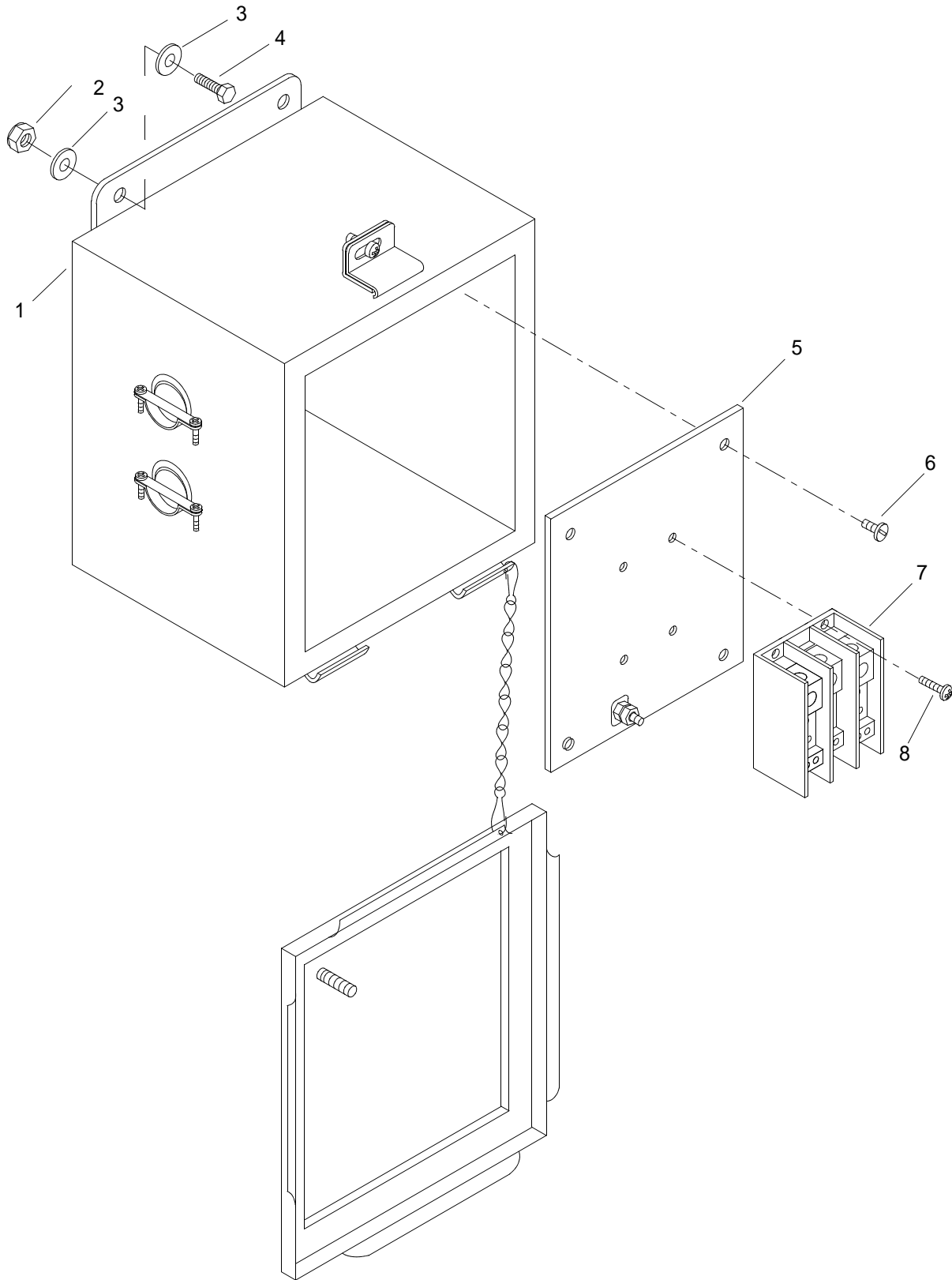


Figure 13. Power Junction Box

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 11 | | | | | | |
| FIG. 13 POWER JUNCTION BOX | | | | | | |
| 1 | XDOOO | | 0JDM6 | 20-200028 | JUNCTION BOX..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 03-254C00 | NUT, LOCK (1/4-20)..... | 4 |
| 3 | XDOZZ | | 0JDM6 | 03-256006 | WASHER, FLAT (1/4)..... | 8 |
| 4 | XDOZZ | | 0JDM6 | 03-251C10 | BOLT (1/4-20 X 1)..... | 4 |
| 5 | XDOZZ | | 0JDM6 | 20-200029 | TERMINAL PLATE..... | 1 |
| 6 | XDOZZ | | 0JDM6 | 06-102TF03 | SCREW (10-32 X 3/8)..... | 4 |
| 7 | XDOZZ | | 0JDM6 | 20-200030 | TERMINAL BLOCK..... | 1 |
| 8 | XDOZZ | | 0JDM6 | 03-102F07 | SCREW (10-32 X 3/4)..... | 4 |
| END OF FIGURE | | | | | | |

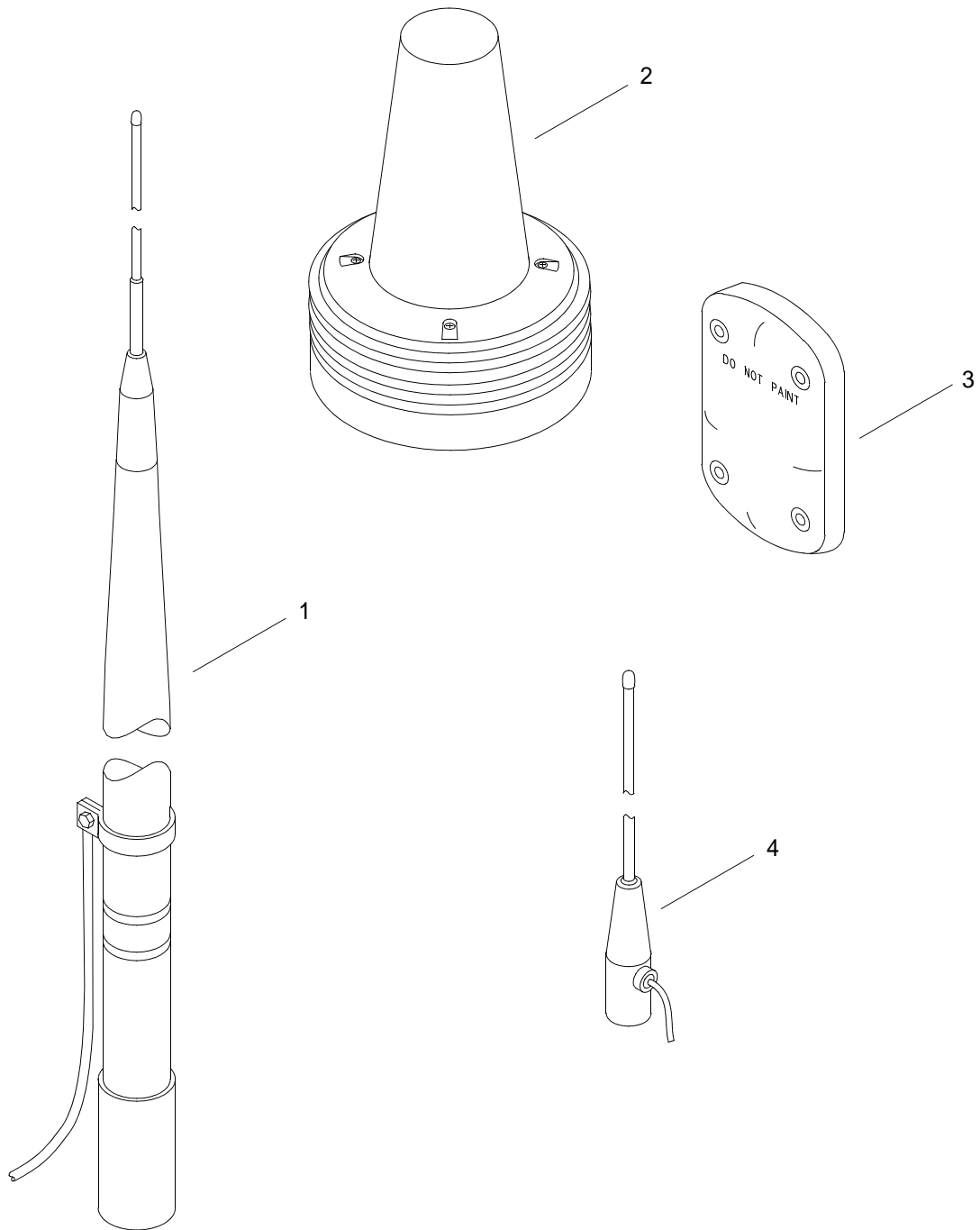


Figure 14. Antennas

2C159-15

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 12 | | | | | | |
| FIG. 14 ANTENNAS | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200057 | ANTENNA..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 50-200058 | ANTENNA..... | 1 |
| 3 | XDOZZ | | 0JDM6 | 50-200021 | ANTENNA..... | 1 |
| 4 | XDOZZ | | 0JDM6 | 50-200024 | ANTENNA..... | 1 |
| END OF FIGURE | | | | | | |

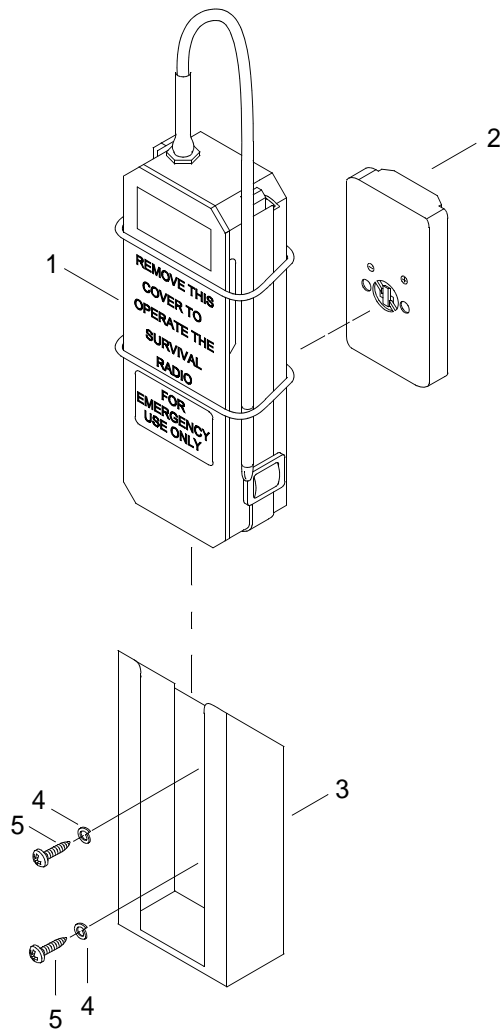


Figure 15. Survival Radio

2C159-11

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 13 | | | | | | |
| FIG. 15 SURVIVAL RADIO | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200059 | SURVIVAL RADIO..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 21-200032 | BATTERY..... | 1 |
| 3 | XDOZZ | | 0JDM6 | 50-200060 | HOLDER..... | 1 |
| 4 | XDOZZ | | 0JDM6 | 03-107000 | WASHER, LOCK (#10)..... | 2 |
| 5 | XDOZZ | | 0JDM6 | 03-102S10 | SCREW (#10 X 1)..... | 2 |
| END OF FIGURE | | | | | | |

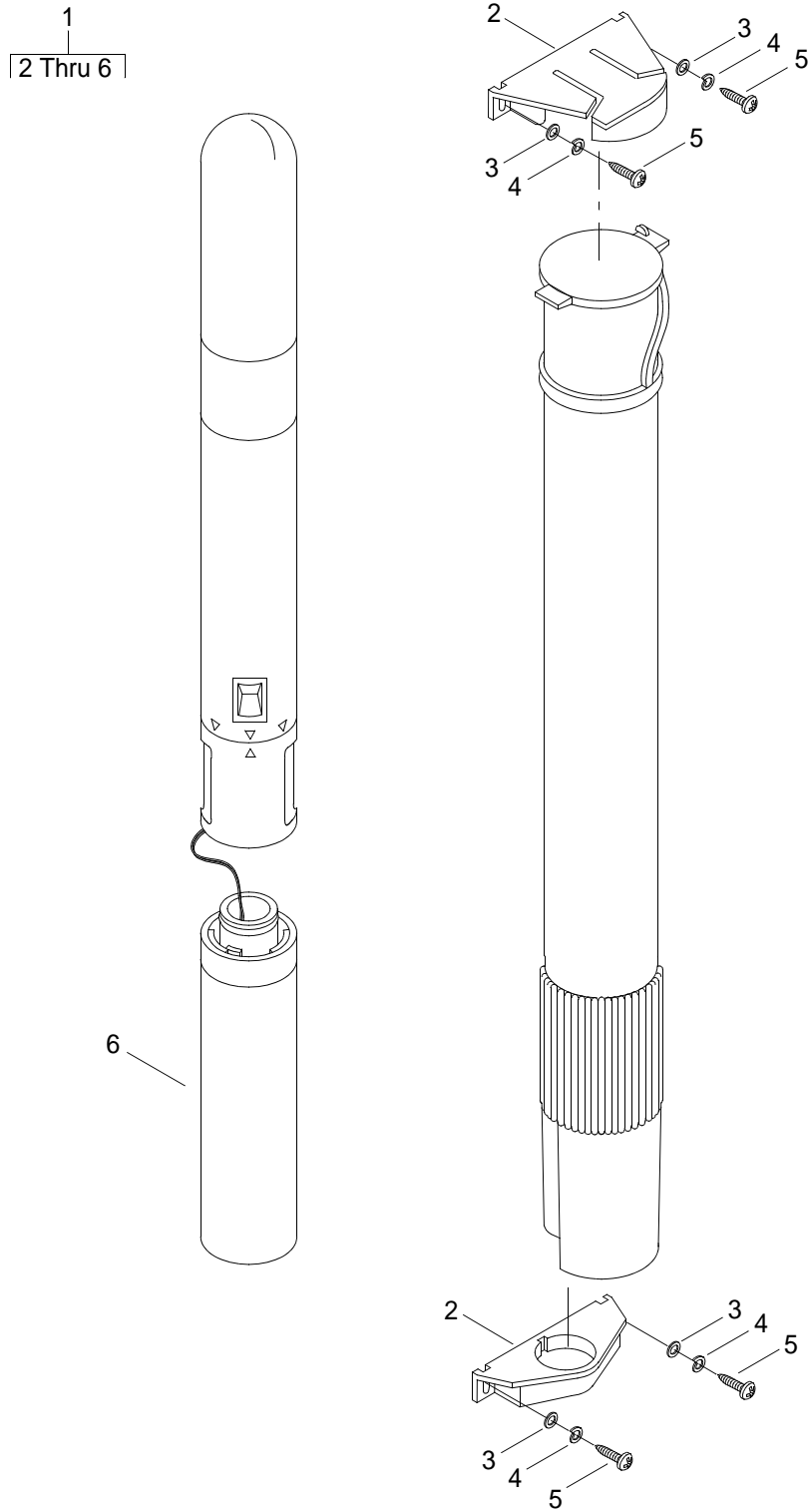


Figure 16. SART

2C159-17

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|----------------------|--------------------|------------|--------------|-----------------------|------------------------------------------------|------------|
| GROUP 13 | | | | | | |
| FIG. 16 SART | | | | | | |
| 1 | XDOZZ | | 0JDM6 | 50-200070 | SART ASSEMBLY..... | 1 |
| 2 | XDOZZ | | 0JDM6 | 21-200039 | SART BRACKET SET..... | 1 |
| 3 | XDOZZ | | 0JDM6 | 03-106004 | WASHER, FLAT (#10)..... | 4 |
| 4 | XDOZZ | | 0JDM6 | 03-107000 | WASHER, LOCK (#10)..... | 4 |
| 5 | XDOZZ | | 0JDM6 | 03-102S10 | SCREW (#10 X 1)..... | 4 |
| 6 | XDOZZ | | 0JDM6 | 21-200029 | SART BATTERY..... | 1 |
| END OF FIGURE | | | | | | |

OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
NATIONAL STOCK NUMBER INDEX

| STOCK NUMBER | FIG. | ITEM |
|---------------------|-------------|-------------|
| 5825-01-395-3513 | 3 | 2 |
| 5975-01-375-1302 | 3 | 6 |
| 6135-01-301-8776 | 3 | 3 |
| 6135-99-760-9742 | 3 | 1 |
| 6150-01-375-8663 | 3 | 5 |
| 6150-01-375-8664 | 3 | 4 |

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
PART NUMBER INDEX**

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|--------------------|-------------|-------------|--------------------|-------------|-------------|
| CAI 500 VHF-DSC | 4 | 1 | 03-252C06 | 1 | 7 |
| CAI-9701-6003H | 1 | 20 | | 3 | 8 |
| CAI-9701-7000 | 1 | 19 | 03-254C00 | 5 | 5 |
| CAI-9701-7001 | 1 | 1 | | 7 | 13 |
| VE461-5013-001 | 3 | 3 | | 9 | 6 |
| 03-M430M8 | 1 | 21 | | 13 | 2 |
| 03-034000 | 7 | 7 | 03-256000 | 4 | 8 |
| 03-036000 | 7 | 6 | 03-256006 | 2 | 5 |
| 03-061C03 | 7 | 9A | | 5 | 4 |
| | 9 | 7A | | 7 | 14 |
| 03-062C02 | 7 | 10 | | 9 | 5 |
| | 9 | 8 | | 10 | 4 |
| 03-062C05 | 1 | 5 | | 11 | 4 |
| 03-063C03 | 7 | 9 | | 13 | 3 |
| | 9 | 7 | 03-256012 | 9 | 4 |
| 03-063C05 | 1 | 8 | 03-257000 | 1 | 6 |
| 03-066000 | 7 | 9B | | 2 | 4 |
| | 9 | 7B | | 10 | 3 |
| 03-067000 | 1 | 4 | | 11 | 3 |
| | 7 | 11 | 03-381C12 | 1 | 16 |
| | 9 | 9 | 03-384C00 | 1 | 18 |
| 03-082C02 | 7 | 10A | 03-386008 | 1 | 17 |
| | 9 | 8A | 06-102TF03 | 13 | 6 |
| 03-082C05 | 3 | 18 | 06-200001 | 7 | 8 |
| | 7 | 4 | 07-200002 | 3 | 10 |
| 03-086000 | 3 | 16 | 07-200003 | 1 | 10 |
| | 7 | 2 | 07-200004 | 1 | 12 |
| 03-087000 | 3 | 17 | 07-200005 | 1 | 13 |
| | 7 | 3 | 07-200006 | 1 | 15 |
| | 7 | 11A | 07-200007 | 1 | 11 |
| | 9 | 9A | 07-200008 | 1 | 14 |
| 03-102F07 | 3 | 11 | 07-200009 | 7 | 12 |
| | 13 | 8 | | 9 | 10 |
| 03-102F10 | 4 | 4 | 07-200010 | 9 | 2 |
| 03-102S10 | 15 | 5 | 07-200015 | 3 | 9 |
| | 16 | 5 | 07-200016 | 3 | 7 |
| 03-103F07 | 1 | 2 | 20-200004 | 4 | 12 |
| 03-105F00 | 4 | 7 | 20-200008 | 10 | 6 |
| 03-106004 | 3 | 13 | 20-200024 | 1 | 9 |
| | 4 | 5 | 20-200025 | 1 | 22 |
| | 16 | 3 | 20-200026 | 5 | 12 |
| 03-107000 | 3 | 12 | 20-200027 | 6 | 3 |
| | 4 | 6 | 20-200028 | 13 | 1 |
| | 15 | 4 | 20-200029 | 13 | 5 |
| | 16 | 4 | 20-200030 | 13 | 7 |
| 03-251C06 | 2 | 3 | 20-200033 | 6 | 5 |
| 03-251C07 | 2 | 6 | 20-200034 | 6 | 4 |
| | 9 | 3 | 20-200035 | 10 | 7 |
| | 10 | 2 | 21-200001 | 4 | 10 |
| | 11 | 2 | 21-200003 | 4 | 3 |
| 03-251C10 | 5 | 3 | 21-200004 | 4 | 13 |
| | 13 | 4 | 21-200005 | 4 | 11 |
| 03-251C25 | 7 | 15 | 21-200023 | 5 | 10 |
| | 9 | 11 | 21-200024 | 8 | 3 |

| PART NUMBER | FIG. | ITEM |
|-----------------|------|------|
| 21-200025 | 8 | 2 |
| 21-200026 | 5 | 6 |
| 21-200027 | 5 | 1 |
| 21-200028 | 5 | 2 |
| 21-200029 | 16 | 6 |
| 21-200030 | 4 | 9 |
| 21-200031 | 4 | 2 |
| 21-200032 | 15 | 2 |
| 21-200033 | 8 | 4 |
| 21-200034 | 6 | 6 |
| 21-200035 | 5 | 9 |
| 21-200036 | 5 | 7 |
| 21-200037 | 5 | 8 |
| 21-200038 | 6 | 2 |
| 21-200039 | 16 | 2 |
| 50-200005-1 | 1 | 3 |
| 50-200005-2 | 1 | 23 |
| 50-200021 | 14 | 3 |
| 50-200022 REV A | 3 | 15 |
| 50-200023 REV A | 3 | 14 |
| 50-200024 | 14 | 4 |
| 50-200025 | 2 | 7 |
| 50-200026 | 2 | 2 |
| 50-200027 | 2 | 9 |
| 50-200028 | 2 | 8 |
| 50-200038 | 7 | 1A |
| | 9 | 1A |
| 50-200038 REV A | 7 | 1 |
| | 9 | 1 |
| 50-200050 | 6 | 1 |
| 50-200054 | 5 | 11 |
| 50-200055 | 8 | 5 |
| 50-200056 | 8 | 1 |
| 50-200057 | 14 | 1 |
| 50-200058 | 14 | 2 |
| 50-200059 | 15 | 1 |
| 50-200060 | 15 | 3 |
| 50-200061 | 10 | 5 |
| 50-200062 | 10 | 1 |
| 50-200063 | 11 | 1 |
| 50-200064 | 12 | 1 |
| 50-200065 | 12 | 2 |
| 50-200066 | 12 | 3 |
| 50-200067 | 12 | 4 |
| 50-200068 | 12 | 5 |
| 50-200069 | 7 | 5 |
| 50-200070 | 16 | 1 |
| 822-0077-103 | 3 | 2 |
| 0442-0027 | 3 | 1 |
| 9728556-10 | 3 | 4 |
| 9728556-30 | 3 | 5 |
| 9801 | 2 | 1 |
| 12967998 | 3 | 6 |

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
COMPONENTS OF END ITEM (COEI) LIST**

This work package lists COEI for the LCU 2000 Global Maritime Distress and Safety System (GMDSS) to help you inventory items for safe and efficient operation of the equipment.

GENERAL

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the LCU 2000 Global Maritime Distress and Safety System (GMDSS). As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary.

EXPLANATION OF COLUMNS IN THE COEI LIST

Column (1): Illus. Number; gives you the number of the item.

Column (2): National Stock Number; identifies the stock number of the item to be used for requisitioning purposes.

Column (3): Description, CAGEC and Part Number; identifies the Federal item name followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) in parentheses and the part number.

Column (4): Usable on Code (UOC); gives you a code if the item you need is not the same for different models of equipment.

Column (5): Unit of Measure; indicates how the item is issued for the National Stock Number shown in column (2).

Column (6): Quantity Required; indicates the quantity required.

Table 1. Component of End Item. (COEI)

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER | (3) DESCRIPTION, CAGEC AND PART NUMBER | (4) USABLE ON CODE | (5) U/M | (6) QTY RQD |
|-----------------------|---------------------------------|-----------------------------------------------------|--------------------------|------------|-------------------|
| 1 | | 9701 Console Assy Mount Bracket, (0JDM6), 50-200007 | | EA | 1 |
| 2 | | 9701 Console Assy, (0JMD6), 9701 consisting of: | | EA | 1 |
| 3 | | AC Adapter, (0JMD6), 21-200034 | | EA | 1 |
| 4 | | Antenna, (0JMD6), 50-200021 | | EA | 2 |
| 5 | | Antenna, (0JMD6), 50-200024 | | EA | 1 |
| 6 | | Antenna, (0JMD6), 50-200057 | | EA | 2 |
| 7 | | Antenna, (0JMD6), 50-200058 | | EA | 1 |
| 8 | | Auto Switch (Printer), (0JMD6), 20-200027 | | EA | 1 |

Table 1. Component of End Item. (COEI) (Continued)

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER | (3) DESCRIPTION, CAGEC AND PART NUMBER | (4) USABLE ON CODE | (5) U/M | (6) QTY RQD |
|-----------------------|---------------------------------|-------------------------------------------------------------------------------|--------------------------|------------|-------------------|
| 9 | | Data Terminal (Thinkpad), (0JMD6), 50-200050 | | EA | 1 |
| 10 | | Data Terminal/Autoswitch Cable, (0JMD6), 20-200034 | | EA | 1 |
| 11 | | DC Converter, (0JMD6), 50-200063 | | EA | 1 |
| 12 | | Digital Selective Calling (DSC) Controller, (0JDM6), CAI-9701-7000 | | EA | 1 |
| 13 | | Digital Selective Calling (DSC) Watch Receiver (0JDM6), CAI-9701-7001 | | EA | 1 |
| 14 | | Electrical Cable (J2), (0JMD6), 50-200064 | | EA | 1 |
| 15 | | Electrical Cable (J3), (0JMD6), 50-200065 | | EA | 1 |
| 16 | | Electrical Cable (J4), (0JMD6), 50-200066 | | EA | 1 |
| 17 | | Electrical Cable (J5), (0JMD6), 50-200067 | | EA | 1 |
| 18 | | Electrical Cable (J6), (0JMD6), 50-200068 | | EA | 1 |
| 19 | | Faceplate (large), (0JDM6), 50-200005-1 | | EA | 2 |
| 20 | | Faceplate, (small), (0JDM6), 50-200005-2 | | EA | 1 |
| 21 | | GMDSS Junction Box, (0JMD6), 20-200028 | | EA | 1 |
| 22 | | GMDSS Power Supply, (0JMD6), 50-200061 | | EA | 1 |
| 23 | | INMARSAT-C Parallel Printer, (0JMD6), 50-200055 | | EA | 1 |
| 24 | | INMARSAT-C Transceiver, (0JDM6), CAI- 9701-6003H | | EA | 1 |
| 25 | | Interface and Switchbox Electrical Cable Assy, (0JMD6), 50-200025 | | EA | 2 |
| 26 | | Interface and Switchbox Electrical Cable Assy, (0JMD6), 50-200028 | | EA | 2 |
| 27 | | Interface and Switchbox Electrical Cable Assy, PLGR PWR (0JMD6), 50-200027 | | EA | 2 |

Table 1. Component of End Item. (COEI) (Continued)

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER | (3) DESCRIPTION, CAGEC AND PART NUMBER | (4) USABLE ON CODE | (5) U/M | (6) QTY RQD |
|-----------------------|---------------------------------|------------------------------------------------------------------------------------------------------|--------------------------|------------|-------------------|
| 28 | | Interface and Switchbox Mount Bracket, (OJMD6), 50-200026 | | EA | 2 |
| 29 | | Interface and Switchbox, (OJMD6), 9801 | | EA | 2 |
| 30 | | Lifeboat Radio Mount, (OJMD6), 50-200060 | | EA | 3 |
| 31 | | Lifeboat Radio, (OJMD6), 50-200059 | | EA | 3 |
| 32 | | Navigation Power Supply, (OJMD6), 50-200062 | | EA | 1 |
| 33 | | NAVTEX Receiver Mount Bracket, (OJMD6), 21-200026 | | EA | 1 |
| 34 | | NAVTEX Receiver Power Wire, (OJMD6), 21-200036 | | EA | 1 |
| 35 | | NAVTEX Receiver, (OJMD6), 50-200054 | | EA | 1 |
| 36 | | Paper Stand (Printer), (OJMD6), 21-200025 | | EA | 2 |
| 37 | 5975-01-375-1302 | Precision Lightweight Global Positioning Receiver (PLGR) Mounting Base Electrical, (19200), 12967998 | | EA | 2 |
| 38 | | Precision Lightweight Global Positioning Receiver (PLGR) Pivot Base, (OJMD6), 50-200023 REV A | | EA | 2 |
| 39 | | Precision Lightweight Global Positioning Receiver (PLGR) Pivot, (OJMD6), 50-200022 REV A | | EA | 2 |
| 40 | 5825-01-395-3515 | Precision Lightweight Global Positioning Receiver (PLGR), AN/PSN-11(V)1, (13499), 822-0077-103 | | EA | 2 |
| 41 | | Printer/Autoswitch Cable, (OJMD6), 20-200033 | | EA | 1 |
| 42 | | Search and Rescue Transponder (SART), (OJMD6), 50-200070 | | EA | 1 |
| 43 | | Serial Printer, (OJMD6), 50-200056 | | EA | 1 |
| 44 | | Strap Assy (Printer), (OJMD6), 07-200010 | | EA | 2 |
| 45 | | Universal Plate Assy, (OJMD6), 50-200037 | | EA | 3 |

Table 1. Component of End Item. (COEI) (Continued)

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER | (3) DESCRIPTION, CAGEC AND PART NUMBER | (4) USABLE ON CODE | (5) U/M | (6) QTY RQD |
|-----------------------|---------------------------------|------------------------------------------------------------|--------------------------|------------|-------------------|
| 46 | | VHF/FM Transceiver Deck Mount, (0JMD6), 21-200003 | | EA | 1 |
| 47 | | VHF/FM Transceiver Electrical Cable, (0JMD6), 21-200004 | | EA | 1 |
| 48 | | VHF/FM Transceiver Electrical Cable, (0JMD6), 21-200005 | | EA | 1 |
| 49 | | VHF/FM Transceiver Microphone, (0JMD6), 21- 200001 | | EA | 1 |
| 50 | | VHF/FM Transceiver, (0JMD6), CAI-500-VHF-DSC | | EA | 1 |

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
ADDITIONAL AUTHORIZATION LIST (AAL)**

INTRODUCTION**Scope**

This work package lists additional items you are authorized for the support of the LCU 2000 Global Maritime Distress and Safety System (GMDSS).

General

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

Explanation of Columns in the AAL

Column (1) - National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) - Description, Commercial and Government Entity Code (CAGEC) and Part Number (P/N). Identifies the Federal item name, in all capital letters, followed by a minimum description when needed. The last line below the description is the CAGEC, in parentheses and the part number.

Column (3) - Usable On Code (UOC). When applicable, gives you a code if an item you need is not the same for different models of equipment.

Column (4) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) - Qty. Recm. Indicates the quantity recommended.

Table 1. Additional Authorization List.

| (1) NATIONAL STOCK NUMBER | (2) DESCRIPTION, CAGEC AND PART NUMBER | (3) USABLE ON CODE | (4) U/M | (5) QTY RECM |
|------------------------------------|-----------------------------------------------------|-----------------------------|------------|--------------------|
| 6150-01-375-8661 | AN/PSN-11 External Power Cable (13499) 426-0144-010 | | EA | 1 |
| 6150-01-375-8663 | AN/PSN-11 to AN/PSN-11 Cable (13499) 426-0141-020 | | EA | 1 |
| 6150-01-375-8664 | AN/PSN-11 to PC Cable (13499) 426-0141-010 | | EA | 1 |
| 6160-01-385-4358 | Battery Holder (13499) 221-0135-020 | | EA | 1 |
| 5975-01-375-1302 | Mount (13499) 986-0645-001 | | EA | 1 |
| 5895-01-375-4660 | Personnel Case (13499) 021-0706-010 | | EA | 1 |

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
TOOL IDENTIFICATION LIST**

TOOL IDENTIFICATION LIST

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the LCU 2000 Global Maritime Distress and Safety System (GMDSS).

EXPLANATION OF COLUMNS IN THE TOOL IDENTIFICATION LIST

Column (1): Item Number; this number is assigned to the entry in the list and is referenced in the initial setup to identify the item, e.g., “Extractor (Item 56,WP 0105 00)”.

Column (2): Item Name; This column lists the item by noun nomenclature and descriptive features, e.g. “Gage, belt tension”.

Column (3): National Stock Number; This is the National Stock Number assigned to the item used to request or requisition the item.

Column (4): Part Number/CAGEC; Indicates the primary number used by the manufacturer, individual company, firm, corporation or Government activity, which controls design and characteristics of the item by means of its engineering drawings, specifications, standards and inspection requirements to identify an item or range of items. The manufacturers Commercial and Government Entity Code (CAGEC) is also included.

Column (5): Reference; This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.

Table 1. Tool Identification List. (TIL)

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER | (4) PART NUMBER/ CAGEC | (5) REFERENCE |
|--------------------|-------------------------------------------|------------------------------------|---------------------------------|------------------|
| 1 | Brush, Dusting | 7920-00-240-6358 | (50980) | |
| 2 | Drill Set, Twist | 5133-00-449-6775 | 894.1/M (05047) | |
| 3 | Drill, Electric | 5130-00-889-9004 | (80244) | |
| 4 | General Mechanic Rail and Marine Tool Kit | 5180-00-629-9783 | | SC 5180-90-N55 |
| 5 | Grinder Attachment, Drill | 3460-00-529-2105 | DDGA-2915 (67338) | |
| 6 | Knife | 5110-00-595-8402 | GGG-K-481 (81348) | |
| 7 | Puller, Fuse | 5120-00-224-9456 | W-P-796 (81348) | |
| 8 | Punch and Die Set | 5110-00-293-1176 | 135010053 (65434) | |

Table 1. Tool Identification List. (TIL) (Continued)

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER | (4) PART NUMBER/ CAGEC | (5) REFERENCE |
|-----------------------------|--------------------------|----------------------------------------------|-------------------------------------------|--------------------------|
| 9 | Tap, Thread Cutting | 5136-00-729-5693 | B94.9 1/4-20 UNC HS G H3 (80204) | |
| 10 | Wrench, Tap and Reamer | 5120-00-357-9168 | (80204) | |

**OPERATOR MAINTENANCE
LCU 2000 GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM
EXPENDABLE AND DURABLE ITEMS LIST**

GENERAL

This work package lists expendable and durable items to help you operate and maintain the LCU 2000 GMDSS.

EXPLANATION OF COLUMNS IN THE EXPENDABLE AND DURABLE ITEMS LIST

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., “Anti-sieze Compound, (81348) TT-S-1732, P/N M22361”. (Item 1, WP 0167 00)

Column (2): Level; This column identifies the lowest level of maintenance that requires the listed item. The symbol designations are as follows:

C = Operator or crew

O = Unit Level Maintenance

F = Direct Support Maintenance

H = General Support Maintenance

Column (3): National Stock Number; This is the National Stock Number assigned to the item used to request or requisition the item.

Column (4): Item Name, Description, CAGE Code, and Part Number; identifies the Federal item name followed by a minimum description. The last line for each item indicates the CAGEC (Commercial and Government Entity Code), in parentheses, and the part number.

Column (5): Unit of Measure; 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.

Table 2: Expendable and Durable Items List. (EXPLIST)

| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION, CAGEC AND PART NUMBER | (5) U/M |
|-----------------------|--------------|---------------------------------|----------------------------------------------------|------------|
| 1 | O | 8030-00-209-8005 | Anti-sieze Compound, (81348) TT-S-1732, P/N M22361 | OZ |
| 2 | O | | Copper Strapping | FT |
| 3 | O | | Electrical Tape | RL |
| 4 | O | | Form-a-Gasket 2 | OZ |
| 5 | O | | Printer Paper, (0JDM6), 21-200024 | ROLL |
| 6 | O | | Rag | LB |

Table 2: Expendable and Durable Items List. (EXPLIST) (Continued)

| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION, CAGEC AND PART NUMBER | (5) U/M |
|-----------------------|--------------|---------------------------------|----------------------------------------------|------------|
| 7 | O | | Rubber Tape | RL |
| 8 | O | | Scotch-Kote | QT |
| 9 | O | | SEASAT Floppy Diskette | EA |
| 10 | O | | Stainless Steel Strapping | FT |
| 11 | O | | Thread Cutting Oil | PT |
| 12 | O | | Thermal Paper, NAVTEX, 21-200023 | ROLL |
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These are the instructions for sending an electronic 2028.

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

From: "Whoever" whoever@avma27.army.mil
To: whoever@avma27.army.mil
To: TACOM-TECH-PUBS@ria.army.mil

Subject:DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-1915-200-10
9. **Pub Title:** TM
10. **Publication Date:** 11-APR-88
11. **Change Number:** 12
12. **Submitter Rank:** MSG
13. **Submitter Fname:** Joe
14. **Submitter Mname:** T
15. **Submitter Lname:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 1
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**

This is the text for the problem below line 27.

| | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|------|------------|-------|-------------------------------------------------------------------------------------------------------------------|-----------|
| RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS <small>For use of this form, see AF 25-32; the proponent agency is DAASA.</small> | | | | | | Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM). | DATE |
| TO: <i>(Forward to proponent of publication or form) (Include ZIP Code)</i> | | | | | | FROM: <i>(Activity and location) (Include ZIP Code)</i> | |
| PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS | | | | | | | |
| PUBLICATION/FORM NUMBER | | | | | | DATE | TITLE |
| ITEM | PAGE | PARA-GRAPH | LINE | FIGURE NO. | TABLE | RECOMMENDED CHANGES AND REASON | |
| | | | | | | | |
| <small>* Reference to line numbers within the paragraph or subparagraph.</small> | | | | | | | |
| TYPED NAME, GRADE OR TITLE | | | | | | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |

| TO: <i>(Forward direct to addressee listed in publication)</i> | | | FROM: <i>(Activity and location) (Include ZIP Code)</i> | | | | DATE | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------------------------------------------------------|--------------------------------------------|------------|----------|------------------------------------|--------------------|
| PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS | | | | | | | | |
| PUBLICATION NUMBER | | | | DATE | | TITLE | | |
| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
| | | | | | | | | |
| PART III - REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i> | | | | | | | | |
| | | | | | | | | |
| TYPED NAME, GRADE OR TITLE | | | | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | | | SIGNATURE | |

By Order of the Secretary of the Army:

Official:



JOEL B. HUDSON

*Administrative Assistant to the
Secretary of the Army*

0213002

ERIC K. SHINSEKI
*General, United States Army
Chief of Staff*

To be distributed in accordance with the initial distribution number (IDN) 256746 requirements for
TM 11-5895-1847-12&P.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weight

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

| To change | To | Multiply by | To change | To | Multiply by |
|---------------|--------------------|-------------|--------------------|---------------|-------------|
| inches | centimeters | 2.540 | ounce-inches | newton-meters | .007062 |
| feet | meters | .305 | centimeters | inches | .394 |
| yards | meters | .914 | meters | feet | 3.280 |
| miles | kilometers | 1.609 | meters | yards | 1.094 |
| square inches | square centimeters | 6.451 | kilometers | miles | .621 |
| square feet | square meters | .093 | square centimeters | square inches | .155 |
| square yards | square meters | .836 | square meters | square feet | 10.764 |
| square miles | square kilometers | 2.590 | square meters | square yards | 1.196 |
| acres | square hectometers | .406 | square kilometers | square miles | .386 |
| cubic feet | cubic meters | .028 | square hectometers | acres | 2.471 |
| cubic yards | cubic meters | .766 | cubic meters | cubic feet | 35.315 |
| fluid ounces | milliliters | 29.573 | cubic meters | cubic yards | 1.308 |
| pints | liters | .473 | milliliters | fluid ounces | .034 |
| quarts | liters | .946 | liters | pints | 2.113 |
| gallons | liters | 3.785 | liters | quarts | 1.057 |
| ounces | grams | 28.349 | liters | gallons | .264 |
| pounds | kilograms | .454 | grams | ounces | .035 |
| short tons | metric tons | .907 | kilograms | pounds | 2.205 |
| pound-feet | newton-meters | 1.356 | metric tons | short tons | 1.102 |
| pound-inches | newton-meters | 11.296 | | | |

Temperature (Exact)

$^{\circ}\text{F}$ Fahrenheit temperature $\frac{5}{9}$ (after subtracting 32)

Celsius temperature $^{\circ}\text{C}$

